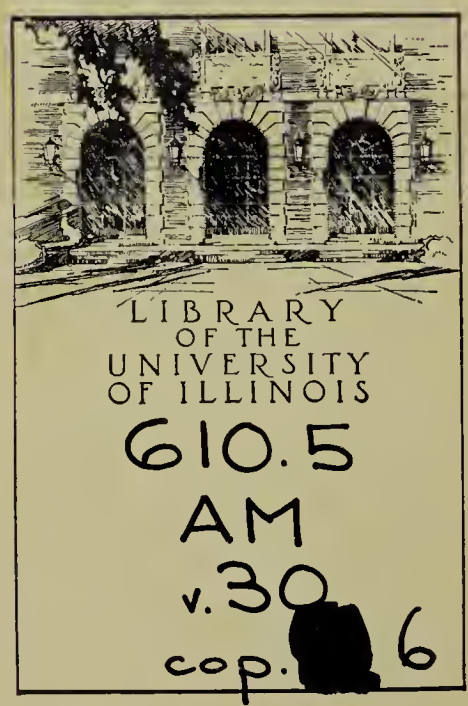


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ADDRESS.

GLAUCOMA FOLLOWING TRAUMATISM, UNASSOCIATED WITH DISLOCATION OF THE LENS.

Chairman's Address delivered in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY G. E. DE SCHWEINITZ, M.D.

PHILADELPHIA.

In the general rejoicing of the AMERICAN MEDICAL ASSOCIATION on its fiftieth anniversary the Ophthalmic Section heartily joins, and all the more heartily because by reason of its own clean record, steady development and fair achievements, it has become a model Section of this notable gathering of American physicians and surgeons. To have been chosen to preside over its deliberations is a satisfaction for which I return my sincere thanks; to become the successor of the men who have labored so hard and so productively for the advancement of this Section and for the credit of ophthalmology is an honor I highly appreciate; to welcome you, my *confrères*, perhaps I may be permitted to say, my friends, on this occasion and on all other occasions when you shall gladden us with your presence, is a pleasure I greatly enjoy.

The Chairman's address was at one time, by the organic law of the ASSOCIATION, supposed to reflect the progress of ophthalmology during the preceding year. Happily, this custom or law, as Dr. Jackson has well observed, has become obsolete, and if the Chairman has done more than make a few suggestions as to the general conduct of the Section, he has contributed one of the scientific papers of the session. I am therefore constrained to follow this latter custom and ask your attention to the subject of high eyeball-tension, or acute glaucoma, following blows upon the bulbus, when such an injury is unassociated with dislocation of the lens. To introduce the topic the following case may be recorded:

Joseph H., aged 46 years, born in Germany, married, saloon keeper, consulted me Feb. 5, 1894, on account of an injury to his left eye.

History.—While chopping wood, a few hours previous to his visit, he was struck on the left eye with a large piece of wood. A medical student dressed his wounds and brought him immediately to my office.

Examination.—There was a cut upon the left upper eyelid and another upon the neighboring facial area. The conjunctiva was somewhat chemotic and slightly lacerated on its bulbar expansion at the outer side of the eyeball. Under the influence of a mydriatic the pupil dilated irregularly, *i. e.*, only upward and inward; downward and outward the iritic fibers were paretic and refused to respond to the drug. The media were clear; the lens was in place; the optic disc was oval, its long axis being 120 degrees; the edges were somewhat hazy and the veins full. The refraction was a low myopic astigmatism and V. equaled, without correcting glass, 6/18. The optic disc of the right eye was an oval, with its axis at 30 degrees; the scleral ring was visible all around and broadened below; the edges of the papilla were hazy. The refraction, like that of the other eye, was a low myopic astigmatism and V., without a correcting lens, equaled 6/18.

The wounds on the face and eyelid were stitched and a proper dressing was applied.

February 7, 1894.—Stitches and bandage were removed. The conjunctiva was still somewhat edematous; a boric acid lotion was ordered.

February 12, 1894.—V. of O. S. 6/6. The pupil had regained its normal round shape, but the light reaction was somewhat sluggish. The fundus was unchanged.

February 27, 1894.—Patient was not seen in spite of positive directions, until the present date. He complained of dull vision and some lachrymation, but denied the presence of pain. V. equaled 6/45, with the head tipped slightly upward. Field of vision was concentrically contracted. The nerve head was obscured by a grayish swelling, the apex of which was + 2 D., the macula being not far from Em, or slightly M. The veins were enormously distended and the smaller branches very tortuous; the arteries were about normal in size and were quickly pulsating on the disc. Tn. + ?. The light reaction of the pupil was sluggish; the anterior chamber was not shallowed. The patient was sent to Dr. H. A. Hare for general examination, who reported as follows: "There is no enlargement of liver or spleen; if anything, the area of hepatic dulness is somewhat smaller than normal. The apex beat of the heart is displaced downward and to the right, and is quite forcible. After exercising there is an inconstant mitral regurgitant murmur. The tricuspid valves also seem as if they might be suspected of slight regurgitation. The aortic valves are normal, but the second sound is not quite so sharp as in the average individual. The chest shows no bulging in expansion which would indicate thoracic aneurysm. The blood vessels seem to be fairly normal; a condition of high tension does not exist. The urine is normal." Leeches to the temple, a calomel purge, iodid of potassium and, locally eserin, were ordered.

March 12, 1894.—V. equaled 6/15; field of vision somewhat enlarged. The margins of the disc were clearer; there was still quick arterial and venous pulse. Tn. + 1.

March 22, 1894.—V. equaled 6/15 —. The arterial pulse was unchanged; the disc margins were clearer and the beginning formation of the cup was visible. The pupil reacted sluggishly to light. Treatment continued.

April 3, 1894.—V. equaled 6/22.2. Media were clear; the arterial pulse continued and the cup was still more marked, although not quite complete. Only medicinal treatment was accepted, and for the iodid of potassium strychnin was substituted. The local treatment remained the same.

May 25, 1894.—The patient was not seen again for nearly two months. He had long since discontinued his internal and local medication. V. equaled O, Tn. + 1. The optic disc was atrophic and deeply cupped (bottom of cup — 5 D., edges of disc — 1.5 D.). The vessels were crowded to the nasal side and there was a strong arterial pulse; a halo was beginning to appear, most marked upon the temporal side. The pupil was fixed. Upward and outward in the ciliary region a bluish staphyloma of moderate size had appeared.

The patient was seen once more and the ocular conditions remained unchanged.

Briefly, then, the phenomena in this case were the following: Contusion of the left eyeball, with slight laceration of the conjunctiva, but without dislocation of the lens; between the seventh and twenty-second day after the injury, the development of optic neuritis, quick arterial pulsation and slight increase in intra-ocular tension, with marked depreciation of central vision and contraction of the field of vision; at first, improvement under the influence of eserin, associated with gradual subsidence of the neuritis, the improvement lasting about two weeks; later, at the end of three weeks, renewed depreciation of vision associated with the formation of a cup in the nerve head; gradual increase in the depth of the cup and the atrophy of the nerve until (treatment having been entirely disregarded) vision was reduced to *nil;* throughout the entire course of the

affection moderate increased tension, + 1, and quick arterial pulse, which persisted even when the atrophy was complete; nearly three months after the injury, the development up and out, of a ciliary staphyloma.

Remarks.—Glaucoma following an injury may be typically secondary; or it may present the clinical signs and pathologic lesions of the primary variety of the disease.

To the first of these classes, with which we are not now concerned, belong the well-known examples of glaucoma secondary to perforating wounds of the cornea, forward and lateral dislocation of the lens, puncture and swelling of the crystalline body, etc. To the second class belong several varieties:

1. Cases of glaucoma following trifling injuries, *e. g.*, a slight burn or abrasion of the cornea, or even the lodgment of a foreign body on its surface.

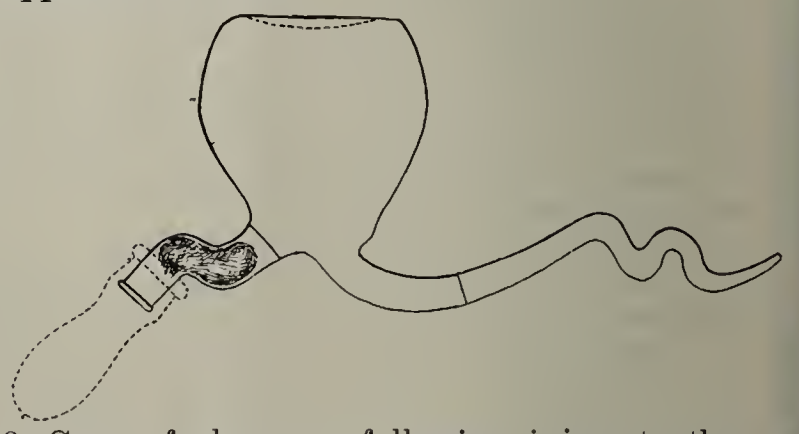
Under these circumstances, as Priestley Smith[1] maintains, it is fair "to assume that the eye was predisposed to glaucoma." He further believes that "in these traumatic cases the origin of the outbreak is probably an active hyperemia rather than a passive congestion and there is a special tendency to inflammatory exudation, but the direct cause of the high tension appears to be the same as in the more typical cases." To this category would belong such a case as that reported by C. J. Lundy,[2] in which an outbreak of this disease, resulting in loss of the eye, followed the sting of a bee on the conjunctiva.

2. Cases of glaucoma following contusion of the eye, either without discoverable lesion or else without marked changes which would account for the increased tension.

Glaucomas of this character have usually followed a blow upon the eye, for example, from the cork of a bottle or from a chip of wood. A case in point is one reported by W. A. Brailey[3]. A boy aged 14 years eight days before admission to the hospital received a blow on the right eye from the cork of a beer bottle. The pupil of the right eye was fully dilated and fixed and the tension increased to + 2. Vision was 6/60; the disc a little misty. The patient was treated by the instillation of eserin and gradually the disease subsided, vision and tension improving for a time, when the eserin was omitted and the pupil again dilated and tension returned. According to the reporter there was no obvious change in the eye to account for the tension, except the condition of the pupil. When this was contracted by means of eserin the tension fell, possibly because the drawing of the iris at the periphery of the anterior chamber caused a stretching of the fibers between the spaces of Fontana, permitting a readier access of the fluids of the anterior chamber to the canal of Schlemm.

Not quite so clear a case is one reported by Ferber[4]. A patient, whose age is not given, received a contusion of the eye without noteworthy injury of the bulbus and without dislocation of the lens. A small retinal hemorrhage and exudate were also visible. As these were considered too insignificant to be regarded as the etiologic factors in the production of the glaucoma which followed this contusion, the author refers to a neuropathic element, but suggests as possible and, as it seems to me, much more likely that the contusion closed the pathways of the intra-ocular currents.

A very instructive case touching on this question of the etiology of glaucoma after blows upon the bulbus of the type we are now considering, has been reported by Knapp[5]. A patient 29 years old was struck on the eye with a cane, and presented himself for treatment with an obliterated anterior chamber, clear media, diminished tension and a myopia of 1/7 which, when corrected, gave him normal vision. After bandaging and rest there was restoration of the anterior chamber, and with its restoration an attack of acute glaucoma, which was cured by the instillation of eserin. Knapp explains this case as follows: The injury probably produced a perforation of the corneo-scleral wall at the periphery of the anterior chamber, which escaped his notice. Now, although the sinus of the anterior chamber was obliterated by the advancement of the lens which crowded the iris against the posterior face of the cornea, glaucoma did not develop until the iris reassumed its natural position, because so long as it was pressed forward and the anterior chamber was obliterated, the aqueous humor was leaking from the insignificant corneo-scleral perforation. With the closure of this perforation and the restoration of the anterior chamber, the aqueous could no longer find an outlet through Fontana's spaces, which during the time of pressure of the iris against them, had probably become impervious. In commenting on this case, which has just been quoted from Dr. Knapp's description, this author points to the analogy between this type of glaucoma and that which follows the closure of a corneal fistula, inasmuch as the same explanation is applicable to each.



3. Cases of glaucoma following injury to the eye either with manifest lesions in the anterior portion of the bulbus, or with ophthalmoscopic changes, retinal hemorrhage, neuritis and choroiditis.

Fortunately a certain number of eyes have been carefully examined after traumatic glaucoma from the microscopic standpoint and give an explanation of the phenomena of increased tension. Priestley Smith[6] enucleated the right eye of a woman aged 57 years, which was in a condition of acute absolute glaucoma as the result of a blow from a cork escaping from a soda-water bottle, the accident having occurred nine weeks previous to her examination. After giving the microscopic examination of the eyeball in detail, this author sums up his case as follows: "The iris had been manifestly driven forward and its periphery pressed against the cornea by the processes so as to close the angle of the anterior chamber and cut off all access to Schlemm's canal. It is likely that the blow, the violent effect of which upon the ciliary structures was indicated by the partial detachment of the iris, had caused a vasomotor paralysis and hence a congestion and swelling of the processes, and that this swelling had closed the outlet of the anterior chamber and established the glaucoma.

1 On the "Pathology and Treatment of Glaucoma," London, 1891, page 126.
2 American Journal of Ophthalmology, St. Louis, 1886, iii, 122.
3 Trans. Opth. Soc. U. K., London, 1884, iv, 113-115.
4 Jahresbericht f. Ophthalmologie, xix, p. 377. I have not been able to consult the original reference.
5 Archives of Ophthalmology, New York, 1881, x, p. 451.
6 The Ophthalmic Review, London, 1882, i, 273-279.

In other words, in this case the pathologic changes were similar to those which are found in acute primary glaucoma.

Garnier[7] saw in a 14 year old boy, after a blow on the eye, an acute elevation of the intra-ocular pressure, and after ten days the development of a scleral staphyloma. The ball was enucleated and microscopically there were found fluidity of the vitreous; hyperemia of the iris; widening of the veins of the canal of Schlemm; rupture of the zone of Zinn downward and inward, although the lens, which was clear, was not luxated; hyperemia of the retina; blood extravasations between the nerve-fibers of the papilla and the retina; widening of the larger vessels of the ciliary body and corresponding to the rupture of the zone of Zinn, a tear in the circular portion of the ciliary muscle, in the neighborhood of which the arterioles were thrombosed. The choroid and suprachoroid were greatly swollen and edematous and the pigment macerated, all spaces in the sclera and all perivascular lymph spaces being choked with pigment cells. To this condition of the choroid and its consequences Garnier attributes the elevation of intra-ocular tension.

In my own case, the primary irregularity of the pupil suggests lateral dislocation of the lens, but as the pupil was in a few days restored to its normal circular form and reaction (although the latter was somewhat sluggish), it may be regarded as an example of partial traumatic mydriasis, perhaps associated with a slight tear in the sphincter of the iris, although this could not be demonstrated. With the exception of this condition, which was temporary and which disappeared before the onset of glaucoma, and the slight laceration of the conjunctiva there was no demonstrable lesion in the anterior portion of the eye. The interesting manifestation which antedated the glaucoma, or rather which may be regarded as its first stage, was the optic neuritis. Now, although textbooks do not commonly describe optic neuritis as an antecedent of glaucoma, there are many observations which indicate that inflammation of the optic nerve frequently, if not always, precedes the development of glaucoma, and some authors speak with confidence of a glaucomatous papillitis[8]. It seems likely, on the basis of a number of microscopic observations, notably one by L. Webster Fox and W. A. Brailey[9], that inflammation of the nerve may travel forward and finally invade the ciliary muscle; or perhaps that both structures, viz., the optic nerve and the ciliary muscle may be simultaneously affected. No doubt the blow upon the eyeball of my patient produced congestion and swelling of the ciliary structures, which as in the case already quoted from Priestley Smith, closed the outlet of the anterior chamber and helped to establish the glaucoma. Either as part of this process, or else antedating it, there were inflammation of the optic nerve and softening of its structures by inflammatory exudate, which rendered the cupping and atrophy all the more certain. The late development of the ciliary staphyloma, as in Garnier's case already quoted, indicates serious structural changes in the ciliary area, which permitted gradual bulging of the ocular coats in this region in consequence of the increased intra-ocular tension.

[7] Jahresbericht f. Ophthalmologie, xxii, p. 341.

[8] For a full discussion of this subject consult "Glaucoma: Its Symptoms, Varieties, Pathology and Treatment," by Alexander Stirling, Annals of Ophthalmology and Otology, Vol. v, No. iv, p. 1026; Ibid, Vol. vi, No. 1, p. 47.

[9] Royal London Ophthalmic Hospital Reports, London, 1881, x, ii, p. 205.

The evident conclusion of the whole matter is this, that in cases of traumatic glaucoma, setting aside for the moment those which cause the typical secondary variety of the disease, the lesions, so far as we may judge from microscopic examinations, are similar to those which we find in the primary variety of the affection. These cases further indicate the necessity of keeping under observation patients who have suffered from blows on the eye, even when all external manifestations of the injury have passed away, because there may develop, as in my own case and in many others in literature, a glaucoma which will result in blindness, if the opportunity is not afforded to treat the patient, either because he does present himself in time, or having presented himself in time, he neglects advice and disappears from observation until it is too late to remedy the evil.

ORIGINAL ARTICLES.

THE ROENTGEN RAY IN OPHTHALMIC SURGERY.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY HOWARD F. HANSELL, A.M., M.D.
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The discovery of Roentgen, that the soft tissues of the body were transparent to certain rays emitted from a vacuum tube when electrically stimulated, and its practical application to the uses of medicine and surgery mark a distinct epoch in the history of science. Experiments conducted by scientists the world over immediately confirmed the announcement of the mystic properties of the Roentgen or X-rays, and during the eighteen months that have passed continued experimentation has increased its applicability, widened its field of usefulness, defined in part its capabilities and limitations, and has given us every reason to believe that further research with improved apparatus and with a more profound knowledge of their intimate nature, will lead to still greater achievements. We may hope, for example, that by varying intensities of energy, or diminished duration of exposure or modification of the vacuum tubes, to inspect with some degree of clearness, the contents of organs of which we now barely see the outlines, to differentiate diseased from normal structure and to give to the X-ray the prominent place in medicine that it now occupies in surgery.

The attention of ophthalmologists was practically drawn to the utilization of the Roentgen process in ophthalmic surgery in the detection of foreign bodies such as glass and fragments of metal, in the interior of the eyeball, by the papers of Clark and Williams[1] which announced for the first time that the coats of the ball are penetrable by the rays, and that the presence of foreign bodies can be diagnosed by their shadows cast on negatives and developed by the ordinary photographic processes. In Clark's case the metal, the presence of which had hitherto been extremely uncertain, was discovered to be behind the iris near the corneoscleral angle. It was extracted by the Hirschberg magnet and the patient recovered almost the full acuity of vision. The method of using the apparatus was original and novel. A photographic film encased in water-proof covering, was inserted into

[1] Trans. Amer. Ophthal. Soc., July, 1896.

the nostril of the same side as the injured eye until its upper extremity lay in contact with the cribriform plate of the ethmoid bone. The Crookes' tube was stationed in front and to the same side of the head about thirteen inches distant from the eye. The rays passed through the envelopes of the eye, the nasal bone, the nasal process of the superior maxillary bone and the soft tissues, casting well-defined shadows of the bony parts and of the piece of metal. The diagnosis and cure were effected by the one force under two widely different manifestations. Williams's result in determining the applicability of the rays to the diagnosis was equally satisfactory, but unfortunately the severe accident destroyed both the sight and the ball. The patient was laid on his side on a table with the temple in contact with the glass plate and the tube held obliquely thirteen inches above and in front of the face. The rays pierced the eye, its adjacent soft tissues and the bones of the external wall of the orbit, the last casting its clearly defined shadow together with that of the foreign body, both readily distinguishable from other shadows on the plate. The history of the injury showed that the offending substance was copper, therefore the use of the magnet was precluded. The eye was enucleated and the diagnosis proven. It is interesting to observe that the different methods of experimentation resorted to in these two cases demonstrate respectively, that the nasal and temporal walls of the orbit offer no practical obstacle to the applicability of the Roentgen process in ophthalmic surgery, and that both results disprove the earlier experience that the ocular envelops themselves cast shadows so dense that that of a fragment of metal would be concealed[2].

The good work inaugurated in Columbus and Boston has been continued in Philadelphia with uniformly successful result. The labors of Stern in the polyclinic, of Goodspeed and Leonard in the university and of Sweet in the private laboratory of Queen & Co. have met with pronounced success. To the first named of the gentlemen I am indebted for excellent skiagraphs of the two cases reported below. After repeated experiments according to the methods of Clark and Williams, Dr. Stern succeeded by the simple device of bandaging the sensitive plate to the temple on the side of the wounded eye, allowing the patient to sit upright and suspending the tube in front of and to the opposite side at an angle of 45 degrees and fourteen inches distant, in obtaining pictures that showed beyond question the existence of foreign bodies within the ball. These are the first two successful cases in Philadelphia and demonstrate the claims previously made that the X-rays are an useful adjunct to the diagnostic resources of the ophthalmic surgeon.

During the past winter, with the able co-operation of Dr. Stern, I made a number of efforts to determine whether the rays had a beneficent or injurious effect on diseased and healthy eyes. It was found in cases of opacity of the media such as leucomatous cornea, capsular and lenticular cataract, that no improvement whatever could be noted either in the disease or in the ability of the patients to see clearer through the fluoroscope than without it. In a case of nearly absolute central scotoma due to a large patch of central retino-choroiditis, repeated exposure to the rays as they were emitted from the tube gave the same negative result. The findings in cases of atrophy of the optic nerve were equally discouraging. From these trials it was concluded, as a means of treatment of diseased conditions causing blindness, the rays were of no value. The only exception that I am able to make to this statement is recorded in the history of Case 1, when the exposure had the unexpected effect of soothing pain and reducing inflammation, but whether this happy result was simply a coincidence or a real or psychic manifestation can not be asserted. Dr. Wilkinson of the California School for the Blind, selected six pupils for testing, one with destruction of the anterior part of each eye from an old traumatism, one with complicated congenital cataract, one with partial phthisis bulbi from ophthalmia neonatorum, and three with optic nerve atrophy. In none did the rays assist the vision in the slightest degree. Beck[3], in speaking of the possible curative effects of the rays in zymotic diseases, states that the vitality of pathogenic bacteria is not impaired even after an exposure of several hours. As bearing on the subject of the sedative action of the rays mentioned as occurring in my first case, the report of their effect[4] on frogs is of interest. A frog was placed in a small wooden box toward which the rays were directed, while a control frog in a similar box was protected from the rays by a sheet of lead laid on top of the box. To each was administered .04 mg. of strychnia; the first showed no trace of intoxication, while the latter was found in tetanic convulsions. Bock's[5] suggestion that if persons blind from want of transparency of the media might be able to read letters painted on a card-board that were varnished and dusted with powdered metal if they were subjected to the action of the X-rays is impracticable unless a fluoroscope or some other impossible tungstate of calcium screen by which the shadows were rendered visible be placed behind the opaque cornea or lens. Otherwise this source of illumination is no more available than any other.

No cases of injury to the tissues of the eye from the action of the rays has been published even under the former prolonged exposures, and now with improved apparatus the danger of burning the skin or producing destruction of the hair bulbs is insignificant

Case 1.—R. G., machinist, 25 years of age, applied at the out-patient department of the Jefferson Hospital in October 1895, with the history of an injury to the left eye while breaking a cast-iron elbow with a hammer. The cornea presented a small, irregular cicatrix. The anterior capsule and the lens had commenced to opacify. The iris was inflamed and adherent to the capsule and vision was greatly reduced. No foreign substance could be seen in the imperfectly illuminated media or fundus. Under treatment the inflammation subsided and no operation was resorted to. The man was requested to return frequently for inspection. No severe symptoms developed although the eye was subject to attacks of irritation until October, 1896, one year later, when irido cyclitis supervened. The patient was now subjected to the X-rays, and after more creditable perseverance Dr. Stern succeeded in obtaining a shadow picture that showed the presence of a piece of metal probably located in the anterior portion of the vitreous body. It is interesting to note that one of the exposures was made during an attack of irido-cyclitis. The patient voluntarily stated that the pain was promptly and entirely relieved, and it was observed that the marked injection was greatly reduced. After an unsuccessful attempt at extraction by the Hirschberg magnet the ball was enucleated. Upon section, a scale of iron 2 mm. in length, ½ mm. in width, was found firmly imbedded in the ciliary body and surrounded by a mass of exudation.

Case 2.—F. N. was admitted to the wards of the Jefferson Hospital Nov. 14, 1896. While chiseling a cast-iron staircase he received a wound in the left eye. The skin and cartilage of both lids, particularly the lower, were the seat of ragged wounds. The conjunctiva was cut; the cornea opened in its

2 Amer. Jour. of the Med. Sci., March, 1896.

3 Trans. Pan-Amer. Cong., Mexico, 1896.
4 St. Peters. med. Wochens. No. 1, 1897.
5 Memorabilien, February, 1897.

oblique diameter; the iris protruded in part through the wound in the cornea; the lens had escaped, part of the vitreous was lost and the anterior chamber was full of blood. The edges of the wound in the lid were united by suture, the torn iris and protruding vitreous cut away and the eye antiseptically dressed and bandaged. The patient asserted positively that the iron inflicting the injury was too large to be lodged within the ball and from the extent of the superficial wounds I was inclined to concur in this opinion. After a week's vain effort to save the ball the X-rays were applied and the eye enucleated. No sections of the ball were made until after Dr. Stern's skiagraph showed positively the presence of a large piece of metal in the vitreous. Subsequently a fragment of cast-iron weighing 3 grains, of irregular shape and with very sharp jagged edges, was found in the anterior portion of the vitreous.

Thus in two instances, in October and November, 1896, respectively, skiagraphy demonstrated beyond question the presence and approximate location of pieces of metal within the eyeball. In the one the condition had been assumed, in the second, the earlier diagnosis had been proven incorrect.

The next two cases in Philadelphia, reported by Ring and de Schweinitz before the Ophthalmic Section of the College of Physicians, and published in its "Transactions," Jan. 19 and Feb. 16, 1897, may be briefly referred to. In Ring's case, a piece of steel had penetrated the vitreous eighteen months before. Two radiographs were exhibited, showing the presence and probable site of the foreign body. The Hirschberg magnet was powerless to dislodge it from its bed in the ciliary body and the ball was enucleated. De Schweinitz succeeded in establishing the diagnosis by the rays, in extracting the metal after two futile attempts by other surgeons and in restoring useful vision. The following case, the last of the published series in Philadelphia, was reported before the same section in February, 1897, by Dr. A. G. Thomson. A small piece of steel had lodged in the posterior portion of the lens in a young man. Because of the continued transparency of the lens some doubt was felt as to the nature of the foreign body. A series of skiagraphs taken by Dr. W. M. Sweet, demonstrated beyond question that the foreign substance was impenetrable to the rays. Dr. Wm. Thomson subsequently extracted the lens and with it the supposed metal. Following Dr. Thomson in his detailed description of the treatment of the case read before the Amer. Ophthal. Soc. May, 1897, Dr. Sweet demonstrated his method of localizing foreign bodies in the eye, which has proven, both in this case and in others not yet published, accurate and of great value. Dr. Chas. A. Oliver reported at the same meeting, the results of his own and Dr. Leonard's methods of localization based on practically the same principle as that described by Sweet.

It is evident, therefore, that the Roentgen process, even at this comparatively early period in experimentation, while our knowledge of the properties of the rays is limited and immature, is an extremely valuable means of diagnosis in the surgery of the eye, and it is believed that continued investigation will not only confirm the claims and statements made in this paper, but will add to our conviction that in the X-rays we have an accurate, reliable and speedy method of establishing the presence or absence of foreign bodies in the eyeball.

Resignation of Professor Forel.—The celebrated alienist, Forel, has resigned the superintendency of the asylum at Burgholzli, and also announces that he will soon retire from his professorship at Zurich, in order to devote himself entirely to his studies of comparative anatomy, especially anatomy of the brain.

THE ROENTGEN RAYS IN OPHTHALMIC SURGERY.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY WILLIAM M. SWEET, M.D.
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The value of the Roentgen rays as a means of determining the presence of pieces of metal in the eyeball has been conclusively shown by the experiments of a number of investigators, the earliest workers in this field being Dr. Clark of Columbus, Dr. Williams of Boston and Dr. Max J. Stern of this city. The knowledge that a foreign body is in the eye, however, is not all the information required by the surgeon who operates with the electromagnet for its removal. Without some indication of the position of the body, it is not possible to reduce the percentage of failures of the magnet operation. The ordinary radiograph does not accurately indicate the position of the shadow of the foreign body on the plate in relation to the shadows of the bones of the head. Hence it is desirable to state the exact spot at which to insert the magnet with the least injury to the structures of the eye.

The first attempt to determine the approximate location of foreign bodies in the eye by means of metal indicators placed without the ball, was made by Dr. H. Lewkowitch, and reported in the London *Lancet* for Aug. 15, 1896. In these experiments, which were made on sheep's eyes and the doctor's own eyes, the indicator consisted of a piece of wire placed in front of the eye, one of the arms of the apparatus pointing to the center of the cornea. Only the anterior portion of the eyeball was included in the radiograph, the eye being rotated inward or outward to include a larger part of the globe. The determination of the position of the foreign body was then made by a triangulation of two shadows on the plate cast by the foreign body, by moving the tube a known distance from the first position in making the second exposure. The photographic plate was placed at the inner canthus. In addition to these complications, and the liability of error in determining the angles of the tube in its two positions with the plate and the foreign body, the method is open to the objection that only a small portion of the eyeball is included in the radiograph.

In my early experiments with pigs' eyes placed in the ordinary Viennese mask, it was found that unless the rays were passed through some portion of the bony walls of the orbit, foreign bodies in the posterior portion of the vitreous chamber could not be shown.

In the first experiments which I made upon the human subject, the photographic plate was inserted at the inner canthus. Photographic films were used, as being more readily cut to the shape desired. Each plate-holder carried two films, and two negatives were thereby secured at each exposure, thus avoiding errors arising from imperfections in the film coating.

The indicating apparatus consisted of an aluminum frame, carrying three steel rods, each with a rounded end. The rounded extremities were adjusted to the inner and outer canthus and to the eyeball at the center of the upper lid. Two exposures were made, one with the Crookes' tube on a line with the inner and outer indicators, and the other below the horizontal plane of these indicators. In determining the position of the foreign body in the eye, the apparatus was attached to a fixed support and a lighted candle

employed to cast the shadows of the indicators on a card board similarly to those made on the negatives by the X-rays. A small object was then held in such a position that its shadow was identical with that of the foreign body. The candle was moved until the shadows of the indicators corresponded to those on the second negative. The crossing of the two lines of shadow of the test object represented the situation of the foreign body.

This method of marking was first employed in the case of a young man with a piece of steel in the lens, sent to me by Dr. A. G. Thomson. From a number of negatives I located the body 7 mm. behind the center of the cornea, and about a millimeter to the nasal side. Dr. William Thomson subsequently removed the soft and opaque lens with the piece of steel imbedded in it.

While the use of the photographic plate at the inner canthus has the advantage of bringing the sensitive film much closer to the eyeball than when in any other position, an important consideration when dealing with very small objects, it has the objection that the whole eyeball is not included on the plate. For this reason, and also because of the imperfect coating of the celluloid films, I have since used glass plates bandaged to the temple. Instead of three indicators, two only are now used.

The principle of employing two objects of known position to locate the situation of a third object from the shadows cast by these objects upon a flat surface, is extremely simple. For all practical purposes we may regard the rays from a Crookes' tube at least thirteen inches away, as being parallel in passing through a body as small as the eye. Therefore if the relative position of two objects is known, we can readily determine the situation of the third. In employing this principle in locating foreign bodies in the eye, three factors are of importance, viz., that the two indicating objects shall be at a known distance apart, and shall be parallel to each other and to the plate, and also in a perpendicular line with the plate; that one object shall point to the center of the cornea and be at a known distance from the eyeball; and that the visual axis shall be parallel to the indicators and to the plate. With the above facts known, the angle of the tube with the plate is unimportant.

The indicators may be supported by a headband and the plate held in place by an ordinary bandage, although more accurate results are obtained by employing a special form of apparatus, in which the indicators are attached to the plate holder, and are at all times parallel to each other and to the plate. The indicators are adjustable, so that one may be placed opposite the center of the cornea while the other is toward the outer canthus.

In making the negatives the tube is in front, about thirteen inches from the plate and at an angle of from 15 to 40 degrees with a vertical plane passing through the apex of each cornea. The plate is to the opposite side of the head and the rays pass through the eyeball and the external orbital wall before reaching the sensitive film. Two exposures are made, one with the tube in a horizontal plane with the two indicators and the other at any distance below. The angle of the tube below the horizontal is unimportant so long as the two exposures give different relations of the indicators on the negatives.

In determining the position of the foreign body in the eye, two circles, 24 mm. in diameter (equivalent to the size of the globe) are drawn upon paper. One circle represents a horizontal section of the eyeball and the other a vertical section. Upon the vertical section a spot is made at the center of the circle, indicating the position of the central indicator of the



Indicating apparatus supported by head band, and plate held in place by bandage.

apparatus. The distance between the two indicators is measured toward the temporal side and a spot made to show the position of the external indicator.

On the circle representing a horizontal section of the eyeball, a spot is made anterior to the center of the cornea and at the same distance that the center

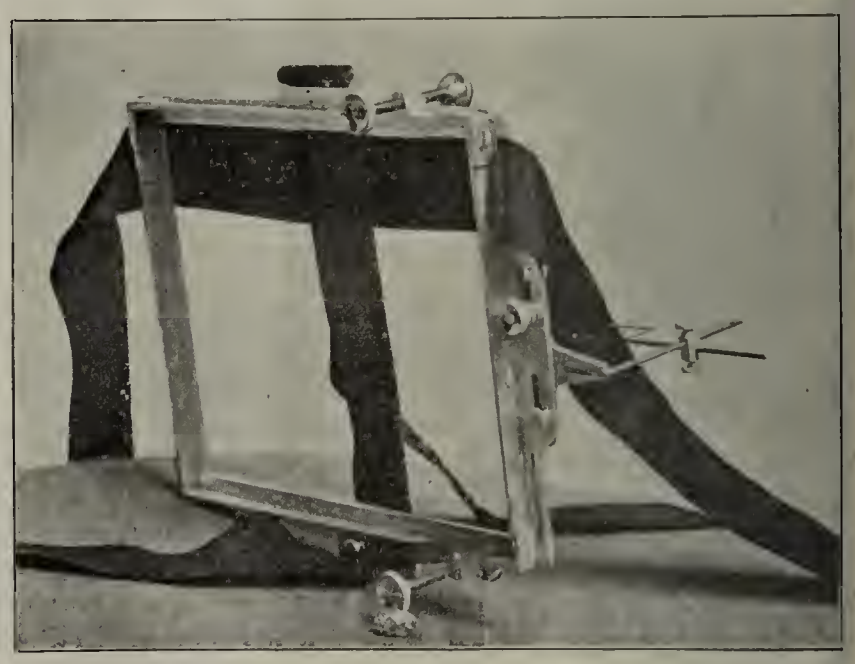
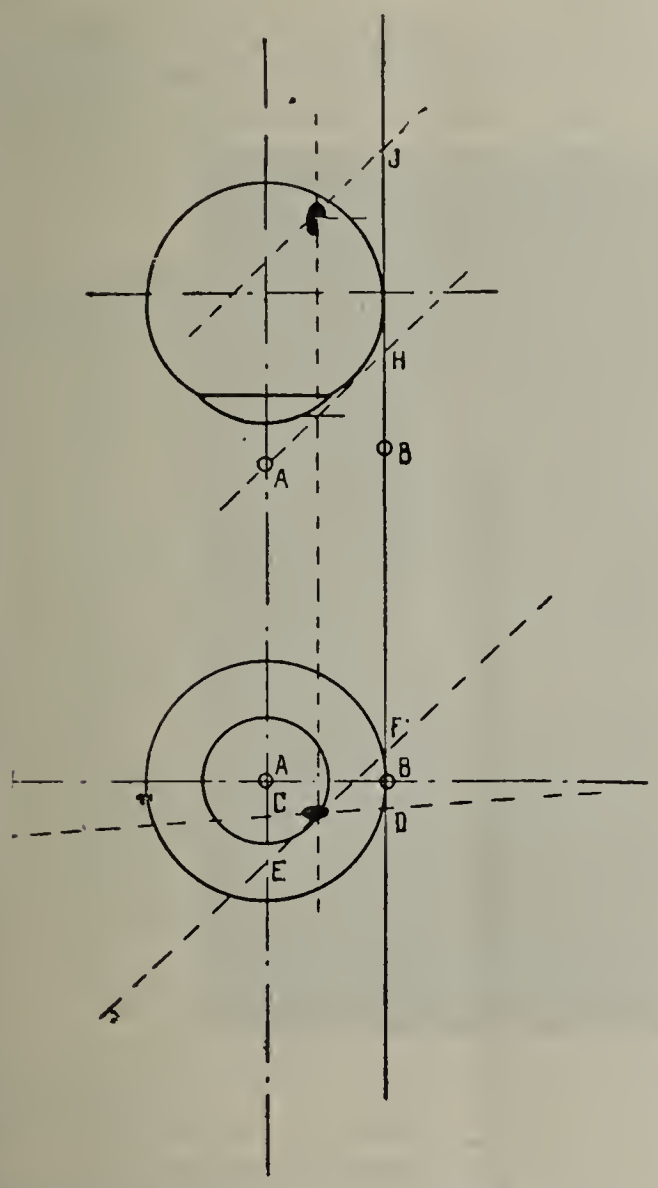


Plate-holder, with indicating apparatus attached.

indicator was from the eye when the radiograph was made. Another spot to the temporal side, measured by the distance between the two balls of the apparatus, marks the situation of the external indicator.

By taking the first negative with the tube horizon-

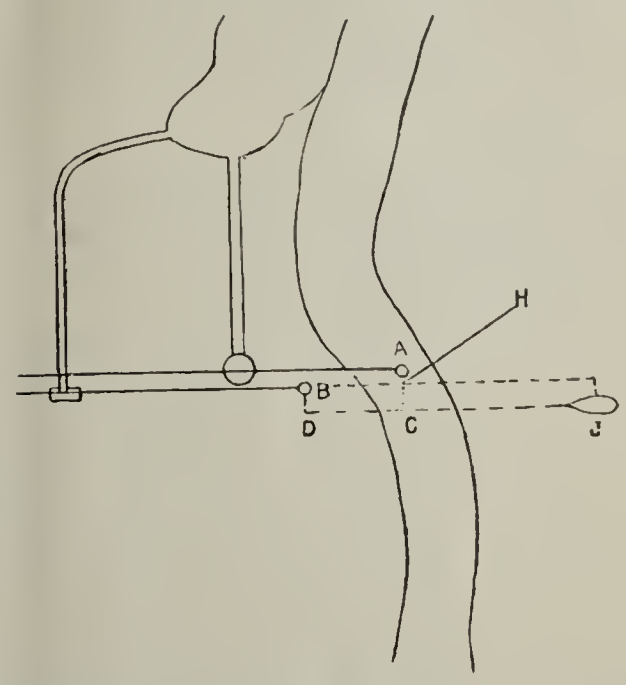
tal to the two indicators, we measure the distance of the foreign body above or below the two balls of the apparatus. These measurements are indicated on the circle representing the vertical section of the eye and a line is drawn through the points. At some point along this line is situated the foreign body. From the second negative made with the tube below the plane of the two indicators, the measurement is taken of the distance the shadow of the foreign body is above or below the center indicator, and this point is indicated on the first circle. The same measurements are made for the external indicator. Where a line drawn through these two points crosses the line of measurements made from the first plate is the situation of the foreign body as respects its horizontal and vertical position in the eyeball.



Diagrammatic circles of the eye, upon which measurements from the negatives are made to show location of foreign body. Upper circle, horizontal section; lower circle, vertical section of eyeball.

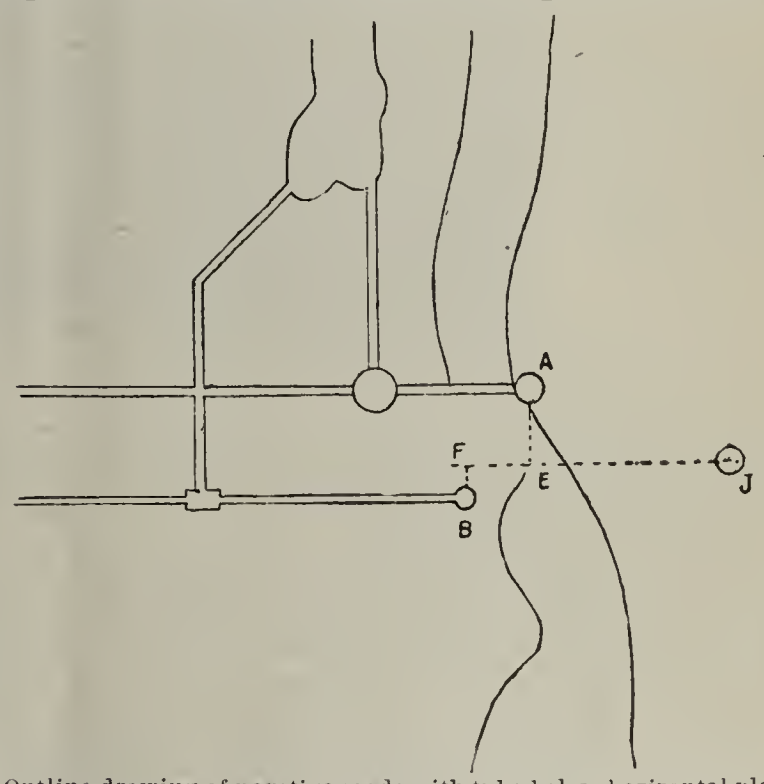
To determine the distance of the foreign body behind the apex of the cornea, one of the negatives is taken and a measurement made of the distance the shadow of the center ball is posterior to that of the external ball. The distance is entered directly above the external ball on the diagram representing the horizontal section of the eye. From this point a line is drawn through the ball of the center indicator, which indicates the direction of the rays from the tube when the exposure was made. Taking the plate again, we measure the distance that the shadow of the foreign body is back of that of the external indicator. This distance is marked perpendicularly to the spot representing the ball of the external indicator on the diagram and a line is drawn parallel to the direction of the rays from the tube. Where this line cuts a line perpendicular to the position of the foreign body shown on the vertical section of the eyeball is the distance the foreign body is behind the anterior portion of the cornea. Where the foreign body is outside the eyeball, this fact will be indicated by the crossing of the lines beyond the diagrammatic circles.

The first patient upon whom I employed this method was a young man, 20 years of age, a machinist by occupation. Six months prior to coming to Wills Eye Hospital a piece of steel struck him in the left eye. Dr. William Thomson referred the case to me



Outline drawing of negative made with tube nearly horizontal with plane of indicators.

to determine the presence of a foreign body and its probable location. Examination, in April, 1897, showed a scar in the sclera, 3 mm. from the corneal margin on the temporal side, starting from the horizontal plane and extending downward, almost vertically about 4 mm. The ophthalmoscope failed to reveal the presence of a foreign body but showed a cone-shaped mass of new tissue extending through the vitreous, with the apex at the disc. The visual field was lost centrally and to the nasal side, but partially preserved downward and outward.



Outline drawing of negative made with tube below horizontal plane of the two indicators.

A number of radiographs were made with the Crooke's tube in various positions and in each of the

negatives the shadow cast by a foreign body was plainly visible. The two indicators in each exposure were 12 mm. apart, while the ball of the center indicator was 4 mm. from the apex of the cornea. The external indicator was inadvertently placed 2 mm. nearer the eyeball than the center indicator. This difference is allowed for on the diagrams. The exposures averaged four minutes each. Employing the method previously described, the measurements from the negatives indicated the position of the center of the foreign body to be a point 20 mm. from the center of the cornea, 5 mm. to the temporal side and 3 mm. below the horizontal plane. The negatives also gave the probable size of the body to be 4 mm. long, 2.5 mm. wide and 1 mm. thick.

In reporting the case at the Washington meeting of the American Ophthalmological Society, Dr. Thomson stated that, owing to the mass of tissues surrounding the body it was found to be impossible to remove it by the magnet and that recourse was had to dissection. The body was extracted with some of the cicatricial mass surrounding it from a point in the sclera corresponding to that shown in the diagrams made from the radiographs.

The second patient from whom radiographs of the eye were obtained came to the Polyclinic Hospital to have a piece of steel removed from the surface of the cornea. Dr. H. F. Hansell noticed that the right lens was opaque and, suspecting a foreign body in the eye, asked me to make some X-ray pictures. The man, a machinist by occupation, stated that he had been blind in the eye for several years and had never suffered any pain or irritation from it. A number of negatives were made, and in each instance two shadows made by foreign bodies were shown upon the plates, one in the region of the eye and the other about an inch below the eye. There was every reason to suspect that one of the bodies was in the eye or in the orbit, but upon employing the system of measurements previously described with several sets of negatives, the body in every instance was shown to be situated at a point corresponding to the tissue covering the outer and upper crest of the orbit. The other foreign substance was in the skin of the nose. The man has failed to appear since the negatives were made, so that no opportunity was furnished to verify the findings.

I also employed the rays on a patient sent to me by Dr. Jackson, who presented the history of a piece of metal flying into the eye twenty years ago. Ophthalmoscopic examination by Dr. Jackson and by many other gentlemen at the time the case was shown at a meeting of the section on ophthalmology of the College of Physicians, showed a dark mass lying to the temporal side of the disc, about one-half millimeter long and one-third millimeter in width, in an area of atrophied choroid and pigment deposit rather smaller than the disc.

Notwithstanding that over a dozen negatives were made of the case at different times with Crooke's tubes running under various degrees of vacuum and placed at various positions, no evidence of a foreign body was shown on a single negative.



Radiograph. John Routledge. Tube below horizontal plane of indicators. Exposure four minutes. Queen Self-regulating X-ray Tube.

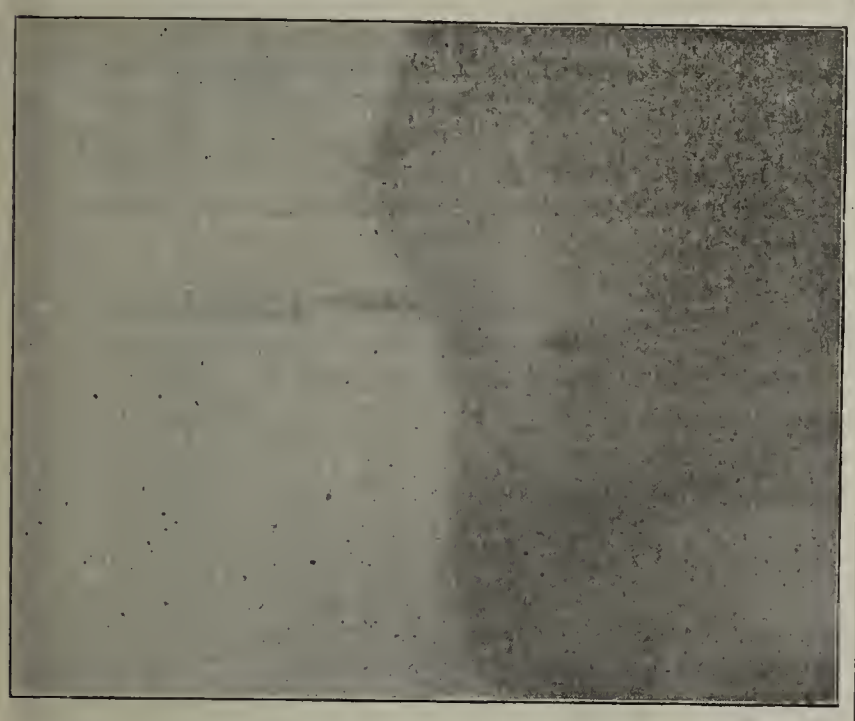
The failure of the Roentgen rays to show on the photographic plate the presence of a foreign body in the eye of the patient of Dr. Jackson, when the ophthalmoscopic examination apparently indicated the existence of a body in the eye, led me to make a number of experiments on the cadaver to determine if possible:

1. Whether very small metallic bodies in the eye could be located by means of the Roentgen rays.
2. To what extent the bones of the orbit interfered with the passage of the rays.
3. The character of the tube and the vacuum at which it should be operated to give the best results.
4. The best point at which to place the tube.

Experiments were made in the pathologic laboratory of Jefferson Medical College on a fresh, well-developed male subject. The shrunken eyeballs were removed and fresh pigs' eyes employed in which pieces of iron had been inserted. In this way the nearest

approach to the ordinary conditions met with in the live subject was secured.

In making the experiments exposures were made with two forms of the Queen self-regulating X-ray tube. In one tube the rays from the concave cathode focused to a small point on the platinum plate, while in the second tube the focus was larger. In one of the pig's eyes a piece of fine wire was passed through the center of the globe in its antero-posterior diameter. In another pig's eye three pieces of wire, about one and one-half inches long, were inserted in the nasal half of the pig's eye, entering it at the corneo-scleral margin and passing through the ball to the retina. The wires were respectively .9, .5 and .3 mm. in diameter. The largest piece was partially cut through at intervals of 1 mm. In a third pig's eye, pieces of iron were inserted in the ball, each about 1 mm. long and varying in thickness from .3 to 1 mm. The bodies were inserted in the eye at the nasal side. A number of exposures were made with each tube, several at an angle of fifteen degrees with a vertical plane passing through the two eyes, and a number at an angle of about forty degrees in front of this plane.



Radiograph. John Routledge. Tube nearly horizontal with plane of indicators. Exposure four minutes. Queen Self-regulating tube.

These experiments seemed to leave no doubt as to the great superiority of the small focus point tube as compared with that of large focus. The shadow of even the finest wire is distinctly shown on the negatives made with the former, while in those made with the latter, the shadow of the wire is blurred and indistinct. This is in harmony with the well-known fact that the distinctness of the shadow of an object some distance from a plane surface depends on the size of the source of light, and where the point of illumination is large, as compared with the size of the object, the shadow cast may be indistinct or even imperceptible.

The negatives also show to what small degree the bones of the orbit obstruct the rays. The thickest portion of the external orbital wall is where the frontal and malar bones join, forming the external angle of the orbit. In the deeper portion of the orbital wall the bones are relatively thin. Notwithstanding the difference in the thickness of the bones, the shadows cast by the steel wires are perfectly distinct throughout their entire length. In making radiographs of the eye, the best results are secured when the tube is run at high vacuum, so that there shall be great penetration of the ball and the muscular and bony structures. In this way the shadow of the denser metallic body is more clearly shown upon the plate.

In the experiment with the small bodies in the eye, the superiority of the small point focus tube for eye work was again shown. The exposures made with the large point focus tube failed to show any shadows on the plates of the bodies in the eye, while in the negatives made with the small point focus tube, each of the five foreign bodies can be clearly seen. In dealing with the live subject the possible slight movement of the head during the exposure is a factor of importance.

In my experiments I have used several makes of Crookes' tubes, although the majority of the exposures were made with the Queen self-regulating tube. In this tube by an ingenious arrangement of a shunt circuit, the current passes around the tube when the vacuum becomes too high, heating up an auxiliary bulb of potassium hydrate and bringing down the vacuum. The gap in the shunt circuit may be adjusted to any desired vacuum, and the tube then runs automatically, irrespective of the length of exposure. The time of exposure was varied from two to six minutes, four minutes appearing to give perfectly satisfactory results, although in one instance an exposure of thirty-five seconds gave an negative of excellent detail.

Both X-ray plates and rapid landscape plates were used in the experiments, and so far as could be seen from the negatives, the landscape plates gave as good detail and as sharp outline of the foreign bodies as those made with specially prepared X-ray plates, besides which the landscape plates required much less time in developing and fixing.

In carrying out the experiments, Queen & Co. of Philadelphia kindly placed at my disposal their X-ray laboratory, with full facilities for testing the value of various forms of tubes and apparatus. Throughout the work I have had the assistance of Mr. H. Lyman Sayen, the expert of the laboratory, whose help has been of value in contributing to the success of the experiments.

DISCUSSION.

Dr. C. F. Clark of Columbus—The only two points I can take up that are perhaps of some importance, and which have not been dwelt on very thoroughly, are questions as to the method and as to possible accidents. The question of holding the plate in the angle of the eye has been touched on. That is the method I found most satisfactory in the first case I had; it was a very minute piece of metal imbedded in the base of the iris and it was impossible to locate it without this method. Every other method had been tried. The patient had good vision and I could get a perfect view of the fundus, and though there was a chance to save the eye, and I did save it. If I had used the ordinary method I believe I would have failed. I held the plate next the nose for eight minutes while the patient sat in the chair, and it proved very satisfactory. The piece of metal was 1.5 mm. thick.

As to accidents, I heard a paper by Dr. Scott of Cleveland, not the oculist, but a physician there who had found, in recording the cases given throughout the country, some fifty or sixty cases of accidents from the use of the Roentgen rays. In one of my cases, which I made no report of because the result was negative, the patient came back with the usual result as shown on the skin. A dermatitis had set up, the hair over the whole exposed region had fallen out and though it returned after a few months it was white. Dr. Scott says he has found that these accidents occur with every form of apparatus and in whatever way it is used. All the precautions now known may be taken and still this may result. The apparatus we used was perfect and yet a few weeks later his

wife remarked that "the barber had cut his hair too close," and when finally he came to me the head was absolutely bare at the exposed points.

In regard to the method, I tried some experiments with inserting the plate into the nose, getting the thin bones of the ethmoid as the only resistance. I do not know whether it can be retained long enough to take a good picture.

Dr. MAX J. STERN of Philadelphia—At the request of my friend and colleague, Dr. Hansell, I undertook a series of experiments last year, and developed our present method of taking the pictures. I recognized that the simpler this method is made the better the results must be. The way I started out was to bandage the plate to the side of the head and I have determined that that is by far the best way to take them. I allow the plate to overflap the face one or two inches, tilting it a little forward. The exposure has been reduced from forty or forty-five minutes to one-half a minute, which I now consider sufficient. I have now been using the higher vacuum tubes which give a much shorter definition and better penetration, and one-half minute is sufficient to get a foreign body anywhere in the eye. The tube is always placed eight inches from the face.

The admirable pictures shown by Dr. Sweet certainly shows his to be a good method, but I never used it because I believe that the shortness of the image and a knowledge of the anatomic points will, in the majority of cases at least, give the location of the body. There are two planes always shown in these pictures, the one at right angles to the other, and with these and the known location of the tube the object can be located. The closer the object to the plate the clearer will the shadow be, and the greater the haziness the further is the object from the plate. I always fix the patient's eye in a line with the pin point from which my X-rays emanate. A body seen directly in that line will show the plane in which the object lies. In this way the diagnosis can be made as to position. In Dr. de Schweinitz's case the location was pointed out, the body cut down upon and removed. The same was done in Dr. Hansell's case.

Dr. LUCIEN HOWE of Buffalo—After such an excellent presentation as we have had I hesitate to show such imperfect work as I have done; still there is one point which one of the pictures illustrates that has not been touched upon. I present these two pictures [passing them]. The first one shows two rabbit's eyes, a needle having been passed through one with the object of showing how distinctly the object could be traced. The second was an attempt to ascertain the relative opacity of different portions of the eye. Taking the eye of the hog and putting it in the curtain ring and having the rays come down upon it I thought I might get some hint of the relative opacity. It was imperfect but shows that the lens region is the most opaque.

Dr. ALBERT B. HALE of Chicago—I want to report one failure in the use of the ray. It was similar to the experiment just reported. The case was that of a girl of 20 years, who, several years ago, had one discission performed for a high grade of myopia. She had never gone back for another examination. When I found her the vision was very much reduced in that eye. Ophthalmoscopic examination showed the iris adherent to what was left of the capsule in an irregular way, but there had been no great iritis. In order to see what the lack of vision was due to, I had a photograph taken, which showed very distinctly the opacity of lens substance as mentioned by Dr. Howe. The question occurred to me, has the lens matter left there become opaque or has the vitreous become atrophied and induced atrophy of the retina. There was distinct opacity where the lens ought to be. Encouraged to think it was the lens, and that if removed rays of light might pass more readily, I did a very thorough discission. With the ophthalmoscope you could see very much further in toward the fundus. But there was no improvement of vision.

Dr. A. N. ALLING of New Haven—I am interested in these papers because I made a few experiments and came to the conclusion that it was possible to locate a body by these means. I must say, however, that I think cases in which this is a great help are extremely rare, that is, where our treatment of the case would be modified by the result of this experiment. It is of scientific interest more than of practical service.

Dr. J. A. LIPPINCOTT of Pittsburg—I would like to report briefly a case of this kind where I obtained a very satisfactory skiagraph of a body in the lower part of the eyeball. The case was an easy one, as the foreign body was large, being 2 cm. long and 1 cm. thick. Its position was satisfactorily demonstrated and we were enabled to extract it with a powerful magnet.

Dr. WILLIAM THOMSON of Philadelphia—In regard to the value of diagnosis in this case of Dr. Sweet, the wound of entrance was in the ciliary region and when I saw the man, vision was almost entirely lost. The media were transparent to the inner half, but to the outer part you could see a connective tissue deposit about the wound of entrance and back of that the retina seemed to be separated and there was a distinct tract of connective tissue in the vitreous. The papilla could be distinctly seen and the vessels were swollen. I became satisfied that it was impossible to gain any further knowledge of the condition by such examination and that it would have to be determined by the X-rays. This was done by Dr. Sweet and with great satisfaction I was able to do what I promised the patient. The eye was turned strongly toward the inner can thus and I passed a strong magnet in but failed to remove the metal because it was entirely encapsulated. I then passed a strabismus hook into the wound, picked up the mass of connective tissue and with a little effort brought it forward to the lips of the wound. I then passed the hook back and forth to see if I could detach this tissue, but failed. I then seized it with forceps and with the scissors cut it from its attachments and upon removing it found the foreign body encased. When the mass was placed in the hand and a magnet approached it it would move but could not of course adhere to it. One of my friends asked me when I concluded the operation, "Doctor when will you remove the eye?" It did not seem to me necessary to do so, and a week later the eye was in good condition and now it is all right, though the pupil is blocked by a dense mass of connective tissue.

Dr. G. E. DE SCHWEINITZ of Philadelphia—Through the skill of my friend, Dr. Stern, I think I have saved at least one eye by the use of the X-rays. The details were localized without the excellent apparatus of Dr. Sweet which we did not have at hand at that time. It is now five months since the operation and the vision is 20–50.

THE ELECTROMAGNET OF HAAB IN THE REMOVAL OF PIECES OF STEEL FROM THE INTERIOR OF THE EYE.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

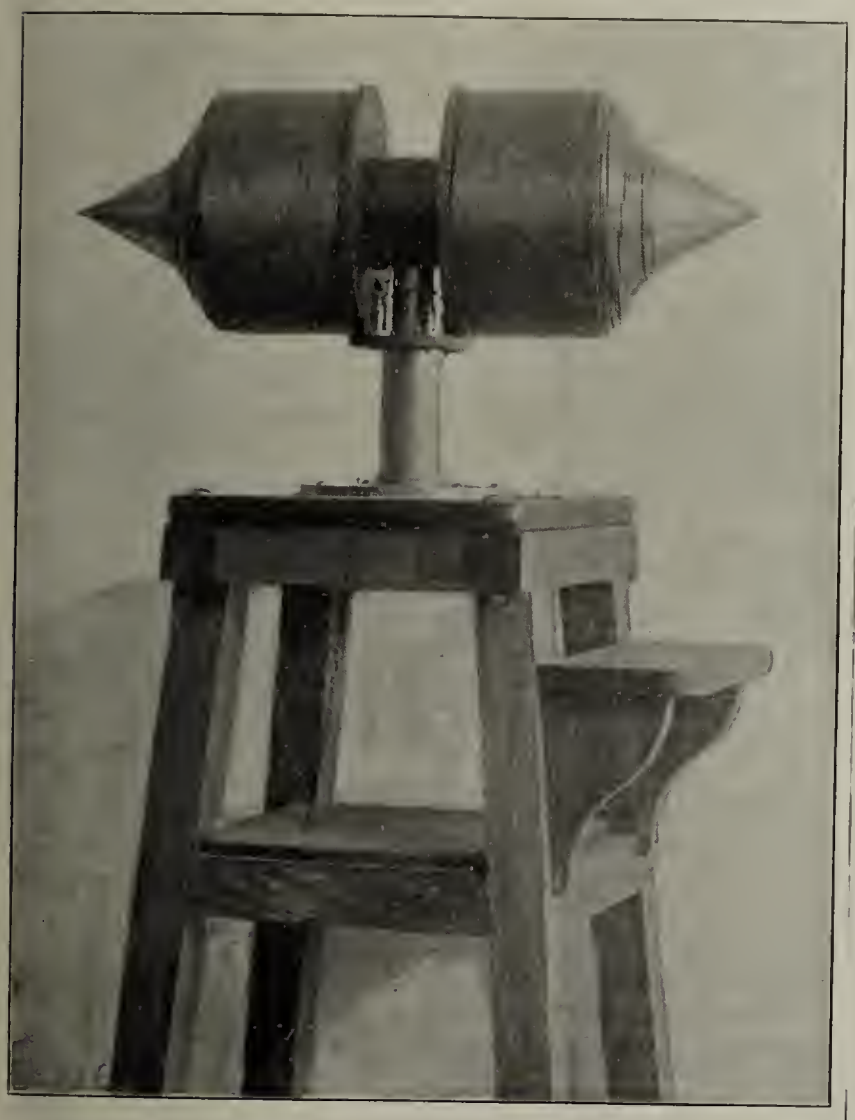
BY JOHN E. WEEKS, M.D.
NEW YORK, N. Y.

The introduction of the large magnet for the removal of pieces of steel or iron from the interior of the eye, which we owe to the enterprise of Prof. Haab of Zurich, provides us with an instrument of much value in a large proportion of such cases. It is of no value whatever in the cases where the foreign body in the interior of the eye is non-magnetic; fortunately such cases are not the most common.

Haab's interest in strong magnets for this purpose was engaged by the first case which he reports ("Trans. Oph. Soc.," Heidelberg, 1892, p. 162). The patient was a woman 32 years of age. On June 1, 1892, a piece of steel passed through the cornea and anterior chamber and lodged in the posterior part of the lens projecting into the vitreous. Haab thought that if he could bring the piece of steel into the anterior chamber its removal would be easy. Three weeks after the accident, the patient was placed so that the cornea approached the conical end of the soft iron core of a large electromagnet belonging to the physiologic laboratory in Zurich, and Haab was overjoyed to see the piece of steel retraverse the path which it had made through the lens and lodge in the anterior chamber, from which place it was easily removed. The results obtained by the use of a large magnet in three cases caused Haab (*Beiträge z. Augenheil.*, vol. xiii, p. 68) to have a special magnet made after designs suggested by Professor Kleiner in charge of the physical laboratory of the high school in Zurich. The dimensions are as follows:

Core of soft iron; diameter, 10 cm.; length, 66 cm.; weight, 30 kg.; beveled at the ends at an angle of

about 65 degrees to the perpendicular at the base of the cone. The point on either end is made to screw on so that more elongated and smaller points may be attached. Two spools of insulated copper wire are fitted to the core. These spools are separated from each other by an interval of 7 cm. The spools are composed of insulated copper wire 2 mm. in diameter which is wound in layers until the spool reaches the diameter of 23 cm. The spools are beveled at the ends corresponding to the core. The connection is made by means of the wire that enters each coil at its mesial aspect. The magnet is held in position by means of a brass stand to which it is pivoted, and the brass stand is attached to a suitable support. Haab's magnet, after which the one at the New York Eye and Ear Infirmary was constructed, employs a current of 50 to 60 volts and 6 to 8 amperes. The magnet will



Electromagnet. Pulling in straight line from point of tip, 6 pounds. Pulling with two pieces on steel placed on side of cone, 15 pounds. Pulling with piece of steel placed endwise on base, 7 pounds.

carry a current of 20 to 30 amperes for a short time.

Strength of the magnet.—Attraction for 1 gram of iron placed 5 mm. from the point of the magnet, 5.6 amperes, 113 grams; 7.9 amperes, 213 grams. Distance 10 mm., 5.4 amperes, 24 grams; 8.2 amperes, 63 grams; 10 amperes, 93 grams. Distance 15 mm., 6.4 amperes, 18 grams; 10.5 amperes, 63 grams.

A glance at these figures will suffice to acquaint one with the rapid increase in the power of the magnet with an increase of the tension of the current, also the rapid decrease of the attractive force on increasing the distance from the magnet.

By experiments Haab found that a piece of iron weighing 0.02 grams, lodged in the posterior part of the vitreous chamber could be made to pass through the vitreous and zonula and to engage in the iris by placing the cornea against the point of the magnet, but not through the lens or iris. The larger the foreign body the greater is the attractive force exerted.

Haab's idea was not that the large powerful electromagnet would supplant the small electromagnet, but that in certain cases it would serve to remove the foreign body through the original wound; in some cases it would serve to bring the piece of iron or steel to a part of the eye where it could be easily removed by incision and use of the small magnet, and in still other cases it could be employed for diagnostic purposes. All of these procedures are valuable and can not be so readily accomplished by any other means.

The following cases, occurring in the author's practice are illustrative:

Case 1.—August S. (*Arch. of Oph.*, xxvi, p. 84) aged 15 years, came to my office May 3, 1896. About eighteen hours before, while playing with two hammers, striking one against the other, a bit of steel broke off and struck him in the left eye. The patient consulted Dr. Knapp, who kindly sent him to me with the request that a trial be made to remove the foreign body with the large electromagnet in possession of the New York Eye and Ear Infirmary.

Status præsens.—A small curved wound 2.5 millimeters in length, from which a bead of vitreous and a piece of iris protrudes, is observed at the limbus conjunctivæ to the inner margin of the cornea and on the horizontal meridian of the globe. The anterior chamber is partly filled with blood. Pupil oval and drawn to the nasal side; it measures 5 by 8.5 millimeters. There is some blood in the vitreous chamber. Tension -2. Vision = perception of light. The patient was immediately sent to the Eye and Ear Infirmary, admitted on my service and prepared for operation. Dr. Knapp and many others were present at the operation. Under cocain anesthesia, the prolapsing iris and vitreous were excised. The wound was then enlarged by continuing the incisions in the limbus above and below, 2 millimeters at each end, and by making an incision 2 millimeters long into the corneal tissue at right angles with the vertical incision; the whole forming a T-shaped wound. The patient was then approached to the sterilized point of the great magnet, and when the eye was within about 4 millimeters from the conical end of the magnet, the piece of steel flew from the wound in the eyeball and adhered to the point of the magnet. The pillars of the coloboma were replaced, the margins of the wound adjusted, atropin instilled and a double bandage applied. The piece of steel measured 2.5 millimeters by 1.5 millimeters by 0.75 millimeter.

Seven days after the operation the patient left the hospital, the wound had healed and the blood had disappeared from the anterior chamber. The vitreous was hazy and remnants of a clot were present in the inner third of the vitreous chamber. There had been no pain and no inflammatory reaction after the operation. Seven months after the accident the vision with correction equaled 20–30 +, the lens was perfectly transparent and the eye was used with its fellow without discomfort.

In this case, the piece of steel pierced the fibrous coat at the limbus, passed through the iris and suspensory ligament and lodged in the vitreous humor, not injuring the lens. The result proved the wisdom of the attempt to remove the foreign body through the original wound.

Case 2.—Henry W., aged 18 years, Feb. 27, 1896. Two hours before presenting himself at the New York Eye and Ear Infirmary, while at work punching bolt holes in steel plates, a small piece flew and struck him in the right eye. He was immediately admitted to the Infirmary on my service.

Status præsens.—A small penetrating wound about 3 mm. in length was observed in the limbus at the lower margin of the cornea. Slight hyphemia; anterior chamber one-half the normal depth; pupil drawn slightly downward. A small black spot was observed in the sinus of the anterior chamber below, which was supposed to be the foreign body.

Operation.—Cocain was instilled and the tip of the small electromagnet was applied to the lips of the wound without result. The wound was then slightly enlarged with scissors and the small magnet again applied without result. The

patient was then brought to the large magnet and the eye at the site of the wound made to approach the point of the magnet in a right line. Pain was experienced and the tissues at the site of the wound bulged markedly. The wound was again slightly enlarged and a second attempt made to extract with the large magnet. The foreign body did not escape but it became evident that the foreign body was immediately behind the iris, which was drawn forcibly against the wound. A small iridectomy downward was done and the eye again approached to the magnet. No result. The wound was then converted into a T-shaped one, the eye approached to the point of the magnet and when within 2 mm. of the point the foreign body flew from the eye and became attached to the point of the magnet. The columns of the coloboma and lips of the wound were carefully adjusted and a double bandage applied. The piece of steel was 4 mm. long and 1.5 mm. in diameter; it had undoubtedly passed through the cornea, iris, zonula at margin of lens and lodged in the vitreous chamber.

Five days later, eye quiet, numerous floating opacities in vitreous from previous hemorrhage, obscuring details of fundus. Lens clear. March 12, discharged. Eye quiet. V. = 2-200. May 1, 1897, lens partly opaque, anterior chamber shallow. V. = 1-8. Eye very slightly injected but painless.

Case 3.—Delare M., aged 41 years. Dec. 18, 1896. This morning while at work as a boiler riveter, he was struck in the eye by a piece of iron, presumably from a rivet. The patient was admitted to the New York Eye and Ear Infirmary on the service of Dr. H. D. Noyes, who kindly permitted me to conduct the case.

Status præsens.—Marginal wound of lower lid 6 mm. long, corresponding wound of cornea, linear and extending 6 mm. into clear cornea from the limbus upward and inward, 30 degrees from the vertical meridian. The wound also extends an equal distance downward and outward from the limbus, dividing the sclera and conjunctiva. Anterior chamber partly restored. Small quantity of blood on iris below. Iris apparently uninjured but adherent to posterior lips of corneal wound. Conjunctiva at site of wound swollen and ecchymosed. Fundus can not be seen. V. = 1-∞. Projection normal.

Operation.—Cocain anesthesia. The eye was approached to the point of the large magnet. Pain was complained of and there was a possible bulging of the tissues at the site of the wound. The wound was enlarged downward and a T-shaped incision made. Repeated attempts were made to remove the foreign body by bringing the point of the magnet into the wound. Pain was complained of, the eyeball was forcibly drawn onto the magnet and rotated slightly inward, but the foreign body was not removed. The patient was then etherized and the small magnet employed; the probe point being passed to the posterior part of the eye. Although at one point traction was experienced and it was thought that a metallic substance was felt, there was nothing more positive and no foreign body could be removed. As the patient had not consented to removal of the eye, the scleral wound was sutured and the eye bandaged. December 22, more or less pain has been experienced since the operation. Chemosis marked. The patient consented to enucleation, which was then done. On introducing the scissors to divide the nerve the foreign body was felt lying close to the sclera. Examination of the globe disclosed a linear wound situated a little to the temporal side of the optic nerve through which the chip of iron had almost entirely passed. Its force was spent just as it emerged from the sclera against which it lay, being displaced by the point of the enucleation scissors. The foreign body proved to be a piece of iron, irregularly circular, measuring 6.5 mm. in diameter by 1 mm. thick. Recovery was uneventful

The magnet has been used by some of the surgeons of the New York Eye and Ear Infirmary for diagnostic purposes and found to be of considerable value in determining the presence of a piece of steel in some part of the globe.

My experience in the use of the large magnet has forced me to recognize its superiority over the small magnet in all cases of recent injury where the wound is situated in the anterior segment of the globe where it can be approached by the tip of the magnet in a right line. With slight enlargement of the original wound, the foreign body, if it be steel or iron, can be made to retraverse the path made by it and the removal effected without introducing an instrument into the interior of the eye and without making a second opening into another part of the eye.

We all know how seldom an eye recovers with any degree of vision and how often it becomes necessary to remove an eye after a foreign body has been extracted by the usual opening through the sclerotic employing the small magnet. I think that the use of the large magnet will give us a large percentage of recoveries. In cases where the foreign body has passed into the vitreous and remained for more than a week, I doubt the value of the large magnet, but in cases where the lens is the resting place of the foreign body as in Haab's first case, it will be of value. For diagnostic purposes it will aid materially.

DISCUSSION.

Dr. HAROLD GIFFORD of Omaha—Some years ago I had one of these Haab's magnets made. I am afraid that members of the profession have been frightened away by the idea that they were very expensive. I do not know whether I have a liberal electrician or not, but I had the magnet made for about $72. The only difficulty I find is that it is hard to keep at hand a source of electricity that will run it. I at first had large storage batteries made, but when I wanted to use them they had usually run out. The ordinary alternating current will not suffice and it is hard to get connection with the street current. This magnet is certainly a great instrument and these cases of Dr. Weeks illustrate its value, though I should not be inclined to limit the use of the magnet to recent cases nor to cases in which the foreign body is in the anterior portion of the eye, it is certainly worth while trying for deeper objects. I never yet have brought out a foreign body with the Haab magnet I am sorry to say, but it has given me useful indications as to what I should do. In one case I was not sure whether the foreign body was in the vitreous, in the sclera, or had passed through the eye. The Haab magnet showed me that it was just behind the iris. I went into the wound then with the small magnet and although I never knew whether I got it out or not, the man's symptoms immediately ceased. In another case where the lens matter was cataractous immediately after the accident, I used the large magnet, and as the man had no pain, I judged that the substance must either be fixed in the sclera or had gone through. I waited, the lens cleared up; it had been so opaque at first that I could scarcely see any of the fundus, and at the end of a few days I could see perfectly well and found the foreign body embedded in the sclera.

Dr. H. KNAPP of New York—I think it is of very great use especially if it is not necessary to go into the vitreous. To go into the vitreous, even if you get the body out successfully and find that the eye is good for three or four months, it will not be good after three or four years; so if you can get it out without going into the vitreous this instrument is of immense value.

Dr. J. A. LIPPINCOTT of Pittsburg—The disadvantage of the Haab magnet is its non portability. If a magnet can be constructed that is portable, it can be used where this is not serviceable. Some few years ago I had such a one constructed; it would hold up about fourteen or fifteen pounds from a point, which is considerable force. With that I have removed five foreign bodies from various portions of the eye, by using current from the street, or rather, by continuous current from a private establishment. These large magnets are also of great value in a diagnostic way, for they not only demonstrate the foreign body in the eye by means of the pain elicited, but you can demonstrate the approximate position of the body. In all the cases in which I have operated I was able to tell about the place occupied by the foreign body by eliciting pain and traversing that area in gradually diminishing circles, with a small needle attached to the magnet.

Dr. S. C. AYRES of Cincinnati—I have never used the Haab magnet but have had a large experience with others. The first time I used it I was very successful and the patient was saved very fair vision. In another case where the foreign body was a crescent-shaped piece of steel, had penetrated the cornea I passed the magnet in and could feel that it came in contact with a foreign body, but the sensation was so slight that I was somewhat uncertain. I found later, after enucleation, that the foreign body had penetrated the sclera and my magnet had come in contact with the end which was protruding in the vitreous. In another case I found the foreign body encysted and in another discovered it later in the orbit.

Dr. E. E. HOLT of Portland, Me.—Having had quite an experience with the use of electromagnets, I have felt quite interested in this subject. I have found that in those cases in which I could make out the exact location of the body it as

quite as difficult to get the body out, or more so than if I could only estimate where it was. I think in 75 per cent. of my cases I was unable to see the body, but only estimated its position and in most of those cases I succeeded in getting the foreign body by the magnet.

Dr. J. E. WEEKS of New York—I wish to correct the impression that Dr. Gifford obtained, that I limited the use of the magnet to detecting pieces of steel in the anterior portion of the globe. Experiments made by Haab show that pieces of steel that are encysted will not be affected in the majority of cases except that the contact causes some pain to the patient and as a diagnostic means the magnet serves a good purpose.

The magnet is not portable and consequently is limited somewhat in its usefulness. A case I had a few days ago illustrates this very well. It was necessary to open the sclerotic near the equator of the globe and it was impossible to move the patient to the Haab magnet after this opening was made, because of the fear of producing prolapse of the vitreous humor. In that case the small magnet was used with success.

SHOT-GRAIN WOUNDS OF THE EYE.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4. 1897.

RY LEWIS H. TAYLOR, M.D.
WILKES-BARRE, PA.

It has been my fortune or misfortune to have under my care from time to time, a large number of patients suffering with wounds of the eyeball. Some of these have proven especially interesting to me owing to the serious nature of the injuries and the final results attained by conservative treatment. From among them I desire to present to the Section the histories of a few cases of shot-grain wounds, which I will relate briefly and follow with such remarks on wounds of this character as this brief paper will allow.

Case 1.—E. G., aged 37 years, came in the evening of Nov. 22, 1892, his right eye having been struck about 3 o'clock in the afternoon, by a shot grain from a companion's gun. From his position at the time of the accident the shot had evidently first struck a stone wall and then glanced to the patient's eye. It had passed through the lower lid and entered the globe just inside of the sclerocorneal junction, the iris being partly caught in the wound. The shot could not be seen so I instilled atropia and decided to wait till morning.

On the morning of November 23, the iris being dilated the shot grain could be seen imbedded in the lens and I decided to attempt its removal.

After making a downward section and iridectomy, with combined external and internal manipulation with loop and spatula, I succeeded in dislodging the grain and then removed it with forceps. The eye was bandaged and treated with atropia and boracic acid daily. The reaction was considerable, but this quieted down finally and the lens absorbed leaving a fairly good eye in appearance but with a dense capsule remaining and no useful vision.

In July following (1893) I lacerated this membrane with discission knife, leaving a clear central pupil with vision, in 1895, of 20-c.

Case 2.—G. C., aged 27 years, was out hunting on Nov. 2, 1894, and a stray shot from his companion's gun struck his left eye penetrating the upper lid and entering the eyeball a quarter of an inch above the corneal scleral junction. He entered the Wilkes-Barre Hospital on November 3, and I treated him there until November 24. When I first saw him the anterior chamber was full of blood, iris invisible, and vision entirely gone. The patient was placed in bed, atropia instilled and leeches applied to the temple from time to time. He came to my office November 28, with iris entirely clear, pupil dilated V. 20-cc and fundus partly seen with the ophthalmoscope.

Dec. 24, 1894. Eye now free from irritation and looking well. Pupil still dilated. Ophthalmoscope shows a dark object in the anterior part of the vitreous resting on the floor of the eye, probably the shot grain encapsulated. V. 20-c. The nerve can be partly seen with the ophalmoscope. Some shreds remain in the anterior part of the eye. Now use acid boric, with weak eserin solution.

Feb. 27, 1895. V. in O. S. 20-lxx, some in 20-l. Nerve and vessels quite distinct. Shot still remains in the anterior part of the vitreous back of the lens. With +1, V. = 20-xl.

March 30, 1895. V. = 20-xl with + .50, 20-xxx. Doing well, no pain or inconvenience. There is a slight depression in sclera at the point where the shot entered. In this case, with treatment wholly conservative, the patient recovered with useful vision and saved his eye, which at first appearance decidedly indicated enucleation.

Case 3.—J. T., aged 27 years, came Oct. 26, 1896. He was out gunning the previous afternoon and was shot in the left eye. One grain entered the eyeball a little above and back of the insertion of the internal rectus, but it could not be determined whether this lodged in the eyeball or passed entirely through it. Another shot penetrated the upper lid near the central margin, about three-eighths of an inch above, passed entirely through the lid and probably into the eye though the corneal wound could not be seen. Another passed through the right ear and another under the skin of the right temple for a half an inch.

The lids and conjunctiva were much swollen and blackened with extravasated blood. He was seen on the evening of October 25, the day of the accident, by Dr. Buckman, who instilled atropia and ordered iced compresses to be used through the night. There was now no pain, the pupil dilated, the conjunctiva much swollen but the eye quite comfortable. A clear view of the fundus could not be obtained. There was much cloudiness and evidently blood in the vitreous chamber. He could see a waving hand but could not count fingers at any distance. Here was a serious wound and one in which, owing to danger of subsequent sympathetic ophthalmia, enucleation would probably have been justified. In view of the good result in the previous cases I decided to delay operation and endeavor to save the eyeball even though a sightless one. No effort was made to find the shot. Iced compresses were continued and atropia instilled every three hours.

On October 28, the eye being entirely comfortable and swelling subsiding, the iced compresses were discontinued. Pupil was now dilated but not quite regularly so.

October 31, he reported that in the morning when he first comes to the light the right eye is sensitive, but it soon becomes accustomed to the light and is all right. Patient is not confined to the house but comes to the office daily and his eye is kept bandaged.

November 3. Clearing nicely. Sclera showing. A little blood in anterior chamber.

November 5. Now worse; he went, on the evening of November 3, to be initiated into a lodge and for the first time encountered a bright light. Both eyes congested. Atropia uow used in both and iced compresses applied. This irritation soon subsided and the eye again did well, but on November 16, knowing the possibility of future complications, I advised a consultation and he went to New York, saw Dr. Knapp and remained two weeks under his care. Dr. Knapp agreed as to the possibility of saving his eye and advised delay as to operation, and keeping careful watch as to signs of sympathetic irritation, etc.

I kept him quiet for some weeks, using atropia occasionally. Early in January he went back to his work as mining engineer and reported in the latter part of January, 1897, that he was able to continue his work with the right eye all day without fatigue or inconvenience. There is still no vision in the injured eye, as he merely sees a waving hand. He is entirely comfortable and greatly pleased that the eye was not enucleated, though he was perfectly willing to have it done in the first place had I so advised, rather than run any risk whatever of injury to the other eye.

I saw him recently, May 23, 1897, and the eye was then doing well, V. 20-cc. He can read J. xvi, and the eye seems to be gaining daily. He first noticed that he could see some time last February when out surveying while there was snow on the ground. He is annoyed a little with diplopia, but this is lessening as time goes by.

While thinking of preparing a paper on this subject I have been interested in looking up the literature of similar cases. While not extensive it is certainly suggestive and well worthy the consideration of those who are so ready to enucleate every eye that sustains a serious injury.

Valois (quoted in *Annals of Ophthalmology*, January 1897, p. 193) asserts that, in his experience, shot are among the most frequent of the foreign bodies that by accident penetrate the eyeball; they may enter the globe directly from the gun, or indirectly, after having passed through, or glanced from some other foreign body. "Wounds received from direct

shot are less apt to give trouble than those received indirectly, because, in the latter instance, they may be infected from contact with the reflected body, or the shot may be flattened and so inflict an irregular wound, a condition of things that materially increases the chances for infection after the accident. It is not believed that shot produces the slightest inflammatory action by virtue of any chemic properties of lead; although the vitreous promptly resents the presence of all foreign bodies, it is to be remembered that a shot is tolerated much better than any other extraneous substance."

A very interesting case of gunshot wound of both eyes, studied nine years after the accident, is reported by Dr. Robt. R. Saunders in *Annals of Ophthalmology*, July 1895. In this case one eye recovered full vision while the sight of the other was entirely lost.

Dr. Badal (*Annals d'Oculistique*, January 1895) reports a case in which an eye enucleated on account of shot-grain wound showed upon examination that the shot had crossed the eye and passed out through the sclera of the opposite side and lodged in the orbit. This is the second time he had found a similar condition. He pertinently adds: "I am led to think that hereafter it will be best to wait and not enucleate an eye wounded under similar conditions, as the shot which is lodged in the orbit is in general very well borne and the eye preserves its form and gives no occasion for surgical interference." Dr. Lagrange in discussing the above says: "I have seen a patient with the same conditions as those described. A shot had penetrated the eye and I proposed enucleation, which was refused. Some time after I saw the patient again with the eye in very good condition. In the future I shall be more reserved and wait until enucleation is necessary." Dr. Simon Snell ("Transactions of the Oph. Soc. of the United Kingdom," 1893), reports a case in which a pellet of shot was driven through the eyeball, with retention of perfect sight. "The patient was seen the same day and the question of enucleation delayed to obtain consent of the lad's father. Atropin and iced pads were used. On the following day the eye was doing so well that the question of enucleation was delayed from day to day. The vitreous gradually became clear and it became evident that no foreign body was situated in the interior of the eyeball. It was moreover rendered probable that the pellet which had entered the eyeball through the sclerotic on the inner side had passed out again close to the optic disc on its inner side. Vision further improved within a few days after the accident, and gradually returned to practically normal sight. Nine months after the accident he reads J. 1 readily and V. = 6–6."

T. R. Meux ("Transactions of Tennessee State Medical Society," Nashville, 1896) reports his own case in which the shot entered the eye causing considerable reaction. Several surgeons advised enucleation, but the eye subsequently recovered so that eight and one-half years after, no difference could be distinguished between the two.

Playne ("Oph. Hospital Reports," London, 1858) reports a case in which shot entered the eye causing strabismus and ptosis with subsequent entire recovery.

Dr. Casey A. Wood (*Amer. Jour. Oph.*, 1890) speaking of the comparative danger from shot and other wounds of the eye, such as knife blade, glass, etc., says: "Less likely also is the shot to disturb the ocular membranes, to make a ragged wound, or to remain in the cavity of the globe. It goes through and makes a 'clean' passage. In scleral ruptures and in penetrating wounds made by other agents, the probability of other accidents is also greater than when small shot enters the eye. Among these are dislocation of the lens, retinal detachments, loss of vitreous and extensive intra-ocular hemorrhages. In a word, so far as the eye is concerned, the effects of wounds made by small pistol bullets and the various kinds of bird or buckshot are confined to the tissues through which they immediately pass, while the lesions resulting from scleral ruptures and penetrating wounds of other kinds are far more reaching and destructive in character."

It has seemed to me that shot-grain wounds are really less dangerous than we would naturally expect them to be from the nature and severity of the injuries received, and that in some way these grains are more nearly aseptic than foreign bodies in general. I thought this might be due to the heat generated by the powder explosion, but on examination of an ordinary bird-shot shell I find, covering the powder, a series of wads at least three-fourths of an inch in thickness, so that it is not probable that any of the flame from the powder explosion comes in contact with the shot. The heat developed by the velocity of the shot in passing through the air is thought by many to render the grain aseptic, but Dr. Suter of Herkimer, N. Y., claims to have proven by experiment that the heat developed by bullets during the passage through the air is not sufficient to render them aseptic as is generally stated. He found at least that the bacillus of anthrax would survive the ordeal and infers that it is not safe to consider bullets sterile of the germs.

Tornatola reported (*Arch. für Augenh.*, 491) in twenty-one cases of shot-grain wounds of the eye that he had noticed sympathetic affection necessitating enucleation in only a single case. He attributes this favorable result to the antiseptic treatment of the wound. Shot-grains discharged from a gun were always found aseptic, while those taken in the condition as received from the store and placed in gelatin or bouillon always developed numerous colonies from which he could often isolate the staphylococcus pyogenes albus. In experimental shot-grain wounds in the eyes of rabbits in eight cases out of ten he retained the form and tension of the bulb, provided the eye was disinfected previous to the wounding and treated antiseptically immediately after. On the other hand, in twenty cases wounded in a similar manner, in which there was no attempt at disinfection and no treatment following the wound, there followed fourteen cases of phthisis bulbi, five of panophthalmitis and only a single case which retained its ordinary appearance."

I think we may safely conclude:

1. That shot grain wounds of the eye are less dangerous than wounds of similar severity from many other causes.

2. That in general an eye wounded by shot grains, unless the wound be one of unusual severity, should not be immediately enucleated, but should be treated, conservatively under careful observation.

3. A patient with a wound of this character should rest in bed for a period of two weeks or more, and the wound be treated under most rigid antiseptic precautions.

Additional interesting cases bearing on this subject may be found as follows:

John Butler: London Med. Gaz., xiii, 1888.
Arthur Benson: British Medical Journal, 1882, ii, 1085.
J. W. Southworth: Buffalo Medical and Surgical Journal, 1872-3, xii, 9-10.
Wm. Caston: Texas Medical Journal, 1887-8, iii, 311-314.
A. Poland: Oph. Hosp. Reports, London, 1858, i, 214.
White Cooper: London Jour. Med., 1851, iii, 969-976.
E. Willmer Phillips: Lancet, London, 1888, i, 1071.

DISCUSSION.

Dr. C. W. KOLLOCK of Charleston, S. C.—I believe there are many eyes wounded by shot grain in which it is useless to enucleate because the shot has passed through the eye. In one case I saw, the shot passed directly through the ciliary body and then out into the orbit. I had the pleasure of examining this eye four or five years afterward and there was no trouble with the eye.

Another point in these cases is that those cases in which the shot passes through the cornea without wounding the lids, if they remain in the eye there is not apt to be any ecchymosis of the lids. If the shot has passed through into the orbit there will be. That I believe to be a diagnostic point.

Dr. C. A. WOOD of Chicago—Some years ago I reported a series of these cases in the *American Journal of Ophthalmology* and I came to nearly the same conclusions as Dr. Taylor has. I then advanced the idea that shot grains were probably aseptic at the time of penetrating the eyeball. It seemed to me the friction of the shot grains in passing through the air rendered them sufficiently aseptic to account for the condition that occurs after the trauma. I think that has much to do with the favorable results obtained after injuries of this sort.

Dr. ROBERT L. RANDOLPH of Baltimore—I think that Dr. Wood has suggested the probable explanation of this matter. Some few years ago Dr. La Garde of the U. S. Army made some experiments with regard to the infectiousness of gunshot wounds. He stood at varying distances from culture media and fired into the media with pistol and rifle. In the majority of cases he obtained negative results, that is to say the test showed that the bullet was aseptic. The aseptic condition of the bullet then would explain the comparative freedom from disastrous results after gunshot wounds.

Dr. HAROLD GIFFORD of Omaha—I would remind Dr. Randolph that the experiments referred to also gave a number of positive results and that the conditions surrounding the ordinary bird shot are not so favorable as those surrounding the bullet. You have not the chance of the flame and heat of explosion coming into contact with the shot as with the bullet in the smooth-bore rifle. The chemic properties are probably more important than the aseptic properties.

Dr. L. H. TAYLOR of Wilkes-Barre—I thought they were rendered aseptic by contact with the flame, but on examining the shells, I found them covered by a dense covering three fourths of an inch in thickness, so I conclude that the flame has little to do with it, but friction in passing through the air may have much to do with it.

IN WHAT CASES AND WHEN TO ENUCLEATE IN INJURIES OF THE EYE.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN M. FOSTER, M.D.
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There is probably no class of cases that fall to our care that give us the same amount of anxiety and solicitude as to the probable and possible outcome, as that which occurs in the injuries, especially in the penetrating wounds, of the eye. The experience of years and a large number of cases does not enable us to say with any degree of precision, this case will have sympathetic ophthalmia, or panophthalmitis, or that that case will not. We know that in a certain class of accidents, especially in those where there has been deep, penetrating wounds, more particularly in the ciliary region, serious results are liable to follow, and they often do. But, on the other hand, how frequently we note the termination of these unfavorably appearing cases in kindly healing, without the slightest untoward symptom; no irritation of the fellow eye, and even a better result in the injured one than we had any expectation of seeing.

It is precisely this uncertainty, and the dreadful consequences that are liable to follow these injuries, that lends this subject an intense and continuous interest, giving it a respectful hearing at all times. If we could feel sure that any age, sex or condition gave an injured eye exemption from the liability of affecting its mate, we could have the comfort of feeling secure in at least a small percentage of our cases, but unfortunately we know of no such exemption. Our clinical experience has not given us such assurance, but, on the contrary, has shown beyond doubt that age, at least, has a bearing and not a favorable one; for we have ascertained that children under the age of puberty are more prone to sympathetic ophthalmia after injuries, than at any other period of life. We have not been able to go further, however, and determine any time at which there is any degree of immunity. The question is not the amount of safety age affords, but one that asks us at what age we feel the most anxiety.

Naturally, the first point of interest in any accident to the eye would be the character, and, secondly, the location of the injury or wound, affecting as they do our prognosis and treatment to such an extent, as is hardly the case in any other part of the body. Slight superficial injuries, such as are produced by blows with the fist or a dull instrument, causing contusions and bruisings of the coverings and appendages of the eye without solution of continuity of the ball itself, while they frequently are productive of serious or fatal results to vision, are in the rarest of instances followed by sympathetic affection of the uninjured member. Indeed, so seldom do we find even a sympathetic irritation from this class of injuries that we content ourselves by bearing in mind the possibility of a complication, and concentrate our attention upon the alleviation and betterment of the injured eye. Under these circumstances, that is, with no pain, irritation or photophobia, we would hardly give the subject of enucleation serious consideration, bearing in mind also the large number of even severe injuries of the eye that are not followed by sympathetic ophthalmia; only two occurred in something like six hundred cases, thus allowing us to discard a large percentage of cases from the subject in hand.

It is a far different matter, however, when we deal with a penetrating or poisoned wound, even if the instrument or particle producing it is *not* left in the globe. Its presence, nevertheless, adds that much more to the gravity of the case; while a demonstration of its absence, which is not always an easy matter, does not give a sense of relief or a feeling of security. In any event, we have a serious condition before us, which is influenced by several factors, viz., depth, position and character of the wound, as well as the presence or absence of a foreign body. All serious questions, demanding serious consideration.

Our prognosis and method of procedure will be modified or entirely changed oftentimes by the position of the wound almost alone; that is to say, when we find a gaping, lacerated wound in the region of the ciliary process, we consider the case very much more serious and more likely to demand stringent proceedings than if it is in the conjunctiva somewhat remote from this situation. We can, I feel, be governed by the following: All things considered, a wound in the ciliary region more often demands enucleation than in any other locality, and that we should not hesitate in these special cases to do the operation if there is

excessive pain, indication of purulent inflammation in the affected eye, or if there is irritation, shyness of light, corneal haziness or discoloration of the iris, however slight, in the uninjured eye. The question of a foreign body in an eye renders the probability of an enucleation more probable, but is not *per se* an indication for the operation.

The question of a poisoned wound one with undoubted contamination with bacteria of any description, demands, as a rule, enucleation. I do not suggest this with the belief in my mind of the migratory theory of sympathetic ophthalmia; on the contrary, I am convinced that the only way for trouble to be started in the second eye is by means of the intimate relations between the lymph channels and spaces, the irides, etc., as shown by the majority of cases exhibiting a serous uveitis, punctate keratitis, which confirms me in the belief that a sympathetic ophthalmitis does not arise from a migration of bacteria through the optic nerve. In sympathetic ophthalmia, staphylococci and streptococci are occasionally found in both eyes, but are not the specific cause of the disease, as shown by our inability to reproduce it by inoculation. It is caused more probably by the irritation of the ciliary nerves producing a reflected disturbance of the blood and nutrition of the uninjured eye.

In panophthalmitis, microbes are plentiful, as one would naturally suppose. Streptococci, staphylococci, and varieties of micrococci, with marked infiltrations of the ciliary body and edema of the papilla.

However, it is not the purpose of this paper to discuss the merits of the different theories of the origin of the trouble; my own belief in the matter is expressed to explain in a measure my position as to the best methods of dealing with or against the disease, finding, as I have done, that section of the nerve does not replace enucleation as a preventive measure against sympathetic ophthalmia.

We must bear in mind that this disease is a rare one, and as our operations are mostly done as a prophylactic measure against its onset, or done in cases that have been blind for months or years, it renders our statistics inexact, especially as a sympathetic ophthalmia occasionally sets up after an enucleation has already been done. In this connection I will say that experience has proven that in these cases the inflammation is less virulent than that which occurs when the operation has been too long delayed.

In what cases to enucleate.—Give the operation serious thought in penetrating wounds of the ciliary region, but do not do an operation for every ciliary wound. Enucleate regardless of the situation of the wound in cases where there is marked inflammation of the injured eye and photophobia in the other; also when panophthalmitis is threatened.

The time to enucleate is as soon as possible after deciding it is necessary.

It is seldom that a prophylactic enucleation is followed by a sympathetic ophthalmitis; on the other hand, cures are at times established in cases where the symptoms have been well marked for several weeks. As a rule, however, in case the trouble has commenced, the primarily affected eye should only be removed after the inflammation has been so severe and lasted so long that there can be no hope of restoring vision. If sympathetic ophthalmitis affects the sound eye shortly after an enucleation of the injured, we feel certain that ill-defined and veiled symptoms have been overlooked and it had already begun to suffer before the operation was performed.

Where the inflammation follows after long delay, how can we account for it? As an example note an atrophic globe following an old injury, absolutely quiescent for years, when suddenly an inflammatory action commences, and the fellow eye is lost with sympathetic trouble.

In panophthalmitis an early enucleation should be done for fear of meningitis following. This dreadful sequel has commenced as late as the twentieth day, but generally begins much earlier. We all know and recognize the deformity resulting from the lack of development of the orbit in a child, following enucleation, but this should not deter us from the operation in all suitable cases, for we must feel some pangs of conscience if sympathetic ophthalmitis occurs in a case that we have not operated on for cosmetic reasons. I am strongly inclined to lean toward the operative side when my first examination, shortly after the accident, leads me to feel positive that no sight will be regained in the eye.

WHEN EVISCERATION IS PREFERABLE TO ENUCLEATION.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY J. C. DUNLAVY, M.D.
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The services of an eye surgeon are so often demanded in cases of either recent or remote traumatism of the eyeball, as well as for many conditions resulting from disease of this organ, that some general rules of surgical procedure should be adopted for the guidance of those whose advantages for rational information have been necessarily more or less curtailed, and who for lack of proper knowledge are more liable to treat a patient in the generally recognized plan of the surgeons of his community, whether or not this plan is practiced or sanctioned by the better and more enlightened surgeons as being the more rational.

In general surgery we have amputating surgeons, and in eye surgery we have enucleating surgeons, both of whom are perfectly proper and indispensable, but, alas, either are liable to travel at too rapid a pace and leave death and maimed bodies with their baneful results to follow their respective practices along the generations to come.

The surgical procedure of enucleating, or the evisceration of an eyeball, is done for several purposes of more or less seriousness or importance, for a certain class of patients. One class of persons who can not afford to lose extra time from business or labor will often consent to the sacrifice of an eye, when the ball could have been saved entire by proper patience and careful treatment. Others who bear pain poorly will yield rather than undergo the suffering of a panophthalmitis; and finally, the skilful surgeon must demand the surgical means for purely scientific reasons to lessen the danger of the fellow eye. Until comparatively recently it has been almost a wholesale custom of surgeons, more especially those of less scientific attainments, to do the easier, quicker and more brilliant operation of enucleation in all cases calling for such interference, but a few well authenticated cases of death from meningitis following enucle

tion during a high stage of inflammation, has aided ery materially in calling a halt in this wholesale rocedure, and adopting the more conservative and cientific operation of evisceration instead. The rule hould be, if any can be established, in an injury to he eyeball, to eviscerate if the injury is of recent ccurrence, say within a few days. The theory of his rule is based particularly on the supposition that he migration of septic germs has not yet begun. Whatever the theories of extension of inflammation o the meninges or causes of sympathetic ophthalmi- is to the fellow eye, the more rational course to pur- ue is, for the surgeon to determine from all the onditions of the case, what appears best suited in ach individual case. If his judgment be poor, the atient suffers.

It is perfectly rational in this condition, as in all thers, to sacrifice as little as possible concurrent with he pathologic state of the eye. I believe no eye sur- eon of respectability at the present time would think f enucleating when the globe is filled with pus, for he reason that channels already closed in the optic erve against migrating septic bodies might, by evering the optic nerve, be opened up and admit the ery sources of infection against which nature had ully guarded. And in cases where a foreign body as penetrated the eyeball and resulted in panoph- halmitis, and where the foreign body can not be ound by evisceration, it is better to enucleate and ake the chances of meningitis, but as a rule, avoid verything possible of a traumatic character in either rocedure.

In such cases, whatever may have been the cause, he rational procedure is to excise the anterior portion f the globe. The incision should be made far enough ack that the iris and ciliary body should be included n that portion of the globe excised; then with a pledget f absorbent cotton dipped into a solution of subli- ate, 1 to 2,000, or formol, 1 to 1,000, thoroughly ipe out all contents of the globe, leaving nothing xcept a clean and thoroughly washed sclera. This kes time and pains, but it is so rational that it well ays for the trouble. After the globe is thus thor- ughly eviscerated and cleaned, a single stitch of No. thread through the conjunctiva, not the sclera, rawn so as to merely shape the outer extremity f the sclera and not close the door completely, and n antiseptic pad of cotton or gauze applied under a ght roller completes the operation; after-treatment n the usual plans; this for an eye filled with pus.

In a more recent inflammation, where the eyeball nd orbital tissues are very much swollen and a estructive inflammation from some dirty or septic ubstance having penetrated the interior of the globe, he danger of meningitis is, to my mind, very great, nd augmented by any procedure which will in any ay tend to irritate the distal extremity of the optic erve. An eye in this condition should never be nucleated. Eviscerate in practically the same man- er as above described, except that the contents of he globe, which are not now purulent, can not be so asily and thoroughly removed by wiping and will eed to be removed by the use of some small instru- ent, such as a scoop, spoon or spatula, introduced etween the sclera and what is left of the uveal tract, nd the contents in this manner carefully removed. he after-treatment as well as the operation is to be one under strict germicidal rules.

These two pathologic conditions will serve to illus- trate the forms of panophthalmitis where evisceration and not enucleation should be done. In cases where the injury has been of such a nature as to leave cicatrices, which prevent the proper application of an artificial eye or to make the sunken globe appear more unsightly, or a constant dragging or pulling on the orbital tissues, which of itself may excite sympathetic ophthalmia, and from the nature of the injury these conditions are to be expected, the eye should be enucleated. In case of old inflammation, of whatever character, where the ball is tender, sore or subject to subacute attacks, if any part is left remaining the fellow eye is in constant danger and should be protected by the enucleation of the offending eye. In all cases where a foreign body is known to be lodged in the eye and there is greater or less inflammation, if the foreign body is not found by the process of incision or excision of the ball at some point, enucleation should be done.

At least two conditions exist where an eye should not be enucleated: When the globe is filled with pus and during a high state of acute inflammation.

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DISCUSSION.

Dr. H. V. WÜRDEMANN of Milwaukce—I rise for the purpose of advocating in the majority of cascs a properly applied enucleation. If the operation is completed by sewing up the conjunctiva in the form of a pouch we can get immediate healing and a stump that is partly movable, and if you wish to make the operation a little better you can pick up the recti muscles and bring them out of the wound. The patient can be fitted with an artificial eye within four days to a week afterward. Whoever has had a run of enucleation cases and gone to evisceration and had one case or more of sympathetic irritation will be apt to return to enucleation; whoever has done a number of successful eviscerations and has had one case of meningitis following his enucleation is apt to become a more earnest advocate of evisceration. Eight years ago I brought over a number of glass balls and I may have been unfortunate in having made a failure of the first two cases I operated on. In one I had sympathetic irritation, and since then I have been afraid to return to evisceration. This is despite the paper of Dr. Dunlavy and those of Dr. Fox. I have with me some specimens which I think show the advisability of enucleation [passing specimens]. One of the cases was an enucleation during severe panophthalmitis and the eyeball had to be removed to obtain drainage; simple incision did not give relief to the pus in the orbit.

Dr. J. C. DUNLAVY—The cosmetic effect has been fully discussed and we will not take it into consideration. Purulent orbital cellulitis should not be considered with this surgical proccdure at all, for evisceration could not be expected to evacuate pus in the orbit. Neither enucleation nor evisceration should be adopted by any person as the sole plan of procedure, because there are cases where every man ought to know that one is better than the other. The effort to save as much of the body as possible in the one instance and to lessen the danger of meningitis in the other are the two points I wished to bring out. About two years ago, during a session of the local society, a patient came in with a piece of metal in the eye. I removed it with the magnet and he had no trouble whatever. Some time afterward the patient hurt that same eye and I performed an evisceration, and on wiping out the cavity something caught on the cotton and I found it to be a splinter of metal. I mention it merely because it would be so unlooked for.

The Toxic Principle of Mushrooms.—The active principle of the *agaricus muscarius*, or fly mushroom, acts by paralysis of the nerve centers, causing death from the heart. There is no doubt that it is one of the most powerful of vegetable poisons. The antidote is the sulphate of atropin, hypodermatically administered at the earliest opportunity. This muscarin in the form of the nitrate or sulphate appears in the laboratory as a brown deliquescent mass, and has a recommendation as an antihydrotic with some virtue as a cure for diabetes insipidus. The eye symptoms in mushroom poisonings appear to be unrecorded.

THE MANAGEMENT OF CHILDREN WITH AN INHERITED TUBERCULAR DIATHESIS.

Presented to the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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There are diverse views concerning the so-called inherited tubercular diathesis; some even deny the existence of such a thing; others fully believe in it. Vogel is one of the latter. He regards heredity as an important etiologic factor in the production of infantile tuberculosis, because children born of parents affected with this disease develop it when exposed to bad hygienic surroundings. Baumgarten thinks there is a virus transmitted from parent to offspring. Bend is arrayed against him. Edward Squire of London from a study of 1,000 cases concludes that heredity accounts for 9 per cent. of cases among children born of phthisic parents, in excess of cases among children of non-phthisic parents. He therefore believes that heredity in these cases means simply a tendency to suffer from diseases, tuberculosis among others, which all children born of weakly parents have in common. Dr. Solomon Solis-Cohen says, "to make our conception of the disease sufficiently comprehensive, we must include other elements than the bacillus and the changes in cellular structure, or in chemic constitution of solids and fluids brought about by its activity. There is in the constitution of the individual, anterior to bacillary infection, something that determines the fact of infection and that largely determines, also, the course and character of the results of infection. We must not remain satisfied to cover our ignorance by naming this determining element 'susceptibility,' or negatively, 'lack of resisting power' to the bacillus; nor is it any advance to speak vaguely, whether figuratively or literally, of 'favorable soil' and 'good culture medium.' That condition which makes the human tissues a receptive 'soil,' a favorable 'culture medium' for the tubercle bacillus, that condition which of old was called 'diathesis' and now 'susceptibility' is itself a disease, a departure from the norm; and I believe it to be the most important element in the morbid complexus termed tuberculosis. It is the element requiring the greatest care in prophylaxis, the most intelligent and faithful treatment." J. Lewis Smith says that the tubercular diathesis may be inherited. "Hence, the well-known fact of tubercular families." If both parents are tubercular, the offspring almost necessarily becomes so. Without further consideration of this portion of the subject I shall assume that children born of tubercular parents are *apt* to develop tuberculosis. I shall also assume that with proper care and management, the inherited diathesis may remain latent or be entirely overcome.

To this end I shall call your attention to a few measures which, to me, seem to be of importance. The first thing to be done for an infant whose mother is tubercular, is to secure a healthy wet nurse. In most instances when this is done, the little one will gain new strength very speedily. A French mother would, in France, have her child suckle a goat if a good wet nurse could not be found. Weaning should be gradual, and not accomplished during the warm months. As long as the child does well at the breast it is unwise to interfere. Should artificial foo become a necessity, very great care should be observe in its selection and preparation, and in the care o nipples, spoons, forks, bottles, glasses, etc. Some times inunctions of cod-liver oil, cocoanut oil or som other suitable oil will be found useful. It is unques tionably true that a few drops of brandy or wine befor nursing will help the nutritive processes. Cod-live oil, plain or in the form of emulsion may be give with excellent results in many cases, as may the dr preparations of malt, beef juice, malted milk or pep tenized beef tea. Just here it should be remembere that the alimentary canal is a channel through whic tubercle bacilli may find their way into the infant system. Food containing the bacilli will do no har in a healthy stomach and intestines, but in the ever of sickness, altered mucous membrane, or absence acid, the infected food may do great harm; hence, ca in this direction. If cow's milk be used, it shonld b thoroughly sterilized. Dr. J. Lewis Smith direc that it should be placed in a steamer and subjecte for two hours, to a temperature of 190 to 200 F. Th child should be warmly but lightly clothed. Th chest and waist should not be restricted and the limb ought to have free play. If there be a catarrh inflammation of the nostrils or throat, a cap of suit ble material may be worn. It is quite important th the bowels should receive their share of attention. the evacuations do not occur as frequently as th ought to; or are inordinately hard and expelled wi difficulty, a mild laxative, enema or suppository indicated. Gastro-intestinal catarrh would sugge mercury with chalk; calomel; aromatic syrup of rh barb; castor oil; bismuth and other appropriate rem dies. Should the child become greatly prostrat and be in an inland town or city, and the weather h I know of nothing that will revive and restore health as quickly and surely as a stay of a few da or weeks at the seaside.

When indoors, in cold or chilly weather, the ch should have properly heated, but well-ventilat apartments. Draughts should be avoided and te temperature of the room never allowed to get so l as to chill the body. On the other hand be care lest the temperature reach too high a point. Fro 65 to 75 F. is a good temperature. If the child shou develop bronchitis or any other inflammatory aff tion of the air-tubes or pulmonary tissues the should be kept moist. During the night, avoid sud den changes of temperature occasioned by fau management of the heating apparatus of the room house and protect the child against sudden chan of temperature due to change of weather.

The tubercular mother should not sleep in the sa room with her child. In the homes of the very po the separation of the mother and infant at nigh is sometimes a difficult matter to manage, as in sc instances there is but one room for the two. In su a case insist on the use of the cradle, placed as far fr the mother as will be consistent with the care a protection of the child. Water warm enough to comfortable, should be used for bathing the little during the cold months; while cold water may advantageously employed in warm weather. The bth should be given daily, but not prolonged, and follo with a brisk rubbing. These children should b shielded from contagious diseases, but in the ever their contracting them, the most judicious eff should be made to support the system till the re

to health. If the child has left its mother's breast, it should have highly nutritious and easily digested food, the character and quantity of which will be determined by the age and condition of the child.

"Avoid the depressing refinements and undue attention sometimes witnessed in city homes." Continuous city life is bad at best for these little ones. "All recognize the bright, neat little town child, quite a little fairy as it flits about, presenting a strong contrast to the typical solid country child; but the latter is full of health and strength, while the town child is delicate and fragile. Medically, these graceful and fascinating little personages are unsatisfactory. They are not all strumous, but they lean that way. They usually receive cruel treatment from those who least intend it. Bright, quick-witted and affectionate, these mites are constantly amused and entertained when they would be much better left alone.

"I well remember one, the child of a distinguished American; two able and highly intelligent women devoted themselves to it all day long. It had ducks and water fowl in its bath, with which it played while the process of ablution was going on; and pretty it looked with its painted toys. But it never got far on its journey in life." Thus spoke Dr. Fothergill.

Progressive loss of flesh and appetite with other indications of failing health point to the need of medical measures such as syrup of the iodid of iron, lactophosphate of lime, iron, arsenic and bitter tonics.

These children should reside in a healthful locality and spend much of their time in the open air. Samuel West of London, believes that the only requisite which every suitable climate possesses is that of admitting of the patient's being as much in the open air and sunlight as possible.

"Whenever sufferers can spend all day out-of-doors, and when indoors can still live in a pure atmosphere, they will do well." I think, however, it should be remembered that no climate is proof against the dangerous emanations of a filthy soil, either in city or country. For this reason, if one be in search of the best possible climate for children predisposed to consumption, villages with populations of a thousand or more should be avoided. If the child must be kept in the village or city, as is often the case, great care must be observed in getting pure water and in correcting bad sanitary conditions in and around the house. I remember being called to see a patient (tubercular) under whose window was an open privy vault. The house had defective plumbing, and stood in a swamp. Such a combination of objectionable conditions must, as a matter of course, be unhealthful and should be shunned, no matter how good the climate of that particular part of country. It is interesting just here to note that Migneco, by a series of experiments, determined the exactness of Koch's statement that sunlight kills the tubercle bacillus in a short time. Bacilli, after ten or fifteen hours' exposure, cause only local tuberculosis; while after twenty-four or thirty hours, they cause no symptoms as a rule. In certain cases the bacilli will remain active, but will be attenuated in virulence. From these facts we argue that the free admission of sunlight into houses in which children with a tubercular diathesis live, will do much to aid nature in her effort to carry them through to a healthy manhood and womanhood. Dry cold air, if the child be warmly dressed, will do it good rather than harm. Strong winds, warm or cold damp air, and a foggy atmosphere avoid. As soon as the child is old enough, proper breathing, with chest gymnastics may be practiced with great benefit. Dr. G. R. Butler recommends certain movements (*N. Y. Med. Journal*, Oct. 20, 1894), all of which are simple and easily accomplished.

Exercise A. First movement: Flex and rotate arms, fingers to shoulder, elbows at side. Second movement: Extend arms to side, palms down. Third movement: Flex and rotate arms, fingers to shoulder, elbows at side. Fourth movement: Hands down and back, extend palms midway.

Excercise B. Inhale, hold breath, revolve right arm twice slowly; exhale.

Exercise C. Arms extended to side and back, palms up. Grind shoulder blades, moving hands in small circles.

Exercise D. First movement: Extend arms at side, palms up. Second movement: Palms together in front of body. Shoulders high. Third movement: Rise on toes, inhale; extend arms to side and back as far as possible.

Exercise E. First movement: Exend arms to side, palms up. Second movement: Arms up touching fingers on top of head. Third movement: Clap hands over head, full length up. Fourth movement: Arms down at side.

I believe great benefit accrues from forcible inflation of the lungs, holding of the breath and a slow expiratory movement, the air escaping gradually through the nostrils. By this process the air vesicles, especially those of the apices, are well distended; an increased amount of oxygen is introduced into the blood and the heart is strengthened in its action. These are some of the measures which seem worth the trying if we would prolong the lives of the individuals under discussion, and it is certain that these lives are worth the effort. That many of the number develop tuberculosis and die in consequence of it, the statements of Lorey and Biedert prove. The former gives the ages of 162 tubercular cases among children as follows: From the first to the third month, 1; from the third to the ninth, 11; from the ninth to the twelfth, 31; between the first and second year, 55; from the second to the fourth, 41; from the fourth to the twelfth, 23. The latter says that 6.8 per cent. were observed under 1 year of age; 48 from the first to the fifth; 27 from the fifth to the tenth, and 18 per cent. from the tenth to the fourteenth year. Thus it is seen that tuberculosis is quite frequent between the ages of 2 and 4 years. I have said nothing about serum therapy in this connection because it seems to me that results thus far obtained do not justify its employment. If it could be shown that an antitubercular serum has the property of setting into action the processes which protect the economy against the development of the disease then it would seem wise to use it. But of that we can not yet be certain. What the individual with a tubercular diathesis wants is a reinforcing of the tissues; an increased resisting power in each cell; an uplift of the vital powers; the very best life force conceivable. This is to be gained, perhaps with the greatest certainty, by attention to the suggestions already made.

I think any paper on this subject would be incomplete without reference to the intellectual training of the child, a matter concerning which both parents and physicians have very different opinions. While in the South last winter I heard two mothers discuss this question, and as their views bear directly upon

the question before us I quote what they said. Mother number one said her child was well advanced in her studies and very fond of going to school. Mother number two said: "Is that your child at the far end of the piazza; that little tot about 6 years old?" "Yes." "Well, doesn't she look pale and tired? Seems to me I would worry if she were my child." "Oh, well, I know she is weak and apt to develop lung trouble, but of course she must know something; how dreadful to grow up and be behind other children in her studies." "Well, we tried your plan for a time with our little daughter, but she soon ran down in health, so we took her out of school and have kept her as much as possible in the open air. For the last few winters we have brought her to Florida to escape the sudden severe changes and cold winds of our northern home. Here, she is out of doors all day when the weather is fine and she shows the benefit of this new life. Look at her and see how rosy and vivacious she is." "Yes, that is true, but when will she learn anything?" "When she is older and strong enough to endure the strain and confinement. What we want is to have our daughter live and enjoy good health." "Well, do you know I really think you're about right. Maybe our child would not be so frail if we had adopted a different course. The truth is we were compelled to leave our home and come South on account of her failing health. We are quite anxious about her."

Is there not a lesson to be learned from this little dialogue? Is it not manifest that the child with a tubercular diathesis will do better if allowed to exercise freely in the open air than if shut up several consecutive hours daily in a room, bending over a desk, breathing vitiated air and having its delicate organization unduly taxed? What is to be gained by developing the intellect at the expense of health? Suppose the child does not learn much from books during the first few years of life? There will be time enough later, if the health be carefully looked after, for the acquisition of knowledge. As a rule, these children are precocious and are disinclined to enter into the wholesome and active sports of which their healthy little friends are naturally so fond. Hence the more urgent the necessity of insisting upon plenty of exercise and life in the open air. In many instances a few simple lessons may be taught each day but beware of overdoing in this direction. There are other details of management which will present themselves to your mind as a remedy for this state of affairs, but I trust I may sufficiently emphasize the importance of doing more than has been, or is being, done for a large number of children whose inheritance makes them liable to the development of one of the worst diseases we have to deal with, one which destroys one-seventh of mankind. Is it not possible that we may err in not considering as worthy of our special and thoughtful care the individual who does not present active positive symptoms of disease? Are we not prone to turn such an one aside with a few indifferent remarks about the necessity of taking care of the "general health"? In some instances do we not assume that parents will, in some way, take care of these little people; although we know them to be but poorly instructed, at best, as to what ought to be done. Perhaps I am more urgent in this matter than some of my professional friends; if I am, it is because some sad cases, cases badly neglected in early childhood, have come under my observation. Just recently a young man came to me with disseminated pulmonary tuberculosis. Notwithstanding his early tubercular diathesis, he was allowed to remain in a climate calculated to enervate rather than to energize his feeble constitution. No particular attention was paid to his diet. He was allowed to run about, poorly protected, in rainy and cold weather as well as during the warm and dry periods. When he had a cold he was given a cough mixture and allowed to recover as best he might. If he complained of chest pains or a feeling of lassitude, he was ignored or told they were "growing pains" and laziness. When he complained of poor food or could eat but little of good food he was told he was "finicky." When he became old enough to help support the family he was put to work where the surroundings were unhygienic, hours long and the trade wearisome. Being obliged to go to the factory in all kinds of weather, he soon caught cold. His cough became troublesome and to make matters worse he got the grip. His lungs being his weak point he rapidly developed all the signs and symptoms of tubercular phthisis, so that at the present moment he is about hopeless, as I am, concerning his ultimate recovery. As he sat in my office dejected, poor, alone in the world and too weak to earn a few dollars with which to pay his board bills, when I was told that unless some generous friend should give him a little money he would not know where to find rest for his weary and diseased body; when I thought of how comparatively easy it would probably have been to have prevented such a state of affairs by careful and early attention to his physical condition; when I thought, in connection with his case, of many others I know of I was deeply moved and convinced of the wisdom of speaking, in conjunction with others, in behalf of this vast multitude of unfortunates who, without timely aid, must, many of them, drift into just such a condition of helpless physical wreckage as is now his portion.

DISCUSSION.

Dr. W. S. CHRISTOPHER of Chicago—I heard enough of the paper to get the drift only, and I would like to hear somebody first discuss it who is opposed to it, because I happen to favor the Doctor's side in toto. The subject is one that is part of a broader matter than the relation of tuberculosis; it involves the relation of the environment to the child. Many factors the Doctor has brought out relating to the damage of the child by tuberculosis that are certainly causative factors, that assist in developing tuberculosis, that are equally potent in the development of other diseases. The reason for the existence of this Section, the reason for the study of pediatrics at all, as disassociated from other branches of medicine, is the necessity of reaching all the factors that go to make out of a puny child the strongest possible development. It is the function of the pediatrician not to cure measles or handle whooping cough, or give pills and powders, but to make out of a given child the strongest possible development; to first take into consideration all those factors of heredity which may, if allowed to accumulate, damage it, and then by so adjusting the environment, diminish the potency or effect of these factors as far as possible. With reference to the child with tuberculous ancestors, it becomes a question of building up the tissues with that form of food which experience shall in the future show to be the best, possibly along the lines that we now think the future may show. But when we get a history of heredity, it should never be expressed as "negative." There is no such thing as a negative family history. The family history is as much a part and parcel of the diagnosis of tuberculosis in childhood as is the demonstration of the micro-organism. The family history may show that the mother is tuberculous, or gouty, or that the mother is neurotic or possesses one of the types of mind and body that may be transmitted to the child, but the family history is never negative. We might as well say the child is sick, but no detail is necessary. It brings up the broad subject as to the influence of heredity as a factor of diagnosis. It also forces us to face the second element in diagnosis, that is the element in nutrition, which includes not alone the question of

how much food the child has had, not alone the question of the quality of the food the child has had, but those deeper questions of the relation to each other of the different viscera of the body. If we have a child with a mammalian pair of kidneys and a reptilian type of liver, not by any means uncommon, we have such a maladjustment of organs that there is necessarily a clashing of functions. Such things are to be considered under the title of the nutritive disturbances. Having settled these questions, then we are prepared to take up the question of whether there is tuberculosis or other infection in the case. I agree with Dr. Stickler, that the infection which is most important, the one we must fight most commonly, is this one of tuberculosis, and the essayist is very well justified in taking for his subject the relation of tuberculosis, as he has done. What I heard of the paper did not bring out the elements of the relationship of tuberculosis especially and that is the reason I have gone over the subject more broadly.

Dr. J. A. Larrabee of Louisville—The remarks of Dr. Christopher lead me to believe we are all sliding on one hill. It seems to me the Doctor might have given us something to take exception to, but as it is we all agree with him.

Now, as to the broad subject of pediatrics, which we as pediatricians understand, but which the general practitioner does not comprehend, Dr. Christopher has put in a nutshell the whole evolution of this Section. It can not be appreciated by those who are not brought in daily contact with children. We must have the soil as well as the seed. Seed will grow luxuriantly and produce well only in soil that is adapted to it. There is in each of us a weak spot; we are wounded just as Achilles was wounded. We are protected to just the extent our ancestors were protected. A man is thrown into this world, representing the forces behind him, just as a ball is thrown into the air and will go a distance proportionate to the force with which it was thrown. There is nothing so catching as longevity, and that is the reason the life insurance companies in the secret room pass or reject the applicant on that ground alone. You may have disease, gout or rheumatism, but if your parents have been octogenarians, it goes far for you. But a bridge is not stronger than the weakest point. To know the diathesis, the way my patients are traveling, is more important to me than knowing the acute disease. Knowing the road they are traveling, I believe the fortification is in building up the body. The Doctor's paper, in fact, bore up that statement; keep healthy and you will not be sick. The question is how to do this. It is known that whether the body craves or demands food makes no difference. The system of cramming or forcing food into the system is known. We all know how the goose is stuffed to make his liver good. The goose is not goose enough to eat all the time, and they have to stuff him just to make him grow fat. The goose, if he could would not do this, but he can not prevent getting fat when he is stuffed. So I believe in feeding, but above all, in sunlight and fresh air. Another point is the re infection of tuberculous patients. These patients are born with barrel-shaped chests; they have a peculiar tubercular build. Those who are experienced in the study of diseases of children, can at once relegate the patient to his class. These barrel chested individuals need development. You must put them in an atmosphere that is free from tuberculosis. The cause of most of the deaths in tuberculosis is reinfection. We all have improvement in tuberculosis from a proper course of treatment, and under the microscope you can discern a lessening of the number of bacilli and you know you are doing the patient good. And any man who is gaining flesh is doing better, no matter what the microscope shows. But the patient becomes reinfected and down he goes again. Many parts of this country are becoming simply dumping grounds for those cases. Florida and southern Georgia for a time presented almost a sure cure for these cases, but now how is it? The germs are so thick there you can bottle them up and take them to Chicago and start an epidemic. The value of fresh air is emphasized by the fact the aborigines did not have tuberculosis.

Just in proportion as men live in cities, just in proportion as we congregate we will have consumption. The Indian did not have it. In the State prison in my own State, the Governor, who is a doctor, I am glad to say, took one look into the black hole and said, "This will not do; it can not be." Every human being put in there, in darkness and filth and bad surroundings, contracted disease, because the atmosphere was saturated with it. I expect we would smile at any one who would percuss the lower part of the lungs for incipient phthisis. We would say, "What are you doing there?" We always examine the apices of the lungs. Why? Simply because the upper part of the lungs has not been used. We are apt to store rubbish in attics, and nature does the same thing. We have about one-eighth of the people today suffering from residual air. The upper part of their lungs, the part beneath the clavicle, is never inflated at all. I do not blame the Irish gentleman, Mike Robe, for getting his work in there. We do not breathe to the extent we ought to. It should be the rule of every individual at the end of the day to carry out the West Point rule, and with the heels and buttocks on a line against a wall, take twelve deep respirations before retiring.

I could not go further without simply endorsing what has been said. I thank you for having given this the trend it ought to have, and I hope this discussion will not stop with these erratic remarks.

Dr. Henry E. Tuley of Louisville—This subject certainly is an important one, but I think the Doctor laid too little stress upon the importance of infection in children. I think Dr. Holt's statistics with reference to the postmortem findings in children would show us that the infection comes largely through the bronchial glands. In 99 per cent. I think the infection was noted to be in the bronchial glands. In many cases this was the only place where the infection was noted; in others, bacilli were found in other organs, but possibly they were only secondarily infected. So it would seem to me in the younger children the proper oxygenation of the blood and deep expansion of the lungs, would have little or no effect on the development of tuberculosis.

Another point, that probably more stress should have been laid upon, is how little effect we get from the placing of these children, with inherited diathesis, in hospitals, even when they have some concurrent disease. They develop the condition known as hospitalism quicker, possibly, than other children. The providing for them of open air roof gardens and sunning places, and open air porches where these children can stay, is certainly looking to the prevention of this condition of hospitalism. But even then they do badly in institutions, and if they are placed in hospitals with other diseases they should be kept there as short a time as possible. I think that is a condition that is not generally recognized.

Dr. Cook of Illinois—There were just one or two points slipped over in the discussion. In the matter of feeding, Dr. Larrabee's illustration was a good one, but he stopped short of the mark. A house is not necessarily well watered because it has a tank of water on top of the house. Assimilation is an important part of nutrition, and this may often be increased by proper hygien c care. Thus, fresh air, etc., are excellent, but I think I derive more benefit in these cases of feeble diathesis by massage than by any other one method of treatment. A thing that is not unknown, but I think not frequently enough thought of, in the care and management of these feeble children, is to carry the food out after it has been digested, and aid the already overworked heart and lymphatic system by assisting the circulation through the venous circulation, to get the toxins thrown off through the alimentary canal. In reference to the prevention of reinfection of tuberculosis, one practical thing that was not brought out, can be done by the physician, especially in the poorer familes, namely, tell them whatever else they may do to take their carpets up and renovate them. Get them to practice hygiene daily, and I think fewer cases will occur than under any other simple means the physician can direct.

Dr. Edwin Rosenthal of Philadelphia—I must tell you briefly what we do in Philadelphia. Dr. Flick read a paper on tuberculosis in the fifth ward. He noted all the houses in the district and made a diagram. I am acquainted with his work and I know in those houses emigrants came to reside and took the disease and died; not only children but adults as well. He therefore presented those papers to the county and State societies, and I believe to this Association also. In the city here we can demand from the board of health the cleansing of a house in which a tuberculous patient has died. Then we show these patients how to make cartoons to spit in and how to disinfect the sputum, etc. We have two homes for consumptives here, one for males and one for females. We also have hospitals for consumptives. We have a country home for the hospital, where most of these tuberculous patients are taken in. Then we have a seaside home for sick children, where we remove these children and give them fresh air. I believe, with Dr. Larrabee, that in an infected atmosphere we can not look for a cure. A doctor in England has written a book on the care of children. Where children are put in asylums and fed on bread, meals, etc., they will become scrofulous and afterward die of phthisis. This is a question of vital interest. In the Women's Protective Association one subject chosen was tuberculosis and its prevention.

Dr. U. J. Taylor of Philadelphia—In a short discussion like this not all important points can be brought up, yet I want to allude to one of great importance which has not yet been presented, that is, exercise of the right kind. The difference be-

tween man in the savage state and the man in the civilized state is that the savage and nomadic, having leisure time, spends it in sports which keep the system in good condition, the effete material all thrown out and the chest well developed. In civilization we employ our time in some sport, such as a game of cards, or we may go to the gymnasium, but even then we go to bed without expanding our lungs. If the children engage in some kind of sport in which there is a struggle for mastery, a game of ball or a wrestle or a boxing match, they exercise their muscles and their lungs. That I think is of the greatest importance and not second to any one. Fresh air brought into contact with the air vesicles in this way will do good, but fresh air brought in by twelve perfunctory breaths, I believe, as a rule will not do as much good.

Dr. DECOURCY—While the paper treated the subject largely from a preventive basis, it did not start out with what seems to me to be the first of the great list of preventive medicines. Calisthenics and climatology and all of those various branches of hygiene have been touched upon, and they are certainly absolutely necessary as preventive measures. Inhalations and lung expansions, which have been mentioned, are certainly of very great importance, yet there is a step behind all of these things which I think demands the attention of the physician. It was said by one of old that the sins of the fathers are visited on the children to the third and fourth generation, and one would think so from the tone of this paper, and truly. If that be so, then what is the physician's duty with regard to instructing his patient as to marriage and progeny? Should he advise the children of tuberculous subjects to unite, or should he advise them on either side to select a partner in marriage who is as free from inherited predisposition to phthisis as may be possible? I will be glad if the Doctor will bring out that point in closing the argument.

Dr. W. S. CHRISTOPHER of Chicago—The Doctor's paper, I think, refers more particularly to the question of the etiology of tuberculosis and incidentally to its prevention, rather than to any other factor. As at least a large part of the whole subject of pediatrics is that of prevention, it is interesting to note the phase of tuberculosis taken up by the essayist. We all know very well the methods of prevention of infection, so well carried out in some places and so little carried out in others; but the limitation of one's self to this phase must be left with unsatisfactory results, and I am satisfied the methods given by the essayist will ultimately prove much more valuable than the direct attack upon the organisms. The point brought out by Dr. Tuley I regard as one of extreme importance and I am very glad to have an opportunity to express some opinion on it. He refers to the paper recently published by Dr. Holt of New York, in which is brought out these factors: 1. A very large, and indeed very alarming, percentage of cases that die from tuberculosis present lesions within the thorax. The anatomic characteristics of this disease are to be found principally in the bronchial glands and in the pulmonary tissue. A very small percentage is to be found in the brain, a much larger percentage in the gastro-enteric tract. There are but two channels of entrance for the micro-organisms. From the fact the pulmonary glands are infected most frequently, Dr. Holt infers that the pulmonary channel is the channel through which the germ has found entrance in these cases. It is the justice of this assumption which I want to call in question. If this assumption be just, then the conclusion of Dr. Holt that the attention to the milk supply is relatively unimportant, is likewise just. But, if the conclusion Dr. Holt draws is unjust, then the relaxation of attention to the milk supply, which we are just about getting into shape, must be most horrible in its results to tuberculosis in children. Is Dr. Holt justified in saying that the germ must have gained entrance through the bronchial tract in children? He might just as well say that the lesion of variola being found on the skin, therefore the disease must have gained entrance through the skin; and the same thing he might as well say about any of the exanthemata. Does the germ of pneumonia gain entrance through the gastro-enteric or the pulmonary tract? I have seen cases in which it seemed to me to gain entrance through the gastro-enteric tract and yet produced pulmonary trouble. A child with tonsillitis has then pneumonia and this is followed by cerebrospinal meningitis which terminates fatally. The pneumonia was croupous; furthermore, the tonsillitis was a pneumococcus infection. It seems to me clear that the organism which caused the pneumonia and the cerebrospinal meningitis gained entrance through the tonsil. In that same family a child developed a diarrhea, and following that diarrhea a cerebrospinal meningitis, and died without any lesion on the part of the lung. It can hardly be doubted that these two children had the same cause for their cerebrospinal meningitis, and it points very clearly to the pneumococcus as the cause of the condition; and, if anything, the organism which affects the lungs primarily gained entrance to the circulation through the gastro-enteric tract. If Dr. Holt's theory be correct, then how will he account for such things as primary cases of tubercular meningitis? It is no answer to the argument to say there is no such thing as a primary case of meningitis, to assume there must always be an infection somewhere else in the body, because we know that is not true. Hip joint and Pott's disease we know do occur without the lung or any other structures in the body being involved. They occur with sufficient frequency for us to know they do occur. The contention of Dr. Holt that the preponderance of lesions in the thoracic cavity proves conclusively that the germ gains entrance through the bronchial tree, is utterly untenable. He may be thoroughly right that in many instances they do, but his data do not show it. His data can not show it, and they ought not to be permitted to be extended throughout the profession and permit people to let up on the attention to the milk supply.

Dr. STICKLER (in closing)—In reference to marriage, I will simply say that if I could I would object in every case where a young man contemplates marrying a tuberculous young woman, or where a tuberculous young man contemplates marrying a young woman who is free from the disease. But that was not the point of my paper. I wished to direct your attention to the fact that it is our duty to look after the children already born. It is your duty and mine to do for these children what we ought; to save them from the disease their parents have made them liable to. We talk here freely and then we go home to our practices to attend some tuberculous mother, and there is a little child in a crib or on the floor, concerning whom we say not a word, and we do not do it simply because we are are not asked to. Now, is not that true? The Good Book says, "show me your faith by your works." It is not because we do not believe in an inherited diathesis. It would be foolish to say that we do not believe in an inherited tendency to disease. The trouble is we do not act sufficiently. This has been true in my experience. I have sometimes hesitated very much before speaking to the mother about this matter, for fear they would feel that I did so looking for a fee. We should interfere oftener than we do; I do not think we are living up to what we talk of. With reference to milk, we are trying in New Jersey to do something of this kind. We have a dairy there, presided over by a committee of investigation, who look into the quality of the milk and see that the dairyman does not do that which is prejudicial to the users of the milk. There is a little trickery which we believe is being done to a certain extent. The dairyman may have a call for 300 or 400 quarts of milk, and perhaps there is only 250 quarts of milk that has been inspected. He will buy the balance of what he wants and put it into the cans and put the certified label on the bottles.

THE ADVANTAGES OF VAGINO-ABDOMINAL SECTION.

Presented to the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY THOMAS H. HAWKINS, M.D.
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My work in pelvic and abdominal surgery has not been entirely satisfactory. In a very large proportion of operations for the removal of abscessed tubes and ovaries, and in a smaller percentage of other pelvic operations requiring celiotomy, I have deemed it necessary to resort to drainage, and in many instances to quite extensive packing with iodoform or sterilized gauze. So far as concerns sepsis and hemorrhage the results have been exceptionally good, the mortality being reduced to about 4 per cent. In certain cases, however, I have had considerable difficulty with fistulous openings that were a source of annoyance and anxiety, both to myself and my patients. Some of these fistulæ closed within a few months after the operation, others in several years, and a few are not yet filled up completely. Ventral hernia has occurred in my practice in about 12 per cent. of cases where the gauze packing and glass tubes were used.

These accidents have not been confined to my own experience. I think I may safely say that within the

ast five years I have seen from two to five examples f pus-discharging openings and perhaps as many of entral hernia for each of our prominent celiotomists n Denver. My observations also prove that these iishaps are not limited to Colorado operators. Three ases of abdominal fistulæ following celiotomy by Eastern surgeons, have come into my service at the Arapahoe County Hospital. I have another at the resent time, operated on outside of Colorado; also ne of ventral hernia. I have had the opportunity of xamining, in the preceding two years, five patients ith fistulous openings and three with ventral hernia nsuing upon abdominal sections performed in other States than Colorado. In short, I have encountered ases of this character from nearly all the large cities xcept New York. Whether the surgeons of the metopolis are so fortunate as not to have such complicaions or keep their poor results at home, I am not repared to decide. Let us hope that the former supposition is the correct one. The most distressing eature of these cases troublesome sequelæ is their efractoriness to every known means of cure. Dilating and curetting these fistulous tracts is rather a ormidable procedure and is by no means always uccessful.

I have performed vaginal hysterectomy upon two ases, one of my own and one operated on in the past, nd succeeded in permanently closing the fistulous ract. Two of my cases of ventral hernia went East nd were operated on by successful surgeons. They eturned to Denver, believing themselves cured, but re at the present time suffering from the old affliction, which is somewhat worse than before operation. The treatment of these deplorable accidents is not within the scope of this paper, and I call attention to hem only to illustrate the importance of avoiding hem if possible. With the method I have pursued n most of my cases of pelvo-abdominal surgery, during the past two years, there is no possibility of the ormation of fistulous openings through the abdomnal wall and the danger of ventral hernia is reduced o a minimum. In every instance, when it seems ikely that drainage or gauze packing will be required, precede the abdominal with a vaginal section. This ombined method is in no sense original with myself s, to my knowledge, many others have resorted to he same plan.

The patient is placed on the table as for an ordinry vaginal operation, and the abdomen and genitalia re rendered as nearly aseptic as possible. The uterne cervix is hooked, its canal mopped out with sterlized gauze dipped in bichlorid solution, and then uretted. After gentle dilatation, so as to admit a urette of medium size, the uterine cavity is curetted arefully, dried with sterilized gauze and washed out vith a weak solution of iodinized water or creolin. This is followed by a sterilized salt solution, and the avity is again thoroughly dried. The cervical canal s packed with a bit of iodoform gauze. A semicircuar incision is now made posteriorly, close to and half vay round the cervix, into the cul-de-sac. If time ermits, I sometimes stitch the peritoneal membrane o the vagina by means of a catgut suture; then, with ny finger I proceed to explore the pelvic contents, reaking up adhesions, slowly and cautiously separatng the uterus from the mass on either side and sevring, as far as practicable, from below upward, all he false attachments of the ovaries and tubes, as the ase may be, taking care not to rupture the abscesses or cyst, if these be present. In many cases, where simply large abscessed tubes or ovaries are found, or a hydrosalpinx, or a small ovarian cyst, this is evacuated and the pelvic cavity is washed out thoroughly and packed with gauze, no further procedure being required. When the lesions are more extensive, after as much is accomplished through the vaginal route as seems prudent, the wound is thoroughly flushed and dried out with sterilized gauze, with which it is then quite snugly packed and the vagina moderately so.

The patient is now drawn up on the table in the position for celiotomy. The incision through the abdominal wall need not ordinarily be more than two and one-half inches long, as the previous vaginal performance greatly simplifies the operation by allowing the uterus and its appendages more easily to be freed from adhesions and brought into view. The diseased adnexa are removed and the pelvic cavity is dried in the usual way, the gauze below not being disturbed.

In only one instance, in which the hemorrhage was inordinate, have I found it necessary to employ abdominal packing, which was removed at the end of thirty-six hours and the incision closed. In all the other cases, numbering thirty-five, of the combined operation I did no packing through the abdominal wound, an election fully justified by the results.

After completing the work from above, a moderate quantity of gauze is packed into the pelvic cavity, behind the uterus, and is pushed in more closely where there is much oozing. I generally utilize iodoform gauze for the first two or three strips, filling in with the sterilized variety. The stitches are now taken in the abdominal wound, which is closed hermetically by drawing the sutures firmly and catching them fast with forceps. The patient is again brought down into the usual position for vaginal procedures, the gauze packing is removed from the vagina and pelvic cavity, and the parts are once more carefully cleansed and dried. Fresh iodoform or sterilized gauze is now packed well up into the pelvic cavity and is made to fill the vagina snugly. A pudendal pad is next applied and held in place by the nurse's aseptic hand while the abdominal wall is re-opened. The gauze put in from above is quickly removed; rapid inspection is made for hemorrhage; and the wound is permanently closed, uniting the fascia with a continuous chromicized catgut suture, ordinarily, unless there is reason to speedily terminate the operation. With trained assistants and a skilful anesthetizer, with everything in readiness in a well-equipped hospital operating room, the combined operation can be done, as a rule, in from twenty-five to fifty minutes. When one has performed the operation three or four times, its duration probably need not exceed that of a simple celiotomy for the removal of diseased uterine appendages. It takes perhaps a minute more to clean and dry the genitals, three or four minutes to dilate the cervix and curette, and one or two minutes for the vaginal incision. The time occupied in separating the adhesions from below and putting in the gauze packing is amply compensated when the tubes and ovaries are about to be removed through the abdominal wound.

The more expert operators, especially the Eastern ones who are doing pelvic sections every day, may not appreciate the advantage gained by the breaking up of the adhesions from below, but in my own somewhat limited experience, I have found that this method enables me to remove the uterine appendages

in about the same length of time as I formerly needed to do the operation entirely from above, a consideration of special importance to us less adept gynecologists of the West. Out of the thirty-five cases operated on by me by the combined method, I have had but one death, which was in no sense attributable to the operation. The patients suffered rather less than former ones. With a single exception the temperature never rose above 99.5, in this case the temperature (reaching 103 on the fifth day and normal on the seventh) being affected by a severe cold and tonsillitis. In every instance the gauze was removed on the third day, and the vagina flushed with warm sterilized water, loosely filled with aseptic gauze and covered with a sterilized pad. I repacked the opening into the cul-de-sac, as a rule, not more than once, and then only with a small strip of gauze. The dressing on the abdomen may remain undisturbed until the fifth to the eighth day.

Every possible objection to the combined operation is, I think, offset by its advantages. A special point in its favor is that when the conditions, as determined through the vaginal incision, permit, we may forego abdominal section and thus greatly lessen the risk. To illustrate: During the period of the above mentioned thirty-five surgical cases I had no less than twenty other patients in whom the cul-de-sac procedure alone sufficed. In one instance I found a cyst of the ovary, ruptured it, irrigated and put in gauze. The patient's temperature was normal throughout and she made a perfect recovery. Another case was that of a hydrosalpinx which I broke open during exploration. The cavity was washed out carefully, dried and packed with gauze, and the woman recovered without complications of any kind. On eleven occasions I tapped abscessed ovaries or tubes, washed them out and drained through the vagina. In one case I found an abscessed tube well down into the cul-de-sac. It was evacuated, enucleated and tied off close to the uterus and removed. The other tube and both ovaries were in good condition. The patient was flushed and drained and recovered without any bad symptoms. In three cases I opened into what was probably a ruptured tubal pregnancy of several weeks standing. The decomposed clots and other débris were thoroughly removed by the fingers and irrigation, and the space was packed with iodoform gauze. These patients recovered without a single bad complication. Finally, in three instances I found no special lesion, except adhesions, about a retroverted uterus. These were carefully and completely broken up and a large amount of gauze packed behind the uterus, which had been pushed forward as far as possible, The convalescence in these cases was short, and complete relief ensued, with the uterus in a better position. All these cases were treated successfully by means of a very simple operation, whereas abdominal section would have been accompanied by much greater risk and probably without as good results.

In complete hysterectomies, where there is extensive oozing and reason to fear hemorrhage, in one or two instances I have thought it best to use packing from above; I have pushed the gauze well down into the opening through the vault of the vagina, then filled the vagina from below. At the end of the first or second or third day, as deemed best for the removal of the gauze, the vagina is emptied and carefully washed. The end of the gauze protruding through the abdominal wound is cut off close to this incision; the part remaining may be softened with a little sterilized water. By means of a tenaculum or dressing forceps the residue of gauze is then pulled out *per vaginam*. The incision in the abdominal wall is now closed, and the pelvic city and the vagina are again packed from below.

SOME REFLEX DISTURBANCES DUE TO PELVIC DISEASE.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY JOHN MILTON DUFF, M.D.
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Reflex disturbances in the human body from whatever cause, are generally a great source of annoyance to the practitioner. Especially is this the case when the original disease does not present marked symptoms, or at least where the reflex disturbance overshadows the real disease. These conditions make the diagnosis difficult and consequently the treatment is often misdirected. I will briefly report a few cases in point:

Case 1.—Patient (A 3474, South Side Hospital case-book), Mrs. A. N., age 39 years, married fifteen years, no children. Family history good and excepting ordinary diseases of childhood has always been healthy until two years ago, when she began to show symptoms of chronic inflammatory pelvic disease. For the past three months she has been suffering from insomnia, sleep being procured only by the use of hypnotics. For some time her mental condition has been bad. Her conversation is now very incoherent. She has a high temperature, rapid, feeble pulse, great tenderness on pressure over the suprapubic region. Bimanual examination reveals enlarged and tender ovaries, tubes and uterus. On April 6, 1896, I removed the uterus and appendages by the vaginal route. She made an uneventful recovery. At the end of three weeks her mental condition was apparently normal. Eight months later, the last report I had from her, she had gained over fifty pounds in weight and expressed herself as in perfect health physically and mentally.

Case 2.- Patient (A 2923 South Side Hospital case book), Mrs. C. Z., age 30 years, married ten years, mother of four children; chronic ovaritis and salpingitis; mental condition good. I removed her uterine appendages Sept. 16, 1895. She made an uneventful recovery and left the hospital, presumably well, Sept. 22, 1895. Three weeks afterward I was called to her father's house to find her suffering from violent mania, having attempted but a few hours before to commit suicide by cutting her throat. At the end of one year this woman had returned to a normal condition of health. This is the only case of which I am aware in which mental aberration followed the removal of the appendages in my practice.

Case 3.- Patient (A 4081 South Side Hospital case-book) Miss E. Mc., age 27 years; health always good until within past three months, when she began to be affected with nausea and occasional vomiting after eating. For the past two weeks the stomach rejects all food and in order to sustain life nutrient enemata have been resorted to. Examination revealed a cystic ovary, which I removed on Dec. 4, 1896. The patient left the hospital Dec. 27, 1896, apparently well, not having vomited any since the second day after the operation. At present she is in excellent health.

Case 4.—Patient (A 4075, South Side Hospital case-book) Mrs. S., age 48 years, mother of two children, youngest 2(years old; has history of pelvic disease for five or six years Her trouble was not sufficient, however, to keep her from her household duties, except for short periods of time, until July 1, 1896. At this time she was attacked with nausea and vomiting. Dr. Boyd of Knoxville, Pa., was called to see her After exhausting his resources medically, as well as those of a number of practitioners who were called in consultation without avail, the patient was removed to the South Side Hospital on Nov. 30, 1896. At that time she was scarce more than a living skeleton. She had been nourished entirely *per rectum* for eighteen weeks, the stomach during this time apparently rejecting everything, even to water. Her condition was such that I hesitated to attempt any operative procedures. My colleagues on the staff advised against it, as they did not think she could even bear the anesthetic. She and her family, wh

had persistently refused for several weeks to allow an operation, insisted that she be given the chances. On Dec. 2, 1896, I removed two large pus tubes and cystic ovaries. Her recovery from the operation was slow, as the wound became septic, she not leaving the hospital until Feb. 8, 1897. She, however, never vomited after the third day following the operation. She was in my office a few days ago, has regained her normal weight and is now attending to her ordinary household duties.

Case 5.—Mrs. K. M., age 32 years, mother of three children, the youngest 4 years old. She has had symptoms of pelvic disease for three years. Her principal trouble, however, is that she has been almost a constant sufferer from sciatica on the right side for two years. One year ago her uterus was curetted and cervix repaired, after which she rapidly grew worse. For the past six months she has been unable to leave her room except when carried down stairs. She could only walk with help on the level floor. On Dec. 10, 1896, I removed the right ovary, which was cystic and generally adherent. She was discharged from the hospital Jan. 12. 1897, free from sciatica and able to walk without help. A few days ago she came by herself on the train and without inconvenience walked several squares to my office.

Case 6.—Patient (A 4360, South Side Hospital case book), Mrs. S. Mc., admitted May 8, 1897. Examination revealed a chronic inflammatory condition of the uterus and appendages. The patient dates her trouble from her last confinement, eight years ago, since which time she has been having occasional epileptoid seizures. For the past two years these seizures have become more frequent, sometimes occurring five or six times during the month, their occurrence being more frequent near the menstrual period. For several months she has been suffering from insomnia and has been in such a nervous condition that she could not be induced to remain alone during her waking hours. On May 12, 1897, I removed her uterus and appendages by the vaginal route. In this case, as only eighteen days have elapsed since the operation, it is too soon to draw conclusions. At the present time the patient is up, walking about the room and says she feels splendid. She has not had a convulsion since the operation. She eats well, is perfectly free from pain and has slept well for the last twelve nights. She will now remain alone without comment. To use her own words, as she expressed them to the Chairman of this Section when he visited the hospital a few days ago, "All that fear and ugly feeling has gone and I believe I am a *new woman.*"

I have thus presented these few cases without minutiæ, hoping they may form a nucleus for a discussion upon this, to me, interesting subject. I do not wish it to be inferred that in my practice all cases have been as successful as those reported; such would be far from the facts, as I have frequently been disappointed in results.

A CASE OF FIBRINOUS BRONCHITIS.

Read before the Chicago Pathological Society, October 1897.

BY JOSEPH M. PATTON, M.D.
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Chronic essential (primary) fibrinous bronchitis, croupous bronchitis or bronchitis pseudomembranacea is a rare affection. Its rarity is commented on by every observer of the disease, and is sustained by the small number of cases reported, no observer having seen more than one or two cases.

Birmer[1], who wrote the first extensive monograph on the subject in 1855, says: "Bronchitis crouposa is a very rare affection." Galen[2] observed a case of bronchitis fibrinosa, though he erroneously described the bronchial cast which he saw as a coughed up pulmonary blood-vessel. Tulpius[3] in 1641, presented the first reliable report on fibrinous bronchitis. He described the fibrinous exudate as *surculi venæ arteriosæ expectorati*, and illustrated his report by two drawings which do not leave any doubt as to the nature of the affection. Morgagni,[4] in 1760, described fibrinous bronchitis.

Birmer (loc. cit.) gives an elaborate description of fibrinous bronchitis based on a series of fifty-eight cases, of which number fifty-six were collected by him from literature. Two cases came under Birmer's own observation.

An extensive monograph on fibrinous bronchitis, with a complete list of the literature pertaining thereto, is found in the chapter on this subject by Riegel[5] in Ziemssen's "Handbuch." In 1893 an extensive article was published by Beschorner[6] in which we find the first contradiction of the generally accepted view of the fibrinous nature of the exudate expelled in the form of bronchial casts in fibrinous bronchitis.

In the case reported by Beschorner the microscopic examination was made by Neelsen, who found that sections taken from the casts when stained according to Weigert's formula did not, as they should if composed of fibrin, display a blue color, but became a pale gray. Beschorner, therefore, maintains that the material from which the casts are formed is not fibrin but mucin, and he draws a parallel between the conditions found and the exudates formed in bronchitis fibrinosa and those in enteritis pseudomembranacea.

Similar conclusions are arrived at by Grandy[7] an American, who quite recently, under Weigert's direction, examined microscopically a case of bronchitis crouposa which came to postmortem.

Grandy's report is as follows: Stains of sections from casts; no color with Weigert's stain for fibrin. With thionin there resulted a weak rose color, but formalin preparations do not stain well with thionin. Sections from the bronchi: One can see distinctly how the exudate makes its way from the excretory ducts, and from there into the bronchi, that is into the bronchial exudate.

The exudate in the bronchi and in the goblet cells give the reactions characteristic of mucous: *light blue* with Van Gieson's stain, *rose red* with thionin and rather dark brown with Bismarck brown.

Farther away from the walls of the bronchi the exudate was changed and did not show the characteristic stain. Thoroughly negative was the result with Weigert's fibrin stain. The mass never stained a beautiful blue like fibrin would do, but invariably stained a pale gray like the ordinary tissue.

The results of the examinations of Beschorner, Neelsen and Grandy stand in opposition to the statement of Klebs,[8] who maintains that the exudate in bronchitis crouposa is of a true fibrinous nature. Eppinger[9] expresses the same view as Klebs, and bases his opinion on the result which he obtained with Weigert's fibrin stain.

In the case which we can add to the list of cases of bronchitis fibrinosa already published, the result of the examination of the exudate is such that we must claim that the latter is of a true fibrinous nature and consists of true fibrin.

Unfortunately, chemic tests were not made while the exudate was fresh. Still, the tinctorial tests are so decided in their results that they leave no doubt as to the fibrinous nature of the exudate.

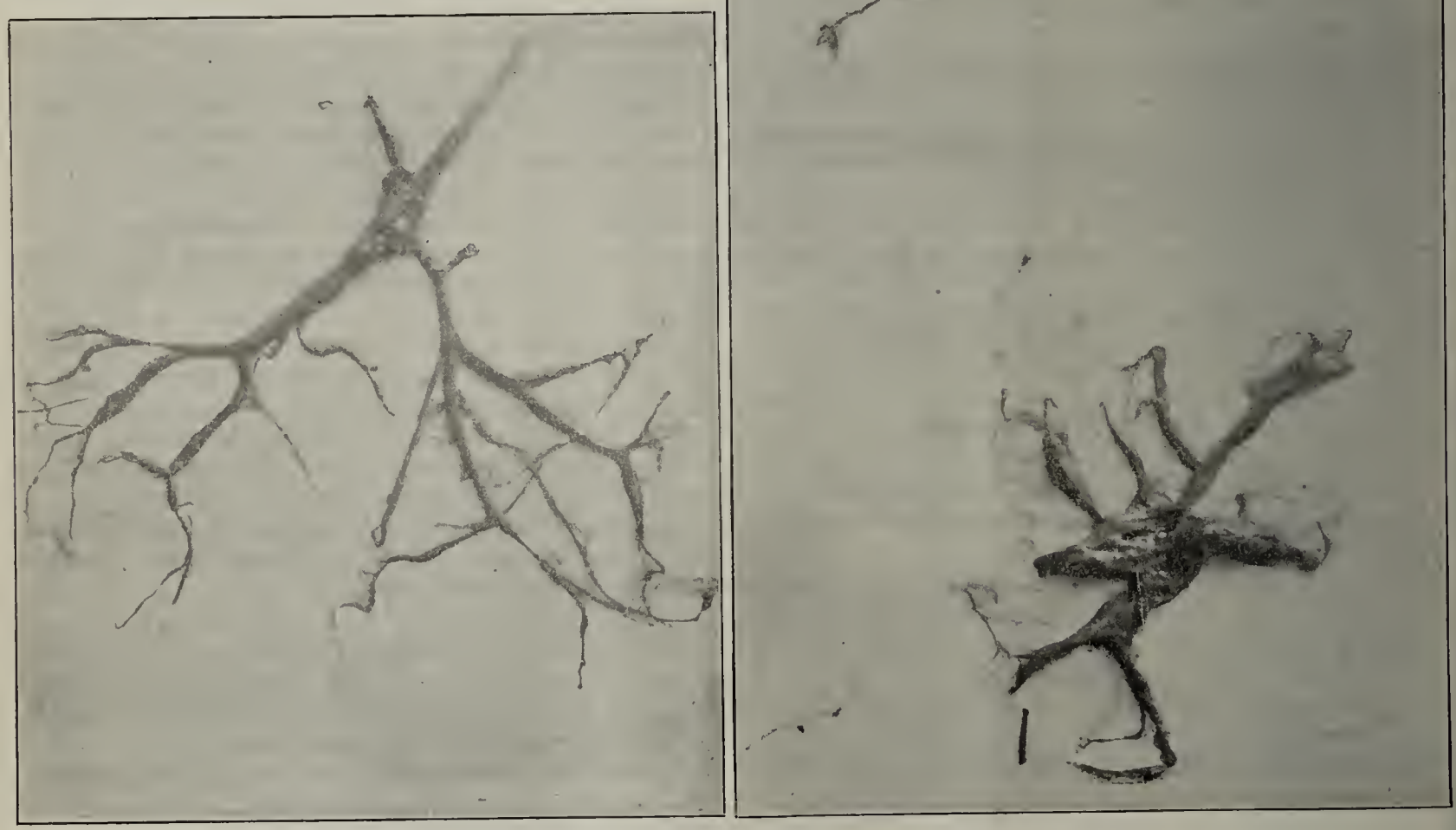
The clinical history of the case (presented through the courtesy of my clinical assistant, Dr. Gottschalk) is not as complete as could be desired, but as far as could be obtained is as follows:

Male, aged 40, married, beer bottler by occupation. Was perfectly well until two years ago, when he caught cold while working in a wet place. During the last two years he has had repeated attacks of bronchitis.

These attacks would last a week or ten days, and were characterized by rather severe rasping cough. Expectoration was comparatively free, and there was no particular pain in the chest. About ten weeks before his recent attack he began to cough and expectorate large masses of tough, tenacious sputum, which was accompanied at times by some bloody expectoration. About four weeks before the expectoration of the cast, he developed high fever, great dyspnea and a distressing cough. There was diminished expansion and dulness over the lower two-thirds of the left lung as compared with the right lung. This attack lasted between three and four weeks, and continued up to the time of the expectoration of the bronchial cast. During this period he was confined to bed and suffered with severe dyspnea, cough, and a temperature at times above 102 degrees F.

Three days ago he expectorated considerable blood. The temperature remained high and the dyspnea and cough distressing.

This morning he had a severe attack of dyspnea and coughing. Temperature rose to 104 degrees F. After considerable effort he expectorated a large mass



Bronchial cast from case of fibrinous bronchitis.

of material which consisted of the bronchial cast mixed with mucous and quite a little blood. The temperature became reduced almost immediately, and the cough and dyspnea were relieved.

Within a very short time after expectorating the cast an examination, made by Dr. Gottschalk, showed that air was entering all parts of the left lung with comparative freedom. The percussion note was almost normal, and there were mucous râles to be heard over both lungs. The patient improved rapidly and all trace of him was subsequently lost, so that it is impossible to tell what his present condition is.

In view of the marked tendency of these exudations to recur, the subsequent history of this patient would be interesting, could it be obtained.

Pathologic report.—When the fibrinous casts were obtained, two tubes containing Loeffler's blood serum mixture were inoculated at once and placed in the brood-oven for twenty-four hours. These tubes did not develop any diphtheria bacilli, but colonies, which consisted of large round micro-organisms, probably yeast cells or a species of torula.

The exudate as obtained consisted of a cast of the bronchial tree, of a total length of over 10 cm. Its main short stem, which is about 1 cm. long, is about as thick as a lead pencil and the branches run out to fine filaments. They, however, do not all terminate in a very fine thread, but some, at their ends, show a dilatation which probably represents a cast of an infundibulum. The larger branches here and there show nodular prominences. The larger tube-casts, when examined in cross sections, show a more or less central lumen, and a lamellar structure of their walls The appearance and make-up answers to descriptions given before as to the structure of the casts in croupous bronchitis. The color of the casts is a gray with a tinge of brownish red.

Pieces of the casts were hardened in alcohol, and also in formalin with subsequent alcohol hardening and stained according to different methods.

1. *Gramm's stain.*—The following micro-organisms were found in sections stained according to Gramm: Staphylococci, large bacilli with square ends (about 5 to 7 μ or more long) uniformly but slightly stained; smaller bacilli (3 to 4 μ) having stained very deeply; small bacilli (2 to 3 μ) with rounded ends, which have not taken the stain uniformly; large spherical micro-organisms looking like saccharomyces or torula.

2. *Weigert's formula for fibrin stain.*—The great bulk of the mass of the exudate which shows a fibrillar arrangement, stains beautifully blue, giving a typical fibrin stain.

3. *Hematoxylon.*—The great bulk of the tissue takes a deep hematoxylon stain.

4. *Van Gieson stain* imparts to the tissue a reddish brown color.

5. *Altmann's* acid-fuchsin picric acid stain for granula and fibrin produces a vivid red color.

From the enumeration of the stains used and the results obtained, it is evident that the casts consist of fibrin. Mixed with it are found swollen degenerating epithelial cells and a considerable number of leucocytes.

Optical test.—Small pieces of the casts, after hardening, were washed in distilled water and then teased on a slide and covered with a cover glass, and the effect was watched under the microscope. The tissue became somewhat transparent, though not very much so.

Chemical test.—Two decigrams of the hardened casts, after being well washed in distilled water and subsequently dried between filter paper, were subjected to the action of 10 c.c. of artificial gastric juice. After being in the brood-oven for three hours the exudate so treated had been completely digested. Mucin under these circumstances would not have been digested.

All the tests employed, therefore, had furnished results establishing beyond a doubt the fibrinous nature of the exudate expelled in our case of bronchitis crouposa.

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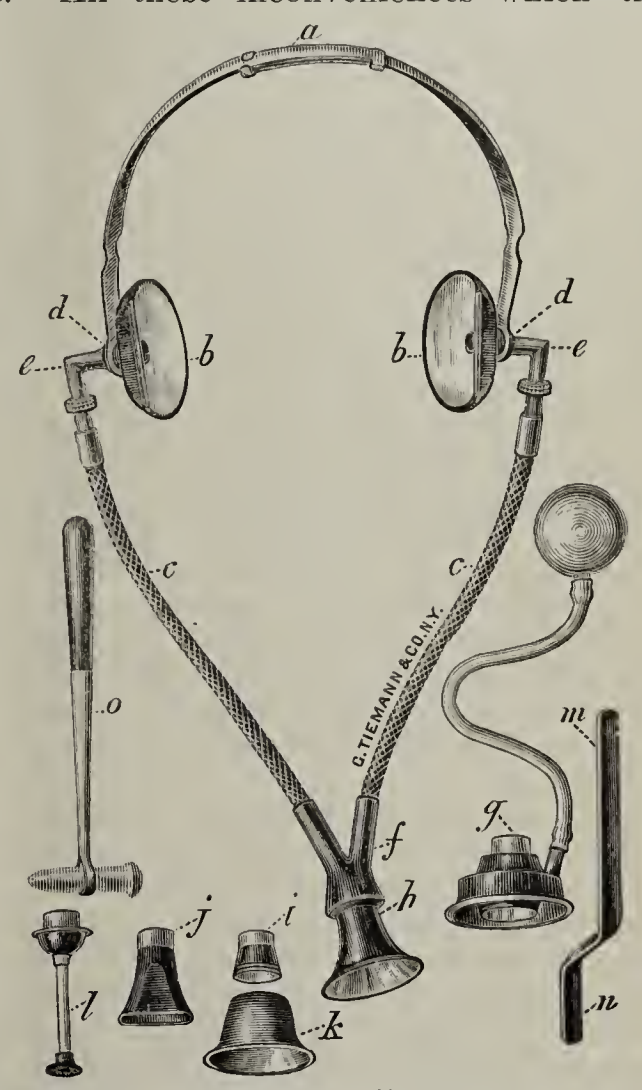
A NEW BINAURAL STETHOSCOPE WITH ARMAMENTARIUM FOR COMPLETE PHYSICAL EXAMINATION.

Demonstrated before the Medico-Surgical Society of New York, Nov. 8, 1897; and before the German Medical Society, Dec. 6, 1897.

BY S. A. KNOPF, M.D. (PARIS AND BELLEVUE, N.Y.)
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NEW YORK.

On March 16 last, I demonstrated to the Section of General Medicine of the New York Academy, an improved stethoscope with an attachable plessimeter.[1] Its daily use since then has shown me some of its imperfections and I have been working for months on the instrument with the object to improve it and above all simplify its use. I am able this evening to present to you the result of my labor, thanks to the courtesy which you extend to me as your guest, and since the instrument differs in all its details from any one thus far devised I may perhaps call it "a new binaural stethoscope."

You will see at a glance that it has neither eartips nor front springs, nor the heavy metal conducting tubes of the ordinary binaural stethoscope. Among students and in hospital services it is not infrequent that one stethoscope passes from ear to ear, and I wonder if the eartips may not have been in some cases the cause of transmitting the various parasitic organisms which are so frequently found in the external auditary canal. But there is no doubt that among physicians who auscultate a great deal every day the constant pressure of the eartips in the canal produced by the large powerful frontspring, and the unpleasant weight of the metal conducting tubes bearing down upon the delicate membrane, often cause discomfort amounting at times to severe pain in the external meatus. I know of a great clinical teacher and world renowned diagnostician of heart and lung diseases who ascribed the partial loss of his hearing to the use of the binaural stethoscope with the powerful frontspring attached to the heavy metal tubes, and to the irritation produced by the presence of the painful eartips. All these inconveniences which the old



binaural stethoscope presents I believe to have effectually overcome. I have adopted an elastic, easily adjustable steel headspring *a*, to which are attached two well-fitting earpieces *b*, covering the external ear, and to which in turn are attached light flexible conducting tubes *c* and chestpieces. Finally, I have discarded the eartips entirely. To exclude external sounds I had devised, for my first stethoscope, round earpieces, which, however, did not fit every ear; I have replaced them by shell-shaped pieces more corresponding to the average comformation of the auricle; and to make the adaption of these earpieces to the temporal bone still more exact, I had them joined to the headband and conducting tubes by a ball and socket joint *d*.

To dampen the external sounds still more, and not have the conducting power suffer, I have these earshells and the angular connecting pieces *e* covered, according to Knapp's excellent method [2] with vulcan-

[1] New York Medical Record, May 1, 1897.

ized rubber. As conducting tubes I have adopted a flexible air-tight soft rubber tubing, on the inside of which a round coiled wire is placed, and over the whole a silk covering is woven.

The acoustic power of the instrument when in use, I believe, to have considerably increased by having the connecting joint *f* and all the bells and the other chestpieces which serve as receivers and transmitters of the sounds emitted from the thoracic or abdominal cavity, made also of metal, and covered as the ear-pieces, with vulcanized rubber.

To make the stethoscope as convenient as possible it is made so that it can easily be taken apart and placed in a medium sized coat-pocket and rapidly put together again, ready for use. One chestpiece in the shape of a bell suffices for ordinary examination, and this can be left on the connecting joint *f* most of the time. Occasionally, however, we desire to make an especially careful examination of either lungs or heart, and to this end I have devised a little armamentarium which includes all that may be needed to make a most careful physical examination of either thoracic or abdominal cavity. Instead of the attachable plessimeter of my former instrument, I have modified Constantine Paul's suction-cup *g* for the purpose of combining instrumental percussion and auscultation. It consists, as you see, of a rubber ball, tube and cup-shaped chestpiece, easily attached to the stethoscope. By pressing the rubber ball a sufficient vacuum is produced to have the piece retained in its position, enabling one to auscultate and percuss at the same time. But the greatest advantage of this combination lies in procuring absolute contact and stability with the cutaneous surface and thus the exclusion of all other external sounds. Besides, for studying as well as for teaching complicated heart sounds it is often convenient to have the chestpiece remain stationary. With a little care several students may alternately put on the headband and earshells without disturbing the chestpiece retained by atmospheric pressure over the point where the abnormal sounds are best perceived.

For lung auscultation I have a somewhat larger bell *h* than the one designed to auscultate the heart, *i*, and for intercostal auscultation this somewhat oval-shaped chestpiece *j* will prove rather convenient. For sensitive chests and for children the soft rubber-bell *k* should be used. It can easily be attached to the heart bell. To define when necessary a very small and circumscribed area of pathologic changes by auscultary means I have replaced the localizer of the phonendoscope by a little instrument which I call the delineator *l*. When attached to the stethoscope it may not equal the phonendoscopic sounds in loudness, but since it is minus the sound-perverting vibrations, produced by the diaphragm of the phonendoscope, the careful listener will hear all he need to, and this little instrument will certainly serve its purpose quite well in the majority of cases. All the various supplementary chestpieces for lung, heart and intercostal auscultation, the delineator,etc., are finished so that a simple insertion is all that is necessary for their attachment to the stethoscope.

While a plessimeter is not an absolutely indispensible instrument, clinical teachers and all who do a good deal of percussing, will find it at times a great relief in conjunction with a good percussion hammer. The possibility of acquiring a periostitis of the left index finger by using it constantly as a plessimeter, may thus also be averted. I have attached a convenient handle *m* to a hard rubber plessimeter *n*, and as hammer I give Flint's well-known percusser *o* the preference.

It remains only for me to thank Messrs. Tiemann & Co., for their courtesy in repeatedly altering my stethoscope until it became, what I think, a nearly perfect instrument for mediate auscultation. May it find favor with the profession and serve its purpose well.

955 Madison Avenue.

APPENDICITIS COMPLICATING OVARIAN CYST AND SIMULATING TORSION OF THE PEDICLE, WITH THREE CASES.

Presented in the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY X. O. WERDER, M.D.
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Appendicitis as a complication of an ovarian cyst and accompanied by symptoms strongly resembling those of torsion of the pedicle, does not seem to be of very frequent occurrence; at least I have failed to find any cases recorded in the literature at my disposal. This is my excuse for reporting the following cases which came under my observation and in which the symptoms were supposed to be due to an axial rotation of the tumor when, on the operating table, an appendicitis was discovered to be the disturbing element which led to a wrong diagnosis.

Case 1.—Mrs. C., age 56 years, mother of nine children; one miscarriage; last confinement sixteen years ago, followed by fever; otherwise always healthy. Her present trouble dates from May, 1894, when she was seized with cramps in the abdomen and vomiting, which continued for several days. She had at times most of her pain in the right side. She has had several attacks since then of a similar nature, in the last of which she was attended by Dr. A. Koenig, who discovered a tumor in the abdomen. When I saw her in consultation with him, her acute symptoms, pain, vomiting, temperature 103 degrees, had somewhat subsided, though her abdomen was still very tender on pressure, and tympanitic. It was enlarged by a tumor occupying nearly the mid-region, more to the left, indistintly fluctuating and painful on palpation. The diagnosis as made was: Ovarian cyst, with possible torsion of pedicle. Her removal to Mercy Hospital was advised for the purpose of operation.

Operation, Aug. 13, 1894. On the right and upper surface of the tumor the omentum and several feet of small intestine with the vermiform appendix, were adherent. The latter was not much enlarged, but congested and filled with pus. It was ligated and cut, and the stump covered by a peritoneal sleeve. The adherent intestines were separated with considerable difficulty, many points requiring suture with fine silk to control bleeding. The cyst wall was unusually red and congested. Convalescence was interrupted by an attack of pneumonia at the base of the right lung, on the fifteenth day. The patient was discharged cured about six weeks after operation.

Case 2.- Mrs. K., age 39 years, mother of seven children, youngest 5 years old.. Shortly after last confinement she noticed a lump in the right iliac region that has been gradually growing larger. She was seen in consultation with Dr. Potter Dec. 1, 1896. Two weeks previously she was seized with severe cramps in the lower abdomen, accompanied by vomiting and followed by high fever. The abdomen became tympanitic and extremely painful and tender, requiring frequent opiates to give relief. These symptoms abated during the last few days, though the abdomen, and especially the tumor, were still quite painful to the touch. The tumor occupied the middle of the abdomen, extending above the umbilicus, and showed indistinct fluctuation. She was removed to Mercy Hospital for operation, which was performed Dec. 6, 1896

The cyst walls were dark in color and the seat of extensive adhesions to abdominal walls, intestines and pelvis. The adhe

2 Knapp; Medical Record, November 1895.

sions were freed, bleeding points of omentum ligated and removed. The appendix, which was about six inches by one half inch thick, hard, red and adherent to cyst, was freed, the meso-appendix ligated near the cecum, stripped from the distal end of the appendix; the appendix also ligated near the cecum, clamped one half inch further out and removed by cutting between; stump mopped and covered by meso-appendix which was stitched over it. Convalescence was uneventful; out of bed the twenty-first day, discharged the twenty-eighth day.

Case 3.—Mrs. Wm. E. F., age 44 years, mother of three children, youngest 6½ years old; normal convalescence. Last October, after some exertion, she noticed a swelling in her abdomen, which has remained ever since. February 26, I saw her in consultation with Dr. Ryall, who had been attending her through an attack which was started by severe abdominal pains and vomiting, which kept up for several weeks; retention of urine, abdomen tympanitic and very tender. She was very much emaciated and quite feeble, though her acute symptoms had pretty well subsided, excepting her temperature, which remained above normal.

Physical examination showed a fluctuating tumor, filling up the pelvis and abdomen, of the size of a pregnant uterus at six or seven months, which was very tender on pressure. She was removed to Mercy Hospital February 28 and operation performed March 4, after vainly trying to improve her general condition. Extensive omental and intestinal adhesions were separated from the cyst; pelvic and uterine adhesions very firm and difficult to separate, leaving a torn and bleeding uterus. An elastic ligature was therefore passed around it, the body amputated, treating the stump extraperitoneally. The cyst, which was multilocular was exceedingly friable, breaking to pieces at the least touch, in a number of places. Its walls were dark colored, from one-half to one inch in thickness. Microscopic section showed the cyst wall to be necrotic. Contents of the cyst were semisolid, of dirty gray color.

The appendix was adherent to the cyst, tense, enlarged and inflamed, containing an enterolith. The microscope showed catarrhal inflammation. The patient had lost considerable blood during operation and was pretty well collapsed when taken from the operating table, but gradually rallied under active stimulation and improved.

March 7 she showed undoubted evidences of double pneumonia and was in a critical condition for five or six days. She finally improved and made an excellent recovery.

The pneumonia occurring in these two cases was a mere accidental complication, though the lowered vitality and the forced recumbent position for weeks even before the operation, no doubt greatly contributed to its development.

The symptoms, in connection with the knowledge of the presence of an ovarian tumor in these cases, certainly justified the supposition that the complication was due to torsion of the pedicle; especially as the acute stage of the trouble had passed at the time they came under observation. Differentiation would probably have been easier at an earlier stage, as long as the inflammatory area in appendicitis was more localized. The fact that in torsion of the pedicle there is usually a rapid increase in the size of the tumor, marked shock and perhaps a less prompt rise of temperature than in appendicitis, would also probably be of considerable value in differential diagnosis at the outset, but at a later period the symptoms of the two conditions, at least in the cases in which torsion of the pedicle does not lead to a rapidly fatal termination, are so similar that it would scarcely be possible to differentiate them. Fortunately both conditions demand the same treatment *i.e.*, prompt operation; and a differential diagnosis has, therefore, more of a scientific interest than practical importance.

A fact worth noting is that there was undoubted inflammation of the cyst in all cases; in the last two cases this was particularly pronounced, as evidenced by the dark red discoloration of the cyst and the marked thickening of its walls and its unusual friability; in the last case they were actually necrotic in numerous places; conditions strongly resembling those found in torsion of the pedicle and in malignant disease. Malignant degeneration was seriously suspected, but the microscopic examination was negative on this point. There were no evidences of fresh hemorrhagic effusions into the cyst cavity in any of them. That this inflammation of the cyst cavity was not merely an extension by contiguity seems to be demonstrated by the fact that not only a portion of the cyst, the one in contact with the adherent appendix, was involved, but that the whole neoplasm seemed in a state of active inflammation with marked hyperemia and thickening of its walls, and in one, even at least partial necrosis. We must, therefore, suppose that the inflammation was caused by an infection from the appendix and not by a simple extension of the inflammatory process.

In conclusion, I wish to call attention to the method adopted in treating the stump of the appendix in the last two cases. It is so simple that doubtless it must have been used before me by other men, though I have been unable to find any account of it. It consists in tying the meso-appendix and the appendix separately near its insertion into the cecum. The meso-appendix is then stripped of the distal portion of the appendix down to its ligature, the latter cut off about half an inch above, and the stump covered with the freed meso-appendix, and attached by one or two superficial sutures. By this means the whole stump is completely buried under a layer of peritoneal tissue. This can be done with more rapidity than by inversion or covering the stump with a peritoneal sleeve, and it certainly answers the purpose in every respect. I have followed this plan in all my cases requiring appendicectomy during the last six months, where the meso-appendix had not sloughed away. It has been perfectly satisfactory.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from Vol. xxix, 1315.*)

XIX.—DISEASES OF THE URINARY AND GENITAL ORGANS AND OF THE RECTUM.

Ischuria was studied with great assiduity by Desault, whose classic essays (*Jour. de Chir.*, i, ii) Richter transferred in part verbatim to his "Elementary Principles." They distinguished: 1. Paralytic retention of the urine, which appeared chiefly in old people, and from that arose the fact that the bladder lost the power of contracting. It might also be the result of venereal excesses, onanism and spinal injuries. External stimulants (Spanish flies, arnica and cold applications on the perineum) were valued, especially the continued use of the catheter to empty the urine. It seemed best to retain flexible catheters, stop up their openings and allow the urine to flow out every three hours; then about every sixth day to take them out and clean them. In case of a long continuance of the trouble it was advised that the patient learn to catheterize himself. 2. Inflammatory ischuria implied the inflammation of the neck of the bladder, the urethra or the rectum. It arises from stone, hemorrhoids, rectal fistula, contusion of the perineum, rheumatism and most frequently in a so-

called obstructed gonorrhea. For this they used antiphlogistic remedies (calomel with opium), warm baths, poultices applied locally; after these the catheter, which, however, must not be left in place; in the worst event, puncture of the bladder. 3. Spasmodic retention of the urine, which had its seat in the neck of the bladder and was treated with antispasmodic remedies. 4. That from the obstruction of the urethra in consequence of foreign bodies. For the extraction of these J. Hunter devised the best adapted instrument consisting of a small tube, out of which two arms, spreading by means of a spring, were pushed forward. Desault also invented tweezers, almost like this, only they were larger and curved like a catheter. If extraction failed then nothing was left but to cut open the urethra. A wound in it healed readily if the urine were kept from it by a catheter. 5. Suppression of urine by strictures of the urethra. These were mostly in front of and near the bulbus, but might occur in several places. The causes were regarded as mostly "venereal inflammations of gonorrhea," until J. Hunter, in an accurate work on stricture, showed that it was not the fault of a special poison, but that constrictions might arise after any inflammation in the urethra. He divided them into permanent, which depended upon an organic defect, and spasmodic and mixed. The treatment was with bougies, "one of the most important inventions of recent surgery" (Richter), to which Hunter and Desault turned their full attention. The best bougies consisted of linen which was dipped in a mixture of wax, olive oil and minium, smooth and pliant; they did not break easily and were preferred to the usual wax bougie. Besides there were a countless number of compositions for the preparation of bougies. Catgut was also used; it had the advantage not only in distending the stricture but also in softening it, but was often hard to insert, caused severe pain and was easily worn out. Lead wire was also difficult to introduce and painful and easily took a wrong course. The patients soon became accustomed to the bougies, which were at first borne only a quarter of an hour, so that each day they were pressed in farther. From their premature use an abscess might arise at the stricture which either should not be opened at all or as late as possible (Desault); they might also take a false course. Perfect cure was seldom reported before three or four months and a relapse was not infrequent. If the treatment with bougies failed then Hunter recommended corrosives; he touched the stricture with a small piece of nitrate of silver every day or two until the probe pressed into the bladder. Desault regarded this treatment as uncertain and dangerous and never ventured to use corrosives. Richter also considered it unnecessary in most cases, since the bougie would finally press through. For abnormal duplicatures running clear through the urethra both surgeons recommended a turning of the catheter on its axis, but considered the so-called bougies médicamenteuses to no purpose in suppression of the urine. 6. There was an ischuria in consequence of swelling of the prostate occasioned by inflammation, abscess, stone, varices or scirrhus of the gland. If the dispersion of the inflammation was not quick enough the application of a catheter with a considerably bent point was necessary. But rather than apply force in such a case it was said to be better to decide upon a puncture of the bladder. The abscess lying at the surface of the prostate for the most part breaks spontaneously or the catheter opens it; situated between the gland and the rectum it was to be reached through the latter. If it opened into the bladder or urethra they left the catheter in position and injected a thinned barley water in order to wash out the pus. If they felt stony concretions in the prostate, which was, however, very difficult, an incision was made in from the perineum. In case of varicose swellings of the vessels of the gland catgut was the best. The most frequent tumor of the prostate was the scirrhous induration, as it occurred for the most part in old people who had had gonorrhea in their youth (Richter). For this they used thin silver catheters, rubbing with mercury salve, a seton in the perineum (Hunter) and as a last resort the boutonnière. This operation, the technique of which resembled that of today, found many opponents, among them Desault, who considered it for the most part superfluous and declared that it had, with right, sunk almost entirely into oblivion. Besides these main groups of ischuria, Desault described one which originated in the ureter as foreign bodies, inflammation, swelling or ulcers which compressed it. Since these causes were for the most part only discolored after death, art could do but little; further, the surgeon recognized suppression of urine as a result of retroversion of the uterus, prolapsus of the uterus and of the rectum and pregnancy.

In the most urgent cases of ischuria one must have recourse to puncture of the bladder. This operation in itself without danger, surgeons at that time employed much more frequently than at present, because they overcame the obstructions in strictures with greater difficulty and did not appreciate the uses of the boutonnière. Desault was a notable exception; to him cystotomy was so rarely indicated that in the Hôtel Dieu he found occasion to use it only once since the introduction of the catheter by a skilled surgeon must almost always be successful. They punctured the bladder from the perineum, above the pubes or through the rectum. The first, and at the same time the oldest method, was the most uncertain and the most dangerous and was almost entirely discarded. Only B. Bell advocated this operation, which Theden very often saw result fatally. The puncture above the pubes. probably first made by Méry in 1701, was regarded as easy and not very painful. It was almost impossible in that way to miss the bladder and injure an important part. The danger that the bladder in its evacuation would draw back from the tube of the trocar and an infiltration of urine follow, was obviated by the use of the long, somewhat curved trocar of Frère Cosme. Otherwise inflammation soon entered the wound, whereupon the cicatrization of the bladder with the abdominal muscles was occasioned and its contraction prevented. After a few days an elastic tube could be inserted. This puncture was absolutely necessary in swelling of the prostate, but was contraindicated in case of very fleshy persons. Recommended by Sharp and Heister it was regarded as the best method (Turner and Brown) even when the puncture through the rectum had been established. This was a discovery of Flurant. This operation simple of itself, possessed the single danger of injury to the seminal vesicles. These were avoided, however, if the curved trocar devised by Flurant was inserted as deeply as possible into the rectum and the bladder perforated as high as possible and exactly in the middle. The tube which was left in the rectum naturally caused discomfort. In affections of the rectum an

the prostate bladder puncture was just as little possible as for women, in whose case the vagina was punctured with success (Bell). Flurant's method was made known by Pouteau (1750), was introduced into Germany chiefly by Schmucker, and much later in England by Reid (1778). Reid indeed preferred it to the use of the catheter, whose unskilful application was much more dangerous. Soon it displaced the puncture above the pubes; Richter even called it the best, most comfortable, easiest and safest method. J. Hunter, Desault and Theden recommended it, while B. Bell rejected it entirely.

Desault traced *hematuria* either to the kidneys (stones and unnatural relaxation of the renal vessels) or to diseases of the bladder (varicose swelling of the vessels, fungous excrescences, stones and wounds). The inhabitants of tropical countries were especially liable to hematuria; Desault cured many soldiers who came back from the East Indies, by the use of the elastic catheter.

Renal calculi became the subject of surgical treatment as soon as the abscess produced by them formed an undulating tumor in the lumbar region. This constituted the indication for *nephrotomy, i. e.*, for the opening of the abscess and the extraction of the stone. This operation had already been recommended in a work of Hippocrates. Therein is stated that if pus has been formed in the kidneys, this must be removed with the gravel; then there was hope of saving the patient. If the diagnosis was certain an opening not too small must be made as early as possible, the finger introduced and the stone, if free, removed; fixed stones were allowed to be released by nature and for that purpose the hole was kept open by means of a pledget. The operation was first performed as it appears, by Marchettis (1696) on an English consul, for an abscess in the lumbar region, and it was warmly advocated by Rousset and Riotan, and then by Heister. He supported his position upon the fact that "renal wounds, if they are inflicted from behind and do not enter into the ventral cavity, are not always to be regarded as fatal." Later, Hevin, Troja and Earle commended it and C. C. von Siebold exclaimed emphatically: "When will the men who are so courageous and fortunate in the preservation of mankind in the exercise of the arts of surgery, again address themselves to the renal incision in order to remove the deadly stones from the kidneys as well as from the bladder?" It was a question whether the operation should also be undertaken in case an abscess was not present. Although one successful result was known ("Philosoph. transact.," 1696, art. ii, p. 188), they advised against it on account of the uncertain diagnosis, and because the soft parts lie too close, moreover an excessive hemorrhage was to be feared; it was difficult to find the stone and dangerous to loosen it with the knife if it was wedged in tightly (Richter, B. Bell). Only Lafitte considered nephrotomy also indicated, when there being no abscess, the stone could be recognized as a tumor by its hardness. *The extirpation of the kidneys* became a subject of discussion through an observation of the Englishman Fearon ("Med. communic.," i, London, 1784). He diagnosed a large tumor of the kidneys and had an inclination to extirpate it; the patient died. Then he performed the operation on the cadaver; without injuring the peritoneum he took out a kidney weighing two pounds and said that one could extirpate a diseased kidney if it forms a tumor on the outside. But Richter objected that in case of a living body hemorrhage and other evil consequences must be considered, and one must also have assurance that the other kidney is healthy and able to secrete the urine.

The study of diseases of the testicles languished; they were often confused. Monro, Sharp, Garengeot, and Pott, in particular, won credit for themselves in respect to these ailments. Surgeons showed an active interest in hydrocele, the treatment of which was enriched by many improvements. Only little by little were clear views obtained as to the seat of the infiltration of water. Garengeot distinguished accurately infiltration into the spermatic cord from that into the vaginal tunic, while Sharp rejected the finer distinctions as to its seat and only distinguished hydrocele of the tunica vaginalis from hydropsy of the scrotum. According to Heister, the water lay for the most part in the tunica vaginalis, sometimes in the proc. peritonei, and exuded from the "ruptured lymphatic vessels (vasa lymphatica)." Congenital hydrocele was also known to him. With anatomic accuracy, Pott distinguished the various seats of the disease, described hydr. of the tunica vag., hydr. cystica and that in the tunica vaginalis of the spermatic cord. To these three kinds Richter added hydrops scroti and infiltration of water into a hernial sac.

For *hydrocele* of the tunica vaginalis, the oval form, fluctuation, position of the testicle behind the tumor, etc., served for diagnosis; the transparency seemed uncertain, since the scrotum might be very thick and the water turbid (Sharp). A contusion, induration and inflammation of the testicle, cold and syphilis were considered the most frequent causes. A dispersion of the tumor by means of medication offered a prospect of success only in the case of children. In such cases cures were accomplished by purgatives and emetics, poultices of an infusion of rosemary or sage in wine or brandy, the application of compresses which were wet with vinegar, or a solution of sal ammoniac in alcohol. With the last mentioned remedy the English military surgeon, Keate (1788) would for the most part dispense with the operation. In the case of new-born children, Monro applied a piece of flannel saturated with smoke of benzoin, and Heister had a healthy person chew a piece of nutmeg and then blow frequently upon the scrotum. The operation was palliative or radical. While for Sharp, the former always sufficed, and the radical operation appeared too dangerous, Richter preferred the palliative operation only in very large hydrocele, in case of doubt as to whether the testicle was diseased and in complications with other diseases of the testicles. If one had assured himself of the position of the testicle, a lancet, or better, a trocar was inserted below and in front, and the water allowed to escape, but not all at once. The lancet should have the preference in case of slight infiltration of water in complications with hernia and sarcocele. In such cases they severed the skin and then inserted the trocar into the exposed tunica vaginalis (B. Bell). J. L. Petit first called attention to the evil consequences of perforating a blood vessel in the spermatic cord.

In the radical operation it was necessary to destroy the cavity of the tunica vaginalis, since they either cut this out or induced inflammation in it in order to bring about an adhesion with the testicle. To that end there were a number of methods, of which Richter asserted that each deserved preference in certain cases, no one of them in all cases. For most cases of

hydrocele the incision was regarded as the best method. The tunica vaginalis was split throughout its whole length to the base of the scrotum (Monro) and a pledget, or a piece of fine linen spread with digestive salve, introduced. Filling with lint (Lassus) occasioned too great pain. Although the incision was decried from many sides as dangerous (Wiseman, Cheselden and Earle), which Pott, however, denied, and although suppuration of the testicle (Sharp) and a fatal result (Acrel and Monro) were noted, still these methods were for the most part in use at the end of the century. If critical conditions ensued Richter laid the blame on the surgeon; he and also B. Bell defended the incision against all other methods. If the tunica vaginalis was unnaturally thick and hard, its extirpation, already known to the ancients, had given good results. Douglas reintroduced it (1755); Saviard, White, Gooch and Louis followed him. Not infrequently the results in this way were less serious than in a simple splitting of the tunica vaginalis (Bertrandi). A third method, taken up by Warner (1774) and Theden, was the insertion of a tent, which was daily renewed and allowed to remain until sufficient inflammation was induced. It was unsafe and irritated the testicles more than the tunica vaginalis. The injection of irritating fluids found many advocates. It appears to have been first done by the Marseilles surgeon Lambert (Œuvr. chir. 3. Ausg. 1677); he used a solution of sublimate in lime water. The method appears to have been long forgotten until Monro appears to have reintroduced it and first injected alcohol and afterward wine. Alcohol was a deceptive remedy; when Sharp had injected an ounce of it an abscess on the scrotum resulted. Sabatier cautioned against it and used the weaker red wine. Solutions of nitrate of silver, alum, vitriol, sugar of lead, lime water and simple cold water were also used. The liquid was allowed to flow out again immediately, and care was taken that nothing remained; the quantity depended upon the size of the tumor. Voices were raised for and against injections. Richter considered them not safe enough, since B. Bell had reported one failure in nine cases, and brought forward as a disadvantage, that sometimes very severe inflammation and suppuration resulted; he limited them, therefore, to simple, slight hydrocele. Many experiments were made in France and their results reported; fewer, in England. Earle (1791) defended this method, and said in its favor that it induced only very slight inflammation which never led to suppuration, hence could be used for every constitution and at all ages. It also has neither obstacles nor dangers, and in case of relapse can be immediately repeated. He used port wine with a decoction of rose leaves (2 to 1) and described twenty-seven cases. He successfully treated large nodules and mucous sacs at the patella with the same injections. Desault also preferred the injection for congenital hydrocele. By means of a cushion he lifted up the communication between the abdominal cavity and the tunica vaginalis, punctured it and injected red wine, and had the patient wear a truss that the peritoneum might not enter the lacerated tunica vaginalis. Hydrocele, sometimes also hernia, which was usually complicated with it, was radically cured by the occurrence of adhesions in the cavity. Zenker appears to have introduced the Earle injections into Germany; at least he made them, with success, of equal parts of water and medoc, in the Berlin Charité in January, 1795. The method was later forgotten there, for Rust and Gräfe operated with the incision. Pott valued and preferred to the incision, as one of the most excellent remedies, the seton, which Lanfranci first used and Paré among others had recommended. He used it many years with successful results, at first in the form of a wick of cotton, later of sewing silk, which irritated less. Pott asserted that by this method the tunica vag., simply affected with inflammation, adhered to the testicles, but suppuration never ensued. Even in his lifetime the general voice was raised against the seton; Sabatier first interested himself in it again. The technique of the operation was considered too inconvenient and excessive suppurations and aggravated conditions were observed to follow (B. Bell, Earle and Richter). Cauterization, by which the ancients opened the tunica vaginalis in its entire length, was introduced through Else, a surgeon in the Thomas Hospital in London (1770) and Dussaussoy in Lyons (1787), but only for the purpose of inflaming the tunica vaginalis. A paste of lapis causticus was selected and with it a scab the size of a louis d'or was made, opium also being applied (Acrel). The pain and subsequent suppuration restrained many surgeons from cauterization.

Under "cystic hydrocele" (hydr. cystica) was understood the tumor which occurs especially in children and consists of an unnatural sac in the cellular tissue of the scrotum, for the most part in the region of the middle of the spermatic cord. Below and above it the latter could be freely felt. Resolvents did not suffice, but a simple puncture or, in adults, the splitting and excision of the sac led to a cure. From this species, "hydrocele of the tunica vaginalis of the spermatic cord" was distinguished. In the latter the water collected in the cellular tissue which immediately surrounds the spermatic cord; wherefore the tumor was also called edema of the spermatic cord. This rarest form could either attack only the lower part of the spermatic cord and extend as far as the abdominal ring, or it entirely filled with water the cellular tissue which passes with the spermatic cord through the abdominal ring. They opened the tumor.

Diseases of the testicles were so little the subject of anatomic investigations that under *hematocele*, which name originated with Heister, was understood an infusion of blood into the cellular tissue of the scrotum and the tunica vaginalis, as well as into the substance of the testicle. The second form developed after the palliative operation for the common hydrocele if a large blood vessel was punctured, or after a contusion. They sought to resolve small tumors by purgatives, solutions of sal ammoniac and by external pressure by means of a suspensory; larger ones were lanced or cut out. In the third form, which Pott discovered, the testicle was swollen and so soft that it could be pressed flat without pain; thin chocolate-colored blood was exuded into its substance. Castration was here the only remedy, although for years the swelling often occasioned only slight inconvenience.

Under *sarcocele* was understood an induration and swelling of the testicle, and all neoplasms of the same were classified in the following manner: If the tumor was painless, it was regarded as benign scirrhus; if painful, as malignant and latent cancer; if ulcerated, as open cancer; sarcocele arose after contusion from venereal, scrofulous and gouty causes, among others. In regard to its treatment, J. L. Petit was the first who demonstrated the possibilty of a cure of a syphi-

litic testicle tumor by anti-syphilitic remedies. Naturally they then sought to contend against other dyscrasias by corresponding medication. Yet *castration* remained the surest remedy, to Sharp one of the saddest operations and one which was allowed only in scirrhus and cancer of the testicle, which was very liable to relapse. He postponed the operation until the tumor threatened to become malignant, while most surgeons would castrate as soon as possible after pains arose, since one could never know whether or how long the swelling would remain benign. Only when the pain was no longer local and the spermatic cord and inguinal glands were also indurated they advised against the operation. Volumes have been written on the technique of castration, since there were few operations which in the last century were so variously modified. As a rule a large longitudinal incision was made from the abdominal ring to the base of the scrotum, or only a small incision above the spermatic cord, in order to expose the latter, and the incision was further enlarged (le Dran and Monro.) Then the spermatic cord was isolated from the cellular tissue, bound and severed, whereupon finally the testicle was removed. The oldest method was to bind the entire spermatic cord. In Heister's time they applied a simple or double ligature around the vasa spermatica close to the abdomen before they cut off the testicle. A few surgeons loosened the testicle from the scrotum after applying the ligature, but waited a few days until it began to putrefy in order to be able to separate it so much the more safely. The stricture of the entire spermatic cord had a few successful results (Sharp, Morand, Acrel, Pott and Schmucker; Mursinna thus performed sixty-four castrations and observed trismus arise only twice). But severe pains (Bell) were observed and trismus with fatal results (Morand), convulsions (Bilguer), and epilepsy (Theden). Views upon this kind of operation were widely diverse. J. L. Petit rejected the ligature of the spermatic cord entirely, since the hemorrhage from the small arteries was only slight, and preferred the isolated torsion of the vessel, and le Dran and White did not bind the spermatic cord but only rolled it between the fingers. A few would draw the thread only tight enough to close the artery (Bell and Lassus); others bound the artery alone (Monro, Cheselden, Z. Vogel and C. C. von Siebold). Richter laid down the following rule: If the spermatic cord must be cut off close to the abdominal ring one should bind the whole mass with a thread not too thick; if it is to be separated far below the abdominal ring one should endeavor to bind the artery alone. It was always advisable to cut the spermatic cord as far down as possible because it contracted so much. Since many accidents might arise from the straining of the spermatic cord importance was attached to freeing it as far as possible from the surrounding parts so that it could contract unhindered (Maréchal). Most surgeons arrested the hemorrhage by ligature, while Theden recommended the tampon, on account of epileptic attacks. Of course in case of very small arteries it was often possible to stop the blood by continued finger pressure, but it might be a question of a vessel of the size of the art. brachialis (Sharp), and a dangerous hemorrhage might arise after compression alone (Pott). They advised attempting a healing by prima intentio. A radical method of castration, as that of the Austrian surgeon Zeller, was not to be thought of. Proceeding from the idea that the extirpation of the testicle at the base of the scrotum accomplished nothing, he seized the diseased part along with the testicle, drew them backward and severed sac and testicle at once; the hemorrhage was stopped with ice-cold water.

In *varicocele* they distinguished cirsocele as varicosity of the spermatic cord and testicle, from varicocele, as an enlargement of the veins of the scrotum. Richter believed that the tumor was not based upon a varicose swelling of the vessels of the spermatic cord alone, but that the spermatic vessels in the epididymis and the testicle also swelled. The feeling as of a bunch of angleworms could not be derived from distended veins, and the eventual atrophy of the testicle could only be explained in that way. J. L. Petit said that a predisposition to the development of varicocele was to be found in the mechanical condition, that the vessels of the spermatic cord ran upward over the os pubis as the cable of a well across the roll, and that the testicle works as the bucket of the well. They named as causes, a torpidity of the spermatic vessels (in onanism), an increased afflux of liquids (in suppression of coitus), contusion, obstructed reflux of the fluids (bad truss). The disease could never be entirely removed, but an exacerbation could be prevented. The continuous wearing of a suspensory, cold lotions, the application of alum solutions and of naphtha served to that end. In case of very severe pain, or threatened rupture, one should castrate (Gooch). The stricture of the veins, according to Celsus, as well as the puncture of the vessel with a lancette, according to Heister, and the extirpation of the varicose veins, were regarded as too dangerous. In case of healthy testicles, Pott rejected every operation. Observations as to cryptorchism were made as early as the seventeenth century. Petri de Marchettis[1] found in a child one testicle "near the pudendum," the other in the scrotum, and advised against any treatment, when a colleague would bring the supposed tumor to suppuration ("Chir. Obs.," lviii, Uebers., Nürnberg, 1673). Felix Plater described three cases and the confusion with hernia ("Obs. Sel. Obs.," 47, 1680). Pott offered new observations. He was aware that it was subject to all the diseases of the testicles, and that it might be regarded as a rupture, and could become inflamed through pressure of a truss, and from an injury. He observed it grew scirrhous and cancerous, and also described the successful extirpation of a cancer. Plenk likewise called attention to the distinction between inguinal hernia and bubo, and taught that cryptorchism with defective treatment might inflame, suppurate, harden and develop into inflammation or cancer.

Richter considered the operation for *phimosis* as inadvisable, in case urination was not obstructed "until the patient wished to fit himself to undertake coition, for which purpose, as C. C. von Siebold relates, young Frenchmen had the frenulum cut. A few surgeons preferred circumcision to a simple splitting, because after the latter misformed flaps remained obstructing coition (Richter); others preferred the simple incision and limited circumcision to a thick and hard prepuce (Sharp). The latter was made with bistoury or shears, the longitudinal section with a bistouri caché, with which the strongly contracted foreskin was perforated above in the middle and from

[1] This surgeon is today so little known that several of our recent handbooks relate the story of how Marchettis had extracted a pig's tail which Göttingen students had stuck into the anus of a Jewish girl. Marchettis died in 1673 and the University of Göttingen was founded in 1734.

within outward, and was cut through from the back, forward. Then the flaps at the sides of the incision were cut off, since they often occasion much trouble. At each bandaging a pledget was pushed into the upper corner of the incision; it was not sutured. A number of bistouries with the most widely differing pointed covers were constructed for this operation (Petit, B. Bell, Bertrandi, Lotta and others). The incision was also made at the side of the gland (B. Bell and Arnemann) or only the inner layer of the foreskin was cut, as almost the only place of contraction (Foot).

(To be continued.)

SOCIETY PROCEEDINGS.

Chicago Ophthalmological and Otological Society.

Regular meeting held Nov. 9, 1897, in the Stewart Building.

Dr. MONTGOMERY in the chair.

There were twenty six members and visitors in attendance. The minutes of the last meeting were read and approved. Drs. A. E. Bulson, Jr., of Fort Wayne, Ind.; E. A. Lawbaugh of Chicago, and J. B. Taylor of Bloomington, Ill., were elected members.

Dr. PIERCE opened the discussion on "Chronic Suppurative Otitis Media." He said that a proper comprehension of the factors involved in the treatment of chronic suppuration in the middle ear may best be arrived at by briefly considering: 1, the pathologic processes which induce suppuration in the tympanic cavity, comprising the micro-organisms involved; 2, routes of invasion, and 3, the conditions which prevent their escape or destruction. These three points were discussed seriatim. In considering the treatment he had come to believe from experience that many cases of catarrhal inflammation assume a suppurative or chronic form because of ill advised treatment. One of the most prevalent errors in this regard is the empiric and illogic use of ear drops, douches and inflations. The author showed that this was bad treatment. The first condition to be met in chronic, as well as acute otitis media, whether suppurative or catarrhal in form, is drainage. There is no other factor which tends to perpetuate a suppurative ear disease so frequently as lack of drainage or retention of discharge. At his clinics he rarely uses injections. The ears are cleansed by carefully swabbing away secretion by means of sterilized cotton pledgets. These pledgets are kept constantly on hand. The external auditory canal is then packed with a strip of sterilized gauze, care being taken that it barely touches the membrane.

With reference to douching the author said there are a few cases which demand irrigation, and in these the ear is cleansed through the Eustachian tube whenever possible. When the affection is bilateral he uses Greuber's method. A syringe with a blunt point holding two ounces is introduced into the nostril. The other nostril is closed by the thumb as in politzerization. The patient is told to blow out the cheeks forcibly when the contents of the syringe is forcibly ejected. In this way the solution is forced through the Eustachian tube into the middle ear through the perforations into the external auditory canal.

Surgical treatment.—When the discharge continues after a month's treatment by the method described, the author resorts to operative interference, providing there is no indication of polypous formation or caries. In the case of a polypus being present he snares it away immediately, or in the case of opposition to surgical interference on the part of the patient, he reduces it by means of sesquichlorid of iron or alcohol. In his hands syringing of the attic by means of Hartmann's canula has proven unsatisfactory in almost all cases.

The author then touched on a few practical points that had been impressed upon him by his own experience. As regards narcosis, chloroform or a general anesthetic should always be used in those cases where any considerable amount of the membrane remains, for here the pain is usually intense during the operation, and hemorrhage from the granulation is very likely to delay manipulation. Cocain may be relied on in those cases where the tympanic membrane is largely destroyed and where granulation tissue is nearly altogether absent. The attic can be best cleaned by the attic scoop. The after treatment should be the same as that pursued before operation, namely, packing with gauze drains. He had seen cases that have run along for twelve years or more in which suppuration ceased in two months after the operation.

Dr. EDWARD T. DICKERMAN referred to the varying susceptibility of different patients to middle ear disease, and attached importance to the condition of the nasopharynx in these cases. He had found that in cases where the Eustachian tube was blocked by nasal growths that ear disease was far more common. Regarding treatment he agreed with Dr Pierce that the dry method was by far the best, and he believed that acute cases would never become chronic if properly treated. The bone which most often necroses is the incus, because the blood supply is entirely from one small artery which is easily occluded, any slight pressure from swelling being sufficient. In these cases of necrosis a thorough curetting is absolutely essential and due care must be had for the facial nerve, which is easily injured by instruments or any escharotics. He had found that the improvement in hearing in most of the cases was marked.

Dr. HENRY GRADLE—A fair experience has shown me that the gauze drainage advocated by Dr. Pierce is the speediest treatment at present known in acute inflammation of the middle ear, but I have never used it as yet in the chronic form. In discussing the treatment of chronic suppuration of the middle ear, I wish to emphasize certain principles which I fear are not yet appreciated by all practitioners. In general surgery it is well known that the tissues will invariably recover from pyogenic infection if the pus can escape freely, and there are no untoward conditions present, as for instance, foreign bodies. The same is true of inflammation of the middle ear. For anatomic reasons there is, however, much liability to the damming up of the pus with consequent persistence of suppuration. The reasons are partly obliquity of the meatus, partly the complex architecture of the tympanic cavity, the liability to the formation of occluded crevices by swelling of the mucous membrane or granulation tissue, and particularly the partial occlusion of the attic by adhesions and newly formed bands of tissue. All these conditions interfere with free drainage of the pus, and thereby favor secondary infection with putrefactive bacteria from the meatus. Inspissated pus moreover acts as a foreign body and thus maintains continued suppuration.

A valuable sign of retention of pus in the cavities of the middle ear is its odor. Freely escaping pus has no fetid smell, while a foul odor indicates imperfect drainage. We can make use of this important criterion to test the efficacy of treatment. On the basis of much observation of such cases, I can state emphatically that any treatment which does not remove the odor will never lead to a cure of chronic purulent otitis, and that, conversely, whenever the odor has been removed the tendency to recovery can be at once observed. A small number of cases may not entirely heal under the treatment which removes the odor, but this is a rare exception. On the other hand, the first principle stated has no exception whatsoever.

My treatment always begins with the free use of the syringe. A fine nozzle protected by a bit of soft drainage tube must be carried far into the meatus. Thorough syringing alone cures many cases. I can say this on the basis of some cures accomplished by syringing followed by the experimental use of various powers like iodoform, which I since learned to be absolutely inert. But syringing will not cure all cases, nor is it the speediest form of treatment when employed alone. All uncomplicated cases of purulent otitis will heal under the use of boric acid lightly insufflated after thorough cleansing. In a small percentage of instances a single insufflation has resulted in a permanent cure. If the cure is delayed there are complicating conditions present which we must inquire into, and these do not yield any more readily to the various substitutes recommended for boric acid. What we wish to accomplish by insufflation is to put into the ear a depot of a non irritating antiseptic which checks bacterial activity on the surface of the tissues. Boric acid answers these requirements so fully that I can see no reason for any search for substitutes for it. The addition of any antiseptic fluid to the water used for syringing appears unnecessary to any one familiar with surgical pathology, and many trials in former years have convinced me of the utter uselessness of all fluid antiseptics (including peroxid of hydrogen). Insufflation through the Eustachian tube I formerly used as a routine measure, but I have failed to see the least delay from its omission.

If these measures do not remove the odor after one or two treatments, other means must be adopted. Irrigation through the Eustachian canal has not proved of any use in my hands for the purpose of removing pent-up secretion of inspissated pus. I have learned to regard, however, as very valuable, irrigation of the tympanic cavity and attic through the intratympanic canula. Hartmann's rubber tube is too thick. I use a silver tube, closed at the end, with lateral eye attached to a ten centimeter piston syringe. Its efficacy is shown in

uitable cases by the appearance of grumous pus collections in he basin, and the disappearance of the odor. It is often ainful to the patient, but I have never seen any harm done y its use. Intolerance of the patient may require a repetition f its use at different sittings until all odor is removed. In ome instances, in which no complicating lesions existed, but here the intratympanic canula failed to dislodge the retained us, I have made use of fluids capable of penetrating better nto the small crevices than water on account of their lowered urface tension. I use first a solution of salicylic acid in alcool and ether, and follow this by carbolated glycerin 1 to 10. number of times my reasons for the employment of these olutions were justified by the subsequent disappearance of the dor and the progress of the case. I have also made attempts o dissolve carious bone by baths of hydrochloric acid (5 per ent.), and to digest obstructing granulation tissue by acid pep in solutions, but am not convinced that I have ever accomlished anything thereby. If these modes of treatment fail to emove the odor, we must attack surgically those conditions hich interfere. Polypi must be removed, although small ones ay sometimes disappear by absorption under such treatment ithout delaying the cure. Visible granulation tissue is to be uretted. Carious bone must be cleansed by the curette of dherent fragments of tissue; but when cleaned it does not nterfere with recovery, as I have learned repeatedly. Small penings in the membrana tympani, or in Shrapnell's mem rane, may be enlarged, although I have but rarely seen any enefit from this procedure. When persistence of the odor ndicates the inefficiency of the treatment, I attempt to clear ut, with the snare and curette, the entire tympanic cavity, emoving as much as possible of the ossicles, so as to expose ne attic freely. I have, however, not concluded to do a simle Stacke operation, for the reason that Stacke himself found nat in most cases requiring this operation, the mastoid also is nvolved. Whenever, therefore, I find that I can accomplish othing by the minor surgical measures, I perform the Zaufal peration, and convert the antrum, tympanic cavity, attic and eatus into one cavity. Of all complications, the most imporant is the existence of cholesteatoma. If with this condition, ne odor can not be removed, a radical operation is required. If ne deodorization can be accomplished the cases generally heal, nd may stay cured for months or years, but relapses rarely ail to set in.

As a rule, otorrhea diminishes steadily until cured, after the dor has been removed. There are, however, a few rare cases here many months may be required for this result Generly the treatment will not extend over a longer period than our to six weeks at most.

There are some cases in which no odor is present when first en and which still prove very rebellious to treatment. They e characterized by a very profuse, stringy, muco purulent ecretion which presumably comes from the mastoid antrum. n instances of this kind in which there are no indications for aso pharyngeal treatment, I have often found it possible to nfluence the secretion very markedly by the use of tannin disolved in glycerin, 1 in 4, retained in the ear for hours. Reeated trials have shown me the efficacy of this treatment under ese conditions, but it is not infallible. Some of these cases ith profuse, stringy secretion occur in children with a simar profuse chronic purulent rhinitis. This disease has been escribed by Bosworth as a special type occurring in children, nd I can confirm his description fully, but must differ radially from him regarding its ultimate outcome. He considers the first stage of ozena. I can not admit this at all, as I have atched some of these children for months, partly after the fficacious treatment, partly after treatment insufficient on ccount of frequent interruptions. Moreover, a few cases of ena which I and others have been able te catch in their inpiency began in an entirely different manner. This chronic urulent rhinitis of children can be cured by the persistent use the nasal douche kept up for many months. The same irritation extended into the Eustachian tube, will also cure the rresponding form of middle ear disease. When both ears are volved it is easy to use the Politzer bag, filled with saline sotion, instead of air. When the disease is one-sided the more mbersome Eustachian catheter must be employed. With ch irrigation boric acid insufflations must be combined.

It may not be amiss to add that hypertrophy of the pharyneal tonsil is not only a frequent cause of inflammation of the iddle ear, but accounts also for many relapses observed in uildhood, and that in every case of chronic otitic suppuration e must attempt to restore a normal condition of the nose and arynx.

Dr. TILLEY is a firm believer in syringing in these cases and ought it of more value than the dry method of treatment. e uses a bulb syringe similar to the one used by dentists, and injects the fluid into the tympanic cavity. He finds a solution of carbonate of soda most valuable for syringing. He considers constitutional measures of the greatest importance and uses the solid iodid of iron and cod liver oil in nearly all his cases. The nasal condition is also carefully looked after.

Dr. WHEELOCK agreed with Dr. Gradle that the odor of the discharge is a good index to the condition of the ear. He syringes most of his cases with peroxid of hydrogen, allowing it to remain in the ear for some minutes. Where granulations are present he finds that they can be most comfortably removed with absolute alcohol. He has been recently trying a 0.5 per cent. solution of formalin instead of the peroxid, and finds it very satisfactory. It seems to have a more penetrating effect than any other solution. Patients are instructed to syringe the ear with at least two quarts of hot water, at home, by means of a fountain syringe held a few inches above the level of the head.

Dr. COLBURN uses peroxid quite frequently, but called attention to the dangers of using it in cases with perforations because of the pressure exerted by the gas in the middle ear.

Dr. COLEMAN also uses peroxid freely. For some time recently he has been using the Politzer method of inflation in combination with cleansing the ear and considers it very satisfactory. He does not think there is any danger of reinfecting the ear from such treatment. When granulations are present he destroys them with chromic acid.

C. P. PINCKARD, M.D., *Secretary.*

The Eighth Italian Congress of Internal Medicine

Naples, October 20 to 24,

was opened by Prof. G. Bacelli, who urged further work in the line of the intravenous administration of heroic medicines, "first practiced in Italy, but now finding adherents all over Europe and in far America." Quinin was the first thus introduced into the system, and many a patient in the preagonic stage was saved by it. Then bichlorid of mercury was tried and afforded marvelous results, not only in syphilis of the brain and spine, but even in the gravest disturbances from pathogenic micro organisms and their toxic products, especially influenza. Then iron was attempted and other substances will certainly follow, although the endovenous method is obviously for exceptional use.

Prof. E. Maragliano described the important information to be learned with the Roentgen ray in regard to the thoracic organs, especially in incipient disease.

In his address on "Leukemia." Professor De Renzi went over much of the ground covered by the work of the Chicago Pathological Society (*vide* JOURNAL, Vol. XXIV, Nos. 4 and 25; also "Leucocytosis," Vol. XXIX, No. 10, and editorial in Vol. XXVIII, No. 20). He stated in conclusion that leukemia is not a morbid entity, but a symptom connected with physiologic and pathologic leucocytosis. Two factors are necessary, the inciting agent and a predisposition on the part of the organism. Given this predisposition to the exaggerated production of leucocytes, several micro organisms are capable of acting as the determining factor, hence the variety of types of leukemia, but an extremely susceptible nervous organization is common to all. Pasteur and others have found the staph. pyog. aur. and alb. and the bac. coli in leukemia, but Pane in his recent extensive research failed to discover any micro organism, even with inoculations of dogs and monkeys. De Renzi has observed typical anemia infantum pseudoleukemica in adults; it is an actual scourge at Barano d'Ischia. At present much importance is attributed to the neutrophile mononuclear leucocytes, but this importance is still dubious. Pane considers the granules of the polynuclear leucocytes physiologic, as an aqueous instead of a glycerin solution of eosin renders them acidophile. The existence of intermediate forms between the eosinophile and neutrophile granules precludes any deductions from them, and it is better to depend for the diagnosis upon the permanent multiplication of the white corpuscles and the hyperplasia of the hematopoietic organs. The theory of increased activity on the part of the cytogenic tissue (Virchow, Bizzozero), is confirmed by this hyperplasia of the hematopoietic organs, also by the abundant destruction of the leucocytes in the organic transformations, especially since Hurbaczewsky has succeeded in differentiating the albumin from the nuclein transformations, the first producing oxyproteic acid and urea, the latter uric acid. Recze found an increase of five to eight times as much as normal in his cases, and when uric acid could not be found, it was substituted by xanthin, hypoxanthin, Rovida's hyaline substance and Lilienfeld's nucleo. The erythrocytes are affected in leukemia, showing degeneration either as poiki-

locytosis or in the endoglobular changes described by Maragliano. Fever may or may not be present; it has no special characteristics. There is no prompt and radical cure for leukemia, but arsenic may prove beneficial; organotherapy promises still better results, and possibly Tesla's currents, which promote to a remarkable extent the organic oxidations without increasing the consumption of albumin.

Marchiafava considers leukemia and pseudoleukemia distinct affections, the latter a secondary infection favored by profound anemia. In the ganglion and intestinal variety the spontaneous increasing and decreasing in size of the ganglion tumefactions is still an inexplicable phenomenon. The internal ganglia may be the first affected; in the thorax it is the mediastinal and peribronchial ganglia, the process extending to the lungs or pleura. In the abdomen it is the mesenteric or retroperitoneal, or both. When the lymphoma invades the walls aneurysmatic dilatations are noted, while cancer and tuberculosis produce stenosis. The importance of the splenic tumefaction in splenic anemia, which must not be confounded with splenic pseudoleukemia, is evidenced by the complete recovery after extirpation of the spleen, in the early stages. Arsenic is still the most effective treatment of pseudoleukemia. Surgical treatment of the ganglion tumors is not to be advised. Bozzolo reported a case in which these tumors disappeared spontaneously, but reappeared ten years later. followed by leukemia. He remarked that leukemia of the skin is characterized by papulous nodules, which are often the first symptom of leukemia. He recommends subcutaneous injections of sodium arseniate in large doses. Pane communicated the results of the inoculation of rabbits with strong doses of pneumococci after immunization. He found intense hyperplasia in the bone marrow and in the spleen. Before death there was a great preponderance of lymphocytes and the white corpuscles were much more numerous than normal. He added that these experiences might prove valuable in differentiating acute leukemia from the leucocytosis encountered in certain infectious diseases. De Semo reported extremely favorable results from calomel in very small doses in twenty cases of pseudoleukemia or infantile splenic anemia.

The address on "Cardiac Neuroses" was by Silva of Pavia, who remarked that we no longer include angina pectoris and Basedow's disease in this list. He explains the etiology of paroxysmal tachycardia by studying the connection between the clinical manifestations and the physiologic data, the former bearing a striking resemblance to the attacks of tachycardia that affect workmen or mountain climbers making unwonted efforts, due to transient neurosis of the pneumogastric. We know that weak excitation of the pneumogastric, when it does not calm the tachycardia, exerts an antitonic action upon the heart and also, on the other hand, that slight excitation of the sympathetic increases its accelerating function. According to Murri, the force of the systole is in direct proportion to the amount of blood contained in the cardiac cavities, and thus, in tachycardia, when the cardiac tonus is diminished and the heart dilated, we have an element which easily explains the increase in the number of the cardiac contractions. The pneumogastric begins the attack; after this the poisons produced by the excessive activity of the heart, prolong it. The facts that compression of the pneumogastric at the neck arrests the tachycardia, and that digitalis is extremely efficient in this affection, demonstrate the correctness of this theory, which attributes the clinical phenomena to the influence of the myocardium and the pneumogastric, especially as we know that the chief effect of digitalis is precisely this increased tonicity of the cardiac fibers, which is ascribed by many to excitation of the pneumogastric. The abrupt termination of the attack is owing to the excitation of the intracardiac ganglia and the cardiac terminations of the pneumogastric, by the cardiac dilation and stasis, which stimulate the pneumogastric center by reflex action, and this in turn brings the heart back to its normal condition. Cardarelli's fine monograph on bradycardia attributes the affection to arterial lesions. Paroxysmal bradycardia may prove fatal during the first or later attack, but cases have been known to last fifteen years, although the average is three and a half. The treatment for cardiac neuroses is the same as for others: Hydrotherapy, then massage, electro- and climatotherapy. He concluded with the remark that the myocardium is always involved in purely nervous cardiac troubles, as there is no longer any doubt in regard to the trophic action of the pneumogastric on the musculature of the heart. Calabrese confirmed the theory in regard to the part played by the pneumogastric in the evolution of bradycardia by the case of a young woman in good health until a sudden attack of syncope and epileptic symptoms, pulse 27, nausea, etc. Atropin raised the pulse to 60, but it grew slow again as soon as the atropin was suspended. Digitalis accentuated the symptoms. Tedeschi sustained Kelly's theory, which attributes paroxysmal tachycardia to disturbed nutrition on the part of the neurons; the connection between the terminal ramifications being suspended, the vagus loses its tonic action upon the heart and tachycardia appears; it disappears whenever the cellular nutrition is regulated again. Gay remarked that in certain cases the tachycardia is one commencement of angina pectoris, and it requires the suppression of the cause (tea, coffee, tobacco) and prolonged medication, strychnin alternating with nitroglycerin, milk diet, etc.

De Renzi has confirmed in diabetic patients the results attained by Kossel *in vitro* in regard to the production of carbohydrates when nuclein is treated with diluted acid. He administered nucleinic acid, nuclein and thymus in diabetics during the complete absence of glycosuria and in every case not only was the elimination of uric acid increased but the glycosuria reappeared, showing that nuclein must also be considered as a source of carbohydrates in the organism.

The beneficial effect of Tesla's currents was proclaimed not only in leukemia, but in various diseases due to torpid metabolism ("experimental results surprising"), uricemia with eczema, etc. Lucibelli announced that the amount of fats eliminated in the urine of eight patients decreased one-half under treatment with the Tesla current. Tedeschi called attention to the splenomegalia which he has observed as a pretubercular symptom, the first to appear, and denoting a rapid and severe tuberculous infection. His cases were all convicts in prison. He considers it the expression of the struggle going on in the organism to throw off the infection. As the conclusion of much research Pittarelli denies the existence of physiologic glycosuria. Boeri announced that experimental lesions of the vagus lowered the limit of the destruction of glucose in the organism (dogs) (from 4 to 6 grams per kilogram, ingested fasting, and 2 to 2.5 grams injected into the peritoneum), to 0.75 to 1 gram, with neuritis of the central stump. Similar results were obtained with ligature of the choledochus but none with lesions as in those without. The decrease in the limit can not be due to modifications in the general metabolism, as it is only produced by lesions of the vagus when the sugar is introduced through the peritoneum. With subcutaneous injections the limit remains unchanged (4 grams). He considers it probable that this function is exercised by the mediation of the liver, which fact is confirmed by the lowering of the limit with injections into an intestinal vein, while with injections of the jugular vein the limit does not vary.

A. Jovane stated that experimentation with dogs, and tests of sixty small children, necropsies of others, etc., had demonstrated that the prejudice in regard to the incompatibility of calomel with acids was unfounded, He administered the calomel with lemonade made with citric, tartaric, hydrochloric acid, orange juice, salty bouillon, chlorid of ammonia, etc., and there was not the slightest intolerance, and no lesions were found in the alimentary canal of moribund children thus treated, showing the non-formation of corrosive sublimate in the combination of calomel with the chlorids, acids and albumin. Massalongo classifies chronic arthropathy into infective, dyscrasic, toxic and nervous. Of all the theories advanced in regard to the etiology, he considers the reflex theory of Marinesco and Brissaud the most in harmony with the anatomic alterations. Chronic articular rheumatism he divides into four varieties, the infective, dystrophic, nervous and mixed Various facts, among them the frequent discovery of peripheric neuritis both in the infective and nervous varieties, tend to establish the nervous origin of arthropathy. The most recent histologic investigations however point to the central rather than the peripheric system, and he believes that improved technique will in time discover in the spinal cord the primary cause of the affection. The exaggeration of the tendon reflexes is a special phenomenon of this infective group, which he has observed in 45 per cent. in the infective 85 per cent. in the nervous and 60 per cent. in all. Zagari asserted that uric acid is not found in the blood and urine of patients with gouty arthropathy; that its administration does not produce the affection nor increase it if already existing that there may be an excess of uric acid in the blood and urine from other morbid processes without the production of gout arthropathy and that increasing the amount of uric acid by the administration of nuclein combined with compression and traumatisms of the articulations does not lead to the evolution of the affection. He considers uric acid the companion of gout processes, but the deposit of uric acid in the interior of the cellular nucleus after ligature of the ureter or an injection of uric acid, has convinced him that these processes depend upon some anomaly in the life of the cellular nucleus in some special tissue. As the metabolism is disturbed, the essential product of the metabolism of the nucleus, uric acid, is deposited in the

cell. Bacelli stated that the fundamental facts in chronic arthritis are the alterations in the white tissues and the disturbances in the lymphatic vessels. He mentioned as an early symptom "granulous pharyngitis," also an alteration in the periosteum over the anterior surface of the tibia, with edema, sometimes painful, with uratic deposits below. He has been using oxygen for a long while with fine results in the gouty forms, and also in fatty diabetes.

Maragliano announced that his precipitate of tuberculosis cultures contains both the proteins and the toxins, while Koch's new tuberculin is deficient in the former. It is also twenty times more potent than the product presented by Behring. He has established that the tuberculous organism produces antitoxin, itself, during the intermissions of the disease, which fact explains the clinic experience of spontaneous cure in some cases of tuberculosis. Many more cases would be cured if even a small amount of artificially produced antitoxin could be supplied from without to supplement the autoproduction. He concluded by reporting that forty-six patients cured two to three years ago with his serum, are still perfectly well, with no signs of recurrence. The serum was also endorsed by the experience of several other members.

Professor Queirolo ascribes much of the disturbance in typhoid fever to the imperfect digestion and consequent accumulation of decomposing matter in the alimentary tract. He avoids this by feeding his typhoid patients exclusively per rectum, as long as thirty days if necessary. He reports twenty-six patients thus fed, with remarkably favorable outcome, and no inconveniences. A careful study was made of the urine at the same time; the phenol and indican were much diminished or entirely absent during the rectal alimentation. He used Leube's nutritive enemas, four a day. The tolerance was perfect; opium was omitted after the first enema. Voit and Bauer have demonstrated that 20 grams of albumin can be absorbed by the rectum in a few hours. De Renzi warned against the danger of underfeeding the patient. He has been experimenting with subcutaneous alimentation, but finds it impracticable, as it is difficult to supply the proper amount of calories in this way. He added that the extension of the intestinal lesions would counter-indicate rectal feeding in some cases. Others approved of rectal feeding, especially in the case of children.

Germano confirmed the impossibility of the aerial transmission of the germs of cholera, typhus, and those of the bubonic plague. Menella reported prompt and certain improvement in tuberculosis limited to one lung, the pleura not involved, after gluteal injections of a solution of guaiacol, 30 grams; eucalyptol, 10 grams; and cod-liver oil, q. s. to make 100 c.c. A. Cantani also reported the favorable results of experimental research in regard to immunizing against influenza. He attributes his success to the fact that he used the exudations and emulsions of the organs of the infected animals.

Prof. N. Pane's antipneumonia serum was endorsed by De Renzi, who has administered it in thirty extremely severe cases. All recovered except three; one with grave renal lesions, and the other two dying soon after being received at the clinic. He has also seen two otherwise inevitably fatal cases saved by the serum, which he announces is harmless, even in quite large doses. His mortality with other treatment averages 24 per cent.

The French Congress of Surgery.

As already mentioned, "Contusions of the Abdomen" was the subject of one of the addresses. The advantages of prompt laparotomy were extolled and numerous convincing instances related in which life had been saved by laparotomy immediately after the first nervous shock had passed away, the earlier the better. Other instances of a fatal termination showed the danger of waiting for the manifestation of serious symptoms, when intervention is too late. The patient should be kept warm in bed and watched for the slightest indication of trouble, such as lower temperature, especially of the tongue, faster or slower pulse, suspension or difficulty of urination, change in the voice, localization of the pain, cramps and dilatation of the pupil on the corresponding side when the blow was received on either side of the median line. If the pulse, rapid at first, grows slower while the patient is resting the case is seldom serious. It is important to differentiate between the nervous shock and the shock from hemorrhage. The circumstances of the traumatism are of great significance for the diagnosis. In Demon's experience a wooden rigidity of the abdominal walls always indicated a ruptured viscus. Moty remarked that in the less severe cases opium is the only resource, as ice sometimes entails grave complications, notably phlebitis. Doyen advocated Sneguireff's method of arresting sheet hemorrhage, such as occurs in wounds of the liver, by directing a stream of steam upon the bleeding surface. It is also an excellent disinfectant. Michaux opens up largely, evacuates the blood with large aseptic sponges, examines the intestines systematically in warm sterile napkins and does not eviscerate except when fecal matter or débris is found. He leaves the abdomen largely open, localizing with iodoform gauze and injects serum into the veins at need, with peritoneal lavages with salted water and potassium permanganate. Doyen prefers strictly localized lavages. He presented a new drain which leaves the abdomen still a closed cavity. It is of glass with a projecting lip and two glass appendices, which keep it in place in the peritoneal cavity and ensure its permeability at all times. The outer end is fitted into a sterile condom in which the drained fluid accumulates, without allowing any contact with the outside air. Doyen also described a method of enterorraphy which can be applied to any part of the alimentary canal and has produced results surpassing expectations in some very serious cases requiring resection of a meter and more of the ileum and cecum with a neoplasm of 80 centimeters. He applies clamps above and below the portion to be ablated, which crush the middle and inner coats of the intestines, leaving only a thin wall which he ligates with silk. Two centimeters inside these ligatures he closes the intestine completely with clamps. He then cuts the intestine between the ligatures and the clamps, burning off with the thermocautery and pieces of the intestines still projecting and ligating the vessels of the mesentery as needed. The field of operation is thus cleared, absolutely aseptic. He then fastens the ends of the intestine firmly with a strong double thread, pushing the first silk thread inside after cutting it off close to the knot and performs lateral enteroanastomosis, either by closing the lower end alone and implanting the upper end over it or by uniting the two ends directly with a circular suture. When the end to end suture is made he detaches the mesentery a short distance and fastens the two superposed ends with two rows of stitches on the side toward the mesentery. He then sutures the outer free side, drawing the ligatures which close the intestine outside and cutting them. Elastic forceps applied above and below prevent the escape of the contents of the intestine. The suture is finished in a few seconds and the forceps removed, when the operation is concluded as usual. The complete anastomosis, the uninterrupted course of the canal, the double row of sutures and the absolute asepsis are the advantages of this method.

J. L. Faure reported two cases of serious syncope, one fatal, from the chloroform in performing the operation of resection of the sympathetic in exophthalmic goiter (three cases), and he suggests that possibly resection may render the heart more susceptible to the effect of the chloroform. Doyen claims that his rapid method of thyroidectomy has obtained four absolute cures in four cases and that it abolishes the tachycardia, which is not affected by resection of the sympathetic. His first case has been permanently cured since 1887; his second since 1893. Kocher's statistics show the benignity of the operation, which only requires eight to fifteen, rarely twenty minutes, while the operation on the sympathetic is much more tedious. Faure also asserted that invagination of the stomach in gastro-enterostomy prevents the accumulation of food in the superior end of the intestine, which frequently entails serious results. He avoids this by inserting a piece of the stomach in the intestine in such a way that a buttonhole in the invaginated gastric cone, facing the lower end of the intestine, allows the passage of the food directly into it. The edge of the buttonhole is overcast to keep it open and the cone is securely sutured to the buttonhole in the intestine. Ligatures to produce atrophy in inoperable tumors have been revived lately in the new light of asepsis, and the results obtained amply justify further attempts. Tumors with a single pedicle are best adapted to this treatment, also uterine neoplasms. Tuffier ligated an advanced epithelioma of the latter class seventeen months ago and the improvement was decided and permanent to date. It is now completely mummified; he even doubted his diagnosis until confirmed by the microscope. He also secured marked improvement in an infection of one kidney by ligating the vascular pedicle. Broca has been comparatively successful with ligatures in neoplasms of the face, and Hartmann reported success in fibroma of the uterus which subsided to a remarkable extent, even when only one of the four pedicles is ligated. This treatment is also suggested for certain localized infections, megalosplenia, phlebitis of the sinus, etc. The ligature can be applied to a vein or artery as indicated.

Chipault stated that he had now a record of fourteen cases of plantar *mal perforant*, of which twelve were cured by elongation of the nerve after evacuation of the ulcer.

C. MARTIN of Lyons asserted, as the result of much experimentation with dogs, that it is possible to secure complete regeneration of a bone or articular extremity by supplying light and firm support as a guide for the ossification. He uses a framework of strips of platinum connected by cross pieces, the size and shape of the missing bone. It holds the fragments apart, prevents the intrusion of the soft parts and can be filled inside with transplanted pieces of bone to assist the new formation.

DURET called attention to biliary lithiasis unaccompanied by icterus or tumor or the usual symptoms, and hence surgical intervention is frequently neglected, although it is the only means of relief from the intense pain, inflammation in the region of the gall bladder and progressive cachexia. It frequently dates from two to ten years previously. There are pronounced digestive disturbances, anorexia, finally neurasthenia and cachexia. The trouble is usually one or more stones lodged in the hypertrophied gall bladder, but without any accumulation of fluid. Cure was obtained in eleven out of his twelve cases.

General Report of the Berlin Lepra Conference.

IS LEPROSY TRANSMITTED BY WEARING APPAREL?

Dr. VON BERGMANN of Riga said the answering of this question met with two hindrances: 1. The long incubation of leprosy in which it is difficult to decide whether in truth the incriminated object, say an article of clothing, has played the part of intermediary. 2. The gap which exists in relation to the vital conditions of the bacillus in our knowledge; for we have no positive notions as to its continued existence, its multiplication and the conditions under which its invasion takes place. According to Arning, Beavan Rake, Stallard, the bacillus can remain unchanged, even in decomposing water, for months, in relation to shape and colorability. The fact that any superficial slight injury of a lepra tuber makes possible the exit of crowds of bacilli into the external world is proved by the facility with which the smear cultures put in evidence the bacilli in the tuberculous form. Besides, the bacilli can easily be shown in the tumor secretion of the tuberous form. We must say, therefore, that if the bacillus is recognized as the nosologic agent of leprosy, the bandages, the body and bed linen, even the clothes and shoes, are objects which have received an abundant bacillary material, and are therefore capable, given the proper condition, to infect another organism.

We meet in practice the statement that the transmission has taken place through objects such as clothes. These statements are, I repeat, difficult to control. In a case in which the patient maintained with peculiar emphasis that he had been infected by the clothes of his lepra brother, which he wore after his death, it can be shown that in the lifetime of the brother there had been such relation between these two persons as to make a direct transmission very possible. The theoretically construed possibility of the spread of leprosy through infected objects can, however, obtain a practical background, if we consider the high percentage which the washerwomen furnish to the contingent of lepers, according to some reports as much as twenty per cent. of the patients. Of the present forty-nine female inmates of the Riga Leprosorum nine were laundresses. To be sure I can not prove that these women have really washed the linen of lepers. Positive statements have indeed been frequently made to me, but verification of the negative statements have not been practicable. Cotfin says that a family caught lepra through infected water, as it turned out that dirty linen of lepers had been sunk into the well from which the water was taken. Cornil attributes, in one case, to the uncleaned offiicial dwelling of a leprous official the disease of his successor. He quotes at this occasion the old standpoint of the Mosaic law which declared the dwelling places of the lepers to be contaminated and gave prescriptions for their sanitation. However that may be, it is certain that until these still open questions are settled, we can not put aside the possibility of the transmission of leprosy through dirty linen, clothes, etc., and that we must take corresponding measures. It is, therefore, to be recommended that in the sanitary police regulations a careful disinfection of these objects, respectively, the burning of the same, be provided.

The sanitary police regulations must, moreover, include the disinfection of the dwellings of the lepers, as here, through uncleanliness of all kinds, especially the spitting on the floor, bacilli deposits are formed which must be made harmless, the more so as the tenacity of the bacilli is very considerable and furnishes the essential condition of a long enduring virulence.

PRACTICAL NOTES.

Ordinary Bottles can be used for the Fluorids if they are first filled with melted paraffin, and then emptied while it is still warm and fluid. The thin layer of paraffin that adheres to the glass will protect it from the chemical.—*Bulletin de la Soc. de Pharm. de Bordeaux*, October.

Anesin.—This substance, which has been described as an aqueous solution of acetone chloroform, has been brought forward by Vamossy as a substitute for cocain; he says it is a good local anesthetic, free from toxic properties.—*Deutsche Medicinische Wochenschrift.*

Diagnosis of Intestinal Worms.—According to Muller de la Fuente, there are two signs which indicate the presence of worms; one is the sudden colic, the pain strictly localized, and the other is a marked contraction of the visual field on both sides.—*Gaz. Méd. de Liège*, November 11.

Hysteria as a Mark for Perityphilitis.—Rendue (*Gazette des Hôpitaux*) alludes to two cases in which the signs of perityphlitis were so counterfeited that an operation was deemed essential for the diagnosis. In one the mimicry persisted after the abdominal section, in the other it did not. He declares against an operation where there is no fever irrespective of other signs. This may be a point well taken.

Bisulphate of Sodium as a Lead Eliminator.—Peyron (*Centralbl für innere Medicin*, 1897, 42) claims that a daily dose of 5 or 6 grains of the sodii bisulphite in lead poisoning with traces only in the urine, will eliminate as much as 72 mg. in a day. This remedy acts very rapidly, as the maximum excretion of lead occurred two or three hours after its ingestion.

For Inhalation in Catarrh of the Upper Air Passages.—Kafemann recommends as extremely effective the following combination: Menthol, 4; eucalyptol, 2.5; turpinol, 2; essence of pine, 1. A few drops of this liquid are poured into a bottle, which is warmed over an alcohol flame. Balsamic vapors immediately fill the bottle and these the patient inhales through a tube.—*Semaine Méd.*, November 17.

Treatment of Sciatica with Hydrochioric Acid.—The painful spot is painted with acid. hydrochlor. pur. with a camel's-hair brush two to four coats. It smarts a little, but the pain is relieved at once and radical cure follows in one to three weeks. Small blisters are apt to form and in painting the surface the second time, twenty-four to forty-eight hours later, the blistered spot must be avoided. (C. Gennatas, twelve cases; *Therap. Woch.* November 7.)

Aid to the Early Diagnosis of Tuberculosis by Injections of Artificial Serum.—Twenty c.c. injected subcutaneously in a normal healthy person produce no febrile reaction, but in a person with tuberculous lesions the temperature rises to 38 or 39. degrees C., in the course of nine hours, returning to normal by the end of the twenty-four. The temperature must be taken commencing a few days before to determine the absence of fever, and every three hours afterward. The reaction is not positive unless the temperature attains 38 degrees.—*Semain Méd.*, November 10.

Euquinin.—A new substitute for quinin has been introduced under the name of "euquinin" (*i. e.* superior quinin). Chemically described, it is quinin in which a hydrogen atom has been substituted by a molecule of ethyl carbonate. The product resembles quinin sulphate in appearance, but is almost wholly free from bitter taste; it gives the regular reaction for quinin. Therapeutically, it is said to not only possess all the virtues of quinin, but its range of application is much wider, and it has the advantage of inducing no secondary effects. Clinical reports so far speak of its successful application in fevers, neuralgia, whooping cough, and as a tonic in anemia and chlorosis.—*American Therapist.*

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SATURDAY, JANUARY 1, 1898.

TO COMPEL MIDWIVES TO REPORT CASES OF PURULENT OPHTHALMIA OF INFANCY.

At the Meeting of the ASSOCIATION in Milwaukee, in 1893, resolutions were adopted by the Section on Ophthalmology approving of legislation which would compel midwives to promptly report cases of purulent ophthalmia of infancy to some legally qualified practitioner. As a result of the movement then inaugurated, midwives are obliged to report these cases in New York, Maine, Rhode Island, Connecticut, Minnesota, Ohio, Maryland, Missouri, Pennsylvania, Iowa, New Jersey, Illinois and Michigan, covering a population of over thirty-four millions. The prosecutions have not been numerous and still more rarely have midwives been severely punished for neglect in this respect. But the very existence of this law has had an admirable effect, and wherever a midwife has thus been brought to a sense of her duty, even by arrest, that has had a better effect upon the remainder of her class than all the lectures given and pamphlets published.

We call attention to this law for the reason that it should be passed also by the legislatures of other States and we trust that ophthalmologists, who most frequently see these sad results of ignorance and delay of midwives, will take the matter in hand, and also that medical journals in States without this provision will agitate the subject, so that when their legislatures convene, as most of them do about this time of the year, some move may be made to extend still further the effects of this beneficent law.

THE PATHOLOGIC MECHANISM OF TREMOR.

Although it is one of the most common of morbid motor symptoms and a very general accompaniment of states of weakness the phenomenon of tremor has not yet received a perfectly adequate or satisfactory explanation. We can conjecture of course its mechanism and assume, with DANA, that it is a derangement in the rhythm and force of the tonic influences proceeding from the brain to the muscles, or that it is in some way connected with impaired nervous conduction, but the underlying states that give rise to these lesions of function have not been made clear, nor has this been generally seriously attempted in the works treating of nervous disorders. We can say therefore with LANDON CARTER GRAY, in DERCUM'S text-book of nervous diseases, that the intimate pathology of tremor has been so far an unknown quantity, notwithstanding all the clinical studies and pathologic investigations of the various disorders of which it is a characteristic symptom.

While it is true that as yet we have had no perfectly satisfactory theory of tremor, as regards, at least, its ultimate cause, one thing can be assumed as tolerably certain, that it is of central, and probably cerebral, rather than of peripheral origin. Some authorities have admitted the possibility of lesions of the peripheral motor tracts participating in its production, but this must be from interference with cerebral impulses rather than from the local lesions themselves and were conduction altogether interrupted it is not probable that tremor would occur. In a recent paper in the *Wiener medicinische Wochenschrift*, ADAMKIEWICZ reports the results of a clinical and experimental study of this subject, which seem to throw a certain possible light upon the possible pathologic mechanism of the symptom. He starts with the assumption that the phenomenon is of cerebral origin; there is no tremor that continues during sleep and from this it may be inferred that it is a phenomenon of active central innervation, over which however the will appears to have practically no control. It may be defined as a series of involuntary muscular movements of very brief duration, of central origin, and independent of the will. To demonstrate its character ADAMKIEWICZ employed the following experiment: A piece of laminaria was introduced under the dura mater of a rabbit, and its gradual expansion in that situation caused first spasm followed later by paralysis and spontaneous tremor. Tremor, therefore, he concludes is only a higher grade of spasm, and both, in spite of the pathologic increase of muscular tonus in spasm, are alike paralytic phenomena.

According to the view ADAMKIEWICZ adopts, normal muscular movement is the resultant of two opposed innervations, the one cerebral, passing from the cortex by way of the pyramidal tracts to the anterior horns, the other cerebellar, reaching the cornua through the

posterior columns. The one is the route of volitional impulses, the other that of tonic innervation. If the equilibrium of these is disturbed, by compression or otherwise, we have according to the part involved two varieties of motor disorders; if the pyramidal tracts, we have spasm or tremor from the uncontrolled cerebellar innervation; if the posterior columns, we have the disordered movements of ataxia. To explain how the tonicizing cerebellar fibers are put into action to produce tremor ADAMKIEWICZ assumes that, under pathologic conditions, they are excited by bodily movements, temperature, etc., and even by the normal heart pulse and the circulation, excitants that like other similar agencies are normally unfelt and only become irritants in conditions of disease.

Tremor can therefore be defined according to the ADAMKIEWICZ theory as the result of defective functioning of the pyramidal motor routes and a pathologic irritability of the tonic cerebellar fibers. It is a symptom of cortical motor weakness and may be caused, as he claims his pupils have shown, by any and all influences that diminish the energies of the cortical motor zones. This would explain, for example, how emotional disturbances may produce it, as their action is often directly weakening and can not be otherwise than cerebral in their action. In fact, any form of recognized tremor will readily come under this definition, except possibly that ascribed to peripheral lesions, and, if such ever occurs, the cause may also be ascribed to hindrance of cerebral innervation. All tremors are essentially identical in that they cease during sleep and are associated with muscular weakness, which when its source is sought is presumably of central origin. The theory that the function of the cerebellum includes the regulation of muscular tonus, though it has been questioned by some authorities, is apparently the one that is coming to be generally accepted and is strongly maintained by ANDRÉ THOMAS in one of the latest published memoirs on the anatomy and physiology of this organ. That, with impaired or lacking cerebral inhibition, this function may be pathologically hyperexcited so as to produce tremor is not only conceivable but highly probable according to all analogies and experience in pathology. Whether it is fully accepted or not, this theory of tremor offered by ADAMKIEWICZ appears to be on the whole as satisfactory a one as any yet proposed, both in its explanation of the presumed details of the mechanism of the symptom and in its agreement with admitted physiologic facts.

CONCERNING ATYPICAL TYPHOID FEVER AND PURE TYPHOIDAL SEPTICEMIA.

Atypical manifestations of typhoid fever are well known, not only to the clinicians but also to the pathologic anatomists. At the International Medical Congress, in Moscow, Professor CHIARI, of Prague, reported the results of his studies concerning the atypical manifestations of typhoid.[1]

Deviations from the usual or typical changes in this disease may occur in the following manner: 1. The typhoidal changes usually observed in the intestine, in the mesenteric glands, and in the spleen, may be peculiar. 2. Unusual inflammatory changes, due to the anomalous localization of the typhoid bacilli may be met with. 3. It may concern a general blood infection, without any definite localization, that is to say there may be a pure typhoidal septicemia.

In the intestine the typhoidal inflammation may be so to speak, abnormal as regards its extent, its intensity and its localization. Thus the intestinal changes may involve not only the lower ileum but the whole small intestine and even the stomach, as well as the large intestine clear down to the anus. On the other hand, only a very few, and even but one single PEYER's patch, may be involved. In some cases there may be very extensive inflammation and necrosis, involving all parts of the intestinal wall; in other cases the process remains confined to the mucosa, no necrosis occurs and it requires special attention in order to find the intestinal lesions. This last is, particularly frequently observed in children. It may furthermore happen that there are no changes in the usual place in the lower ileum, but that the changes are confined wholly to the large intestine, or wholly to the stomach.

The mesenteric glands may be but slightly enlarged or there may form very large swellings in which necrosis may occur to an even greater extent than in the intestinal foci.

The spleen varies greatly also as regards its changes. It may be but little enlarged, or the enlargement may reach a considerable extent. It may be accompanied with copious hemorrhages, foci of necrosis may arise, the capsule may be so stretched that in removing the organ it is ruptured, or it may rupture spontaneously during life.

Then, there are cases in which there is complete absence of all involvement of the gastro-intestinal tract, the only changes being in the mesenteric lymph nodes and the spleen; furthermore, cases occur in which a very marked acute splenic swelling perhaps leads to the postmortem diagnosis of typhoid fever, the so-called spleno-typhoids, of which a case has been described by KARLINSKI.[2]

As regards unusual localizations of typhoid bacilli and the resulting changes, then it may be said that there is perhaps no organ in which inflammatory processes, due to the bacillus typhosus, has not been observed. These were either complications in the course of otherwise anatomically typical fevers, or there were atypical typhoidal changes in the organs usually affected. Thus there have been observed purulent

[1] Zeitschrift f. Heilkunde, xviii, 1897.
[2] Wiener Med. Wochenschrift, 1891.

inflammations due to the typhoid bacillus, of the pleura, lung, thyroid gland, peritoneum, parotid gland, biliary passages, kidneys, testicles, the periosteum, bone marrow, joints, skin, subcutaneous tissue, muscles, meninges,[3] endocardium and of the middle ear. Thus GUARNIERI[4] describes a cholangitis due to the typhoid bacillus while the intestine was free from changes, the typhoid bacillus having been cultivated from the blood of the patient during life. KARLINSKI[4] found in a case of acute splenic tumor, without changes in the mesenteric glands or intestine, two myocardial abscesses containing typhoid bacilli. The bacilli were also cultivated from the spleen, liver and kidneys.

The most interesting deviation from the normal of typhoid fever is the one in which there are no distinct local foci whatsoever, the postmortem examination showing only moderate splenic tumor, and yet the bacteriologic examination reveals the existence of general typhoid infection. Such cases must be regarded as pure typhoidal septicemias.

It is known that in other cases of typhoid there has occurred, in addition to the typical and atypical local changes, a greater or less distribution of bacilli throughout the whole body. In connection with this it will suffice to refer to the case reported by FLEXNER[5] of typhoid septicemia, associated with abscesses in the kidneys. It is well known that the typhoid bacillus may be eliminated through the kidneys during the occurrence of the fever, and that it can be cultivated from the urine; it is also constantly found in the bone marrow during and after attacks of typhoid fever, showing that at some time during the disease a septicemia or invasion of the blood by the bacilli had taken place.

A pure typhoid septicemia has heretofore been described, most frequently in fetuses that were born by mothers sick with typhoid fever. The cases of so-called typhoid septicemia hitherto described have otherwise, in reality, been cases of atypical localization of the anatomic changes, with septicemia. In this connection it is well to bear in mind that there are those who claim that typhoid fever is under all circumstances a primary blood infection, and that the intestinal and other changes are secondary manifestations.

CHIARI then describes the cases of typhoid fever which were examined in his institute during the first five months of this year. The total number was nineteen cases, but in seven of these typhoid fever in the anatomic sense was not present; in six of these the positive result with WIDAL'S serum test had led to the clinical diagnosis of typhoid fever, and in five of the seven it was found on bacteriologic examination that it really concerned a pure typhoidal septicemia without any localized lesions. These cases, which are extensively described from a clinical, anatomic and bacteriologic standpoint, suggest the necessity for bearing in mind that when typhoid fever is endemic there may occur a pure typhoid septicemia, which may become confounded with other diseases, and furthermore, that when during life the serum test has given positive results we must be very careful not to exclude typhoid fever, even if the postmortem examination fails to show any of the local lesions characteristic of this disease, but to resort to a complete bacteriologic examination with reference to the presence of typhoid bacilli before reaching any definite opinion as to the nature of such a case. It may be seen that perhaps some of the observations that have appeared to point against the reliability of the serum test may not always rest upon sufficiently well taken grounds, and especially so when bacteriologic examination of the cases in question has not been made. It is well in this connection to remember that, as has also been studied by CHIARI, the gall bladder may act as a depot for typhoid bacilli, so that when a typhoid infection of the body has occurred bacilli are nearly always to be found in the gall bladder, even when other organs are sterile.

[3] See article by Ohlmacher on typhoid meningitis in the Journal Aug. 28, 1897.

[4] Quoted by Chiari, loc. cit.

[5] Journal of Path. and Bact., iii, 1895.

THE PROGNOSTIC IMPORTANCE OF THE APPEARANCE OF EYE LESIONS IN INTERSTITIAL NEPHRITIS.

There are few practitioners throughout the length and breadth of the land who do not, in the course of a year, meet with more or less classic instances of interstitial nephritis, commonly styled Bright's disease.

Although this renal lesion is encountered among rural dwellers, it is far more likely to proclaim its presence among those who by their devotion to urban life outrage Nature, and sooner or later pay the bill in chronic constipation, catarrhs, auto-intoxication in its myriad forms, in short all those disordered conditions that predispose to the final production of what SCHMEICHLER has aptly characterized as "connective tissue individuals," persons whose viscera and other highly specialized organs become the seat of interstitial processes. Thus is the foundation for interstitial nephritis laid, and though in its earliest phases the disease may be many sided, presenting a variation in subjective and objective symptoms often baffling to the practitioner, when the malady begins to unfold its classic features there is little likelihood of error in diagnosis. From this stage on to the last sad picture, the march of the process is more or less rapid according to the faithfulness with which the patient adheres to the dictum of his medical adviser. The disease may drag its weary length along, exhausting the utmost long-suffering and patience; or, on the other hand, in the midst of life the patient may be in death.

If such be the uncertainty as to the termination of

this process which, for convenience is called intestitial nephritis, it is the duty of the medical man to familiarize himself with those danger signals that are hung out from time to time in nearly all slow but fatal diseases. In the malady under discussion nothing is of more grave import than the appearance of lesions in the eye. This is not new truth, and yet it is truth that deserves far more recognition than has ever been accorded it. The advent of retinitis in the eye of an albuminuric heralds the beginning of degenerative changes in the area of distribution of the carotid arteries, seeing which it necessarily follows that similar degenerations and hemorrhages within the cranial cavity are to be anticipated. This sequel to interstitial nephritis is not uncommon and many ophthalmic workers have had their study of such cases cut short by cerebral hemorrhage. Indeed such a termination is not infrequent among those who are the subjects of hemorrhagic glaucoma, another terminal degenerative sign of interstitial kidney.

A study of the statistics of this subject is not without interest. Two years ago, BELT was led by his search through the literature of the subject into feeling that a more hopeful prognosis might be given in cases of Bright's if strict adherence to the family physician's counsel as to therapy, regimen and prophylaxis were observed. With this preconceived idea in view, BELT brought together the data of 409 cases furnished by most of the prominent ophthalmologists of the United States. But his hopes fell, for when the accumulated facts had been statistically arranged it was learned that of 409 individuals the subject of albuminuric retinitis due largely to living at the pace that kills, 155 were cases in private practice, of which number 62 per cent. died within one year, 85 per cent. in two years, and 15 per cent. lived more than two years. Of the 77 hospital cases, 85 per cent. died within one year, 93 per cent. within two years, and 7 per cent. lived more than two years. Of the remaining 187 mixed cases, 65 per cent. died within one year, 93 per cent. within two years, and 7 per cent. lived more than two years. And if these facts be properly collated, it is plainly shown that the large majority of the victims of albuminuric retinitis die within the first year after the appearance of the eye lesion, fully 90 per cent. die before the expiration of the second year from that time, while a scant 10 per cent. drag out a weary existence stretching over 10 years sometimes, and even to 17 years as in the minister reported by WEBSTER.

The value of accurate prognosis can not be overestimated. If it so happen that a physician's prognostications frequently fail of fulfillment he comes to be lightly viewed in the community and is held by his townspeople and brethren in the guild as a false prophet. On the other hand, the medical man should not be slow to prophecy when known facts are at hand; for let his prognosis, even though they be filled with foreboding and gloom, come unfailingly and timely to pass, and he will be laden with the confidence and increase of his patients, and they will forgive his shortcomings to seventy times seven. Such is the power of prophecy.

The foregoing statistics, then, establish a scientific truth of twofold value. First, in that it enables the practitioner to prognose intelligently in a given case; second, by reason of such authoritative prognosis, the sufferer, who is usually of the well-to-do class, may be acquainted with the suddenness with which his malady may terminate, permitting him to so arrange his worldly affairs as to set aside all necessity for the litigation that follows upon the death of most of those who are unfortunate or improvident enough to die intestate.

THE SOCIAL POSITION OF THE BRITISH MEDICAL PROFESSION.

The *Practitioner* has lately congratulated the British medical profession on the limited extent to which it suffered contamination from American medical science at the late (Montreal) meeting of the British Medical Association. The meeting in question was an excellent exhibit of how far philistinism has sunk British medicine beneath the level of American and continental (European) medical science. The section work in the main would not disgrace a third-rate American medical society of the mutual admiration type. The section on psychology, for example, sank far below the corresponding Section on Neurology and Medical Jurisprudence of the AMERICAN MEDICAL ASSOCIATION. In the last a European continental physician would find himself at home; in the first he would feel that, like Faust in Auerbach's *Keller*, he was among people.

> With little wit and ease to suit them,
> They whirl in narrow circling trails
> Like kittens playing with their tails.

The downward social trend of the British medical profession, partly resultant on this philistinism and partly on its flunkeyism, appears evident, as the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has already pointed out, in the award of honors in reward of medical eminence. While the SALISBURY administration has honored itself by the elevation of Sir JOSEPH LISTER to the peerage, the British medical profession has been hitherto condemned, as already pointed out in these columns, to the contemptible baronetage. The abolition of this is just now being demanded because of its notorious creation in the STUARTS' day by what MACAULAY ("Political Georgics," 1828) calls

> Boodles' patriot band
> Fat from the leanness of the plundered land.

It must in justice be admitted that there is a decided flunkeyism in the British medical profession which about two decades ago found expression in an animated discussion over the method of shaking hands with different ranks, whether the practitioner should not always ring the servants' doorbell and the like very caddish topics. Letters on these matters overflowed the columns of the *Lancet*, *British Medical Journal*, *Medical Times and Gazette* and the *Medical Press and Circular*. The whole subject was finally summed up by a "veteran practitioner of fifty-one years' standing" in the *Medical Times and Gazette*. "My practice," he remarks, "has been to ring the visitors' bell gently, though even that, when calling to see a servant, has seemed to me to savor of impropriety. But whatever course the young doctor adopts, let him above all things beware of using the knocker. That would imply familiarity with the family, the very suspicion of which it behooves the circumspect practitioner to avoid. So long as he confines his manipulations to the bell-pull, he is safe. The next problem which confronts him is what to do with his hat. Following the custom of other men who have business in the house, he should by rights leave it in the hall, not on the floor but on the hall table. This course however may involve him in serious danger. If there are children about the house they may be counted upon to play with it, perhaps march into the drawing-room with it on their heads, a complication, I need hardly say, as being evidence of undue familiarity would be of the gravest import. My own plan has been to take my hat with me and only relinquish it when the clinical investigations of a case rendered such a course absolutely necessary. Familiarity is impossible so long as the hand keeps clouch of the beaver. It is an almost impregnable rampart and would take the sting out of anything a tale-bearing domestic may say hereafter. The ethics and equity of handshaking form a difficult subject. As a rule, I agree with the *Lancet* that it is best to avoid it. If a lady of title offer two jeweled fingers the young practitioner would be at once foolish and rude to decline to take them, but the touch should be cold and momentary. With the wives of commoners it will be best if it can be done without obvious rudeness, to bow formally instead of offering to shake hands, both on entering and leaving."

THACKERAY voiced the feeling of the British county nobocracy toward the medical profession in Dr. Pendennis. He, after achieving a competency, became a member of the squire-archy and felt it as deep a disgrace to be styled "Doctor" as he had previously felt it to be an honor. American judges, notorious as many of them are for defiance of science, would hardly go to the extent of the English judge of county snobocracy ancestry who decided that a bill against a county magnate for treatment of scarlatina in a child, was an extortion since no child could have scarlatina without being confined to bed. In this the judge but imitated the conduct of Queen VICTORIA in the Lady FLORA HASTINGS case. This young lady, when a maid of honor, began to exhibit signs of abdominal enlargement. The gossips of the court loudly hinted that she was pregnant and their view was adopted by the Queen. The majority of the court physicians declared, after a vaginal examination, that the unfortunate girl was not pregnant but suffered from a malignant tumor. Queen VICTORIA ignored their opinion, drove Lady FLORA HASTINGS from the court in disgrace, deprived the most manly of the court physicians of their places and ostracized those by whom they were employed. The rapid development of the abdominal enlargement soon threw pregnancy out of the question. On the girl's death a necropsy revealed the existence of uterine sarcoma. No public amends were made to the memory of the unfortunate girl. The court authorities deprived the girl's father of a court office. The medical men who made the necropsy were subjected to scurility and persecution by the court clique, which was finally ended by suit for libel. Had the mass of the British medical profession been anything but flunkeys of the time of the type of the "veteran of fifty-one years' practice," no head of a constitutional government would have dared to insult them for a conscientious clearly impartial necropsy. The contamination the *Practitioner* fears from the American medical profession, is the infusion of self-respect which might destroy the flunkeyism exhibited in the controversy over doorbell ringing and handshaking just quoted.

CORRESPONDENCE.

Department of Public Health.

WASHINGTON, Dec. 7, 1897.

Honorable FRANK S. GARDNER, Secretary New York Board of Trade and Transportation, New York City.

Dear Sir:—Having seen a letter addressed to yourself by Warren E. Anderson, dated Pensacola, Florida, Nov. 24, 1897, and published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in which this gentleman undertakes a serial criticism of "The Efficiency of the Marine-Hospital Service in the conduct of Federal Health Affairs," and which he states is made "without malice toward any one or animus of a personal character whatever," I take the liberty of stating to you that there appeared before a board of examiners of the Marine-Hospital Service in June, 1883, one Warren E. Anderson, a native of Marianna, Florida, and a graduate of the Medical College of Alabama. It may be interesting for you to inquire whether the gentleman who writes to you upon the character and abilities of the officers of the Marine-Hospital Service is this same Warren E. Anderson, who stood lowest in a class of eleven candidates for appointment in the Service, and was rejected on account of lack of professional attainments. If this shall prove to be the same gentleman it will serve to explain the animus contained in his letter.

Referring to his first objection as to the age of officers enter-

ing the Service, he has misstated the maximum age of applicants who are eligible for appointment, which is 30 years instead of 28 as stated by him. Particular information upon this specious objection as to the age qualifications of the officers of this Service is to be found on pages 11 and 12 of an "Address" by the Supervising Surgeon-General of the Marine-Hospital Service, in which it will be seen that the average age of the sixteen surgeons is 50 years, the average age of the twenty-six passed assistant surgeons is 35, and of the nineteen assistant surgeons, 29 years.

Referring to his second objection that less than 5 per cent. of the officers of the Service belong south of latitude 37. This misstatement may be dismissed at once by pronouncing it an untruth. The official list of the officers of the Service is inclosed, from which you will see that over 50 per cent. of the officers of the Service were born south of Mason and Dixon's line.

Instead of 10 per cent. of the regular officers of the Service who have had experience with yellow fever, at least 25 per cent. have been connected with one epidemic or another during the last twenty years.

Of other portions of his letter, which are mere expressions of his opinion as to the efficiency of the work of this Service, I shall not attempt a refutation, as you will have already concluded by the statements above given, taken from the records of this Bureau, that he is ignorant of the personnel of this Service, and if it shall prove that he is the person who was rejected as unfit for appointment on account of lack of professional qualifications, his "animus of a personal character" must vitiate all other views which he professes to hold concerning the Service.

I shall mail to you under separate cover an official list of the officers of the Service, with marks to indicate those who have served in epidemics of yellow fever in the past twenty years, an "Address" on the Public Health Service in the United States, together with the "Address" of the Supervising Surgeon-General before the Committee on Interstate and Foreign Commerce of the House of Representatives in 1894, all of which will give you official and accurate information upon the points which have been misstated to you by your correspondent.

Very truly yours,

[Signed] CHARLES E. BANKS, Surgeon M.-H. S.

PENSACOLA, FLA., Dec. 15, 1897.

HON. FRANK S. GARDNER,
Secretary Board of Trade and Transportation, New York City.

Dear Sir:—Please accept many thanks for your valued favor of the 8th instant, with enclosure, dated Washington, Dec. 7, 1897.

I had hoped that the calm, dispassionate reason of man would prevail in the discussion so auspiciously begun by us during the past summer, and which gave promise of rich reward so far as the advancement of the health interests of our country was concerned. The sudden and violent interjection, however, into this hitherto friendly contest, of the unwarranted, wanton, unjust and unmanly personal attack upon me by an *attaché* of the United States Marine-Hospital Bureau at Washington, in a recent letter to you, would seem to have disturbed, temporarily, at least, that serenity and peace of mind so necessary to the performance of a task undertaken in behalf of the public weal. I must confess that I was both surprised and pained upon reading the communication of Surgeon Banks to you, and sincerely regret that the incident should demand any notice, whatever, at my hands. I was surprised because I was ignorant of the fact that it had become a settled policy of the departments of our government, to *suppress debate of important public questions, by a resort to personal attack upon the quiet, unoffending (but tax-paying citizen) of the Republic.* I was pained that an imputation so base, so cowardly, so reckless and so false should be made against the honesty of my motives. For the past fifteen years I have lived in this community, and in that time have won the respect and esteem of the people. I have held important public offices by both appointment of the governors of the State and election of the people, but no one has ever before questioned my integrity, or doubted the sincerity of my purpose. That it should be done now by one I never saw or knew, one whom I have never even criticized, is indeed inexplicable. Objectionable *systems* I always condemn and attack; *men*, simply as such, never.

If you will bear with me for a few moments, I will relate as briefly as possible the following facts: In 1883 I was examined in Washington by a Board of Examining Surgeons of the Marine-Hospital Service, in company with *nineteen or twenty* other applicants for *a vacancy* then existing. The examination began Monday forenoon of May 28, and by *Thursday* the class has been reduced to *eleven*, the others having failed to keep up the required daily average of 70. Saturday night, after having *stood* the examination to the close, I met the Surgeon General, Dr. John B. Hamilton, who, in answer to a question stated that I had "failed to get this appointment;" that several —three or four—were ahead of me; that, "results of these examinations being *secret*, I can not tell you just how you have been rated by the Board." He further urged me to appear again the following year, provided a vacancy occurred. Returning home, the Surgeon-General sent me an *appointment* to the Station at Indianola, Texas, as Acting-Assistant Surgeon. Yet, Surgeon Banks says I "*was rejected for appointment on account of lack of professional qualifications.*" Surely with access to the *secret* archives of the Bureau, he should not have withheld half of the truth to suit his own purpose! I reported at Indianola, but not liking the location, resigned and returned to Pensacola, where I have resided since, and, so far, without occasion to regret the "alleged failure" before the Board of Examining Surgeons; and the episode itself has long since been lost to memory in the activity of a busy, professional life.

It would seem to me, however, that the people care nothing as to how Warren E. Anderson was rated on examination in 1883; how Charles E. Banks stood in his class; whether he was examined at all, or whether he secured his present lofty position by political "pull," or personal favoritism. They do desire to have, though, a free, fair and unbiased discussion of the subjects of quarantine, and the prevention of epidemic diseases. The enemies of the Little Corsican pointed with derision to his repeated failures on examination, but military critics point with impartial pride to Rivoli, to Arcola, to Austerlitz, to Marengo, to Jena, to Friedland, to the conquest of a Continent, as his title to undying fame! Millions of people have long since forgotten that the hero of the civil war stood amongst the lowest of his class at West Point, but they all remember that on an eventful day in April, 1865, he stood first in glory of arms on the field of Appomattox, and first of all men in that noblest attributes—*magnanimity!* Your Washington correspondent might make the attempt to emulate this illustrious example in this one particular.

Personally, however, I care naught for the reflections of Surgeon Banks upon my professional ability of fifteen years ago or now. I know nothing (and care less) of his attainments, past or present; but his letter indicates clearly that the test of gentlemanly bearing was not applied to his case, or he would now be engaged in earning a livelihood at some honest trade on the sandy beach of the Atlantic Ocean, or the rocky sides of the snow capped hills of Maine.

In dismissing forever, I hope, the personal references of Surgeon Banks' letter (there was nothing else in it), I would say that a cause requiring the use of such infamous methods as those employed by him, is surely in a high state of decomposition; far beyond the reach of moral disinfectants. But how

horrible in contemplation even, the control of our health affairs by a man who could write the letter to you from Washington dated Dec. 7, 1897, and yet he stands, I believe, in line of promotion!

It might be well for you to determine the actuating motive of all those earnest advocates of a separate Department of Public Health; and whether or not Doty and Girdner and Wingate and Porter and Bloxham, the members of the American Medical and American Public Health Associations, the press of the South (almost without exception) have had their youthful aspirations clipped by boards of examining surgeons; and if so, shall they be frightened away by the skeletons of a long-forgotten past, exhumed in ghoulish glee from secret archives of the Marine-Hospital Service by your correspondent? It must be so, according to the only argument he has advanced in his letter.

For your information, I will say, that for the past fifteen years I have had ample opportunity of studying yellow fever epidemics in the South. My knowledge of their management has been obtained by both personal observation and reports of the public press, and I believe this information to be as accurate as any furnished by the Marine-Hospital Service. That, in the main, the facts detailed in my letter to you, of the 24th ultimo, are correct, no truthful man acquainted with contemporaneous history can deny. The discrepancy of *two* years in the "age qualification" is immaterial to my argument, and was an unintentional error. The following clippings, taken from the *New Orleans Item* may prove the correctness of another point made by me:

"A number of Marine Hospital, local physicians, and Health Officer Porter of Florida, all yellow fever experts, had a reunion yesterday in the rotunda of the St. Charles Hotel, and the proposed National system of quarantine was liberally discussed. The Marine Hospital men admitted to having just seven officers in their service who had faced Yellow Jack. Seven physicians, however expert, are hardly adequate to protect the yellow fever frontiers, extending from Charleston, S. C., to the mouth of the Rio Grande, and they admitted this fact."

"It now develops, by the T. D. system of deferentiation, that the Marine Hospital corps have very few officers who have any experience or practical knowledge of yellow fever. They have just six officers out of sixty-five and *The Item* has repeatedly published this fact during the past three months."

Your Washington correspondent would have it appear that I thought too few of the officers of the service came from "south of Mason and Dixon's line," whereas I made no such reference to that historic landmark, but stated that only a small percentage of them came from "south of latitude 37, or that area of the country likely to be invaded by yellow fever," meaning more particularly the Gulf States.

In conclusion, allow me to say, that my "earnest protest" contained no personal reflection upon any officer of the Marine-Hospital Service, many of whom I know, respect and honor; that it was conceived with as little malice as one could find in the breast of a new-born babe.

To Surgeon Banks I would commend, observing his ignorant disregard of the golden law of Christ, the injunction of Allah's prophet: "Be moderate in your speech, for the most unwelcome of all voices is the voice of an ass."

I shall refuse further notice of this gentleman, and trust that he may not again disturb the peaceful trend of my thoughts.

The letter from Washington having been published in the *Evening Post*, I would request the same courtesy be shown me.

Very truly yours, Warren E. Anderson, M.D.

Curettage of the Uterus in Incomplete Abortion.

Ft. Adams, R. I., Dec. 21, 1897.

To the Editor:—In the Journal of Nov. 27 and Dec. 11, 1897, articles appeared on the treatment of inevitable abortion, and I present the following history of a patient in which curettage was performed as a means of emptying the uterus of the retained secundines, which resulted in the prompt recovery of the patient from an almost moribund condition.

The patient, a female of middle age, multipara, anemic and debilitated, while about her household duties suddenly fell to the floor from continuous loss of blood, which had been a prominent symptom for several days and had been attributed to a more than usually profuse catamenia. All knowledge of a probable pregnancy was denied.

Pain and hemorrhage were very pronounced symptoms, and the patient was at once placed in bed, the foot end raised, morphia and viburnum were administered *pro re nata;* the hemorrhage and pain were relieved for a few hours, only to reappear with renewed force. An examination showed the cervix to be soft and dilated. The lower uterine segment was compressible and softened. The general condition of the patient was very bad, lips white, cornea glassy, radial pulse not perceptible, extremities cold. Upon approaching the bed the patient vomited and sank back utterly exhausted. Subcutaneous injections of strychnin, saline solution and brandy brought about reaction, and chloroform was administered at once; anesthesia was prompt and a remarkably small amount of the chloroform sufficed. The patient was placed in a dorsal position on the Kelly's pad, the cervix drawn down and dilated with steel dilators. An irrigating sharp curette was introduced and the uterus was thoroughly cleaned out. Large pieces of placental tissue were removed but no signs of the fetus were observed. The hemorrhage promptly stopped and the uterus contracted well. A strip of iodoform gauze was introduced into the uterine cavity and allowed to remain twenty-four hours. The patient was removed to another bed and recovered without experiencing further pain, nor was there any subsequent rise of temperature. The bedding from which the patient was removed was saturated with blood to an astonishing degree.

It can probably safely be asserted that the safety of patients suffering from abortion lies in the prompt relief and abatement of the alarming symptoms, allowing the pregnancy to continue, or the evacuation of the uterus of all the products of conception. The immediate and remote dangers of abortion are many, any one of which might end fatally. If it is determined that a case of abortion is inevitable, the sooner the uterus is empty the safer for the patient. If surgical intervention will accomplish this object with less suffering, and avert such possible complications as hemorrhage, putrid intoxication, septicemia and peritonitis, suppurative arthritis, embolism, tetanus and chronic uterine disease, its general adoption would seem to be commendable.

William Roberts, M.D.,
Hospital Steward, U. S. Army.

The New York Medical League and the Sick Poor.

New York City, Dec. 15, 1897.

To the Editor:—Many good people are suffering from the apprehension, and misapprehension, that the New York Medical League is opposing charity to the sick poor. This is entirely foreign to the purposes of that body, therefore we are directed to communicate to you and, by courtesy, through you to the public, the following statement:

The New York Medical League believes:

1. That there is not enough charity work done in this city.

2. That there is too much of the benevolence business transacted. That many worthy poor are deprived of the alms provided for them, because all those alms do not reach the truly needy through the proper direct channels. And that it is a shame that any institution should show handsome annual profits and yet beg for city money, especially when its earnings represent monies derived from the poor.

3. That all dispensaries, etc., should be free, for it is a cruel

and unnecessary hardship to ask poverty-stricken persons to pay anything for medicines or surgical appliances.

4. That it is a bad policy to give city money to private institutions, to the detriment and loss of the public ones appointed for the care of the sick poor. We believe that the city institutions should be repaired, improved in sanitation and illumination, and should furnish larger and better accommodations. The city money should be used to give better food, warmth and clothing to the patients under treatment in the city hospitals.

5. It is all wrong to give public money to medical colleges; the profits go into the pockets of the faculty or into the institution. These incorporated colleges are close corporations and just as much money-making enterprises as a grocery store and a gas company.

6. It is an outrage that the public institutions should be obliged to maintain a patient on less than thirty cents a day, while the city gives over one dollar per day to private institutions for the same work.

7. The Board of Estimate and Apportionment stood a tie, two to two, and the chairman cast the deciding vote. Therefore, the Mayor is responsible for the fact that the municipal institutions will be a reproach to our city because the money that should have gone for their urgent necessities has been given away. As he himself stated in a certain case, it was given because he knew the man interested.

8. The tax-payers are willing that private persons should give their own money, but we do not believe they approve of any diversion of public money away from the public institutions, or of any gift of the same to close corporations.

9. Finally, we wish to state that in the large gathering that protested, there were representatives of tax-payers' associations, business men, etc. The doctors were there simply to give evidence against the farce behind the scenes, partially veiled by the mantle of a so called charity.

DOUGLAS H. STEWART, M.D.,
Cor. Sec., New York Medical League.

License in Germany.

DETROIT, MICH., Dec. 20, 1897.

To the Editor:—Dr. B. Becker's friendly corrections and suggestions concerning the licensing of physicians in Germany are to the point, but in some instances incorrect. While the subject is too unimportant to consume much of your space, once begun, I believe in finishing anything correctly.

An American graduate in medicine, in order to matriculate at a German university needs possess no further documents than his diploma and passport. Whether or not an A.B. or A.M. degree of this country would be considered an equivalent by the German authorities of a *testimonium maturitatis* I am not prepared to say. Any physician desiring to leave this country for the sake of engaging in the practice of medicine in Germany where, by the way, there is absolutely no demand for a foreign physician, can get the necessary particulars by addressing either Seine Magnificenz p. t. Decanus der medicinischen Fakultät der Universität (Berlin, etc.), or the Board of Examiners.

The study in the preparatory school, gymnasium, embraces a curriculum of fourteen semesters (seven years) only. A young man may enter the university at the age of 17 years. Dr. Becker is correct concerning the statements that such universities as Johns Hopkins, Harvard, etc., are not considered equivalent to a German university. Any United States medical college in good standing with the Association of American Medical colleges is "OK" as far as this goes in Germany.

If the government calls a physician, surgeon or scientist to a chair in a university, even if he be a graduate from a so-called irregular college in this country, he is immediately licensed to practice medicine without any further ceremonies. Occasionally a great foreign physician (and there are plenty of them here) will get special privileges from the Minister (secretary) of Education. So, for instance, I am satisfied that such men as Senn, Osler and others, whose works are considered standard all over the civilized world, would have but little difficulty in getting a state license, without the prescribed examination. Germany honors even foreigners, if they deserve it.

In addition I beg to say that in Germany exists a law called *Gewerbefreiheit*, giving *everybody* the privilege of practicing medicine, forbidding him to call himself doctor or signing himself *practischer Arzt*. He can also not sign death certificates and there are a good many more privileges he does not enjoy.

An American physician could have a sign reading: "Dr. N. N., approbiert in Amerika."

The statement made by Dr. Becker, that the requirements are practically the same all over Europe is erroneous, for in Austria, for instance, an American diploma gives the holder but little if any standing, even when he wants to matriculate as a student. He would have to begin like a freshman.

In conclusion I beg to say that it would be a very good idea for the editorial management of the JOURNAL to publish a *résumé* of the laws governing the practice of medicine in all countries. There are many South American, African and Asiatic countries where American physicians would find a great field of work, but they are ignorant as to whether or not they are authorized to engage in the practice of medicine there.

How difficult it might be for a poor physician, who seeks his health in the South, to pass an examination in Spanish or French and pay a large fee when he intends to practice among American or European settlers only, is plain.

I thank Dr. Becker for the trouble he has taken; and "A Reader," the original inquirer, might do well to first write to the Board of Examiners, in the city he intends to settle, before crossing the ocean. Very truly yours,

GUSTAVUS M. BLECH, M.D.

Practical Prophylaxis.

CHICAGO, Dec. 26, 1897.

To the Editor:—As medical men who believe in prophylaxis, we are in duty bound to do all in our power to prevent disease and suffering. Most diseases are caused by improper food, bad air, lack of sunlight, exposure, bad occupation, worry, overwork, heavy work, irregularity, unsuitable climate, traumatism, or alcohol. These causes are mostly the results of poverty. We all know only too well the effects of poverty's surroundings upon moral, mental and physical health. When ten years of poverty will cause adults to deteriorate and often become criminals or commit suicide, is it any wonder that children should be warped mentally, morally and physically for life?

Poverty is without doubt the chief cause of degeneration, child labor, drunkenness, crime, anxiety, disease, insanity, suicide, dead-beats, charitable institutions, dispensaries, etc. If we would prevent the greater part of this, we must prevent poverty.

Poverty and destitution always begin at the exact point where men can not get a chance to use land and machinery; because the former is the source of all food and shelter, and the latter is the only civilized means of obtaining food and shelter from the source. We can easily imagine what would happen if the source of water and the means of reaching it were all controlled by private interests. You can actually see and feel the effects of having the source and means of getting food and shelter controlled by private interests.

Food and shelter are as necessary as water, therefore the same common sense which has given us public control of enough of the water-supply and highways to accommodate

those who have not private water, should also demand that enough available land and machinery be reserved under public control to accommodate those who have not free access to that under private control. Then no one could be denied an opportunity to produce food and shelter or their equivalent. Poverty and destitution would be practically impossible and consequently disappear.

Now, "available land and machinery reserved under public control" is simply necessary business or industry owned, operated and monopolized by the Government. For instance, the U. S. mail service. In other words, the Government should own, operate and monopolize enough lines of necessary industry, at fair wages, so that by reducing the hours of labor it can provide work for the unemployed. We estimate that public control of the railroads, express, telegraph, coal mines, car lines, telephone, light and water systems, at the eight hour day, would about take up the unemployed. This would put about two million idle men to work, thus incidentally give us two million more patients, do away with dispensaries, charitable institutions and dead-beats, remove the pressure which is crowding the medical profession as well as all trades, and also be the grandest prophylactic measure ever instituted. What could be more fitting than for the medical profession to take the lead in this reform?

We are trying to distribute as widely as possible, circulars fully describing this reform, and therefore we earnestly ask all members of the medical profession to please send stamped and addressed envelope for some of the circulars. It will help a most worthy undertaking and greatly oblige,

Yours for practical prophylaxis,

MAURICE F. DOTY, M.D.

An Acknowledgement.

NEW YORK, Dec. 25, 1897.

To the Editor:—Will you allow me to correct an omission and acknowledge my indebtedness to my friend Dr. F. S. Mandlebaum, for the photographs illustrating my article on "Van Arsdale's Triangular Splint for Fracture of the Shaft of the Femur," etc., in your issue of Dec. 18, 1897.

Yours fraternally, A. ERNEST GALLANT, M.D.

Per Os, not "Orem."

NEW YORK CITY, Dec. 25, 1897.

To the Editor:—Thanks to "F" (page 1284, column 2, lines 46 to 51, JOURNAL, Dec. 18, 1897), because I had rather be right than wrong; because Daniel Webster said that he "would not give a cent for a man who never made a mistake"; because Ambassador Phelps said, "a man who never made a mistake never made anything," and because our beloved, great and honored Dr. Lewis A. Sayre said that he was "thankful for any true criticism, no matter how sharp, keen or cutting."

Respectfully yours, EPHRAIM CUTTER, Sr., M.D.

SOCIETY NEWS.

Resolutions Adopted at the Meeting of the Boston Medical Society, Dec. 18, 1897.—

WHEREAS, The unrestricted abuse of medical charity in the large hospitals and dispensaries of Boston is being seriously complained of by a large number of general practitioners; and

WHEREAS, The State has granted charters to these hospitals and dispensaries for the definite purpose of giving medical and surgical care and treatment to indigent persons within this city and Commonwealth; and

WHEREAS, The Boston Medical Society, individually and collectively, recognize, with every feeling of sympathy, the rights and just claims of some of our citizens to the benefits of public and private charity, and will not be found wanting in generosity in whatever may tend to foster the moral, social and physical well being of the sick, the poor, the destitute, the lowly, the worthy and the unfortunate; and

WHEREAS, Large numbers of persons of both sexes frequently, daily and repeatedly receive medical and surgical advice and treatment gratuitously for numerous cases of minor surgery and ordinary illness, who are believed to be financially competent to pay moderate fees; and

WHEREAS, The time, facilities and attention at the dispensaries being necessarily limited, that which is received by the well-to do and the undeserving is, in that proportion, withheld from those who by chartered rules of those institutions are justly entitled to their benefits; and,

WHEREAS, The practitioners of medicine and surgery of any community who have duly graduated from accredited medical colleges and have incurred the expense of locating in such communities naturally and justly feel that their present and prospective rights and privileges are wrongly encroached upon by the abuses now in practice in connection with medical charities; therefore, be it

Resolved, That it is the opinion of this Society that some means can be found to check or modify this formidable evil; and

Resolved, That an urgent call be made upon all such members of the profession who are in sympathy with this movement and have at heart the best interests of the medical profession, to render such moral assistance and financial support in the adoption of such measures as will tend to eradicate and prevent these evils, abuses and practices; and

Resolved, That an open meeting be held at some future time and the profession at large be invited to be present; and

Resolved, That a copy of these resolutions be sent to the *Boston Medical and Surgical Journal*, the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the *Medical Record*, the *New York Medical Journal* and the *Medical News* for publication.

M. GERSTEIN, M.D., Secretary.

BOOK NOTICES.

Manuali Hoepli Sieroterapia. DEL DOTTOR EMILIO REBUSCHINI. U. Hoepli, Milano, 1897. Pp. viii, 421. (Manual of Serotherapy. By Dr. Emilio Rebuschini.

This is another of the little Hoepli manuals, which must be very convenient to Italian students and physicians. Its bulk of 421 pages of closely printed text shows that it is more than a brief compendium; it is in fact a very fair compilation of the principal facts of serotherapy up to within the past year or two, apparently fairly and judiciously stated. The work takes up each disorder that has been thus treated or experimented with, from the earlier attempt of Pasteur, Behring and others, down to Sanarelli's latest claims as to the serotherapy of yellow fever. The literature appears to have been very carefully gone over, and American data are not overlooked, as was formerly often the case in European compilations of this nature. To any one who can read Italian this would be a very handy ready reference work.

Fiftieth Anniversary of the Hartford Medical Society, September 15, 1846. Proceedings of the celebration October 26, 1896, at Hartford, Conn.

This volume includes the introductory remarks by the president, M. Storrs, M.D. Historic addresses by Gurdon W. Russell, M.D., on the deceased members and those connected with the later years of the Society, by Horace S. Fuller, M.D. "Esprit de Corps" by Henry P. Stearns; The present and future of the Hartford Medical Society as suggested by a study of the fundamental enactments, by Melancthom Storrs, M.D.

The smooth and pleasant course of the Hartford Medical Society from the foundation in 1846 to the present time made it a pleasant task for the members to meet and celebrate the occasion. No one can peruse the work without feeling that they missed a very important event by not being present. This commemorative volume is of interest to every member of the medical profession, and the biographies contained in Dr. Fuller's address add something to American medical biographies.

Some of the speeches on the occasion of the anniversary dinner were of a high order of literary merit, and all were amusing and entertaining.

The Hartford Medical Society, judging from this volume, is composed of very pleasant people.

Transactions of the Iowa State Medical Society, Vol. xv. Cloth. Illustrated. 400 pages. 1897.

This book contains the proceedings of the forty-sixth annual session of the Society, held at Marshalltown, Iowa, May 19, 20 and 21, 1897. Besides lists of members, auxiliary societies, obituary notices, etc., the forty papers presented at the annual meeting are given in full. The volume is well bound, well edited and on excellent paper, a credit to the society.

Proceedings of the Florida Medical Association. Paper. 85 pages. 1897.

The proceedings of the twenty-fourth annual meeting of the Association, held at Palatka, Fla., April 1897, are given in this volume. The appendix contains the various papers presented at the meeting, lists of members, etc.

NECROLOGY.

JOSEPH LEWI, M.D., Vienna University, Austria, 1847, died at his home in Albany, N. Y., December 19. He was born in Radnitz, Bohemia, August 17, 1820 and came to Albany in 1849. Having obtained prominence by both industry and skill he served with Drs. Thomas Hun, Alden March and Mason F. Cogswell on the board for the examination of New York surgeons for the U. S. Volunteer forces. He was an ex-President of the Albany County Medical Society, the senior censor of the New York Medical Society and a consulting physician on the staff of the Albany Hospital. From the lay press we gather that notwithstanding his robust health which began to fail last spring, he died of some affection of the liver.

Prof. E. S. TARNIER, Paris, aged 69. One of the most notable medical figures of our epoch, an accomplished scientist, instructor and author. His greatest work was along the line of obstetrics, which has rendered his name familiar to every member of the medical world in both hemispheres. In 1882 he proclaimed the necessity of isolation for puerperal fever, and to him we also owe the wide-spread use of sublimate and numerous obstetric appliances. His basiotribe, cephalotribe, dilator, incubator and forceps have rendered incalculable service, and the latest models are still fashioned upon their principles. France recognizes the debt she owes to Tarnier and the clinic with which he has been so long connected, is to be called henceforth the *Clinique Tarnier*. He has been president of the Société de Chirurgie, of the Académie de Méd. and of the Soc. Obstet. de France. The list of his works is given in the *Progrès Méd.* of December 4, but his great "Treatise of the Art of Accouchement" is left unfinished, although two volumes have already appeared, and 700 pages of the third are in press. His pupils who have been assisting him intend to complete the work, making every effort to render it worthy of the master.

STEPHEN H. CONGER, M.D., College of Physicians and Surgeons, New York, 1843, of Summit, N. J., dropped dead in the Delaware, Lackawanna & Western Railroad waiting room on December 24. He came to Summit from New York in 1870, was aged 76 years and leaves a widow and two sons.

RAYMOND L. HELLER, M.D., Napokon, Ohio, December 14, aged 26 years.——P. E. Sandridge, M.D., Nelson, Mo., December 13, aged 66 years.——C. A. Thompson, M.D., Jefferson City, Mo., December 15, aged 74 years. During the war he was surgeon of the Thirteenth and Nineteenth Illinois regiments for four years. He was a prominent figure in the State Medical Association and was treasurer of that body for eighteen years.——Charles H. Jones, M.D., Baltimore, Md., December 17.——William Voorhees, M.D., Spottsylvania, Va., December 19, aged 62 years.——E. E. Buringer, M.D., Pittsburg, Pa., December 19, aged 28 years.

J. B. LARGEAU, one of the younger surgeons of France, outside of Paris, whose name is well known by his communications to the Soc. de Chir, and the *Archives Prov. de Chir.*, of which he was one of the founders.——R. Branchet y Vime Pradat, professor of hygiene at Granada, Spain.——Max Burchardt, privat docent of ophthalmology at Berlin, Graefe's successor at the Charité.——L. Auerbach, professor ex. of histology at Breslau, aged 68 years.——Edmund Drechsel, professor of physiologic chemistry and pharmacology at Berne, aged 54 years, and noted for his investigations of the properties and products of the albuminoids, origin of urea, etc.——L. A. Buchner, aged 84 years, senior member of the medical faculty at Munich, formerly professor of pharmacology.

PUBLIC HEALTH.

Health in Chicago.—The report for November gives the tota deaths as 1,613, or 0.99 per 1,000, the rate for the same perio in 1896 being 0.97 per 1,000. These 1,613 deaths were as fol lows: 312 under one year old; 184 under five years old; 173 wer due to nervous diseases; 170 to consumption; 160 to pneumo nia; 120 to heart disease; 87 to acute intestinal diseases; 78 t bronchitis; 75 to diphtheria and membranous croup; 66 t cancer and 44 to typhoid fever.

The Passaic Sewage Problem.—A bill is shortly to be presente to the New Jersey legislature for the building of a great trun sewer line twenty-six miles long, extending from Paterson Fall to Newark Bay, at a cost of $6,500,000. The work is necessa rily of a State nature, inasmuch as there are parts of five cour ties and eighteen or twenty cities, towns or hamlets in the lowe Passaic sewer district. The commission having the matter i charge, in their report to the New Jersey Sanitary Associatio estimate that the population of the valley may reach 1,458,0C in 1930. They refer to the dry summer of 1896, when the riv proved a veritable cesspool, and make passing allusion to Lo don, Manchester, Glasgow, Berlin, Paris and other centers population as grappling with the same difficulties in a striking humanitarian spirit.

Some Changes of Interest to New York Physicians.—The ne State charter of New York allows the addition of another me ical member of the city board of health, making three docto to two laymen. Meetings are to be held in the main office "the borough," but there will be a branch office in each borou and as many more as may be necessary. The Board of Publ Charities is to be formed much on the same lines, the jurisdi tion being slightly changed. One commissioner is to appointed for New York County, another for Brooklyn a Queens Boroughs, and the third for Richmond. The may designates the president. A tardy recognition of the rights the general practitioner is to be noted. The system of reg tered physicians, who are to be called by the police in eme gency cases, which is now in vogue in Brooklyn, has be adopted for the whole city. If patients are unable to pay t physicians for their services the doctors will be recompens out of a public fund.

Heavy Death Rate at Havana.—Recent reports from Cuba sh that a decimation of the population (estimated at 200,000), h been going on during recent months, and the life loss is rea greater than in the summer. Deaths from yellow fever ha decreased steadily since the middle of summer on account f the establishment of military hospitals outside of infect towns and because of the cool weather. Enteric fever d not seem to exist to any extent beyond the military hospit but it appears to be very fatal in those institutions. Deat from malarial fevers have also increased, and no diminution reported in the number of deaths from enteritis, dysentery a diarrhea; in fact, the deaths from enteritis have increas largely in the military hospitals. The report shows that t total number of deaths in the city of Havana and the town f Regla during the month of November, from all causes, amoun to 2,317, equivalent to an annual death rate of 139 per thousa inhabitants. In June there were 1,041 deaths, equivalent o an annual death rate of 62.46 per thousand; in July, 1,3 deaths, equivalent to a death rate of 71.52; in August, 1,9

aths, equivalent to a death rate of 86.34; in September, 78 deaths, equivalent to a death rate of 106.68; in October, 72 deaths, equivalent to a death rate of 136.32; in November ere were 2,317 deaths, equivalent to a death rate of 139. It evident that the contracted food supply has at last reached at point where no food stuffs are delivered without immedi- e payment. Beri-beri, which has heretofore been confined to e Chinese population in Havana, is reported to exist to some tent among the natives of the lower class, and it is reported be spreading in Matanzas. Two deaths from leprosy were ported during the month. These deaths were not reported m the leprosy hospital, but from private residences, and it no unusual sight to see lepers in the streets.

Argument versus the Proposed Senate Bill for Establishing a tional Quarantine System.—Dr. Hermann M. Biggs of the New rk City Board of Health has given expression to his views iticising the sanitary scheme laid down in Senator Caffery's ll-known bill. It will be seen that Dr. Biggs would minimize e executive powers of the proposed national sanitary body and uld exalt its scientific, advisory and educational functions. is his opinion that the time has come when there should be me Federal supervision through a national board or bureau health. Such a department should have power to determine e minimum sanitary requirements at all ports of entry roughout the United States and should determine the sani- ry regulations relating to interstate commerce and commun- ation when there is danger of the transportation of contagious sease from one State to another. It should be controlled by a ard whose members possessed the highest scientific attain- ents and its regulations should be enforced through an exec- ive officer. Such a national department should have thor- ghly equipped laboratories, presided over by bacteriologists id chemists competent to make experimental investigations the highest order. A prominent feature of the work of such department should be educational. It should issue from me to time circulars of information on various matters con- cted with the diagnosis, treatment and sanitary supervision the various infectious and contagious diseases; on methods disinfection and on various other matters connected with blic medicine. These circulars should be forwarded regu- rly to the health officers of all cities and towns throughout the nited States. The circulars of information which would be sued by it (providing the board controlling it was constituted men of such character as to give the utterances of the partment force) would be accepted by all local medical officers health, State boards and health officers of maritime ports the minimum sanitary requirements. The educational lue of the work of such a department can not be overesti- ated. In cases of emergency, at the request of local author- ies, such a bureau should be prepared to send experts to lvise or assist the local authorities in dealing with any unus- al or alarming epidemic. In my opinion the bill which has ssed its second reading, and is in committee, in the United tates Senate does not at all satisfy the requirements of such department. Under the provisions of this bill unusual owers are placed in the hands of the Secretary of the Treas- ry, or, in other words, in the hands of the Supervising Sur- eon-General of the Marine-Hospital Service. The Marine- ospital Service was not designed, nor is it competent, to erform the functions of a national bureau of health. It has ie supervision of a large series of hospitals for the care of sick amen. The duties connected with such work do not in any ay fit members of the service to perform those required of a tional bureau of health. In Great Britain the Local Gov- nment Board exercises powers similar to, but more extensive an, those suggested for this department. In my opinion, der the plan outlined, the establishment of a national bureau ould soon result in the adoption of uniform methods and quirements throughout the United States.

MISCELLANY.

The Modern Treatment of Prostatic Trouble.—Whatever may be the preferences or conclusions of surgeons regarding a choice between castration and vasotomy, one thing is very certain that after the latter operation the patient will notice a *vas deferens*.

A Recent Appointment.—Dr. Marie Louise Benoit of Lowell, Mass., has been appointed medical interne in the New York State Craig Colony for epileptics at Sonyea. She claims the honor of being the first woman so honored.

Treasured Prescriptions.—Among the archives of the Vatican has been found a collection of copied prescriptions in the handwriting of Michael Angelo. As the artist was much troubled with failing sight during the wane of his life the remedies were intended in all probability for senile cataract.

A Change.—Dr. R. Harvey Reed has accepted the position of superintendent and surgeon in charge of the Wyoming General Hospital, located at Rock Springs, Wyo. This Hospital will be opened for patients about April 1, 1898, and when completed will have accommodations for eighty beds. Dr. Reed will continue with the Columbus Medical Company as one of the associate editors.

A Gift to the New York Academy of Medicine.—At its recent meeting the following nominations were made: Vice-presidents, O. B. Douglas and W. H. Katzenbach; recording secretary, M. Allen Starr; treasurer, H. E. Crampton. The Board of Trustees reported the gift by Mrs. Anna Woerishoffer, of $15,000 to the library endowment fund and it was decided that this sum be set aside as a special fund to be known as the "Anna Woerishoffer Fund."

Bureau of Medical Literature.—Dr. Carl H. von Klein has opened a bureau of medical literature at No. 243 East Erie Street, Chicago, to furnish medical literature to medical writers on every subject from its earliest history, and from every language in which medicine is written. Dr. von Klein needs no introduction to the profession; he is well known as one of the most accomplished linguists on both sides of the Atlantic. His latest translation of Fischer's "Surgery One Hundred Years Ago," is acknowledged praiseworthy by the best critics. The profession will welcome such a bureau, for through it the busy physician will be able to obtain a little rest, while Dr. von Klein will make his researches and translations. The country practitioner can thus take advantage of the nearly one hundred thousand volumes of medical literature in the city of Chicago, including the libraries of the AMERICAN MEDICAL ASSOCIATION, the Senn collection (which includes the Baum and DuBois Reymond libraries), the Newberry, and European medical journals which are kept on file in the various medical libraries. The Editor of the JOURNAL joins with many others to wish Dr. von Klein much success in his worthy pursuit.

Organized Opposition to Hospital Abuses at New York.—A stormy session was held before the New York City Board of Estimate recently over giving away of the public money to the so-called "private charities" and teaching institutions. Dr. F. R. Sturges was spokesman for the league. He was supported by representatives of the County Medical Society, the County Medical Association and the New York Medical Society. These Societies have appeared annually for several years to oppose such appropriations. They were met heretofore with the statement that the State fixed the amount the city should give. Under a recent law the amount to be paid to each charity is made discretionary with the Board of Estimate. League members fought hardest against the giving of assistance to college hospitals, holding that such institutions receive tuition fees from students and take charity patients, not from benevolent motives, but that they may have clinic patients. The league held that instead of giving so much money to private charities the city

should increase its appropriations for the department of charities, that there might be more public hospitals. League men charged that doctors made personal profit from private hospitals for which public moneys were demanded, and officers of hospitals replied that the doctors who protested represented a political organization. The Sloane Maternity, with which the names of divers millionaires are identified, was among those that were attacked, as also was the Post Graduate Hospital's baby-ward. One institution received over $300,000, and the total grant to twenty-five beneficiaries was $1,312,000. And there are still others to be acted upon at an adjourned meeting.

Health Authorities unendowed with Police Powers.—The appellate courts in New York State are quoted as "steadily putting a curb upon the arbitrary and unwarranted exercise of what is known as the police power, in behalf of the health authorities of cities and towns. These officials, not always content with doing what is appropriate to preserve the public health, go far beyond that and interfere inexcusably with property rights." A recent case in New York City furnishes the inspiration of a decision which may bring far-reaching complications in its train. Here the department properly procured an order preventing the use of the property for tenement purposes, on account of its condition. The order went further and directed the destruction of the buildings, although there was no proof that they could not be put to other uses without constituting a nuisance. This the appellate division holds to be wrong, saying that the right to destroy the buildings does not exist, unless they were incapable of being put into such a condition that they would be dangerous to the public health. A lawyer in the case remarked that "exceeding peace had made Ben-Adam bold."

Test of the Army Emergency Ration by Infantry.—Two companies of the Fifth U. S. Infantry were directed by the War Department to make a five-day march from Fort McPherson, Ga., to test the use of the emergency ration. Maj. B. D. Taylor, surgeon, who accompanied the troops, reported that the test of the efficiency of the ration, so far as the men were concerned, was a failure, as it was impossible to be certain that they used it exclusively. One of the company commanders states that the men had been paid the day before starting on the march and thus had the means of purchasing such articles as they desired; and that as they marched through a country abundantly supplied with poultry, milk, butter and eggs, they availed themselves of their opportunities to purchase these articles. Six companies of the regiment, marching over the same ground, were living on the field ration, and had fresh meat and fresh bread nearly every day. Under such conditions it was regarded as hardly to be expected that the men on the emergency ration would live on the same monotonous diet for five days, especially when they were constantly being invited by their comrades of other companies to share their meals. The commissioned officers of the two companies messed together, along with the surgeon, and these lived on the ration exclusively for four days. The surgeon expressed himself as being of the opinion that the ration was amply sufficient, so far as its nourishment is concerned, to sustain life for five days under the strain of the marches made. He found only one man who was able to eat the whole allowance of sixteen ounces hard bread. In fact, all the officers considered that there was an excess of hard bread and pea meal in the ration and suggested a reduction in the quantity. The reports of these officers have been subjected to very unfavorable comment by Deputy Surgeon-General Smart, who conducted the test of the ration made by the First U. S. Cavalry in May last, to whom the reports of the experiment by the Fifth Infantry were submitted. Dr. Smart in his indorsement, which is concurred in by Surgeon-General Sternberg and Commissary General Bell, says:

"These reports show a total misapprehension of the objec of the expedition, and illustrate the necessity for instructir company officers, if the emergency ration is to be of value i times of actual war. The five days' rations, according to th views of the Emergency Ration Board, contain food materi sufficient to sustain troops for five days under the maximu strain of war service, and every one who has roughed it c hard bread, bacon and coffee, will acknowledge that there enough. Troop E, First Cavalry, made a ten days' march May last on the five days' rations, and the men were in fi spirits and excellent athletic condition at its close. There no question, therefore, of the ability of five days' rations sustain men for five days; nor is there any question of th ability of troops to economize their five days' rations so as make them suffice for a longer period if the officers exercise th necessary supervision over the diet of the men. The exper ences recorded in the enclosed reports can not be accepted as any way a test of the emergency ration. They are, if anythin a test of whether men making light marches could eat an digest in five days what was intended, if need be, to last the for ten days. As might have been expected, they could no They found the hard bread and pea meal too much for the but their recommendation that the quantity of each in t emergency ration be reduced, has no value because made in t evident absence of an understanding of why the quantity the ration was larger than they could eat during their marc The aims of the officers of these commands in making th march as a test of the ration should have been to see that t men lived on the ration, and on the articles of the ration alon to see that as the men had more than enough at command th did not do themselves harm by overeating, and to see that part of the ration was destroyed or thrown away, so that at t close of the march a report could have been made of how mu of each article had been used under the conditions of their fi days march. Another of the objects of a test march by infa try should have been to determine the best way for the sold to carry his rations. One report says that there is no difficu in carrying five days' rations, but the best method of packi on the person of the soldier is not specified; while from anoth report it is gathered that only half a day's ration was carr on the person. Obviously, as the most elementary points co nected with testing the value of the emergency ration do n seem to have been appreciated on this march of companies f the Fifth Infantry, the reports of the march have no bear on the sufficiency or insufficiency of the ration."

Cincinnati.

THE WEEKLY MORTALITY REPORT shows: Still births, zymotic diseases 12; phthisis pulmonalis, 15; other constitutional, 9; local diseases, 57; developmental, 6; violence, under 1 year of age, 20; under 5 years, 32; total, all caus 104; preceding week, 106; corresponding week, 1896, 120; 18 124; 1894, 123.

THE STATE BOARD OF MEDICAL REGISTRATION has been su cessful in securing the indictment of nine illegal practitioners and in the case of the State of Ohio vs. France gained a victory in the supreme court by not only having the decision of the lower court affirmed in the matter of the fine imposed, but also the constitutionality of the medical law upheld.

DR. J. B. HOUGH of Lebanon, Ohio was found dead at hi home December 3. Dr. Hough was 70 years of age and occu pied the chair of chemistry in the Miami Medical College Cincinnati for a number of years.

THE following half-yearly changes in the staff of the Cinn nati Hospital occurred December 1: Dr. N. P. Dandrid and Dr. E. W. Walker relieve Dr. J. C. Oliver and Dr. Jos Ransohoff; Dr. E. W. Mitchell relieves Dr. Jos. Eichbe Dr. C. S. Evans relieves Dr. A. Ravogli; Dr. S. C. A relieves Dr. Geo. H. Good; Dr. W. H. Taylor and Dr. Ch A. L. Reed relieve Dr. G. M. Allen and Dr. C. D. Palm Dr. F. W. Langdon relieves Dr. H. H. Hoppe; Dr. S E Allen relieves Dr. Max Thorner; Dr. B. K. Rachford relie Dr. Allyn Poole, and Dr. Chas. H. Castle takes the orthop department.

DR. GILBERT I. CULLEN has returned after an extended tr abroad. He attended the International Medical Congres Moscow, the Leprosy Congress at Berlin and the French su gical Congress at Paris.

THE HEALTH DEPARTMENT has just issued a list of all ty

icians in Hamilton County who are duly registered by the State Board of Medical Registration, together with the date of their graduation and registration, college, school practiced and residence.

The Department of Health has announced that in view of the generally accepted theory of the contagious character of tuberculosis, all cases are to be reported just as other contagious diseases. There is no announcement made, however, which refers to the compensation that the physician is to get for performing this act of precaution for the good of the general public. The Department is also to examine all children who have had diphtheria or have been exposed to it, and they are not to be allowed to return to school until their throats fail to present the Klebs-Loeffler bacillus. The attending physician is to make the examination, the Health Department furnishing the culture tubes and making the culture examination free of charge. In order to carry out the above plan the following rules have been adopted: 1. The culture must be made not less than seven days after the physician has notified the department that the patient has been dismissed. 2. If the examination of the culture is negative the quarantine will be raised in four days from the time of examination. If the culture shows the Klebs-Loeffler bacillus the physician will be informed and another culture must be made in not less than one week after the first culture. 3. In any case where the physician in charge does not desire to make the culture for raising the quarantine the health department will have the culture made at the end of two weeks after the patient has been dismissed.

A case of tenia echinococcus or hydatid liver has developed here and has aroused considerable interest. Several large cysts have developed and the presence of the parasite has been demonstrated. The disease is a very rare one in this country, Osler being able to collect the records of but eighty-five cases that have occurred in the United States and Canada up to the present time.

Philadelphia.

The State Medical Board of Examiners and Licensers held its winter session during the week ending December 18. There were 103 applicants, out of which number 34 failed to receive the average permitting them to receive the certificate and license. Among the applicants were some holding diplomas from institutions in Germany, England, Italy, Russia and France, but the majority as usual were graduates of last spring from Pennsylvania schools. Thirty of the candidates were recent graduates who had failed to pass at the last examination. Unfortunately for them, the majority of those rejected were also from this group, which seemed, at least in three instances, to prove conclusively the inadequacy of the test offered by the final examinations at the colleges. Some of them were totally unfit, as may be inferred from the following specimen replies: To the question, "What is metabolism?" One man replied: "It is the perasstasis of the blood," and as to the characteristic changes and clinical appearances occurring in tubercular arthritis evoked the following: "The liver and kidneys do not function properly and the skin is covered with lumps." Among those who passed with distinction was one whose professional character and personal worth would have been gladly acknowledged by the Board by granting the license without requiring him to submit to the indignity of the examination with this year's graduates, and, indeed, a motion to omit the examination in his case was entertained by the Medical Council, but it was found that the law was mandatory and ironclad, permitting no exceptions to be made whatever. This was Dr. W. L. Rodman, who has recently come here from Louisville, Ky., to accept the chair of the Principles of Surgery and Clinical Surgery in the Medico-Chirurgical College, and who has been warmly welcomed to the ranks of the profession in this city.

The Academy of Surgery met December 6 and elected Dr. J. Ewing Mears president to succeed Dr. Thomas G. Morton, who had served for three successive terms. A death during the administration of ether was reported by Dr. T. G. Morton at this meeting. The patient was about 60 years of age and had been admitted to the Pennsylvania Hospital for gastric disorder of a year's standing, malignant disease being suspected; pyloric stenosis and dilatation of the stomach was known to exist. Ether was administered in order that an exploratory operation might be made. The patient took the anesthetic badly and there were such convulsive movements of the diaphragm and abdominal wall that it was impossible to close the wound after the section had disclosed an inoperable fusiform cancer of the pylorus and infiltration of the stomach wall. A few drops of chloroform were given, while the ligatures were rapidly applied, but the patient vomited freely a thin, gruel-like fluid and shortly afterward stopped breathing and all efforts at resuscitation failed. The autopsy by Dr. Cattell, the coroner's physician, showed that suffocation had caused death, the bronchial tubes being completely filled with the same thin tenacious fluid which was found in the stomach. Dr. Morton pointed out that in cases of dilated stomach, abstinence from food on the day of operation is not sufficient and he advocated washing out the stomach in such cases as an important precaution to be taken before the administration of ether.

At the December meeting of the College of Physicians, Dr. John B. Deaver read a paper entitled "X-Ray Pathology of Fractures about the Elbow," which he illustrated with the aid of the stereopticon.

The Obstetrical Society held its meeting December 2. The more important communications were one by Dr. Joseph Eastman of Indianapolis on "The Question of Pelvic Support," and one by Dr. Joseph Taber Johnson of Washington, D. C., on "The Best Way of Treating Pus Collections in the Pelvis; the Abdominal versus the Pelvic Route." After a discussion of the subjects by Drs. J. M. Baldy, Charles P. Noble, W. E. Ashton and others, the Society attended a reception in honor of its guests, at which Dr. E. E. Montgomery presided as the host, at the University Club.

A Charter has been granted for a new hospital for contagious diseases, which is to be called the "Health Protective Hospital for Contagious Diseases," in honor of the Woman's Health Protective Association, which has been actively engaged in sanitary work for several years in this city. The announcement has been made that a site has been secured by the purchase of property at Twenty-second Street and Lehigh Avenue, Philadelphia, opposite the Municipal Hospital. The necessity for a pay hospital for such diseases as scarlet fever and diphtheria has been acknowledged for several years, and its establishment has been advocated especially by the late Dr. William H. Ford, president of the City Board of Health; Dr. W. M. Welch, chief physician of the Municipal Hospital, and by Dr. Benjamin Lee, secretary of the State Board of Health. The work has been accomplished by the labors of a joint committee from the Woman's Association above named and from the Philadelphia County Medical Society, the members of the latter being Dr. J. Madison Taylor, chairman; Drs. Edwin Rosenthal, George M. Gould, James Tyson, Frederick P. Henry and Edwin E. Graham. The committee has had weekly meetings for nearly two years, the scientific work and plans being in charge of the medical representatives, while the active labor of providing funds was accomplished by the women representing the Health Protective Association.

The Dental School or Department of the Medico-Chirurgical College is now in full running order and is equipped with the latest appliances, including electric lathes and motors.

The last meeting of the Medical Club was devoted to a reception in honor of Prof. Howard A. Kelly, M.D., of Johns Hopkins Hospital.

Charter for a Faith-Cure Corporation Refused.—In Court of Common Pleas, No. 2, Judge Pennypacker recently handed down an opinion in which he refused to grant a charter to the "First Church of Christ Scientist" and delivered an important ruling as to the reasons why the incorporation of a

church, having the practice of faith-cure as one of its objects, is contrary to the laws of Pennsylvania. The chief criticism of the proposed charter was that it conflicted with the act regulating the practice of medicine and requiring all candidates for license to successfully pass an examination before the State Board of Examiners and Licensers, and to have had a previous training of four years in certain prescribed studies, whereas the proposed charter would confer the authority upon the so-called church to empower any of its members to treat the most serious diseases although not qualified by the proper course of medical studies or duly licensed by the State Board. "It is quite clear" said the Judge, "therefore, that what is proposed is much more than a church since there is besides to be established a system for the treatment of disease, to be carried into effect by persons trained for this purpose who may receive compensation for their services."

THE STANDARD MEDICAL HISTORY OF PHILADELPHIA, compiled by Frederick P. Henry, M.D., has just appeared in a handsome imperial octavo volume, which is published by a Chicago firm and is for sale by subscription only. It is freely illustrated and contains much valuable historic material of more than local interest, especially with regard to the origin and early struggle of our medical institutions.

THE PHILADELPHIA MEDICAL JOURNAL, a new $3 weekly, edited by Dr. Geo. M. Gould, issues its first number Jan. 1, 1898. As it is not controlled by any publishing house or commercial corporation, it may be expected to be thoroughly independent and to serve no interests other than those of the medical profession. It is published by the Philadelphia Medical Publishing Company, representatives from the leading medical schools being members of the Board of Trustees, who are to be elected annually, and to whom is entrusted the management of the affairs of the Company.

Detroit.

AT THE regular meeting of the Detroit Medical and Library Association, held December 6, Dr. George Duffield presented a paper entitled "Guaiacol in the Treatment of Typhoid Fever." The author first took up the internal administration of the drug. The object is the introduction of an antiseptic drug into the intestinal canal, and the author finds that guaiacol is better than any other remedy for this purpose. He said: "I have never noticed any antipyretic effect when the medicine is administered internally. I give it for its antiseptic properties alone, and I am sure that I accomplish the end sought, because the stools are redolent with the characteristic odor, showing that the medicine must have passed the diseased surfaces as guaiacol and rendered the part aseptic by its presence there. When the stomach is so irritable that the pure guaiacol can not be administered, then we have recourse to the carbonate. I have used Woodbridge's method for several years, and believe his plan is successful in producing an aseptic condition of the intestinal canal, but it is slow, and I believe his plan can be modified so as to produce better effects. I use calomel with or without podophyllin, at first every hour or two until the bowels are thoroughly moved and the flow of bile, nature's antiseptic, is established. Saline waters increase the effect of these drugs and the effect of the guaiacol is augmented." The author next took up the external application of guaiacol. The Doctor stated that the best possible point for the application is on the skin of the abdomen over the ileocecal valve. After thoroughly washing the surface with soap and water, 15 to 30 minims of the liquid is dropped upon the skin and gently rubbed in by an attendant for ten minutes and the area is then covered with cotton and oil silk. The dose should not exceed 30 minims, for often such application is followed by great depression, profuse sweating and sharp chills or other symptoms of collapse. Its effect, when properly applied in the proper dose, is to cause profuse perspiration, the temperature declines and continues to descend for three to four hours. "The pulse grows full and strong and its rapidity lessens in proportion to the reduction of the temperature; the patient shows no signs of cyanosis and invariably says he feels 'first class.' I have noticed that when it has been applied frequently for three or four days, in typhoid fever, a decided reaction takes place and the temperature gradually declines and reaches normal at an earlier period than it otherwise would have done. This treatment can be used with the Woodbridge method to advantage, as something else beside the tablets, which are necessarily slow in their action, should be used to reduce high temperature." No blistering or inflammation of the skin is produced when the drug is applied. "That it is far superior to the cold bath in the treatment of typhoid fever, I believe. It is easy to apply and is safe and efficient."

HEALTH REPORT for week ending December 18: Deaths 77, under five years, 30. Births, male 40, female 36. Contagious diseases, diphtheria 15, scarlet fever 62. Deaths from diphtheria 2, from scarlet fever none.

THE PUBLIC SERVICE.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the two weeks ending December 24, 1897.

Surgeon A. C. H. Russell, detached from the "Lancaster" and ordered home on waiting orders.

Medical Inspector J. G. Ayers, ordered to duty at the navy yard, Portsmouth, N. H., January 17.

Medical Inspector J. B. Parker, detached from the navy yard, Portsmouth, N. H., and ordered to duty as member of the naval medical examining board, Washington, January 22.

P. A. Surgeon T. B. Bailey, unexpired leave revoked, and ordered to the Washington navy yard.

CHANGE OF ADDRESS.

Banton, W. C., from Chicago to 210 Grand Av., Waukegan, Ill.
Burwell, W. M., from Chincoteague Island to Wallis, Va.
Beavis, A. J., from 110 15th St. to 1429 Pearl St., Denver, Colo,
Cobb, J. O., from New York, N. Y., to U. S. Marine Hospital, Detroit.
Cresswell, G. W., from Arvada, Wyo., to 8 De Kalb St., Chicago.
Cline, L. C., from 42 E. Ohio St. to 222 N. Meridian St,, Indianapolis, Ind.
Cook, J. F. D., from Clark to Langford, S. D.
De Witt, J. P., from Pierce to 306 S. Cleaveland Av., Canton, Ohio.
Hart, A. C., from 1170 Market St. to Claus Spreckel's Bldg., San Francisco, Cal.
Lawbaugh, A. I., from Opechee to Calumet, Mich.
McConnell, J. W., from 1909 Chestnut St. to 2925 Fairmount Av., Philadelphia, Pa.
Meany, W. B., from 3907 W. Bell Pl. to 1608 4th Av., St. Louis, Mo.
Platon, L. A., from Cooperstown to Valley City., N. D.
Quigley, J. M., from 213 Powell St. to Waller and Clayton Sts., San Francisco, Cal.
Reed, R. H., from Columbus, Ohio, to Rock Springs, Wyo.
Riley, E. A., from Starfield, Mo., to Hoyt Kas.
Terry, Jr., M. C., from Brighton, Iowa, to Fort Shaw (via Sun River) Mont.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.; Ashmead, Albert S., New York American Therapeutic Co., New York.
Burr, C. B., Flint, Mich.; Barnham, F. G., Los Angeles, Cal.; Bulkley L Duncan, New York; Boteler, W. C., Washington, D. C.; Bell, F. A. Dallas, Texas; Beale, G. E., Freehold, Pa.; Brown, Margaret (Mrs. Stratford, Canada; Ball, M. V., Warren, Pa.; Bittick, S. G., Henrietta Texas; Battle & Co., St. Louis, Mo.; Burnham, H. B., Manchester, N. H. Bryan, Charles, Corn, W. Va,: Baird, James, Evanston, Ill.
Coleman, W. F. Chicago; Crane, A. W., Kalamazoo, Mich.: Clarke Augustus P., Cambridge, Mass.; Chas. Truax, Greene & Co., Chicago Cleveland, Theodore P., Baltimore, Md.: Chicago Eye, Ear, Nose an Throat College, Chicago; Chicago, Milwaukee & St. Paul Railway Co Chicago; Colville Bros. & Perry, Galesburg, Ill.; Concanon, James J New York.
Deaver, John B., Philadelphia, Pa.; Dow, Daniel C., Cambridgepor Mass.
Elgin Milkine Co., Elgin, Ill.; Elliott, H. G., New York; Eagleson,. B. (2), Seattle, Wash.
Friend, Samuel H., Milwaukee, Wis.; From, F. J., Templeton, Iowa Fougera, E. & Co., New York; Fisher, G. C., Ann Arbor, Mich.; Farring ton, John M., Binghamton, N. Y.; Finley, G. W., Harmony, Ind.
Garber, J. B., Dunkirk, Ind.; Griffith, J. D., Kansas City, Mo.; Gould George M., Philadelphia, Pa.
Haldenstein, I., New York; Henry Pharmacal Co., Louisville, Ky Henry, R. S., Charleston, W. Va.: Haughton, R. E., Richmond, Ind Horlbeck, H. B., Charleston, S. C.; Hare, H. A., Philadelphia, Pa.; Ha den, A. M., Evansville, Ind.; Harris, J. J., St. Louis, Mo.; Hunsberge J. Newton, Skippack, Pa.; Howe, Lucien, Buffalo, N. Y.; Hygeia, Th Citronelle, Ala.; Hobart, John P. (2), Cincinnati, Ohio; Hull, W. H. B & Co., New York; Hummel, A. L., Adv. Agency (2), New York.
Imperial Granum Co. (2), New Haven, Conn.
Jefferson Medical College, Philadelphia, Pa.
Kirch, F. A., Toledo, Ohio; Kelley, Maus & Co., Chicago.
La Rue, F. G., Hampton, Ky.; Library Surgeon General's Office, Was ington, D. C.; Larned, E. R., Joliet, Ill.; Little, J., Bloomington, Il Langdon, F. W. (2), Cincinnati, Ohio.
Merrick, M. B., Passaic, N. J.; Moore's Newspaper Subscriptio Agency, Brockport, N. Y.; Manley, Thomas H., New York; Murfree, B., Jr., Murfreesboro, Tenn.; McIntosh, J. M., Connersville, Ind.; Mi dlebrooks, J. D., Bryans Mill, Texas; MacClure, Theo. R., Lansin Mich.; MacPherson, F., Dunlap, Mo.; McIntosh Battery and Optic Co. (2), Chicago.
Newbecker, Minerva M., Asylum, Neb.; Newell & Heldman, Chicag Nutt, G. D., Willlamsport, Pa.; Norwich Pharmacal Co., Norwich, N.
Oakland Chemical Co., New York; Od Chemical Co., The, New Yor
Parke, Davis & Co , (2), Detroit, Mich.; Parker, W. Thornton, Grov land, Mass.; Plummer, J. W. V. R., Key West, Fla.; Powell, Thom Los Angeles, Cal.; Post, S. A., Weston, W. Va.; Powell, R. H., West M ford, W. Va.
Rossiter, F. M., Battle Creek, Mich.; Roberts, William, Fort Adan R. I.; Rowe, Thomas C., Coal Bluff, Ind.; Ramsay, R. T., London, K; Ring, E. P. C., Philadelphia, Pa.; Rosenthal, Edwin, Philadelphia, P Russell, F. H., Bluffdale, Ill.
Segur, Gideon C., Hartford, Conn.; Sullivan, T. J., New Frankfo. Mo.; Stallman & Fulton, New York; Simpson-Martin, J. M., Mass Texas; Spivak, C. D., Denver, Colo.; Stewart, Douglas H., New Yor Struthers, A. D., Bedford, Quebec, Canada; Savage, G. C. Nashvil Tenn.: Shoemaker, John V. (2), Philadelphia, Pa.; Schwab, L. W., C cago, Ill.; Sander, Enno, St. Louis, Mo.; Scott, J. B., Hamilton, Oh Scott, N. Stone, Cleveland, Ohio; St. John, Leonard, Chicago; Sinkl Wharton, Philadelphia, Pa.; Smith, A. E., Utica, Ohio; Smith, D. C. Richland, Kas.; Smith, Q. C., Austin, Texas; Smith, Kline & Fren Co., Philadelphia, Pa.; Smith, Frank Trester, Chattanooga, Tenn.
Tyree, J. S., Washington, D. C.; Traunweiser, S., Merchantville, N. Tuley, Henry E., Louisville, Ky.
Vande Roovaart, J.F., Chicago; Van Nostrand, D., Co., New Yo
Way, J. Howell, Waynesville, N. C.; Wetherill, H. G., Denver, Col Woodbury, Frank, Philadelphia, Pa.; White Rock Mineral Spring C Waukesha, Wis.; Willan Publishing Co., The, New York; Weaver, H., Chicago; White, F. D., Limestone, Me.; Wolfstein, David I., Cinc nati, Ohio; Wandless, Henry W., Dallas, Texas; Würdemann, H. Milwaukee, Wis.
Yolton, J. L., Bloomington, Ill.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY AUGUSTUS P. CLARKE, A.M., M.D.

CAMBRIDGE, MASS.

The physiology of the various structures of the organism and the choice of the pabulum best adapted to their conservation are subjects that should command our most careful consideration. Formerly when disease was regarded as an entity and a visitation of an offended deity, only little, of course, could be expected to be achieved by dietetic measures. Success that could be obtained, however, by treatment of disease through a change or a restricting of the diet is by no means a modern discovery; the medieval and the ancient writings on medicine reveal many references to the subject. Thus the works of Hippocrates, the "Father of Medicine," show that he was not unacquainted with the evil effects arising from an unwise selection of articles of diet; he speaks of the enervation that results to the constitution from abstinence of food. Knowledge of the fundamental principles of dietetics is essential for the conducting of the cure of disease. There is no question that many morbid processes can be greatly modified by adopting a strictly regulated system of diet. It is largely through the researches made in physiologic chemistry that much of our knowledge has been obtained. Before such results had been acquired the methods of practice were merely theoretic.

One serious mistake that is often made is in prescribing articles of diet without having sufficint data for determining the needs of the organism. There should always be kept in view the importance of obtaining in each individual case a definite knowledge of the proportion that the ingesta bear to the egesta of the system. For ascertaining this relation, the habits and surroundings of the patient should be considered. It is evident that a person who is accustomed to sedentary occupations requires a more restricted diet than one who spends a large proportion of his time in active pursuits in the open air. An increase of weight is not always an indication that the selection of the food has been wisely made, nor, on the other hand, is a diminution of the measurements of the organ a sign that the food is ill-adapted to the needs of the body. The question that should be most carefully considered is whether the food has been sufficient to meet the demands of the normal excretion. The habit of introducing into the system agents that tend to lessen the metamorphosis or waste of tissue should not be overlooked in deciding as to the relative merits of different articles of diet to be employed.

Some physicians are inclined to prescribe, in their routine practice, the kinds of food that have apparently met their own fancied individual needs. Such a course should be looked upon as most unscientific. No class of foods, whether they be of beef, mutton or of fowl, or even of fish, should be selected in preference to all others for the prevention or cure of disease. In deciding what should be taken, reference will have to be made to the analysis of the excreta to ascertain what products have been normally voided, and what proportion of the water and of the chemic elements, carbon, hydrogen, oxygen, nitrogen, and of the sulphates, phosphates, chlorids, potassium and sodium has been eliminated. An examination should be made of the effete matter as comprised in the term carbon dioxid and certain forms of ammonia that are given off through the respiratory processes; the necessity of such investigation should be particularly borne in mind when called to the treatment of those cases in which the lungs have become the disease center. The urinary and perspiratory elements of excretion should also be examined. There can be no doubt that the exhausting nocturnal hyperidrosis accompanying tuberculosis is due to poisonous products that are determined to the lung tissue for elimination; doubtless such a sequel is often superinduced by the failure of other emunctories of the organism.

The utility of a diet's embracing the proteid elements to be administered in many forms of the disease should demand attention. In order to observe the effects of such ingesta the metabolic force of the living cells should in particular cases be measured by actual experiment. There are unquestionably varying degrees of metabolism as possessed by different individuals. The most important feature of the results of indulging in an excessive use of the proteid elements of diet is, notwithstanding that a condition of nitrogenous equilibrium prevails, the tendency to the production of podagric and other allied affections. The system when once brought under the influence of such a dyscrasia becomes readily the center of other diseases. Chronic inflammation of the kidneys is liable to ensue, so, also, are certain forms of interstitial hepatitis; iritis and even meningitis are not infrequent accompaniments of a gouty diathesis. Inquiry regarding the effects of the continual use of carbohydrate food will often have to be made.

The theories that are entertained by physiologists can not always be depended upon as affording facts sufficiently comprehensive for guiding the practitioner in his daily work. Much has been said against the use of starchy foods for the general diet; I apprehend, however, that many experiments that have been made on dogs for the purpose of settling certain questions in regard to the effects on the system of many kinds of food, should be received with some misgivings. Carbohydrates, as is well known, are liable to induce dyspepsia and other gastric troubles; the unpleasant effects of the employment of amylaceous foods may be obviated by a more free use of water. Starch, it

must be remembered, is largely composed of carbon dioxid and water. To facilitate its more rapid decomposition into its ultimate elements, water at the temperature of the body is essential. The chlorophyll or the green coloring matter of plants, that manifests such peculiar action in the decomposition of carbon dioxid and in fixing the carbon in new structures in the form of new compounds, owes its potency in some measure to the aqueous element with which it is always associated.

In establishing what should be a proper diet, many factors will have to be taken into account. Age, habits, exercise, climate, temperature, altitude, strength and perhaps sex, are conditions that must go far toward determining what should be the individual diet of the patient. As said before, a proper balance between the ingesta and the egesta should be maintained. For brainworkers food that is readily assimilable should be taken; the same should be prescribed for invalids.

In the endeavor to reduce excessive obesity by substituting or replacing, almost entirely, the proteids for the carbohydrates, the fact should not be overlooked that there is danger of setting up urinary troubles and of causing vesical calculus, renal disease and contracting kidney. These results by such change in diet have occasionally occurred in my practice. Of the proteids (albumin, casein, myosin, gluten, legumen, etc.) the chief in flesh diet is myosin associated more or less with globulin, serum, albumin, gelatin, elastin and hemoglobin. These are all originally obtained by the animal from the products contained in nitrogenous grasses, herbs and plants.

The question is often asked, why can not man by increasing his knowledge through scientific investigation make a wise and judicious selection of vegetable proteids that will satisfy his real demands for nourishment without having to resort to the consumption of animal food? I might here remark that though the wages of the peon workman of Mexico are ridiculously cheap, about three bits (thirty-seven cents) a day, he is able, on account of the climate being most congenial to his nature, to earn in twelve days, as it has been estimated, enough to meet the actual requirements as regards the necessaries of life for the rest of the year. "He does not eat," says Charles H. Lummis (*Harper's Monthly*, March, 1897), "much meat, nor does anyone except a stupid in that climate." Observations made during my recent visit in Mexico tend to confirm the truth of the above statement. Reference to the attainments of the early inhabitants of Mexico opens up for consideration some very important questions in regard to diet. The ancient Mexicans in their habits and acquirements were unlike in many respects those races of the Orient. If they were ignorant of the advantages to be derived from the use of cereal grains they were unacquainted with the nutrient properties of milk and with pastoral pursuits. The food of these early people must have consisted for the most part of fruits, plants, honey, fish and the juice of the maguey. Meats, even of the lighter grades, were merely incidental to their dietary list.

In considering further the question in regard to the necessity of the consumption of animal food for the growth and preservation of the races, it should be said that the ox, the sheep and the other animals whose flesh is esteemed the most essential for the support of mankind, do not derive their nitrogenous compounds by the consumption of other animals; they obtain such properties merely by the ingestion of grasses, herbs and other elements of the vegetable kingdom. The eating of so much food as the present American people are accustoming themselves to can but be regarded as a more slothful way of obtaining their necessary nitrogenous sustenance and must, therefore, eventually tend to the deterioration of the present inhabitants. A little more activity put forth in the search among the vegetable products for food necessary for the preservation and development of the races of our clime would undoubtedly facilitate the excretion of effete matter and establish a proper balance between the functions of assimilation and excretion.

In the hot climate of India the teachings of the Brahmins forbid the killing of animals for the consumption of their flesh. Many animals in that country are regarded as sacred or as containing the spirit of some departed monarch or chieftain. Perhaps the belief in the creature having such a possession was originally encouraged as a sanitary measure to prevent the indiscriminate use of the diet of flesh. In conversation some time since with a learned Brahmin who was visiting this country I learned that most of our Christain missionaries to India indulge freely in the use of animal food, and thus by persistently refusing, in the choice of their food, to adopt the prevailing custom of the higher castes finally fail to become acclimated and so are compelled after a few years' residence to leave the country. Suffering from boils, abscesses and internal disorders often hastened or superinduced by an over-stimulated diet is not, he said, an uncommon occurrence among these "Soldiers of the Cross." I am by no means an advocate of the exclusive use of a vegetable diet, but I feel confident, nevertheless, that before the advantages of many different articles for varying conditions can be established, many pet theories will have to be abandoned and an investigation carried out on a more scientific basis than heretofore attempted will have to be undertaken.

In connection with the functional activity of the several parts of the human organism and the food best adapted for their conservation there are, as said before, many modifying factors that should be taken into consideration. Prominent among them is the variation of the hematosis that is caused by high altitudes. Man can become accustomed to the influence of elevated centers; when long subjected to the controlling forces of the higher levels his fluids become more concentrated, his respiration and circulation are accelerated and the deficiency of oxygen is compensated for by the increased activity of sanguinification.

It has come to be more recognized that the presence of pure oxygen exercises a most potent influence on animality. During the early geologic ages, according to T. L. Phipson, nitrogen almost entirely constituted the earth's atmosphere. As vegetation advanced oxygen was more freely disengaged from the deeper centers and the anaerobic cellule underwent a modification; the anaerobic organisms assumed more the nature of aerobic bodies until the nervous cerebrospinal axis reached the development under the forms in which it is now represented. Man may, however, feel the want of ingesting for his aliment a large proportion of the nitrogenous element, but this craving, it must be conceded, is in no small measure the outcome of atavistic tendencies.

Those who deny the development of man from the ower forms of animal life, but hold strictly to the iew that when he did first appear he was invested vith organs not unlike those which he now possesses nd that the shape and condition of his incisor teeth vere given him by an all-wise Creator for the purpose f fitting him, in part at least, for partaking of flesh, hould remember that according to the Mosaic account ıan's sphere of activity was first limited to the con- nes of a garden, where he was allowed to eat, not of esh, but of every fruit with the exception of one hat was in the inclosure; that it was only after his xpulsion from that favored spot that mankind ırough his hardness of heart was, at his own expense nd suffering, granted many indulgences. Nitrogen s a constituent of the air serves merely as a diluent. ıs a component part of the tissues for the highest or ven for the average type of man, who can say that :s presence is absolutely essential?

There are still many unexplored fields in which phys- ologists can carry on work to great advantage. Re- earch, to be of value, can only be made by careful xperimentation. Those schools that are encouraging riginal investigation in this line of inquiry will eceive the largest returns. In conducting experi- ients many problems should be taken into account; ıe influence of the tempearture on the form of mus- .e curve, the peculiar features of electrotonus, the ıythmic action of the heart, the duration of its beats, s compensatory pause and other phenomena that are xhibited should be carefully studied. Observations ıus made should not be looked upon as conclusive as) results that will invariably follow in every individ- al experiment, for the functions of animals, even of ıe same class and under what would appear to be recisely the same circumstances and conditions, are ntinually undergoing change and modification in evelopment. It is only by repeating experiments any times that an average result can be obtained. he importance, therefore, of the study of the mor- hology of the protococcus, the ameba and of the ıramecium and their reaction to certain forms of ectricity and individual stimuli will thus be more adily appreciated.

THE HISTORY OF THE SECTION OF PHYSIOLOGY AND DIETETICS.

The introduction of the Section of Physiology and ietetics into the AMERICAN MEDICAL ASSOCIATION, ough of a recent date, was a wise measure. It was ne in response to the necessity of correcting many rors and misapprehensions in regard to the impor- nce and value of many different kinds of food that e employed in the care of hospital and private pa- ents and are consumed by the people generally. he place in which any work of importance was first complished was at the meeting of the ASSOCIATION at etroit, Mich., 1892. An address on "Physiology" ıs delivered by the chairman, C. H. A. Kleinschmidt, ı.D., M.D., Washington. "Epithelia" was the title of paper by Ephraim Cutter, M.D., LL.D., New York. ıe other papers were: "The Marine Hospital of Bos- n," by George W. Stoner, M.D., Surgeon U. S. arine-Hospital Service; "Food and Hygiene of All ges," by John M. French, M.D., Milford, Mass.; Iedical Food Ethics, Now and to Come," by E. Cut- , M.D., LL.D., New York; "United States Army ıtions and Military Food," by Capt. Charles E. oodruff, M.D., Assistant Surgeon U. S. Navy; "United States Naval Rations," by C. A. Siegfried, M.D., U. S. Navy; "Diet, in its Relation to the Treat- ment and Prevention of Disease," by Augustus P. Clarke, A.M., M.D., Cambridge, Mass.; "The Paddock Pure Food Bill" was brought up and discussed. The publication of the above mentioned papers and a report of the meeting by the Secretary, Dr. Ephraim Cutter, are found in the colums of the JOURNAL, 1892.

The officers of the Section in 1893 were: I. N. Love, St. Louis, Chairman; Ephraim Cutter, New York City, Secretary. The officers of the Section in 1894–95 were: E. H. Woolsey, Oakland, Cal., chairman; C. G. Chaddock, St. Louis, secretary; Executive Committee, I. N. Love, St. Louis; W. T. Bishop, Harrisburg, Pa.; Ephraim Cutter, New York. The program com- prised: Address of Chairman, E. H. Woolsey, Oak- land, Cal.; "On Food and Thrombosis," by Ephraim Cutter, New York; "Physiologic Treatment of Tuber- culosis by Injection of Serum," by Paul Paquin, St. Louis; "Vital Resistance to Disease," by G. W. Fin- ley, Harmony, Ind.; "Researches in Rapid Photog- raphy by Means of Edison's Kinetograph, and the Animated Reproduction by the Kinetoscope; Show- ing also by this Method the Present and Future Pos- sibilities of Taking and Reproducing Certain Ani- mated Physiologic Movements of the Larynx, Heart, Intestines, etc., with an Historical Account of Fifty Years of Photography," by J. Mount Bleyer, Naples, N. Y.; "The Influence of Atmospheric Electro-Baro- metric Oscillations," by John North, Toledo, Ohio; "The Physiologic and Pathologic Effects of Electricity, with Some Results of Practical Experience with Elec- tricity," by E. H. Woolsey, Oakland, Cal.; "The Physiology of Instinct," by C. G. Chaddock, St. Louis; "Remarks on Test Meals," by Henry Salzer, Balti- more, Md.

The officers for 1895–96 were: H. Bert Ellis, Los Angeles, Cal., Chairman; Henry Salzer, Baltimore, Secretary. The members of the Executive Committee were: I. N. Love, St. Louis; E. H. Woolsey, San Francisco; H. Bert Ellis, Los Angeles; Augustus P. Clarke, Cambridge, Mass., chairman; Ephraim Cut- ter, New York, secretary.

This year an effort was made by your chairman and secretary to induce the leading members of the ASSOCIATION to make contributions to raise the stan- dard to a footing with the other departments. How well they have succeeded in this regard it is not for them to say. It is to be hoped that this important branch of medicine will hereafter find representatives who at all times will gladly contribute to its support.

DISCUSSION.

Dr. EPHRAIM CUTTER of New York—The history of this Sec- tion goes back to 1889 at least, for that year it was announced on the program at Newport, a special room was selected and assigned to it beforehand and arrangements were made for the solar projection of the morphologies of foods. Considerable money was spent by the Secretary, but another Section wishing the assigned room, the authorities withdrew it and furnished another room where the sun could not be had, and this was such a damper that not a paper was read, nor the three cases of men cured of Bright's disease by food exhibited! The whole thing failed because faith was not kept by the Commit- tee of Arrangements.

In 1890 this Section was on the program at Nashville. E. A. Wood, Chairman; E. Cutter, Secretary. The Committee of Arrangements unwittingly failed to give proper accommoda- tions for solar projection. A room was assigned for the meet- ings of the Section but when we went to take possession at the proper hour we found it occupied by some 150 to 200 young law students listening to a lecture from a professor! The Chairman was so disgusted that he would not do anything more, save to give an admirable address on "Food" in one of

the general meetings, which was enthusiastically received and applauded to the utmost.

In 1891 the Secretary could not attend and can not report. This brings the history down to Dr. Clarke's report.

Our honored Chairman insists that complex foods must be given to the sick for cure of disease; in other words that there must be variety. With no disrespect to him, permit me to say that when man comes into the world normally he has but one food, milk; that he thrives wonderfully on it; that every tissue and organ not only thrive but grow and increase; that air is food and air is eaten twenty times a minute during life without change; that the writer has found in some diseases the best results with one food and that changing from one to multiple foods has done harm; further, that the cure is wrought by nature or the Divine power, being furnished with the fewest foods that can furnish material for all tissues.

What makes babies sick as a general rule? Too many foods. If a healthy babe has a healthy breast milk in abundance, other things being equal, it will remain healthy. Vegetarians can not deny that one animal food is the normal food of man at his birth. I do not believe it is necessary to have different foods for different diseases as a rule, according to my experience. I wish doubters would try living on different foods singly and thus learn their action and more about disease than can be learned otherwise. The AMERICAN MEDICAL ASSOCIATION ought to institute such experiments in the many biologic laboratories of the continent.

ORIGINAL ARTICLES.

PROBLEMS IN FEEDING SCHOOL CHILDREN.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY HORACE P. MAKECHNIE, M.D.
SOMERVILLE, MASS.

When the plebeians had seceded from Rome, the story of the stomach and members was related as an inducement for them to return. Today we need to have the story retold and our attention called anew to the importance of the stomach as related to all the other organs. So far as our school children are concerned, our physicians are well aware of the facts, which therefore need not be demonstrated. Many years ago, while teaching, I noticed that quite a percentage of children who had been sent to school very young and had been kept there continually became very dull. They would not study nor learn as bright active children ought. I used to say they were school hardened.

Since I have practiced medicine I have been consulted by quite a number of school children who had dyspepsia which was due to a lack of nourishment. What! starvation around tables loaded with food? Yes, that is just it. We do not get our best dinners at Delmonico's, but at some lonely farm house after a day's hunting or fishing. The best dinner I ever ate was a simple vegetable hash after a day's hunting. No epicure ever concocted a dinner like that.

Fashion says that the first course should be soup. The first course should be a ray of sunshine, a breath of fresh air and a dash of exercise flavored with amusement. Most people think when they have supplied an abundance of food for their children, three times a day, that is all as to feeding. When we manage a furnace we know that even to put the coal on is not enough. We may smother the fire with the fuel, or it may be clogged with débris. The drafts and dampers have to be attended to. I grant that our school children have food enough and, in the main, good food, but are they nourished? It is not merely a question of brain cells, but of every cell in the body. Do we turn out from our schools robust men and women? What should we do but for the poor country schools to send us brains and muscle and push? The idea of a child sitting still six hours a day in order to learn a few uninteresting letters! Let us suppose a child gets up and eats breakfast. what course would you pursue so that he would eat a proper dinner? I mean eat in its broad sense, so that every cell would be fed. Would you send him to sit in a chair, hard and perhaps ill-fitting, for three hours? Would you have him attend to matters that would call the blood especially to the brain? Yet that is what we do with our children year after year. I wish to call attention especially to our high school children. The breakfast comes before they have fairly shaken off sleep and the dinner after a long fast. They may have a lunch. They are not in a mood to properly avail themselves of it. Would any good authority on feeding advocate such a method?

We can not afford to systematically starve our children even by an indirect way, even in a mild degree. Besides, we defeat our whole object. Who has not wondered at the number of men that have poured in from the country and taken the best positions away from our city boys? Who has not wondered at the small and decreasing size of American families, especially in cities? The demand for longer vacations shows that people are sensible of an evil although they have not formulated it. Chain a child to a chair by a teacher's authority for three hours and then expect him to eat. No, you have starved him as surely as though you had deprived him of food. The muscle has not thrown off the old and made ready for the new. Every organ, except perhaps the brain, has shared the same fate. Then, wherefore the eating? Wherefore the proper growth, the nervous energy? If we are not giving our boys and girls the best advantages for assimilating food, is it not worth while to do so? Shall we get stronger, better developed, more energetic, better educated children, better citizens? I believe we shall. Four hours a day for school is confinement enough. I remember when I was six. Five hours are better than six and four will do better than five. Let us have playgrounds, industrial schools, swimming schools, cooking schools. Let our rivers and ponds be open for boating. Let there be some grass a child can step on, and see to it that we do not rob the child by rendering him unable to take food. It would be a pity, indeed, if we make our glorious common schools the means of physical degeneration. It must not be forgotten that the period of school life is the period of growth. Its now or never with the child. After years can not atone. What a shout goes up when the bell strikes for dismissing the school. Imagine the pupil of some old Grecian being glad that they could not go to the grove today, or of Socrates reminding Plato that he must keep his hands and feet in better position. Why not send our children out; one group to learn the geography of a park or river, one to find a wild flower a butterfly or a geologic specimen; let him unconsciously find an appetite, and with it more food for brain. Sumner Ellis, a thoughtful writer, says of the age: "We are spent and why should we not be dull?" "Overwork leads to underfeeding." "Why not slacken into a greater speed?" This is to the point. The child who goes to school with uneaten breakfast should be sent home for a supply of fuel. This plea is made for those conscientious pupils who deserve

ell of the community, and who should not be enticed n by marks of no importance except to the over-sen- itive. Says Montaigne, "The feast is in the palate." t belongs to us to emphasize this fact. Edward verett was chosen as the orator at the dedication of he Gettysburg National Cemetery. He was the ighest type, even the pinnacle of our classic educa- ion. No word would be admitted into his speech nless it could bear the test of good breeding. Every esture even was fixed and irrevocable. Lincoln was o speak as the President of the United States. It s admitted that his friends were abashed at the pros- ect of the comparison. It is unnecessary for me to ay anything more of the two men except that if asked who would be likely to deliver a classic oration, an ration that would be remembered and that would ppear in the school books, I should have said Everett, nd yet it was Lincoln. His words will be remembered s long as Gettysburg itself will be remembered. This hows that our ideas about what constitutes education nay require modification. If this example is not nough, enough can be found. It surprises me that ducators do not study the lives of forceful men, race their lives back and see how they obtained their orce, their education. Some philosopher has said hat a man's education should be commenced a undred years before he is born. It follows then hat we should, in the education of a child, look orward a hundred years. We must have a care r nature will rebel and will give us no offspring to ducate. Nature is patient and long-enduring, but he knows how to correct our errors by the decree hat our race shall die out if we do not nourish our young.

SUBCUTANEOUS INJURIES OF SOFT PARTS.

BY JOHN EDDY LUCKEY, M.S., M.A., M.D.
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AWARDED THE J. W. FREER SECOND PRIZE, RUSH MEDICAL COLLEGE, 1897.

CONTUSIONS.

Contusions are surgical injuries—other than fractures or wounds proper—in which the skin is not broken. The producing force is usually blunt. Most wounds are more or less complicated by contusion. It may involve the skin alone, or any of the subcutaneous structures as muscles, nerves, viscus or bone. There is always present some degree of vascular rupture. A contusion may be defined as a hidden wound modified by the nature of its surrounding parts. Simple contusions are more apt to be found where there is a plentiful supply of fat or muscle interposed between the bony frame-work and the vulnerating force, upon the character of which the nature of the injury largely depends.

Symptomatology.—The pain which follows is not always proportionate to the injury. There is usually some degree of numbness, followed by marked aching or throbbing during the inflammatory stage, accompanied to a greater or less degree by loss of function. The inflammatory symptoms exhibit the usual features; however, owing to the protection of the wounds by the intact skin, sepsis is less liable to occur. Should the tissue be too much disorganized and the blood supply occluded, gangrene will follow. The writer recalls an injury of this nature which ultimately led to the loss of a boy's lower limb. In this case conservative measures were pursued, but the blood vessels were crushed and gangrene followed, compelling double amputation. As a rule shock is present in proportion to the extent of the injury. However, very slight contusions of the breasts or of the testes, cause marked shock. The same may be said of the large joints. The discoloration of the tissues is familiar to all, and is well described by the popular expression, "black and blue." It is due to the extravasation of blood or blood tinged serum. The color under the mucous membrane is brighter than that under the skin. The distance from the surface, and the amount of blood in the effusion are modifying factors. At times the discoloration does not appear on the surface for some time, even for several days, owing to the depth at which the extravasation takes place. In these cases it appears as yellowish spots mixed with green and blue. After a time the blood corpuscles gradually disintegrate and become absorbed; the purplish hue fades successively into violet, olive-brown, green and yellow. In the majority of cases the abnormal color disappears in from ten days to two weeks, though in some cases it may persist for several months.

While the injury to the vascular system usually results in nothing more than ecchymosis, there are cases in which hematomas are formed. This confined blood may remain fluid for months or years, eventually becoming disintegrated, dark in color, and often mixed with inflammatory products. Absorption, however, is the rule, though in rare instances the clotted blood may become organized. If air enters a hematoma, rapid decomposition and suppuration follow.

Treatment.—The indications are[1]: To limit the amount of extravasation; to subdue pain, shock and inflammation; in severe cases, to maintain vitality in the part; to promote absorption of effused blood, and to treat complications and sequelæ. Rest is important. Cold with gentle pressure and the limb in a position favorable to the return circulation will aid in limiting extravasation. Dry heat seems to be more effectual in superficial contusions. Heat and cold contract the caliber of the smaller vessels, and hence diminish congestion and extravasation. Moisture, with heat, softens and relaxes the tissues and so is contra-indicated. Although it gives temporary relief, it would by aiding effusion do harm. Heat or cold can be applied by rubber coil placed around the affected part and attached to some contrivance for regulating the temperature of the water if it be heated. To secure cold the tubing may be connected with the faucet of the water-works. Ice-bags and hot-water bags may be used. Subdue pain by opiates if necessary. Administer stimulants to overcome shock. Cold, blood-letting, leeches, saline cathartics and low diet aid in conquering inflammation. In cases where extreme disintegration of the tissues has taken place, cold is contra-indicated, as it tends to weaken parts already too much depressed. In such cases dry heat must be applied by the various methods that the conveniences at hand will suggest. The removal of the effused blood may be hastened by the application of heat or brief cold effusions, pressure and proper massage. Dr. Gross recommended the application (on a folded flannel) of a strong solution of hydrochlorate of ammonia to which has been added a little vinegar; the parts are then covered with oiled silk, and the application renewed six or eight times in twenty-four hours. Aneurysms, ruptured viscera, paralyses, neuralgias, hypertrophy, atrophy and other conditions may

[1] Reference Hand-book of Medical Science.

arise as complications or sequelæ, and must be treated accordingly.

SUBCUTANEOUS INJURIES OF MUSCLES.

Owing to their unprotected position, the muscles of the body are liable to injuries of varying severity. Contusions and sprains may result from external violence or from twisting and straining. The symptoms may be a mild form of myalgia, intensified by exertion and pressure with ecchymoses and swelling. In the more aggravated cases the pain may become intense, and the discoloration become marked. In cases complicated with rupture of the larger blood vessels hematoma may occur. When only the deeper muscles (as those of the thigh) are injured, it may take days before the infiltration of blood to the surface causes any discoloration. At times quite painful bruises of deep muscles may occur without any external signs. The injury of nerves in this connection intensifies the pain.

Shock may, and frequently does, complicate the injury. Loss of function, except in extreme cases, is temporary. Suppuration may follow.

Treatment.—Shock and pain should receive the same attention as in any other ailment. The very important remedy for the contusion itself is rest. This is secured by means of bandages and slings or splints, the choice depending upon the part affected. If rest can not be secured otherwise, put the patient in bed. Especially is rest demanded when the lumbo-dorsal region is the site of injury. Henry R. Wharton reports nine cases of contusions and sprains of the back, with special reference to early treatment of such injuries[2]. Rest in bed was insisted on in these cases. Pain and discomfort were greatly diminished by strapping the back of the patient firmly with resin or rubber adhesive plaster two and one-half inches wide, and long enough to extend half around the body. These were applied so as to cover the back, one strap slightly overlapping the other from a point just below the junction of the last lumbar vertebra with the sacrum to the lower ribs. At the end of two or three days these were removed, but reapplied in cases where pain and tenderness persisted. This treatment seemed to have obviated the necessity of fomentations and stimulating lotions. Hemorrhage and serious effusion may be relieved by equable, elastic and firm compression. A simple flannel bandage cut on the bias is frequently sufficient for this purpose. Great comfort often follows the use of cold applications as ice-bags, or effusions of water, or evaporating lotions. The latter are most efficient in superficial contusions. Alcohol is the essential element in the tinctures so popular among the laity, arnica, witch-hazel, etc., and may be used with marked benefit. Cold applications are contra-indicated in cases where severe disorganization of the tissues has taken place. In such cases hot-water bags, warm flannels and other devices, may be resorted to for the purpose of supporting and stimulating the remaining vitality of the part. Later massage, with stimulating liniments, promotes the circulation, hastens absorption, promotes nutrition and re-establishes the normal function of the contused parts. In case of suppuration the part should be thoroughly incised and proper antiseptic treatment applied.

Rupture of muscle is not a common traumatism. Probably some of the cases reported as such are ruptures of the tendon, aponeurosis or sheath. This lesion may be caused by a tremendous blow, by being run over by a vehicle, or by violent muscular efforts, as in running, jumping or trying to catch one's self when slipping. (Dr. Baldwin once ruptured his right plantaris while dancing.) Spontaneous rupture may follow even a slight voluntary movement when typhoid fever or other acute, grave pyrexia has caused a degeneration of the muscle fibers, rendering them peculiarly brittle. Rheumatoid arthritis ought to be mentioned in this connection. Sudden and violent muscular effort, followed by a period of prolonged inactivity is regarded as predisposing to the event. "The excessive action which takes place in convulsive disorders—as hysteria, epilepsy and tetanus—will occasionally cause solution of continuity in muscular tissue." The muscles of the abdomen, of the thigh and leg, of the back and of the arm may be affected, the frequency corresponding with the order in which they are named. Strong men are more liable to muscle rupture than are women. Parturition may rupture the abdominal muscles. Occupation may be a predisposing factor in rupture of certain muscles, for example, porters and hod-carriers are more liable to rupture of the cervico-dorsal muscles; cavalrymen, of the abdominal and thigh muscles.

Symptomatology.—The symptoms vary with the extent and location of the lesion. There is always pain, except in the spontaneous cases following disease. The pain is sudden, sharp, and stinging or cutting, like the lash of a whip—*coup de fouet;* it is a crackling sensation, and a snap, as of something breaking, may often be heard. Syncope follows in some cases. There is loss of motion. Swelling and ecchymoses are present. Separation of the disrupted ends causes a depression. Tearing of nerve fibers explains the sharp pain. These symptoms will usually afford a ready diagnosis; however, great care must be taken in deep-seated cases, in which diagnosis must be made by exclusion. Professor Pean cites a case where rupture of the anterior portion of the deltoid bore a resemblance to luxation of the shoulder joint. Dr. Mansell Moullin thinks rupture of a deep-seated, perhaps degenerated vein, constitutes the lesion of *coup de fouet*, and not separation of muscular or tendinous fibers. He refers to a case in which this lesion occurred twice in the same leg, at different spots, during the same month. In both instances, under proper treatment, there was rapid recovery, which to him indicated lesion of a blood vessel. It is doubtful whether rupture of a vein alone would cause such sudden, excessive pain and loss of function. Such a lesion of a vein would cause greater hematoma and swelling, and more marked ecchymosis. Sédillot analyzed twenty-one cases and found all affected at the line of insertion between muscle and tendon, while there were also eight lesions in the body of the muscle. Nélaton found the situation of the lesion dependent upon the form and structure of the muscle. Those with long fibers and short tendons ruptured from injury to the fleshy parts. Those with short fibers and long tendons ruptured at the junction of tendon and muscle. In the latter, the rupture is more apt to be complete. Hematoma is almost constant. The extravasation is usually absorbed and repair takes place. Suppuration is rare in the previously healthy. Complications are usually not severe. Thrombosis may take place. Contracture and shortening may follow.

Treatment.—Relaxation and *rest*, with ruptured

[2] Med. and Surg. Reporter, Vol. lxx.

parts in approximation and under gentle pressure. When the muscle is perfectly healthy, the parts may be sutured. It will take from four to eight weeks to accomplish good results, and even then feebleness may linger. Varicosity may be avoided by use of the roller bandage. Contracture and shortening may be compensated by Anderson's method of lengthening tendon.

Hernia of muscle may take place, in consequence of the imperfect healing of a wound. It may be due to rupture of the muscle sheath following some severe exertion or unaccustomed movement. This condition may be recognized by the tumor, which is soft during relaxation of the muscle, and hard during its contraction. This tumor may persist for an indefinite period. "In recent cases, rest and methodical pressure will generally effect a cure. When the hernia has long existed, the edges of the opening should be freshened and united by stitches." Inconvenience may be so slight as not to justify any surgical interference.

SUBCUTANEOUS INJURY OF TENDONS.

Rupture of tendons may be the result of sudden exertion. It may be complete or partial, usually the former. Exertion that is not exaggerated may cause rupture in tendons of defective structure, as in Dr. Becker's case cited below.

Symptomatology.—Rupture of a tendon frequently causes a snapping sound. There is a sensation of something giving away. Pain is not so pronounced as in similar lesions of muscles. Loss of motion follows the lesion. There is a gap at the seat of injury, which is increased on contraction of its muscle. This depression may be felt and frequently seen. A rupture of the tendon of the quadriceps extensor causes severe swelling of the knee joint, due to effusion into the joint.

Dr. Becker[3] reports a case of subcutaneous rupture of the tendon of the quadriceps extensor, in a laborer who caught himself in slipping while carrying a load on his back. On making the incision for the sutures, fully one-half pint of blood escaped. In this tendon three cartilages had grown, from one-fourth to one-half inch in diameter. As they weakened the tendon, these were excised. The leg was antiseptically treated, and a good recovery made, though the shortening of the tendon caused the leg to remain bent at an angle of 90 degrees.

Treatment.—Approximation of the separated ends, by holding the parts in position by splints, bandages or other mechanical devices, until reunion takes place, which will usually occur in five to ten weeks. The better method is by suture, especially when it is difficult to control the contraction of the muscle. Operation is especially indicated in the leg, except in extreme age or other clear contra-indications. Aseptic surgery advises operation, even in old cases of rupture, where extensive dissection is required to find the widely separated and buried ends.

Displacement of tendons occurs sometimes, in injuries consequent upon sudden muscular action or great violence. The peroneal tendons are the most frequently affected. After pressing the tendon back into position, the parts should be immobilized and retention dressing worn until repair of the torn sheath or lateral ligaments takes place, if this can be secured. It may be necessary to resort to sutures. Dr. White has reported a case of dislocation of the tendon of the long head of the biceps, flexor cubiti.

[3] The Charlotte Medical Journal, July, 1895.

SUBCUTANEOUS INJURIES OF ARTERIES.

The arteries may suffer from contusions and strains. The walls of the artery may be ruptured so as to admit hemorrhage into the sheath, and this blood may produce such pressure as to cause partial or total occlusion of the vessel. Rupture, to a greater or less extent, of the internal and middle coats, is the most common result of contusing and stretching. The retraction of these coats, the outer coat remaining intact, produces obstruction. In cases where the vessel is so surrounded as to confine the extravasated blood in a cavity, hematoma may follow. The healthy artery recurves in a valvular fashion, while the diseased artery breaks up irregularly. Aneurysms, in the young and otherwise perfectly healthy subject,[4] sometimes follow severe strains. Fractures of the bones are a fruitful source of injury to the blood vessels. In some cases damage to the vessel walls may be so serious as to preclude return of function. In other cases of simple organic injury, obstruction may be but temporary. Where the artery remains intact, pulsation soon returns, though pressure overcomes it for a time. The following case illustrates the condition mentioned above, in which the internal and middle coats are ruptured:

A youth of 18 years entered Middlesex Hospital Sept. 13, 1894, complaining of injury to the upper part of his right thigh. Shortly before his admission he had been crushed between the sliding table of a press and the wall. He had walked without aid to the hospital.

Slight bruises were discovered on the anterior aspect of the upper part of the thigh, about an inch below the fold of the groin. No swelling; slight pain and tenderness; no discoloration beyond seat of bruises. The entire right limb was colder than the left. No pulsation in the common or superficial femoral arteries or in the posterior tibial and dorsalis pedis arteries. Pain ceased in two days. Signs of bruises slowly vanished. Could move limb freely two days after accident. Thirteen days after accident a slight pulsation in the dorsalis pedis artery was noted, but none in the posterior tibial or femoral. Three days later there was a distinct pulse in the dorsalis pedis. October 3, pulsation in posterior tibial. The femoral artery remained unchanged. Patient left the hospital October 4.[5]

Since there was no swelling in the above case, there could not have been rupture of the external coat of the femoral artery. The loss of pulsation in the common femoral, posterior tibial and dorsalis pedis arteries of the right limb, with coldness of the entire limb, justified the diagnosis which was made, "rupture of the inner and middle coats of the right common femoral artery." Collateral circulation, in this case, probably took place through the external circumflex and terminal branches of the profunda artery.

Symptomatology.—When but partially occluded, there will be slight pulsation on the distal side of the lesion; total occlusion would cause entire loss of pulsation. The parts will be more or less swollen, depending upon the amount of general contusion present. In cases where the great artery supplying a limb is occluded—as the brachial or the common femoral, as noted in the case above—the limb will be cold. There may be numbness. Pain will vary with the extent of nerve injury.

Treatment.—Wrap the part in cotton; secure rest for the part—splints may be adjusted to the limbs. Treat shock, if present, as in all cases—warmth, stimulation and by staying hemorrhage. Constitutional treatment may be demanded, depending on the general condition of the patient. Treat contusions as outlined above.

[4] Andrew Clark: British Medical Journal, Nov. 28, 1896.
[5] The Lancet, 1894, pp. 1277-1279.

SUBCUTANEOUS INJURY OF NERVES.

The nerves, like all the more vital organs of the body, are anatomically well protected. Those of the upper extremities are the more exposed, and for this reason, injuries are more common to nerves of these parts.

Contusions and *compression* are the most common of the injuries, though at times dislocations of the nerves are also met with. Direct blows may affect the nerves, causing severe pain and, at times, shock. Every one is well acquainted with the sensations due to striking the "crazy bone." These are due to concussion of the ulnar nerve as it crosses the bend of the elbow. The sporting fraternity are well aware of the effectiveness of a blow at the base of the neck causing contusion of the brachial plexus. Dislocation or fracture of various bones may give rise to serious contusion of the neighboring nerves, laceration being especially liable to follow fracture. In one of the clinics of the past year Professor Senn (Rush Medical College) presented a boy with fracture of the bones of the forearm, with faulty union and involvement of the nerves, causing loss of sensation in the hand and forearm. Fracture of the humerus frequently causes laceration of the musculo-spiral nerve, and the brachial plexus may be implicated in fracture of the clavicle, while the sciatic nerve may suffer from fracture through the sciatic notch. Compression of a nerve may cause partial or complete loss of its function. This compression may be continuous or repeated at very short intervals. It may be due to excessive growth of callus in repair of fracture; to tumors, especially thoracic aneurysms; to lying in cramped positions, as with the arms under the head; to exostoses; to contraction of scar tissue; to the use of crutches; to the use of forceps during labor; to prolonged compression of the pelvic nerves during protracted labor. Various mechanical injuries may tear or compress the nerves, causing hemorrhage into the nerve structure and affecting the myelin. Very severe subcutaneous injuries may even cause destruction of the nerve.

Symptomatology.—In contusion, there is a tingling sensation, as of pins sticking. In severe cases, loss of function may follow immediately. Occcasionally a severe neuritis may develop, with pain in the distribution of the nerve. Palsy may be present, and trophic alterations may be among later symptoms.

Treatment.—Remove the cause when it is possible. Absolute rest is essential and morphin may be used to allay the pain. Arsenic is sometimes useful and galvanism may be beneficial.

Dislocation of nerves is rare. A blow may cause dislocation of the ulnar from its groove behind the epicondyle. Poncet[6] records an instance in which the dislocation was due to muscular effort exerted in throwing a snowball. Cases have been observed with no history of traumatism.[7] Holden[8] reports dislocation of both ulnar nerves while the patient was holding the steering wheel of a vessel during a storm. The patient felt something slip in both elbows, and a tingling pain in the distribution of both ulnar nerves. The nerves returned to their normal position on exerting slight pressure on the inner side of the elbows.

Treatment would be the same as in displacement of the tendons. Complications must be treated according to their nature.

[6] Semaine Médicale le Semestre, 1888, p. 89.
[7] MacCormic: Lancet, 1891, I, p. 1040; Lutz: St. Louis Medical and Surgical Journal, 1879-80, Vol. XXXVIII, p. 550.

INJURIES OF THE CHEST AND ITS VISCERA.

Contusions of the chest are very common but, owing to the extreme elasticity of the chest walls, they are seldom serious. Mild contusions give rise simply to bruises and ecchymosis. Abscess seldom follows such injuries. Fracture of the ribs is a frequent result.

Symptomatology.—The symptoms are pain, soreness, limited motion in breathing and abdominal respiration in injuries of considerable extent.

Treatment.—As in all contusions, the securing of *rest* is essential. This may be accomplished by compressing the chest wall so as to limit motion. The application of adhesive strips as directed under contusions and strains of muscles, would serve excellently in these cases. Other appropriate treatment for contusions and sprains should be adapted to the demands of individual cases.

Contusions involving the thoracic viscera may be of the most complicated and serious character. Rupture of the lungs, the heart, the pericardium, and of the blood vessels, may occur without external evidence of injury. "Commotio thoracica" is analogous to contusion of the brain—no postmortem evidence of mortal lesion ever having been discovered. Bruises of the lungs may result in varying degrees of injury. There may be simply rupture of the capillaries not involving the pulmonary tissue itself; there may be small ruptures of the lung tissue extending into the alveoli and bronchioles and including the surrounding vessels, which form depots of blood here and there in the neighboring tissues. In these cases recovery usually follows, provided there is no inflammation; but where the rupture becomes extensive, including the bronchi and larger vessels, death in many cases results very soon. Hemothorax, pneumothorax and emphysema are present after ruptures of the lung, in degrees varying with the amount of damage done. In making a diagnosis the signs and symptoms of these conditions must be kept in mind. Complications are apt to arise in the shape of bronchitis or broncho-pneumonia, traumatic pneumonia, pleurisy or gangrene. More or less impairment invariably accompanies recovery.

Treatment must be directed toward the relief of the conditions as exhibited in the individual cases.

Pneumocele, or hernia of the lung, is very rarely met with. In the civil war seven cases of pneumocele were recorded, and of these six were primary. While a few cases of the lungs escaping at the root of the neck, simulating in position and outline aneurysm of the great vessels, are reported, the greater number are found in the lower portion of the chest. When in the neck they may transmit such impulse and murmurs as to seriously embarrass diagnosis.[9] Pneumocele is usually the result of some penetrating wound, as a stab or gunshot wound; however, the unique case reported by E. Clifford Beale in the *Lancet*, Jan. 28, 1882, justifies mention of the subject under subcutaneous injuries. This was the case of a young carter, who was admitted to the hospital in a state of extreme shock, Aug. 11, 1881, having been seriously injured by his own cart, from which he had fallen. The patient subsequently dying, part of the lower lobe of the right lung was found to have been forced into the abdominal cavity. The presence of the liver on the same side would oppose such protrusion except in case of unnatural conditions, such as a congenital fis-

[8] British Medical Journal, 1893, Vol. I, p. 288.
[9] Ref. Handbook Med. Sciences.

ıre of the diaphragm. The writer has been unable) discover any directions for treatment, except in *enetrating* wounds resulting in protrusion of the ıng. In such cases the parts should be cleansed and ɜstored to normal position, or if it is adherent, liga-ıre or excision is recommended.[10] In cases of sub-utaneous lung hernia where the diagnosis is clear nd the symptoms aggravated, the surgeon might be ıstified in cutting down to the parts, reducing the ernia or excising it as the conditions seemed to ɜquire.

Rupture of the diaphragm, in a patient whose con-ition is favorable, may be repaired by abdominal ıcision and restorative procedure. The operation ɜquires skill and rapidity, and is of so difficult a ature as to demand the most careful attention of the est operators.

The heart may suffer from contusion, just as the ther viscera. Carditis, endocarditis and pericarditis ıay be caused by contusion. These affections will e recognized by their characteristic signs and symp-ɔms.

Treatment of these cases must include both consti-ıtional and local measures. Absolute rest in the ɔcumbent position is imperative. Opium may be sed to allay pain, and for its sedative effect on the irculation. Collapse calls for artificial warmth and,) a certain extent, is a favorable condition, since it ɔnds to check hemorrhage and inflammation. Vio-ɔnt reaction, following in some cases, necessitates the dministration of cardiac sedatives. When inflam-ıation of the myocardium, pericardium or endocar-ium results, the treatment is the same as for like ffections from idiopathic causes.

Rupture of the heart.—The belief is firmly estab-shed in the popular mind that the heart is the most ital structure of the whole organism, and that the ɔast interference with its function by external forces ıeans immediate death. Records of wounds of the eart are not numerous, but out of twenty-nine col-ɔcted cases of injury to this organ, only two were ıtal within forty-eight hours.[11] This contradicts the opular view on the subject. The heart has suffered ɔvere injury and such recovery been made as to ena-le the patient to live for years afterward.[12] Since ıis is true of incised wounds, it is true also of rup-ıres. In this connection the case below, reported by rof. L. Hektoen,[13] is of rare interest:

The patient was a young baggage master with good family istory, good habits and extraordinarily good health previous February, 1891. At that time, while carrying a heavy trunk, ı a rapidly moving train, he was thrown on his back by the ain striking a curve. As he fell he exerted his entire strength save himself. He felt a stabbing pain near the heart and ɜard a snapping sound. Three or four days later, a rumbling ɔund from the heart, occurring synchronously with its beats, ɜcame sufficiently distinct to be heard across a room of ordi-ıry size. Peripheral pulsation was well marked. Later the ɔund disappeared, but there was shortness of breath, pain in the ıest and palpitation of the heart, increasing to the time of his ɜath, with additional symptoms of ascites and anasarca two eeks before death, which occurred somewhat suddenly in arch, 1892. Physical examination Jan. 31, 1892, gave labored spiration, quick pulse, diffuse and lifting pulse in epigastrium ıd sixth or seventh space in left anterior axillary line, also in ɜck and crural regions. Area of cardiac dulness was increased. ough diastolic murmur over base of heart, and diffuse sys-lic murmur at apex. A distinct murmur was heard over ırotid, subclavian, brachial and femoral vessels.

Diagnosis.—History, symptoms and physical findings gave diagnosis of rupture of healthy valve, probably one of the aortic, causing an insufficiency which became permanent and led to hypertrophy and dilatation of left ventricle.

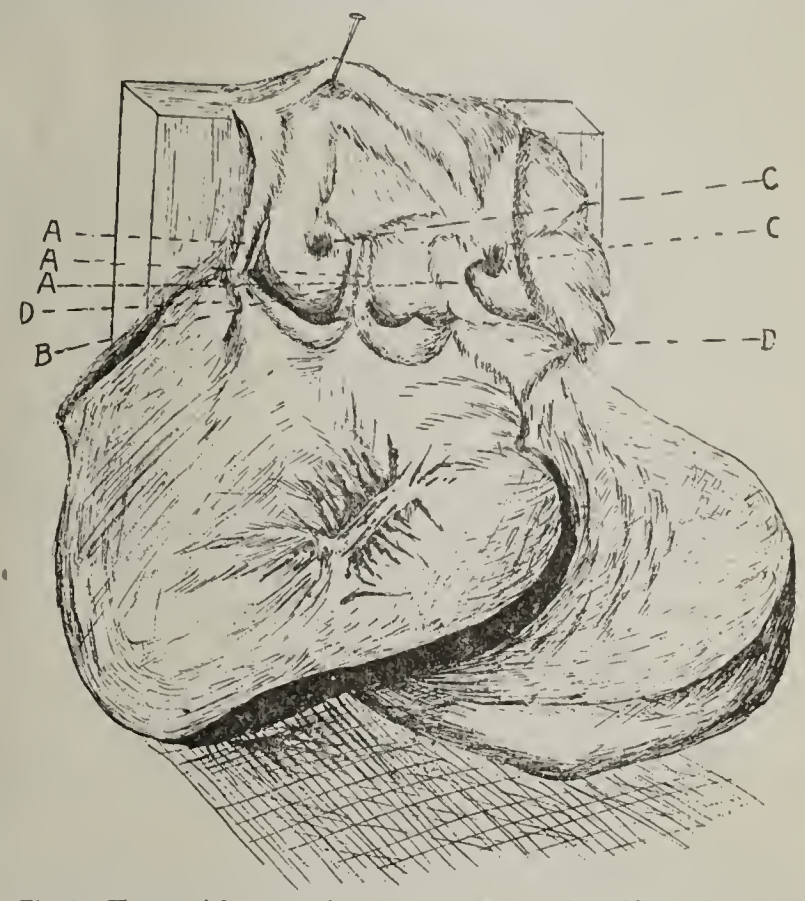


Fig. 1.—Heart with extensive ruptures at aortic orifice. (From Dr. Hektoen's article, by permission.) A, ridges of cicatricial tissue; B, cicatrix, from tearing of right posterior segment along attached margin: C, orifices of coronary vessels; D, anterior segment, cut across.

Postmortem.—Heart, weight 20 ozs.; apex formed by both ventricles, coronary veins on both surfaces distended; both sides of heart filled with fluid blood; left ventricle increased in depth and in thickness of its walls, right ventricle increased in depth, but diminished in thickness of its wall; papillary muscles compressed; semilunar valves incompetent to water test; orifices of aortic, mitral and tricuspid valves increased in size; valve leaflets uniformly thickened but showing no degeneration in structure; orifices of coronary arteries 1 cm. above free margins of aortic valves, instead of immediately behind; the left third of the convex attached margin of the right posterior segment of the aortic valve was torn loose from the vessel wall, its site of attachment showing a dense linear cicatrix, while the segment itself hung free (Fig. 1). Three



Fig. 2.—Saccular aneurysmal dilatations in upper margin of right auricular appendix. (From Dr. Hektoen's article, by permission.)

ridges, as of cicatricial tissue, were upon the wall of the aorta, at points of usual joint attachment of valves to aortic wall. These ridges varied in length from one-half in. (1.5 cm.) to one-third in. (1 cm.), and showed characteristics of recent scar tissue. The valves were reattached lower down. Two small aneurysmal dilatations of the right auricular appendix showed walls composed only of epicardium and endocardium (Fig. 2).

Am. Text-book of Surgery.
Turner: British Medical Journal, Nov. 14, 1896.
Muhlig: Medical Times and Gazette, Aug. 3, 1861.
The North American Practitioner, April, 1892.

Conclusions:—The principal lesion was at the aortic orifice, insufficiency here causing, secondarily, hypertrophy of the whole heart. This insufficiency at once occurred, when the right posterior segment of the aortic valve was torn, and continued, in consequence of the failure of this leaflet to reunite.

The muscular strain attendant upon the accident caused also the tearing loose of the three points of joint valvular attachments, leaving scar tissue on the wall, while the valves united again at a lower site (Fig. 1). This lower attachment accounts for the peculiar situation of the coronary arteries. The aneurysms of the right auricular appendix would result from the increased intra-auricular pressure.

(To be continued.)

"DEFICIENT EXCRETION FROM KIDNEYS NOT ORGANICALLY DISEASED AND SOME OF THE DISEASES PECULIAR TO WOMEN," AND DISEASES OF THE SKIN.

Read before the Medical Society of the Sate of New York, January 7, 1897.

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One year ago Dr. James H. Etheridge of Chicago, by invitation, made an address before this Society, the title of which was the first portion of that above given.[1] As there was no discussion except some remarks by the present writer it seemed best to present the matter again, with the author's full consent, in hopes that the important subject might receive further consideration from the members present, and that it might thus become doubly impressed on those likely to meet the cases referred to.

While the present writer disclaims all special knowledge in regard to diseases peculiar to women, he feels particularly interested in the subject which Dr. Etheridge so ably presented, for several reasons. Incidentally he has met many female patients, coming under treatment for various diseases of the skin, who were known to have also various uterine disorders of distressing character. Many of these patients had previously undergone prolonged and varied gynecologic treatment, often with unsatisfactory results. These uterine disorders he has seen improved and often quite recovered from, under lines of treatment directed for their skin difficulty, which quite coincided with those laid down by Dr. Etheridge, and without gynecologic treatment. He therefore begs to present the subject again, as briefly and clearly as possible, urging the profession to recognize the principles and employ the methods laid down by the distinguished author of the paper alluded to.

Dr. Etheridge has kindly given permission to use in the freest manner possible the material presented by him, which will be done as far as necessary to make the matter clear and forceful.

"Toxic materials always reside within the human body. They constitute the waste products of living beings. From birth to death they battle for supremacy. So long as they are plentifully excreted, death is postponed. The skin, the pulmonary mucous membrane, the bowel and the kidney constitute the avenues of escape for all toxic materials from our bodies. If one of these emunctories be crippled the initiation of death is manifest. . . . The physician who busies himself with solving the problem of the initial departure from the proper performance of excretion enters a new field of labor. It is the most interesting one he can invade today. . . Herein he deals with the beginning of disease." Such are the strong words with which Dr. Etheridge introduces his interesting and important study.

Prominent among the systemic derangements which tend to the impurification of the blood current, and the retention in the system of the waste products of animal life, undoubtedly stand imperfect kidney excretion; the elements composing the urine are known to be poisonous both to the idvidual forming them, and also to animals, when artificially introduced. Extirpation of both kidneys is very quickly followed by death; the gradual retention of these normally excreted poisons, by means of imperfect elimination from the kidneys, leads, as manyhave shown, to various forms of disorder and disease in many organs of the body.

Dr. Etheridge has rendered an inestimable service to the profession, and to suffering females, in earnestly calling attention to the fact, which I can confirm most positively, that this insufficient kidney secretion plays a very important part in the production and continuance of many of the diseases peculiar to women. The study of the initiative cause of these diseases merits the most serious consideration of the profession.

How far the errors observed in the excretion from the kidneys pertains to the action of those organs alone, does not belong to our present discussion; nor how far the remedies used have for their action solely their influence on the kidneys. Undoubtedly the liver plays a very important share, as also the digestive organs, in rendering the ultimate process of removal of effete products imperfect. Suffice for the present that we discover in the kidney excretion the evidences of the imperfect removal of the waste and poisonous substances, and by means of the improved excretion from the kidneys we find the proof of their proper removal and consequent good health.

Recognizing that the proportion of the solids in the normal urine bears a certain ratio to a normal body weight, below a certain percentage of which they can not fall without indicating "renal insufficiency," Dr. Etheridge has given a table, prepared by an expert physiologist, which is here reproduced:

TABLE 1. Relation of body weight of healthy human being to total daily excretion of urinary solids:

Weight.	Total urinary solids.
40 pounds.	392 grains.
50 "	479 "
60 "	563 "
70 "	639 "
80 "	716 "
90 "	789 "
100 "	854 "
110 "	916 "
120 "	974 "
130 "	1028 "
140 "	1078 "
150 "	1150 "
160 "	1198 "
170 "	1237 "
180 "	1260 "
190 "	1300 "
200 "	1330 "

As this table was constructed for healthy human beings, and takes into account exercise, Dr. Etheridge does not think that practically quite these amounts can be expected in women who come for treatment. It is to be remembered also that women always excrete

[1] Transactions of the Medical Society of the State of New York, 1896.

less than men, pehaps one-tenth less. He would, therefore, from experience fix the limit at 500 grains for a woman weighing 90 pounds, and 1,100 grains for one weighing 180 pounds; from which data a scale can easily be constructed, as follows, for practical daily work:

TABLE 2.—Relation of body weight of women of average health to total daily excretion of urinary solids:

Weight.	Total urinary solids.
90 pounds	500 grains.
95 "	535 "
100 "	570 "
105 "	605 "
110 "	640 "
115 "	675 "
120 "	710 "
125 "	745 "
130 "	780 "
135 "	815 "
140 "	850 "
145 "	885 "
150 "	920 "
155 "	955 "
160 "	990 "
165 "	1025 "
170 "	1060 "
180 "	1100 "

This table is at the rate of about thirty-five grains additional for each five pounds of body weight, or seven grains to the pound, which is near enough for ordinary daily work. For greater accuracy there should be still some deduction for age; thus, between 40 and 50 years, deduct 10 per cent., between 50 and 60 deduct 20 per cent., and between 60 and 70 deduct 30 per cent. from the amounts above given.

It is not a very difficult matter to carry out the plan of learning the total daily excretion of solids, if it be rightly arranged; it is especially easy in regard to women, as they are more apt to be at home and willing to attend to such matters. I have long had it done, daily in many instances, and in others at stated intervals. An ordinary two-quart mineral-water bottle is used, with a strip of paper pasted on the side for the scale. This is graduated by filling the bottle from a two-ounce measure and marking off each two ounces; the intervening ounce can be divided by the eye. Many druggists keep large bottles graduated for this purpose. A glass funnel is placed in the mouth of the bottle, by means of which all the urine can be poured into it as passed. The index is read off, the amount recorded and the bottle emptied at a fixed hour every day and a sample of the whole is sent to the office, with the statement of the total amount passed. From the specific gravity of the sample the total amount of solids passed in the day is easily estimated by Haines' modification of Haeser's method, as given by Dr. Etheridge; which is as follows: *Multiply the last two figures of the specific gravity of the urine by the number of ounces voided in twenty-four hours and add 10 per cent. to the product.* Thus, if the amount passed in twenty-four hours was 36 ounces and the specific gravity 1021, it would be $36 \times 21 = 756 + 10$ per cent. $= 831$, the number of grains of solids in the whole amount. Compared with the table it can be readily estimated if this is above or below the normal amount of the body weight of the patient.

It will be noticed that this estimate is for the total solids of the urine and not for the urea alone; the tests for the latter are slow and laborious and while often extremely valuable are really not necessary here; for, under normal conditions the urea represents nearly one-half of the solid constituents of the urine, and so would be expected to vary with the total solids. It is to be remembered that our study is in regard to kidneys not organically diseased, and at present no reference is made to albumin in the urine or to sugar.

But, further, the toxicity of the urine does not depend upon the urea alone. Etheridge states that "the coloring matter and other organic substances removed by charcoal filtration contribute at least one-half of the toxic power of the urine," and he attributes a considerable portion to the urinary salts of potassa.

It will be noticed, however, that very little has been said in regard to the actual quantity of the urine passed, representing the amount of water in it or the solubility of its constituents, a point hardly alluded to by the writer of the previous paper. The urinary water may vary so greatly from day to day, according to the amount of fluid drank and the activity of the secretion of the skin and respiratory organs, that it is in some ways of less importance than the actual solids of the urine, which represent the removal of the waste products of metabolism from the body. But, on the other hand, it is often immensely important and should always be known and appreciated. For even if the total amount of solids voided may be up to normal, there is still insufficiency of kidney action and consequent ill health if the proportion of water be not also about normal. A smaller amount of water, with higher specific gravity, and consequently containing a normal daily amount of urinary solids. does not conduce to the good health which a normal amount of urine with a lower gravity would indicate. Clinically this matter is often of the very greatest importance, and I could illustrate it by dozens of cases, did time and space permit.

Dr. Etheridge gives some very interesting cases illustrating the ill effects of renal inadequacy and their relief upon the employment of appropriate diuretic treatment, which I will very briefly quote before adding my own clinical statements and comments.

Case 1.—Mrs. C., multipara, had general metritis with deep double laceration of the cervix, with an obstinate bronchitis and profuse secretion; the severity of the cough increased the pelvic suffering and vesical irritability, also the profuse leucorrhea. Each winter she had been an invalid, submitting to very much gynecologic treatment, and had sought relief in warmer climates, where she was better, as also in summer; but with advent of cold weather the bronchitis returned, aggravating all her other troubles. Finally it was found that she was passing only 298 grains of urinary solids, when 850 grains was her normal amount. Under stimulating diuretics, tonics and a laxative, the urinary solids were increased, in thirty days, to 950 grains, the cough had disappeared, though in midwinter, and she was shortly in better condition than for many years.

Case 2.—Miss G., aged 23, had menstruated only five times in the previous year; she had backaches and headaches, circumpelvic pains, increased by exercise, an albuminous leucorrhea and great nervousness. The ascending colon was loaded with feces. She should have voided 850 grains of urinary solids daily, but was passing only 485. Under treatment of laxatives and diuretics the urinary solids were increased to over 1300 grains for a number of days, and regular menstruation returned. When, from neglect, there was again insufficiency of the solids in the urine, the amenorrhea returned, and a recurrence to diuretics again made her monthly sickness appear regularly.

Case 3.—Mrs. B., aged 36, the mother of three children and the victim of many abortions, complained of pelvic weight, general rachialgia, tender spine, pleurodynia in left chest, excessive nervousness and moderate metrorrhagia; she had a moderate metritis. She weighed 154 pounds and should have passed 900 grains of urinary solids daily, but was voiding only 480 grains. Her urinary solids were kept above 1000 grains daily for many weeks, and with local treatment and tonics she was cured in four months.

My own experience in regard to the value of diuretic treatment in many disorders peculiar to women dates back a good many years, and has come to me slowly though very convincingly. But I have always hesitated about reporting on the subject, because of my want of acquaintance with the actual condition of the pelvic organs, except from a report made by those who had previously seen the case or cases, aided by statements of the patient. But as I have gone on year after year, seeing and knowing of the vast improvement which occurred in my patients in regard to symptoms pointing to the pelvic organs of which they had complained, I have become more and more confident as to prospective results, when patients complained of uterine or other pelvic derangements.

When, therefore, Dr. Etheridge spoke with such positiveness, I was pleased indeed to find my own experience verified by so distinguished an authority, and I felt justified in adding my testimony to the same facts, observed from quite a different portion of the medical field; for it need hardly be added that my cases came to me for various diseases of the skin, and not for uterine or female troubles.

The first case, which impressed me perhaps most forcibly of all, occurred at least fifteen years ago; the name of the patient has gone from me so that I can not look up the notes of the case, but the details are yet very vivid to my mind, for many reasons.

My patient was a girl of about 23, with one of the worst cases of indurated acne that I had seen, the cheeks and chin being dreadfully disfigured. She gave the history of very great uterine trouble, for which she had received an infinity of treatment for a number of years. She had profuse menorrhagia with very great pain. Her condition had become so bad that an elevator had been put in her house for her use, as she never could go up stairs. She drove to my office and, as it was on the second floor of a basement house, I saw her the first few times in the reception room on the ground floor.

For her acne I gave her first alkaline diuretics and laxatives, tonics, etc., with a regulated diet, and she responded well to treatment. I remember well my surprise when one day she walked up stairs to my office. I shortly persuaded her to take a little exercise, walking a block and gradually more, and, to be brief, by the time the treatment for the acne was completed she walked a mile to my house and had abandoned her elevator at home. She had had no gynecologic treatment in the meantime, and I do not think that I knew what condition existed in the pelvic organs. Simply in treating the condition I found on the face the general results followed, and this treatment was very decidedly in the line of a relief to insufficient kidney and bowel action.

It is hardly necessary to occupy time in relating individual cases, and inded it is difficult to make selections from the notes of several dozen cases now before me, there are so many which exhibit gains in the directions mentioned to a striking degree. It is really now of daily occurrence for me to see those who have suffered from many of the diseased conditions peculiar to women, become freed from them under treatment directed largely along the lines advocated by Dr. Etheridge, and given mainly on account of skin diseases for which they sought relief. And I may say that almost without exception such cases have exhibited insufficient kidney action, many of them, of course, being also complicated with constipation and primary or secondary indigestion.

In this way I have seen many patients with amenorrhea in varying degrees, in whom the menses have been thus established in a regular manner; but as in Dr. Etheridge's case, their trouble will often return when the treatment has been neglected for some time and from one cause or another the insufficient action of the kidneys returns. We all know of many instances where the menstrual flow has been suddenly checked by chilling of the feet, and it is just the same accident which so often deranges kidney action. Irregularities of the menses, as to the interval and their duration, have also constantly been observed by me to disappear as the eliminative treatment necessary for the skin disease has gotten under full action. Excessive flowing has also been met with from time to time which has been regulated by the same line of treatment.

But it is in dysmenorrhea that the largest number of most interesting cases are found, and of these I could give many very striking examples. It is not at all uncommon for me to learn from a patient that since she had been under treatment the monthly flow had become more regular and natural than for years previously. Many who have suffered so severely that even opiates were required with each monthly sickness in order to make life endurable, have, when under full treatment, absolutely lost all pain and become even unconscious as to when the menstrual epoch begins. And it has occasionally happened that a mother has brought a second daughter to me, not at all for the treatment of any skin disease, but solely for the relief of menstrual difficulties, because another daughter had found such benefit while under treatment for the skin.

My experience in a very considerable number of cases has also led me to the belief that many of the ills and discomforts complained of at the period of the menopause, and usually more or less accredited to this condition, as though dependent upon it, are in reality due to faulty elimination, principally by the kidneys. I could cite many many instances where attention to this element has resulted in the disappearance of the unpleasant symptoms in very brief time while a neglect of the same would be followed by their recurrence, only to again disappear under exact proper treatment.

I am quite aware that some of the statements I have made may seem exaggerated, and I may seem unwarranted in speaking thus positively in regard to matters outside of my chosen specialty. I can only assure you that I am speaking of what I have observed and know; for surely even the gynecologist can not know of the sufferings of patients except from their own statements; and I can verify the facts by many physicians who have seen cases with me. I may also say that in the local societies and to friends I have mentioned these ideas, and others have seen like good results in patients where this plan of treatment has been put in thorough practice.

It will be understood that in the cases referred to there has been no local or gynecologic treatment employed at the time, as I never in any way attempt such; nor have I generally known what, if any, local disorder or displacement existed, as I never make examinations in such cases, but send patients to gynecologists when special treatment is required.

I do not, however, wish to be misunderstood in regard to the matters of which I have spoken. I by no means claim that care in regard to deficient urinary secretion

will cure all the ills which woman is heir to. I most fully appreciate the need of the gynecologist, and recognize in the highest degree the splendid work which has been accomplished by them in the relief of suffering women. But from experience I know that many cases of uterine disorders can be relieved and indeed cured by full and adequate general medical treatment, including attention to and rectification of a faulty urinary secretion, which had too often been previously neglected. I can not do better than to close with a quotation of the final part of Dr. Etheridge's excellent paper.

"No intimation is here given that this is the most important factor in diseases of women. To set up such a claim would be most absurd. The aim of this article is solely to call attention to one line of treatment that has been all but universally neglected heretofore, and to invite observation and original investigations.

"There is the gravest reason for thinking that a very close relation, even that of cause and effect, exists between renal insufficiency and pelvic disorders. The developmental phase of the renal and generative organs constitutes that reason. Embryologically these two sets of important organs arise from the same source. The mesoblast in the ovum gives rise to the muscles, bones, circulatory and lymphatic systems, the urinary and generative organs. From this fact it becomes an easy matter to infer that derangements in one set of these organs can produce, in a reflex way, if you please, or at least are very frequently associated with, derangements of the other.

"Since observation shows the numerous cases of coexistence between renal insufficiency and neuralgias, mucous membrane disorders and serous membrane inflammations, one can not question the possibility of this insufficiency producing or permitting amenorrheas, dysmenorrheas, leucorrheas and attacks of pelvic peritonitis. It is strongly emphasized that the position is not assumed that all cases of these disorders are produced by renal insufficiency, but from the fact that many of them are relieved by including in the treatment remedies that increase the urinary solids, the conclusion can not be resisted that cause and effect actually exist between many of them and the deficiency of urinary ingredients."

4 East 37th Street.

IMPLANTATION OF A GLASS BALL FOR THE SUPPORT OF AN ARTIFICIAL EYE AND MULES' OPERATION FOR THE SUBSTITUTION OF ENUCLEATION OF AN EYEBALL.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY L. WEBSTER FOX, A.M., M.D.
PHILADELPHIA, PA.

The satisfactory results attending evisceration for the better support of an artificial eye have led me to implant a glass or silver ball in those cases where the eyeball had been enucleated at an earlier period.

After an enucleation, and the artificial eye is adjusted, we have the objectionable enophthalmus and fixed eyeball stare. Owing to the sinking of the artificial eye the secretions are retained in the cul-de-sac and in a short time we have the muco-purulent discharge, which adhere to the margin of the lids and also crust the anterior portion of the artificial eye, rendering the wearing of it most objectionable.

It was to overcome these objections that Mr. Adams Frost of London, in 1886, practiced the insertion of a glass ball immediately after enucleation of an eyeball. His method was as follows: After incising the conjunctiva all around the cornea, each rectus muscle was raised on a hook, seized with forceps, severed from its attachments and secured by a ligature; the eyeball was then removed and the glass ball introduced. The tendons were next united across the ball by means of the sutures previously passed through them, and finally the conjunctiva was brought together. Out of seven cases, Mr. Frost could only claim one successful operation.

Mr. Lang of Moorfields improved on Frost's method by placing the artificial globe in Tenon's capsule, which was sewed up and the conjunctiva then sewed over this. I have followed this method where the eyeball was atrophied and in several cases of simple enucleation, very successfully.

It is where the eyeball has been removed and when shrinking of the tissues has taken place that the implanted globe proves its value.

My first three operations were performed in 1895, and during the year 1896 I performed fourteen operations. In five of these cases the stitches broke and the glass ball came out. After two months I performed the second operation in the same socket. In two of these cases I operated the third time before the glass ball remained. I have found that it is useless to try restitching where the thread has cut its way out. If the wound does not heal by first intention the glass ball will be expelled by tissue contraction in spite of all protective measures.

My method is as follows: An incision is made through the conjunctiva and tissues of the orbit in the horizontal direction, corresponding scant to the diameter of the glass ball to be inserted; for instance, if the glass ball is one centimeter in diameter, the cut would be two millimeters less. The upper lip of the conjunctiva is raised, and with a sharp-pointed, curved scissors the conjunctiva and such connective tissue which lies close to it is dissected off in all directions around the incision, making a pouch into which the glass ball will fit. On account of the vascularity of the parts considerable bleeding follows this dissection, but it is easily controlled by pressure. After the bleeding stops the glass ball is inserted into the cul-de-sac with the injector. The edges of the conjunctiva are brought together by five or six stitches. Experience has taught me that it is well to keep the pressure bandage over the orbit from forty-eight to seventy-two hours. With the aseptic measures adopted in carrying out the details of the operation there will be little or no reaction. In the very few cases (two) where there was more or less pain, a few hypodermics of morphia controlled this. As regards the permanent stability of the implanted ball, time alone will tell, but of the fourteen operations performed in 1896, two balls came out ten months after the operation. There was a gradual thinning of the tissues over the globe, which was probably caused by posterior contraction of the orbital tissues, or possibly the artificial eye pressed so pronouncedly against the ball as to impede circulation, causing considerable attenuation and eventually rupturing of the conjunctiva, allowing the glass ball to escape.

MULES' OPERATION (EVISCERATION).

During the year 1896 I performed twenty-eight operations at the Medico-Chirurgical Hospital.

In regard to this operatiou I do not know that I can add any original point or suggestion to what I have already stated elsewhere. As time goes on and my experience becomes greater the more firmly am I convinced that ophthalmic surgery has been much benefited by adding this operation to its list, and like Brudenell Carter, I may say that "I am performing it with increasing pleasure on every available occasion."

Dr. Mules has given us the following table, which shows the advantage of this operation over that of enucleation:

ENUCLEATION	VERSUS	MULES' OPERATION.
1. Complete removal of globe and its contents.		1. Retention of the framework of the eye.
2. No stump, therefore sunken eye.		2. A firm, round globe forming perfect support for artificial eye.
3. Disturbance of all muscular relations and arrest of movement.		3. Perfect harmony of muscular movement retained.
4. A fixed staring eye attracting attention.		4. Fitted with selected eye defies detection.
5. Patient shuns society.		5. No qualms as to personal appearance.
6. Arrested development of orbit in case of children.		6. No interference with growth of orbit.

Mr. T. Herbert Bickerton of Liverpool, who has had the largest experience in evisceration to enucleation. In a recent letter from England, always prefers Mr. Bickerton he states that he is substituting silver balls for glass ones. Since January of this year I have also substituted silver balls, not for the reason that any change is made in the technique of the operation, but simply that no possible danger could arise of the breaking of the silver ball, which might remotely happen to a glass ball.

I repeat my method of performing this operation: The eye is thoroughly irrigated with a lotion, which I call formula No. 1[1] to designate it from almost the same formula for sterilizing instruments.

The eyelids are separated with the ophthalmostat. The conjunctiva is dissected off from its corneo-scleral attachment back to about the equator of the eyeball, the muscles also separated; then the cornea is excised. This is best done with a large Beer knife, as if performing a flap operation for cataract, the lower half of the cornea is removed with curved scissors, and the contents of the globe are taken out with a small scoop devised for the purpose.

Great care is necessary to remove the ciliary bodies and choroid and the head of the optic nerve, leaving a clean white sclera. Mr. Carter has devised a rubber bulb which is inserted into the scleral cavity and inflated with air to produce pressure on the central artery to prevent hemorrhage. As this application has not been a success with me, I pack the scleral cavity with sterilized gauze. After waiting a few minutes this is removed, and the contents of the scleral cavity are again thoroughly irrigated with antiseptic fluid and again packed. A sterilized glass globe, which is best suited to the case, is then inserted with a specially devised instrument. The sclera is split vertically so that the edges may be drawn together and held by stitches of No. 4 black silk, using large needles, completely hiding the glass ball. The orbit is again thoroughly irrigated with the hot solution and the socket packed with sterilized gauze. This dressing is kept wet day and night for twenty-four hours, when the eye is bathed with hot water and fresh dressings applied and continually saturated with the lotion, over which is bound a sterilized bandage.

At the end of twenty-four hours the upper eyelid is somewhat swollen, puffy and edematous, but the tumefaction gradually disappears. As a rule, the conjunctival sutures are not removed under six or ten days. It is important that both eyes are kept bandaged for at least six days. By allowing the liberty of one too much rotation of the eye is permitted and, as a consequence, the antagonistic muscles of the operated eye pull apart and there is greater pressure brought against the sutures, which are liable to be torn out, a probable cause in several of my cases.

From the large number of operations now under observation, and no unfavorable ones reported, it may be considered a very safe one, and if we have in evisceration a method equally as safe as in enucleation why not give the patient the advantage of the new method.

Résumé.—The total number of operations performed up to the present writing numbers eighty-two and so far as I have been able to keep trace of them no serious results have followed any, such as sympathetic irritation or meningitis. In two cases the glass ball came out after two months. I have eight cases which did not heal by first intention and the ball came out before the patients left the hospital. I must attribute these failures to too rapid absorption of the catgut, or the glass balls being too large and the swelling of the tissues causing the silk to cut through the sclerotic and conjunctiva.

1304 Walnut Street.

[1] IRRIGATING FLUID.

Hydrarg. bichlor.	grains 1 50.
Zinci sulphocarbolatis	grains 30.
Aq. menth. pip.	drachms 2.
Aq. camph.	
Aq. destil.	āā ounces 2.

M. ft. sol.

The same lotion without the hydrargyrum is used for sterilizing instruments.

AN EXPERIMENT ON A RABBIT'S EYE, TO OBTAIN AN ELASTIC, UNBREAKABLE "ARTIFICIAL VITREOUS BODY" AFTER EVISCERATION.

(MULES' OPERATION.)

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY ALBERT PICK, M.D.

BROCKTON, MASS.

Dr. J. Herbert Claiborne of New York City presented a paper on this subject at the Forty-seventh Annual Meeting of the ASSOCIATION, at Atlanta, Ga., at which he described his experiments and drew conclusions on the subject. After reading his excellent paper (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 21, 1896, p. 1091) I was stimulated to try an experiment in this direction.

It is conceded by ophthalmologists that enucleation does not leave a sufficiently prominent and movable stump in the socket to afford the accurate and comfortable fitting of glass eyes. The objection to the introduction into the eviscerated scleral cavity of Mr. Mules' glass balls are that they subject the ciliary nerves to a constant pressure between two hard and unyielding surfaces, that glass balls are subject to fracture and that they are difficult of introduction.

Dr. Claiborne in his conclusions says: "The implantation into the scleral cavity of some soft yielding body which will not degenerate, which can be rendered aseptic, which will not swell by imbibition and which will not become absorbed, seems to be a rational procedure." Following out his line of thought, it occurred to me that a soft rubber ball, rendered aseptic, would possess these requirements. I had, therefore, made for me, soft rubber balls of various sizes.

Experiment.—On April 10, under anesthesia and perfect aseptic precautions, I eviscerated the eye of a rabbit. After cutting away all the cornea and separating the conjunctiva from the sclera around its corneal edges, I made two small vertical cuts in the sclera, one up and one down. The last procedure had for its object to permit the easy introduction of the rubber ball, without the aid of any special instrument. The introduction of the small rubber ball was easily accomplished, after which the incisions in the sclera were closed by fine catgut sutures and the wound edges of the conjunctiva closed by fine silk sutures.

The animal and the wound seemed to do well, but unfortunately the rabbit, which I had out for an airing on the fourth day, was accidentally killed. On postmortem examination the wounds seemed to have well progressed in the process of healing by first intention and the small rubber ball was in its proper place. I had intended to save the animal until shortly before this ASSOCIATION meeting and then examine the condition of the rubber ball and eye socket. I suppose an objection will be raised as regards the stability of the rubber within the eye-socket, it being constantly acted upon by the secretions. This is exactly the point which I had intended to investigate had the animal not been killed. I therefore tried to imitate the natural process and I placed the small rubber ball in a weak saline solution (not sterilized) in which I have left it for about two months, supposing that a saline solution would most closely resemble the natural secretions within the eviscerated scleral cavity. The rubber ball has undergone no change. I have seen soft and hard rubber appliances (rings, pessaries, etc.) left in the vagina for years which were very little, if at all, affected in their structure. [Rubber balls were exhibited at the Meeting.]

Although this may not be the ideal "artificial vitreous body" or, rather, artificial intra-ocular body, I trust it will be another stepping-stone toward finding such a one, which will remove all objections by ophthalmologists to Mr. Mules' glass balls and operation and will make more general and safer, in suitable cases, the operation of evisceration, which certainly yields a better stump and greater satisfaction to the oculist and patient.

The balls were made for me by Geo. Tiemann & Co. of New York City, whom I must thank for their assistance and generous expenditure of time and money for the molds to make the balls. They also made some hard rubber balls which might be preferred to glass balls for those who would rather use them. Dr. Wm. H. McKibben of Cincinnati kindly assisted me in the operation.

DISCUSSION.

Dr. FRANK ALLPORT of Chicago—I had the pleasure of witnessing Dr. Fox make some of these operations last fall, and I thought them as near perfection as possible. I have not made any of the implantation operations of which he speaks, but as I have seen some of the results which have proceeded from his clinics, I can testify to their value. The insertion of a Mules' globe within the scleral sac as a substitute for eyeball enucleation is a procedure against which I have always been prejudiced, and it was not until I had the pleasure of seeing Dr. Buller of Montreal, and Dr. Fox of Philadelphia, perform the operation, together with the observation of the results of past operations, that I surrendered my prejudices and consented to offer this method of relief to my patients. I have operated on a number of these cases since last fall, and although my cases have uniformly yielded favorable results, the time is as yet too short to estimate their permanency; but I for one am willing to accept the testimony of well-known surgeons who have kept cases under observation for many years and are still able to endorse this procedure. The operation must, of course, be performed with rigid antiseptic precaution, as otherwise absolute failure will almost inevitably result. Great caution should be observed in the complete removal of all traces of those elements constituting the ciliary region, and as an extra precaution, I usually trim off the edges of the scleral wound in order to remove the little scleral ridge at the scleral corneal junction, underneath which may sometimes be observed traces of the ciliary body. The protruding optic disc should always be carefully smoothed down to a level with the inner surface of the sclera, in order that the glass globe may not prove an irritant to its fibers. The little shovel-shaped scoop that has been devised for the purpose of eviscerating the contents of the globe, while especially adapted for this purpose, is not essential, as any medium-sized scoop will answer the purpose as well. I have used a large sharp-edged mastoid scoop for the purpose with perfect satisfaction.

The same may be said of the instrument devised for picking up the glass globes and inserting them into the scleral cavity. The instrument is useful but not essential, as the globe may be inserted with equal facility and safety by the surgically clean fingers. The hemorrhage which occurs in the course of the operation is sometimes troublesome, but is easily controlled by the use of very hot bichlorid tampons, which are also useful in all operations where troublesome hemorrhage is liable to occur.

I think one reason why some gentlemen complain of a subsequent escape of the glass globe is from the fact that they did not use a sufficient number of sutures. I have heard of some gentlemen saying that they used three or four sutures in closing up the scleral gap. I use as many sutures as the scleral tissue will accommodate, sometimes inserting as many as seven or eight, carefully setting them well back from the edges and, so far as my own experience is concerned, have never been troubled with their pulling out. I have used both black silk and catgut sutures, but prefer the former because I believe them to be more trustworthy. The globe which is inserted should not be too small nor too large. Both extremes have their disadvantages. If the globe is too small it will afford but a scanty support for the artificial shell which is subsequently inserted, thus diminishing the cosmetic effect of the operation. If it is too large it operates unfortunately in the inevitable swelling and inflammation, which can always be depended on in varying degrees. The globe should be just large enough to comfortably rest within the scleral sac and allow a moderate degree of wrinkling and laxity of its tissues over its glass surfaces. When thus, by the use of a globe of proper size, abundant contact between the artificial shell and the sclera is produced, the artificial shell is forced into a natural and prominent position, thus admitting of a harmony of motion between the two bodies. The reaction following the operation is somewhat excessive, but so far as my own experience is concerned, has never been uncontrollable, although in one case I confess I was tempted to remove the globe. I have controlled such reaction by the use of a lotion, recommended by Dr. Fox, consisting principally of arnica, opium and lead water, which I keep on ice and freely use.

I have found it exceedingly difficult to procure artificial eyes which are adaptable to these cases. The eyes which are on the market at present have been manufactured with the old enucleation operation in view and with the idea of filling out a hollow orbital cavity. All that is necessary for a socket upon which a Mules' operation has been performed, is a broad flattish shell, but these are hard to find. But if the Mules' operation attains the position which I believe its surgical importance demands, this difficulty will no doubt be obviated by the manufacturers.

I desire to thank Dr. Fox for his most excellent paper and for the good work he has accomplished in this line of surgery, and to say with him that I believe the operation to be a justifiable one, and if this is true, it should become generally used, as it is incomparably superior to any operation with which we are familiar and, in fact, may be said to be as nearly ideal as

possible. I have had no experience in the use of any globes except those of Dr. Mules, but I believe, in a general way, that the glass globes, although subject to the very remote possibility of breakage, are of the best material that can be used.

Dr. S. D. RISLEY of Philadelphia—Notwithstanding the adverse criticisms which have been urged against this operation by some surgeons whose ability gives great weight to their opinions, I am convinced that it is not only a justifiable and highly interesting operation, but one to be commended in prudently selected cases. It probably should never be allowed, however, to supplant excision of the globe in an extensive group of cases. For example, in suspected malignant disease of the intra-ocular membranes, in suppurative panophthalmitis, and in case of a retained foreign body when there is a probability of its lodgment in the orbit after passing through the eyeball.

Two years ago I reported a case of this kind and now present the mounted specimen, where the foreign body is seen clinging to the posterior pole of the ball near the optic nerve entrance, having penetrated all the coats. In a large number of patients, however, the operation is proper and presents many advantages over enucleation in securing the comfort and satisfaction of the individual. In the first place the deformity is much less than after enucleation. If the glass ball selected is of suitable size, in place of the unsightly empty orbital socket there is very little depression of the lids. It is open to question, however, whether the surgeon should for mere cosmetic results undertake a more difficult and tedious operation followed by a more uncertain convalescence. But the absence of deformity is by no means the most important of the results following the Mules operation. The empty socket, in most patients where the enucleation has been performed, is not only a reservoir for the accumulation of tears and mucus and dust, but forms an excellent nidus for dust and micro-organisms. There is in consequence a persistent mucopurulent discharge, causing the constant necessity for the use of aseptic washes. The artificial eye is also a constant source of annoyance. It must be frequently removed not only for cleansing but to relieve a source of irritation and discomfort. The artificial eye is hemispheric in form, the concavity being backward, the edges of rim resting on the tissues of the orbit. These tissues are more or less saucer-shaped, the concavity being forward so that when the shell is *in situ* an almond shaped cell is formed, at first filled with air, which soon absorbs, leaving a vacuum behind the shell. The atmospheric pressure upon the surface of the glass shell is then sufficient to cause discomfort and edematous swelling of the conjunctiva included within the rim of the concave shell. The truth of this statement is demonstrated by the considerable force often required to lift the artificial eye out of its bed, which is attended by a slight hissing noise as the air rushes behind it. This pressure is the explanation of the thickened and edematous condition of the orbit so frequently seen when the eye has been worn too continuously. Now, after the insertion of the glass ball in the emptied sclera the orbit no longer presents a concave, but a convex surface which is concentric with the concave surface of the artificial eye, so that no vacuum exists if it has been properly fitted. If of suitable size it also moves to and fro, up and down, in excursions which more nearly approximate those of the fellow eye than after enucleations, since the intra-ocular muscles have not been disturbed at their points of insertion to the sclera. In my own cases, even without the artificial eye, the tears and mucus do not accumulate but flow off by their natural channel and there has been no tendency whatever to inflammation of the conjunctiva. The patients have also been able to wear the artificial eye more continuously without harm resulting than after enucleation.

As regards the technique of the operation it has been my habit to make the line of the sutures horizontal instead of vertical, as has been done by some surgeons. The first step of the operation is to detach the conjunctiva about 5 mm. back from the corneoscleral junction. A Beer's knife is then inserted on the horizontal meridian about 5 mm. from the cornea, and the counter puncture made at a corresponding point on the opposite side of the ball, the knife entering behind the iris, the complete incision simply including the root of the iris above. The upper edge of the flap is then grasped with the forceps and a corresponding incision made below with the scissors. Much time and annoyance is then saved by grasping as gently as possible, with broad forceps, the ciliary body and carefully detaching the entire uvea with the flat handle of a scalpel. Then grasp it at its attachment in the region of the optic nerve, when the posterior scleral vessels may be torn away and the entire contents of the ball removed with comparatively little difficulty.

After the bleeding has ceased a glass ball should be chosen, as large as will nicely fill the scleral cavity. If it is too small there will be much overlapping of the scleral wound when the sutures are tied. I prefer for the sclera fine carefully sterilized catgut sutures, which should be placed at least 5 mm. back from the edge of the scleral opening. I regard this deep placing of the scleral sutures as of great importance, of which there should be at least five and a like number of fine, black silk sutures placed in the conjunctiva, closing it over the scleral wound.

In my earlier experiments my patients suffered greatly from extreme edema of the lids and chemosis of the conjunctiva which I think is caused by the extensive interference with the anastomotic circulation. In my later cases a firm compressed bandage has been applied and allowed to remain undisturbed for two days. In the first case thus treated, the edema and chemosis were greatly reduced; in the last case absolutely prevented. I have been struck with the rapid recovery following these operations; in every case it has been possible to introduce the artificial eye, and permit it to be worn with practical impunity at the end of two weeks, and in one case this was done on the tenth day. To secure the best results after this operation an artificial eye with a larger radius of curvature than those usually found in the market is required.

Dr. G. ORAM RING of Philadelphia—There can be no question but that the operation of "evisceration of the eyeball," with the insertion of an artificial vitreous, after the method of Mr. Mules, has taken a permanent place in the list of legitimate and important ophthalmic operative procedures; but, while I wish to be recognized as an enthusiastic advocate of the operation in suitably selected cases, being quite in accord with Mr. Brudenell Carter, whom I quoted in my review of the subject over two years ago, as believing the profession indebted to Mr. Mules for one of the most remarkable and valuable improvements in modern ophthalmic surgery, I still do not believe that the method should by any means be regarded as an universal substitute for the classic enucleation.

Although the introduction of the Mules spheres was suggested about twelve years ago, it has only been during the past two years that American ophthalmologists have accorded to the subject its merited attention. Our text-books, with one or two exceptions, have been silent regarding more than the merest superficial consideration of it, and the JOURNAL reports from the various operators have been far too infrequent. I believe all the surgeons who perform the operation frequently, have an increasing confidence in its utility. We can only arrive at a proper appreciation of the place the operation should hold by a careful, but not necessarily lengthy, publication of each failure, as well as of each success. Perhaps quite as important will be the publication of the detailed histories of those cases in which the operators have carefully considered, in each instance, the respective merits of the Mules operation, as compared with enucleation, with the reasons for the decisions in favor of the enucleations.

It is well known that at the recent meeting of the British Medical Association, in Carlisle, Mr. Bickerton of Liverpool accorded very high praise to the Mules operation. I had an opportunity, during the past summer, of examining a number of Mr. Bickerton's cases, and his beautiful results fully justify his enthusiasm. I therefore can not accord with Dr. Castillo in his recent criticism of this paper, and believe his conclusions, that only leucomatous eyes are adapted to the Mules operation, to be erroneous.

In a recent number of one of the Vienna journals (*Wien. Klin. Woch.*), Pfluger states that in order to prevent sympathetic ophthalmia, enucleation is the only proper operation. In three of my eviscerations, with the insertion of artificial spheres, distinct symptoms of sympathetic irritation were present. One was performed two and a half years ago, a second a year ago and the third six months ago. They all did well, and the irritated eye has in each case remained perfectly quiet. It has been thought by some of the operators (I think Dr. Fox and Dr. de Schweinitz are among the number), that calcareous degeneration of the interior eye tunics constitutes a contra-indication to the Mules operation. I performed the operation in a very pronounced case of the above type, during the winter, with a perfect result.

I will briefly refer to two recent cases, in both of which I decided on enucleation rather than the Mules operation. The one an acute inflammatory glaucoma in a patient 70 years of age, with organic valvular disease; the eye having been quiescent, but blind from a retinal detachment for about one year previous to the development of acute symptoms. The infiltration of the lids and peri-orbital tissue became so intense that fears were entertained for a suppurative inflammation surrounding the eyeball. This condition of affairs, coupled with a marked lowering of the patient's vitality, and the importance of an immediate removal of every possible source of further

systemic depression, decided me in favor of the enucleation. The case occurred in private practice and was seen in consultation with Dr. W. F. Norris, who concurred in my opinion. Post-operative senile dementia followed the operation, the mind becoming entirely clear with returning strength; no local complication followed.

The second case was one of inflamed scleral staphyloma, with beginning sympathetic irritation. I had intended in this instance to do a Mules operation, but upon dissecting the conjunctiva from the globe found such pronounced scleral distension and attenuation that the eyeball, when freed from the conjunctival attachment, immediately protruded so far forward that I was inclined to fear a possible growth in the posterior portion of the orbit. This did not prove to be true. This excessive protrusion with such striking distension and attenuation constituted, in my judgment, sufficient reason for not risking the introduction of an artificial vitreous.

I am still using catgut sutures for stitching the sclera in the Mules operation and silk sutures for the conjunctiva.

Dr. J. L. Thompson of Indianapolis—I wish to speak of some of the conclusions and of the comparison of the two operations. Some of the gentlemen have spoken of the fixed condition of the eyeball and of patients shunning society after enucleation. Have many of you found fixation of the eyeball after enucleation, unless there was atrophy or in burns of the eye? And the question in such cases is whether you would accomplish much more by this operation. I must have seen several hundred cases of enucleation and I have not noticed this staring appearance; I should not expect to see it unless the operation were done with a pair of sheep-shears or by some one who knew nothing about it. I think after you had as many cases of this operation as we have of the older one, you will find a great many cases of failure.

Dr. J. C. Dunlavy of Sioux City, Iowa—The fitting of an artificial eye is one of two objections to this procedure. The implantation of a glass ball places the thin tissue continually between two glass surfaces. It appears to me that the tissue can only last a certain length of time and sooner or later will be destroyed. The staring eyes referred to after enucleation is to me one of the greatest horrors. In late years I never enucleate an eye unless absolutely compelled to, to save a fellow eye; if I can not do anything else I do the ordinary evisceration and find the small stump left is preferable to removal of the entire globe. I have never seen any reason for this staring except that the artificial eye does not fit. Rubber balls instead of glass ones appears to me to be impracticable, for I should consider that they in time would be destroyed.

Dr. S. C. Ayres of Cincinnati—I would like to mention an unique experience in the use of these balls. I was in London and bought a few of them when they first came out. A short time after, Dr. Sattler had occasion to use one of them. The operation was done properly, but two or three days later irritation set up and the stitches had to be taken out and the ball removed. We found a little pus in the glass ball; it had been a defective one with a little opening in it and had excited the trouble. It only serves to show what the possibility might be in the use of a glass ball, and I should think a silver ball might be better.

Dr. A. E. Prince of Springfield, Ill.—I have been using the glass balls for about twelve years and have not had very great success with them. In one case out of a series of six there was a splendid result; the other five failed. Now the silver ball has been spoken of and there is a point in general surgery that must be universally known, and that is that silver when in contact with granulating tissue becomes coated with lactate of silver, which is demonstrated to be a good antiseptic. Now if we use the silver ball and lactate of silver is formed, we have generated an antiseptic that may prevent failure in such cases as Dr. Ayres suggests, whereas in case of the glass ball the result would be disastrous.

Dr. George Friebis of Philadelphia—I have had but little experience with the Mules operation. I had more with enucleation, but the Mules operation in all suitable cases will undoubtedly give far better results so far as cosmetic effects are concerned, and as has been emphasized, that is one of the principal points to be considered. The cases must be properly selected, but in many cases the Mules operation is one of superiority over enucleation because the motility of the eyeball is almost equal to that of the sound eye. I have seen several cases of enucleated eyeballs that presented the staring appearance undoubtedly. One that I performed some time ago, and I think I performed the operation with a fair degree of skill, presented considerable reduction or retraction of the ball, and that in itself is a cause in many instances of that staring condition that I detect after enucleation and which is absent after the Mules operation.

Dr. L. W. Fox of Philadelphia—I wish to call more attention to the implantation of the glass ball than to the Mules operation, which will take care of itself. The gentlemen who saw the operation of implantation yesterday saw that it would have been impossible to adjust an artificial eye, and it is in such cases that implantation is of the greatest value. It produces a bulging out of the stump upon which an artificial eye can operate. My first three cases were cases of a similar character, performed in 1895, and they have since been wearing artificial eyes with good adjustment and good movement. It is not as good as in the Mules operation, but better than complete enucleation. The case on which I operated yesterday was shown to six or eight of the gentlemen today, and the reaction was very slight; I am sure they were all surprised. Had not the gentlemen been there today I should have kept the bandage on for two or three days, as I find that a great improvement; I called attention to that point in my last paper. As regards the glass ball carrying infected or septic material into the eye, all the glass balls I have been using were sterilized in boiling water and if they are defective the water finds entrance into them and I throw them away.

Dr. Albert Pick of Hyannis, Mass.—In answer to Dr. Dunlavy's objections I would say that I simply tried this experiment for the sake of finding an elastic, unbreakable, aseptic substitute for Mules' glass ball, and that the rubber, hard or soft, will not degenerate as easily as the Doctor thinks.

BACTERIA IN THE NORMAL CONJUNCTIVA AND THE EFFECT UPON THEM OF ASEPTIC AND ANTISEPTIC IRRIGATIONS.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY ROBERT L. RANDOLPH, M.D.

BALTIMORE, MD.

The works of Leber, Sattler, Gifford and others on the bacteria of the conjunctiva are practically in accord in the opinion that the conjunctiva always contains bacteria. I recently made a series of experiments upon 100 individuals. These 100 persons comprised patients (not eye patients) in the dispensary, nurses, medical students and others. The inoculations were on nutrient agar, and usually smear cultures were made. A platinum loop was sterilized by passing it through a flame, and it was rubbed over the lower part of the conjunctival sac. The patient was then made to look down and the loop was carried well up into the upper part of the sac, and finally rubbed gently over portions of the bulbar conjunctiva. It is hardly practicable to bring the loop into contact with every part of the conjunctiva, and I doubt whether the platinum loop ever touched more than half the conjunctival surface, and yet out of the 100 cases there were only thirteen sterile tubes. If then inoculations from a limited area of the conjunctiva show the presence of the bacteria in eighty-seven out of 100 cases, it is more than probable that inoculations from the whole conjunctiva would show the latter to invariably contain bacteria. One must be careful in this class of experiments to avoid touching the eyelashes or the free border of the lids, as contamination will certainly result. In eighty-five out of the eighty-seven cases where bacteria were found, the latter resembled each other morphologically. No effort was made to determine the properties of this organism, and nothing can be said of it further than that it looked like one of the pyogenic cocci.

In surgery two methods are employed to sterilize the field of operation: The aseptic method, by which bacteria are removed by mechanical means (as for instance, the irrigation of a point with water which

has been sterilized by heat), and the antiseptic method consisting in the employment of chemicals which have the effect of either destroying bacteria or of interfering with their growth. Both methods were tested in two series of fifty experiments each. First the aseptic method: Inoculations were made from individuals with normal conjunctivæ. After this the conjunctivæ were irrigated three times (with an interval of five minutes between each irrigation) with water which had been sterilized by boiling, and inoculations were made from them again into agar. There was a growth in forty of the tubes representing inoculations before the employment of the aseptic irrigation; the other ten tubes were sterile, and hence are not counted in the results. After the aseptic irrigations there was a growth in thirty-two tubes, that is to say the apparent effect of the aseptic method was to produce sterility of the conjunctiva in eight cases out of forty. It is evident from this that we can not rely upon aseptic irrigations of the conjunctiva to produce sterility of this membrane. Another series of fifty experiments were then made. Inoculations were made to see if the conjunctivæ contained bacteria, and immediately afterward these conjunctivæ were flooded with a sublimate solution 1 to 5,000. Five minutes later inoculations were made from them again. Before the use of the sublimate forty-two tubes presented growth and eight were sterile. The eight are excluded. In the forty-two cases where there was a growth before the instillation of the sublimate there were nine sterile tubes after the use of this solution. The same staphylococcus which was so constantly found in the first series, was also found in the second and third series, and in the last twenty-five cases this organism was subjected to this test. The end of a platinum loop, after being thoroughly rubbed over the growth, was immersed in a solution of sublimate 1 to 5,000, and allowed to remain there for five minutes. The loop was then withdrawn and plunged into agar, and in every case there was a luxuriant growth, a result which showed that the chemical had apparently no effect on the vitality of the organisms.

Both aseptic and antiseptic methods then in my hands led to practically the same results, for by neither method was sterility of the conjunctiva obtained. I have frequently observed that persons complain of a biting sensation in the eye after an instillation of sublimate solution, and in my experiments hyperemia of the conjunctiva was produced a number of times, so I am inclined to think, in spite of what Franke has said on this point, that such solutions are more or less irritating in their effect on the conjunctiva. All that can be said of such a solution is that it may deprive the conjunctival bacteria of some of their virulence, in other words render them less effective, and then again it may actually kill some of the more superficially situated bacteria. It is more than probable that the conjunctival bacteria are so firmly attached or imbeded in the conjunctiva as to be beyond the reach of either the aseptic or of the antiseptic method as practiced by ophthalmologists, and nothing but the most vigorous scrubbing would produce asepsis.

The experiments reported here show that in so far as the conjunctiva is concerned, little reliance can be placed on the usual methods employed by ophthalmologists for obtaining asepsis.

Conclusions.—The normal conjunctiva always contains bacteria. It is probable that the bacteria found in this locality are usually of only slight, if any, pathogenic character. It should be remembered though, that bacteria ordinarily non-pathogenic may become harmful under certain conditions, that is if the tissues are bruised by the instruments or irritated by chemicals. Neither the irrigation with sterilized water nor the instillation of a sublimate solution (1 to 5,000) produces sterility of the conjunctiva, and inasmuch as both measures are futile and possibly harmful they may just as well be abandoned. These methods of sterilizing the conjunctiva are the ones usually employed by ophthalmologists, and hence the choice of them for testing this question. It goes without saying that a method which would destroy the bacteria of the conjunctiva without at the same time impairing the integrity of this membrane would be a great advantage. In operating upon the normal conjunctiva as in cataract operations, the surgeon in the present state of our disinfecting armamentarium would do well to consider the subject of antisepsis and asepsis chiefly if not solely in connection with his hands and instruments, and of course the cocain and atropin.

DISCUSSION.

Dr. HAROLD GIFFORD of Omaha—With these conclusions of Dr. Randolph I agree almost entirely. I have made this thing something of a study and I have found it practically impossible to sterilize the sac, as I believe everybody has found. That in some cases the normal conjunctiva has been found sterile, I think we can attribute to the method used in trying to find out whether bacteria are there or not. Now if you consider the effect of trying to get bacteria by wiping a wire loop around the conjunctiva you will see that you may get some few perhaps at one point and then wipe them off at another, and so perhaps get none. To me, the best method of testing this subject appears to be that of Bardelli, who after separating the lids widely with a speculum filled the sac with soft gelatin. Leaving this in a few minutes and then withdrawing by a pipette he made it into a plate, and by this means the conjunctiva has never been found sterile.

Now as to the reason why we can not sterilize the conjunctival sac. As Dr. Randolph has said, the skin has been shown to be impossible of complete sterilization without complete removal of the epithelium, and even that may fail. The conjunctiva is so smooth a membrane you would expect to sterilize it by wiping it well, but even if you remove all on the surface the germs from the crypts will come out and multiply and you have the same condition as before. Even if you could temporarily sterilize it you could not rely on the condition existing more than an hour or so after closing the lids and applying the bandage. Moreover, in attempting to get this much-desired asepsis, we run the risk of doing more harm than good, for in using these agents you may irritate the tissues so that the bacteria that are left will proceed upon the favorable conditions left, denuded epithelium and increased blood supply, and in twenty-four hours you have a worse condition than if nothing had been done.

Just one point I would like to insist upon where I differ with Dr. Randolph, namely, that we should pay all attention to the asepsis of the hands and instruments. We do not rub the eyes with our hands, but the instruments are of extreme importance. As we are not certain of getting all the germs away from the eye before passing any instruments into the eye we should wipe off the eye with a sterile swab. I wipe off the immediate surface with a sterile swab the instant before inserting the instrument.

Dr. J. E. WEEKS of New York—I think it would be unfortunate if the impression should go out that we must forego all attempts to render the conjunctival sac as clear of bacteria as possible. It is well known that the majority of bacteria found in the sac are innocuous. I have done considerable work in that line myself, and from the normal conjunctiva I have isolated ten or twelve distinct varieties of micro organisms, of which only two or three were pathogenic. There is another thing we should bear in mind and that is that the bacteria there present may be pathogenic and yet create no disturbance unless they are present in large quantities. We can so lessen the number of micro-organisms present that they will be relatively harmless. We find some secretions from the lachrymal sac that escapes the casual observation, and if they are thoroughly washed out we have no trouble from them, but if no attempt is made to cleanse the sac we shall have trouble.

think the attempt to cleanse the conjunctival sac has done much to increase the number of successes in operation upon the eye. To advocate the cessation of these attempts would return us to the bad results given before antisepsis was instituted. It has been my practice ever since my studies began to use an antiseptic solution; I have used the bichlorid in strength of 1 to 5000, frequently boric acid solution, and I have yet to regret the use of those solutions, and have congratulated myself on its use in many cases where I am quite sure I should have had trouble if I had not used it.

The experiments Dr. Randolph has described are very excellent in many respects. In the use of the loop to expose the micro-organisms to a 1 to 5000 bichlorid solution for five minutes, he certainly introduced a mass of bacteria that could not be effectually reached by the solution in that space of time, and there are few who would claim that the death of these organisms would be brought about by such exposure.

Dr. A. R. Baker of Cleveland—I can not contribute to the pathologic study of the subject, but I have thought for many years that the bacteria present could not be washed away, and that probably if they were we should do harm in the efforts. I have my patients come into the hospital the day before the operation, thoroughly cleanse the eyelashes and lids, remove all loose lashes, scrape the lids thoroughly, as I would in preparing for operation in any other part of the body, apply a sterilized bandage and leave it on over night, and if the lids show any secretion in the morning I leave it without operation until I can bandage the lids over night and have no secretion, and so I exclude the possibility of having any large number of micro-organisms present.

Dr. Myles Standish of Boston—I agree with Dr. Randolph as to the necessity of cleansing the lids, but we must remember one other source of infection, however, and that is the tear-sac. The question whether we have a tear-sac distended is one of the greatest importance, and the first thing to discover is whether we have a prolific source of irritation in that region.

Dr. F. C. Hotz of Chicago—I only wish to say a few words in regard to cleaning the retrotarsal fold preparatory to operations. It is difficult to reach all parts of the upper folds. I have seen it attempted by passing the nasal syringe or the eye dropper under the lid and expecting to flush the folds sufficient to cleanse them as well as we can, and I think a better method is to turn the lid, and fixing it with the thumb of one hand, pass the lower lid over the eyeball and press it back into the orbit. A slight pressure fully exposes the fold and you can wash it very successfully.

Dr. Lucien Howe of Buffalo—The remark I would make is *apropos* to Dr. Hotz's remarks, that the great difficulty is in reaching the retrotarsal fold. I have followed an excellent device for some time, the credit for which belongs to Landolt, which consists of a glass button with a tube entering near the center. This button is put under the upper lid and by holding in this way [demonstrating] the fold is brought out and can be flushed thoroughly. He recommended it first for flushing the eye in ophthalmia neonatorum, but it is excellent for general use.

Dr. Robert L. Randolph of Baltimore—The point which Dr. Weeks has made is a good one. It is quite possible that the entire mass of organisms was not penetrated by the sublimate, but I should have added that this identical organism has been subjected to the usual tests at the hands of others and found to retain its vitality after immersion in sublimate solutions, so that the facts are as I have stated them, namely, that the organism which is to be found so often in the normal conjunctiva is proof against the germicidal action of sublimate in the strength employed by ophthalmologists.

THE BEST METHODS OF STERILIZING OPHTHALMIC INSTRUMENTS AND SOLUTIONS OF MYOTICS AND MYDRIATICS.

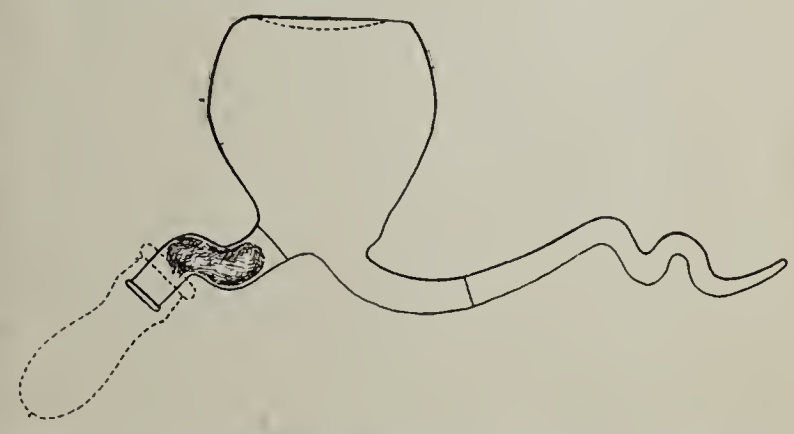
Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY E. A. de SCHWEINITZ, M.D.

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That process of sterilization is of course the most useful which gives the best results and can be most quickly carried out, as boiling, where it is convenient, has been the means par excellence long recognized for destroying bacteria. Specially devised droppers, as Stroschein's[1] and Llewellyn's bottles, in which the solutions of mydriatic or myotic can be boiled before use, are satisfactory, but unless a cap is provided for the exit tube, or the tube itself has a bend that serves as a trap and keeps the solution in the bottle free from dust, there is always danger of contamination of the solution upon repeated handling. Even if the bottle is provided with such a trap, the solution which collects in it should be removed each time before use by gently flaming the tip, or by the use of disinfectants. The mere forcing of more solution through the unsterile tube will suffice to contaminate the contents of the flask.



I have had a flask made which with very little trouble appears to obviate this danger. After use the tip of the bottle may be dipped in a 1 to 1,000 trikresol, or 1 to 5,000 formalin solution (either of which could be conveniently kept in a low, wide-mouthed bottle) when sufficient liquid will be drawn in to fill the bend and serve to seal the flask and prevent the entrance of germs from the air. When the flask is to be used the first few drops of liquid may be wasted and the tip dipped again in the 1 to 1,000 solution to destroy any germs adhering to the outside. These flasks may serve for solutions sterilized by heat or chemicals. Methods of chemic sterilization, or a combination of chemic sterilization and boiling are better than boiling alone. As has been pointed out by Franke,[2] G. de Schweinitz and the writer,[3] and others, the use of boric acid for the purpose of sterilization is unsatisfactory, as its germicidal properties are much less than were originally supposed. The objection to mercuric salts lies in the strength as well as the poisonous properties of the solution which should be used to insure complete sterilization.

Credé[4] has pointed out the value of the acetate and lactate of silver as germicides, and the idea suggested itself that these salts might be useful in sterilizing collyria if they would not be too easily decomposed, but the ready precipitation of the metallic silver made them useless for this purpose. The ever faithful carbolic acid has been largely replaced by trikresol, the latter being less poisonous and more efficacious in weaker solutions, and as the writer[5] pointed out in 1894, collyria made up with a solution of 1 to 1,000 remained thoroughly sterile under the most adverse conditions, and were not irritating to the eye. Upon writing to five prominent ophthalmologists, I learned that only one had used trikresol in place of carbolic acid, but he reported very satisfactory results. It so happened that I had left the solutions used in my original experiments three years ago, in a closet by my working table, and recently I tested them to see if they had become contaminated. One of the bottles

still contained about 5 c.c. of the eserin solution, while the water had almost entirely evaporated from the others, showing that the bottles were but loosely corked and access of dust was possible. The contents of these bottles were tested again and found free from bacteria. Pergens,[6] in 1891, recommended the use of tablets containing a sufficient antiseptic. Valude[7] and Burnett[8] have recommended formalin for preserving collyria and instruments. According to the latter, 1 to 2,000 formaldehyde solution is not too strong, but as some individuals are more sensitive to the action of this reagent, and as it has been found that much greater dilutions of formaldehyde are in most instances useful, I prepared cocain hydrochlorid 2 per cent., eserin sulphate and atropin sulphate 1 per cent., with 1 to 5,000 solution of formaldehyde. Tested within ten minutes afterward they were found sterile. The dilution was next increased to 1 to 10,000 and, to 10 c.c., five drops of a culture two days old of pyogenes aureus were added. Cultures made after twenty minutes showed growth from the eserin solution only, but the next day all were sterile. Therefore, 1 to 5,000 dilution can be relied upon, and even 1 to 10,000 with a little care may be considered safe. Should the solutions become contaminated from the dust, or from contact with an infected pipette, a very few minutes time is all that is necessary for the destruction of the germs by the formaldehyde.

When we turn to the disinfection of instruments we are met at once by another problem, viz., the necessity of perfect sterilization without blunting the edge or tarnishing the instruments.

Randolph[9] has carefully tested the use of absolute alcohol for this purpose, which is recommended also by de Schweinitz[10] and others, who have found the following process satisfactory: First, sterilization in 98 to 99.5 per cent. alcohol for twenty minutes and then rinsing once in sterile water. Out of 100 tubes inoculated by Randolph, from seventy-five instruments treated in this way only five were found infected. When, however, the instruments were purposely infected with pyogenic bacteria, treated with absolute alcohol for twenty minutes and tested, forty-three out of fifty showed contamination.

While these experiments proved that instruments as ordinarily infected in their case could be sterilized by absolute alcohol, they demonstrated also that where septic material was present a more thorough treatment was necessary. Theobald[11] and Lanier recommend washing the instruments in hot running water for a few minutes, while boiling the water, allowing it to cool and then rinsing the instruments in it did not destroy the germs. Formalin has also been recommended for sterilizing instruments, and Alexander,[12] quoting from the clinic of de Buck and Vanderlinden, and his own work, eulogizes its value, advising 1 to 500 solution, which he says does not blunt the instruments nor injure them in any way. To form an idea of the greatest dilution safe and convenient, I tried 1 to 1,000 and 1 to 2,000 formaldehyde solution, and also the gas itself. I used a cataract knife, dissecting knives, and dissecting and hemostatic forceps, the latter on account of their rough edges which would easily retain infected material. It was necessary to leave the instruments which had just been washed in water after a dissection, in a fomaldehyde solution of 1 to 2,000 for thirty-five minutes before the sterilization was complete. With 1 to 1,000 solution, ten minutes gave satisfactory results. The edges did not appear to be blunted, nor was any tarnishing noted during this time. If the instruments were kept in the solution for two hours or more, a slight deposit appeared, but this could be easily rubbed off, leaving the instrument bright and clean. After sterilization by formaldehyde solution the instruments should be dipped in sterile water before being used, to free them from adhering formaldehyde, which might be irritating.

To try the effect of the gas, the use of which has been suggested, on instruments, a small copper drying oven was taken, about 15 c.c. of 40 per cent. formalin solution placed in a dish in the bottom and a small bottle of calcium chlorid introduced to absorb the moisture. It is understood of course that the formaldehyde solution is placed in the box in the first instance some hours before the disinfection is begun, so that the atmosphere may become saturated with the gas. The instruments were washed for a moment in hot water and laid in this oven. Tested after ten minutes they were found sterile. They were then infected with pyogenes aureus, placed in the oven, or box, and tested again after thirty minutes and found sterile. The knives were infected with pyogenes aureus (by leaving the blade in the culture from one to two minutes), then wiped with dry cotton and, after ten minutes contact with the gas, tested by culture. They showed growth. This test was repeated with the difference that the knives after infection were rinsed in hot water in a dish, wiped dry and then placed in the formaldehyde bath. After ten minutes no growth was noted. Dissecting knives and cataract knives tested in this way were found sterile. The hemostatic forceps required fifteen to twenty minutes for sterilization. In practice, in preparing for the operation, it would be a very simple matter to rinse the instruments in hot water, wipe them dry and place them in a bath of formaldehyde gas. They could be safely left here for hours without injury. A wise precaution in practice might be to rinse the instruments sterilized in this gas just before use, in sterile water, to remove irritating formaldehyde, though no odor of the gas could be detected upon them. This is perhaps the simplest way of sterilizing the instruments, as they could be laid on a perforated porcelain tray in the box and the tray removed to the sterile water when the operation is begun. Fifteen c.c. of 40 per cent. formaldehyde solution should disinfect a box of one cubic foot for a week or more, and as long as it is closed the odor of the gas is scarcely perceptible. In fact, as the instruments are not injured by the dry gas, they might be kept in it continuously.

In conclusion it seems to me that trikresol, 1 to 1,000, with a separate bottle full to hold and rinse the pipettes, or 1 to 5,000 formaldehyde solution and the described dropper for collyria, and formaldehyde gas for of instruments, are from a bacteriologic standpoint the best methods of disinfection.

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DISCUSSION.

Dr. S. M. BURNETT of Washington—In the face of such de-

onstrations as we have just had, little need be said in regard to this subject. I have had the pleasure of conversing with Dr. de Schweinitz during the time he has been making these experiments, and it seems to me he has offered us the ideal method of dealing with this question. I am particularly satisfied with the report he has made with regard to formaldehyde, because it is carrying out what I thought when I first heard of the use of formaldehyde. It seems to me to possess, in the highest degree, all the essential qualities of a perfect disinfectant. It has not toxic properties and it has a penetrating power that no other disinfectant has. It is certainly something to congratulate ourselves upon that we are now able to lay aside the forms of mercury. They are not satisfactory and we are all satisfied that they are dangerous.

The experiments of Dr. de Schweinitz have proven the value of formaldehyde in disinfecting instruments beyond dispute. We can all have that sort of apparatus in our offices. In regard to the formaldehyde solutions which I first advocated there is some disadvantage because of the evaporation or gas formation, but if prepared freshly that does not apply. Even under those circumstances, however, formaldehyde is vastly superior to anything else we have.

Dr. Harold Gifford of Omaha—It seems to me there is danger of what I consider by far the most practical method being somewhat neglected. I refer to the action of boiling water. While I have not the slightest doubt that the method referred to is an efficient one, it seems to me there is a source of fallacy that has been to some extent overlooked, namely, that we have not a method of precipitating formalin as we have with bichlorid. When we tried to precipitate bichlorid all the conclusions are found to be fallacious, and to some extent this may be found to apply to formalin. We expose our instruments and after a time put them in the culture room. Now how can we know that there is not enough formalin, in spite of washing, sticking to the instruments to prohibit the growth of germs. Boiling one minute suffices to kill the germ, if care is taken to do the boiling in closed vessels particularly, and if five or ten minutes is given, there is not the slightest danger to the instruments if they have been wrapped in cotton, and you have instruments that are sharp and sterile. Boiling them first and transferring to another solution I consider faulty. Why not take them from the boiling solution and use them at once? That seems to me the simplest method and the best.

Dr. C. F. Clark of Columbus—I agree with the last speaker in always boiling my instruments wrapped in cotton, and on withdrawing the instrument wipe it with the cotton that was wrapped around it. I feel a degree of certainty that I could not feel in withdrawing an instrument from such a box as this.

Dr. Robert L. Randolph of Baltimore—I think that we are under a slight misapprehension as to the exact action of heat. While wrapping the blades in cotton would undoubtedly protect them from mechanical injury, in the boiling process the high temperature would blunt the edge all the same. Dry heat will also dull the edge of the instrument in the same way. It has been shown that not only moist but dry heat, when of high degree, invariably impairs the keenness of a knife.

Dr. E. A. de Schweinitz of Washington—I might have said that 15 c.c. of formaldehyde solution should disinfect a small box like this for a week, no matter if it is opened three or four times a day, and consequently an instrument case might easily be kept clean all the time.

The amount of gas generated is about 1.5 per cent., and if the odor is strong when the door is opened one can be thoroughly satisfied that the instruments are sterile. In regard to the remark of Dr. Gifford about the method of testing, that might apply where the solution itself is used, but I do not think it applies to the gas. When the instruments are taken out one can not detect the slightest odor of gas, but rinsing them in boiling water would remove any particle of gas that might be adherent.

BEST METHODS OF PREPARING DRESSINGS FOR CATARACT CASES AND THEIR CHARACTER AND COMPOSITION.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY CASEY A. WOOD, M.D.

CHICAGO.

I must confess that I feel very much like dissenting from the proposition implied in the title given to this communication, because I am in considerable doubt as to whether there is any *best* methods of preparing dressings for the average cataract case. My own experience and the results that I know others to have obtained teach me that when the patient has been prepared for operation and when the extraction has been deftly and completely accomplished, when the lips of the corneal wound have been carefully approximated and when no intra-ocular debris rests between the latter, when, in other words, the operation leaves nothing to be desired, the dressing is of little or no importance. In such a case it is of no moment whether the lids be simply closed with a strip or two of isinglass plaster or whether the eye be subjected to the elaborate toilet recommended by many distinguished writers and teachers. Indeed, in words which I have elsewhere used, as to the form that the dressing should take, we recognize today about the same difference of opinion that existed in the time of von Graefe and Beer; one school cries out for heavy bandages and absolute rest, the other for liberty and no dressing. One extremist applies to both ocular regions a thick flannel or gauze bandage over pads of borated gauze or even iodoform cotton, while other enthusiasts advocate a narrow strip of isinglass or other plaster, just large enough to keep the lids together. Doubtless each one of us considers his method the best, but even a superficial study of the course pursued by the healing process after cataract extraction will show that the great majority of cases do well with any kind of bandage or with none at all. If the operation be correctly done, it does not matter much whether or not the dressing be negatively aseptic or positively antiseptic. If, however, the operation fail in any important particular, the question may well arise as to what description of dressing is most likely to assist repair of the surgical traumatism, both by preventing extra-ocular infection and by favoring apposition of the margins of the wound. The first indication is probably best met by some covering for the eye that, while not entirely excluding ventilation, will yet be sufficient to prevent the entrance of morbific germs and irritating dust. It should also be sufficiently absorbant to take up the tears and mucus that commonly flow from an eye that has recently been operated upon. I have been unable to convince myself that a dressing impregnated with germicides of sufficient power to destroy any pathogenic organisms that have lodged in or about the eye does not do more harm than good. At any rate, the dressing is not the proper agent that should be depended upon to do the work of sterilizing the conjunctival sac, lids and lid edges. If this is attempted the hyperemia which the bactericide generally sets up is, at least positively harmful in the great majority of cases.

What good purpose is subserved by the attempt, so often made, to keep the corneal margins *in situ* by the use of bandages and other appliances? You are all well acquainted with these devices, the little rolls of cotton (aseptic and antiseptic), the simple roller, the starch bandages and other appliances of a similar nature. I have tried and discarded all of these, as I have found them entirely unnecessary in uncomplicated cases of extraction and never saw any good come from their employment even when in times of trouble, a mechanical support seemed desirable.

In my hands sufficient protection from external irritants, combined with an effective provision for the

absorption of post-operative discharges, may be secured by the following dressing, carefully sterilized and rolled in a sterilized towel until the moment of application. It is far from being original with me:

A layer of borated or plain absorbent cotton or wood wool two or three millimeters in thickness is applied to the surface of two single layers of sterilized gauze. These are together cut (so that they will adhere and form one piece) with a pair of scissors, in oval form and of a size to cover the orbital openings, reaching from the eyebrows to below the inferior orbital margin. Three pieces of adhesive plaster, each three or four inches long, keep this dressing in place and are so arranged that no portion of them presses upon the eyeball. This is accomplished by placing the first over the upper border of the pad, and firmly attaching it to the skin above the superciliary ridge; the second is carried parallel with the nose; the third completes the triangle. Such a dressing filters the air passing to the eye of its germs and dust; it is comfortable to the patient, does not unduly press upon the eyeball and readily absorbs lachrymal and other secretions. It does not, like the roller, starch and antiseptic bandage, encourage vascular congestion, and, finally, it may be impregnated or smeared with any agent that the surgeon cares to apply. Neither the patient nor his officious friend is at all likely to succeed in removing it, although the surgeon may examine and drop collyria into the eye readily.

What can be more provoking to the surgeon than to find, after obtaining a good operative result, that a careless nurse or a restless patient has added a newly opened corneal wound, a hernia of the iris or loss of vitreous to his other anxieties? A finger thrust, a pillow end jammed into the eye, a slight blow upon the globe or any other of the dozen little accidents that may happen to a person with imperfect vision moving about in darkened rooms, may nullify the most brilliant and correct efforts of the operator. Especially when night comes on, or when the patient begins to move about, should the eye be protected from injury by some sort of a shield or mask. Fuchs uses the wire-woven protector, introduced as long ago as 1883. There are many modifications of this mask in the market, one of the best of which has been suggested by Frothingham and Würdemann.

Certain operators who make use of the roller bandage gain protection by starching the dressing. When this has dried the eye will receive a considerable blow without injury.

Snellen has used a turtle-shaped aluminum shield, about ten centimeters long and five wide, placed over the eye and held in position with strips of adhesive plaster; it forms an admirable protector. One of the best shields I am acquainted with is the papier mache half-mask, which, when carefully adjusted to the nose and surrounding parts, makes a light, comfortable and effective protector. A small proportion of patients object to wearing any mask, complaining that it prevents them from sleeping and makes them nervous. In such cases I find that one may get along very well with a large, stiff and very concave eye shade placed over the dressing and held in place with a piece of rubber plaster.

DISCUSSION.

Dr. H. KNAPP of New York—I should like to begin with the paper of Dr. Wood because that is the beginning of the after-treatment. I think the object of the bandage is to immobilize the eye. We can fairly state that the prime factor in obtaining healing by first intention is rest. If that is obtained for the eye an immense gain has been made. Among the bandages I think there is none so good as the old binoculus. Dr. Wood mentioned it but gives preference to another kind of bandage, which I endorse and have used for about ten years. I usually use a pad of sterilized gauze, two or three layers, and this is put on moistened in a very weak solution of bichlorid. Upon that I place a pad of absorbent cotton, dipped in the solution also, and if you do that you can mold it exactly to the eye and secure a perfect splint. If it is applied dry it is impossible to put the plaster strips on because the cotton is resilient and does not hold it. It is easy to put one plaster strip over the nose, one over the brow and then a cross strip. This is all right where there is a sterile field and the operation has been perfect. It is convenient to the patient and can be removed readily. Nevertheless, we have a certain number of patients where the condition of asepsis has been thorough that are restless and continually move the eye during and after the operation, and there I think the binoculus is better. I think too, when the patient can be relied upon not to toss very much it is the most comfortable bandage. Anything that becomes stiff is unpleasant. Professor Alt tried all the bandages upon himself and says that the most unpleasant is the isinglass strip placed upon the eyeball.

I think it is proper to look at the eye next morning, and in the case of a simple extraction it is essential, for there may be a prolapse and it is best to cut that at once, when you can make a clean iridectomy, and very little harm has been done by having attempted to operate upon a patient who was not fit for simple extraction. I open the eye next day, look at the edges of the lids and the conjunctiva first, and if a simple extraction I look also at the wound to see if there is anything the matter with it. Generally a prolapse indicates itself by pain, but there are some cases where the patient says that he has felt nothing. I do not think it is proper to leave the small prolapse to nature. It requires some after-treatment to help the healing forces of nature.

If there is no secretion I do not wash the eye at all, but if there is even the slightest amount I wash it with plain warm water and get the eyelashes free of any material that would be apt to decompose and by its irritating qualities produce more secretion of the conjunctiva. I use germicides as little as I can, scarcely putting anything into the sac, but when the lachrymal sac comes into play I am particular to have that cleansed carefully.

In regard to beginning suppuration of the flap, I have found the different methods used are more or less unreliable, and I have seen as many cases get well by the cautery as by other means. I think if we stick to simple methods we shall do better than by using too much treatment. We still lack simplicity, and we are not yet at the end of our search.

Dr. MYLES STANDISH of Boston—I would like to relate a case I operated upon some years ago, an old man with cataract in both eyes and with purulent discharge from each tear sac. He had been to the infirmary for a number of years and each surgeon had put him off with antiseptics for the tear sac, without ever stopping the discharge. The old gentleman finally came back and said he was resolved to risk an eye. He knew the chances of losing it, but he was taken into the house, the sac cleansed and the eye operated upon. After the extraction the lids were opened and iodoform in large amount was literally filled into the sac. The next morning the other eye had apparently a teaspoonful of pus, but the eye operated upon was dry. This treatment was continued and at the end of eight or nine days the bandage was removed and the iodoform discontinued, but at the end of twenty-four hours he had an infection of the entire edge of the wound. The actual cautery was used, iodoform was again begun and kept up for two weeks. No recurrence of the pus showed itself and the result was good.

Dr. J. C. DUNLAVY of Sioux City, Iowa—I wish to speak of the advice to leave the eye for four days without examining it. It appears to me that if for no other reason than the fear that iritis might occur, four days is entirely too long to let it go without observation. As to the treatment of prolapsed iris, the question of operating or letting it alone should depend very largely on the character of the prolapse. If in the form of a bead and you have reason to believe it will not be taken care of, naturally the sooner you cut it off the better, but if more or less flat, I believe nature will take care of many of those cases.

As to immobilizing the eye with a bandage, I know we have talked about it for many years, but having tried the bandages on my own eyes I am satisfied that it can not be done and the tighter you apply the bandage the more danger you will have when you have a patient that will not keep quiet. There is a certain number, as Dr. Knapp said, that will try to move the eye. In those cases, by a certain amount of education, you

can occasionally obtain better results by leaving the bandage more or less loose.

Dr. Leartus Connor of Detroit—In cases in which it is desired to cleanse the outside of the eye, or the eye itself, I have found a proceedure which is a most efficient method. It is devoid of any possibility of injury to the eye. Hot water, as you all know, is an extremely efficient agent in many ways. A tumbler is taken, filled with water at as high a temperature as the patient can bear, the hotter the better; the tumbler is brought to a level in contact with the nose [demonstrating], and then tipped up as the head is brought forward, so that the eye is entirely immersed in the hot water. You may use an antiseptic solution if you please, but it is the method of making the application which I desire to place before you. You get the effect of moist heat without any mechanical disturbances of the relation of the eyelids to the eyeball.

Dr. Albert B. Hale of Chicago—I have used the method Dr. Wood has described. He mentioned some very nice experiments about immobilization. He says that if one eye only is protected there is a tendency to winking and the lid is not held so thoroughly as it ought to be; if both eyes are protected and the patient put into a dark room the tendency to winking is much reduced.

Dr. J. A. Lippincott of Pittsburg—I have been very much interested in the remarks in regard to immobilization and I suppose that when it is spoken of it is immobilization of the lids that is meant, for immobilization of the eyeball is impossible. Immobilization of the lids is possible by means of plaster, and while there may be some objection on the grounds of discomfort, I think this can be removed by the use of very thin and properly prepared plaster.

I was also interested in the statement that there is no way of sterilizing the plaster. I would like to show a box I got up some time ago for containing plaster [exhibiting box]. It is a small, circular, metal box with a split in the side of it, from which one end of the plaster can be drawn out. There is little movement allowed so that the cover slips slightly on the box and one can close the slit from which the plaster extends, almost absolutely. This box can be sterilized quite readily by putting it in a dry oven. All my experiments proved it to be sterile and I think that with the instrument shown by Dr. de Schweinitz it could be absolutely sterilized without injury to the plaster. It can not be used in the steam sterilizer. You draw out the plaster as you wish to use it and what remains in the box is in a reasonably good condition and does not require to be sterilized every time it is used.

Dr. F. C. Hotz of Chicago—I wish to add my endorsement to the necessity for observing the first principles of surgery that wounded tissue should have as complete rest as we can secure to it if we wish natural healing to take place. This we can only obtain by binocular bandages so far as the eye is concerned. I still am an advocate of bandaging both eyes. It is the principle to observe and not the particular method. Another point I wish to mention is in regard to the pressure bandage. It was mentioned in one of the papers, that if anything happened to the wound a pressure bandage might be used to replace the prolapse. This is irrational treatment and if we take so much precaution to keep the eye protected from pressure I do not see why we should intentionally put pressure upon it.

Dr. S. L. Ziegler of Philadelphia—I have always used the lighter isinglass plaster dressing for cataract cases, by placing a strip across the upper lid and a cross-piece coming down on the cheek to hold the lid perfectly quiet, thus forming a T-shaped splint. As soon as desired we can remove the vertical cross-piece. The strip on the upper lid will sufficiently immobilize the eye and at the same time allow the eye to be opened wide enough to wash it. In addition to this a light dressing is applied consisting of a piece of gauze with a little cotton laid over the margin of the lower lid to catch the moisture (aqueous blood and tears), and over this the black Liebreich patch. The unprotected eye is also immobilized in the same way. This dressing seems to me to answer every purpose and is sufficiently cool to avoid conjunctivitis. All dressings are removed on the fourth day.

Dr. Dudley S. Reynolds of Louisville—I wish to emphasize the necessity for securely fixing the unoperated eye and I think the lightest possible dressing constitutes the most desirable form. I am in the habit of varying the dressing in accordance with the prominence of the brow and cheek. A protruding eye is more readily pressed upon by dressings placed over it than a receding one. I am an advocate of quiet for the wounded eye and of non-interference with it so long as it manifests no sign of trouble, but the dressing should be of such a character as to enable the surgeon to remove the dressing on the slightest indication of trouble.

Dr. J. A. White of Richmond—In a paper of ten minutes it is impossible to go into details that are necessary to put yourself entirely right and therefore criticism is made because you are not understood. Someone stated that it was strange that I did not look at the eye before the fourth day. I did not say that; I said I did not examine the eye unless necessity called for it. I rarely take off the bandage before the third, sometimes on the second day. One of the most distinguished ophthalmologists in America wrote me that he did not look at the eye for eight days, and that is the result of his forty years' practice. I was astonished at it, as you will be.

In regard to prolapse, I have simply stopped operating upon it unless I know that it is there immediately after the operation, because the cases I have lost are the ones that I meddled with and the ones I let alone usually get along very well. Until I find that method giving me worse results than the other I shall still let them alone.

Dr. C. A. Wood of Chicago—There is some confusion in referring to the immobilization of two different structures, the lids and the eyeball. The reason why I said it was difficult to understand the rationale of bandages pressing upon the eyeball is that the pressure is made there upon the anterior segment. When the eye is closed it is the equatorial region we have to deal with and such a pressure is likely to do harm because it is distributed over the wounded part of the eye and brings about the very condition we wish to avoid. As to immobilization of the lids I think I have gained as good results by impressing upon the patient the absolute necessity of keeping the eye closed and by speaking about it two or three times a day. I have obtained as good results in this way as by attempting to keep it closed by bandages.

I am glad Dr. Lippincott has been able to sterilize the plaster. I undertook a number of such experiments and found that when one succeeded in accomplishing disinfection, the plaster was so affected that it was useless.

ASTIGMATISM FOLLOWING CATARACT OPERATIONS AND OTHER CORNEAL SECTIONS.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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The brief observations here presented are to be regarded as addenda to the paper on the subject read by the author before the Pan-American Medical Congress in 1893.

Probably in every case of cataract extraction the necessary corneal section is followed by a permanent change in the corneal curvature and refraction. In a few cases the change in curvature is such as to reduce or correct, or slightly over-correct, a previously existing asymmetry of the cornea, and the astigmatism caused by it. In the larger proportion of cases the ultimate effect is a considerable astigmatism, greater in amount and essentially different in direction from any astigmatism that may have been present before the operation.

The fact that the astigmatism is new, and also that it is due to change in the corneal curves, give it increased importance. Those who always have had astigmatism never perceive the distortion of retinal images that it causes. Those who acquire astigmatism slowly may feel some disturbance on account of such distortion, but are not distinctly conscious of its effect. Those who have astigmatism corrected in early life quickly become accustomed to the greater distortion of the retinal image caused by correcting lenses. But cataract extraction is usually done at an age when acquired astigmatism is always found very annoying, when the full correction of astigmatism, congenital or long present, is sometimes not practica-

ble, and astigmatism after cataract extraction comes on suddenly, always causing marked distortion of the retinal images. Hence, it is certain to cause annoyance; and its correction is generally a real service and one which is appreciated.

Post-operative astigmatism necessarily follows such a corneal section, although it is not necessarily always permanent. The form of the cornea depends on the intra-ocular pressure and the relative resistance of different parts of the corneo-scleral coat. Only when intra-ocular pressure is entirely removed, as it is by the escape of the aqueous humor through the corneal section, can the cornea take a form determined entirely by its own structure. This does not usually differ from that which it had before the operation. When the healing of the corneal wound becomes sufficiently advanced to cause the retention of aqueous humor, the intra-ocular pressure begins to rise and gradually increases until it reaches the normal.

If the resistance of the sclero-corneal coat were entirely uniform throughout its whole surface, the intra-ocular pressure would cause the eyeball to assume the shape of a perfect sphere. The departure from this perfectly spherical shape is determined by the difference of resistance of intra-ocular pressure by different parts of that coat. Thus, the reinforcement of the cornea and sclera in the neighborhood of the sclero-corneal junction by the ring of tissue constituting the ciliary body, strengthens the coat at this point so that it resists the intra-ocular pressure and causes a depression, making the corneal surface the part of a smaller sphere set into the side of the larger sphere of the sclera.

After corneal section, the cornea at the line of incision is weakened as compared with the remainder of the sclero-corneal coat and correspondingly gives way or bulges. Its bulging at this point necessarily causes an equivalent flattening in other parts of the same meridian. The extent of this bulging and distortion is proportioned to the relative weakness of this line of corneal tissue. Hence, when the cicatrix is weakest, the bulging and distortion and consequent astigmatism are greatest.

Generally the first measurement after cataract extraction shows the highest astigmatism; but not unless the wound has become thoroughly closed and the tension of the eye restored to normal. Thus, in a recent case on the fourteenth day after extraction, the astigmatism was found to be only 2 D. But a week later it had risen to 10.5 D. After this it gradually declined in the usual manner. At the first measurement the anterior chamber had been re-established for some days, and it was not noted that the tension of the eye was below normal. Yet the subsequent change of astigmatism can only be accounted for on the supposition that at the first observation the ocular tension was still lower than at the time of subsequent observations. With this exception the cases that I have watched have shown the highest astigmatism at the first examination; and only very few have shown a slight temporary increase of astigmatism at any time afterward.

The highest post-operative astigmatism I have yet encountered was 26 D. in one of the cases mentioned in my former paper. The case was one of simple extraction and of normal healing. In two and one-half months the astigmatism had fallen to 0.75 D.

The amount of astigmatism that remains permanently is always very much less than that discovered at the first testing, two or three weeks after a cataract extraction. While this is often 10 D. or upward, the final amount is very rarely over 3 D. In one patient I have seen it 4.5 D. in the right eye and 5 D. in the left, three and a half years after the cataract extraction. But in no other case have I seen it remain as high as 4 D.

The practical application of this fact is that where one is compelled to prescribe glasses within a few weeks after extraction, which glasses will be worn by the patient when out of the reach of anyone who can properly measure refraction, it is better, however high the astigmatism may be at the time, to give a cylinder of not over 3 D. This will almost certainly in a few weeks be nearer the proper correction than the lens indicated soon after operation. In prescribing such glasses it is also important to make the spherical somewhat stronger than is at first required, because it is equally certain that after the first few weeks there will be found an increase of hyperopia as well as a decrease of astigmatism.

All observers have noticed that in post-operative astigmatism the cornea is flattened in the meridian at right angles to a straight line joining the ends of the corneal wound. An incarceration of the iris, or irregularity of healing due to other causes, may occasion a slight variation in the meridians of astigmatism, but such variations in direction are slight. In many cases no change occurs in the direction of the principal meridians during the weeks or months through which the astigmatism continues to diminish.

In regard to the influence of different forms of cataract operations, on the amount or course of the astigmatism, I am still unable to recognize any decided influence from the position of the corneal section. This seems rather strange. One would be inclined, *a priori*, to expect the greater astigmatism when the corneal section was situated near the area of the cornea through which the rays had to pass, or from which the reflections of the ophthalmometer were to be obtained. It is possible, however, that the depression at the sclero-corneal junction permits from the same incision a greater distortion of the cornea when the incision is situated at the periphery; and that thus it serves to balance the effect of proximity of sections placed nearer to the center of the cornea.

CATARACT STATISTICS WITH COMMENTS.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY HERMAN KNAPP, M.D.
NEW YORK, N. Y.

Statistics of cataract operations can be made from different points of view. It is plain that complicated cases do not give as favorable results as uncomplicated ones, and therefore almost all statistics refer only to uncomplicated cataracts. Yet this does not make them comparable with one another, for Dr. A. will count cases among the complicated which Dr. B. will consider uncomplicated. To present a faithful picture of what an operator has accomplished, all his operations should be counted, or if he excludes some he should supplement his statistics by a special report best with abstracts of the cases.

Another point in which reports differ is the standard of success and failure. Shall we make success dependent on the acuteness of sight, or on the perfection of the recovery? Sometimes we have to extrac

lenses from incurably blind eyes, say a chalky, partially or totally dislocated lens in a young person, the eye being otherwise in good shape and its fellow normal. If we succeed in getting that cataract out without mutilating the eye, we do not only improve our patient's appearance, but his chances for the preservation and quiescence of the eyeball. To accomplish this requires greater skill than most other cataract operations, and the surgeon is entitled to put such a case to his credit. Let him call it an "operative success." It is questionable, however, to classify under this heading extractions that have been followed by a smooth recovery, but will yet require an after-operation to clear the pupil from remnants in order to restore sight. However probable the good result of such an operation may be, we are not justified in counting those cases among the perfect results until their vision *is* perfect. I find, for instance, in a very excellent report as to accuracy and completeness of the records of all cases of extraction[1], the summing up of the second series of 100 cases as follows: "Full success in ninety-seven cases. Visual acuteness from 5–5 to 5–30 in seventy-two. In twelve cases V. was not tested, the recovery not yet being complete, or secondary cataract being present; but in all, the convalescence had so far advanced that a good result could confidently be expected."

The following remarks are based on an analysis of the last 1,000 extractions I have made:

Intercurrent with the first 600 consecutive cases there were thirty which I checked off because they had complications so grave as to render the restoration of useful vision improbable. I have made use of this series on a previous occasion, for the discussion of special points connected with the great question of cataract extraction[2]. The series of the 400 consecutive cases comprises all extractions, without an exception, that I operated on from Sept. 19, 1894, to May 17, 1897.

Reserving a detailed communication for the *Arch. of Ophthalmology*, I beg to present for your consideration and discussion the following topics:

1. *Complicated cataracts, their nature and treatment, with final results.*—Among the 400 cases fifty-seven, that is 14.25 per cent., showed the one or other complication, namely: 1. Diabetes, six cases; five smooth, one protracted recovery. This agrees with my previous experience that diabetes has not so bad an influence on the recovery from cataract operations as is stated by some authors. 2. Albuminuria, two cases; good recoveries. 3. Diabetes and albuminuria, two cases; good recoveries, the one had retinal hemorrhages which two years later had disappeared with S. 20/20. 4. Gout, one case; healing slow, result good. 5. Rheumatism, one case; good. 6. Insanity, three cases; two failures by suppuration, one good visual result, but patient on the day of discharge committed suicide. 7. Chronic bronchitis, cough, two cases; one good, the other perception light (partial suppuration). 8. Traumatism, three cases; good. 9. Foreign body in lens (came out with cataract), one case; good. 10. Chronic dacryocystitis, six cases; three good, three failures by suppuration. 11. Excessive myopia, four cases; good, but one had sudden detachment of the retina seven months after discission. 12. Synchysis, three cases; good. Diagnosed by copious escape of watery fluid during the section, cataracts expelled by external manipulation. 13. Choroditis, disseminate and atrophic, three cases; recoveries smooth. 14. Chronic iridochoroiditis, eight cases; seven yielded satisfactory results from V. 4/200 to 20/70, one was a failure by closure of pupil after cysto-iridectomy. 15. Maculæ cornæ, four cases; good. 16. Chronic glaucoma, three cases; recoveries smooth. 17. Optic nerve atrophy, two cases; recoveries good. 18. Nystagmus, congenital, one case; good. 19. Chalky lens, dislocated into anterior chamber, one case; good operative success. Lens expelled by external manipulation with permanently round pupil. 20. Previous syphilis, one case; good. There were eight failures among the fifty-seven cases of complicated cataract, *i. e.*, 14 per cent. Of the cases of dacryocystitis 50 per cent. were lost.

2. *Extractions with iridectomy, their indications and visual results.*—The conditions which determined me to make an iridectomy during or prior to the extraction in the last 400 cases were as follows: 1. Tendency to iris prolapse, nine cases; 2, glaucoma, preliminary iridectomy, two; 3, diabetic retinitis, preliminary, one; 4, albuminuria, preliminary, one; 5, patient demented, one; 6, profuse hemorrhage in anterior chamber, two; 7, patient unmanageable, eight; 8, iris fell over knife, five; 9, rigidity of sphincter iridis, one; 10, loss of vitreous, one; 11, no reason stated; *a.* preliminary two, *b.* simultaneous three, five; 12, peripheric section, two; 13, synchysis, rupture of suspensory ligament, lens tremulous or dislocated, nine; 14, iritis, iridocystitis, iridochoroiditis, five; 15, corneal section insufficient, iris bruised, one; 16, splinter of wood in lens, one; 17, to remove thickened capsules, one; total, fifty-five cases, *i. e.*, 13.75 per cent. were combined with iridectomy.

On these fifty-five cases fifteen *secondary operations* were made, namely: Discission, eleven; extraction of capsule, two; iridectomy for consecutive glaucoma, one; cyst-iridectomy, one.

The final visual results were as follows: *Good, i. e.*, S. 20/200 to 20/20 in forty-two cases; *moderate* (S. 2/200 to 18/200), six cases, namely, from cataract accreta one, glaucoma chronicum two, retinitis diabetica one, synchysis one, no cause noted one; *failure* seven cases, viz., iridocyclitis six, tendency to prolapse and chronic conjunctivitis one.

3. *The reactive processes* may be divided in two groups:

A. Inflammatory.—1. Mild iritis, six cases; five with good, one with moderate (S. 10/200, complicated, good operative recovery) vision. There was a moderate number of non-irritative filiform synechiæ, simple agglutinations of the torn pupillary border of the iris to the shreds of the incised or lacerated capsule. These had no influence on the visual result and did not thicken the center of the capsule. 2. Protracted iridocyclitis, two cases; *a*, angular incarceration with temporary + T. pilocarpin, S.=1/200; *b*, iris wounded with knife; abscised. Remnants laboriously pressed out 1–∞. 3. After-hemorrhage into anterior chamber, 20/40. 4. Slow closure of wound; patient aged 83 years; kept in bed; on eleventh day pneumonia and pleuritic effusion. Complete recovery. Discharged thirtieth day; V.= 20/40. 5. Partial purulent wound infection, two cases; *a*, slight hypopyon. Recovery 20/200, vitreous still turbid. *b*. Old iritis, iridectomy twenty-two years previously. Difficulty in delivering lens (cat. nigra). Anterior chamber opened daily 1–∞. Cornea clearing. 6. Total suppuration, four cases; all from wound in-

[1] F. Zenker: Report of 1,000 cataract extractions made by H. R. H., the Duke. Dr. Carl in Bavaria, Wiesbaden, Bergmann, 1895.

[2] See Transactions of the Eighth International Ophthalmological Congress. Edinburgh, 1894, p. 14, etc.

fection in laborious operations. In three the infection was primary, in one secondary by exposure on the fifth day; remained partial until the fourteenth day. S.=0, in all.

B. Mechanical.—1. Anterior synechiæ. A goodly number of small adhesions to the scar was noticed with distorted pupil, but good sight and no irritation. One case was severe; broad, traumatic adhesions on sixth day, slowly developing glaucoma. Patient having good sight, left hospital secretly, returned in twenty-five days with pronounced glaucoma, Tn.+2, anterior chamber totally obliterated, iris and lens touching cornea. Fingers 1′. Iridectomy with Graefe's knife. Escape of vitreous as usual in such cases. Eye immediately free from pain and irritation, anterior chamber filled again, Tn., fingers at 3′. 2. Prolapse of iris twenty-six cases, *i. e.*, among 343 simple extractions,=7.6 per cent. It occurred mostly in the first night, frequently on the second or third day, rarely later. The eyes were inspected daily and the prolapse abscised at once; cocain anesthesia was sufficient; in two, general anesthesia was administered. The latter should always be resorted to if the patient is nervous or refractory. The recovery and vision were good in all cases but one, where from chronic cough, prolapse occurred on third day. The prolapse was abscised but partial suppuration set in; S.1/∝. Good projection.

4. *Secondary operations.*—The 400 extractions were succeeded by 160 after-operations, *i. e.*, 40 per cent. They were: 1. Enucleation, one case, viz., traumatic dislocation of lens into the anterior chamber; extraction leaving capsule in did not relieve the glaucomatous iridochoroiditis. 2. Iridectomy in one case of glaucoma following extraction, raised 1/200 to 3/200; good operative result. It might have been a good visual result had the patient not withdrawn from treatment for two months. 3. Iridectomy in three cases of glaucoma following discission; immediate relief, rapid recovery and good sight in all. One case of acute glaucoma occurring on the fourth day after the discission, was cured by eserin and subcutaneous injections of morphia. 4. Extraction of thickened capsule, after discission with one and two needles had failed, two cases; results good. 5. Discission 153 cases, *i. e.*, 38 per cent. The visual improvement was very considerable. The ultimate visual acuteness in the 139 uncomplicated cases was: 20/20 in nineteen: 20/30 in forty-three; 20/40 in thirty-two; 20/50 in seventeen; 20/70 in thirteen; 20/100 in ten; 20/200 in five. It had deteriorated the sight in no case; it left the sight as it was in two cases; it was followed by acute glaucoma in four cases (1 per cent.), which by eserin in one and iridectomy in the three other cases, was cured with the ultimate vision better than the primary. In one case the discission was successfully repeated two months later, the opening of the capsule having partially contracted.

One of the cases of glaucoma assumed a most serious aspect. Under the picture of cyclitis hypopyon developed, for which no source of infection could be discovered. The iris began to bulge and the eyeball-tension rose to Tn.+1. The pupil remained open. An iridectomy put an immediate stop to all the symptoms. Pain, bulging of iris, and + Tn. disappeared, the vitreous cleared up and the patient regained excellent sight. The whitish sediment at the bottom of the anterior chamber can not have been purulent, *i. e.*, real, infective, hypopyon, but merely puriform, *i. e.*, bland, such as we find it on introducing aseptic irritant substances into the anterior chamber. The other cases showed no alarming symptoms, most of them no reaction at all.

5. The visual results of the last 400 cases was as follows: From 20/200 to 20/20, 359 cases, *i. e.*, 90 per cent. good results; from 1/200 to 18/200 twenty-nine cases, *i. e.*, 7 per cent. moderate results; from 0 to 1/∝ (perception of light) twelve cases, *i. e.*, 3 per cent. failures. Full vision, 20/20 was obtained in twenty-three cases, 6 per cent.; almost full vision (20/30) in seventy-one cases, 18 per cent.; vision good enough for all purposes (20/40) in sixty-seven cases, 17 per cent.; 20/50 in sixty-four cases, 16 per cent. The visual results of the preceding 600 cases (not before published) were as follows: 20/20, 106 cases; 20/30, 156; 20/40, ninety-three; 20/50, sixty-three, etc. V. from 20/200 to 20/20, 572 cases,= 95 per cent., good; V. from 1/200 to 15/200, sixteen cases,= 3 per cent., moderate; 0 and 1/∝ twelve cases,=2 per cent., failures. The results in that series are somewhat better, but it has to be remembered that thirty cases intercurrent with and additional to the 600, have been omitted as offering too poor a prognosis. Thirty cases out of 600 is only 5 per cent., which should be borne in mind when these statistics are compared with others that rest on a different basis. Adding the results of the two series, *i. e.*, a series of 1,000 successive cases, we obtain according to the conventional calculation: Good vision in 93.1 per cent.; moderate in 4.5 per cent.; failure in 2.4 per cent.

Combining as above the results of the two series, we obtain the following data on points also discussed in this paper. Of the 600 extractions of the first series fifty-two, *i. e.*, 8.6 per cent[3]. were combined with iridectomy; of the 400 extractions of the second series fifty-seven, *i. e.*, 14.25 per cent., which makes 52+57 =109 iridectomies in 1,000 extractions, *i. e.*, 10.9 per cent. Prolapse of the iris occurred in fifty-five cases of the first series, *i. e.*, fifty-five in 548 cases of simple extraction, which represents 10.3 per cent. In the second series there were twenty-six cases of iris prolapse among 342 simple extractions, *i. e.*, 7.6 per cent. In the two series there were eighty-one cases of prolapse of the iris in 891 simple extractions or 9.1 per cent. In 300 cases of simple extraction published by me before (*Arch. of Ophth.*, 1888, '89, '90) there were in three separate series severally 8 per cent., 6 per cent. and 12 per cent. of prolapse. In an extended series of cases every complication occurs. At the Eighth International Ophthalmological Congress (l. c. p. 17) I summed up the results of the fifty-five cases of prolapse which happened in the 600 cases under consideration: Forty-nine had good vision, two had moderately good vision, two lost the sight in the eye operated on, and two lost the sight in both eyes, in the non-operated eyes by sympathetic ophthalmia. The latter appalling calamity is fortunately rare and occurs where the iris is wounded, in the combined extraction oftener than in the simple. Secondary operations were performed in 66 per cent. of the first series, in 40 per cent of the second. They were discissions in almost all cases and will sum up higher in the latter series, when more time has elapsed for patients to return.

DISCUSSION.

Dr. G. E. de SCHWEINITZ of Philadelphia—I am in hearty accord with the suggestion that cases of cataract presenting marked complications should be recorded separately. The

[3] See Trans. Eighth Internat. Ophth. Congress, Edinburgh, 1894.

operator is certainly entitled to the credit of an "operative success," even if the visual acuity does not reach that standard which we call a success, provided the nature of the case was such that it precluded the possibility of the restoration of a visual acuity amounting to one-tenth. In the Philadelphia Hospital I operate on many complicated cases—insane patients, cases with chronic conjunctivitis, chronic bronchitis and cases with advanced general diseases, for example widespread arteriosclerosis, diabetes, etc. Some of my results have been surprisingly good; others have been poor, although in all my experience in this hospital I have only once had a suppuration, and that was localized. In another hospital I have had two general suppurations and lost the eyes, one occurring after extreme prolapse of the vitreous, the patient at one time having had sugar in the urine, and the other in a patient who had chronic conjunctivitis and seborrhea of the face. In patients with chronic bronchitis I prefer the combined operations. Insane patients are usually satisfactory; occasionally I have been obliged to use a form of straight-jacket after the operation. It would be instructive to compile a statistical table of the usual results in cataract patients at long periods, one or even years, after operations.

Dr. S. M. Burnett of Washington—My own experience has been that astigmatism immediately following cataract extraction is sometimes very enormous; that is, that at the end of two weeks there may be an astigmatism ranging as high as 8 D. It is evident that the visual acuteness does not then represent to the surgeon's credit what it should. The cornea does not settle down to the normal curvature under three months after the operation; I have noticed a gradual change for the better up to that time. So in registering the acuteness of vision some idea of the time of taking it should be taken into consideration before we can accept them as definite results. Usually the longer the time after the operation the examination is made, the more to the credit of the surgeon will it be.

Dr. H. B. Young of Burlington, Iowa—These remarks remind me of an experience I had some time ago with a patient who had glaucoma in one eye and cataract in the other, which was operated on. At the end of six weeks the vision was so poor that I thought it a failure. The Javal ophthalmometer showed an astigmatism of 8 D. With proper correction she could read any type on the page. Four months later she had the same good vision with a correction of six diopters.

Dr. L. Webster Fox of Philadelphia—At present each man is a law unto himself as to the relative results he gets. Some fixed law should be established, and I think we could do no better than follow Dr. Knapp, whose experience is second to none in this country and equal to many of those abroad. Of course we all try to arrive at J. 1. and 20-20, but we are frequently disappointed. Our results may be brilliant at the time of operation, but through some change brought about by senile changes in the individual they fail. Quite a number of cases recur to me, in which after a severe winter the patient has come back complaining of failing vision. I remember in one case with a very brilliant result, 20-20 and J. 1., the vision has fallen to 20-70 and I can find no cause for it. He is eight years older than he was when operated on, and I think there is a sympathetic condition growing with his senility.

Dr. F. C. Hotz of Chicago—It seems to me, if I understood Dr. Knapp right, that in his method of registering cases he introduces a new meaning to the term complicated cataract that might lead to confusion. Under this term so far is understood complications in the eye, but what Dr. Knapp calls complications includes syphilis, bronchitis and other diseases, and thus the number of complicated cataracts would outnumber the uncomplicated ones.

Dr. Dudley S. Reynolds of Louisville—I hardly think it is fair to classify those ultimate results found in aged people as having at all to do with the operation. We all know how prone old people are to changes in the choroid and retina, and it is hardly fair to pick out the case of a man who has had good vision for three or four years and put down changes in the optic nerve or choroid as having any relations to a past cataract operation.

Dr. G. E. de Schweinitz of Philadelphia—I do not think that was implied. The case was only mentioned as being an interesting observation.

Dr. Frank Allport of Chicago—I wish to add one instance to the case given by Dr. Knapp as occurring in people with mental infirmities. I have had one similar experience, an old man whom I operated on for cataract with apparently good results. After eight or ten days, the nurse having left him for a minute to go to the linen closet, the patient jumped out of bed, threw himself out of the window and was killed. It may be interesting to state the case as showing the amount of care we must give such patients.

Dr. S. D. Risley of Philadelphia—I am very much pleased to see that Dr. Knapp has included the cases suffering from general dyscrasia among the complications of cataract. I am sure this ought to be considered in a large number of cataract cases before giving our prognosis. I have been for many years insisting that cataract is, in a large number of cases, a complication of some general disease. The difficulty is where we shall draw the line with diabetes, gout, rheumatism and syphilis. A large number of old people are gouty or rheumatic, and have changes going on that might produce cataract. I am glad to see attention drawn by so eminent authority to their harmful influence on healing after an operation. Surgical delirium is one of the not infrequent sequelæ. I have had three examples within the past year. I remember that a few years ago one of my colleagues had a patient who jumped out of the window at the hospital a few days after the extraction of cataract, in a fit of surgical delirium.

Dr. G. C. Savage of Nashville—Speaking on the point of insanity none of us would operate on patients who were insane at the time of operation. I have had two cases in which insanity followed the operation and it was clearly due to the use of atropin. Of course this occurs in patients peculiarly susceptible to the drug. I discontinued the use of it and the result was good.

Dr. Harold Gifford of Omaha—The question of how much more we should exercise in keeping these patients from jumping out of windows, etc., is important. I have had one or two cases and it seems to me that where it is possible we should have the patient watched all the time, at least until the first night or two is passed. A device that is not original with me, but which is worth trying, is to tie the hands loosely but so they can not get them up to pull at the bandage. The patient could be instructed as to what to expect, and it gives no discomfort and may prevent injury. The question is how much of this delirium results from the excitement and fear that occurs when these old people awake suddenly and find that they are absolutely blind; particularly if they have had one good eye. In some of these people, while I believe most firmly in closing both eyes ordinarily, I have left their good eye open so that if they should wake up and have a tendency to be scared they can reassure themselves by the use of this eye.

Dr. C. W. Kollock of Charleston, S. C.—One class of patients has not been mentioned. It includes those patients that have false images before the removal of the cataract. I had a patient who saw all sorts of images at night, and the family thought she was losing her mind. After the operation these images disappeared and she was not troubled again until the last few months, when thickening of the capsule began to appear and she is now seeing them again.

Dr. J. A. Lippincott of Pittsburg—Some years ago I introduced a table with such a report to explain the cases where vision is below 20-40. It might be enlarged to include all cases below 20-20. On one side of the table was 20-40, 20-60, etc., down to nothing, and then running along the upper side of the table were the causes for the deficient vision, atrophy, detachment, opacity of the capsule, etc. A table like that can be added, or something of that kind should be appended to one's report so as to give at a glance an explanation of all the cases.

Dr. Herman Knapp of New York—Dr. Hotz was perfectly correct in saying that constitutional troubles ought not to be put into the statistics of complications. It is the ocular complications that are ordinarily reported. In the last 400 cases I wanted to go over the whole subject, however, and mentioned all the factors of the system that could influence my judgment or determine my action as to the operation, after-treatment and results. Complications like diabetes would weigh very little because we now think they do not seriously prevent good results. As to the point made by our president, as to the time statistics should be taken, that is an exceedingly important feature, but it is difficult to ascertain statistics after any length of time. There are between forty and fifty of my cases where only the primary results, when the patient was discharged two or four weeks after the operation are noted. When they turn out badly I get to see them again, but when they remain good there is no cause for them to come; so if we make up our statistics with the results that are attainable that is all we can do. It might be well to state the primary vision and the ultimate vision, for it would complicate our tables very little.

As to cases of deterioration I want to ask whether an operation on the capsule had been done in the case mentioned by Dr. Fox. Dr. Fox—Yes, sir.

Dr. Knapp—I have found that where the capsule is not divided after the operation, at some time or other it is apt to block the vision. I can mention a case that Swanzy had operated on and the patient could read well for years, but gradually her vision was becoming dimmer and dimmer, and was only 10-200 when she came to see me. The whole fault was

nothing but a clouding of the capsule and when I made a division of it she was restored to good sight. That prompted me to make secondary operations in as many cases as I could get hold of. After this capsulotomy there is one objectionable feature that I would like to eliminate, that is the occurrence of glaucoma. It is sometimes acute and comes on within a few days after the operation. Then it is almost always cured. It occurs in about 1 per cent. of all the cases, which is a great deal. In a few cases it is cured by eserin. Glaucoma may occur in such cases any time after the operation. I saw it once in a case of Dr. Agnew after thirty years.

A REPORT OF THIRTY CASES OF CATARACT EXTRACTION WITH REFERENCE TO THE TREATMENT OF PROLAPSE OF IRIS FOLLOWING SIMPLE EXTRACTION.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

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Undoubtedly the ideal method of cataract extraction is that in which the lens is removed without iridectomy. But in view of the much better results obtainable by the average operator with iridectomy I am inclined to think that simple extraction should be reserved for selected cases. Certainly it is safe to say that young operators should always use the combined method and wait until their judgment and skill are considerable before attempting simple extraction. The adoption of strict asepsis and antisepsis by the modern ophthalmic surgeon has, no doubt, made simple extraction of cataract more popular at the present day; but the great drawback still remains in the liability of prolapse of the iris coming on after the operation. On my return from Europe two years ago I determined to adopt simple extraction. Twenty out of thirty cataract cases were consecutively operated upon without iridectomy, and in four of them prolapse of the iris ensued in one or more days. This was a large percentage, but even the most skillful surgeons, acknowledge 6 to 9 per cent. It is evident then, that the most careful operator must often face the problem of iris prolapse and the important question arises how best to deal with this very likely complication.

Desiring to ascertain the procedures employed by various prominent surgeons in this country and in Europe, I wrote to a number of them. Among the answers were letters from Dr. de Schweinitz and the late Dr. Keyser of this city, Dr. Knapp and Dr. Noyes of New York, Dr. Fuchs of Vienna and Dr. Trosseau and Dr. de Wecker of Paris, some of whom I will quote, and afterward I will describe my own method somewhat in detail.

Dr. Knapp kindly wrote as follows: "For the last several years I have, or rather Dr. R. O'Born as my associate at the New York Ophthalmic and Aural Institute, has been in the habit of inspecting each eye within twenty-four hours after an extraction, be there symptoms of reaction or not. If there is iris prolapse I cut it at once, reduce the edge of the coloboma and obtain, in almost every case, as undisturbed a recovery as if I had made an iridectomy before or during the extraction. Formerly I inspected eyes the first time, three days after extraction if the patient felt comfortable, and abscised prolapse, if at all, rarely before the tenth day. This gave rise to high degrees of astigmatism on the one hand and to an impure artificial pupil on the other. I mean irregular incarceration of the edges of the coloboma. During the last years I have made simple extraction in relatively more cases than ever before. Prolapse of iris has been very rare, and when it occurred the immediate abscission converted the case into one of combined extraction. I make the abscission in manageable patients under cocain and in nervous and unruly patients under ether."

Dr. Noyes is in the habit of doing an iridectomy as early as possible unless the prolapse is very small.

Dr. de Schweinitz usually follows the rules laid down by Dr. Knapp, whom he quotes: "If the prolapse is discovered within a few hours after its occurrence it is cut off and the edges of the iris reduced exactly as after the operation of iridectomy. If the prolapse is not noted until the third or fourth day it is allowed to remain. Small prolapses may disappear, others produce no irritation, while still others become larger, constricted at their bases or cystoid. These are allowed to remain until the irritation has disappeared and then they are amputated in the same manner as a small staphyloma is abscised." "In a few cases in which there has been some gaping of the wound after the amputation I have inserted a delicate silk suture."

The following is a translation of Dr. Fuchs' letter: "If in the days following the extraction prolapse of the iris occurs I not only cut the iris off, but I cut it out; that is, I draw it a little forward, carry it away with the scissors and go then with the Daviel spoon in both corners of the wound in order to place back the coloboma. I consider the thing ended only when both of the sphincter columns stand equally deep and a regular coloboma exists as if an iridectomy had been done. It is true that this does not succeed perfectly in all cases, as for example, when the patient squeezes the eyelids too much and thereby the vitreous threatens to come out. In cases where subsequent excision of the iris has been done I have seen only one case of iridocyclitis. Otherwise the cases have gone along very nicely. I commenced the simple extraction only two years ago and I still operate on more than half the cases with iridectomy. For this reason I have up to this date only 725 simple extractions to show with about 6 per cent. with prolapse. This would therefore give about forty cases of subsequent excision. Those cases where the iris only late (*i. e.*, after the first eight days) and by degrees pressed itself to the wound, and which in these cases is usually very small, I generally leave untouched."

Drs. Oliver and Risley cut off the prolapse if it is discovered within forty-eight hours, otherwise it is allowed to remain.

In my own cases I have always cut off the prolapse as soon as it is discovered, which fortunately has always been within forty-eight hours. I have also been extremely careful to thoroughly cocainize the eye and to use strict asepsis in every detail, and antisepsis as well, where indicated. In removing the prolapse I used no speculum, but had my assistant employ a retractor and, if needed, the fixation forceps, to pull down the globe. This is somewhat unhandy for the operator, but much safer for the eye. I think that prolapse of the iris could often be avoided if greater care were exercised in the expulsion of cortical matter, clear cortical masses being especially dangerous.

The preliminary preparation of cataract extraction consisted of having them under control for about two or three days before operation. The whole body, including the scalp, was bathed in warm water and soap bath, the nasal passages carefully washed out two or three times daily with an antiseptic wash and the conjunctival sac flooded three times a day with a saturated solution of boric acid. A purge was given the day before operation.

Name.	Age.	Diagnosis.	Condition.	Operation.	Visual result.	Remarks.
M. S.	61	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20–40	Small loss of vitreous.
S. M.	58	Cat. intumescens senilis.	P. P. good.	Simple extraction, O. D.	20–40	Secondary operation two months.
R. S.	69	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20–30	Nerve off color; secoudary operation.
B. A.	74	Cataracta matura senilis.	Per. good, proj. not so good.	Simple extraction, O. S.	20–70	
J. C.	77	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–30	
G. A.	48	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–30	Iris prolapse discovered following day; abscission at once; cataracta secundaria.
M. B.	61	Cataracta senilis.	P. P. excellent	Simple extraction, O. S.	20–50	
S. B.	71	Cataracta matura senilis.	P. P. good	Simple extraction, O. D.	20–20	
K. McK.	51	Cataracta matura senilis.	P. P. good.	Simple extraction. O. D.	20–40	Iris prolapse twenty-four hours; abscission at once.
J. K.	62	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20–40	
M. G.	80	Cat. matura complicata	Percep. good, projec. fair.	Simple extraction, O. S.	20–50	Secondary operation; gross choroidal changes.
M. B.	64	Cataracta matura senilis.	P. P. good	Simple extraction, O. S.	20–50	Cat. secundaria; secondary operation two months.
W. C.	65	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20–30	
A. McB.	59	Cataracta matura senilis.	P. P. excellent	Simple extraction. O. S.	20–30	Secondary operation in one year.
B. McD.	49	Cat. intumescens senilis.	Counts fingers badly.	Simple extraction, O. S.	20–40	Cataracta secundaria; Secondary operation; O. S. cornea-macula. V=4-200.
L. D.	53	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–cc	Iris prolapse discovered in forty-eight hours; abscission at once; secondary operation to be done.
F. S.	72	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S.	20–40	
W. K.	68	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. D.	20–30	Secondary operation five months.
C. K.	76	Cataracta matura senilis.	P. P. good.	Simple extraction, O. S.	20–40	
H. E.	59	Cataracta matura senilis.	P. P. good.	Simple extraction, O. S.	20–50	Iris prolapse twenty-four hours; abscission at once.
D. S.	64	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	20–30	
F. A.	68	Cataracta matura senilis.	P. P. good.	Combined extraction, O. S.	20–30	Secondary operation six months.
G. W.	48	Cataracta matura senilis.	P. P. excellent	Combined extraction, O. D.	20–30	
C. M.	83	Cataracta matura senilis.	P. P. very doubtful.	Simple extraction, O. 2.	20–20	
J. D.	68	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	Doubtful 0. D. V. 20–30	Both eyes operated upon; patient very unruly; refused to open lids for several weeks after operation; secondary operation to be performed.
P. K.	72	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	D. V. 10–40	
W. S.	59	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	D. V. 20–40	Cataracta secundaria.
M. McC.	64	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	D. V. 20–80	
W. B.	56	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	D. V. 20–40	Detachment retina O. S.; no indication of same O. D.
E. S.	71	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	D. V. 20–40	

All instruments except the Graefe knife were sterilized in soda solution. The Graefe knife was dipped in a boiling soda solution and, along with the other instruments, put in absolute alcohol and all carefully wiped with sterilized gauze. The solutions of cocain and boric acid were rendered sterile as far as practicable. Cocain (2 per cent.) was always instilled into the eye about twenty minutes before operating (and repeated), as this seemed to produce anesthesia of the iris, preventing the patient from squeezing the lids during the delivery of lens or during iridectomy. At the time of the operation the patient's face was thoroughly washed with warm water and soap, followed by bichlorid, 1 to 2,000. The eye was washed out with a 1 to 5,000 solution, and just before the incision a 1 to 2,000 solution was dropped over the globe, which I believe is the custom of Dr. Knapp. My hands and those of the assistants were carefully looked to. Lately I have used sterilized gloves as employed by Landolt. These are put on immediately after washing the hands in the bichlorid solution and are not removed until the time of the operation.

A very light aseptic gauze bandage with pads (dry) was used in every case. The eye was washed daily with boric acid solution and atropin was instilled. In some cases the bandages were removed in five or six days, and in others not until the fourteenth or fifteenth day. No case was confined to bed more than seven days, four days being about the average.

I am indebted to my assistant, Dr. Martin, and also to the resident physicians of St. Mary's Hospital for the very thorough manner in which they carried out antiseptic detail, as in none of the cases was there the slightest evidence of suppuration.

GLAUCOMA.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY DUDLEY S. REYNOLDS, A.M., M.D.

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LOUISVILLE, KY.

The term glaucoma, which formerly meant sea-green pupillary reflex; with more or less complete blindness, described by Walther as a condition in which the patient sees nothing and the surgeon likewise nothing, has come to mean so much that it now really means nothing definite. The nearest approach I could come to a location of the structural lesions which give rise to the symptoms of glaucoma would be the ciliary region of the eye. As a matter of fact, disturbances in the nutrition of the ciliary muscle, with or without corresponding disturbances in the ciliary body, presenting all the varying characteristics from a reflex hyperemia to a fulminating parenchymatous inflammation, give rise to some degree of ocular tension, accompanied by undue fulness of the retinal veins and some degree of depression of the surface of the optic disc. Perimetric registration may be required to complete the diagnosis in some mild cases. In acute inflammatory cases this means of diagnosis, if desired, could not be practiced.

The degree of ache varies from the slightest sense of continued discomfort to a sense of excruciating pain. Clinically considered, the inflammatory attacks of cyclitis which present sharply defined ocular tension, with turbidity of the refracting media, sluggish or entirely absent pupillary movement, with well-defined corneoscleral injection, may safely be accounted manifestations of rheumatism or gout; except-

ing alone those eyes which have been subjected to some recent injury. If iridectomy be done in such cases, it must be supplemented by active antirheumatic medication. I believe it unwise to perform iridectomy during a paroxysm of inflammatory glaucoma. With full dose of Rochelle salts followed, as soon as the bowels have moved, by ten, fifteen or twenty grains of salicylate of sodium in a half pint of water every hour until the pain is subdued; then every four hours alternately with suitable doses of the muriate of pilocarpin in a like quantity of water; accompanying each dose of medicine with four to six ounces of nutrient fluid, such as malted milk, beef tea or other similar fluid, permitting no other nourishment to the patient until all inflammatory symptoms have been subdued (and it may be safely calculated this may be accomplished within two or three days), it will be found that the inflammatory process may be favorably modified, even in the worst cases, within two or three hours from the administration of the aperient. If, when the force of the inflammation has been checked and the humors of the eye cleared up so as to permit satisfactory ophthalmoscopic examination, it then be found that the disc is cupped, the retinal veins enlarged and tortuous, the field of vision characteristically contracted, no matter whether ocular tension is discoverable at this period or not, iridectomy should be done.

In all cases where iridectomy seems to be urgently needed, it must not be forgotten that general anesthesia will be required, and that this nearly always provokes emesis and severe headache; in fact, engorgement of the vessels of the superior extremity of the body, conditions which favor rupture of already turgid vessels. I am convinced many eyes are sacrificed in the hasty performance of iridectomy, before efficient means have been employed to reduce arterial tension. The pain of all inflammatory processes is promptly abated in direct proportion to the reduction of blood pressure. The dangers incident to iridectomy, when blood pressure is high, far outweigh any possible disaster from delay pending the preparatory treatment of the patient. I am persuaded the customary one-fifth, or one-sixth part of the iris is entirely too large a section to remove. I have been frequently amused in reading some of the chimeric explanations of the supposed changes which take place in the eye after iridectomy has been done.

We have all seen in various injuries of the eye, how inflammatory products and traumatic hemorrhages in the anterior chamber likewise disappear. It is no uncommon observation that the glaucomatous eye which has been subjected to iridectomy suffers, with each recurring relapse, more or less hemorrhage into the aqueous chambers. There is every reason to support the theory that drainage through the vessels of the iris into the aqueous chambers constitutes the sole advantage to be derived from iridectomy in the treatment of glaucoma; and there is, to my mind, no tangible basis for the theory that iridectomy is, of itself, a permanent curative agency. I regard it as an absolutely necessary auxiliary measure, in all the varying types of the so-called inflammatory glaucoma. I believe that in the incipient types iridectomy can do no good. I believe it is useless in any case where the iris is not involved. My experience with sclerotomy, both anterior and posterior, has been such as to leave me in doubt as to the value of either form of the operation. I have long regarded Hancock's operation as an unjustifiable procedure, subjecting the eye, in many cases, to ultimate loss of sight. It is nearly always followed by recurring attacks of cyclitis, which by continuity invade the choroid, eventually extinguishing sight, sometimes requiring enucleation to arrest the frequently recurring reflex disturbances in the fellow eye.

In eyes which have been subjected to extraction of the lens without iridectomy, iritis coming on insidiously, the pupil undergoing contraction and becoming cemented to the posterior capsule of the lens, gradual increase of tension is developed, and even in some rheumatic subjects entire recovery may be secured without iridectomy. In such cases I have occasionally practiced divulsion of the sphincter pupillæ muscle, by passing two needles through opposite sides of the cornea into the minute pupillary area, and by separating the needles, first laterally and then vertically, forcibly tear open the posterior capsule, at the same time divulsing the pupil; following this process by the administration of salicylate of sodium and pilocarpin, in alternate doses, and using locally a drop of homatropin solution every half hour for the first day, always restricting the diet to fluids administered with the medicine, as before suggested, during the period of active inflammatory changes.

An illustrative case may be cited from my practice

A robust woman 80 years of age, with rheumatic diathesis I extracted senile cataract from the left eye on April 12, 1897 No incident of importance occurred until May 12, when I received a letter from Dr. N. informing me that Mrs. K. wa suffering with neuralgia of the left eye. I wrote to him to us no opiate, but to rely on the salicylate of sodium and the hom atropin drops for the relief of the pain. She made but sligh improvement and returned to the city on May 21. At that tim the ocular conjunctiva was injected so much as to render th sclera invisible. The pupil was about 2 millimeters in diame ter, and seemed to be about 5 millimeters posterior to th cornea, giving the iris the appearance of a funnel. Tensio +2. On May 22, at the Gray Street Infirmary, I practice divulsion of the sphincter pupillæ, as above described. Th anterior chamber promptly filled with blood and as soon as th operation was completed the patient began with 10 grains c salicylate of sodium in a half pint of water, followed two hou later by one-sixteenth of a grain of muriate of pilocarpin in like quantity of water; in two hours more, another dose of th salicylate, and so on alternately. At the same time a solutic of homatropin, 1 grain to 2 drams of distilled water, was i stilled every half hour. On May 23, at 8 A.M., the patient temperature was 99.3 degrees; at the time of the operation was 99.8 degrees. The pain, which was considerable at th time of operating, has disappeared entirely, and the patie had a fairly good night's rest, awaking occasionally. At 4 P.M the temperature was 98.2 degrees, tension of the eye abo normal, patient entirely comfortable, in a profuse perspiratio anterior chamber beginning to clear up; iris distinctly visibl May 27, 8 A.M., anterior chamber clear; no tension; pupil di tinct and round, 5 millimeters in diameter. Patient had a go night's rest. At 6:30 P.M., temperature was 98.2; aqueous cha ber of the eye perfectly clear; vessels of the ocular conjur tiva clearing up, with the sclera distinctly visible on the te poral side of the globe. The lids, which had been slight swollen since the operation, are now entirely normal in appe ance. The patient counts fingers at three feet, and says s wants to go home. May 28, at 4 P.M., the sclera shows d tinctly; the eye is perfectly comfortable and the patient anxious to return home. She has no abnormal temperatu and desires a more liberal diet. The pilocarpin is discontinu and the salicylate is to be kept up every four hours. Patie may have a little solid food, the fluid nourishment to be c tinued with each dose of medicine. The homatropin drops to be continued every four hours. I regard the patient s safely convalescent and anticipate no further trouble. [Aug 25, 1897 with +11.00 D.; S. = 6-xii+ Snellen.]

I have had many similar experiences, and subm this as my most recent, as affording, perhaps, the mo distinctly typical illustration of my point, that ca-

stitutional treatment is vastly more important than either iridectomy, or any possible advantage from local medication.

In an eye from which the lens has not been removed, conditions similar to those described in the case of Mrs. K. could not, in my judgment, be overcome without iridectomy. In an aphakial eye abundant experience shows that iridectomy can accomplish no good purpose and is wholly unnecessary, even in the presence of an acute inflammatory glaucoma.

To briefly sum up the points I desire to make, it will be necessary to keep in mind the clinical features. My conclusions briefly stated are as follows:

1. Incipient glaucoma is frequently relieved by improved nutrition, with correction of any existing errors of refraction. It is sometimes relieved by the iodid of potassium, associated with the local use of eserin drops.

2. Mild and insidious cases of inflammatory glaucoma, between paroxysms, may exhibit but little tension. They require iridectomy for the drainage of the engorged vessels during the paroxysm, and constitutional treatment to aid in the elimination of accumulated débris in the tissues.

3. Inflammatory glaucoma, excluding the traumatic cases, should be accepted as a manifestation of rheumatic diathesis; and, while iridectomy should constitute a necessary part of the treatment, it should not be relied upon to the exclusion of the all-important constitutional measures. I do not think iridectomy should ever be done as a prophylactic measure simply.

4. Since iridectomy can accomplish nothing beyond the establishment of drainage for the vessels of the iris and contiguous structures, into the aqueous chamber, the amount of iris removed should be small. The operation should not be repeated in any case. Supplemental constitutional treatment is imperatively demanded in every case where iridectomy is done.

5. In all cases of increased tension of the eye, with peripheral contraction of the field, engorgement of the retinal veins, with or without visible cupping of the disc, constitutional treatment is necessary; and, above all, strict attention to the state of general nutrition and habits of the patient.

SECONDARY GLAUCOMA.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY S. D. RISLEY, M.D.

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It is probable that under the title of this paper might be quite correctly classified all classes of inflammatory glaucoma whether acute or chronic. There would then remain a comparatively small, illy defined group of cases of a non-inflammatory type to be designated as simple or primary. Increasing clinical experience has surely taught that the increased tension of the eyeball, the insensitive and steamy cornea, the impairment of peripheral and central vision is a group of symptoms frequently occurring as a resultant of widely diverse pathologic processes. For example, we find this important and interesting symptom-group as a sequel to hemorrhagic retinitis, or to chronic but steadily advancing disease of the uvea in gouty subjects. We meet it again in cases of dislocated lens, or following large rents in the lens capsule caused either by discission operations or by accidental traumatisms, which cause a rapid swelling of its substance and speedily loading of the aqueous with the dissolved cortex: It not infrequently presents itself as a part of the closing scene in the destructive processes which characterize plastic iridocyclitis, fiercely attacking, as they do, the anterior segment of the globe, or in uveitis, which involves usually the entire uveal tract. In all of these widely differing conditions the glaucoma group of symptoms occurs as a sequel, probably never as a primary or initial condition.

I do not propose to discuss these suggestions in all their bearings, but simply to give briefly the history of two cases which illustrate widely diverse types of disease, each leading up finally to the symptom-group we call glaucoma.

Case 1.—Plastic iridocyclitis, annular synechia, and occlusion of pupils. Secondary glaucoma, iridectomy; recovery with moderate vision.

W. W., colored man, aged 32 years, came to the Wills' Eye Hospital, June, 1894. He had suffered from an attack of iritis, probably syphilitic, in 1884, since which time he suffered frequent attacks of pain and redness of the eyes, for which he had received no treatment. His vision had gradually failed until he found it difficult to do his work, that of a farmer. During these years he had suffered from frequent attacks of headache, which had lately become constant, and his vision was often so poor that he could with difficulty find his way about in strange places. O. D. V. large letters at 1 m., but was often much worse. O. S. V. q. p. l.

The following conditions were noted: O. D. pupil small; annular synechia; anterior capsule gray; anterior chamber shallow and angle closed by adherent iris. Tension 1. Slight ciliary injection; no study of fundus possible; contracted field of vision. O. S., same general conditions present, but pupil was in addition occluded by a mass of exudate. The iris was pressed forward and was lying apparently in contact with the cornea, the pupil lying in the apex of a funnel-like depression. The ball was soft. He was placed on mercurial inunctions and eserin; potas. iod. in ascending doses internally. This treatment was maintained until the latter part of September. During this time, although his health improved, he suffered severely from headache and had repeated attacks of increased tension in both eyes. His vision grew rapidly worse, so that he was led to the clinic by his wife, and the candle fields were contracted to a few degrees. He was then admitted to the hospital and a broad iridectomy made upward in both eyes. It was impossible to carry the point of the keratome between the cornea and iris. It was therefore entered well back and penetrated the posterior chamber, being brought forward through the iris into the anterior chamber near the pupillary border, care being exercised to avoid the lens. A quantity of viscid yellowish fluid exuded from the wound. The iris forceps were introduced and seizing the iris at the cut portion near the pupil was gently drawn out of the wound in the reverse order from that ordinarily employed. It was found sufficiently tough to bear traction in the right eye, but very friable in the left, so that it was taken away in fragments, but a large coloboma was secured in each, which fortunately remained open. The eyes healed promptly but continued red and irritable for many weeks. The anterior chambers resumed their normal depth and both balls became soft. The headache promptly disappeared and he was soon able to see his way about the ward.

After six weeks he was discharged from the hospital with sufficient vision to be able to go home without a guide, and became an out-patient. Potas. iod. and bichlorid of mercury alternating with iod. of iron were continued with more or less regularity for a year or more, with local washes, atropin and weak solution of eserin. He has never had any recurrence of headache, or pain or redness of his eyes, and the tension of the balls has steadily improved. He attends the clinic without a guide and is able to resume his work about the farm.

Case 2.—Uveitis, secondary glaucoma.

Sept. 9, 1894, R. W. presented himself at the Wills' Eye

Hospital for treatment. He was suffering from dull headache and photophobia. He related that the left eye became red and painful during the summer of 1894, and had been under the care of his physician for a long time before he observed failing vision in the right. He denied syphilitic infection at any time, but was evidently in ill health and of a so-called strumous diathesis.

The pupils were dilated with atropin prescribed by his physician. The following objective conditions were noted: In O. D. there was some ciliary injection, the epithelial surface of the cornea was normal, but the posterior surface was dotted with numerous gray points which were arranged in a more or less triangular form in the lower part of the membrane of Descemet. The anterior chamber had normal depth, but the aqueous humor was slightly turbid. Viewed through this and the deposit on the cornea, the iris seemed to lack luster and its surface presented an apparently smooth uniform surface. The pupil was dilated; large medium and no synechia were present. Only a veiled view of the fundus could be obtained. There were floating vitreous webs, and the nerve borders were lost in the surrounding infiltration of the fundus. T. = n. V. = 6 xii. Field for form normal.

In O. S. there was more pronounced ciliary injection. The cornea was found steamy throughout and at its lower part a large crescentic area extending from the limbus to a point near the horizontal meridian of the cornea, exhibiting deep gray infiltration over which the cornèa appeared flattened, but the epithelium was intact.

The anterior chamber had apparently normal depth. The pupil was small, its margins partially adherent to the anterior capsule was gray. V. = 6/xxx, slight minus tension. No satisfactory study of the eye ground could be made.

He received potas. iod. and corros. sub., with tonics, internally and atropia locally. By November 11 the eyes had lost their injection and dread of light and his headache was better, but vision in O. D. had fallen to 6/xv and small slender synechia had formed, and the vitreous degeneration had also advanced. In O. S. V. 6/xlviii; tension and fields were normal in each eye. The atropia was stopped. On November 23 the corneæ were steamy and vision had fallen to 6/ix in each, and severe pain in the eyes came on daily, after noon, for which he received eserin locally and antiperiodic doses of quinin. There were transient attacks of increase of tension, but these would disappear after massage and instillation of eserin, even while waiting in the clinic room. The eserin alone however was not well borne, the eye often doing better under atropin, or the two drugs used alternately. He would have intervals often extending over many days of freedom from pain, during which the haze of the cornea would be absent and the vision would improve; then suddenly, and without known provocation, the symptoms would return with marked increase of tension, which could always be speedily relieved by manipulation and eserin. The case progressed until Feb. 11, 1895, when under an unusually severe exacerbation of acute glaucoma, vision fell to the ability to count fingers with difficulty, corneæ steamy and insensitive, T. +1. Severe pain, anterior chambers normal depth.

He was admitted to the Hospital, placed on mercurial inunction, eserin and light massage. Under this treatment, with extra diet and tonics, the glaucoma rapidly disappeared and vision once more came up, but there was marked cut in the lower temporal fields of both eyes.

On March 6 the eyes were nearly white again, and although there were transient attacks of increased tension, the eyes were free from pain. On March 12, 1895, the fields were found as shown in Fig, 2, *a* and *b*. O. D. V. = fingers only. O. S. V. = 5/lx. A broad iridectomy was then made in the right eye. The recovery was rapid and without reaction, and in four weeks V. = 4/lx. On April 1 an iridectomy was made on the left eye, which also recovered without reaction, and the man was discharged from the hospital on April 15, 1895, with both eyes white, the fields of vision nearly normal. T. — 1. O. D. V. = 4/lx. O. S. V. = 4/lx. No satisfactory study of fundus possible, cornea clear, except lower quadrant in the left eye. There was no return at any time of increased tension, but there were repeated attacks of bullous keratitis in both eyes, during the following summer and autumn. The eyes, however, finally became quiet, A year later, March, 1896, V. had fallen to 1-60 in O. D. from commencing opacity of the lens. O. S. had risen to 6 xlviii. In April the right ball was soft, lens opaque, q. p. l. shallow anterior chamber. O. S. V. 6 xlviii and white T. — 1. in each eye.

The history of these patients is presented as illustrative of two essentially different groups of patients, both unfortunately very common, but, in the opinion of the writer, of great interest because they shed much light upon the etiology of increased tension. In both cases was witnessed the steady progress of disease culminating in all the signs of inflammatory glaucoma. Increased tension, steamy and sensitive corneæ, and contracted field of vision, all the symptoms being promptly relieved by iridectomy. Nevertheless they present few if any other features in common. In Case 1 was present all the conditions of a plastic iridocyclitis, viz., an acute iritis followed by frequent recurrence of milder or subacute exacerbations, leading to annular synechia, occlusion of the pupils, infiltration of the iris and ciliary body, with the products of inflammation, copious exudate imprisoned behind the iris, which was pressed forward by its accumulation, effectually blocking the spaces of Fontana and thus closing the excretory channels at the angle of the anterior chamber.

In case 2 we have presented a history which differs from case 1 in all essential particulars. The marked tendency to a plastic exudate is absent. Only a thread-like synechia was formed. The onset of the disease was insidious and steadily progressive, attacking first the left eye and after many weeks spreading to the right, where the first manifestation was that of dimness of vision, which proved to be due to an infiltration of the retina and choroid at the posterior pole which blurred the optic nerve margins and veiled the details of the fundus; then degeneration of the vitreous body, shown first by a sand-like deposit and later by webs which as the disease advanced became more dense and floated more and more freely, while the acuity of vision rapidly declined. Then came deposits on the posterior surface of the cornea from the aqueous, which became turbid from the increasing exudate. Not until this stage of the disease was reached was there observed any tendency to increase of tension. At no stage of the affection was the anterior chamber shallow, or the angle closed by the periphery of the iris; at no time was there any arrest of communication between the posterior chamber and the spaces of Fontana. Nevertheless as in case 1, we observed, late in the disease, the increased tension, the steamy and insensitive corneæ, the contracted fields of vision, also relieved by iridectomy never to return.

It is obvious that from the start to finish we have two essentially different types of disease portrayed in the history of these two patients, both, nevertheless culminating in a common group of symptoms depending upon a mechanical condition which required for its relief the same mechanical interference. Many important and interesting inquiries present themselves for discussion, especially in case 2. First, in both interest and importance, is the nature of the disease in the right eye. Was it idiopathic, or was it secondary to that in the left eye which was first involved, and probably due primarily to an abscess in the lower part of the cornea?

In the second eye the disease certainly manifested itself first in and around the papilla and subsequently spread forward gradually manifesting all the conditions ordinarily present in so-called sympathetic ophthalmia of the serous type.

In case 1 the increase of tension was obviously due to the exudates and fluids imprisoned behind the iris and by the closure of the angle of the anterior chamber. In case 2, it is probable that the anterior excretory channels were clogged by the profuse albumi-

ous exudate. This view seems to find corroboration in the relief which was frequently afforded by massage.

DISCUSSION ON PAPERS OF DRS. REYNOLDS AND RISLEY.

Dr. ALLPORT of Chicago—In discussing the paper of my friend, Dr. Reynolds, and while agreeing with him in the general trend of thought contained within its pages, I can not but feel that his loyal, broad and radical nature has been led into certain positive statements that are hardly warranted by the condition of modern ophthalmologic thought. For instance, he utterly surrenders to the rheumatic or gouty theory of glaucoma. I would not be understood as ignoring this important and suspicious etiologic factor, as we are doubtless all firm believers in its potency, but I am not prepared to accept the sweeping assertion that the production of glaucoma is dependent upon two factors, viz., lithemia and traumatism. Time and research may, it is true, verify this bold position, but I am at present unacquainted with scientific data upon which to build such an etiologic structure. The lithemic theory of pathology is now ascendant, not only in ophthalmology, but in other branches of medical science, and like other theories, is in danger of too great popularity; and while not desiring to decry its claims, I would like to be confident that ophthalmology may not be compelled to retrace its steps.

Dr. Reynolds' theory of the cause of benefit derived from iridectomy is unique. He evidently believes that glaucoma is purely a vascular disease and has nothing to do with abnormal secretion or excretion. He may be correct in his views; it is unbecoming in any one to disregard the opinions of others, but surely this is not the pathology entertained by modern ophthalmologists.

Dr. Reynolds attributes the benefit derived from iridectomy to the mere production of a cut iritic surface which permits of vascular drainage through the iritic blood vessels. If this were true, a simple incised wound of the iris would answer the purpose as well; and how can we account for undoubted (*if* infrequent) beneficial results following the operation of sclerotomy? I had supposed that the usefulness of a broad iridectomy in these cases resided chiefly in the tearing away of the obstructive, adherent iritic periphery from the posterior corneal circumference, thus re-establishing the lymphatic circulation coming *from* the ciliary body, zonula, posterior and anterior chambers and going *to* the canal of Schlemm, spaces of Fontana, and onward. If this is true (and it appears to be the present accepted theory), then Dr. Reynolds' idea of a small iridectomy would be at decided variance with it. We all feel that a large broad iridectomy is the proper operation, as the broader the detached base, the more thoroughly will those obstructions be removed which militate against the maintenance of ocular, excretory equilibrium.

Dr. Reynolds says that iridectomy is of itself never a permanent curative agent. He may be right in this view, but I am sure we can all of us point to cases where a timely iridectomy has proven curative, at least for many years. Such results must surely have occurred, many years ago, before the deadly lithemic diathesis was discovered, or iridectomy would not have become so popular with Graefe and his followers.

Dr. Reynolds certainly holds optimistic views concerning the constitutional treatment of glaucoma, and I must congratulate him on the excellent and exceedingly prompt results obtained in his cases, which I can quite readily comprehend, not only because they are vouched for by my friend Reynolds, but because I have seen similar cases in my own practice. I feel, however, that we should be careful not to pronounce cases of glaucomatous tendencies as true glaucoma, and thereby perhaps establish lines of erroneous therapeusis. Still, I have not the slightest doubt that the sensible treatment advocated by Dr. Reynolds is often of the greatest benefit in *functional* glaucoma, before organic changes have occurred, and I believe that in almost all cases such or similar treatment should be thoroughly tried before subjecting the patient to the knife.

Dr. F. C. HOTZ of Chicago—Dr. Risley's report is an excellent illustration of the futility of the attempts to discover the complex, pathologic symptoms leading up to glaucoma. If we still consider increase of tension as the fundamental symptom, we must necessarily conclude that this may be caused by increased secretion into the eye or diminished excretion from it. We all know that one of the theories is based upon a mechanical obstruction in the iris angle. Among the cases Dr. Risley reported, one illustrates a mechanical impediment interrupting the removal of the fluid from the spaces of Fontana by blocking up the pupil. As to the other theory, which puts the obstruction in the iris angle, I have never been able to make up my mind to accept it and I think all the observations made and reported of old glaucomatous eyes are very deficient in their conclusive evidence, because in all the eyes examined changes had occurred which had nothing to do with the primary condition leading to the increase of tension, and if we especially consider those cases of so-called secondary glaucoma we are more and more led to look upon the ciliary processes producing the increased secretion as the seat of pathologic change leaning to increased tension.

Glaucoma, or increased tension, following needle operations as mentioned by Knapp, and increased tension following traumatisms in the anterior part of the eye, show more or less symptoms of irritation in the ciliary region and in this connection I consider the researches of Treacher Collins of great importance. He thinks that the ciliary processes are glandular structures and if these observations are confirmed, we have a very important discovery, because these glands might easily answer for the increased secretion of serum into the eyeball as the result of an irritative condition.

Dr. LUCIEN HOWE of Buffalo—I was very much struck by what a gentleman said to me several years ago, that at regular intervals, two or three times a year, he received articles on glaucoma and he usually noticed that the less the author had of experience, the longer the articles were. I do not mean that the papers we have listened to have not given us a flood of light upon some of the points, but we are too apt to be led into this or that theory that has not a sufficient number of facts upon which to stand. I want to mention two things bearing upon these papers. My attention was called some time ago to the extract of the suprarenal capsule for lessening that kind of injection. It is of decided value. The preparation lasts a very short time unless it be made into tablets, which can be easily prepared. Another point I wish to call attention to is the use of eucain as a local anesthetic, especially where atropin causes the iris to almost disappear. It produces anesthesia and does not produce dilation of the pupil.

Dr. C. A. WOOD of Chicago—There is one aspect of secondary glaucoma which it would be well to bear in mind, and that is its tendency to assume forms which it is extremely difficult to differentiate from secondary optic nerve atrophy, associated with physiologic cupping of the papillæ. A unilateral cupping, sufficiently deep and large to hide the papillary portions of the retinal vessels, is practically always significant of glaucoma whether the other signs or symptoms of the disease be present or not, but in the bilateral cases, unless there are unequivocal evidences of glaucoma apart from these ophthalmoscopic appearances (continued increased tension, pulsating arteries, shallow anterior chamber, enlarged anterior perforating view, etc.), it is extremely difficult to make a diagnosis. Schweigger pointed this out many years ago and furnished numerous instances where cases of simple progressive atrophy, accompanied by occasional doubtful increased tension, had been operated upon with disastrous results. I have seen a number of these cases of so-called "simple" glaucoma and have reason to suspect that the lack of faith expressed by many writers in the treatment (eserin, sclerotomy, iridectomy, etc.) of simple chronic glaucoma, arises, in some instances, from the fact that these cases partake much more of the character of simple progressive atrophy associated with congenital cupping of the disks, whatever that may mean, than of the symptom-group described by Dr. Risley as glaucoma.

Dr. S. S. SEABETTER of Birmingham—I would like to refer to the statement made a few minutes ago in regard to the frequency of the disease among the colored people, and the attempt to assign a cause for it. I live in a State where two-fifths of the population is colored and I can recall but one or two cases of glaucoma among colored people, while I think of quite a number of cases among the whites, and I hardly think the condition supposed exists.

Dr. C. F. CLARK of Columbus, Ohio—There is only one point I would like to hear more discussion upon and that is the extent of the iridectomy. It is an old question, but not entirely settled. I have seen a number of cases of good results from very small iridectomy.

Dr. LEARTUS CONNOR of Detroit—There are some facts bearing on the points raised by Dr. Reynolds that are worthy of consideration. I think it is proven that the conditions that Dr. Reynolds alluded to do make changes generally in the interstitial tissue and in this way interfere with the spaces between the anterior and posterior chambers, and knowing how this is done the remedy for it is easy. The reason I think that iridectomy may do this is that it opens up these spaces; I do not think it is the taking away of the iris at all, but that by removing it the obstruction in these spaces is removed and the fluid can pass through readily. As Dr. Risley mentioned, mas-

sage has produced these results. I have seen it myself, and some one has said that electric currents will do the same thing. I think it is desirable to try this also. From my own experience I think we have gone somewhat beyond theory and have some pretty positive evidence upon which to base a rational line of treatment, and in a general way Dr. Reynolds has fairly well stated the methods.

Dr. A. B. RANDALL of Philadelphia—A seeming paradox sometimes produces good results. In Risley's case we had a decided amount of reduced tension in the eye operated upon in contrast to the more usual condition between the exacerbations. We should bear in mind the evidence we have to suppose malnutrition to constitute a factor of very great importance, not always secondary, but often provocative. I recall very well a case that in some ways I might call a glaucoma with decreased tension, a case with both eyeballs soft and one absolutely mushy. I made use of iridectomy for the improvement of nutrition and was gratified with a fairly good result which in view of the fact that the other eye went on to a bad result, enables that man to make his living and even to read slightly with an eye that my colleagues strongly urged nothing could be done for it but enucleation. These paradoxes then might properly engage our attention and we may find some underlying interstitial changes that must always be taken into account.

Dr. G. EDGAR DEAN of Scranton, Pa.—I have read the paper that Dr. Connor refers to and since reading it I have made use of electricity in some of the cases in which iridectomy was not called for, and I have positively seen a very decided reduction of tension in the short time of ten minutes after the application of electricity by applying the negative pole to the eye and the positive pole to the head. I would call attention to the fact that the negative pole must be placed to the eye because I have seen cases in which there was increased tension produced by placing the positive pole on the eye; the direction of the current is important. The points which Dr. Reynolds brings out in regard to the internal treatment, such as the use of laxatives, Hunyadi water, etc., is also important, and I believe the use of salicylate of sodium and pilocarpin are very important points and should not be neglected.

Dr. HERMAN KNAPP of New York—In regard to the theory of glaucoma, that the ciliary body is probably at the bottom of it, is shown not only by cases of increased tension, but in sympathetic ophthalmia as well, but the glaucoma after discission is true experimental glaucoma and the bodies interfered with are the vitreous and ciliary bodies. The lens capsule has nothing to do with it and in those cases the angle is not only left but is increased; the iris is bulging in the center and retracted at the periphery, so there is no blocking of the spaces of Fontana. These two things should be considered.

Dr. D. S. REYNOLDS of Louisville—The point that I endeavored to emphasize was the fact that in the inflammatory forms of glaucoma the disease most likely begins in the ciliary muscle. We all know the predilection of the peculiar complex form of disease we call rheumatism for the connective tissues and the ligaments. Another point I wish to emphasize is that those of non-inflammatory development occurring in neurotic people are due in a large majority of cases to malnutrition. The other causes I could not consider in the short time at my disposal.

Dr. S. D. RISLEY of Philadelphia—There is probaby a distinct relation between the deep anterior chamber in glaucoma following discission operations, as pointed out by Dr. Knapp, and the presence of vitreous which clogs the spaces of Fontana.

ANGIOMA-MYXO-SARCOMA OF THE ORBIT, WITH REPORT OF A CASE.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY S. C. AYRES, M.D.
CINCINNATI, OHIO.

There is no locality of its size in the human body so rich in the various tissues which may serve as the starting point for the development of tumors, both malignant and benign, of the orbit. In it we have bone, periosteum, muscular tissue, fat, fibrous and connective tissue, glands and mucous membrane, and in the capsule of Tenon a serous cavity lined with a serous membrane. There is also the optic nerve and a liberal supply of blood vessels. Among the malignant tumors we find carcinoma, sarcoma, myo-sarcoma, and from the internal ocular tunics, melano-sarcoma and glioma. Among the benign tumors we find angioma, erectile tumors, fibroma, myxoma, lipoma, hydatids, serous and bloody cysts, dermoids, osteomata, papillomata, cysticerci and occasionally enchondroma. There are also tumors of the lachrymal gland and optic nerve, and aneurysms of the ophthalmic artery, both traumatic and idiopathic. The orbit is occasionally involved by disease of the ethmoid, the frontal sinus and the brain. The cavity is also of special interest to the general surgeon in concussions of the brain, fractures of the bone of the skull including the sphenoid or other bones which form the orbit and in cases where intra-orbital hemorrhages occur. Taken all in all it is a cavity well worth the careful study of the oculist as well as the general surgeon. This is my apology for presenting a rather rare form of orbital tumor.



Mrs. M., aged 64 years, was first examined by me in Febru ary, 1896. She stated that the tumor in the right orbit wa first noticed eighteen years ago. It began in the upper an outer angle in the region of the lachrymal gland. Its develop ment was very slow and painless and it was several years be fore vision in the eye began to fail. It has been in its presen condition three or four years but is becoming more annoying o account of the enormous proptosis of the globe. The tumor fill the upper and outer portion of the orbit pushing the eye dowr The proptosis is very marked, the eye being so far out of th orbit that the posterior portion of the globe is almost on a lin with the bridge of the nose. The motility of the ocular mus cles is unimpaired except by the great stretching of the mus cles. The media are clear with the exception of the lens, i the lower portion of which is a small opacity. The optic nerv is atrophied and there is a large posterior staphyloma. Th eye still retains slight perception of light. Under the skin o the outer angle of the upper lid can be felt a movable glan

which is probably the lachrymal gland completely extruded. On forcibly drawing up the upper lid the outline of the tumor can be seen. It is smooth, rounded, not nodulated, is somewhat elastic but without fluctuation. It has a dense whitish appearance and does not resemble a cyst. The outlines of the tumor can be felt around the orbit, above, inward and below. The lower lid is edematous from the mechanical pressure of the tumor and the globe. The tumor has never given her any pain from its incipiency to the present time. The exposure of the globe to the air has been at times very annoying and is gradually becoming more so. Her physician, Dr. Heady, to whom I am indebted for the case, says her health is very good. She comes of healthy stock and there is no history of cancer in the family.

The operation was done in the following manner: the outer commissure was first severed and then the adhesions around the tumor separated. The attachment of the growth over to the outer portion of the orbital wall. Its removal was not difficult and was accomplished without sacrificing the globe, but was followed by excessive hemorrhage. I then decided to remove the eye and packed the cavity to control the bleeding. The wound healed kindly and there has been no return since.

The tumor was ovoid in shape and somewhat flattened on its posterior surface. It measured 30 mm. in breadth, 30 mm. in length and 20 mm. in thickness. The entire surface was smooth and shining with the exception of that portion which was attached to the bone.

The specimen was hardened and examined by Prof. S. P. Kramer who wrote me as follows: "The examination of the tumor handed me proves to be an angioma-myxo-sarcoma. The section shows a large number of dilated blood vessels with thin walls. The remaining tissue is a combination of sarcomatous cells with a considerable admixture of fibrous connective tissue and a hyaline tissue made up of branching cells and a hyaline or mucoid intercellular substance. These tumors have also been called angio-sarcoma-myomatodes, and have been described by Sattler and others as occurring in the tear gland."

NÆVUS OF EYELID, WITH EXTENSIVE SECONDARY CONJUNCTIVAL INVOLVEMENT.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY G. ORAM RING, A.M., M.D.

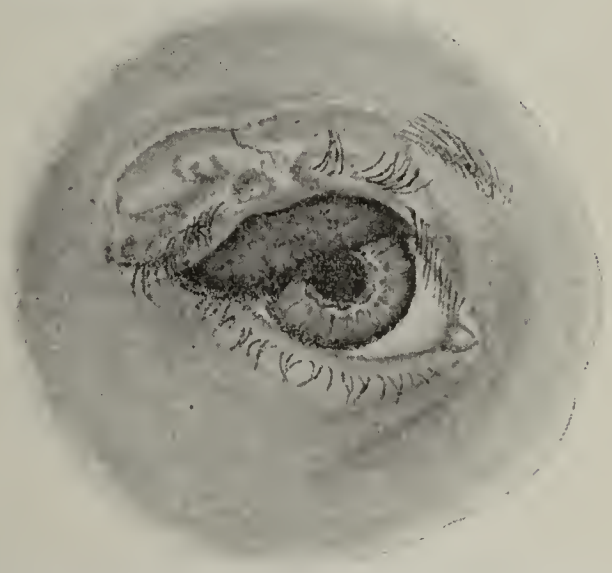
OPHTHALMIC SURGEON TO THE EPISCOPAL AND SAMARITAN HOSPITALS. PHILADELPHIA, PA.

I desire to present, somewhat briefly, the history of a case of absorbing interest, which is at present under my professional care, and which by reason of its serious character and great rarity, will form a proper subject for the consideration of the Section.

On Feb. 13, 1897, through the courtesy of my friend, Dr. J. Cardeen Cooper, a female, M. M., aged 18 months, was referred to me for treatment of a nævus of the right upper eyelid. Dr. Cooper has very kindly furnished me with a history of the case, previous to the date of my examination, the child having first come under his observation in June, 1896, five months after birth. At that time there existed on the right upper lid a nævus of the size of a small shin bark, which the mother stated had grown in about two months, as at birth there had existed only a small mark about the size of a pin's head, near the edge of the lid. There was absolutely no conjunctival involvement, nor any apparent evidence of defective vision.

As the nævus continued to grow, it was operated on by one of the general surgeons of our city, by ligation, and at the time of operation was as large as a small English walnut. Five deep sutures were placed at the base of the growth, which then involved the arch of the brow. In one week it sloughed off, leaving a healthy ulcer which healed rapidly without interruption, but with some contractile cicatrization. For three or four weeks the condition remained apparently stationary, then began the protrusion of the mucous membrane, which gradually reached the proportions which existed when I first saw the case, about nine months after the original operation.

On the skin surface of the lid are several purplish red areas of discoloration, with a number of markedly dilated vessels, between and around which the cicatricial area can be distinctly outlined. There is a cicatricial line occupying the outer three-fourths of the brow, a few hairs still remaining at the inner fourth. The lid is showing evidence of cicatricial ectropion. A number of the lashes at the central border have grown upward and external to this area, for about a quarter of an inch, the lashes are wanting. A purplish red mass projects down from the conjunctival surface of the outer three-fourths of the lid, which at its most pendant portion is about 12 millimeters deep. When the lid is everted, the appearance of the inner two-fifths of its conjunctival surface was normal; the external three-fifths somewhat suggesting the appearance of a mass of granulation tissue, which extended well back into, and involved the retrotarsal folds. The line of demarcation between the normal conjunctiva, and the area of secondary nævoid involvement is very sharply outlined. The many dilated vessels were easily recognized, and there was some evidence of extension into the orbital tissue. The accompanying water color sketch, by Miss Margaretta Washington, shows quite accurately the external appearance of the lid, after a slight contraction, the outcome of the operative procedure adopted.



The little patient is an only child. No history of miscarriage is present upon the part of the mother. There seems to be no inherited tendency to syphilis, cancer or tuberculosis, and the child gives evidence of being well nourished. The fundus of the affected eye shows no abnormality, and the condition of the fellow eye is normal. There are no enlarged vessels at any other part of the body, nor any hypertrophy of the pre-auricular or cervical lymphatic glands.

I have operated on the case five times by electrolysis, twice inserting a needle attached to the positive pole, deeply into the growth, and three times with the insertion of needles attached to both poles. There has been some slight contraction, but the result has

not been markedly encouraging. I have realized the possible danger of performing an excision, and have questioned the propriety of attempting so radical a measure, in consideration of the extensive involvement of the conjunctiva. After the removal of the growth, a plastic operation will be required.

Dr. Wm. F. Norris, who kindly saw the case in consultation, suggested the continuation of electrolysis, and advised against extirpation, unless permission were granted to enucleate the eyeball, if found necessary.

As of interest in this connection, I desire to refer to three cases of nævus, reported by Mr. Simeon Snell, in the "Transactions of the Ophthalmological Society of the United Kingdom" (1893).

Case 1.—A girl of 20, subject from birth to a nævus of lip and cheek, developed at 18 years of age, a small purplish-red tumor of the plica semilunaris, after the lip growth had been operated on. The caruncle was not involved further than its surface was traversed by a series of enlarged vessels.

Case 2 was a boy 4½ months, in whom a bluish tinge was seen through the integument in the upper angle of the right orbit. The depression of this angle was by a rounded elevation about the size of a bean. In addition to this, over the inner part of the sclerotic in the conjunctiva, was a band of narrow vessels, several coils running toward the cornea. Beginning near the plica semilunaris, this band ran directly outward toward the cornea, and then skirting this, it reached the middle line above, and passed backward over the globe, and was lost under the eyelid deep in the orbit.

Case 3.—An adult female with an angioma of the left conjunctiva. The eyelids on this side were normal, but a rounded swelling was noticed moving with the motions of the globe under the upper lid. It was about the size of an ordinary blackberry, of a deep livid color and passed underneath the upper lid. The greater part of the tumor was disclosed in raising the lid and occupied the middle third of the exposed surface above the cornea. It had apparently existed since childhood, but was completely dissected out under ether.

In the first and second cases, the treatment consisted of repeated applications of ethylate of sodium, cocain being first instilled, and the ethylate carefully applied with a brush, care being taken to confine the application strictly to the part desired to be touched.

In the first case five applications, intervals, one week, removed the growth and in the second, four applications caused it to almost disappear.

DISCUSSION ON PAPERS OF DR. AYRES AND DR. RING.

Dr. S. T. RISLEY of Philadelphia—I have seen no counterpart of the very interesting case presented by Dr. Ayres; I have seen one which aside from the operative interference seems to be a counterpart of the one presented by Dr. Ring. While listening to Dr. Ayres' paper I was impressed by the fact that one must be very much in doubt of the character of an orbital growth in the majority of instances. I have seen no angioma of the orbit, but have seen a large number of orbital growths of one kind or another. I only want to urge in view of this uncertainty, conservative treatment in their management. In two cases that I know of where operative procedures were decided upon, and declined, the growth disappeared under the use of iodid of potassium. I feel, therefore, like recommending conservative treatment first.

The case I referred to as resembling Dr. Ring's occurred in a child only a few weeks old when I first saw it. There was at the upper and outer end of the left eyelid a bluish tumor the size of a split pea, which when the child cried would become still more blue and very much enlarged. It was obviously congenital. When the child was three months old, they had previously declined any operative interference, the growth occupied the outer half of the eyelid and the eyeball was slightly displaced. When the child was lying prone the tumor became very much enlarged, bluish on the surface, and when it cried violently the distension would lead you to pacify it lest it should burst, the tissue seemed so thin. The child died of an intracranial affection and nothing was done to the eye. I think it was congenital and that its origin was in the orbit.

Dr. HERMAN KNAPP of New York—With regard to cavernous tumors in the orbit I have had some little experience. These tumors, I think, should be extirpated. I treated some with electrolysis, but my success was very poor. They can be removed without fear of hemorrhage. If they are in the lid and do not extend very far back into the orbit you can clamp them and have a practically bloodless operation.

There is another group that is more difficult to deal with, but can be dealt with by extirpation; that is, those that are seen in the lid, but extend also deeply in the orbit. They appear usually in the inner canthus and the lid constricts them so that the portion outside, with that inside the orbit, gives them somewhat the resemblance of the old saddle-bags; they are divided into two portions. I remember a case of that kind in a child that came to me twenty-two years ago in New York. I extirpated that tumor by removing only the orbital portion. It was a true cavernous angioma. I introduced the spatula into the orbit, between the eyeball and the tumor and compressed the afferent blood vessels. I had another case of the same kind in Heidelberg and this has always been my course with these tumors, to extirpate that portion that contains the afferent blood vessels and leave the rest to shrink.

Dr. J. E. WEEKS of New York—These tumors have always possessed a great interest for me because of their congenital origin in most every case and because of their tendency to increase rapidly in the young and much more slowly in the old. I have vividly in mind the case of a child that came to me at the age of three months with a small nævus of the left lid and a cavernous development in the deeper structures. The growth was small and I thought to destroy it by electrolysis. This was tried quite thoroughly and some shrinkage took place, but the deeper growth continued to develop and I soon found that method entirely useless. The patient disappeared for a short time and when I saw the case again the eyeball protruded, the cavernous growth extended to the cheek and I asked for a consultation with a general surgeon, who advised that nothing could be done. I have in a number of cases removed them by extirpation and it seems to me that the advice Dr. Knapp gave me when I was with him is good: "Remove those growths as early as possible and remove them thoroughly for they have a sarcomatous nature." If we examine them we find cells in the trabecular spaces that are decidedly sarcomatous. Originating congenitally, the malignancy is extremely slow, but seems to gain as they advance. Nothing should be thought of but their complete removal and if that is done the tendency to return is *nil.*

Dr. G. E. DE SCHWEINITZ of Philadelphia—I saw the case that Dr. Ring has described some time before he did, probably six months, and am interested in hearing his result. I think if Dr. Knapp had examined the case then he would have said it was not one for the operation of excision. I advised the parents, after consultation, to let the growth alone for the present, but also explained the chances of electrolysis. If extension of the growth should manifest itself, an operation was advised. I have no experience with the ethylate of sodium Snell has highly recommended it, but it would be well to confirm his results.

Dr. S. C. AYRES of Cincinnati—I have had a case a great deal like Dr. Ring's. It was a baby three months old, one of a pair of twins, and very delicate. The tumor was in the lower outer portion of the right orbit. When the baby cried it would fill up and look as if the skin would burst. The conjunctival vessels seemed to have at times a pulsating appearance, though I do not think it was aneurysm. I tried electrolysis with very satisfactory results; there was a great deal of shrinking of the tumor. The baby looked as if it would die if it lost an ounce of blood and so was allowed to return home, and when it returned in October the tumor had not grown. I then resorted to the method of extirpation. It was impossible to get a clamp to enclose it, but putting one-haff of the Snellen ring clamp over the skin I made an opening through the skin and dissected the whole thing out, uniting the wound in the skin with suture placed deep. I have a photograph of that child when 7 years old and aside from a little scar the whole disease is obliterated

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from p. 34.*)

XIX.—DISEASES OF THE URINARY AND GENITAL ORGANS AND OF THE RECTUM.

The *amputation of the penis*, indicated in gangrene and carcinoma, was often performed with success provided that the inguinal glands were not already swollen. The amputation was in most cases made with the ordinary bistoury or a sickle-shaped knife (C. C. von Siebold). If the cancer was limited to the gland, one could cut through the skin and corpora cavernosa with one stroke of the knife; but if it was necessary to amputate close to the symphysis, more of the skin than of the corp. cav. had to be removed, which was greatly preferred (le Dran) because the latter immediately retracted so that the bleeding vessels could not be found. A few first separated the skin with a circular incision, and drew it back, before the corp. cav. were amputated (B. Bell and Warner), which others however considered as unnecessary (Richter). The hemorrhage from the arteries required ligature, since neither styptics nor compression were reliable enough; by the latter method patients were seen to die from loss of blood, two hours after the operation (B. Bell). But the hemorrhage of the fungous corp. cav. could be arrested by moderate pressure, or by sprinkling it with a powder of colophony or gum arabic. In an amputation close to the symphysis the flow of blood was sometimes excessive; in that case the ligature might fail, but compression with agaricus, cold water (Siebold), or the hot iron (Sabatier) accomplished the purpose. In such cases they advised previously inserting a catheter to prevent the contraction of the stump as far as possible, and in order to be able to seize the decussated vessels more readily (Ollenroth). It was also attempted to apply a tourniquet or a small bandage to the penis (C. C. von Siebold). Immediately after the operation, and until the wound was healed, a catheter was introduced, that the urine might not wet the wound, and the orifice of the urethra contract or entirely close. The fear of hemorrhage led Ruysch to the constriction of the penis. He was followed by Bertrandi, Palucci and Heister, who inserted a silver tube into the urethra, and bound a strong packthread around the member. Sabatier sought to perfect this method by first making the incision into the skin and then inserting a cotton cord saturated with nitric acid. The fearful pain must cause every surgeon to shrink from this cruel operation; it was forgotten until von Graefe again returned to it.

On account of the close relation between surgery and obstetrics in the last century, it may be permitted to introduce an operation pertaining to the latter, which made the greatest sensation a hundred years ago. This was *symphyseotomy*. Indeed, Pineau had suggested the operation in the year 1575, and Cl. de la Couruée of Vesaul performed it in 1655 upon a woman who had died in labor; but both were forgotten. Sigault of Paris rediscovered it in 1768 and made the suggestion to the Académie de Chirurgie that instead of the usual deadly Cæsarean operation in case of a small pelvis, the junction of the os pubis, which often yielded in simple births, be separated and the pelvic cavity thus enlarged. Ruffel, who was appointed as commissioner by the Academy to make a report in the matter, expressed himself as unfavorable to it, in consequence of which that body deferred its judgment. There the matter rested for several years. Sigault would not admit that he was in error, although even the elder Baudelocque distinctly opposed him, and at his doctor's promotion he once more defended the operation (1773). The illustrious Peter Camper came to his assistance. Attracted by the new idea he made successful experiments on swine and observed that the os pubis united again, and he found the operation very easy. When Louis, the secretary of the French academy, asked him for his opinion he expressed himself in a letter to von Gesscher in favor of the separation of the os pubis as opposed to the far more dangerous and not absolutely necessary Cæsarean section (1774). On the first of October, 1777, Sigault for the first time performed a symphyseotomy upon a Madame Souchot, in the presence of his friend Alph. Leroy. She had a narrow pelvis, with a two and a half inch conjugate diameter, and had already had very difficult deliveries four times, always bearing dead children. Physicians and surgeons, among them even Levret, were convinced that the woman could not bear a living child without the help of the Cæsarean section. As her fifth confinement approached, Sigault, who had previously suggested symphyseotomy, but in vain, was called and he performed the operation immediately. He cut through the soft parts from somewhat above the os pubis almost to the labia, inserted his finger along the symphysis and separated the ligament and cartilage. At this moment the two parts of the os pubis separated themselves two and a half inches! He then opened the sac and removed a living child. The entire operation lasted scarcely five minutes. On account of defective light he had inadvertently injured the neck of the bladder. In sixteen days the wound of the symphysis was closed, and in forty-seven days the woman could walk about. Sigault immediately reported the operation to the medical faculty of Paris, to which body the woman was presented in December. The mother and child lived; but the former suffered from a vesicovaginal fistula and prolapsus of the vagina and uterus, and her gait was uncertain and difficult. The operation made a powerful impression. The medical faculty took it up with enthusiasm, had Sigault's treatment published and distributed, had a silver medallion with the date of the operation struck in his honor, and conferred a pension of 360 livres upon Madame Souchot because she had permitted the operation. Even from the pulpit this great benefaction which had fallen to the lot of humanity, was proclaimed. In the following year Sigault performed symphyseotomy four times, three of which were successful, when at the same time four Cæsarean sections in Paris resulted fatally. But soon a few ill consequences of the separation of the os pubis were made known; the women died or were left with wearisome infirmities. The number of its opponents increased and for years they contended with the greatest violence over the operation, which had become the question of the day. In the Hôtel Dieu in Paris, many experiments were made on cadavers, from which it was established that the small pelvic measure was enlarged only slightly, and that in order to facilitate the passage of the head, the parts of the os pubis must be separated to such a degree that the posterior articulation must

necessarily be lacerated. Sigault was charged with performing the operation when there was no need for it, and it was said that the pelvis of Madame Souchot was not so narrow as he had asserted; it was also doubted if, in his operation, the os pubis had of itself yielded two inches. In Germany, C. C. von Siebold first performed the operation (1778); the child was dead. He was obliged to saw through half of the symphysis, which was ossified (for which purpose Aitken devised the chain saw in 1789), and forcibly separate the os pubis. After a few weeks the woman was cured except a small fistula, and a year later was entirely well; the callus between the severed os pubis could be distinctly felt from the vagina. According to Siebold, symphyseotomy promised to be of use only in one case, when the small pelvic measure was not less than three inches and the head lay forward, and was not unusually large. While Loder and Mohrenheim favored the operation but with limited indications, Richter rejected it entirely, because it did not increase the small pelvic measurement, or did so only at the cost of laceration of the posterior articulation, and altogether was not so free from danger as had been supposed, and resulted in many difficulties. W. Hunter, in England, opposed it and admitted only the single very rare indication when, in case of a large pelvic cavity, the head of the child could not descend so low that it could be reached with the instrument. On the contrary, B. Bell expressed himself very favorably toward it and where only little hope was left he preferred the symphyseotomy to the Cæsarean operation or, indeed, to the use of an instrument. In spite of all the pomp with which this operation had been introduced, in spite of all the endorsements on the part of a few clever men, yet in later years it could never obtain acceptance. Still less success had the so-called pubiotomy of Aitken in Edinburgh (1786), which was never put in practice.

In the treatment of *vesicovaginal fistula* surgeons groped in darkness, for they had turned aside from the only path by which progress was to be attained. Already in the year 1663 Roonhuysen of Amsterdam had made the suggestion to trim the edges of the fistula with a knife or scissors through a speculum, and then unite them by a twisted suture. No one remembered Völter, who (1722) first advised a suture after previously trimming the fistula, and remarked: "This operation, to be sure, will appear to some as strange and difficult, as it is in truth delicate and difficult enough. Nevertheless, I have seen it performed once in the case of a gentlewoman, although it did not succeed." In the main the following treatment was made to suffice. In order to prevent the urine from forcing its way through the fistula into the vagina, a curved catheter was introduced and kept in place by an instrument of Desault. This had the form of a truss whose circle surrounded the pelvic region. Opposite the region of the pubis was placed a plate with a silver staff, to which the catheter could be screwed fast and thus held immovable in the bladder. In order to bring the edges of the fistula nearer together a wick of linen or a bunch of lint shaped like a finger of a glove, covered with elastic gum, was inserted in the vagina. In this way the lower edge of the fistula was brought close to the upper, and the round orifice was changed to a narrow fissure. Desault asserted that he had completely cured old and large fistulæ in this way, even after six months or a year.

In case of *atresia of the vagina* an early operation was necessary, for the menstrual blood might, as Richter said, force its way through the lungs and kidneys. If, as in most cases, the vagina was closed by a simple membrane, a longitudinal or crucial incision sufficed, with the insertion of a plug to prevent a fresh obstruction. But the vagina might be grown together, entirely interwoven by abnormal ligaments, or even completely closed. In all operations the procedure depended chiefly on whether the obstructed part was short or long. In the former case the lancet or a two-edged pharyngotome, with a gradual enlargement by means of wax bougies, sufficed; in other cases Richter made the suggestion that as soon as one felt, in the rectum, behind the symphysis, a sac distended by blood that it be lanced with a trocar, through the rectum. If the mouth of the uterus was closed by a membrane it was opened with a curved trocar; in case of a total symphysis a crucial incision was made.

In *hydrops ovarii*, although the patient might live for twenty years, puncture was the only remedy, and it, as a rule, afforded only a temporary relief, since the sac soon filled again. Often the puncture appeared to accelerate the ulceration of the sac and to precipitate death by exhaustion. In case of a small tumor without much pain an operation was rather avoided. W. Hunter in particular advanced this view; he regarded hydrops ovarii as incurable and guaranteed the longest life to those patients who used the fewest remedies. For the rest, the puncture with a thick trocar was regarded as the best method of operation. Since a relapse was not infrequent a radical cure was also brought into question. For that purpose le Dran advised opening the tumor with an incision four inches long, maintaining a free discharge and making injections. Some successful results were obtained by this method, but many objections were urged against it, as for instance the increased suppuration, exhaustion, etc. As its unsuccessful result, according to Richter, was occasioned by the admission of air, he proposed to introduce a trocar and then a bent tube, allowing the latter to remain. In this manner Ollenroth saved his patients. When Houstoun (1724) after making an incision had successfully removed a large part of the ovary, the actual extirpation of the ovary was proposed by de la Porte and Morand. W. Hunter was thoroughly opposed to it; Theden, Schmalz and Callisen favored it, and the last named considered extirpation as the only saving remedy, in case of increased swelling, although he doubted whether a woman would consent to it early enough. That the human body could endure the operation was known from history, where it is related that a German sow-gelder "in his wrath, opened the sides of his daughter, all too much in love, and removed both ovaries," whereupon her desire for love ceased. Pott also had successfully extirpated both ovaries which lay in inguinal hernias. This operation was not perfected during the last century; in the year 1809 the first extirpation of an ovarian cyst was performed by the American, Ephraim McDowell of Kentucky.

Among the diseases of the rectum *fistula ani* possessed the greatest interest. The investigation and classification of the fistulæ were in the same state as today. A treatment without operation gave promise of success if the fistula was short and broad and the cause easy to remove. In this way J. L. Petit with mercury cured the fistulæ in syphilis. The operation was counseled against, if the fistula caused no special

pain and did not grow larger and the constitution was not undermined. Richter also said he had observed the development of a black cataract. As consumption might afterward arise (Dumagie) it was always hazardous to operate upon patients with weak lungs. Pott did not agree with the widely promulgated opinion that a healing should not be attempted in case of cachectic people, because the discharge was salutary for the patients; he said if nature had uses for such suppuration the healing or not healing seldom lay within our power. The treatment of rectal fistula had changed to an extraordinary degree. Every age has had its methods; hot irons, corrosives, injection, enlargement and compression successively prevailed. The operation had become so barbarous that the people had a mortal terror of "fistula cutting." This explains also the fear which Louis XIV. had of an operation for his insignificant rectal fistula; he resolved to allow the operation only after many of his subjects had for years remained uncured by various remedies suggested. His body surgeon, Felix, who had invented the royal bistoury for that purpose, operated upon him successfully in 1687. The incision now became the most popular method and all others retired into the background. Sharp supplied special shears for this purpose. A. Monro, Pott, Savigny and many others devised special knives. Most of these were inapplicable and complicated. Pott's bistoury is sufficiently well known; in Savigny's instrument, one of the most convenient, a pointed blade attached to the side of a slightly curved scalpel, can be projected and drawn back. The operation lost its terror when Pott showed that a simple cut which split the fistula throughout its whole length would suffice, and that the callous surrounding did not need to be cut out as J. L. Petit had recommended. If the inner fistular opening lay so high up that it could not be reached with the finger, then a gorget (Runge of Bremen) was introduced into the rectum, the knife being thereupon inserted and following it into the passage (as in the ordinary instruments of today for the operation on vesico-vaginal fistula and on the ear and mouth cavities, at that time the handle of the gorget was fashioned at an angle so that the hand which grasped it lay to one side and did not obstruct the field of operation). Violent hemorrhages were stopped by cold water, the tampon or hot iron. In the after-treatment, in order to avoid a too hasty closing of the cut, a fine compress of lint or a little linen bandage spread with digestive salve was applied; the plugging up of the wound was considered just as reprehensible as to place nothing at all in it (Pouteau). The ligature known by Hippocrates was replaced by the incision, but was snatched from oblivion by Foubert (1757); P. Camper, Desault and Richter extolled it. For this purpose there was used a thread of hemp, silk, horsehair or a wire of lead or gold, or a gut string. As the ligature caused little pain and no hemorrhage the patient remained free from fever and could go about, and therefore many surgeons preferred it to the cut in spite of the fact that the latter led to quicker healing, especially when the fistular opening was deeply located, in case of chronic diarrhea, in feeble and timid persons and in hospitals, where inflammation prevailed. Only in complicated fistulæ with several openings and callosities was the incision unconditionally necessary. If there were no unusual circumstances Desault used the incision and the ligature interchangeably, often for no other reason than to show his pupils both methods. In 1780 in no Paris hospital were more rectal fistulæ taken for treatment than in the Charité, because there a ligature was used in operating, while in the other hospitals the incision was preferred. Extirpation of the fistula was abandoned.

Hemorrhoids were considered as varicose distensions of the rectal veins, although in most cases an effusion of blood under the inner membrane of the rectum was said to form the sac. They were not operated on unless it was necessary; but the opinion that the discharge was a critical one which removed injurious matter from the body, and that its obstruction was in the highest degree harmful, as Heister believed, was contradicted (B. Bell). In case of violent hemorrhages a silver tube insulated with linen or a piece of gut filled with water was inserted, or a stricture was made whenever possible. If exhaustion from loss of blood followed, an operation was the only trustworthy remedy. There were three methods, incision, splitting and ligature, of which the incision deserved the preference. The empty sac was cut off with shears in such a way that a small part of it remained, which was to cover the wound and further prima intentio and the arrest of the hemorrhage. In this way inflammation, contraction of the intestine and hemorrhage were rarely to be feared. If the hemorrhoids were so high above the sphincter that they could not be brought down through the orifice of the anus, then, according to J. L. Petit, an oval lint-tampon with two strong strings was pushed up past the place where the node was situated. In drawing up the strings the tampon was shortened, became thicker and by virtue of that so pressed the rectum that the node protruded from the anus. The splitting of the skin over the varix and subsequent extirpation of the venal node (J. L. Petit) found but few advocates. On the contrary, in case of large nodes, out of fear of hemmorrhage, the ligature was much extolled (Heister, Sharp, B. Bell), and was discarded by others on account of the severe pain and inflammation (Richter). Eradication by means of the hot iron, known even in the time of Hippocrates, met serious opposition. If the prolapsed node became squeezed then it was returned to its position as quickly as possible and if necessary for that purpose the sphincter was split or the mouth of the anus extended with the speculum. The severe pain produced by the repletion of blood or inflammation the surgeons sought to allay by strict diet, application of cremor tartari and sulphur, leeches, or a puncture with a lancet; B. Bell recommended a salve of nutgalls and, upon Cullen's advice, the internal use of copaiva.

The *atresia ani* exhibited various forms. If, as in most cases, the anus was obstructed by a simple membrane a splitting or a crucial cut and the removal of the flaps sufficed. If, on the contrary, in normal anus, the rectum was obstructed for some little distance by a membrane, a case which was curable only when the place could be reached with the finger, then it was opened only with a pharyngotome. In case of a deformed anus when the rectum ended in a blind sac the operation was so much the more difficult the further back the sac was located from the external membrane, and the result was often fatal. After the insertion of a catheter into the bladder, proceeding carefully, the surgeon sometimes had the good fortune to be able to trace the sac from feeling the fluctuations. If the intestine was lacking there was no other resort than

to supply an artificial anus after the methods of Littre or Callisen.

Desault first taught the proper treatment of *strictures of the rectum.* Up to that time little heed was given it and it was known only in isolated notes, while most practitioners gave their chief attention to constitutional defects and gave less thought to local affections. They gave antisyphilitic remedies, produced artificial sores upon the os sacrum and thigh, and indeed, extirpated the diseased spot. Desault recommended the tent as a principal remedy for the removal of stricture and the dispersion of callosities. He smeared it with cerate, daily introduced a thicker tent, and in this way obtained the most successful results.

(To be continued.)

SOCIETY PROCEEDINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Proceedings of the Ninth Annual Meeting.

The President, Dr. W. F. WESTMORELAND of Atlanta, called the meeting to order and it was opened with prayer by Rev. J. B. Hawthorne.

Gov. ROBERT L. TAYLOR welcomed the society to Nashville in an earnest and pleasing address. The President responded fittingly on behalf of the society.

The President then delivered his annual address:

CARCINOMA OF THE BREAST,

In which he deplored the fact that cases are referred to the surgeon too late for operation. He called especial attention to the importance of early diagnosis. Every tumor of the breast is suspicious. All writers agree that inflammation of the breast predisposes to cancer. Traumatism plays an important part in causation. In his experience, when there is a bad family history, the tumor will return. He called particular attention to Halsted's operation. The greatest infiltration is in the skin next the subpectoral and axillary glands. Cells may be widely scattered early. Carcinoma extends through the vessels. The pectoralis minor should be left until the pectoralis major is excised. Everything that looks suspicious in the axilla should be removed. Nerves should be cut, especially if connected with infiltrated glands. Operation should be complete, even to excising of axillary veins. In a case where a complete operation did not seem necessary there was a return in four months. If half can be saved it will be as good as can be expected. No living man can lose only 6 per cent. if the three years rule is observed. Figures are fallacious. The large area if left to granulate and cicatrize, predisposes to carcinoma. As a rule, he grafts within a week. All cancer patients have a lack of red blood corpuscles, the hemaglobin reduced to 90 per cent. When the hemaglobin is reduced 15 per cent. the patient will die. This accounts for many lost after operation with no apparent cause.

Dr. J. B. COWAN said that it was not an easy matter to clean out the axilla. He had seen Abbey cover half the bare surface by undermining the surrounding skin and stretching it.

Dr. R. M. CUNNINGHAM said that we did not know what caused cancer. It spreads by lymphatics. It can not be diagnosed in the operable stage. All tumors of the breast are suspicious. If in doubt, operate. If the skin is undermined too far it will slough. Cancer is rare in the male negro. Cancer of the breast is rare in the negro. When tissue is broken down we will get no good from operation.

Dr. B. SHERWOOD DUNN of Paris, France, said that he fully concurred with the position of the essayist that the operator ought to remove not only such tissue as gave rise to suspicion, but to go further and remove tissue which he was satisfied to be healthy, for the reason that the line of demarcation can not be readily defined. He felt that clinical experience did not support the favorable statistics reported by most operators, and that operations for carcinoma rarely resulted in permanent cure.

Dr. PAUL F. EVE said that if all cancer cells were removed there would be no recurrence. He removes tissue which seems normal. Before regional infiltration, cancer can be removed; then there will be no return. We are looking to the day when the surgeon will recognize all cancer tissue and remove the same.

In closing the discussion, Dr. WESTMORELAND said that Dr. Abbey today would not try to cover a wound by stretching the skin over it. This is bad practice. In the last year he had a large percentage of cases in negroes, so that Dr. Cunningham's idea, which is also in Warren's "Pathology," is not correct. The axilla can not be cleaned out without removing the pectoralis muscle and cutting the veins which come from the axillary plexus. Drawing up the skin will restrict movements of arm.

Dr. J. B. COWAN, Tullahoma, Tenn., discoursed on the subject of

PSYCHOLOGY,

And said that the subject should be differentiated from mental operations. We ought to know something of this science. We all use it consciously or unconsciously. No man who studies psychology can be a skeptic. All the phenomena we see in the external world are but the result of the co-relation of forces acting on matter properly arranged. He differentiated between the material man, the mental man and the psychologic man.

Dr. G. W. DRAKE said that the differentiation made by the author was correct. We study the relations between body, mind and soul by manifestations. Matter returns to the original condition. Mind and soul remain in an unrecognizable condition until the resurrection.

Dr. J. P. STEWART said that mind from a medical standpoint refers to the mind and is manifested by certain idiosyncrasies, notions, whims, fancies, vagaries, and even manias of our patients. We may by our psychologic influence over certain neurotic patients, restore them to health and happiness by suggestion, hypnotism, mesmerism or Svengalism, get control of their minds by the influence of a stronger mind. He hardly thought that we have much to do with the soul, though the idea of soul and its final end may in some degree cause these psychologic manifestations in our hysteric patients.

Dr. W. FRANK GLENN said he never could understand the triune nature of man. He believed that man's spirit was his *ego*, his immortal part, himself. He believed that he lived in every cell of his body and when death came his spirit simply abandoned the material residence and advanced to higher spheres of existence. He believed there was a spiritual body which was recognized by spirit just as clearly as a physical body was recognized by a material man.

Dr. PAUL F. EVE asked Dr. Glenn, "What is life?"

Dr. GLENN said that he could not define life, but it might be described.

Dr. G. W. DRAKE said life could not be seen, could only be judged by effects. In a paper before the AMERICAN MEDICAL ASSOCIATION he took the ground that the mind does not become insane. The part affected is the brain. So-called mental disorders are not mental but material. The brain is the part which gets out of order. The mind is the power which controls the brain.

Dr. R. M. CUNNINGHAM differed from Dr. Drake that the mind is simply the power that moves the brain. There is as much mystery in cells of liver forming bile, or of the kidney secreting urine, as cells of brain producing phenomena of mind. The power of each is God-given. Mind is a phenomenon of physical action.

Dr. B. SHERWOOD DUNN said that Darwin's theory was built without foundation, as he failed to account for the first cell. The physiologist fails to show what is the incentive that puts in motion the gray matter in the generation of thought.

Dr. COWAN, in closing, said that we have cell activity in vegetable as well as in animal life. We confound mind with soul. The soul uses the mind. Writers make the mistake of not differentiating. Not a triune man, the mind is simply the instrument used by the soul.

Dr. SEALE HARRIS of Union Springs, Ala., read a paper on "The Arrest of Smallpox in the Vesicular Stage," based on the idea that smallpox would stop after the vesicular stage if there was no mixed infection, the idea being to prevent by applying antiseptics to the skin. Quoting from Bryan and Bibb he related cases. In a case seen by the writer the treatment was a success. It prevents pitting, secondary fever, the intolerable itching and fearful stench of the pustular stage.

Dr. R. M. CUNNINGHAM said the pus in smallpox was secondary infection, but he did not believe the skin could be made antiseptic, though the case reported seemed to show that the treatment had been a success.

Dr. FRANK TRESTER SMITH said that it was not necessary to render the skin aseptic if the number of the germs was reduced sufficiently, their development prevented or retarded.

Dr. J. B. COWAN related a case where a negro with smallpox lay in a brook an hour, with the result that the disease ran a much shorter course than others in the same epidemic.

Dr. SEALE HARRIS, in closing, said that while we might not prevent absolute pus formation, it might be lessened so as to prevent many unpleasant results.

Dr. LLEWELLYN P. BARBOUR of Tullahoma, Tenn., read a paper on "The Pathology and Diagnosis of Early Phthisis," including in this term the stage where there is a breaking down of tissue. In some the diagnosis is easy, in others it can be made only by investigating symptoms that seem unimportant. Skill is required to appreciate physical signs, but the clinical symptoms will often make the diagnosis. When the patient says he does not raise anything you may get a little the first thing in the morning. Bacilli may not be found in an undoubted case. Hemoptysis is almost certainly due to tuberculosis. Pleuritic pains are characteristic of phthisis; may be absent, as may also increase of temperature. Absence of temperature indicates slow advancement or arrest. Take temperature every two hours, ten to twelve days. If increase is two degrees with exercise, it is probably phthisis.

Dr. PAUL PAQUIN said that the basis of tuberculosis was a battle between the tubercle bacilli and the cells in which they are lodged. The disease may exist a long time before the bacilli are expelled, hence the importance of early diagnosis. This is not so difficult. Early clearing of the throat is important. An important factor is serous pneumonia. Temperature is important, rarely above 101 degrees. This comes late when we have a mixed infection. Malaria may coexist. Look for plasmodium.

Dr. R. M. CUNNINGHAM insisted on importance of early diagnosis, which may be made from clinical signs alone. Bacilli may be in sputum of the healthy. The altered ratio between pulse and temperature is important. Pulse is faster than for temperature. Physical signs show lesions which may not be tubercular. There may be a tubercular nidus with no physical signs. The crepitant râle in apex, unilateral, is diagnostic of tuberculosis. Many cases are treated ıor malaria, dyspepsia, etc. His postmortems showed tubercular matter fenced off with connective tissue capsule.

Dr. B. SHERWOOD DUNN related experiments where matter taken from the postnasal space in 1,400 cases, showed tubercle bacilli in 856. Many carry bacilli which never develop.

Dr. HAZLE PADGETT emphasized the importance of the slight rise of temperature (100.5 or 101) with perhaps no cough; slight anemia. Examine heart, urine and lungs. An early change in the vesicular murmur is important; compare with other side.

Dr. ANDREW BOYD thought that not enough attention was paid to the minute clinical history, that this is lost sight of by going off to the unknown too much. The microscope is the *sine qua non*, but the subjective symptoms come first, hemoptysis, the pulse (out of all proportion to the temperature), the general malaise, dyspnea, loss of appetite, etc. These come first, then the physical signs, crepitant râle in apex, followed by active physical signs. To sum up, he thought the subjective signs were our first guide, then objective; the physical signs and microscope to dispel all doubts.

Dr. W. F. WESTMORELAND did not think tuberculosis always began in the apex, but was there easiest found. Tubercular skin troubles have increased in his clinics in the last few years, perhaps ten times. He disagreed as to the crepitant râle, which is always associated with pleuritis.

Dr. BARBOUR thought the first lesions were at the apex and pleuritic frictions tubercular as a rule. All can not be expert in physical diagnosis, but all can make diagnosis from signs. The majority get well. Bacilli in sputum sometimes precede physical signs. A weak heart may predispose to tuberculosis. Tuberculin may be used by an expert to clear up diagnosis.

Dr PAUL PAQUIN of St. Louis read a paper on

SEROTHERAPY IN TUBERCULOSIS.

The use of serums, nature's remedies, seems to promise much, as all other remedies have failed. Tuberculosis is generally a mixed infection. With bacilli we find other germs. The nature of the mixed infection should be determined by the microscope. This is as important as the use of the microscope in the early stage. There is no one treatment applicable to all cases. Treatment should be combined. In mixed infection the serum should be prepared to meet the case. Hygienic measures should be employed, climate in certain cases; altitude is not of much importance, the benefit being due to the presence of ozone. Climate is often tried too late or may remain too short a time. Hydrotherapy is often beneficial by stimulating circulation; also massage. In dieting, animal food is best; cream better than cod liver oil; whisky and tobacco contraindicated.

Dr. L. P. BARBOUR said that climate was not a specific, only an assistant. If better in summer send to a warm climate, otherwise to a cold. Ozone is not a specific. Baker's experiments tend to show that it is harmful. Send to climate least irritating (from dust, etc.). There is no specific. We must not rely on any one thing, but individualize cases.

Dr. R. M. CUNNINGHAM called attention to the difference between tuberculosis and diphtheria. The former tends to get well by cicatrization, by obsolescence, by discharge; not analogous to typhoid or diphtheria, which are self-limited, hence serum treatment is not analogous.

Dr. L. B. GRADDY related a case which steadily got worse under Koch's tuberculin when first introduced in Berlin. With climate and other treatment it matters not if a little antitoxin is injected. He does not believe that there ever has been a case of tuberculosis of the lungs cured. In one case diagnosed as consumption the symptoms disappeared after cauterizing the uvula.

Dr. J. A. WITHERSPOON said that this is an infectious disease, but does not have a period of invasion, no incubation; if self-limited the limit is the grave. He believes in serotherapy and would not say that none ever got well, but would say that none got well except by the inherent power of resistance. He has absolutely no confidence in serum treatment of tuberculosis. These gentlemen get good results: 1. From the fact that some of the cases were not tuberculosis. 2. To the hygienic and other measures is due cure. The bacillus may be found without tuberculosis.

Dr. W. F. WESTMORELAND said that the idea that tuberculosis could not be cured should not be allowed to go unchallenged. Wherever the diseased area could be removed the disease could be cured. In view of the statistics there can be no doubt of the good results from these serums. Climate acts by giving rest to the lungs.

Dr. L. P. BARBOUR claimed that good institutional treatment gave about the same results as climate.

Dr. J. A. WITHERSPOON thought it doubtful if because a man got better in an institution and remained in good condition for a long time and finally succumbed to the disease that we should say he was cured and again acquired the disease.

Dr. L. B. GRADDY said that he thought that there had never been any cured. He could even say that some had gotten well. Many had improved and might live to old age, but bacilli would still be found in their lungs.

Dr. PAQUIN said that he had been misunderstood. He had not used the word cure. Had reported the cases as he had found them. Tuberculin is not a serum, but the opposite. Tuberculosis and diphtheria are not biologically similar and may require different treatment. His cases were not under favorable surroundings, were not picked. The methods were open, any physician could visit the laboratory.

Dr. HAZLE PADGETT of Columbia, Tenn., read a paper on "The Causes, Diagnosis and Treatment of Valvular Disease." As causes he especially mentioned acute rheumatism, Bright's disease, violent muscular effort. Diagnosis is by timing murmurs, systolic, diastolic and presystolic. Obscure murmurs may be determined in the horizontal position. Important in life insurance. Exercise may bring out murmur, also forced inspiration, then forced expiration, then suspend respiration. The future of the patient should not be darkened by telling him he has heart disease. Tell some one who is interested in the patient. Many will live years. Aortic stenosis is most dangerous, mitral stenosis akin to it.

Dr. R. M. CUNNINGHAM of Birmingham, Ala., read a paper on "The Relation of the Cause to the Immediate and Remote Results and Associated Lesions of Fractures," in which he gave a study of fractures based on mechanical principles showing that bending, compression and torsion are the usual means of fracture, the lesion in bones, in surrounding tissue and in viscera. In indirect violence injury to the soft parts is less than in direct. We are sometimes deceived in the amount of violence and consequent injury, and prognosis should always be guarded.

Dr. GEO. S. BROWN said that the amount of violence is the greatest factor in the prognosis, but when it is less than enough to cause total destruction of the circulation it is only so as the cause of the infection which is itself the most important determining factor. Mr. Lister, walking his wards with his class twenty years ago, said: "Gentlemen, I have often noticed that bad contusions not complicated by lesions of the skin nearly always do well, those with lesions of the skin have trouble. I am not able to explain this, but the one who does will make his name immortal." He afterward himself explained it and his name is immortal.

Dr. HAZLE PADGETT related a case bearing on some points in the essay. A man was hit on the head with a mail pouch, he became unconscious and died in five hours. Postmortem showed no evidence of external violence, a hematoma of the right tem-

poral region, right temporal and parietal bone fractnres; but no depression. The fracture in the temporal opened internally; a ruptured right meningeal clot about three and one-half by two and one-half, by one-half inches; on the opposite side no fracture but a ruptured pial vessel clot, thin, but about two and one-half inches long by one and one-half inches wide. In the cortex of the right posterior cerebral lobe was a small hemorrhage. Here is an illustrative case showing extensive internal injuries without external evidence.

Dr. J. B. MURFREE said: "In the treatment of fractures the cause of the injury is too little considered. This must necessarily play an important part in the treatment. A fracture produced by great external violence must be treated with great care, and be so dressed as to be inspected, while one produced by muscular contraction may be put up in plaster-of-paris and never inspected until the fracture has united. As stated, a simple fracture will do better than a compound one, but in every fracture, whether simple, compound or comminuted, we must duly consider the force that breaks the bone. I remember a case of fracture of the leg produced by external violence that was bandaged and splinted. The limb swelled and the pressure of the bandage being painful the bandage was cut. The leg mortified and had to be amputated and the doctor was sued for malpractice. We must duly consider the damage done to the soft parts as well as to the bone. A case came under my charge where a leg was mashed on the railroad. An eminent surgeon amputated at the knee joint, but when the first dressing was removed the soft tissues were found to be mortified and in time all the flaps sloughed, leaving the condyles of the femur projecting beyond the soft parts, to be covered by granulation after months of suffering. So we must duly consider the injury done the soft parts from the cause producing the fracture. The force that breaks the bone and its mode of application must be considered in the treatment of every fracture."

Dr. J. P. STEWART related the case of a fracture of the leg from the fall of a tent pole. The patient died in ten hours. Postmortem showed rupture of liver and bruising of internal organs. The force should be taken into consideration.

Dr. CUNNINGHAM related a case, in closing, where there was much injury to the leg and he wanted to amputate but the patient refused. He prognosed death, but the patient promptly recovered. The case that inspired the paper was that of a negro with a fracture into the knee joint in which there was a slough and suppuration, although the skin was not broken. The germs must have been forced through the unbroken skin, hence the importance of rendering the surface aseptic before applying splint.

Dr. J. M. MATHEWS of Louisville, Ky., addressed the Society on "Cancer of the Rectum." He said, in part, that while extirpation was the proper treatment still the application was limited. Authors claim that cases live four, five and seven years; he has a case in Louisville with cancer eight years. The rectum is divided into upper, lower and middle; lower, one and one-half inch. This may be removed. In the middle third it will surely return. The upper third involves the sigmoid flexure. This may be cut out and anastomosis made, but why? He would limit operation to the lower one and one-half inches. Pain is not always present. He doubts if operation prolongs life. Cancer patients live five to eight years. There is an allied condition which can be diagnosed only by an expert of years' experience. The only condition in cancer is to let them down easily with opium.

Dr. J. B. COWAN commended the paper for its conservatism. A few years ago every one was for heroic surgery. Now the pendulum is swinging the other way.

Dr. W. E. B. DAVIS endorsed the position taken by Dr. Mathews and thought life might be prolonged if an operation was performed in the early stage. The difficulty was that most cases came to the surgeon too late, just as cases of cancer of the uterus came after the disease has extended beyond the reach of the knife.

Dr. GEORGE S. BROWN thought that it was the exception for surgeons to operate for brilliancy rather than for the good of the patient, and those who did injured themselves.

Dr. GEORGE S. BROWN of Birmingham, Ala., read a paper on "Metatarsalgia or Morton's Painful Toe." This is an affection of the fourth metatarsal phalangeal joint. The pain is sometimes beyond comprehension. Morton suggested excision of the joint. One symptom is necessity of removing the shoe. The ligaments are so stretched as to allow the bone to press against the nerves. He thinks thin-soled shoes may be a factor in causation. Mild cases may be relieved by a stiff sole. In severe cases the joint should be excised.

Dr. J. A. GOGGANS of Alexander City, Ala., made some remarks on

APPENDICITIS,

relating fourteen cases with thirteen recoveries and one death. He thought that we were a long way from knowing the true primary cause of appendicitis; some thought it due to interference with drainage of the tube. This occurred in most cases and accounted for the pain radiating from the solar plexus, but did not account for the appendicular inflammation. Mechanical obstruction could cause pain and fatal perforation, but foreign bodies were rarely found in a diseased appendix. Fitz, in 300 cases, had found concretions in 5 per cent. Dr. Goggans had found no strictly foreign bodies. Even if found it does not show that they caused the inflammation. He thought that there was something still further to be learned about the etiology, that there is a special germ which causes the disease, that the contents of the intestine became concretions and they as well as foreign bodies became lodged in the tube on account of lessened intestinal secretion and contractility of the muscular walls of the intestine and appendix. When the attack was mild (slight rise of pulse, temperature and respiration), he waited for second attack before advising removal of appendix. If at end of two weeks there was tenderness he advised operation. In that class of cases the mortality was not more than 1 per cent. The more severe cases demand immediate operation unless death is already inevitable from sepsis. Some cases might have the operation under local anesthesia more safely.

Dr. M. C. MCGANNON said that many cases had died of appendicitis unrecognized. The mortality in early operation is 1 per cent.; very dangerous in children. Death is the rule in general peritonitis. He does not believe in waiting in the young; may wait in adults. Not necessary to operate in all cases, but it is a surgical case.

Dr. W. D. HAGGARD Jr. gave an abstract of his paper on the "Treatment of the Stump in Appendicitis." He said that in the last six weeks six patients had lost their lives from appendicitis due, he thought, to deferred operation. Operation should be done as soon as diagnosis is made. He related cases. In one with a temperature of 99, pulse 98, he found a perforation. He described the technique of Deaver of Philadelphia, cutting away the mucosa, amputating the appendix and closing with Lembert's suture.

Dr. W. E. B. DAVIS said that mild cases need not be operated on at the first attack, but all should be operated on who have a second attack. In all cases where this is severe the patient should be subjected to operation without delay, for if such cases are not operated on in twenty-four hours a fatal peritonitis may develop. There are many cases which the surgeon will see after the patient has been ill for two or three days in which it is impossible to know whether the case is one of local or general peritonitis.

Dr. H. HORACE GRANT looked upon the discussion as not merely one of methods, but one that involved the security of human life; too important to dispute about contributory details, definite data must be obtained. If ever the electric rays are so perfected as to show the picture of what lies hidden beneath the tissues in cases of inflamed appendix, the question of when to operate will vex us no longer. Until then some common agreement will greatly help. Other things being equal, *i. e.*, a safe place to operate and a competent operator, the mortality will be less if all cases are cut, but these desirable conditions are only occasionally present. He suggested three rules for guidance:

1. In all cases of fulminating appendicitis, difficult to picture but easily recognized, the operation is imperative at the earliest possible moment, before general peritonitis develops.

2. In mild or moderate cases in which operation is declined or hesitated about, or where conveniences for safety are not at hand, we are justified in waiting thirty-six to forty-eight hours to watch the course of the disease. It is to be understood that while such a course is not always safe, even when it appears to be, yet the danger does not justify an imperative demand nor an incompetent operator.

3. In all cases of moderate severity in which distinct, genuine improvement is not manifest after forty-eight hours, the operation should be demanded.

Dr. J. A. WITHERSPOON asked Dr. Grant whether we should use opium and whether we should use a purge?

Dr. Grant replied that the purge was indicated, the opium was not; it would mask the symptoms.

Dr. LOUIS FRANK believes that as soon as the case is diagnosed it becomes surgical and is no longer medical. Some cases should not be operated on. The desperate cases should be avoided, as they bring surgery into disrepute and make others loth to submit to operation. Symptoms may be relieved by salines, but the pathologic cause remains. Mortality would be less if operation was as soon as diagnosed.

Dr. GOGGANS closed the discussion by saying that he would

treat medicinally mild first attacks; if the second, would operate. Purge aids antiphlogistically by unloading veins.

Dr. HAGGARD said that the diagnosis was much easier now than formerly. He would operate first and give salines afterward. Opiates should never be given in early cases. Operations delayed and hopeless cases bring surgery into disrepute.

(To be continued.)

PRACTICAL NOTES.

An Antifat Diet for Pregnant Women with Deformed Pelvis.—Leusser has been reviving Prochownick's suggestions to secure small children by limiting the patient to a nutritious but antifat diet the last two months, and reports in the *Münch. Med. Woch.* (No. 30) his success, especially marked in one case (conj. diag. 10.5), who had borne eight children, weighing on an average 5,500 grams, labor lasting from two to five days. The result was the spontaneous, easy birth of a child weighing 2,900 grams after two hours' labor.—*Wien. klin. Woch.*, November 25.

Treatment of Surgical Tuberculosis with Gum Resin Euphorbium.—Penières reports the successful treatment of tuberculosis of the ganglia of the neck, of the skin, bones and articulations, with subcutaneous injections of euphorbium in glycerinated water in the proportion of 1 to 4,000. The dose of 1 c.c. is well tolerated even by children, and is increased for adults. The slow effect must not be hastened by too frequent injections; one a week or fortnight is enough. The cure is completed without induration of the tissues. Nineteen cases.

An Office Use for Peroxid of Hydrogen.—A good thing for the physician to have constantly on hand in his office is peroxid of hydrogen or hydrozone. Its properties as a powerful antiseptic are well known. A new suggestion as to its use is for the keeping clean and ready of glassware, such as irrigators, test-tubes, measures, etc., while not in use; one part to four or five of clean water is sufficient; some is left in the vessel until the latter is needed, when it is to be shaken, the solution thrown out, the container rinsed with clear water, giving assurance of its thorough cleanliness.—*The Polyclinic.*

The Absorbing Power of the Bladder.—It is announced from Professor v. Merring's clinic that comprehensive experiments with dogs have demonstrated that the rapidity depends upon the concentration to some extent, and that certain substances are much more readily absorbed than others. Seventy per cent. of a 1 per cent. solution of carbolic acid is absorbed in two hours, and the entire amount in fourteen. Almost 40 per cent. of a 1 per cent. solution of cocain is absorbed in three to five hours, showing the necessity of care in the use of these medicaments. Alcohol. boric acid and quinin were also readily absorbed, but morphin scarcely at all.—*Wien. klin. Woch.*, November 25.

Modern Management of Diphtheria and Croup Cases.—This is the title of a comprehensive lecture of Dr. Augustus Caille, professor of Pediatrics at the New York Post-Graduate School of Medicine. In speaking of fever he says, that the high temperature can be reduced by cold and luke-warm sponge and tub baths; to give antipyretic drugs regularly every two or three hours is very bad practice, but one or two doses in twenty-four hours, particularly at night, are serviceable. Among the drugs mentioned in this connection is lactophenin, which Dr. Caille recommends in 3 to 10 grain doses with ½ grain caffein. Quinin, he says, should never be given as an antipyretic in any but malarial disease.—*The Post-Graduate.*

Glandulen Tablets.—An English firm has produced tablets of glandulen, an animal product prepared in tablet form for medicinal use by Dr. Hofmann of Meeraue, Saxony. Glandulen is obtained from the bronchial glands of freshly killed sheep. Having been washed with alcohol, freed from fat, and dried *in vacuo* at a low temperature, the glands are reduced to powder, to which sugar of milk is added in such proportion that when compressed into tablets weighing 0.25 gram (3.5 grains), each tablet is equivalent to 0.25 gram (3.5 grains) of the fresh glandular substance. One tablet is given three times a day at first, the dose being gradually increased to five tablets three times daily. Glandulen is stated to have been tried in cases of tuberculosis of the lungs.

The Use of Scopolamin Among the Insane.—Dr. S. Tomasini has employed the hydrobromate and sulphate with equal results. They are injected subcutaneously in dose of from one two-hundred and fiftieth to one sixty-fourth of a grain. Sleep was readily induced, especially in women, in from two to three minutes. The injections are not painful, nor do they give rise to local reaction nor to general excitation. The pulse is regular, but more frequent. There is marked dilatation of the pupils. The sleep is quiet, resembling the physiologic. There are no disturbances nor unpleasant symptoms, as nausea. In maniacal cases and periodic insanity it is a remarkable sedative. Habituation is easily obtained and the dose must be rapidly increased.—*Riforma Medica.*

The Alleged Accidental Discovery of the Value of Hydrochloric Acid in Sciatica.—According to an article in the *Semaine Médicale*, a patient discovered for himself a successful treatment for sciatica, a disease from which he had suffered for several years. He had been under treatment in an Algerian hospital by means of hypodermic injections of salt and water, but without much success. After he had left he bethought him that perhaps the salt was not strong enough and that a stronger preparation of salt might be more successful. He therefore procured some "spirit of salt" (hydrochloric acid) and painted it on the skin, getting rid of his long-standing trouble in a few days. Having occasion shortly afterward to attend the hospital for some other affection, he confided in Dr. Bourlier, professor of therapeutics, how he had managed to get rid of his sciatica. This gentleman thought the plan worthy of trial and employed it in several cases with invariable success. He then told his son, Dr. Maurice Bourlier, who was house physician, and he treated a number of cases with great satisfaction to himself and to his patients. A thesis has recently been published on the subject by Dr. C. Gennatas of Montpelier, on the basis of a dozen cases of neuralgia of the sciatic nerve, all of which were completely relieved by this means. The procedure is simple enough. Half an ounce of strong hydrochloric acid is put in a small cup and a brush is dipped in it and applied over the painful part of the nerve, three or four coats being painted on. The limb is then enveloped in a cotton wool dressing. Of course the application causes a somewhat severe smarting sensation, but this is quite bearable. A few minutes afterward the skin becomes reddened and hot, and sometimes bullæ are formed which fill with fluid. These, even if they occur, disappear in two or three days. Usually the patient feels better even after a single sitting. The application can be repeated in from twenty-four to forty-eight hours, but not again for several days for fear of producing sloughs. Of course, too, where there are bullæ, they must be avoided in subsequent applications. No serious inconvenience is caused by the hydrochloric acid, such as was experienced when a similar procedure was attempted some years ago by Dr. Legroux with strong sulphuric acid, which was found to be liable to cause extensive sloughing of the skin. The twelve patients referred to were all reported as cured in from three to five sittings, extending over from a week to twenty-five days.

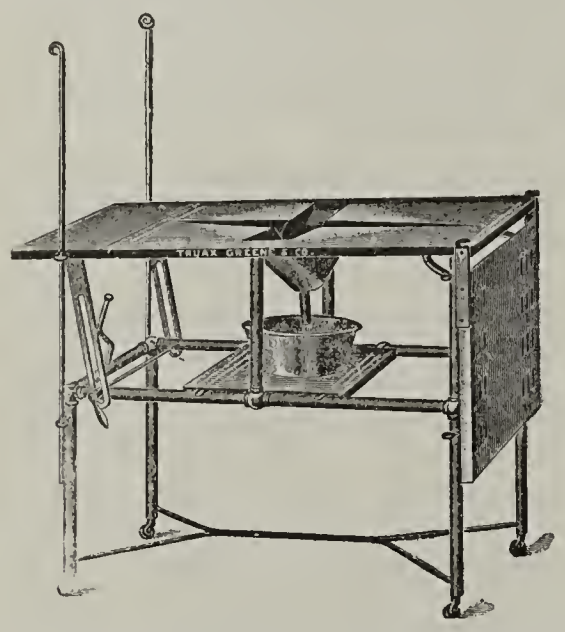
NEW INSTRUMENTS.

A NEW OPERATING TABLE.

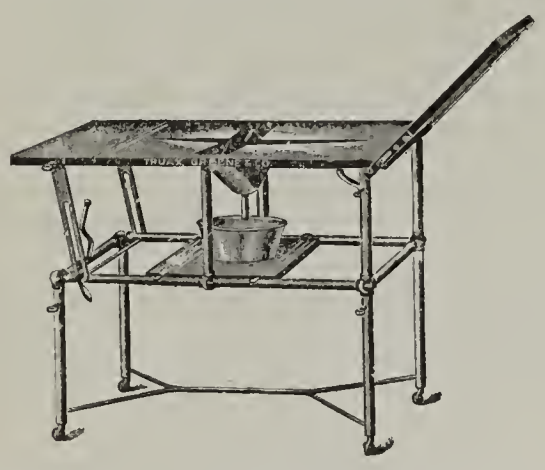
BY J. F. BALDWIN, M.D., PROFESSOR OF GYNECOLOGY, OHIO MEDICAL UNIVERSITY, ETC.
COLUMBUS, OHIO.

Some years ago, not being satisfied with any of the operating tables in the market, I had one made of my own devising, which has worked so satisfactorily and been so highly spoken of by my gynecologic friends who have seen it in use, that I have concluded to bring it to the attention of the profession.

The ordinary operating table, if arranged to obtain the Trendelenburg position, is usually quite complicated. The more or less complicated machinery necessary to change the position of the patient requires for its manipulation the attention of the operator himself or of an assistant, and not infrequently there is an uncomfortable hitch in its working. A more serious objection, however, is that if the patient is at a comfortable height for the operator when in the horizontal position, the field of operation is carried completely out of reach when the patient is changed to the Trendelenburg; or if the position is comfortable when the patient is elevated, the reverse is the case when she is horizontal. I have been in a number of operating rooms where this difficulty was only overcome by the use of soap boxes for the operator and his assistants to stand upon.



My first table was made in wood. It was used by myself and also my colleagues, Drs. Reed and Means. After a trial of a couple of years, our experience resulted in finding a few points for improvement. Some two years ago, therefore, I had the table reconstructed in iron and glass, with the suggested improvements added. My friends, Drs. R. B. Hall of Cincinnati, and A. F. House of Cleveland, who had seen the table in its original form, at once ordered duplicates in its new form for their own use, and both have repeatedly expressed themselves as highly pleased with it. I soon became dissatisfied with the glass top and replaced it with metal plates. The latter have left nothing more to be desired.



The construction of the table is perfectly simple, as it is entirely without ratchet, cog, pinion, crank, or other complicated mechanism, while securing all the advantages found in the Boldt, Edebohls, Cleveland and similar patterns. The field of operation is at the same level whether the patient is horizontal or in the Trendelenburg position. It consists of a solid wrought iron frame supporting a hinged top, twenty by seventy-two inches, that can be shortened by uncoupling a foot section, reducing the length to fifty-four inches. Its usual height when level is thirty-six inches, although this can be changed to suit purchasers.

A principal feature of the table is the hinging of the top in such a manner that with a patient in the recumbent position, the whole is so evenly balanced that the anesthetist with a single hand may depress the head and elevate the hips into the Trendelenburg position.

Any degree of obliquity may be maintained by means of two slotted bars through which a screw rod and crank project, with such an adjustment that a slight turn of the latter will lock the table in any desired position. The main portion of the table top drains to the center into the receptacle placed upon a sliding plate resting in the table frame. That portion of the top upon which the head and neck of the patient rest is hinged in such a manner that when the table is depressed, by means of a curved upright this may be elevated so that the head rests in a horizontal plane. The foot piece is arranged with a



series of slots by means of which the lower limbs may be securely fastened during the progress of an operation.

By means of spring bolts and suitable slots, the foot piece may be elevated as shown in the figure, in which position the table is adapted for operations on the head and neck. With this arrangement almost any desired position may now be obtained with this table.

Two crutches are provided and arranged to be attached to either end of the table. By this means what is ordinarily termed the head of the table, may be employed for perineum and similar operations, in which case that end of the table may be slightly depressed, thus securing good drainage. Generally speaking this forms the best end of the table for gynecologic examinations, uterine, rectal and similar operations, because the table top projects beyond the frame, thus allowing more space for the knees of the operator if in a sitting posture. The

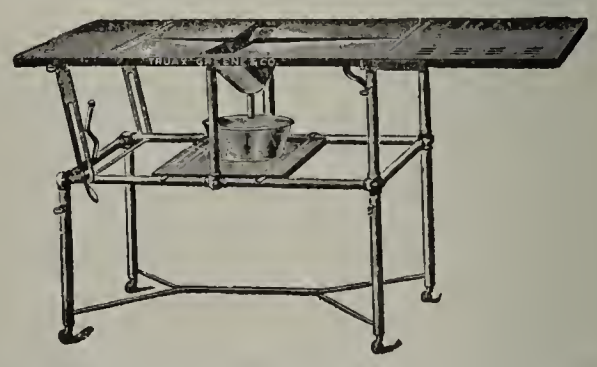


table is securely braced, strongly built and mounted on casters with rubber tires. It is finished in white enamel. Being without complicated mechanism there is little to get out of order. As it is simple in construction, it may easily be cleaned. Even the trough and spout are removable. The joints instead of being painted are either plated or bronzed, thus avoiding the danger to an enamel coat that might be caused by the friction in moving. The positions are simple, all being possible without removal of patient from the table.

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SATURDAY, JANUARY 8, 1898.

THE NEW NAVY IN ITS MEDICAL ASPECT.

The physician who would be considered a well-informed man in his community, can not be indifferent to public affairs, national and international, State and municipal, and a good citizen takes part in discussing the progress of the Nation among other nations. In the absence of war, the several countries of the civilized world are devoting themselves to the preparation for war, and the engrossing topic today, in our own land as in others, is the creation of what is called a new Navy, and naturally the medical aspect of this new establishment is that which particularly engages the medical man. Hence, the report of the Acting Chief of the Bureau of Medicine and Surgery to the Secretary of the Navy will be read by him to whom battle-ships, citadels, redoubts, superstructures, minor turrets and the like are unintelligible terms. It is gratifying to learn that the Naval Hospitals "are now placed on an equal footing with our leading civil establishments in all that pertains to modern medical and surgical requirements and the necessity of making suitable provision for the equipment of a Naval Hospital Corps becomes more urgent." It has long been known to the profession that the naval medical officer has had to labor without adequate support and that the Directors of Naval Hospitals have only been able to keep them in proper sanitary condition and clinical efficiency by retaining convalescents as nurses and attendants, thus vitiating the scientific value of their returns as to duration of illness and treatment; and commanding officers have complained loudly of this diversion of enlisted sailors and marines from their legitimate duties, yet the medical officer has had no alternative but to use the means at hand, employing the convalescent, in the absence of others, to care for his sick ship-mates, meanwhile clamoring for an independent corps of qualified attendants, similar to that which now forms part of the Army.

Another grievance of the medical officer of the old Navy, which appears to have been perpetuated in the new, was the location of the *sick-bay* or ship's hospital at the extreme forward end of the berth-deck at the water line, where it was exposed to the impact of the sea upon the bow when under way, to the odors of the paint- and oil-rooms opening into it, to the noise of chain-cables and hoisting-engines in port, and to the intrusion of others than the sick and their attendants. In the construction of the new Navy it is incredible that the Chief of the Medical Bureau has had no say as to the location of the hospital, nor has he been consulted as a sanitary expert about the proper air-space of apartments, and their habitableness. Ships have been constructed and their defects first come to his notice through the reports of individual medical officers ordered to them, and these are embraced in his own annual report to the Secretary of the Navy; and as was to be expected from the lack of professional expert advice at the outset, how lamentable has been the failure to provide adequately for the care of the sick and especially of those disabled in action!

Brief extracts from some of these reports from medical officers afloat may be interesting to professional readers:

Surgeon GEORGE P. BRADLEY, senior medical officer on board the first class battle-ship *Indiana*, says:

"The sick-bay is very small for the size of the vessel and number of men—not more than three persons, exclusive of the bay men, can be properly berthed in it. On the whole the facilities for the proper care of the sick or wounded are very inadequate, particularly as regards space, and call for extension in the construction of future ships. The very situation of the sick-bay, immediately abaft the *head* (latrine) is objectionable, depending on perfect tightness of a bulkhead for protection against the gravest dangers. If certain alterations were made, room for the sick-bay might be found on the main-deck within the superstructure. The sick-quarters used in time of peace, as well as the greater part of the crew-spaces, are entirely unavailable [for the care of the wounded in battle], being entirely unprotected by any armor—the only parts below the water are the orlop and platform decks at either end, which might be arranged for the reception and care of the wounded, are entirely cut off from the fighting parts, no communication through the bulkheads existing below. It is difficult to convey the wounded from the comparatively accessible regions, from others it would be practically impossible. In the four minor turrets the only means of egress is the small port in the side, through which the wounded man would have to be passed, as he could not remain inside, without interfering with the service of the guns. Looking at the ship as a whole, it is evident that the prevailing idea in her architecture was that of a fighting machine, where all other requirements were to be sacrificed so far as necessary to the installation of a very heavy battery with its requisite provision of ammunition and appurte-

nances. So far has this idea been carried that the usual living quarters for even the limited number of officers contemplated and actually detailed for her could not be provided without encroaching on space designed for other purposes. The space for ward room lavatory was encroached upon to furnish a room for a warrant officer. This room owing to its enclosed situation and especially to certain hot-water pipes passing into it is quite untenable in hot weather or a hot climate, as was shown during the first part of August when its average temperature was over 100 degrees F., and its occupant was obliged to pass his nights on deck."

Surgeon W. S. DIXON of the first-rate armored cruiser *Brooklyn* says:

"The sick-bay seems to be an unsatisfactory and ill-chosen place for the treatment of the sick. It is situated in the extreme forward portion of the berth deck and divided by an athwartship bulkhead into two parts. The forward section is so encumbered with stanchions (eight in number) for the support of the weights on the deck above that it will be possible to swing only a single cot at sea if the ship should roll very much. There is space for two additional cots but only when the ship is in harbor. The paint room is directly underneath this section, whose pungent disagreeable odors not only destroy largely the utility of the forward sick-bay but a passage-way must be kept for the painter and his assistants in the after sick-bay. It seems strange that in the construction of this great ship so little thought should have been given to the environments of the sick."

Surgeon C. A. SIEGFRIED on board the first-class battle-ship *Massachusetts* says:

"Those wounded in the turrets can not be taken out while in action, excepting possibly those from the base of 13-inch turrets, who can be treated in near-by passages. From the 8 inch turrets it would be very difficult to remove a badly wounded man, as the ports in the rear of the guns and the hatch below are small. No protected space exists below capable of holding more than a very few wounded men, and as the berth deck forward and aft of the casemate offers the only space for this purpose, transport of the wounded and injured to them could not be done until after battle. The importance of improving the medical department of our naval service is more and more apparent in view of the recent advances in the methods and rapidity of killing and wounding—hence it is advisable to institute a properly trained hospital organization."

Surgeon D. N. BERTOLETTE on board the first-rate protected cruiser *Minneapolis* reports:

"The transportation of wounded to the sick-bay is so difficult that in time of battle it would become impracticable. All transportation of the injured has to be left in the hands of persons not belonging to the surgeon's division. There is absolutely no protection for the injured in time of battle; the only protected places in the ship are in the space below the water line under the protective deck, access to which would be impossible with the ship in action, and under such circumstances the only resource will be to gather the wounded in places where they will least incommode the working of the battery and wait until after the action, and then those who are left, if any, may be attended to properly."

Surgeon S. H. DICKSON on board the second-class battle-ship *Texas* says:

"It is greatly to be deplored that no change was made in the location of the sick-bay during the reconstruction of the *Texas*. It still occupies the same noisy and contracted space in the bows of the ship, where the pitching motion is most severely felt. It lies between the forward torpedo-tube compartment and the chain-locker and serves a better purpose as a passage-way to the former and a store-room for two torpedoes, which take up one side, than as a hospital for the sick or a consulting room. But one cot can be swung in it with any degree of comfort to a patient and the battle-plates must frequently be shipped in the ports while at sea, thus excluding all natural light. There is hardly enough room in it to perform any surgical operation requiring anesthesia."

Surgeon P. A. LOVERING reports concerning the first-class battle-ship *Oregon:*

"While the sick-bay is not in the extreme bow of the ship, it is so far forward as to possess practically the same discomforts. The motion is great, and when going at full speed or breasting even a moderate head sea many tons of water are dashed upon the deck overhead. It is unfortunate that in our ships the sick-bays are so generally placed in the part of the vessel which is least fitted for that purpose. The sick-bay is situated in one of the most exposed and vulnerable parts of the ship, which forbids its use in time of action and consequently another station has been assigned to the surgeon. The means for conveying the wounded to this temporary hospital are not satisfactory. Even in the quiet of peace, when no confusion prevails, I have found the transportation of the injured to the sick-bay quite difficult, owing to the narrow doors and passages and many shafts which have to be avoided and which necessitate abrupt turns."

Surgeon E. H. GREEN attached to the cruiser *Marblehead* says:

"I would still urge the necessity of a suitable sick-bay. In a ship that is otherwise so comfortable and habitable the lack of a proper sick-bay strikes me as the one great defect."

In aggreable contrast to these reports, Surgeon W. R. DU BOSE reports respecting the double-turret monitor *Terror*, which is, however, properly an heirloom from the old Navy.

"The provision for the care of the sick is admirable. The location in the superstructure is excellent. The surgeon's station in time of action will be in the wardroom, but a careful study of the conditions likely to obtain impresses me with the conviction that the medical officer must needs be here and there to extend professional assistance where needed. The transportation of wounded through narrow inaccessible turret-ports, along narrow-wing passages with sharp angular turns, can only be safely undertaken slowly and gently and not in the hurry and confusion of an engagement."

The concurrent testimony of medical officers, all of them from twenty-two to twenty-seven years in active service, as to the impossibility of transporting men and officers disabled during action to places of safety where they can receive necessary professional attention and the absence of a proper ship's hospital for their subsequent care on board the model man-of-war, whether it be a first or second class battle-ship, armored cruiser, protected cruiser or unprotected cruiser, makes the need apparent for the *ambulance ship*, which the former Chief of the Medical Bureau, Dr. TRYON, has so urgently and repeatedly advocated during his term of office—a vessel which shall be the common hospital for a fleet or squadron, to which all the injured, both victors and vanquished, shall be conveyed immediately upon the cessation of an engagement, if they shall not have already died of their wounds; for casualties in the future on board ships in action may be expected to be very serious and such as to require immediate attention by the medical officers

Surgeon SIEGFRIED quotes from the account of one present that "the loss on board the Japanese cruiser *Matsushima*, in its late fight, from the explosion of one large shell alone counted up forty-nine wounded and fifty-three killed." But appalling epidemics and resultant monetary losses amounting to millions have not yet convinced our national legislators that it is the part of wisdom to protect the health of the people in the interior as on the sea-board by establishing a National Health Department which the AMERICAN MEDICAL ASSOCIATION, the American Public Health Association and all the State Boards of Health have united in recommending and urging; so, it is hardly probable that heed will be given to the unanimous voices of all the medical officers of the navy, or that the Chief of the Medical Bureau will be consulted as to medical requirements of the department of which he is the nominal head and exponent. Nevertheless, the medical profession at large can not be indifferent either to the establishment of a National Department of Health for the benefit of the whole country, or to the proper medical equipment of the new Navy, on which way depends its success in the event of hostilities.

THE PHYSIOLOGIC PSYCHOLOGY OF SMELLING.

It is a fact of some interest that while the special senses of vision and hearing have furnished some of the most striking acquisitions of modern physiology, the sense of smell has been left comparatively unstudied by investigators. The reason for this is not difficult to surmise; its organ has no mechanical peripheral apparatus that can bring its study into the domain of physics, nor do the variations of olfaction also follow physical laws like those of color or tone. The problems of its study fall therefore more into the domain of pure physiologic psychology, and the practical difficulties have been so great that few have attempted their solution. The close associations of the sense of smell with those of taste and general sensation, its easy sophistication and common, and indeed almost universal, impairment among civilized people, have added to the embarrassment and aided to discourage physiologic experimentation in this direction.

Within a very recent period it has been commonly taught that odors simultaneously sensed did not form a mixed odor, but were appreciated separately and consecutively. The mutual relations of odors and their shadings and graduations into each other have not been adequately marked, and the whole subject has been heretofore in a comparatively inchoate and unstudied condition. The ambitious but not especially scientific attempt of PIESSE to establish a gamut of odors is of course well known, but has not been taken seriously, and as will be seen recent investigation has shown that odor combinations follow more the laws of color than those of the tone accords. Thus it has been proved that mixtures of certain odors give rise to new and simple odors, though this was not recognized as an universal law. ZWAARDEMAKER in a memoir published within the last three years has attempted to classify odors and has made a series of nine classes, within some one of which he thinks any odor can be included. Combinations of odors he holds can be resolved into the elements belonging to these separate classes; when the sensation is sufficiently fatigued for one of these another is appreciated, and so on. In some cases he holds that odors do not blend but can be sensed at will by the experimenter.

One of the latest and most satisfactory studies of this subject is that of NAGEL, published early last year[1], in which he attempted to test compound odors without unduly bringing in the elements of fatigue to complicate the question. He criticizes the previous works on the subject and discusses at length ZWAARDEMAKER'S views, but does not offer any elaborated classification of his own, nor does he appear to have been satisfied himself as to what are the simple elementary odors, a position which, considering the difficulties and the necessarily more or less subjective nature of the study, is judicious rather than otherwise.

The conclusions he does arrive at are that any two odors may combine to form what is, at least for the moment, a new simple odor, the permanency of the latter being dependent on the fatigue of the organ for the components. The new smell is lasting according as this fatigueability for the original elements is equal or nearly so. With more than two components the conditions for permanency are improved. The compound odor has a resemblance, but not an identity with its components. A mixture thus made, though previously unknown to the observer, can be readily recognized as such when at least one of its component elements is previously known, and the more readily when the olfactory organ becomes fatigued so as to render any one of them more prominent than the others. Continued observation will therefore detect the odor as a mixture, if this was not possible at the first. If this is still difficult, if the fatigue for all the elements is still so nearly alike as to keep up the impression of a simple odor, special arrangements may have to be made to detect them, such as prior partial fatigue of the organ or PASSY'S method of successive dilutions.

On the whole the analogies of odor combinations are rather with those of colors than with those of sounds, according to NAGEL'S observations, which as the latest and apparently the best conceived method of study in this special line, may be taken as giving the latest scientific facts and views upon the subject. He does not, however, find the analogy quite complete in finding complementary odors that absolutely

[1] Zeitschrift für Psychologie und Physiologie der Sinnesorgane.

extinguish each other, though he finds several instances of close approach to this.

The human sense of smell is probably only an imperfect relic of what it once was in the earlier stages of evolution, but it still has its practical value, and whatever aids to complete our understanding of its physiology is a welcome acquisition. At present much is still obscure, and the field is yet an open one for further research.

RARE COMPLICATIONS OF TYPHOID FEVER.

While some medical men during the last few years have been largely interested in studying the value of recently introduced tests for the diagnosis of enteric fever, other clinicians have not been idle in studying this disease with particular reference to both its common and rare complications. More than twenty years ago one of the first and most valuable contributions to this subject was made by W. W. KEEN in his "Toner Lectures upon the Surgical Complications of Typhoid Fever," and the information therein contained, combined with valuable facts derived from more recent statistics, was utilized in the address which this well-known surgeon recently delivered before the Alumni Association of Harvard University. In most instances the surgical complications of typhoid fever have arisen from the infection of bones or glandular structures with the typhoid bacillus and usually with other infecting micro-organisms which have gained access to the body, and lodgement therein, chiefly because of the debilitated condition of the patient's system. Most of these surgical complications occur toward the end of the disease, or during convalescence from it, and naturally rarely require surgical interference until the febrile process has been arrested. There are other complications, however, of a medical character which have not been so carefully and exhaustively studied and these consist not only in grave disorders of the intestinal canal, but also in nervous and lymphatic manifestations, and further than this it is a noteworthy fact that typhoid fever is an infectious disease which in no way protects either during its course or immediately afterward the patient from other infections, so that other eruptive diseases may occur and various infectious processes may begin. An interesting complication of this kind, which seems to occur more frequently during the actual course of the disease than has hitherto been taught, is erysipelas, which, while it also quite frequently occurs during convalescence, seems to occur as a frequent complication during the progress of the disease itself. A number of interesting studies in regard to it have been published during the last few years, of which perhaps the most noteworthy is that of GERENTE, who collected from various sources 3,910 cases of typhoid fever, and among this number found that erysipelas had occurred as a complication of the acute stage of the disease, or its convalescence, in sixty-four instances, or in other words in the proportion of about one to every sixty-four cases. This observer also noted, in his Paris thesis for 1883-1884, that females are more frequently affected than males, which is a fact worthy of note when it is remembered that males are more exposed and more frequently suffer from typhoid fever. GERENTE also found that erysipelas as a rule made its appearance after the twenty-first day of the development of typhoid fever and it is also a point worthy of recollection that some epidemics of typhoid have seemed peculiarly liable to this complication, probably because the streptococcus of erysipelas was present with unusual virulence or else by reason of the fact that through lack of cleanliness of the mouth and nasal chambers solutions of continuity occurred in the skin and mucous membranes making an opening by which the streptococcus gained admission to the subcutaneous tissues. This is the more likely when it is remembered that a very large proportion of cases of erysipelas complicating typhoid fever are of the facial form. It is also evident from GERENTE'S study that erysipelas occurs more frequently in the grave adynamic forms of the disease, or in those in which the patient is exhausted by an unusually prolonged attack. He also believes that erysipelas usually produces a marked amelioration in the typhoid symptoms, provided that the inflammation is not situated about the face; for when facial erysipelas develops the mortality at once becomes very high, there having been sixteen deaths out of thirty-six cases of facial erysipelas which were collected by him. Probably it is only the phlegmonous forms of the disease which gravely imperil the patient's possibilities of convalescence, for in our experience the milder forms have certainly in no way seemed to delay it. Other cases have been reported by ARMIEUX, THIELMANN and BERTHOUD. In ARMIEUX'S case a soldier was affected at the end of his second week of typhoid fever by a purulent otorrhea and three weeks later by a facial erysipelas which began in the auditory canal; this was followed in a short time by an osteitis of the humerus and this in turn by death. In THIELMANN'S case there seems to be some doubt as to whether the patient was really suffering from typhoid fever, as before admission to the hospital he was unconscious and the greater portion of his face and forehead were covered with erysipelas. Recovery took place very gradually, but there seems to be reasonable doubt whether the case was not typhoid in type rather than due to real typhoid infection. In the instance reported by BERTHOUD there were marked meningeal symptoms during the attack of the typhoid fever which were followed by very tardy convalescence, the patient's general condition being very unsatisfactory. At this time the scrotum and inguinal region became greatly inflamed and erysipelatous, all the lower por-

ion of the abdomen being involved in the inflammation and, finally, a portion of the scrotum became necrotic, death occurring from exhaustion. The autopsy showed that the iliac and renal veins were involved in a suppurative inflammation, secondary to the erysipelas of the skin.

In addition to this case, FREUDENBERGER has recorded a case in which erysipelas appeared suddenly on both ears in the course of typhoid fever, and another instance of complicating facial erysipelas which was easily controlled and from which recovery took place. MARTINEZ has also reported a case of typhoid fever complicated by erysipelas of the foot and leg, but there seems to be grave doubt as to whether this was a true case of typhoid, or, in other words, whether the typhoid symptoms were not due to an erysipelatous infection. Finally, we find three cases reported by HARE and PATEK in which this complication occurred. In the first a well defined erysipelatous inflammation appeared over the left side of the face during convalescence from typhoid and seemed to be undoubtedly due to the fact that there was great soreness of the skin about the lips and buccal mucous membranes and as these became fissured and cracked they permitted infection. In the second case the erysipelas developed during the third week of typhoid about the bridge of the nose and finally extended over the entire face back to the ears and to the hair on the forehead. In the third case the erysipelas began as a complication during the third week of typhoid and was also facial in type. It is interesting to note that all three of these cases occurred in women, thereby supporting the statement of GERENTE, already quoted, that this disease as a complication is more frequent in this sex than in males. It is also an interesting point to note that recovery took place in each instance notwithstanding the fact that the disease was facial in type and that in no instance was the condition of the patient rendered much more grave by the development of the erysipelas. So far as we know there has been no careful study of post-typhoidal insanity since the publication of HUTCHINSON'S classic article in PEPPER'S "System of Medicine," which was published some thirteen years ago, but we know from HUTCHINSON'S paper, and from other contributions to medical literature, that such a sequence to typhoid fever is by no means uncommon. In rare instances, however, insanity or mania has developed early in the disease and not as a post-typhoidal manifestation and, in one case reported by MOTTET, mania developed so early in the attack that the patient was sent to an asylum before the true nature of his disease was discovered, and HENROT and BUCQUOY have seen the disease begin with the delirium of grandeur. Other cases of pretyphoidal mania have also been reported by MURCHISON and by DALY. In both of these cases the mania developed as early as the fourth or fifth day of the disease.

HIGHER MEDICAL EDUCATION IN CHICAGO.

A very important move in the interest of higher medical education was accomplished in Chicago this week by the affiliation of Rush Medical College with the University of Chicago, whereby the College becomes one of the institutions connected with this great University's system.

The College took steps last month, under its terms of agreement with Lake Forest University, to sever the connection held with that institution, in order that the new arrangement may be consummated June 1. The members of the active faculty who were trustees have resigned, and their places will be filled by trustees to be selected by the University.

It is understood that after this year higher entrance examinations will be exacted, and additional requirements for the degree in medicine insisted upon. Moreover, it is understood that the entrance examination will be conducted by an examiner from the academic department of the University.

In our judgment no step has been taken by this flourishing College more far-reaching in its character, nor none fraught with greater consequences to the whole medical profession of the Northwest. Naturally, this may not be immediate, but it is nevertheless certain.

President HARPER announced the new affiliation at the last convocation of the faculties of the University. It is understood that this is the preliminary step toward uniting the College to the University as its medical department. This consummation can not be finally effected until the College shall be freed from debt.

President HARPER said:

It will be of interest to the faculties of the university to learn that at its meeting Dec. 29 the university trustees, in response to a petition from the trustees of Rush Medical College, voted to enter into affiliation with that college. The date proposed for the consummation of the relationship is June 1, 1898, but it is specifically stipulated that the affiliation shall be dependent upon three conditions.

The first condition is that the board of trustees of Rush Medical College shall be reorganized. At the present time a great majority of the trustees are physicians, who are at the same time members of the faculty. This is acknowledged to be an unfortunate arrangement. The new trustees will be representative business men of the city of Chicago, who have no pecuniary interest in the income of the college.

The second condition provided that the requirements for admission to the college shall gradually be increased, until in the autumn of 1902, only those who have completed the freshman and sophomore years of regular college work shall be admitted. This proposition, which had already been adopted by the present trustees of Rush Medical College, is a most significant step in the history of medical education.

The third condition relates to the present debt of the college, which amounts to $71,000. It is provided that affiliation shall not take place until the debt has been paid.

It will be the aim of the new trustees, with such assistance as the university may furnish, to develop the work of the medical college along university lines. In the history of Rush

Medical College it has always been found that with every increased requirement the number of students has increased. It is not expected, therefore, that the number of students will be diminished by the application of the new requirements for admission. It is confidently believed that college men from all parts of the country will be glad to enter an institution to which only college men are admitted.

The history of Rush Medical College during fifty years is one of the most interesting and splendid of any that has been enacted in the educational work of the West and Northwest. Its name today in medical circles is held in high honor. The degrees will be those of Rush Medical College, not those of the university.

The proposed affiliation, however, will at present give to the university a general supervision of the educational policy of the institution. The trustees of Rush Medical College will continue to be an entirely separate corporation. The trustees of the University of Chicago can assume no financial responsibility in connection with Rush Medical College.

This affiliation is a part of the general policy of the university in accordance with which already many institutions stand in close relations with the university. Whether Rush Medical College will ever become the medical college of the university time will show.

It is important, however, to note that even with this affiliation of Rush Medical College the university remains without a medical school of its own. The field is therefore open for some friend of humanity to devote one or two millions of dollars for the endowment of a great medical school, the income of which shall be devoted to special research, with which under any circumstances Rush Medical College would work in the closest co-operation. With the moral assistance thus gained the medical college will place itself in a position which, under ordinary circumstances, it could not otherwise have occupied. In thus lending its aid to the medical college the university performs in part the function for which it was established. In entering into this new relationship with a faculty composed of eighty members, the faculties of the university will join heartily in the wish that even more may be accomplished than it expected.

PATRIOTIC PHILADELPHIA.

Philadelphia, which has long held the pennant as the most faithful and loyal friend of the AMERICAN MEDICAL ASSOCIATION (if any superlative may properly be applied to the many faithful and loyal friends of the ASSOCIATION), has given a new proof of her affection and respect, as appears from the following letter from Dr. HOBART A. HARE, lately Chairman of the Committee of Arrangements:

To the Editor:—At the meeting of the Board of Trustees of the ASSOCIATION held on the last day of the Semi-Centennial Meeting at Philadelphia in June, 1897, it was voted at my request, as Chairman of the Committee of Arrangements, that the sum of $1,000 be appropriated for the purpose of aiding the Committee in meeting its expenses. The Committee has now settled all its accounts and is glad to report that it is able to return to the Treasurer of the ASSOCIATION the amount appropriated. Acting under instruction from it I have this day sent a check for $1,000 to Dr. H. P. Newman. The meeting was held therefore without cost to the ASSOCIATION.

Yours truly, H. A. HARE.

WRITE TO US for a copy of Department of Public Health Bill.

CORRESPONDENCE.

Appendicitis.

RICHMOND, IND., Dec. 20, 1897.

To the Editor:—I desire to endorse the subject matter o "Appendicitis" coming from Dr. Sterman of Evansville, Ind in reference to "alarming mortality" following operative meas ures for this accident. I call it accident because it is onl recently that the furore of operating in this class of cases ha culminated. So that operation is advised too often, whicl produces the alarming mortality to which the Doctor refers He refers to some cases, and cases of so-called "appendicitis" occur in many localities. In illustration of cases which may or may not be operated on, are those operated on too soon and those too late, with an intermediate class of cases not operated on at all, viz., those which recover; also those which die because *operation* was *postponed* till too late.

I visited five cases during the past summer, two for the purpose of operation. The first was dying when I arrived and there was no operation. The duration after a relapse was eleven days. Postmortem was made the day after death and showed a case of appendicitis, perforation of tube, infiltration into peritoneal cavity, general peritonitis, effusion of serum and pus with an effort at organized lymph, and an effort at arrest or cure at that point. Evidences of general peritoneal inflammation and consequent results were present. There was a time, had it been determined, when an operation might have been successful.

Another case was that of a woman 65 years old, and was well marked as to signs, symptoms, etc. McBurney's point was clearly defined but under careful and skilful management by her physician she recovered without operation, which was my advice, as I went with a view to operate.

The third case recovered without operation, under my own management. The symptoms were: Agonizing pain; McBurney's point distinct. Absolute quiet and anodynes arrested the disease in five days.

In another case a physician of this city was called in consultation. The diagnosis was appendicitis. Symptoms: Localized pain; McBurney's point made out; pain and localized soreness; vomiting; bowels obstructed. Under hot fomentations and opiates the patient recovered in a week with no operation.

The fifth case, Mrs. B., was a well marked case. She was a large, fleshy woman, a hearty eater in health with irregular habits of eating. She was attacked with severe pain in the right iliac fossa, low down. McBurney's point of pain and soreness was well marked. Abdominal pain was diffused. Tympanites was marked in general. The limb of the right side was drawn up to relieve the pain and soreness. Under a careful, yet somewhat protracted treatment, with the most absolute quiet, she slowly recovered without operation, and yet in the consultation I had advised an operation the next morning if no improvement occurred. She has had no relapse.

It so happens that I had been making a careful study of cases reported and what authorities have said (I mean operators) for several years back, and I have had occasion to postmortem such cases as have died and have found "appendicular trouble" which requires a careful diagnosis to distinguish from other troubles which occur in this region of the body. The differential diagnosis must or ought to be "absolute," using the writer's word, before an operation is undertaken, and then, too, at a period when complications are not sufficient to contraindicate it. Hence, I accept the three first conclusions as laid down by the writer, and also agree to the two last propositions, as these cases will in some degree prove, viz.: 1. That too many surgeons (those who are teachers, *i. e.*, surgical operators) operate too much, that is, they popularize an operation,

which oftentimes in my judgment had better not be made, because patients do more or less slowly convalesce, finally recover and remain well after such attacks. 2. I have seen (in now nearly fifty years' practice) many such cases which we would now classify as "appendicitis," recover without an operation.

Finally, many lives have been lost by an operation made when convalescence had been established and any operative procedure was surely contra-indicated.

Thus I am glad to record my experience as sustaining the experience as recorded by the writer referred to and, furthermore, to suggest that the trend of modern surgical opinion will bear criticism and close examination; when, standing in the presence of a human life threatened with death and appealing to the surgeon for aid, the surgeon must be conservative, honest, backed with a comprehensive knowledge of the symptoms and facts and one who will not yield to temptation; hence, judicial in his mental make-up.

There are three more cases which might be added to this list, one recovering and two dying; one refusing operation under consultation and the second being too late for an operation, which was desired; and postmortem revealed in both appendicitis with peritoneal complications.

Summary.—Eight cases, five recovering and three dying from complications rendering it useless to operate; postmortem in three cases to verify diagnosis. In these cases the percentage of mortality is 37.5; the percentage of recovery 62.5, without operation. "Talamon (Fr.) admits that 90 per cent. recover without operation, taking all forms of the disease." Then why such urgency to operate?

R. E. Haughton, M.D.

Diabetes Mellitus.

Milton, Del., Dec. 28, 1897.

To the Editor:—In the Journal of Dec. 18, 1897, you gave us quite an elaborate article on "Diabetes Mellitus," for which the profession owes you many thanks. I have often thought while the scientists were almost turning the world over to unearth a remedy for the cure of consumption, diphtheria, etc., how little has been done about this dread disease. There are reasons for it, and one is they have never satisfactorily solved the why and wherefore, the primary cause; but why has there not been more investigation? For, if there is one disease more loathsome than another it must be diabetes. It deserves our most thoughtful and serious consideration. The authors give us but a faint idea of the disease or how or whence it comes. They speak of sugar appearing in the urine after eating certain kinds of food, or it may appear during many diseases. This we all know and it occurs in every physician's practice; but the primary cause and to get down to the bottom rock, the starting place, there has been but little light thrown upon this great question. Theory amounts to but little when you have to face that dread disease; we get lots of that out of the lectures of professors in our colleges and their writings, but when reduced to practice are of but little worth; but the cause of this trouble is what we are after and how to remedy it. Speculation won't do; no one can treat disease successfully without knowing something of the cause and how to remove it. As matters stand, we are like a blind man groping his way in a strange room where nothing is sure to him. Such, I fear, is the case with many of us, we are too prone to guess at what we don't very well understand and leave the result of our mistakes many times to what is called providential visitations. While it has been considered that the amylaceous and starchy foods had much to do with the diabetic condition, yet we have never known a demonstration of the fact, as we have said before. We often see sugar in the urine after eating certain kinds of food, but that does not go to say that such is the primary cause. And in our treatment we have always taken the reverse and administered acid and alkalies as an offset, making an attempt to neutralize the sugar; but always making a miserable failure.

Let us hear from you again.

James A. Hopkins, M.D.

Railroad Rates and the Denver Meeting.

Tecumseh, Mich., Dec. 28, 1897.

To the Editor:—Permit me to correct some of the erroneous impressions which my article of December 11 appears to have made upon the mind of your correspondent of Sioux Falls, S. D., and which find their way into the Journal of Dec. 25, 1897.

In the first place the members of the American Medical Association are not mendicants, and therefore do not solicit free passes to the Denver meeting, nor to any other meeting; neither can the writer ascertain that the members of this Association ever had free passes to any of their meetings, at least within the last quarter of a century. Secondly, the members of the Association simply require of the railroads that they give the members a similar rebate which the roads have already conferred upon members of conventions previously mentioned by the writer, and nothing more. This plan, if adopted by the railroads, would meet the approbation of "the average country doctor," as well as the average city doctor, who as a rule has neither money nor time to throw away for the benefit of the public, although he frequently does it, even for the benefit of opulent corporations.

The following paragraph from your correspondent mentioned above is merely quoted in order to show its absurdity: "The railroad company finally kept tab and discovered that in one year free transportation to the amount of about $60,000 had been called for and used to go to other places than the Association, over and above that actually used in good faith." This statement when applied to the members of the American Medical Association is all hocus pocus, without the slightest foundation of facts.

In conclusion, allow me to suggest that hereafter, the Committee on Transportation fix the place of meeting of the Association after they have succeeded in obtaining fair railroad rates to and from that point. Respectfully yours,

J. F. Jenkins, M.D.

License in Germany.

Toledo, Ohio, Jan. 3, 1898.

To the Editor:—In Dr. Blech's reply in the last issue of the Journal, he says: An American graduate can matriculate at a German university. That has not been denied, but he is not admitted to the State examination unless fulfilling the requirements as stated in my explanation. He says: The gymnasium embraces a curriculum of seven years only.

The classes are *Sexta*, *Quinta*, *Quarta*, *Tertia B*, *Tertia A*, *Secunda B*, *Secunda A*, *Prima B*, *Prima A*, with one year's course in each equals nine years if one is passed every year, which is not always the case. Age for admission to *Sexta* is 10 years.

As to *Gewerbefreiheit*, those are *the quacks*, and have no sheepskin of any kind, while the question under consideration is the *full fledged license to practice.*

These few remarks to show that Dr. Blech's corrections are incorrect, and that there is nothing to change in my primary statements. But now I can not help but pick up one expression found in Dr. Blech's last print, which I hope slipped under his pen without giving it the necessary premeditation. He says, and claims to quote me in doing so, that Johns Hopkins, Harvard, etc., are not considered equivalent to a German University. I most positively must take exception to this

statement, and this with some self-satisfaction to me as a foreign graduate in opposition to a graduate from Barnes Medical College at St. Louis ("Polk's Directory"). Every learned European and German, not even necessarily a physician, knows and admits that *some* of the American schools are fully equal to the European standard, that a large number of American physicians, living and dead, are found among the leaders in the profession, and full credit is given to what Americans have done for the advancement of science. The question of equivalence, however, does not come up at all in legislating for the regulation of licensed practice of medicine; compare the State of New York, etc. B. BECKER, M.D.

An Interesting Case.

SIOUX FALLS, S. DAK., Dec. 27, 1897.

To the Editor:—Christmas eve two men engaged in a quarrel in a saloon in this city over a bill. They went out into the street to continue the quarrel. After some words, the larger of the two, who was a large powerful man, struck the other a severe blow in the mouth. Instead of falling backward as would have been expected, the man hit fell forward and his enemy struck him another blow as he went down. He immediately became unconscious, and though his heart was beating when medical aid reached him, respiration had ceased and he was shortly pronounced dead.

All sorts of conjectures were indulged in as to the probable cause of death, it not being thought probable that two such blows as were given could kill a man. Some attributed it to heart disease, others thought his neck must have been broken. The autopsy disclosed the fact that the man when struck had a large quid of tobacco in his mouth and had probably at the instant of receiving the blow taken a sudden and deep inspiration, drawing the tobacco down deep into the larger bronchi, completely occluding them, causing his almost instant death.

The coroner's jury found the man who struck the blows guilty of manslaughter in the second degree. We have heard of tobacco causing death, but never before in just this way.

A. H. TUFTS, M.D.

Medical Courtesy.

CLARKSBURG, W. VA., Dec. 21, 1897.

To the Editor:—In case a physician who is in good standing in his State medical society moves his location to a town in a neighboring county of the same State, in accordance with social or professional ethics, who is expected to first extend courtesies in the way of friendly calls, the new-comer or his older established professional brethren?

Very respectfully, R. A. H., M.D.

ANSWER: Where a physician moves into a neighborhood, courtesy demands that his brother practitioners should call on him within a reasonable time and give him the right hand of fellowship.

Texas Medical Practice Laws.

CHICAGO, Dec. 28, 1897.

To the Editor:—Kindly advise me in our JOURNAL as to laws and regulations of practicing medicine in the State of Texas.

"DOCTOR."

ANSWER: A license is issued after examination by a District Board of Medical Examiners. Diplomas confer no right to practice. *Vide* the JOURNAL, Vol. 22, p. 355.

SOCIETY NEWS.

Therapeutic Society.—At a meeting held at the National Medical College, July 29, 1897, to organize "The Therapeutic Society of the District of Columbia," there were present, Drs. H. H. Barker, G. R. L. Cole, C. T. Caldwell, J. T. Kelley, Jr., L. Kolopinski, D. O. Leech, J. S. McLain, G. C. Ober, W. M. Sprigg, M. F. Thompson, J. T. Wintern. The following officers were elected: L. Kolopinski, president; J. T. Winter, first vice-president; W. M. Sprigg, second vice-president; J. T. Kelley, recording secretary; G. C. Ober, corresponding secretary; J. S. McLain, treasurer. Article II of the constitution says, "The object of the Society shall be the study and advancement of medical and surgical therapeutics in all of the special branches of practical medicine. The Society meets in one of the rooms of the National Medical College, on the second Saturday of each month. The active membership is limited to fifty, and any member of the Medical Association of the District of Columbia is eligible."

J. THOMAS KELLEY, Recording Secretary.

St. Louis Laryngological and Otological Society.—On December 27 the St. Louis Laryngological and Otological Society was formed, composed of those physicians of St. Louis who limit their practice to the treatment of diseases of the nose, throat and ear. Dr. J. C. Mulhall was elected president; Dr. J. B. Shapleigh, vice-president; Dr. F. M. Rumbold, secretary, and Dr. A. S. Barnes, Jr., treasurer; for the year 1898. Meetings will be held monthly, and it is expected that the scientific programs furnished will be highly interesting and instructive. While the membership is limited, the privilege of inviting professional friends is reserved to each member.

BOOK NOTICES.

Transactions of the Medical Society of New Jersey. Cloth. Pages 347. 1897.

This volume covers the one hundred and thirty-first annual meeting held at Atlantic City, N. J., June 22 and 23, 1897. Besides society data it contains the following papers: "The Value of Antitoxin as a Remedial Agent . . Against Diphtheria;" "Present Status of the Serum Treatment of Diphtheria;" "Headaches; Auto-intoxication a Factor;" "A Criticism of Modified Milk and of Modern Dairy Methods;" "Some Important Points in . . . Acute Lobar Pneumonia;" "Scarlet Fever Reproduced by Inoculation . . . ;" "Progress in State Medicine and Hygiene;" "Aphorisms on Medico-Legal Testimony;" "Progress in Bacteriology During the Past Year;" "Progress of Ophthalmology and Otology;" "Account of a Patient . . . Who Swallowed Numerous Indigestible Articles with Suicidal Intent."

Transactions of the Medical Society of New Jersey. Cloth. Pages 453. 1896.

This volume contains full proceedings of the one hundred and thirtieth annual meeting held at Asbury Park, N. J., June 23 and 24, 1896. The paper and press work of the volume are a credit to the society, the volume being a companion volume to that for 1897. The contents comprises reports, minutes, etc., and a number of valuable papers.

The Action of the Health Department in Relation to Pulmonary Tuberculosis and the Scope and Purpose of the Measures Recently Adopted for its Prevention. Paper. Pages 70. 1897.

This is a report of the Board of Health of New York City, made to Mayor Strong, and contains much valuable data concerning pulmonary tuberculosis. Several maps of New York wards add to its value.

Proceedings of the Ninth Annual Session of the Association of American Anatomists. Paper. Illustrated. Pages, 65. Washington, 1897.

The volume contains the proceedings of the annual meeting held in Washington, D. C., May 4-6, 1897, including papers presented at the meeting and a number of full page half-tones illustrating the papers.

Biennial Report of the Department of Health of the City of Chicago being for the years 1895 and 1896. Chicago. 1897.

This report is one of the most valuable ever published by the Health Department. Dr. Reynolds in his letter of trans-

mittal says, "The general excellence of the work of the department is due in a large measure to Dr. F. W. Reilly, who was appointed assistant Commissioner of Health by the undersigned in January 1895, and most wisely retained during the last administration and reappointed by the present."

The contents of the volume includes the Reports of the Divisions and Bureaus of the Department, contagious diseases, diphtheria, the anginas of 1896, diagnosis of diphtheria, special medical sanitary inspection, inspection of public schools, work of the disinfecting corps, statistics, tables, circulars, etc., of the contagious disease division, circulars of the department, hospital and ambulance system of Chicago, auxiliary medical corps, report of the municipal laboratory, relation of the medical profession to the water supply, regulation in the practice of midwifery, report of smoke division, report of the City Statistician, report of the attorney for department of health, financial statement by the secretary, roster of the department, vital statistics, mortality statistics.

There is an excellent statement of the new isolation hospital and the ambulance service. Taking it all together the report covers one of the most interesting periods in the history of the department, and may well be studied by the progressive sanitarian.

The Care and Feeding of Children. A catechism for the use of mothers and children's nurses, by L. Emmett Holt, M.D. Second edition. D. Appleton & Co., 1897. New York.

This catechism is one of the most valuable of its kind and if placed in the hands of every person that has the care of young children it would be an immense benefit to a great many of the coming generation.

Manual of Pathology Including Bacteriology, the Technique of Post-mortems and Method of Pathologic Researches, by W. M. Late Coplin, M.D., being the second edition of the author's lectures on pathology re-written and enlarged. 268 illustrations, many of which are original. Philadelphia: P. Blakiston, Son & Co. 1897. Pages 638; price $3.00.

The work is divided into three parts, the first part is devoted entirely to the technique of laboratory examinations; part two, general pathology including bacteriology; third part, special pathology.

It is an admirable condensation of the vast subject, which, in view of the several special works devoted to each section, is extremely hard to compress in one volume.

A work of this kind must necessarily be largely compilation, and yet due credit should be given where the language of another author is used; especially is it desirable in the matter of statistical and comparative tables.

We notice for instance on page 211 of this book a table which is headed "diagnostic features of sarcoma and carcinoma," the first half of which is taken bodily from Woodhead's Third Edition, page 607.

Questions are appended to each of the chapters to aid the instructor in class recitations.

Syllabus of Laboratory Work in Materia Medica and Therapeutics in Use at Rush Medical College. By Daniel R. Brower, A.M., M.D., Professor Mental Diseases, Materia Medica and Therapeutics; J. A. Patton, B.S., M.D.; James C. Gill, M.D.; George W. Hall, A.M., M.D.; C. A. Wade. Pages 286. Chicago: The W. T. Keener Company, 1897.

This syllabus fairly illustrates the change that has taken place in the teaching of materia medica and therapeutics. In the old days, not more than a quarter of a century ago, the professor stood before his class for an hour and gave an address more or less profound, more or less eloquent, according to the abilities and mood of the lecturer. He held up a bottle containing a specimen of the drug or preparation, and as a special favor occasionally passed it around for inspection with the bottle tightly corked and the label duly numbered and recorded. This cursory inspection was supposed to be sufficient to inform the student fully of all that was necessary for him to know. Now it is different; the student must handle the drugs; must be able to test the qualities from a chemic and as well from a pharmaceutic standpoint. Not only that but he must record his results. For this purpose each student is separately provided with the necessary chemicals and apparatus according to the list duly set forth in the syllabus; the chapters to which are as follows: 1. Desk invoice. 2. General laboratory rules. 3. General instructions for tests. 4. Weights and measures. 5. Prescriptions. 6. Materia exercises on the various official drugs and preparations (190 pages of these exercises). 7. Therapeutics, exercises on electricity, massage, enemata, lavage, hydrotherapy, counter irritation, pneumotherapy, dietarics. Truly, the medical graduate of today has no holiday task to earn his medical degree.

The Psychical Correlation of Religious Emotion and Sexual Desire. By James Weir, Jr., M.D. Second edition, pp. 338. Louisville: Courier-Journal Job Printing Company, 1897.

This book contains separate chapters on: 1. The origin of religious feelings. 2. Phallic worship. 3. Psychical correlation of religious emotion and sexual desire. 4. Psychical problems, viz.: "Psychology of hypnotism, virginity and effemination, borderland and crankdom, the methods of the rioting striker an evidence of degeneration, genius and degeneration, prophecy and insanity, occultism, etc., effect of female suffrage on posterity, animism and the resurrection, suicide in the United States. Is it the beginning of the end?"

Masters of Medicine. A Series of Monographs, edited by Ernest Hart, D.C.L., Editor of the *British Medical Journal*. Each volume with photogravure frontispiece. Large crown octavo, cloth. 1. John Hunter; Man of Science and Surgeon (1728-1793). By Stephen Paget, with introduction by Sir James Paget. Pp. 273, $1.25. 2. William Harvey. By D'Arcy Power, F.S.A., F.R.C.S. Eng., Surgeon to the Victoria Hospital for Children, Chelsea. Pp. xii-283, $1.25. New York: Longmans, Green & Co., publishers, 91 and 95 Fifth Avenue.

In the long fight against disease, especially its causes and for prevention, which has so far resulted in increasing the average length of human life to a considerable degree, the lives of those masters who have led in this warfare can not fail to be of great interest.

The names selected by the distinguished editor, Ernest Hart, are John Hunter, William Harvey, Edward Jenner, Sir James Simpson, Hermann von Helmholtz, William Stokes, Claude Bernard, Sir Benjamin Brodie, Thomas Sydenham, Vesalius.

The first two of these volumes are before us, and although much has been written of John Hunter and William Harvey, yet we must say that these volumes add very much to the general stock of knowledge concerning them, and to general literature has added a couple of biographies as entertaining as they are generally useful.

These lives are destined to become English classics and as such read by every physician who desires to be familiar with the progress of medicine and surgery among the English speaking race.

Transactions of the American Orthopedic Association, Eleventh Meeting, held at Washington, D. C., May 4, 5 and 6, 1897. Pp. 296.

This report is ably edited and contains the proceedings of the last annual meeting and the papers read at the meeting by the members of this society.

The work is well illustrated and handsomely printed. The historic address of the president, Dr. Samuel Ketch of New York, is one of the features in the volume of interest to the general profession. The book compares very favorably with its predecessors and is very creditable to the Association.

What a Young Man Ought to Know. By Sylvanus Stall, D.D. Philadelphia: Vir Publishing Co. 1897. Price $1.

This book is to be commended from a moral and from a sanitary standpoint. One is apt to be prejudiced without reason

against books of this class and we confess a weakness of that sort, but on perusal we not only find nothing from which to dissent, but very much to commend. The chapters on marriage are specially to be commended.

NECROLOGY.

WILLIAM E. WENTWORTH, M.D., aged 24 years and an attending physician of a sanitarium, died from typhoid fever at the Hospital in New Rochelle, New York., Dec. 29, 1897. He was born in Rochester, N. H., where his father is a wealthy farmer.

HENRY PARKE CUSTIS WILSON, M.D., University of Maryland, Baltimore, 1851, died in Baltimore, Md., December 27, aged 70 years. He was a medical writer, inventor of surgical devices and vice-president of the American Gynecological Society. As one of the founders of the Hospital for Women of Maryland he became widely known for his energy and identification with nearly all the hospitals and charitable institutions in Baltimore. He was also a member of the Maryland Academy of Sciences, of the Baltimore Academy of Medicine and of other professional bodies.

ERASTUS C. COY, M.D., University of Vermont, Burlington, 1861, died after a short illness, aged 65 years. He had practiced for twenty-five years at Turner's Falls, Mass., where he died, having joined the Massachusetts Medical Society in 1870, and at a later period the Massachusetts Medico-Legal Society. A widow, a son and a daughter survive him.

DEATHS IN THE PROFESSION ABROAD.—Joachim Voss, M.D., professor of anatomy and medical jurisprudence in the University of Christiana, president and founder of the Association of Norwegian Medical Practitioners and one of the first who performed ovariotomy in Norway, aged 82 years.——Prof. Victor Hüter, for many years lecturer on gynecology in the University of Marburg.——Nikolai Kleinenberg, M.D., professor of comparative anatomy in the University of Palermo, aged 57 years.——M. A. Olivet, M.D., professor of psychiatry in the University of Geneva and author of numerous publications on subjects relating to mental diseases, aged 76 years.——José M. Astigueta, professor in the Medical Faculty of Buenos Ayres, member of the legislature, minister of public instruction, superintendent of the asistencia publica, etc.——Alex. Bykow, M.D., Warsaw, director of the Med.-Chir. Academy.——Braulio Saenz, M.D., a prominent physician and surgeon in Havana, stricken at the operating table.

JAMES F. ARMSTRONG, M. D., Cleveland, Ohio, December 7. Dr. Armstrong was surgeon of the One Hundred and Fiftieth Regiment, Ohio Volunteer Infantry during the war and was later surgeon of the United States Marine Hospital.——J. L. F. Burdich, M.D., Winooski, Vt., December 11, aged 73 years. ——Cornelius N. Dorsat, M.D., Montgomery, Ala., December 7, aged 44 years.——William P. Hogue, M.D., Charleston, W. Va., December 7, aged 77 years.——George C. Hoitt, M.D., Manchester, N. H., December 9, aged 62 years.——M. V. B. Johnson, M.D., Sioux City, Iowa, December 9, aged 55 years. ——A. W. Peurifoy, M.D., Hankinsville, Ga., December 10, aged 69 years.——L. S. Sprague, M.D., Williamson, N. Y., aged 78 years.——E. C. Karner, M.D., Mill River, Mass., December 21.——J. W. Mix, M.D., Byron, Ill., December 28, aged 42 years.

COL. JAMES COOPER MCKEE, a retired United States army surgeon, dropped dead at Butler, Pa., December 11, from heart failure. He was born in Butler in 1830 and gaduated from the Medical University of Pennsylvania in 1852, commencing practice at Altoona, where he remained four years. In 1858 he was commissioned assistant surgeon in the army and assigned to duty in the West, where he was engaged with different commands until the breaking out of the war. At the second Bull Run he served as assistant medical director of the army. At the battle of Antictam he was made assistant medical purveyor of the army. He afterward took charge of a hospital at Baltimore, and was next sent to organize a general hospital at Pittsburg. In 1863 Dr. McKee was promoted to the rank of captain and placed in charge of the Lincoln United States Hospital at Washington, D. C., where he remained until the close of the war. During this period 25,000 sick and wounded men passed under his attention. After serving as chief medical officer at Santa Fé, N. M., Fort Wadsworth, N. Y. and Vancouver Barracks, W. T., he was retired in 1891 for injuries received in the line of duty, with the rank of lieutenant colonel, returning to his home at Butler.

JOHN WATERMAN HAMILTON, M.D., Willoughby University, Ohio, 1846, relative of ex-Governor Hamilton of Illinois, and widely known in Ohio, died in Columbus, his home, January 1, aged 72 years. He was a member of the AMERICAN MEDICAL ASSOCIATION and as well of the Ohio State and Central Ohio Medical Societies. His name appears in the list of delegates to the Ninth International Medical Congress, which convened in Washington, D. C., in 1887. He was one of the older surgeons of Columbus and one of its ablest men. He was a descendant of Dr. Wm. Hamilton of Edinburgh, Scotland, who settled in Maryland in 1700 and was the founder of the family in Maryland. Dr. Wm. Hamilton was an able physician and was called in consultation by Dr. Craig in Washington's last illness.

ELTON JOHN SHEROW, M.D., College of Physicians and Surgeons, New York, 1890, died in New York City January 1, aged 24 years. He was an earnest laboratory student, but appears to have overtasked his energies.

PUBLIC HEALTH.

A Quarantine Convention.—The following papers, which have been forwarded to the JOURNAL by Dr. W. H. Sanders of Mobile, Ala., are of interest and self-explanatory. The Doctor says: "The idea is to educate both ourselves and the public, in order that we may reach correct conclusions both as to the theory and practice of quarantine, as justified by the genius and principles of our systems of government, Federal and State. . . . . The medical papers are intended to be written, not in technical language, such as would be appropriate before a medical body, but in plain and perspicuous language, such as is adapted to a popular audience. . . . The idea is, further, that each paper shall close by a clear and succinct statement of such propositions as the argument employed seems to justify, which propositions can be submitted to the vote of the convention for adoption, modification or rejection."

THE STATE BOARD OF HEALTH.

MONTGOMERY, ALA., Dec. 7, 1897.

Governor JOSEPH F. JOHNSTON.

Dear Sir:—The recent introduction of yellow fever into one of our Gulf States, and its spread therefrom to several others of them, has strongly emphasized the wisdom of making an effort to devise some more efficient measures than have heretofore existed for the prevention of a similar disaster in the future.

The time seems ripe for such an effort. Our people are deeply and universally aroused on the subject, and justly so, for no subject could be more vitally connected with their social, sanitary, commercial and industrial interests. The magnitude of the questions involved points out the necessity of adopting the wisest course in order to reach the best possible results.

To me it is clear that our first need is light—all the light we can possibly procure. To obtain this, I propose a Quarantine Convention of the South Atlantic and Gulf States. Their geographical position gives them an interest in the subject far above that of any or all of the other States, and their recent experience eminently fits them for dealing with it intelligently and wisely. Their interests are sufficiently homogeneous, and

ir exposure to the infection sufficiently great and uniform to closely unite them in a friendly and earnest effort to mulate systems of protection that shall be founded upon nciples of equity and justice and shall at the same time be cient and harmonious.

t the proposed convention delegates should represent every siness and profession, with a view of making a scientific l exhaustive study of both the theory and practice of quar-ine. To eminent lawyers should be assigned themes ended to develop and clearly set forth the legal propositions on which all systems for the protection of the public health uld be built. To merchants should be assigned commer-l themes, to doctors scientific ones, to railroad and steam-t officials those bearing upon transportation, to editors se appertaining to public policy, to representatives of the tal service those affecting the mails, and to all other classes jects appropriate to their several departments of business. With carefully prepared papers on appropriate themes, be-ging to each of these departments, together with the dis-sions that would grow out of them a flood of light would be own on the subject of quarantine. In a word, the idea is make the proposed convention broadly educational, and at same time to furnish an opportunity for cultivating that rit of harmony and mutual confidence which will be so con-cive to the most judicious legislation.

I deprecate the haste with which many of our people are ming opinions upon the subject of quarantine, and fear they doing so without due consideration. That our system of arantine urgently needs to be reformed is freely conceded, t let us by all means search out and apply the best rem-ies. I know of no other way of finding these remedies an by studying the subject according to the plan briefly licated.

I have but imperfectly sketched the beneficial results that uld flow from a convention of the kind suggested, but I feel re you will readily see the wide scope of usefulness it would fil. I suggest Mobile as the place, and about the first of bruary next as the time for holding the meeting. Mobile is ntrally located with reference to the territory to be repre-nted, and lies on the coast that is most directly interested in uring protection. The hospitality of her people is prover-al, and I feel safe in saying that a body of men meeting ere for the purpose indicated would receive hearty and cor-al welcome.

May I ask your moral support and co-operation in promot-g my objects, feeling sanguine as I do that much may be ereby achieved for the good of the entire country. With stinguished consideration, very respectfully yours,

[Signed] W. H. Sanders, M.D.,
State Health Officer.

ATE OF ALABAMA. EXECUTIVE DEPARTMENT. OFFICE OF THE GOVERNOR.

MONTGOMERY, ALA., Dec. 8, 1897.

. W. H. SANDERS, State Health Officer.

Dear Sir:—I have just received your favor laying before me ur suggestions in regard to calling a Quarantine Convention, mposed of delegates representing all classes and pursuits fected by quarantine restrictions, and to consider the origin d most effective means of stamping out epidemics.

I beg to say that I heartily concur with your suggestions. he time seems most opportune for our wisest physicians, wyers, merchants, farmers and others affected to give oughtful utterance to sound views. I am sure that such a nvention will be a great educational institution; that it will able to illumine many dark spots, and enable us in the ture to enact such wise and wholesome regulations as will operly protect the lives and property of our people. I beg say that you shall have my hearty co-operation in the mat-r proposed and that I shall do everything consistent with my sition to have Alabama and all the States affected, repre-nted by its best thought in all respect to the vital interests at will be there considered.

Yours respectfully,

[Signed] Jos. F. Johnston, Governor.

PRELIMINARY PROGRAM.—Submitted by W. H. Sanders, .D., State Health Officer of Alabama.

1. Quarantine with reference to international rights and in-rests. 2. Federal and State powers as to quarantine. 3. ate and National quarantine as affecting commerce. 4. arantine as it affects personal rights. 5. Sanitary inspec-rs of foreign ports. What is being and can be done in this rection. Sanitary conditions of foreign ports that menace us st, and what can be done to improve them. 6. Policing the sea along the South Atlantic and Gulf Coast to prevent the introduction of contagious and infectious diseases. What is being and can be done? 7. National disinfecting stations for ships, where located, how operated, under what rules, with what results and whether others are needed. 8. State maritime disinfecting stations, how many, where located, how operated, under what rules and with what results. 9. Medical inspectors of south Atlantic and Gulf seaports and coast towns to discover first case or cases of infectious or contagious diseases, how best to provide for. 10. What steps should be taken in dealing with first case or cases of infectious or contagious diseases that may reach our shores. 11. State and local quarantines, how best to adjust their relations. 12. Depopulation of infected cities, how to be accomplished and to what points may refugees go. 13. Quarantine diseases, what are they and how should they be dealt with? 14. Infection, how conveyed and periods of incubation of infectious diseases. Disinfection, when needed and how applied? 15. The mails and quarantine, how practically to deal with them when proper authority has declared that they should be disinfected. 16. Management of railroad trains during an epidemic of yellow fever, from a railroad standpoint. 17. Classification of freights as to their liability of conveying infection. 18. What may be done to check the spread and to exterminate yellow fever after it has become prevalent in a city? 19. Boards of health, of whom should they be composed and how should they be appointed? To whom should the practical administration of quarantine be committed? 20. Practical difficulties in diagnosing yellow fever. 21. Interstate quarantine from a constitutional, commercial and sanitary pint of view. 22. Experiences of a quarantine officer in the recent epidemic. 23. National quarantine. 24. A National Bureau of Public Health. 25. The relation of the press to epidemics and quarantine. 26. Quarantine from a moral standpoint. 27. Sins and absurdities committed in the name of quarantine in the recent epidemic. 28. Introduction of yellow fever into the country in the past; from what places introduced and how.

Typhoid Fever Epidemic in New Jersey —A serious epidemic of fever has befallen Paterson, N. J. It began at an orphan asylum and thence spread to other parts of the city. About seventy cases are known to have existed. It is the belief of those who have investigated the matter, that the cases at the institution and in various private families originated from the milk supplied by a certain dairyman, in whose family there had been three cases of fever. These patients had been sick for a month or more, with what was called "remittent fever," and their discharges found their way into the water that was used for washing milk cans and other appurtenances of the dairy. Among the other towns where typohid fever prevails to a greater or less extent are Passaic, Arlington and Kearney. A boycott against New Jersey milk has resulted, not only in New York City, but in certain of the large cities of the former State. Thousands of quarts of milk are being rejected every day, and are sent back to the shipping point, compelling the farmers to rush them off to the local creameries, which are now glutted and refuse to take any more, so that the daily product on many of the farms is a dead loss. Many dairymen who personally fought in its effort to secure legislation that would have averted such a calamity are now willing to co-operate in securing some stringent laws that will prevent a recurrence. The fact that they are losing thousands of dollars a day has brought them to their senses, and as many of them are innocently suffering they are willing that some laws should be obtained that will bring about an immediate supervision of dairies by the boards of health. Upward of fifty epidemics with a long list of fatalities have been caused in New Jersey in recent years by infected milk, and invariably by fevers in the families of those handling and dispensing the same to a large number of consumers. Until the epidemic has become alarming, there is no official investigation, and then it is found that some dairyman is selling milk with a bad case of fever in his house, with the water that he uses to cleanse his dairy utensils infected. The authorities then try to stop him from dispensing any more milk, but the damage has been done, as the long list of the sick and the dead will show. A stringent law is needed which will compel local boards of health to exercise the same precau-

tion as the board of health in the cities and towns. There is no attempt made at reporting infectious diseases, for the reason that the township board of health would take no action if they were reported. If the physician who finds fever in a country farmhouse, where the principal business of the occupants is preparing milk for the market, would report the case to the local board of health as soon as the fever makes its appearance, and the township board of health would report to the State Board of Health, that creamery would be seized at once and communication shut off with the consumers of the milk.

Volunteer Organizations for the Detection of Plumbing Defects.—For several years Edinburgh has had its unofficial system for the expert sanitary examination of dwellings. There is now in New York City, a somewhat similar undertaking, under the name of the Building and Sanitary Inspection Company, and they "offer their services to those who live in houses, for the discovery and correction of causes of unhealthfulness in the appointments and environment of the dwelling." A few years ago one of the most aristocratic apartment houses in the neighborhood of Central Park experienced an invasion of diphtheria, and though there were several victims in different rooms, the evidence was nearly conclusive, that it had originated in the house; and one bereaved father called in a sanitary engineer, in spite of the protests of the indignant owner who told of how much money he had spent on his ornamental bathtubs and nickel-plated pipes. The expert found that the ventilating pipe that should have gone out at the roof, and extended above it, left off at the lower side of the ceiling of the upper story and was there replaced by a painted cylinder of wood, which passed up through the storage attic. The noisome exhalations could do nothing else than diffuse themselves throughout the house, and the outraged inmates took the matter to court, where there was a preliminary hearing; and rumor had it that the murderous owner of the building paid fabulous sums to "buy off" his tenants, and immediately had the most faultless of plumbing put in under the direction and inspection of a competent sanitary engineer. This could not recall to life the dead; and with variations the above is a story that is repeated again and again every year, and tenants and owners are very active after the mischief is done. Had the people who suffered from this landlord's cupidity caused an examination to be made before they rented their rooms, a wholly different result would have been seen. Is it possible that careful fathers who are good business men in other matters, can have been inveigled into attempting to live in houses where eighty in a hundred are defective in the vital point of healthfulness. They were not inveigled, they were simply satisfied with their own judgment, or took on trust the assurances of agents or owners. Many houses were carefully plumbed according to the lights of the time when they were built; but in some the plumbing is worn out, and when a replacement is suggested there is a distinct painful thrill in the pocket nerve of the owner, and he fights it off as long as possible; and where he suspects that there should be a thorough overhauling, but the prospective tenant does not not push his inquiries, he soothes his conscience by the thought that "the sanitary condition of a house is, after all, a matter of concern only to the people who live in it." But if neglect is proven and taken to the courts, he wishes he had not waited to be forced to do right. There has arisen in some quarters a tendency to ridicule the idea that the germs of disease are to be found in the emanation from defective pipes, and though there is, no doubt, a degree of high health and robust constitution that can resist their action, there are thousands who suffer from what for lack of a more definite classification, they call "malaria."

"Light from Dust."—A plant at Shoreditch, London, in which Lord Kelvin is interested, has recently been opened, the object of which is to destroy waste and at the same time utilize it for the production of elcctricity for lighting purposes. It is pro ably the first of its kind on anything more than an expe mental scale; and this has been done in a large borough 130,000 persons, mostly belonging to the working class. Th steam requirements of the electric lighting station, gre though they be, must be regarded of sccondary importance comparison to the hygienic manipulation of the refuse con pared to thc doubly expensive method of sending it away b rail or barge to be utilized for raising some low-lying land o which in a few years houses would be built. Not only wi the cost of getting rid of the dust be materially reduced to th parishioners, but the districts where it was "shot" will benef largely by its absence. Medical men in localities where tow refuse has becn deposited have been impressed that its pre ence is a determining factor in the production of diphtheri From a health point of view the introduction of electric lig ing and electric power can only be regarded as a distinc advance. It is unnecessary, in this year of all others, to dilat on the benefit of the electric light over other methods of ligh ing, but in Shoreditch special arrangements have been mad such as in the introduction of the "penny-in-slot" meter prin ciple, and otherwise, to bring the light within the reach of th small shopkeeper and houscholder. Further, the use of elec tric energy is certain to be largcly appreciated in the numerou small factories and domestic workshops with which the dis trict abounds. It is not necessary here to enter into a descrip tion of the various works comprised in the undertaking, bu reference must be made to one or two of the novel feature which have here been combined. By the system of feed the mal storage which is brought into operation for the first time the steam generated during the daytime in the boilers is passe into a thermal storage cylinder, where it is mixed with a smal quantity of cold water from the fced-pumps, the proportion being such that, when the evening approaches, the cylinder i full of water at the temperature and pressure of the steam required by the engines. The cylinder is then shut off fron the feed pumps and connected to the boilers, which in thei turn are connected direct to the engines; hence, when th boilers require feed-water, they are supplied with it from th cylinder at such a temperature that the fuel which is the being burnt has merely to furnish to the water in the boile the heat sufficient to overcome the latent heat of evaporatio at the required pressure. The result of this arrangement i that the boilers are able to evaporate about one-third mor steam than they would be able to evaporate were they con nected directly with the water-mains; and, moreover, the im portance of the thermal storage cylinder is further enhanced by the fact that it acts as a water purifier. The six boilers are all fired with the waste gases from two destructor cells, one on each side of the boiler. The products of combustion from the destructor cells are led under the boiler tubes immediately above the level of the fire-bars, the latter being fitted in the boiler together with fire-doors, in the same manner as if the boiler were fired with coal, irrespective of the dust destructor cells. This grate is provided for the express purpose of enabling the boilers to be fired by coal alternatively or simultaneously with the absorption of heat from the waste gases of the destructor cells passing through the boilers. This arrangement fulfils a two-fold object. 1. The provisions of the secondary fire before referred to, which is in the most desirable position for further heating the destructor gases immcdiately they enter under the boiler, should that operation be requisite, and having further advantage that the heat so produced is ultimately so completely absorbed by the boiler, and thus turned into profitable use. 2. The arrangement adds to the steam-raising power of the boilers when the heat of the destructor gases is not sufficient to produce all the steam required, or when the destructor cells attached to a particular boiler are out of order, to cnable the boiler to be entirely fired by coal or coke. It has been found, however, that the heat produced by the destruction of the "dust" is sufficient without the addition of any coal. There are twelve cells in all in the destructor house, which measures eighty feet square. In place of the more usual inclined road and tipping platform considerable saving is effected, both in space required and in horse-

lesh, by the introduction of a series of electric lifts and motor ;ars for revising and distributing the refuse throughout the ;ells. One man is thus able to keep the whole twelve cells ;harged at regular intervals, and the refuse is never left to fer- ment or heat on hot brickwork or ironwork, and so prove a nuisance to the neighborhood. A like result from the gases vhich might escape is prevented by the use of fans which ventilate the building and at the same time drive the air through the furnaces. A connection has also been made from he adjoining sewer to the intake of one fan, which constitutes in experimental effort to ventilate the sewer by passing the gases abstracted therefrom through the fires, and thus render- ng them innocuous.—*Sanitary Journal.*

MISCELLANY.

Prince Bismarck.—A recent cable dispatch states that Prince Bismarck is suffering from some form of dropsy, and has recently had his feet tapped.

Erratum.—In the JOURNAL of December 4, page 1184, second column, line 8, the name of the author of the article on rheu- natism should read Dr. Edmund L. Gros instead of Geos.

Parke, Davis and Co., have issued a handsome little brochure, he "Lofoten Islands and their principal product," in which the pictures of this group of islands are beautiful and of general nterest.

The Russian Census.—The revised returns of the Russian cen- sus gives the total population of that country at 129,000,000. This makes Russia third in rank among nations, China com- ng first with an estimated population of 490,000,000 and the British Empire next with 208,000,000.

A Book by Dr. Outten.—Dr. Warren B. Outten, Chief Surgeon of the Missouri Pacific Railway, has written a book: "Man's Inherited Martyrdom—A Fitful Study of Degeneration." The work is of the greatest interest and is sure of a favorable recep- tion. It will be printed as a serial in the *Tri-State Medical Journal and Practitioner*, of St. Louis, which has the exclu- sive right to the publication.

The Passing of the Family Doctor.—The London *Lancet* has ately expressed its regret at the signs of the wasting prestige and influence of the medical profession. That looks as if the embarrassments that beset physicians in New York were oper- ating in London also. There seems to be some reason to antici- pate a time when New York families will contract with a syn- dicate of physicians, comprising a complete set of the necessary specialists for the supervision of the family health at a fixed annual price.—E. S. Martin in *Harper's Weekly*, Dec. 25.

Missed Everything Except Vaccination.—An old Georgia darkey, vith his arm in a sling, was talking to another on a West End ;ar yesterday. "Yes, suh!" he said with emphasis. "I gone up now, fur sho'! You see dis arm in de sling, don't you?" 'Yes." "Well, suh," the old man continued by way of expla- nation, "I'll be 80 years old next harvest; I done see lots er trouble in my day, but by de grace er God I miss de Ku-Klux, I miss de Viglance Committee, I miss de White-caps, en I miss le Regulators, but now in my old age, please God, waxinators scotched en cut me."—*Atlanta Constitution.*

Ocular Hemorrhages in Young Subjects and in Adults.—Abadie, n the *Soc. d'Ophtal. de Paris*, lays stress on two symptoms vhich he thinks are of importance as bearing on the causation of intra-ocular hemorrhages in young subjects: 1. The epis- taxis which often precedes or accompanies them. 2. A notice- able diminution in the number of the red corpuscles in the blood. These seem to indicate that the hemorrhagic process depends on an alteration in the blood. The results of treat- ment directed to improving its quality have been found by Abadie to be most satisfactory. He strongly recommends a glass of sulphuric lemonade, extract of cinchona 1 gram, and perchlorid of iron 10 to 20 drops, to be taken daily. To favor absorption of the effusion he applies the artificial leech to the temple. Hemorrhages associated with choroido-retinitis are not to be confused with the above, and require a mercurial treatment.—*British Medical Journal.*

Antivivisection Bill.—The following authoritative statement from Senator Gallinger appears in the *Congressional Record.* "Upon solicitation from several Senators saying that they were receiv- ing letters from constituents, protesting against the passage of the Bill, I allowed it to drift along and did not ask for the con- sideration of it. On May 13, 1897, the Bill was again reported and is on the calendar. . . At an early date I shall move to take up that Bill, which is Senate Bill 1063, Calendar No. 136. I trust that when I ask the consideration of the Bill it may not be objected to, but that that matter which to my mind is ex- tremely important, and a controverted matter, I will say, on the part of physicians, scientists and humanitarians, may have a fair discussion and that we may have a vote of the Senate deciding whether or not that Bill shall pass this body."

Reading Through Opaque Substances.—Professor Grasset reports a curious experience with a subject who was able to read the contents of a letter enclosed in silver paper inside a sealed en- velope at 300 meters distant. No one in the town knew the contents of the letter, which had been sent especially for the test. The affair was reported to the Academy of Sciences of Montpelier, and the still sealed letter presented, which was opened and found intact, although a pin had been passed through it and buried in the seal. The contents were an unfa- miliar French verse which was read correctly, and a Russian, German and Greek word which the subject asserted she could not read, concluding with the correct date and signature. A committee has been appointed to go to Narbonne and make still further tests of Dr. Ferroul's "subject" in the interest of science.—*Semaine Méd.*, No. 56.

Causes of Poverty.—In Europe paupers are defined to be those who receive aid from government or charitable funds. The proportion of paupers to the whole population is highest in England, 28 per 1,000. In Scotland it is 24, in Ireland 23, in Holland 20, in Italy 10, in Austria 9, in France 8 and in Ger- many 7. There is no similar division made officially in the United States, and, taking the country through, the propor- tion here is less probably than 2 per 1,000. When it comes, however, to the causes of poverty, the American statisticians are, so to speak, right in line with what some persons would call their conjectures, but what they describe as their conclu- sions. Thus, of 100 cases of poverty, 11 per cent. are charge- able to drink in excess, 21.3 per cent. to what the statisticians call "misconduct," a rather vague designation for unwise or reprehensible acts; 28 5 per cent. to lack of work or inadequate pay for work done, or insufficient, half time employment; and most of the remainder to "misfortune."—*New York Sun.*

The Restoral of Flogging as a Legal Punishment Recommended.—The *Lancet* is more than half right in its advice to have flog- ging made a part of the punishment for toughs who throw stones at railway trains. The custom of throwing stones at trains is far too common and in addition to its being almost impossible to arrest those who do such things, the penalty provided by law is far too light. A peculiarly sad accident arising from this habit was reported in the *Daily Press* on October 19 as follows: "Ben Hitchen, a well-known express driver on the North Western Railway, lies at Crewe uncon- scious. He had charge of the Scotch Express to Carlisle, and when passing under Hartford bridge, going at great speed, a stone hurled with much violence from the bridge struck him over the eye, inflicting a fearful wound. Erysipelas has set in, and his condition is precarious." Drivers of express trains are exposed to quite enough dangers from the nature of their ordinary work without having to undergo such risk as the one mentioned above. If the scoundrel who threw the stone is

ever caught, though we are much afraid he will not be, he deserves the soundest flogging that a criminal ever had. In a case like this one not only is the driver's life imperiled, but the lives of all those in the train. We sincerely hope that the law may be amended so as to make it legal that anyone who either throws any missile at a train, whether he hit it or not, or places an obstacle in the way of a train should be well flogged or birched in addition to a term of imprisoment.

Degenerate Females at the Guldensuppe Murder Trials, New York.—During the revolting recital of testimony in the Thorn murder trial there were numerous women present who seemed to delight in listening to the shocking, disgusting details of the butchering of Guldensuppe. It is difficult to believe that any woman not morally and physically a degenerate would seek to be present at such a place during such a scene. Yet at Thorn's trial some of these creatures fought with each other in the corridors in their desire to crowd into the court room. In the cause of common decency, in the name of womanhood, which these curious females dishonor, the Bench should use its utmost endeavors to keep out the unwomanly women of morbid appetites. Under shelter of constitutional rights, never intended to be used for base purposes, they may seek to gain admittance, but the judges should do all in their power to drive them out of the trial room. And wardens of prisons should close the door against them when, later, these queer human beings in petticoats come with their floral offerings and their sickly sentimentality to visit convicted murderers in their cells. —*New York Herald.*

Water-Supply and Irrigation Papers.—The following numbers of the series of Water-Supply and Irrigation Papers have been printed and can now be had on application, or until the supply of each is exhausted. Requests specifying certain papers and stating reasons for asking for them are given prompt attention, but it is impossible to comply with general demands for all of the series indiscriminately: 1. Pumping Water for Irrigation, by Herbert M. Wilson, 1896, 8o, 57 pp. 2. Irrigation near Phœnix, Arizona, by Arthur P. Davis, 1897, 8o, 97 pp. 3. Sewage Irrigation, by George W. Rafter, 1897, 8o, 100 pp. 4. A Reconnaissance in Southeastern Washington, by Israel Cook Russell, 1897, 8o, 97 pages. 5. Irrigation Practice on the Great Plains, by Elias Branson Cowgill, 1897, 8o, 39 pp. 6. Underground Waters of Southwestern Kansas, by Erasmus Haworth, 1897, 8o, 65 pp. 6. Seepage Waters of Northern Utah, by Samuel Fortier, 1897, 8o, 50 pp. 8. Windmills for Irrigation, by E. C. Murphy, 1897, 8o, 49 pp. 9. Irrigation near Greeley, Colo., by David Boyd, 1897, 8o, 90 pp. 10. Irrigation in Mesilla Valley, N. M., by F. C. Barker (*in preparation*). (Other papers on related subjects.) F. H. NEWELL, Hydrographer in Charge, Washington, D. C., Oct. 15, 1897.

Rush Medical College Changes.—Prof. Edward L. Holmes, president of Rush Medical College, has resigned. A meeting of the faculty was held January 4 for the purpose of considering the resignation of Dr. Holmes and for passing on the question of affiliation with the University of Chicago. On the question of joining with the University every member present voted in the affirmative. The resignation of Dr. Holmes was also accepted. The retiring president of Rush Medical College, Dr. Edward L. Holmes, will be 70 years of age February 11, and his resignation is to take effect at that time. More than a year ago he announced that when he was 70 years of age he would retire from the presidency to make room for some younger man. He asserts that his age is the only reason for resigning. He was the first physician in Chicago to limit his practice to diseases of the eye and ear. He was the founder of the Illinois Eye and Ear Dispensary at the close of the war. He was prompted to do so by the large number of returning soldiers who were suffering from affections of the eye resulting from the hardships of the field. He became a professor in Rush Medical College in 1860 and in 1883 was made its president. When the Presbyterian Hospital was founded in the latter year he was one of the doctors effectively interested in the undertaking. For more than a year Dr. Holmes has been in feeble health. Rush Medical College lacks only three years of being as old as incorporated Chicago. It was founded in 1836. It has the oldest charter of any school in the State. In 1843 the school was at 49 Clark Street and it had twenty-two students. The next year it was removed to Dearborn Avenue and Indiana Street. The home of the school was destroyed in the great fire of 1871 and five years later a structure was erected for it on the site of the buildings it now occupies at Harrison and Wood Streets.

Detroit.

AT THE regular meeting of the Wayne County Medical Society, December 16, Dr. C. D. Aaron presented a paper entitled, "The Diagnostic Value of Trans-illumination of the Stomach." The author exhibited a number of life-size diagrams representing the healthy stomach in its normal position as it appears when the interior is illuminated by the gastrodiaphane and several pathologic conditions of the organ, such as dilatation, carcinoma of the pylorus and of the body of the stomach, gastroptosis, etc. The author then gave a description of and exhibited the instrument known as the gastrodiaphane, and illustrated its practical uses by an actual introduction before the Society into a patient's stomach, showing by trans-illumination the dilated condition of the organ. In the discussion that followed the author stated that the patient's condition was undoubtedly due to repeated stomach washings and strongly condemned its general practice by the profession.

THE DETROIT MEDICAL AND LIBRARY ASSOCIATION at its regular meeting, December 20, listened to an interesting paper by Dr. A. N. Collins, entitled "How Shall We Treat Threatened Puerperal Convulsions?" in which the doctor said that a thorough knowledge of the cause or causes of puerperal convulsions would greatly aid in prophylaxis and treatment. The Doctor took up the pathology of the subject, giving the different theories advanced as to the cause of puerperal convulsions. He said: "I believe a majority of us hold the broad idea that the poisons developed in the tissue metabolism of physiologic cell activity imperfectly eliminated by the excretory organs, accumulate in the system, from which we get eclampsia or convulsions." In those dying from the disease, he continued, the kidneys are found in all conditions from the normal to acute degenerations, dilatation of the pelves and ureters, and also chronic nephritis. It has been found that the cerebral arteries have been involved even in young women; or again, another theory is that a toxic substance is produced in some unknown way which causes contraction of the arteries, arterial degeneration, acute degeneration of the kidneys and acute nephritis and that this poison is the cause of the convulsions and the cerebral and vascular phenomena. In all theories a quantitative and qualitative examination of the urine is our guide to the condition of our patient and ought to tell us when we need to interfere in some way to save our patient. The Doctor then gave the table as published by Prutz, from which he summed up that steamings, sweatings, morphia, veratrum viride, bromids, bleedings and other remedies were of little avail and showed conclusively that prophylaxis was what was needed. The Doctor further said that those cases in whose urine traces of albumin are found and who are near full term, are not to be considered serious, but those who show albumin in the early part of their pregnancies, and especially when the albumin increases in quantity and the urine decreases, are grave. The Doctor also placed considerable stress upon "flashes of light," irritability of the vascular system, rapid and wiry pulse together with an increasing anemia. For this latter condition the Doctor recommended first an abundance of water, then a milk diet, saline cathartics, acetate of potash, digitalis, hot

as and proper hygienic surroundings, efforts being made carry the same beyond the seventh month; then if the ditions were not better, to evacuate the uterus. The tor then told how he would bring on labor: First give ichlorid douche, then a sterilized catheter should be passed the womb between the uterine wall and amniotic sac, tamed and left. The Doctor tries to prevent the sac from turing, as he thinks this materially aids in dilating the os ri and makes the labor more regular and natural. If the vulsions should begin, then the sac should be ruptured to eve pressure. The Doctor then gave the record of two cases vhich both mother and children were saved.

[EALTH REPORT for the week ending December 24: Births, deaths, 46. Contagious diseases: Diphtheria, 10; scarfever, 35; 1 death from diphtheria; none from scarlet fever.

Denver.

'HE WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.—seventh annual meeting of the association held in this on December 29 was a success in every respect. The mems from outside of Denver who represented the States of souri, Kansas, Iowa, Indiana, Utah and Nebraska were ghted to find the brightest of suns over their heads from n until evening twilight, and they had no use for the heavy rcoats with which they had provided themselves. Five ions were held, morning, afternoon and evening on the first , and morning and afternoon on the second day. The ndance at all sessions was good. Almost all physicians ding in Denver and in the neighboring cities availed themes of the opportunity and attended one or more sessions. ecially large was the attendance in the evening of the first when the members of the Denver and Arapahoe Medical iety courteously omitting their stated meeting have joined session in a body. In the evening of the second day a banquet tendered the visitors by the Denver physicians, and seventy culapians sat to the table and whiled away the time in rcourse and discourse until a late hour. Dr. H. G. Wetherill onded to the toast "our guests." The guests in parting not bid adieu to the Denverians, but *au-revoir* at the meetof the AMERICAN MEDICAL ASSOCIATION in June, 1898.

TATISTICS OF MEDICAL LIBRARIES.—At the last stated meetof the Denver and Arapahoe Medical Society it was resolved t the pamphlet entitled "How Every City may Secure a lical Library," written by the secretary of the Society, Dr. D. Spivak, should be mailed to every county medical society he United States. The committee appointed for that purhave issued a circular, which may be obtained from Dr. D. Spivak, Denver. The plan as outlined in Dr. Spivak's phlet is a very simple one. Suppose there is a city in which, thirty or forty Æsculapians dwell in peace and harmony. ry one of them has a library which is composed of books, odicals, reference works, etc. There are however no two ate libraries in which all the books are alike. Now, in r to make all the books available to each and every physi- residing in that community, it is only necessary to take largest private library in the city as a foundation and pre- a careful card catalogue of all the books therein. Then ver all the other private libraries and add such books as not found in the first. Thus, when all the libraries are over, and *all* the books are entered, the catalogue is ed in the public library or in any other place for reference. course the card bears the name of the owner, of whom one obtain the book. As the circular states, this plan was pted here in Denver and works with great success.

HE COLORADO MEDICAL LIBRARY ASSOCIATION.—The fourth iber of the *Monthly Bulletin* of the Colorado Medical ary Association is out. As far as bibliography of medical aries is concerned, this bulletin is a unique production, ably the first and the only one ever published in the United es. In the succeeding issues, the editor promises to devote iderable space to the general question of medical libraries he United States. The bulletin will be sent gratis to all ical libraries by addressing Dr. Henry Sewall, 23 18th nue, Denver, Colo.

DENVER CLINICAL AND PATHOLOGICAL SOCIETY.—The December meeting of the Society was held in the offices of Drs. Cover, Fleming and Leroy. Dr. Wetherill reported the use of a double drainage tube devised by himself for draining and flushing pelvic abscesses through the vault of the vagina. Dr. Parkhill reported and exhibited a case of ununited fracture of the tibia and patella in which his clamp was used with complete success. Dr. Block spoke of the absolute necessity of asepsis in the removal of foreign bodies from the cornea. He also reported the use of the drug called phiosenaminie for use in softening and absorbing corneal scars and all adventitious tissue in any part of the body. Dr. Waxham exhibited a polypus which had completely obstructed one nasal cavity and caused considerable distress to the patient. He also reported a case of croup in an adult 40 years old. Dr. Hershey reported a case of hemoptysis occurring periodically without any relation to menstruation. The attacks are usually preceded by the enlargement of the spleen and liver. Examination of the blood negative. Dr. Lyman reported a case and exhibited specimen, wherein a tumor appeared under the annular ligament of the right wrist following a sprain two years ago. Upon operation the tumor was found to contain a gelatinous fluid, rice bodies and a piece of tendon.

ST. ANTHONY'S HOSPITAL.—At the annual meeting of the executive committee of the staff of the hospital the following staff was appointed for the year: Surgery: Attending, Drs. John Boice, Leonard Freeman and J. W. Neil. Medicine: Consulting, Drs. E. P. Hershey, P. D. Rothwell, C. P. Burns; consulting, Drs. John Elsner, J. N. Hall, R. B. Freeman and C. P. Conroy. Gynecology and abdominal surgery: Attending, Drs. C. K. Fleming, T. H. Hawkins. Neurology: Attending, Drs. J. W. Rothwell, S. D. Hopkins. Pediatrics: Attending, Drs. C. F. Shallenberger, J. W. Ryan. Ophthalmology and otology: Attending, Drs. R. E. Lemond, D. H. Coover. Obstetrics: Consultant, Dr. W. H. Buchtel; attendant, Drs. T. M. Burns, C. P. Van Zont. Laryngology: Attendant, Dr. Robert Levy. Dermatology: Drs. W. H. Davis and J. M. Blaine.

THE HEALTH OF THE CITY.—The total number of deaths for the month of November was 137, representing a rate of 10.28 per 1,000 per year; there were thirty less than in October. Scarlet fever mortality, 3 in 98 reported cases; diphtheria, 9 in 45 cases; typhoid fever, 6 in 36 cases. Number of days with 0.91 inch or more of rainfall, 4; mean barometer, 24.72.

Washington.

CHILDREN'S HOSPITAL.—Dr. J. William Hart has been appointed resident physician of the Children's Hospital, having successfully passed the competitive examination for the position.

THE WASHINGTON DENTAL SOCIETY.—The Washington City Dental Society has elected the following officers for the ensuing year: W. N. Cogan, president; Charles W. Appler, vice-president; W. R. Talbott, secretary; M. F. Finley, treasurer; H. B. Noble, librarian; J. H. P. Benson, essayist.

MEDICAL RULES FOR THE POLICE.—Commissioner Wight is having the police manual amended by the addition of rules to the police regulating their management of the sick and wounded found on the streets. The special instruction refers to the immediate care of persons to be removed to hospitals, who have been shot, cut or otherwise wounded, drowned or overcome by heat. Such rules and instructions have been needed in Washington for a long time.

NEW RULES OF THE HEALTH OFFICER.—Health Officer Woodward has issued an order prohibiting any member of his force from entering bar-rooms and like places, while on or off duty except when required to do so officially. They are also prohibited from swearing, at least while on duty. They are also prohibited from making any unfavorable criticisms of any department of the United States or District Government. All their reports in future are to be considered confidential.

THE WASHINGTON TRAINING SCHOOL FOR NURSES.—The Washington Training School has been reincorporated. The medical members of the incorporation are Drs. G. N. Acker

H. L. E. Johnson and D. Percy Hickling. The school, which has been closed, will shortly be in operation on new and improved plans.

PROVIDENCE HOSPITAL IN COURT.—The Providence Hospital, which has recently come to the help of suffering humanity in the District, by the erection of a building on its grounds for the care of minor contagious diseases, is being opposed through the courts, on the ground of the sectarian character of the incorporation, it being alleged that the appropriation of public money for the support of any religious society is a violation of the constitution of the United States. The treasurer of the United States, through the district attorney, has appeared before the circuit court and made argument in favor of the Hospital and the matter has been taken under advisement by the judge.

MEDICAL CHARITY ABUSES.—The Standing Committee of the Medical Association of the District of Columbia at its recent meeting notified officially the medical staffs of the hospitals and dispensaries of the District that they must endorse and comply with the recent regulations adopted by the Association on the subject of medical abuses, and make their reply to the Association not later than January 1. It is believed that the medical staffs are a unit in agreeing to these matters, but some opposition may be expected from the lay members of the different boards. The Standing Committee and the Association, however, have taken a positive stand that the rules and regulations shall be rigidly enforced, and violators promptly disciplined.

Louisville.

APPOINTMENTS.—At a recent meeting of the Board of Public Safety recently appointed by the new mayor the following appointments were made, they being subsequently approved by the Mayor and Common Council: Health Officer, Dr. M. K. Allen; Superintendent of City Hospital, Dr. P. S. C. Barbour; City Physicians, Drs. J. W. Guest and Brent Palmer. Dr. W. P. White was removed to make a place for Dr. Allen. Added to the endorsements of Dr. White already given was that of the State Board of Health, which, while in session in the city, called in a body on the mayor and the board and requested that Dr. White be retained. Dr. Barbour was retained as Superintendent of the City Hospital, in which capacity he has ably served for seven years. Fifty applications were on file for the position of city physician, which pays $75 per month. Dr. Palmer, one of the successful applicants, is a son of the late Dr. E. R. Palmer, whose sad death several years ago will be recalled by many.

SPRING AND SUMMER SCHOOLS.—On January 1, the Hospital College of Medicine and the Kentucky School of Medicine begin their annual session, this being the first year of the Kentucky School existing as the Medical Department of Kentucky University.

RODMAN.—Dr. W. L. Rodman having completed his course of lectures at the Medical Chirurgical College of Philadelphia, has returned to Louisville in time to begin his work in the Kentucky School.

Cincinnati.

THE PUBLIC LIBRARY will hereafter refuse to supply books to persons living in houses where contagious diseases exist, and books being returned from such houses are to be disinfected or fumigated before being returned to the shelves of the library.

THE TRUSTEES OF THE MASSILON STATE INSANE HOSPITAL have asked for an additional appropriation of $25.000 to furnish the buildings about completed. Of the $434,248.91 already appropriated, $365,124.75 has been spent. When completed it is estimated that it will cost about $200,000 a year to run the institution.

THE MORTALITY REPORT for the week shows: Zymotic diseases, 9; phthisis pulmonalis, 16; other constitutional, 8; local, 57; developmental, 8; violence, 5; total from all causes, 102; still births, 11; under five years, 21; under one year, 12; preceding week, 104; corresponding week 1896, 117; 1895, 117; 1894, 124; annual rate per thousand, 13.09.

Societies.

The following meetings are noted:

California.—Annual of the Los Ang[illegible]s Cou[illegible]y Medi Society, Los Angeles, December 17.

Indiana.—Delaware District Medical Society, Hartford Ci December 21. Mitchell District Medical Society, West Ba Springs, December 27-29. The State Pediatric Society v organized December 28 at Denison.

Iowa.—Central District Medical Society, Jewell, December

Minnesota.—Ramsey County Medical Society, St. Pa December 27.

Missouri.—Kansas City Academy of Medicine, January

Nebraska.—Elkhorn Valley Medical Society, Norfolk, Ja ary 4.

Ohio.—Utica Medical Society, December 30.

South Carolina.—Laurens County Medical Society, Laure December 30.

Texas.—South Texas Medical Association, Beaumont, I cember 28 and 29.

Virginia.—Academy of Medicine and Surgery, Richmo December 21.

Wisconsin.—Central Wisconsin Medical Society, Belo December 28.

CHANGE OF ADDRESS.

Block, G. M., from Steele Block to the Denison Building, Denver, C
Boyer, E. N., from 601½ Hamp St. to 227½ S. 7th St., Quiney, Ill.
Frink, L. J., from Bartlett to Nashua, N. H.
Heller, Chas., from 7114 Cottage Grove Ave. to 4012 Ellis Ave., C cago, Ill.
Lemen, H. A., from Baltimore, N. C., to Augusta, Ga.
Matheson, J. S., from Chicago to Brandon, Manitoba, Canada.
W. F. McNutt, from Sutter and Montgomery to 1220 Sutter St., Francisco, Cal.
Parker, D. L., from 559 to 835 Jefferson Ave., Detroit, Mich.
Sargent. A., from Hopkinsville to Frankfort, Ky.
Smith, J. W., from 2313 Washington St. to 2160 Market St., St. Louis,

LETTERS RECEIVED.

Ball, James M., St. Louis, Mo.; Barry, Albert, Providence, R. I.; Bo M. A., Kansas City, Mo.; Bracken, H. M., Minneapolis, Minn.; Burr, H., Philadelphia, Pa.; Bradley C. H., E. Las Vegas, N. M.

Caldwell. W. S., Vienna, Austria; Caldwell & Co., New York, N. Case, W. R., Poughkeepsie, N. Y.; Cleaves, Margaret A., New York, Y.; Clement, W. R., Paducah, Ky.; Cohen. I. N., La Crosse, Wis.; Co W. H., Coffeen, Ill.; Coolidge, Eva B. (Miss), Nicholasville, Ky.

Darnall, G. D., West Union. Iowa; Dassel, William, Honesdale, P De Schweinitz, G. E., Philadelphia, Pa.; Denison, Charles, Den Colo.; Dougherty, P., Chicago Ill.

Elliott, H. G., New York, N. Y.; Elson, I. A., Smithville, Ohio.

Fischer, Frank, San Francisco, Cal.; Frizelle, C. H., Rockford, Io

Galloway. D. H., Chicago, Ill., (2); Garcelon, A., Lewiston, Maine, Galbraith, T. S., Seymour, Ind.; Gilchrist, T. C., Baltimore, Md.; G cock, G., Raleigh, Ill.; Green. B., Perrysburg, Ind.; Green, C. C., Bea City, Neb.; Gerstein, M., Boston, Mass.

Hardmyer, J. D., Gays, Ill.; Hatch, Theo. L., Owatonna, Minn.; Hill. F., Ada, Ohio; Hicks. J. M., Indianapolis, Ind.; Hood, C. J., Elko, Ne Holland. J. W., Philadelphia, Pa.; Holland, T. E., Hot Springs, Ar Houtz, W. C., Leonidas, Mich.; Hummel, A. L., Adv. Agency, New Yo N. Y., (2); Huston. J. H., Clintondale, Pa.

Ingals, E. Fletcher. Chicago. Ill.

Jones, Arthur L., Old Orchard, Maine.

Kelley. Maus & Co., Chicago, Ill.; Kelley, J. Thomas, Washingt D. C.; Klock, D. G., Mt. Carroll, Ill.; Knapp. Chas, Evansville, Ind.

Learned, John B., Northampton, Mass.; Lentz, Charles & Sons, Phi delphia, Pa.; Liston, G. M., Filley, Mo.; Little, L. L., Green Ba W. Va.

Mattison, J. B., Brooklyn, N. Y.; Martin, F. H., Chicago, Ill.; Meye R. E., New York, N. Y.; Micajah & Co., Warren, Pa.; Miller, W. J., Jol son City, Tenn.; Moore, J. L., Bunker Hill, Ill.; Montgomery, Liston Chicago, Ill.; Moriarta, Douglas C., Saratoga Springs, N. Y; Mulford, K. Co., Philadelphia, Pa.; Mumaw. H. A., Elkhart, Ind; McEnaney B., Ashton, Iowa; McHenry, G. M., Parmi, Ill.; McIntosh Battery a Optical Co., Chicago, Ill; McLean, Angus, Detroit, Mich.; McReynol John O., Dallas, Texas.

Nottage, H. P., Providence, R. I.

O'Gorman, James, Baltimore, Md.; Outerbridge, A. E. & Co., N York, N.Y.; O'Brien, R. P., Minneapolis.

Page, Charles E., Boston, Mass.; Palmer, O. W., Spalding, Neb.; Par Davis & Co., Detroit, Mich.; Pearce, F. S., Philadelphia, Pa.; Prest C. H., Davenport, Iowa; Price, E. M., Palo Alto, Cal.

Ramsey, R. T., London, Ky.; Rice, I. L. G., Boston, Mass.; Riggs, J. Kappa, Ill.; Roberts, William, Fort Adams, R. I.

Schering & Glatz, New York, N. Y.; Shoemaker, John V., Philad phia, Pa.; Simons. T. G., Charleston. S. C.; Smith, E. R., Toledo, Oh Smith. Gould. Taylorville. Ill.; Spratling, W. P., Souyea, N. Y.; Stear F. & Co., Detroit, Mich.; Sanders, W. H., Mobile, Ala.

Thomas John D., Washington, D. C.; True, J. M., Cedar Rapids. Io Viko, E. Park City, Utah.

Wampole. H. K. & Co., Philadelphia, Pa.; Wagner, H. P., Delph Ohio; Ward, Milo B., Kansas City, Mo.; Weaver, H. D., Leetonia, Oh Wickson, David D., Milton, Ontario, Canada; Woitishek, F. J., Ced Rapids. Iowa; Würdemanu, H. V., Milwaukee, Wis.

Young, Charles S., Geneseo, Ill.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and dut of officers serving in the Medical Department, U. S. Army, fr December 25 to 31, 1897.

Major Egon A. Koerper, Surgeon (Ft. Crook, Neb.), is granted leave absence for one month, to take effect on or about Jan. 4, 1898, wi permission to apply for an extension of two months.

The Journal of the American Medical Association

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ORIGINAL ARTICLES.

WHAT ARE THE CHARACTERISTICS OF A TRUE CARDIAC TONIC? AND WHAT ARE THE PHYSIOLOGIC DIFFERENCES BETWEEN A TONIC AND A STIMULANT?

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY N. S. DAVIS, M.D.

CHICAGO, ILL.

That all morbid conditions, both of function and structure, are deviations from the normal or physiologic conditions of living matter, probably no thoughtful physician will deny. If the proposition is true, then the basis for the study of disease is a correct knowledge of the actual physiology of all parts of the living body.

The more accurate and complete our knowledge of the structure and function of any given part, and its natural relations to all the other parts of a living body, the more readily we can appreciate all deviations from the physiologic standard of action or condition so far as to constitute disease.

If a correct knowledge of the natural or healthy structure and functions of any given living part is the proper basis for studying the departures from that standard of health which may constitute disease, it is equally true that the same knowledge must constitute our basis for determining the action of all medicinal agents. Therefore, if we would clearly appreciate the important characteristics of a true cardiac tonic we must first comprehend the complete natural mechanism and functions of the heart and its physiologic relations to all other parts of the living body of which it is a part.

All lexicographers agree that a *tonic* in medicine is an agent or medicine that is capable of "increasing the strength and vigor of the animal system;" or, as I would prefer to express it, an agent or medicine capable of *increasing the natural functions* of a part or of the whole of the living body. The natural structure of the heart is chiefly muscular, supplied with blood vessels, and apparently three varieties of nerves; and its physiologic function is to aid in the circulation of the blood. Such aid is rendered by the regular rhythmic contraction and relaxation of the muscular structure of the heart by which its cavities are successively filled and emptied in given time and with given degree of force. And it might be claimed that the essential quality or characteristic of a cardiac tonic is such an agent or medicine as would increase the tone and efficiency of the muscular contractions without unduly increasing their frequency. But both clinical and experimental observations have clearly shown that the co-operation of four conditions are essential for maintaining the full normal efficiency of the heart in aiding the circulation of the blood. These conditions are: 1, the natural tone or contractibility of the cardiac muscular structure; 2, the presence of healthy blood or some albuminous fluid of similar composition; 3, the natural sensibility of the three sets of nerves co-operating in regulating the muscular contractions and relaxations of the heart; and 4, the presence of a due proportion of oxygen in the arterial blood or the fluid supplying the left cavities of the heart. If the co-existence of all these conditions is necessary to the continued efficiency of the function of the heart in circulating the blood, it must be apparent that the characteristics of every true cardiac tonic must be both positive and negative. That is, they must be capable of positively sustaining or increasing the efficiency of the cardiac muscular contraction and the sensibility of the several nervous structures, while negatively they must not so alter the constituents of the blood as to impair their oxygen receiving and distributing capacity, nor impair the depth and efficiency of respiration by lessening the sensibility of the respiratory nerve centers, nor so far lessen the sensibility af the inhibitor nerves of the heart as to allow the cardiac contractions to become too rapid or irregular. For any agent that increases the frequency of the cardiac contractions above the natural standard, necessarily leaves less time for the ventricles to fill in diastole, and consequently less blood is sent out by each systolic action and correspondingly less efficiency is given to the whole circulation. This is illustrated in exophthalmic goiter and in all those diseases characterized by marked frequency of cardiac action, and by cutting the vagus or inhibitor nerves of the heart in animals. And this leads us to the exact physiologic differences between a cardiac tonic and a cardiac stimulant. The first increases the tone of the cardiac muscles and the efficiency of their contractions without increasing their frequency beyond the normal; but the latter simply increases the excitability and frequency of cardiac action without necessarily increasing either its force or efficiency. And yet, throughout the greater part of our medical literature, the words tonic and stimulant are often used interchangeably or as synonyms, and nowhere more frequently than in reference to remedies for influencing the heart.

Perhaps no other physiologic fact has been more completely established than that both nerve sensibility and muscular contractibility in living animals are directly dependent upon the presence of oxygen in the blood or fluid circulating in the vessels. Consequently, the continuous oxygenation and decarbonization of the blood is not only essential to the continuance of life, but any diminution of the process below the physiologic or natural standard of health lessens both nerve sensibility and muscular contractile force.

Hence it was stated as one of the characteristics of

a cardiac tonic, that it should not lessen this process of oxygenation, either by lessening the efficiency of respiration or by so altering the constituents of the blood as to lessen their capacity for receiving the oxygen from the pulmonary air vesicles and distributing it through all the tissues. This view has hitherto received far less attention than its practical importance demands. For there are in general use a considerable number of remedies that cause such changes in the blood as to directly lessen the internal distribution of oxygen and lessen nerve sensibility and muscular strength.

A few years since, when it was claimed that the chief danger in all febrile affections was the pyrexia or high temperature, and we were deluged with antipyretics largely consisting of coal-tar preparations, it was soon demonstrated that nearly all of them exerted their antipyretic influence by directly diminishing the reception and internal distribution of oxygen with corresponding cardiac weakness. Then followed the discoveries in bacteriology and the toxic influence of ptomains, toxalbumins, etc., and "heart failure," instead of pyrexia, was proclaimed as the chief source of danger in all the acute febrile and inflammatory affections. So true is that almost every work on the practice of medicine, issued during the past ten years, states in general terms that "progressive cardiac weakness" constitutes the chief danger to life in diphtheria, pneumonia, and nearly all the continued and eruptive fevers. And in equally general terms it is stated that to counteract such cardiac weakness "stimulants should be given early" and freely; often without indicating what stimulants are best or in what doses they should be given. But whenever any particular stimulants are mentioned, pretty uniformly, alcohol, strychnin, digitalis, ether and musk constitute the list. The real cause or causes of the dreaded heart weakness are not well ascertained or definitely stated, and consequently we have no rational or physiologic guide for the choice of remedies.

Two decades since, it was very generally attributed to the pyrexia, but now it is very generally said to depend on the action of the poison producing the disease or, still more, on the "toxic action of the poisons produced in the course of the disease."

And yet, what the poisons thus evolved during the progress of acute febrile affections capable of progressively weakening the heart, are, we are not informed except as they are called leucomains, ptomains and toxalbumins. Neither is it claimed that any of the medicines mentioned as cardiac tonics or stimulants are capable of either preventing the formation, or of neutralizing the action, of these poisons. For one of the most recent and authoritative writers truthfully declares that: "We are still without an agent which can counteract the gradual influences of the poisons which develop in the course of acute febrile diseases."

Perhaps if we keep in view the fact that the living body, in health, is constantly evolving poisons or toxic agents which, if retained in the blood and tissues, as certainly produce general functional disturbances and cardiac weakness as do any of the specific causes of general febrile diseases; and that they are prevented from so doing by the processes of oxidation and elimination, it may point us more directly to the real causes of self-poisoning during the progress of acute diseases, and also to the most efficient remedies. If it is true that a large part, if not all, of the toxic agents or poisons being constantly formed in the healthy body are destroyed by processes of oxidation and leucocytic or cell activity, is it not more than probable that the poisons developed during the progress of febrile diseases accumulate and produce their depressing effects from diminished oxidation and cell activity; such diminished oxidation and cell activity being caused by the action of the primary cause or causes of the febrile disease? Among the most constant symptoms or conditions of acute diseases are, diminished efficiency of the respiratory process through which oxygen is supplied for absorption by the blood, and diminished elimination of the products of oxidation and cell activity. On the other hand, all those agencies that promote the oxygenation and decarbonization of the blood and promote cell activity, correspondingly improve the action of the heart and the efficiency of all the excretory functions. And all those who are at the present time treating febrile affections hydrotherapeutically claim, as the most marked effects of the frequent application of water, whether by spraying, packing or full baths, are increased tone of the cardiac and vascular circulation, with increased cell activity and elimination of the products of internal oxidation. But to gain these advantages there must be also free respiration of fresh air, to furnish the oxygen necessary for sustaining both nerve sensibility and muscular tone, as well as the processes of oxidation. Hence the declaration of M. Robin as the result of his numerous experiments and analyses, that "acts of oxidation are defensive processes of the organism in its struggle with bacteria, and therefore that the physician should favor, in every possible way, the absorption of oxygen in every infection, especially when there are typhoid complications," is one of the most important and far-reaching physiologic and therapeutic announcements on the pages of our current medical literature. It points us to the true pathologic effects of the pathogenic bacteria or their toxic products, in lessening the oxidation processes and cell activity in the blood, and the progressive cardiac weakness on the one hand; and on the other, to the use of such remedies as will either neutralize the toxic products or promote their oxidation and elimination. And to accomplish the latter we must have efficient respiration to supply the oxygen and capacity of the blood to receive and distribute it through the tissues and organs of the body. Consequently, the most efficient remedies to prevent or arrest the dreaded heart failure in all general febrile diseases, are such as directly increase the sensibility and action of the respiratory and vasomotor nerves and promote natural cell or leucocytic and secretory activity. It is very generally agreed that strychnin, digitalis, strophanthus, cactus and convallaria promote the efficiency of both respiration and circulation by their direct action on the respiratory and vasomotor nerve structures, and, at least indirectly, promote cell activity and secretion, while fresh pure air, judicious hydrotherapy and simple nourishment, add still more to the efficiency of the internal processes of oxidation and external excretion. On the other hand, not only nearly all the internal antipyretics, but all the well-known anesthetics, as chloroform, ether and alcohol, directly diminish the sensibility and action of the nerve structures generally and of the respiratory and vasomotor centers especially; and at the same time they equally diminish the leucocytic and cell activity and the processes of oxidation and elimination of toxic products. That the presence in the blood of

either chloroform, ether or alcohol, or of all combined, directly lessens the efficiency of respiration in proportion to the quantity present, impairs vasomotor activity and retards all the metabolic processes, has been so fully proved both by experiments and clinical observation as to need no further proof. On what possible basis, then, can we continue to class alcohol and ether as cardiac tonics or stimulants, in direct connection with strychnin and digitalis, to be given to the same patients on the same days and sometimes at the same hours, when the first two are so directly antagonistic in their physiologic action to the two latter? But my purpose in trespassing upon your time with this brief paper is simply to invite more attention to the fact that a true cardiac tonic must be an agent or remedy that not only increases the tone and efficiency of the heart, but also sustains, at the same time, cell activity, internal oxidations and respiratory and vasomotor nerve sensibility.

DISCUSSION.

Dr. BOARDMAN REED of Philadelphia—I have been much pleased by the paper of Dr. Davis, and especially by the emphatic manner in which he condemns the prevalent abuse of stimulants. Indeed, I have been for years watching with admiration his sturdy battle against this great evil. It seems to me most fortunate that a veteran of his long experience and distinguished ability should come forward as the uncompromising foe of such a crying abuse. Therefore, I regret the more at being obliged to differ from some of the views advanced by Dr. Davis in the paper just read. It seems to me that in discussing the place of alcohol in therapeutics a broad and clear distinction should be made between stimulants and tonics. Alcohol has no claim whatever to be considered a tonic. Indeed, its prolonged use always tends to develop cardiac weakness, as every clinician knows. But as a quick diffusible stimulant in emergencies, it is often a valuable help which we ought not to be deprived of.

Another point not touched on by the writer of the paper is that even drugs which are undeniably cardiac tonics, such as digitalis and strophanthus, may not be depended on to produce their tonic effects when they have been long administered. Experience shows that it is best to alternate these, giving one for a week or two and then changing to another of the group.

Dr. JOHN A. CUTTER of New York—I desire to thank Dr. Davis for his valuable paper. It is not at every meeting that we can learn from so old and careful a student as the reader. My experience with heart tonics is somewhat varied. I can thoroughly agree with Dr. Davis as to the value of proper breathing and fresh air. I have seen a case within an hour of death revive simply by the opening wide of the window and the air pouring in. Again, the use of oxygen or oxygen compounds as prepared by reliable manufacturers is of value in cases of heart weakness. When one considers that in many cases of sickness the blood has become ropy and sticky from the increase of the fibrin filaments, and that the heart's labor is thereby increased by having to pump this self-same blood through the capillaries, which are only one three-thousandth part of an inch in diameter, having a leeway of one forty-eight thousandth of an inch for red blood corpuscles, the value of plenty of drinks of distilled water or water that has but one to ten grains of salt to the gallon can be easily imagined. I make the statement from experience and also as *contra* to one of the teaching in heart therapeutics which obtains at present, that we should diminish the amount of fluids to diminish the work of the heart. If by giving plenty of fluids we dissolve the fibrin filaments and relieve the stickiness, the heart's labor is greatly diminished. Indeed, in consumption and rheumatism and thrombosis, I have seen the left side to be larger than the right, the heart having increased in size because of the extra work put upon it by this abnormal sticky, dirty blood stream and, after treatment, sometimes within two months' time, the heart is decreased in size and the left chest wall has come down to its normal condition. I consider this fact in medicine, which is known to others, to be one of the most astounding things to be met with because of its inherent value to the human race. Here again, then, drinks of hot water become heart tonics because they relieve the work of the heart. My teacher in medicine, Dr. Samuel B. Ward of Albany, was very positive in advising us students to relieve the heart in cases of heart complaint. It is only a few weeks ago that I found one of my patients in my office, a man who had been a heavy drinker for years, very obese, and who suffered from stone in the kidney and who had been greatly relieved of his obesity and stone formation by careful treatment; the same was complaining of dizziness and on examination of the pulse I found his heart beating along weakly, at times quick and then slow. He admitted that he had been to an Elks' dinner the night before and had drank considerable liquor; he also had been overworking and lifting. Now, you know that in these "weak days" one does not often get hold of a strong robust patient to drug heavily; they all need lifting up. This man, outside of his weakness of that day, was powerful in chest and arms and could stand a rough and tumble fight such as he used to experience in the days when he was a Tweed politician. I said to myself, He is "my meat," and gave him one-twentieth grain of strychnia to steady his nervous system and heart, and three-fourths of a grain of podophyllin and three-fourths of a grain of aloin. I expected that he would report at the office the next morning in a criticising state of mind. Instead of that he came in about noon time, just twenty-four hours after I prescribed for him, as happy and feeling as fine as if he was a boy. The aloin and podophyllin acted on him twelve hours after exhibition and gave him a very liberal unloading of the liver; here again was a heart tonic by detergents. As to digitalis, I could not have eased my wife in the last months of her life without this powerful medicine. She died of heart failure, having a normal but small heart and small cavities in both lungs which had been healed for seven years. For a year or more before her death, she used digitalis in one form or another. I got it all from Frazer's preparations in tablet form and gave digitalin, one-sixtieth of a grain, digitalis powd. one-fourth grain, and digitalis fluid extract one-half minim. I found that the last named was the most powerful of any of the preparations. She had lost her appetite some three years before her death and it was hard work to get nourishment into her. The cough would come on when she was tired, and in the last six or eight months of her life she suffered at times acutely from pain about the heart and down the left arm; I suppose a true form of angina pectoris, although I do not remember of her suffering from the terrible gasping pain, if I may so term it, which sometimes comes in true angina. Nevertheless, the pain in her left arm was severe and she said to me once after using the fluid extract one-half minim tablets, "That must be very powerful medicine to help me." It must be remembered in her case that she had careful nursing, drinks of the best of water and the best of food, as far as she could eat it; hence, she bore the digitalis a great deal better than if she had had no systemic treatment. I give this evidence of the value of digitalis because it was a great friend to her as well as to me.

Dr. A. E. MILLER of Boston—As a rule, heart stimulants are less satisfactory in their results than heart tonics. In many cases where stimulants are administered the heart is already working too fast, and the stimulant increases the difficulty; while heart tonics, as digitalis and nux vomica, in small doses give more power, increase the force and diminish the frequency. This is especially the case in pneumonia and typhoid fever. When stimulants are freely used in these cases the mortality is increased. For several years I have been paying particular attention to the results of alcoholic stimulants in typhoid fever and have noticed that physicians who use alcohol freely lose many of their patients, while those treated without alcohol all recover. I have not known of a single death from typhoid fever for the past twenty years when the patient was treated without alcoholic stimulants.

Dr. HORACE P. MAKECHNIE of Somerville, Mass.—Sometimes when the heart is distended by pain, shock or distress of any kind, either mental or physical, sedatives such as small doses of morphin may act like a cardiac tonic by antagonizing the depressing forces. Has the reader noticed any such effect?

Silver Nitrate and Ergotin in the Treatment of Pulmonary Tuberculosis.—Before the Section in Medicine of the Twelfth International Medical Congress, Dr. Crocq of Brussels (*Progrès Médical*, September 4), maintained that tuberculous disease tended to end in recovery rather than in death, and that a fatal termination was due to an inflammation which led to a propagation of the tubercles. If this inflammation could be prevented or cured, there would be more cases of recovery. According to the author, we have no remedy against the bacillus; creosote does not kill it, and there are some inconveniences about its employment, especially as regards the management of the stomach. He has employed with much success, even in cases that were grave or complicated with diabetes, ergotin and silver nitrate. The latter, he says, acts very beneficially on the stomach.—*New York Medical Journal.*

TRANS-PERITONEAL LIGATION OF THE ILIAC ARTERIES.

WITH REPORT OF SEVEN NEW CASES AND STATISTICS OF TWENTY-NINE OPERATIONS.

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A successful and eminently satisfactory operation for iliofemoral aneurysm having impressed the writer with the ease, accuracy and general superiority of the intra-abdominal or "transperitoneal" method for ligation of the iliac arteries, he has collected the published cases, twenty-two in number, to which, through the generosity of friends, he is able to add six hitherto unpublished cases, making with his own case a total of twenty-nine shown in the table.[1]

Of the twenty-nine cases, twenty-two recovered and seven died. There were twenty-five different operators. Seventeen operations were performed by fifteen American surgeons. All of the priorities as to first operations and first successes rest with the Americans. To this country must also be credited the classic paper of Dennis (*Medical News*, Nov. 11, 1886), which at once placed the procedure upon an enduring basis.

Among the seven deaths, none were attributable to abdominal complications. The only instance of such complication was a partial obstruction of bowels in one case which necessitated reopening of the abdomen on the sixth day, but recovery nevertheless took place. The low mortality is remarkable when it is remembered that many of the cases were partially eviscerated prior to the introduction of the Trendelenburg position which has so much facilitated the operation. It is further remarkable, in view of the many operators and the fact that nine operations were done before 1890. Prior to that date five recovered and four died. Since 1890 seventeen have recovered and but three have died.

Common iliac artery.—Five cases. Of these four recovered and one died. The death was from gangrene. The first operation was by F. Lange, in 1883, and resulted fatally. The second operation and first success was by the same surgeon and in the same year. The three remaining successful operations were by Lucas, in 1889; Thornton, in 1894, and Stevenson, in 1896.

Internal iliac artery.—Nine cases. Of these seven recovered and two died. One death was from nephritis on the sixth day, the other from recurring hemorrhage from a septic wound of the buttock on the thirteenth day. The first operation was by Le Roy McLean, in 1872. It was not successful. The first success was that of Dennis, in 1886. Two were double simultaneous ligations; one by Dennis in 1886 for double gluteal aneurysm, with death from nephritis on the sixth day; the other by Kelly, in 1893, for uncontrollable hemorrhage during hysterectomy for carcinomatous uterus, with a successful result.

External iliac artery.—Fifteen cases. Of these eleven recovered and four died. Two of the deaths were due to subsequent gangrene of the extremity, one to shock and hemorrhage preceding the operation, and the fourth to shock from loss of a "gallon of clots" from an aneurysm which was opened after ligation of the supplying vessel. The first operation was performed by Richardson in 1886, with fatal result. The second operation and first cure was by Stimson, in 1889. Makins ligated the external iliac on one sic for aneurysm, in 1892, and upon the same patient year later performed the same operation on the opp site artery, for a similar condition. The patient reco ered also from the second operation.

A considerable correspondence with surgeons of th country and Great Britain has convinced the writ that the general opinion among operators is decided in favor of the transperitoneal route for all ligatio above the lower portion of the external iliac. Whe the latter portion can be tied by the old extraperit neal method it continues to be preferred, But if th disease involves any tissue above Poupart's ligame and, in any case, for higher ligations, almost all a emphatic in condemning the frightful old-fashion incisions from the groin and loin; some going so f as to exclude the teaching of them from their lectur to students, The Trendelenburg position is a gre aid in these operations and does away with the ris of evisceration and strong pressure by retractors th was considered necessary in some of the earlier ope ations. But neither this position nor injurious pre sure are necessary in the average case, although th elevated pelvis undoubtedly renders the procedu more easy. Under scarcely any possible circu stances could evisceration be justified today.

Incision for low ligations should be lateral. Th semilunar line has been the favorite site, up to th present time, for the external iliac, but in this ca perhaps, it will be found that the ligation can as w be performed through an adaptation of McBurne muscle-splitting incision for appendicitis and thus away with all danger of subsequent hernia. In ca of ligation of the internal or common iliacs the medi incision has in all cases been found best. Suture the peritoneum overlying the sheath of the vessels h not been found essential, although probably desira if the condition of the patient should permit.

CASES HERE FIRST PUBLISHED.

Case 1.—Dr. LeRoy McLean of Troy, N. Y. (Personal co munication through Dr. C. B. Herrick.) "In 1872, a fema aged 50 years, received a stab wound in the right butto which was followed by profuse hemorrhage. Her attend physician closed the wound with a number of sutures, there stopping the bleeding. The same remained closed, but ab two weeks thereafter a swelling appeared in the gluteal regi for the relief of which she presented herself at the Troy H pital, coming into the service of Dr. McLean. He found aneurysm which, from its location and the situation of the s wound, he decided to be of the internal iliac artery. He the upon opened the abdominal cavity in the median line, j above the pubes, making a short incision, pushed the int tines aside and coming upon the internal iliac artery, through the posterior layers of the peritoneum, and passe ligature about the vessel by means of an aneurysm needle. T case went well; the abdominal wound healed promptly; peritonitis or rise of temperature was noted. After about th teen days the old stab wound suddenly broke out afresh hemorrhage took place to a considerable amount. Des treatment directed to the prevention of the same by press and ordinary means used over the site of the tumor, the h orrhage continued from time to time until the patient s cumbed through exhaustion."

"Postmortem revealed the artery cut off close to its en gence from the pelvis, and the presence of a good-sized an rysmal sac. Silk was the material used for the ligation, chloroform the anesthetic."

Case 2.—Dr. Thomas G. Richardson of New Orleans. (tracts from letter of Dr. R. Matas of New Orleans.) The pati an adult male, was brought to the Charity Hospital in the w ter of 1886 or 1887, wounded in the thigh high up in Scar triangle. He was much exhausted from shock and hemorrh To control bleeding Dr. Richardson made an incision dire over the course of the external iliac, cutting through abd inal wall and peritoneum and secured the external iliac betw its origin and Poupart's ligament. The man died some t

1 One case, No. 29 of the table, has been added since the paper was read.

ubsequently, of shock and the effects of previous loss of blood, resumably.

Case 3.—Dr. George R. Fowler of Brooklyn. (Extracts from ecords of Methodist Episcopal Hospital of Brooklyn.) M. C., ged 16, was admitted to the hospital July 3, 1893, with the ollowing history: About four years prior to admission he suf- ered from double suppurative inguinal adenitis. The left side vas incised; the right opened spontaneously. Shortly after his he noticed that the right lower extremity was larger than he left. This enlargement increased steadily for six months, ince which time the relative proportions of the two limbs have emained stationary. He suffers no pain; the inconvenience resent is mainly due to the increased weight of the limb. Ex- mination shows the right limb to be the seat of a uniform welling, as compared with the left. The skin presents the oarse or exaggerated appearance of elephantiasis. The swell- ng does not pit upon pressure. Measurements: Left, or nor- nal leg; above ankle, 8 inches; at knee, 12; thigh on level with erineum, 16.5 inches. Right, or diseased limb; above ankle, 0.5 inches; at knee, 16; thigh at level of perineum, 21.5 inches. Operation, July 11, 1893. Patient was etherized and placed in Trendelenburg's position. The cavity of the abdomen was pened by a three-inch vertical incision in the right linea semi- unaris. The intestines were held back, the external illiac rtery identified, the posterior reflection of the peritoneum in- ised, the vessel isolated and surrounded by a catgut ligature. The vein was found lying to the outer side of the artery. The patient suffered very slightly from shock. The limb was band- ged in cotton and kept elevated. He suffered no inconven- ence from the operation and at no time was there sufficient mbarrassment to the circulation to cause anxiety. He was dis- harged cured on August 28, at which time the measurements vere as follows: Right calf, 12.25 inches; knee 13.25; thigh, 15 nches. Left calf, 11.25 inches; knee, 12.5; thigh, 15 inches."

Case 4.—Dr. W. Joseph Hearn of Philadelphia. A. B., aged 3 years, was admitted to the Jefferson Hospital in June 1890 uffering from an aneurysm of the popliteal artery. The pa- ient was of slight build and light complexion, a painter by ccupation. His general health had been good and he had ever contracted syphilis. None of his relatives had ever suf- ered from tuberculosis. The tumor was the size of a small range, impeded motion and caused loss of sensation. The emoral artery was ligated with silk, in Scarpa's triangle. From his operation the patient made a good recovery. The tumor radually subsided and he left the hospital in four weeks, col- ateral circulation being well established. In August 1893 he eturned to the hospital with a pulsating tumor in the left pel- is. He had suffered with some pain and discomfort for three nonths prior to his again coming under observation. Examina- ion proved the tumor to involve the left external iliac artery, pparently through its entire extent. The size of the mass and he uncertainty as to the length of the artery involved led to a hoice of the transperitoneal method. An incision four inches ong was made in the left linea semilunaris. The patient being n the Trendelenburg position, by means of broad retractors rotected with gauze, it was possible to keep the intestines out f the way and to secure an excellent exposure not only of the umor but of the aorta, common and internal iliac arteries. Two inches of the external iliac was found uninvolved and, herefore, a ligature was placed upon it just below the bifurca- ion of the common iliac artery. With two pairs of forceps the ostperitoneal membrane was slightly torn over the artery and n aneurysm needle armed with stout silk was passed from within outward. Previous to passing the needle, the grooved irector was employed to free the vessel from its attachments. The peritoneum overlying the vessel was approximated by a ingle catgut suture. The patient made a good recovery. The emperature never passed 100 degrees. He had some distress rom distention of bowels and retention of urine, however. Three years later he was in excellent health and able to work t his trade. The left limb was somewhat atrophied and a little eak.

Case 5.—Mr. Frank T. Paul of Liverpool, England. J. E., a an aged 38 years, a gas-fitter by occupation, was admitted to he Liverpool Royal Infirmary June 13, 1895, complaining of a lump having formed in his right groin." His family history as negative, while his six children were all healthy. He con- acted syphilis when 19 years of age, but the only signs of at disorder remaining when he came under observation were vidences of old iritis. Six months before admission he had "running abscess on the left side of his seat which healed up f itself." One month before entering the hospital he helped lift a piano and thought that he had strained himself. Ten ays afterward he noted a slight pain in his right groin and a w days later observed a swelling. The tumor had not in- eased in size since he first noticed it and caused very little local pain. On inspection, an ill-defined pulsating swelling could be seen in the patient's right groin, lying in Scarpa's triangle and extending downward three and one-half inches from Poupart's ligament. Its greatest breadth was about two inches. On palpation the tumor was felt to be hard, elastic and pulsating. Its shape was fusiform. Expansile pulsation was very marked and a systolic bruit could be detected with a stethoscope. The heart sounds were normal; the kidneys and other organs were likewise in a healthy condition. On June 17, an incision four inches in length was made from above downward along the outer border of the right rectus muscle, taking care that it was placed well outside the deep epigastric artery. The tissues of the abdominal wall having been divided, the intestines were displaced from the iliac fossa and retained clear of the seat of the operation by a sponge held by an assis- tant. The position of the external iliac artery became at once apparent and it was very easily ligatured through a small opening in the posterior peritoneum. It was tied with ordi- nary carbolized catgut and the small opening in the peritoneum over it was closed with two fine sutures of the same material. The artery where ligated was healthy, and there was no bleed- ing whatever into the peritoneal cavity. The external wound was closed with fishing-gut sutures passed, as usual, through all layers, particular care being taken not to perforate or include the deep epigastric vessels. The limb was wrapped in cotton wool, lightly bandaged with a soft bandage and placed upon a pillow. On June 18 the limb was warm and of good color. On July 2 the abdominal wound was healed and there had been no complications. The aneurysm was hard and no pulsation could be detected in it or in any of the vessels of the leg or foot. On July 12 pulsation had appeared in the dorsalis pedis artery. He was permitted to be up and about. On July 27 he was discharged well, except that there was a slowly diminishing hard tumor in the place of the aneurysm. In January, 1897, the patient was again seen by Mr. Paul, who found that he had increased twenty-eight pounds in weight since the operation, and that he was able to work at his trade without any disability whatever. The right leg was then a little weaker and smaller than its fellow and the pulsation in its arteries was not equal to the left extremity. Still this gave him no annoyance, and he was able to put in full time at ardu- ous work.

Case 6—Thomas S. K. Morton of Philadelphia—J. R., col- ored, aged 48 years, by occupation a waiter, was admitted to the Philadelphia Polyclinic Hospital, April 4, 1895, suffering with a large swelling in the left groin. His family history was negative. When 17 years of age the patient had syphilis and was under treatment a full year. From that time he had remained in excellent health until one year prior to entering the hospital. Then, a short time after straining himself in lifting a heavy piece of iron, he noticed pain and tumefaction in the left groin. The tumor had steadily enlarged. It was the size of an orange and situated mostly below Poupart's lig- ament in the line of the common femoral artery. Above the latter ligament there was also a considerable expansion of at least one inch of the external iliac artery. The growth pre- sented all of the signs of aneurysm. The leg on the affected side was quite edematous. The man was put to bed with the left leg slightly elevated and instructed to stop the circulation through the aneurysm occasionally, by pressure upon the ex- ternal iliac through the abdominal wall. In doing this he was very successful. On April 8, under ether anesthesia, a four- inch-long median abdominal incision was made below the um- bilicus. A strong retractor was introduced upon the right side of the wound and the intestines held away from the ves- sels on the left side. The external iliac artery and vein were then readily brought into view and identified. The peritoneum overlying the sheath was divided with knife and forceps to the extent of one inch. Then an aneurysm needle was carefully insinuated between the artery and vein, carrying through a single loop of silk. By means of the loop, three strands of medium size silk were carried around the artery without any especial trouble. Everything and every manipulation was in plain view throughout. The three strands of silk were next tied down one by one upon the vessel, after the manner of tying what Ballance and Edmunds have termed the "stay" knot, that is, each ligature is double twisted and tied firmly down for the first tie; the second tie is made from the three or more ends on each side tied down as if one strand. This gives a certain occlusion of the vessel by bringing a considerable extent of its walls into firm contact.[2] The site of the ligature was about three quarters of an inch below the bifurcation of the common iliac. The peritoneum over the ligature and sheath was not sutured as it naturally fell together along its divided edges. The

[2] Ligation in Continuity by Ballance and Edmunds, London, 1891.

Number	Surgeon and date of operation.	Reference.	Sex, age and color.	Disease.	Incision.	Vessel Ligated.	Material of Ligature.	Treatment Peritoneum over sheath.	Complications.	Result.	Remarks.
1	W. F. Stevenson, 1896	Lancet, Jan. 26, 1896, p. 224.	M 35	Diffuse aneurysm, external iliac and common femoral.	Median 1 inch below umbillcus to 1½ in. above pubis.	Common iliac.	Silk.	. . . . .	None.	Cured.	Later, incision into aneurysm and clots, 2½ pounds, turned out.
2	F. Lange	Trans. N. Y. Surg. Soc. 1883.	M About 40	Large aneurysm above Poupart's ligament. Locomotor ataxy.	Median.	Common iliac left.	. . . . .	. . . . .	. . . . .	Cured.	. . . . .
3	F. Lange	Personal Communication.	M About 60	Large aneurysm above Poupart's ligament.	. . . . .	Common iliac left.	. . . . .	. . . . .	Gangreue of extremity and sepsis.	Died.	Hlgh amputation of thlgh for gangrene.
4	R. C. Lucas, 1889 .	British Med. Jour., Nov. 5, 1892, p. 1033.	M	Aneurysm external iliac.	Median.	Common iliac "performed wlth ease."	. . . . .	. . . . .	None.	Recover'd.	. . . . .
5	J. K. Thornton . .	British Med. Jour. Feb. 29, 1896, p. 513.	M	Ancurysm external iliac artery Traumatic left.	. . . . .	Common iliac artery.	Slik.	. . . . .	Grcat amount abdominal and omental fat.	Recover'd.	Tied by touch, not seen.
6	Le Roy McLean, 1872	Personal Communlcation by Dr. C. B. Herrick.	F 50	Aneurysm right external iliac artery following stab wound of buttock.	Short, median "just above pubes."	Internal iliac (right)	Silk.	. . . . .	None in abdomen or abdominal wound.	Died.	Recurring hemorrhage thro' stab wound of the buttock. Postmortem: Artery cut off close to emergeuce from pelvis. "Good size ancurysmal sac."
7	Frederick Treves.	Lancet, June 4, 1892. p. 1244.	M 18 W	Sarcoma of buttock.	Median.	Int. iliac "an extremely simple matter."	. . . . .	. . . . .	None.	Recover'd.	Remarkable shrinkage of growth and diminution of pain. Able to walk for 10 mos. Died in 14 mos.
8	L. L. Williams, Sept. 3, 1891. . .	New York Medical Jour., Aug. 20, 1891, p. 211.	M 35	Gluteal aneurysm left.	Median, umbilicus to pubic bone.	Int. iliac left.	Silk.	. . . . .	None.	Recover'd.	Died of heart disease 10 weeks after operation.
9	George Wherry. .	Lancet. Vol. ii, 1893, p. 136.	M 21	Sarcoma—pulsating—upon upper posterlor and outer part of left innominate bone.	Median.	Int. lliac, artery and vein, left.	. . . . .	. . . . .	Much swollen vein.	Recover'd.	Tumor shrank, pain much less, no pulsation.
10	Thomas Auandale, Oct. 1, 1893.	Edinburgh Hospital Reports, 1894, p. 513.	M 22	Wound gluteal artery, septic. Repeated hemorrhages, left.	Linea semi-lunaris, left 5 inches	Internal iliac.	Catgut.	. . . . .	None.	Recover'd.	. . . . .
11	H. A. Kelly, Oct. 1893	Bull. Johns Hopkins Hospital, April, 1894, p. 53.	F 37	Hemorrhage during extirpation carcinoma uterus.	Median.	Both internal iliac arteries.	. . . . .	. . . . .	None.	Recover'd.	No carcinoma observable up to time of publication.
12	F. S. Dennis, Feb. 18, 1886.	Medical News, Nov. 24, 1886, p. 565.	F 60	Double gluteal aneurysm. Spontaneous.	Medlan, umbillcus to pubes.	Both internal lliac arteries.	Catgut.	. . . . .	Llttle pus about one ligature. no peritonitis.	Died 6th day.	Intestines taken outside abdomen, suppresslon of urine, chronlc nephritis.
13	W. L. Chew, June 15, 1886.	Medical News, Nov. 29, 1886, p. 565.	M 46 C	Diffused aneurysm spontaneous gluteal right.	Lateral.	Int. iliac right.	Silk.	"Approximat'd"	Small stitch hole abscess.	Recover'd.	Intestines taken out of abdomen.
14	F. S. Dennis, Sept. 8, 1886.	Medical News, Nov. 29, 1886, p. 565.	F 18	Gluteal aneurysm and aneurysmal varlx, spontaneous, left.	Median: above umbilicus to 2 in. above pubes.	Int. lliac left.	Catgut.	. . . . .	Much fat in abdominal wall. Acute albuminuria (15 per cent.) after operation for few days.	Recover'd.	Intestines removed from abdomen.
15	N. P. Dandridge, Oct. 1896.	Med. News, April 3, 1897, p. 430.	M 39 C	Aneurysm left groin 5 in. loug 3½ ln. broad. Occupied Scarpa's triangle. Reached upward to Poupart's ligament and outward to spine of ilium, also had invaded iliac fossa.	Trendelenburg position 4in. median.	Ext. lliac (lcft).	Kangaroo tendon.	Sutured with fine silk.	None in abdomen or abdominal wound.	Cured.	Sac opened by 6 in. lncislon and emptied. Had ruptured. One-third sac dissected out. Much bleeding from bclow. Ligatures to vessels. Iodoform gauze packlng. Sloughing and tedious healling. No sensatlon antelior portion thigh. Inability to extend leg upon thigh.
16	Frauk T. Paul, June 17, 1895 . .	Personal communicatlon.	M 38	Aneurysm Scarpa's triangle, right side. Extended 3½ in. downward from Poupart's ligament. Two lnches in breadth.	Four inches along outer border right rectus muscle.	Ext. iliac "very easily ligatured."	Carbollzed catgut.	Suture fine carbolized catgut.	Nonc.	Cured.	Result perfcctly satisfactory.
17	T. G. Rlchardsou, 1886 or 1887 . . .	Personal communicatlon by Dr. R. Matas.	M Adult	Wound high up ln Scarpa's triangle.	Directly over course of external illac.	External lliac.	. . . . .	. . . . .	. . . . .	Dled.	Shock and previous hemorrhage caused death shortly after operation.
18	Geo. R. Fowler, July 11, 1883. . .	Personal communlcation.	M 16	Elephantiasis right leg from groln downward following suppurative inguiual adenitis.	Trendclenburg's positlon, 3 in. incision right linea semi-lunarls.	External lllac "easily carried out."	Catgut.	. . . . .	None.	Cured.	. . . . .
19	L. A. Stimson, April 2, 1889. . .	Trans. N. Y. Surg. Soc., April 24, 1889.	M 36	Ilio-femoral aneurysm, right slde. Extended from one lnch above Poupart's ligament to five inches bclow. Three and one-half inches in transverse dlameter.	Longitudinal along outer slde rectus muscle.	External illac.	Catgut.	. . . . .	None.	Cured.	. . . . .
20	W. Joseph Hearn, 1893	Personal communicatlon.	M 43	Aneurysm external iliac artery, left.	Four inches left linea semi lunaris Trendelenburg's position.	External lliac, "comparatively easy."	Silk.	Single catgut suture.	None.	Cured.	Well 3 years later. Previous successful llgation common femoral for left poplitcal
21	J. B. Roberts	Annals of Surgery	M 26 C	"Speculated							

		Oct. 1894.			shot wound) common femoral right, filling iliac fossa.	Trendelenburg's position.	way between bifurcation and Poupart's ligament.	Silk.	None.	Hiccough, "no signs of peritonitis," lived 6 days.	Died.	Postmortem: Abdominal conditions satisfactory, no exudate. Aneurysm contained a gallon of clots.
23	Makins, Sept. 20, 1892	Lancet. Dec. 10. 1892. p. 1328, also ibid, 1893, Vol. ii, p. 196.	M	30	Aneurysm external iliac and common femoral.	Linea semi-lunaris, beginning 1 in. below umbilicus.	Ext. iliac, considerable difficulty from fat and enlarged epigastric and spermatic vessels.	Silk.	Sutured.	None.	Recover'd.	See also Case 26.
24	W. Michell Banks, Sept. 20, 1892 . .	British Med. Jour.. Nov. 26, 1892. p. 1163.	M	62	Aneurysm Scarpa's triangle and iliac fossa.	Linea semi-lunaris 3 inches.	External iliac, "nothing could have been more simple."	Carbolized catgut.	Catgut suture.	Temporary cyanosis on 11th day. Otherwise none.	Recover'd.	. . . . .
25	T. S. K. Morton, April, 1895. . . .	Here first reported.	M	48	C Ilio-femoral aneurysm, left.	Median, 4 in. below umbilicus.	Ext. iliac, left midway bifurcation to Poupart's ligament.	Silk, 4 strands, Ballance and Edmunds' "stay knot."	None.	None.	Recover'd.	Still well, useful limb.
26	Makins, May 3, 1893	British Med. Jour.. Nov. 30, 1895. p. 1360.	M	34	Aneurysm external iliac and common femoral.	Linea semi-lunaris.	External iliac.	. . . . .	. . . . .	None.	Recover'd.	Same man as Case 23, 8 mos. later opposite side.
27	W. H. Brown, Sept. 25, 1892	Lancet, Vol. ii, 1893, p. 31.	F	38	Aneurysm femoral, double, 1st, in right groin extending above Poupart's ligament; 2d, in middle third.	Median, umbilicus to pubes. Trendelenburg.	Ext. iliac, right, much difficulty because of extreme obesity of abdominal wall and omentum.	. . . . .	. . . . .	Stitch hole abscess. Gangrene of leg.	Died in 11 weeks.	Amputation thigh Exhaust'n.
28	John C. Davie, Jan. 9, 1891 . . .	British Med. Jour., April 11, 1896, p. 924.	M	32	Aneurysm left external iliac artery.	Trendelenburg. Median, 2 in above umbilicus to 1 in. above pubes.	External iliac.	Ox aorta.	. . . . .	Intestinal obstruction, incomplete. Wound opened on 6th day kink in small intestine.	Recover'd.	Well 4 years later.
29	W. H. Brown. . .	Lancet, Oct. 23, 1897. p. 1047.	M	45	Aneurysm at junction femoral and external iliac, size hen's egg.	. . . . .	External iliac.	. . . . .	. . . . .	. . . . .	Recover'd.	"Complete recovery."

entire extremity was done up in thick layers of cotton batting after the abdominal incision had been closed by storied sutures. External heat was also applied to the limb for forty-eight hours. It was kept slightly elevated. The leg remained slightly cold and numb for twelve hours, but then warmed up and full sensation returned. Recovery was without rise of temperature or any complication. Good collateral circulation was present in the tibials within two weeks, at which time he was permitted to sit up and gradually get about. The tumor in the groin gradually shrank and was no larger than a hen's egg in six weeks. At the present time (June, 1897) the man continues in the best of health. There is little more than a heavy fibrous cord in the groin, excellent collateral circulation, and absolutely no interference with the motions and utility of the affected side. The abdominal incision shows no sign of weakness.

Case 7.—Dr. Frederick Lange of New York.—Man, aged 60 years; large aneurysm above Poupart's ligament involving external iliac artery on the left side; ligation of left common iliac artery by transperitoneal route; subsequent gangrene of leg; high amputation of thigh; death.

MELANOSARCOMA OF THE CONJUNCTIVA, WITH THE REPORT OF A CASE.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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CLEVELAND, OHIO.

Mr. G. of Cambridge Springs, Pa., aged 69 years, was first seen in March, 1888, with a dark purplish lobulated tumor of the left eyeball, about three quarters of an inch in length, one-half inch in breadth and about one-half inch in thickness, springing from the ocular conjunctiva on the nasal side. The tumor was first noticed about one year previously as a small dark spot. There was no history of traumatism.

There was diplopia when looking to the right, owing to the tumor preventing the eye rotating in that direction. There was slight haziness of the lower part of the cornea, probably due to the imperfect closure of the lids, but otherwise vision was good. A fairly satisfactory ophthalmoscopic examination was possible, revealing a healthy fundus. The tumor was slightly movable, but I was uncertain whether or no it was adherent to sclerotic or deep orbital structures. There was no pain and the patient refused to have the tumor removed.

During the next three months the tumor grew rapidly and began to fungate and bleed frequently. During the early part of June there were two or three hemorrhages, which were controlled with great difficulty by compress bandages. It was only after becoming thoroughly alarmed by these hemorrhages that the patient consented to have the tumor removed, which at this time presented an ugly, black mass, filling the palpebral opening and completely covering the eyeball.

Ether was administered and every precaution taken to control excessive hemorrhage, and preparations were made for extensive dissections of the orbit together with the sacrifice of the eyeball. Indeed, a formidable operation was anticipated, but much to our surprise, the tumor was found to be pedunculated, very superficially attached to the conjunctiva, and removed easily with the forceps and scissors with very slight hemorrhage, leaving a perfectly clean wound of the conjunctiva which was partially closed with sutures. The wound healed kindly but was followed by a slight entropium, owing to the cicatrical contraction. This

was relieved by an operation one year later. The patient was seen three years after the operation, vision perfect in both eyes, no recurrence of tumor and general health excellent.

The tumor removed was the shape and almost the size of a hen's egg, hard and black, round and smooth, excepting on the larger fungating end. Dr. Chr. Sihler, professor of histology in the medical department of the Western Reserve University, examined the tumor microscopically and pronounced it a small celled melanosarcoma with much pigment.

Mr. Gerrish died September, 1893, five years and three months after the tumor was removed from his eye. An autopsy was held by Dr. W. N. Young, together with the assistance of several physicians of Cambridge Springs, Pa. Death was due to a large cancerous growth of the liver, probably melanosarcoma.

It seems as though there should be no difficulty in distinguishing these conjunctival tumors from intraocular ones which, having penetrated the sclerotic, present externally. Unlike some of our mistakes, this may prove disastrous to our patient. Few would object to the removal of the tumor if assured that the eyeball need not be sacrificed. I fell into this error and only recognized my mistake during the operation. In the light of my present experience the error seems almost inexcusable.

Several cases of non-pigmented sarcoma of the conjunctiva have been reported, but they are probably much less frequent than the pigmented tumors. The sclerocorneal limbus seems to be a not very infrequent location for epithelial cancers. They are usually non-pigmented, sessile, flat tumors of slow growth with an early tendency to ulcerate.

The melanotic sarcoma of the conjunctiva, like the epithelial cancer, is peculiar to old people, although a few have been reported in young persons. Carcinomatous growths of the conjunctiva have been recorded by a number of writers, and may or may not be pigmented. Indeed, the statement of "Noyes[1] that the occurrence of pigmentation is a feature entirely incidental and not essential to the growth of the tumor seems probable." Although melanotic tumors of the conjunctiva are comparatively rare, I am inclined to think they are more common than the literature of the subject would lead us to infer.

Walton[2] states that in three cases in which he removed the eyeball for a chronic fungus state of the conjunctiva, he found upon dissection the coats and other parts of the eye to be quite unaffected and in their natural state.

Travers[3] gives a beautiful illustration of a case in which he performed abscission of the anterior portion of the eyeball.

Dr. Jacob[4] reports a case of a black, spongy tumor, two inches in diameter, overlapping the eyelids in all directions so as to nearly close the whole opening of the orbit. It appeared to be attached to the eyeball with a cylindric stalk which was slightly enclosed by the eyelids. Being prepared to remove the contents of the orbit, if necessary, Dr. Jacob drew his knife across the stalk as a preliminary operation, and found that he had incised a healthy eyeball, the disease being confined to the conjunctiva. The divided eyeball healed kindly. The subsequent history of the case is not recorded.[5] Cases have been reported in more recent literature in which the eyeball has been unnecessarily sacrificed.

These melanotic tumors of the conjunctiva seem to present an exception to the general surgical principle in malignant growths, that the dissection should be made as distant from the tumor as possible. It is not impossible that these cases may occasionally result in spontaneous cure.

Some time since, Dr. A. P. Ohlmacher[6] presented to the Cleveland Medical Society two specimens taken postmortem from a man who had had trouble with his eye four years before the liver trouble, from which he died, began. The duration of the liver trouble was about one year. The relation of the enlarged liver to the eye disease was suspected by the physician in charge of the patient, but it was thought to be echinococcus disease, and an operation was undertaken to remove the suspected hydatids. The interior of the eye was occupied by a small black tumor which showed, on microscopic examination, all the characteristics of melanotic sarcoma. A curious feature, says Dr. Ohlmacher, of this growth is its tendency to atrophy and shrink with the eyeball instead of increasing in size and breaking through the eye, as is usually the case. A line of pigment along one side of the optic nerve probably marks the route by which the tumor germs escaped from the eye to produce the metastatic infection. The liver with the metastatic, melanotic sarcoma weighs fifteen pounds.

Dr. Mathewson reported a case somewhat similar in the "Transactions of the Amer. Ophthal. Society" in 1874. Dr. Mathewson's case subsequently died, melanotic tumors appearing over the entire surface of the body, as well as in the internal organs.

Dr. Randall[7] observed a case in Jaeger's clinic, a large pedunculated tumor, apparently tending toward spontaneous recovery.

In my case the pedicle was so small, in comparison with the size of the tumor, that it might have been possible for the entire growth to have dropped off from its own weight, and the pressure of the lids upon the pedicle behind it. At least a slight twist so as to cut off the circulation might have accomplished this result, yet these tumors may grow to an immense size.

Mr. Abernathy[8] refers to a curious case of a sarcomatous tumor of the conjunctiva which did not involve the cornea, which was clear and transparent. The tumor pushed out between the eyelids and was seven inches long, three and one-half in circumference, and weighed when extricated two and one-half pounds. More information as to the subsequent history of these cases would be of great interest. This might be a good subject for collective investigation.

There seems to be great indefiniteness as to how frequently and how soon recurrence of melanosarcoma of the conjunctiva may occur, and in what proportion metastasis may be expected after removal. De Wecker[9] intimates that we should be extremely cautious about operating on these tumors. He says cases have remained absolutely stationary for twelve or even twenty years, while if operated on they sometimes recur with fearful rapidity, or what is perhaps worse, undergo metastasis. If convinced that general infection is not immediately imminent, he advises enucleation of the eye at once; but no such operation should be ventured on if previous attempts have already produced a return of the disease *in situ*, or if the blood is contaminated. In that case metastasis will happen almost to a certainty.

As an illustration of the difference of opinion held by members of the profession as to the question of metastasis, Strause[10] offers as one of his conclusions:

"Metastasis practically never occurs." The latter conclusion does not seem to be warranted by the history of these cases as recorded by many observers.

Fuchs[11] reports a case of typical melanosarcoma that was first excised in 1879. In May, 1886, it returned on the opposite side of the cornea of the same eye. It was again removed and returned. In September of the same year the eye was enucleated, and six months later it returned in the bottom of the orbit. Complete exenteration of the orbit was then performed. The patient died from extension of growth to internal organs in February, 1890.

Cases dying from metastasis have also been reported by Ole Bull[12] and others.

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1 Noyes: Archives of Ophthal., vol. viii. p. 145.
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3 Travers: Synopsis of Dis. of the Eye, 3d Ed., 1824, Fig. 2, Plate 2, p. 102.
4 Dublin Medical Press, Nov. 30, 1842.
5 Archives of Ophthal., vol. xviii, p. 163.
6 Ohlmacher: Cleveland Jour. of Med., March, 1897, p. 141.
7 Trans. Amer. Ophthal. Society, 1886.
8 London Reports, 1811, Surg. Observ. on Tumors, etc., p. 43.
9 Ocular Therapeutics, p. 101.
10 Archives of Ophthal., April, 1897.
11 Fuchs: Text-book on Ophthal., 1895, p. 119.
12 Archives of Ophthal., vol. xviii, p. 168.

THE SURGICAL TREATMENT OF TRACHOMA.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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The scope of the present paper will not admit of a review of all of the operative procedures that have been and are now employed in the treatment of trachoma, even if it were desirable. I shall, therefore, mention but few and, as I believe that a discussion of methods employed by the individual speakers here is more suitable and will be more profitable to those present, I shall conclude by describing the method that I find most generally useful.

Viger (*Annal. d'Oculistique*, 1892, p. 175) scarifies horizontally and transversely and brushes in a solution of sublimate, 1 to 500. He then applies compresses dipped in a hot solution of sublimate, 1 to 5,000. The after-treatment is by daily applications of sublimate solution, 1 to 500.

Armaignac (*Annal. d'Oculistique*, Vol. cx, p. 121) employs a method which he terms "Tattouage médicamenteux." With a bunch of tattooing-needles the whole affected portion of the conjunctiva is repeatedly pierced; at the same time the surface of the conjunctiva is bathed in a solution of sublimate, 1 to 500. Afterward the brush is employed with the same solution. He states that after some weeks the granulation tissue entirely disappears leaving a smooth surface.

Ottawa (*Annal. d'Oculistique*, Vol. cx, p. 45) employs massage.

Blubaugh (Jour. A. M. Assn., Oct. 14, 1893) uses a series of scrapers for scraping away the granulations and then gives the patient a "lump of alum," directing him to rub the conjunctival surface as the case demands. The patient is permitted to go home.

Excision of the retrotarsal fold is still advocated by some surgeons (Venneman, *Arch. d'Oph.*, Paris, 1894, p. 413).

Experience in the surgical treatment of trachoma, extending over a number of years, causes the writer to proceed as follows: All operations for marked trachoma are performed under ether or chloroform anesthesia. Cocain anesthesia is not sufficient and, if attempted, results in causing the patient pain and unduly hastens the work of the surgeon. After cleaning the eyes, the margins of the lids are seized in turn by means of the clamp forceps and the lid is rolled over the blades of the forceps. This serves to expose, almost if not quite, the whole surface of the conjunctiva.

With a scarificator bearing three Demarre's blades and supplied with a guard to limit the depth of the incisions, superficial incisions parallel to the margins of the lids are made into the trachomatous tissue. The conjunctival fold is then seized with the Noyes or Knapp trachoma forceps, preferably the former, and held between the blades of the forceps. If on raising the fold of conjunctiva it is found that some of the trachomatous tissue has escaped scarification, the remaining portion is scarified. The incisions should run parallel to each other; they serve to uncap the trachoma follicles and to permit of the easy escape of the masses of lymphoid cells which form the bulk of the trachomatous tissue. By a gentle stripping motion, avoiding undue pressure and tearing of the conjunctiva, the contents of all of the follicles in fornix, tarsal and caruncle conjunctiva are evacuated. A moderately soft tooth brush is then employed to introduce a solution of sublimate 1 to 500 into the conjunctival tissue and incidently to cleanse the membrane, but litttle force being employed. The conjunctival sacs are then irrigated with a solution of sublimate, 1 to 5,000, to clear them of all particles of blood clot, and finally an ointment of sublimate 1 to 5,000, in vaselin is applied to the conjunctival surface by means of a glass rod. A piece of moistened gauze is then laid on the lids and the eyes bandaged for twenty-four hours. The bandage serves to control any edema that might arise if slight pressure were not applied. The patient does not experience pain after the operation and surprisingly little reaction follows. The bandage is removed after twenty-four hours and the after-treatment is commenced. On inspection, when the bandage is removed, a layer of plastic lymph (pseudomembrane) will be observed covering the affected conjunctiva, and a tendency to adhesion between apposed folds of the conjunctiva will be noticed. A few drops of cocain should be instilled into the conjunctival sacs and after a few minutes the sacs should be cleansed by irrigation with a solution of sublimate, 1 to 5,000. After drying, the adhesions between the folds of conjunctiva should be gently broken up by means of a small glass rod, with a smooth round or slightly pointed end, or a metal probe of fair size carrying and being lubricated by a liberal quantity of the sublimate ointment above referred to. The layer of plastic lymph should not be disturbed except where it is concerned in forming adhesions between folds of the conjunctiva. The pseudomembrane forms a smooth surface, under which the repair of the conjunctiva progresses most favorably, and is cast off in a few days disclosing a very satisfactory condition of the conjunctiva.

If any feeling of discomfort is experienced by the patient, cold applications may be made to the lids after the procedure just referred to, which may be continued for one or two hours. There is no necessity for reapplying the bandage. Patients usually open the eyes and suffer little or none. The introduction of the ointment renders the tendency to the adhesion of the conjunctival folds less; however, the adhesions

that do form *must be broken up*, in the manner described, every twenty-four hours until the epithelial layer is completely restored, when the formation of the adhesions will cease. This usually takes about six days. No other treatment is necessary during this time, except that the patient may be directed to bathe the eyes with a solution of boric acid two or three times a day to ensure cleanliness. He may be permitted to be about as usual after the first forty-eight hours. The patient is now given a solution of sublimate, 1 to 8,000, to drop into the eyes three times a day and the surgeon may apply the ointment as above or an astringent, as appears necessary, every second day. Treatment other than a wash to ensure cleanliness may be discontinued in two weeks from the date of the operation. Recovery with a smooth elastic conjunctiva usually occurs in three weeks. This method is thorough, entails but little suffering and ensures good results in all cases in the stage of hypertrophy, and in the second stage in cases where the contraction has not advanced too far. If there is marked shortening of the palpebral fissure, the writer does canthoplasty, limiting the extent to the requirements of the case.

In exceptional cases where few trachoma follicles are present but are persistent (as sometimes occurs in private practice), the above described procedure, to a much less degree, is carried out, cocain anesthesia being relied upon.

The advantages that this method possesses are: 1. The easy removal of the trachomatous tissue, facilitated by the shallow scarification. 2. The thorough antisepsis without deterring the healing process 3. Recovery with a smooth surface and minimum contraction.

One point the writer wishes to emphasize is that the after-treatment must be carefully carried out after this as after other operative procedures for trachoma, otherwise unpleasant adhesions between folds of conjunctiva, with a decided lessening of the area of the conjunctiva will follow.

A COMPARISON OF THE VALUE OF LOCAL MEDICINAL MEASURES IN THE TREATMENT OF GRANULAR CONJUNCTIVITIS (TRACHOMA).

BEING A PORTION OF THE REPORT OF THE SPECIAL COMMITTEE APPOINTED TO DISCUSS THE SUBJECT OF GRANULAR CONJUNCTIVITIS (TRACHOMA) FOR THE SECTION ON OPHTHALMOLOGY OF THE AMERICAN MEDICAL ASSOCIATION.

Presented to the Sectiou on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY H. V. WÜRDEMANN, M.D.

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Study of the extensive literature upon the subject of granular conjunctivitis shows that the vane of fashion in its treatment has veered somewhat from the radical surgery in vogue several years ago to which it had pointed after years of silver and blue-stone cauterizations. Appropriate general treatment and regimen together with local medicinal applications in connection with surgical procedures are again in favor.

To scientifically discuss the value of local medicinal measures it is first necessary to consider the nature of the diseased process. Examination of the vast m of literature upon the treatment of granular trachomatous disease shows that the authors' m ideas are to empirically cut, squeeze, burn and cau ize away the follicles and trachoma bodies in orde remove the supposed mechanical effect caused their presence. I will attempt to properly expose principles of scientific local medicinal treatmen well as to show the comparative value and actio many of the remedies that are now used in the c of this disease.

Those chronic inflammations of the conjunct which by secondary infection or by metamorph ultimate in the trachomatous state pass through following distinct stages, in whole or in part:[15 30]

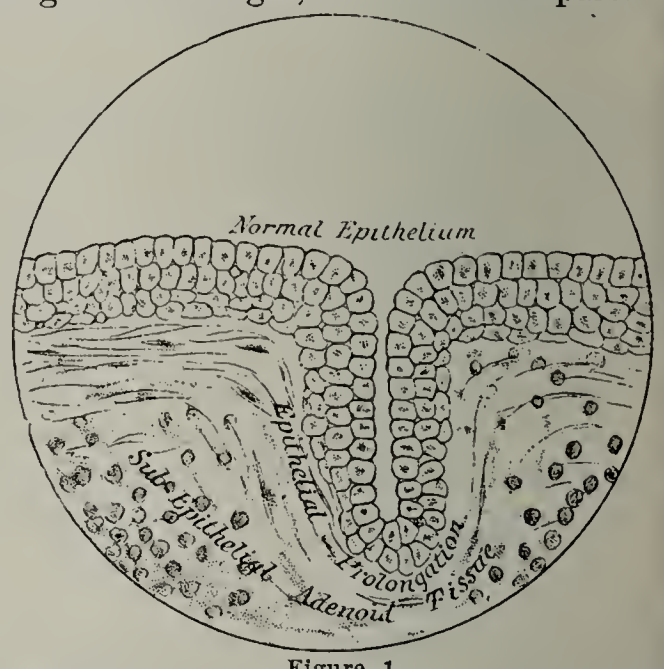


Figure 1.

1. The stage of epithelial proliferation, which i catarrhal condition in which the functions of the c in reference to their multiplication and the prod tion of mucus is increased (Fig. 2). Here deterge antiseptics and other treatment directed toward re of inflammation is indicated.

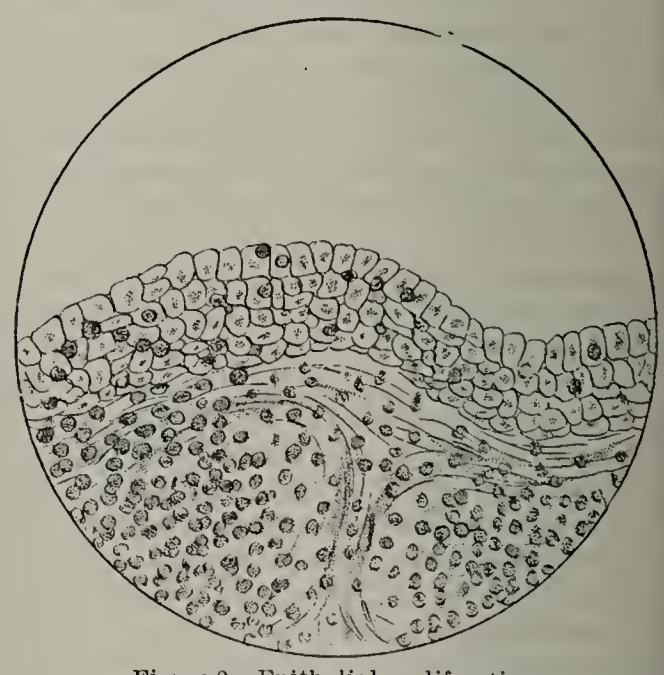


Figure 2.—Epithelial proliferation.

2. The stage of superficial destruction in which superficial epithelial elements are partially destroy but which by the healing process may be entir reproduced (Fig. 3). In this condition surgi removal of contents of follicles and hyperplastic tiss together with stimulating measures directed tow resorption of the trachomatous masses and regene tion of the epithelium, as well as detergents and a septics are needed.

3. The stage of total destruction of the epithelium which embraces those grave inflammations which, though well held apart by macroscopic signs, have for a common characteristic the destruction of all the epithelial elements on the surface of the conjunctiva (Fig. 4). In this stage, relief of complications and sequelæ, stimulation of the local nutrition to aid in resorption of cicatricial tissue and regeneration of the epithelium through stimulation of that remaining in the conjunctival crypts are the most important indications.



Figure 3.

4. The result of chronic granular disease is xerosis, and is attended by total destruction of all the mucous elements, the conjunctiva being replaced by connective tissue. This is incurable, but symptoms may be partially subdued by emollients.

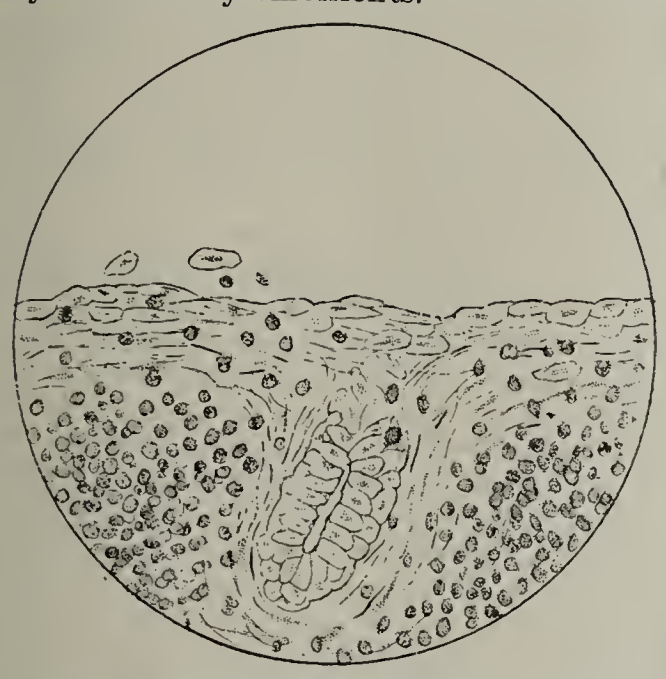


Figure 4.—Total destruction.

The alteration of the epithelium and infiltration of the tissues are the only constant anatomico-pathologic phenomena and our treatment should be directed toward the removal of the causes of its destruction and to effect its regeneration.[19 20 30] In this article I will pay no further attention toward prophylaxis, general treatment and surgical procedures in this disease, except to state that local applications are in most instances only a portion of the treatment and all grave cases must be treated surgically as well.

The local treatment of granular conjunctivitis may be described under the following headings: 1. Detergents. 2. Antiseptics. 3. Subjection of acute inflammations. 4. Stimulation of nutrition. 5. Mechanical or surgical removal of the products of the inflammation, contents of follicles, hyperplastic tissue, etc. 6. Relief of asthenopic symptoms. 7. Relief of complications. 8. Relief of sequelæ.

1 and 2. Be it believed that one or several forms of germs or spores together with other causes form this disease, it is considered necessary to use antiseptics which may hinder their growth with as little destruction of the tissues as may be consistent with resultant recovery of the function.[30] For the patient's use, weak solutions of boric acid (2 to 5 per cent.), bichlorid[20 27 29] and cyanid[13] of mercury (1 to 5,000 to 1 to 10,000) as detergent washes are recommended. Instillation of stronger solutions fortified or guarded by antipyrin (0.5 to 3 per cent.), weak eucain (0.5 to 1 per cent.), cocain (0.25 to 1 per cent.), or holocain (0.16 to 0.25), are gratefully borne by the patient. The washes and collyria act superficially and are little more than detergents, but are particularly useful in the first and second stages of the disease. Yellow oxid of mercury ointment (0.33 to 2 per cent.), and ointment of ichthyol[8 21] (1 to 5 per cent.), are antiseptics as well as stimulant compounds. Far more effect is produced by local application of antiseptics directly to the diseased membrane by skilled hands, and many cases are no doubt cured by such means alone. Brushing by the nitrate or iodid of silver (0.5 to 5 per cent.), aqueous or glycerin[29] solutions of bichlorid of mercury (1 to 10,000 to 1 to 100) or lactic acid[25] (2 to 20 per cent.) cause considerable reaction and the first stains the conjunctiva if used for any length of time. Argentamin[14 22] (5 to 20 per cent.), cyanid of mercury (1 to 10,000 to 1 to 100) and boro-glycerid[5 6] (5 to 25 per cent.), are not open to this objection. The tannate of quinin[3] in solution (5 to 20 per cent.), antipyrin[16] (3 to 25 per cent.), or resorcin[11] (1 to 10 or 1 to 5 in boric acid solution or powder) dusted on the surface of the conjunctiva, are antiseptics. (Powders are later considered in this article.) The submucous injection of sublimate[26] has been recommended in trachomatous pannus.

3. Iced applications or cold bathing together with the silver compounds are useful in the first grade of the affection when there is acute inflammation and when the secretion is free. Irritation may be limited by the use of cocain, eucain or holocain in collyria, to which boric acid or biborate of sodium may be added.

4. Hot water bathing or hot applications are among the best stimulants to nutrition in the second and last stage of trachoma. Bathing is usually ordered as hot as may be comfortably borne, for five minutes at a time from twice to a dozen times a day. Hot compressing is best made for periods of one-half to one hour a number of times a day, the compresses being changed every minute or two. To these applications antiseptics may be added. I have had gratfying results from a jet of steam applied for three to five minutes once a day to the everted eyelids.

After the acute state has passed most cases require stimulating applications of silver, mercury, copper and zinc compounds. It is well not to destroy the epithelium by corrosive antiseptics or caustics in the hope of thereby invoking secondary reaction for the purpose of stimulating nutrition or with the idea of destroying the germs in the subconjunctival adenoid tissue.

Nutrition may be actively increased by local mas-

sage with yellow oxid of mercury ointment (0.5 to 2 per cent.) placed in the conjunctival cul-de-sac and massage practiced through the lids for three to five minutes at a time, or what is better, the retrotarsal folds may be strongly reverted and the ointment rubbed into the mucous membrane by some smooth instrument for several minutes. In cases inapplicable for treatment by scarification, expression, picking out or cauterization of individual granulations, stimulation may be effected by massage with impalpable boric powder, iodoform, calomel or aristol rubbed in by the finger-tip, or by hard rolled pledgets of cotton dipped in olive oil, or by massage with the finger alone, or by an instrument with or without medicaments. Rubbing down of the granulations by pumice stone, instillation of crude petroleum,[7] ichthyol,[8 21] boracic acid and resorcin,[11] glycerite of tannin,[6] etc., act largely by stimulation. The application of alum, sulphate of copper, nitrate of silver, lapis divinus and muriate of ammonium in pencil form act in the same manner.

Jequirity in weak solutions[12] (0.5 to 2 per cent.) three to seven times a week is said to be a powerful irritating stimulant; where used in strong infusions for the purpose of causing an artificial conjunctivitis it is the over-stimulation of the healing process which causes absorption of the granulations and redundant tissue.

5. Mechanical and surgical procedures for removal of the granular contents of the follicles, etc., are most applicable in the second stage and must generally be supplemented by medicinal methods of treatment.

6. Aside from asthenopic symptoms caused by refractive and muscular errors, weak sight is likewise due to conjunctival irritation. This is to be remedied by protective glasses, by hot or cold bathing, collyria of boric acid (2 to 5 per cent.), borate of sodium (2 to 5 per cent.), sulpho-carbolate and sulfate of zinc (1 to 5 per cent.), etc., usually with the addition of antipyrin (0.5 to 3 per cent.), eucain (0.5 to 1 per cent.), cocain (0.25 to 1 per cent.), holocain (0.16 to 0.5 per cent.).

7. For the relief of symptoms as well as complications, as when the process extends to the cornea forming pannus, or when vascular or ulcerative keratitis occurs, the myotics or mydriatics are indicated. Eserin (0.1 to 2 per cent.) is a stimulant of nutrition, the mydriatics are more sedative. Atropin (0.2 to 5 per cent.) is frequently indicated, especially in intraocular complications, but is not well borne for any length of time, as it ultimately may produce conjunctival irritation. Scopolamin and duboisin in the same strength may be substituted.

8. The relief of sequelæ.—Massage is the most beneficial method of dealing with leucomata, many of which may be dissipated by conscientious daily application. Active massage is of great benefit in loosening the scars and procuring resorption of cicatricial tissue changes in the tarsal conjunctiva. The mercuric ointments or calomel, boric acid, iodoform, aristol, etc., in powder or ointment form are decided adjuvants for this procedure. Collyria, milk,[18] olive oil or ointments composed mainly of lanolin relieve the symptoms caused by conjunctival xerosis.

Taking the various local medicinal applications most in vogue in the order of their usefulness, we find the silver compounds lead the list: 1 to 5 per cent. nitrate (or iodid[13])* of silver solutions brushed on eyelids from three to seven times a week. Its disadvantage is that it not only stains the conjunctiva if persisted in for any length of time, but is also irritating, and when used in strong solutions or in solid stick destroys the epithelium faster than the microbes, or stimulates the repair. Cases treated by nitrate of silver alone are apt to eventuate with a considerable amount of scar tissue. It is likely that the alkalin non-irritating silver compounds, argentamin[14 22] (3 to 5 per cent.), argonin (2 to 10 per cent.) solutions may ultimately take the place of the nitrate, as they are not open to these objections, although both antiseptic and stimulating. Brushing by corrosive sublimate[24 28 29] (1 to 1,000 to 1 to 100) has its advocates, but it is irritating and its injudicious use is open to the same objections as those of silver nitrate and it likewise corrodes the corneal epithelium. Its application should be limited to connection with surgical treatment,[2 3 27 28 29] as scarification, expression and galvanocauterization of the follicles. Tattooing[1] with these solutions has likewise been practiced. Cyanid of mercury is better borne and not so irritating. The application of zinc solutions, such as the sulphate and sulphocarbolate are antiseptic and stimulating, but are unpleasant for the patient on account of the irritation. The solid stick of alum is a stimulant and is generally well borne. Sulphate of copper crystal, lapis divinus and muriate of ammonium should be used only for stimulant purposes (several times a week) and not with the idea of cauterizing away the granulations. I wish to here warn against the routine and discriminate use of these caustics as empirically recommended in many treatises and articles. Strong solutions of antipyrin and of quinin are advised, largely on account of their antiseptic properties. The dusting in of powders, boric acid, calomel, tannate of quinin, tannin, iodoform, antipyrin in full strength or resorcin (1 to 10 to 1 to 5 in boric powder[11]), etc., are advocated for their antiseptic and stimulating properties, but are seldom used except when combined with massage.

The ointments of mercury (yellow oxid 0.5 to 5 per cent.), white precipitate (1 to 5 per cent.), red oxid (0.25 to 1 per cent.), calomel (1 to 10 per cent.), cupric sulphate (1 to 10 per cent.) and ichthyol (5 to 20 per cent.) are antiseptic and stimulating, especially when used in connection with massage in indolent follicular and trachomatous disease, and particularly where cicatricial tissue has formed. The value of most applications depends upon their antiseptic and stimulating qualities. Of all forms of local treatment I would consider that massage with or without medicaments is of the greatest value as it produces increase of nutrition and thus aids in resorption of the follicular contents of the trachoma bodies and of the neoplastic tissue.[30]

Most of these applications are better borne by the patient if weak solutions of local anesthetics be instilled before each treatment. Their effect is decidedly increased if the conjunctival cul-de-sac be washed out with warm salt or boric solution. If the inflammation be attended by suppurative secretion it is well to first brush the lids with peroxid of hydrogen solution before applying silver or other medicament. It is likewise necessary to limit the action of the silver compounds by neutralization with second brushing with salt solution. The silver salts form the albuminate of silver, which lines the conjunctiva and acts

* First pass a solution (4 to 12 per cent.) of $AgNO_3$ over lid, then wash with mild solution of potash. ℞. Potass. iod., 8.00; glycerin., 8.00; aquæ, 16.00, whereby a precipitate of iodid of silver is formed.

for some time after its application. The sulphate of copper crystal is to be followed by brushing with clear water to remove the excess.

I wish to here insist upon the thorough eversion of the eyelids where local applications are made to the diseased conjunctiva. The principal part of the process will be found in the fold of transmission, which can only be exposed to view and the proper application of medicines by thoroughly pushing the everted upper lid down by cotton-tipped probe or instrument.

Attention must be given to the symptoms of the patient, which should be relieved by dark glasses, hot or cold bathing and detergent washes and collyria. Medicinal applications should not be used heroically,[4] but restricted to the indications here laid down. Many cases of follicular and trachomatous disease (granular conjunctivitis) are cured by local applications, but when adhered to alone the treatment is tedious and is perhaps more apt to be attended by complications due to neglect or over-zeal than when combined with properly applied surgical procedures by which a more speedy and satisfactory cure is effected.

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THE PRESENT STATUS OF JEQUIRITY IN THE TREATMENT OF TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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It is my purpose in this short paper to give my personal experience only, in the use of jequirity in the treatment of the above affection; when used in picked cases, I know of nothing that will take its place. I have used it in all cases except the acute, with nothing but the best results. I have never seen an ulcer of the cornea follow its use. I have seen some few cases of xerosis after using jequirity, but none I could say positively depended upon, or was the direct after affect of, this medication.

Several years ago one of my assistants, while squeezing a case of trachoma, was unfortunate enough to become inoculated. This case was a peculiar one from the beginning. His eyes stood no treatment well; his corneæ were extremely irritable; all the mydriatics produced increased corneal irritation; his eyes were made worse by all treatment. I compressed the trachomatous bodies twice. I had Drs. Ray and Dabney of this city to see him, but nothing suggested was of any service. I kept him in the Infirmary for months and tried every treatment I had ever heard of, with no good result. I suggested the use of the jequirity several times, but he feared it. At last I determined to use it without his knowledge. His corneæ had several abrasions, and was, as I stated before, extremely irritable. I took a small portion of the powdered jequirity, made a very weak infusion, and applied it carefully to the lids with a cotton mop, two days in succession. Little or no reaction followed, and his eyes improved very rapidly. I repeated the application three or four times. The doctor is now a busy practitioner, and suffers little or none with his eyes. He had mixed astigmatism, for which he wears correcting glasses.

I have under my charge now a case of trachoma in the person of a young woman from Illinois. She had pannus of left cornea. Just above and overlapping right cornea she had a mass of trachomatous bodies. I dusted the powder in the left eye once. The pannus of this eye was relieved promptly. Under two applications to the right eye, the mass of trachomatous bodies disappeared.

I know of no other treatment so safe that will give such results. Before expression came into use, I used powdered jequirity occasionally in cases without pannus, with none but favorable results. I have had cases with extreme pannus led into the office, unable to find their way, who under the use of the jequirity were able in six or eight days to come alone. Mary L: V. R.=P. L; V. L.=20/200. Jequirity used in both eyes. Repeated once. Ultimate result: V. R. = 20/70; V. L.=20/50.

Such cases are common in my experience. I see so many less cases now in which jequirity is indicated than I used to, because trachoma, I think is recognized earlier and treated more intelligently. Very weak infusions of jequirity are often of much benefit. But I most frequently use the powder; severe reaction is much less frequent, the application can be better confined and the powder does not degenerate with time.

The powdered jequirity I now use has been made for some years and is as active today as when fresh. I have used jequirity in all stages of trachoma except the acute with and without pannus, with none but favorable results. I am more careful now in the selection of my cases than formerly, yet I would not hesitate to use it in any case in which other methods had failed me. In select cases of trachoma with pannus, I know of nothing that will take its place.

Gentlemen who have had one or two unfortunate results from its use should try it again. I am sure they will be pleased with it if properly used, in the form of a powder, in selected cases. In some cases it is with me the last resort, in others it is the first.

THE TREATMENT OF THE MALPOSITION OF THE LID BORDER IN TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

BY F. C. HOTZ, M.D.
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It is needless to say that the faulty position of the lid border induced by trachoma and known as *entropium*, can be treated only by operations. And it is also unnecessary to state that there is scarcely any other malformation of the human body for which a greater number of operations has been invented. Yet it is hardly reasonable to suppose that a condition so typical as the trachoma entropium could be treated with equal success by methods based upon widely different principles.

It is certainly very desirable that some order be brought into this chaos, and I believe this task is not so difficult as it may appear, if we clearly formulate our demands of what, in our judgment, a rational operation for entropium should and should not do.

The first condition we must insist upon, is that we should always take into serious consideration the cosmetic effect of our operation. The eyelids play a very important role in facial expressions, and we have no right to mar the face by unnecessarily mutilating the eyelids in the name of surgery. Every entropium operation which permanently disfigures the eyelid should be forever stricken from the list of legitimate ophthalmic operations; for the malposition of the lid border can well be rectified without the least mutilation.

The second condition we must insist upon is that the most rational method of relieving the entropium *is to remove those structural changes which cause the inversion.*

It is a prevalent idea that the entropium is caused by the shrinkage of the tarsal cartilage and the cicatricial contraction of the palpebral conjunctiva; and many operations are based upon this view. But that these structural changes are not the real etiologic factors in the production of entropium is evidenced by the fact that in many eyelids we find extensive cicatricial shrinkage without entropium, while in other lids we find its margin completely inverted though its tarsus is not only not contracted but abnormally large. Furthermore, it is well known that the destruction of the palpebral conjunctiva by burns does not lead to entropium, and that we may excise large portions of the palpebral conjunctiva and the cartilage without fear of producing entropium.

To trace the etiology of entropium we must study the affection in its incipient stage. And if we do so, we notice the very significant fact that the structural changes begin at the *anterior* edge of the lid margin. Long before the posterior edge shows the slightest disturbance, and even before the position of the lid margin itself is perceptibly altered, do the eyelashes show a decided drooping and the skin along their roots forms a fold falling down over and hiding the anterior edge of the lid border. In other words the skin and the cilia have slipped down on the outside of the tarsus.

This dislocation of the skin, which is shared by the lower bundles of the orbicularis muscle, is undoubtedly brought about by continued and oft-repeated spasms of the orbicularis muscle; for it is exactly the condition of the lid margin during acute blepharospasms, made permanent.

These anatomic changes at the anterior edge persist through all stages of entropium from beginning to end and are, I believe, the chief cause of the subsequent inclination of the lid border itself; for the displaced bundles of the orbicularis muscle resting upon the anterior edge of the lid margin exert a strong pressure upon the same by their contraction in the act of winking; the lid margin will gradually yield to this pressure, become stretched and inclined when its tissues are rendered less firm and resistent by the inflammation which usually invades the tarsus in the course of trachomatous conjunctivitis.

The foregoing exposition of the primary structural changes leading to the malposition of the lid border in trachoma plainly indicates what the principal aim of our treatment should be. The dislocated skin and muscle must be drawn up upon the external surface of the tarsus and fastened to it to prevent their slipping down again; the skin thus drawn up is to be stretched sufficiently so as to turn up by its traction the drooping cilia and the inclined lid margin.

These problems are solved by the following operation: The lid skin being well put on a stretch, a transverse incision extending from canthus to canthus is made through skin and muscle a little below the upper border of the tarsus. The lid portion of the skin and muscle thus divided from the supratarsal portion is dissected up from the tarsus down to the roots of the eyelashes, and the muscular fibers covering the upper border of the tarsus are excised. The lid skin is then drawn up over the tarsus and fixed to its upper border by three silk or catgut sutures, which enclose within their loops only the skin borders of the incision and the upper tarsal border and, therefore, when tied, close the original wound and establish a firm union of the skin with the tarsus. In the five minutes allowed for this paper it is impossible to give a detailed description of the technique of this operation; nor is it necessary since I have fully described it on several former occasions.[1]

Professor Schnabel[2] of Prague, has modified the operation by making the incision only 1 or 2 millimeters above the eyelashes, and after dissecting up the skin and orbicularis muscle to near the upper border of the tarsus, he slides the narrow strip of skin upward until the cilia and lid margin are turned up, and fixes it to the tarsus by a running suture. He wrote me that the reposition of the cilia and lid margin is always permanently achieved by this procedure, and that even in the worst forms of entropium he has no need of grooving or splitting the cartilage.

My observations on this point have led to a different result. After I had introduced the operation at the Illinois Eye and Ear Infirmary, I noticed some of my colleagues invariably made the incision as low as Professor Schnabel; but the results were so much less satisfactory than my own, that in my second paper[3] I took occasion to warn against placing the

[1] Prager Med. Woch., 1893.
[2] Archives of Ophthalmology, Vols. viii and xi; Annals of Ophthalmol. Vol. v.
[3] Arch. of Ophthalmol., Vol. xi.

ision too near the free edge. But in many cases cartilage is so small that the incision has necesly to be made very close to the cilia. And I ikly admit that under these circumstances I am able to accomplish the complete and permanent osition of the cilia by the above operation alone; nd it necessary to add to it the intermarginal incisand to fill the marginal wound with a graft of n or mucous membrane. The graft should be of same length and width as the wound. Retaining ires are not necessary, but both eyes should be daged until the graft is well adherent in its new (twenty-four to forty-eight hours). I use skin fts in preference to mucous membrane, because the mal lid margin is covered with skin, not with ous membrane; because skin grafts are less liable lrying up and mortifying and because they give a e substantial support to the cilia. I cut the red strip from the integument behind the ear, the sions penetrating obliquely just to the corium graft is transported directly to the lid and isted to the wound.

lairs do not grow in such skin grafts. If after- l any hairs appear in the new lid margin, it is to prove they are cilia left behind in the poste- portion of the lid margin by a faulty execution of intermarginal incision.

he management of entropium briefly outlined in paper is the result of careful and critical obserons and trials carried on during the past twenty s; and I feel warranted by a large clinical experi-, in stating that the operative procedures here mmended satisfy every requirement of a rational ation. They do not cause any disfiguration of lids; they rectify the primary structural changes ing the entropium; and they relieve the malposiperfectly and permanently.

NTS ON THE HYGIENE OF TRACHOMA AND THE INFLUENCE OF ALTITUDE AND CLIMATE.

nted to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY SWAN M. BURNETT, M.D., PH.D.
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establish efficient rules for the hygienic manage- t of a disease it is first necessary to have definite s in regard to its causation, the condition of the ect and the environment most conducive to its lopment.

respect to trachoma our knowledge is sadly de- nt as to the majority of these factors. We have yet arrived at the unanimous acceptance of a obic origin of the disease. While the probabili- in view of recent bacteriologic studies, point to xistence of a specific micro-organism as concerned me way in the production of trachoma, the most ent researches have failed to find one which any derable number of investigators have agreed upon e definite trachomatous microbe. By others it d that the disease is essentially one of the adenssue of the conjunctiva, which an inflammation it membrane brought about by any means whats capable of calling up in a person predisposed and who is in a condition favorable for its out-. In other words, a positive and well established ting course for trachoma has not yet been agreed upon. Even its contagiousness *per se*, which was formerly accepted as one of the characteristics of the disease, is now questioned by many. It is acknowledged that the discharge from a trachomatous eye may contain micro-organisms which, when transported to another as yet unaffected conjunctiva, will set up an inflammation there, but this inflammation is not necessarily trachomatous. Any inflammation, however, is capable of setting in motion a train of processes which will end in an outbreak of trachoma if a tendency to the disease be present, just as an attack of pneumonia will hasten the appearance of tuberculosis in one predisposed to it. This matter of predisposition as applied to trachoma is one which has received considerable attention only recently. In former times it was considered a purely contagious affection to which all individuals were liable in the same degree, and this idea is still held by some.

The facts that have been elicited from a systematic investigation of the prevalence of trachoma among different people show, however, such a disparity of susceptibility among them that we are forced to consider race as an important factor in the establishment of a predisposition to the disease. Some races, as the negro in the United States, are practically immune even under the most unfavorable hygienic surroundings, while others, as the Irish, Polish Jews, Italians, etc., are especially liable and suffer greatly when there are favorable conditions for the development of the disease. With the acceptance of the theory of a dyscrasia or predisposition as probably the essential character of the affection, our ideas in respect to its hygienic management must differ somewhat from those based on the theory of its purely contagious nature. As, however, the idea of a dyscrasia has been considered seriously only within a very recent period, our knowledge of the nature of this predisposition is as yet very limited. This is a field which at present offers the most promising results for study and investigation. It must be borne in mind that here, as in all diseases of a demonstrated or supposed microbic origin, even with the acceptance of a dyscrasia or predisposition, we have to consider not only the micro-organism but also the soil in which it grows and develops. We must have soil as well as seed. A large number of pathologic micro-organisms we have always with us everywhere, and in the conjunctival sac of perfectly healthy eyes there are often to be found organisms which, if they were sufficiently numerous and the condition for their growth favorable, would in a short time set up a morbid process; all they need is a proper condition of the soil. Hitherto we have been directing our attention exclusively to the microbe, its form, habits, modes of development, etc., to the almost utter neglect of the soil on what it grows and pabulum on which it feeds. It is evident, therefore, that any system of hygienic management which aims at anything like scientific exactness and satisfactory practical results, must embrace a study of the condition of the soil on which the micro-organism grows as well as the size and shape of the organism itself. This general proposition applies to trachoma so far as it may be demonstrated to be a microbic disease. But if it shall be found that there is no specific microbe but that it is simply a disease of the adenoid tissue of the conjunctiva, there must still be something which starts the morbid process in motion, and the conditions for its action must be propitious. It seems probable that this beginning may be an inflammation of the

conjunctiva of almost any kind. Even an ordinary catarrhal conjunctivitis, the result of dust, smoke, bad air or other irritating influence, may suffice to prepare the ground and set the process going.

The first law, therefore, in the treatment of trachoma and in the prevention of it in those predisposed to it, is the avoidance of those causes which are likely to lead to such an inflammation. They should be kept apart from those suffering from any form of contagious ophthalmia. Over-crowding and badly ventilated quarters should be avoided, and such patients should be kept out of all forms of vitiated or irritating atmosphere. They should not follow any occupation in which there is dust or smoke. Out-of-door employments are not to be unreservedly recommended, since it is precisely in these that such conditions are likely to exist, especially as regards dust. This applies with especial force to general farming; for in field work of many descriptions, harvesting, threshing, etc., there is commonly a great deal of dust, while the ammoniac fumes from the ordinary farm stable are extremely irritating to the conjunctiva. For the same reason dry and dusty localities are to be studiously avoided.

The effect of climate has not yet been studied sufficiently to enable us to form a just estimate of its significance. In and of itself temperature seems to exert but little influence. Cold and hot countries are free and affected in nearly the same degree. Humidity and dryness also are not by themselves apparently of much importance since trachoma is found in both. The influence of climate would appear to depend more largely upon the presence or absence of dust than upon anything else. Of course the habits of the people in regard to over-crowding, etc., as influenced by climate are not without their effect in this particular.

As a rule the countries bordering on the sea are less affected, probably on account of the absence of dust, while the interior lands, subsequent to long drouth, are afflicted more seriously. Some of the most malignant cases we have in the central portion of this country are to be found among the inhabitants of the country districts of Kentucky and West Virginia. Further investigation is much needed on this point, and it is hoped that observation will in future be more specifically directed to the meteorologic conditions as influencing the development of this disease.

The same may be said of altitude, for we have found that altitude alone does not give an immunity. It is seen at the height of 10,000 feet above the sea-level in Colorado and in the mountains of the Tyrol, and I have seen it among the mountains of East Tennessee 1,000 feet. On the other hand certain countries at the sea level as Ceylon are entirely free. It would seem to be a fact, however, that other things being equal a high elevation, if not dusty, exercises a beneficial effect on the course of the disease, most probably on account of its bracing effect on the general system.

TEN YEARS' EXPERIENCE WITH THE SURGICAL TREATMENT OF TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY HAROLD GIFFORD, M.D.

OMAHA, NEB.

Although the idea of treating trachoma surgically is at least as old as the days of ancient Greece, it received very little attention in modern times until about 1890. To be sure, occasional writers, Galezgowski, Mandelstamm, Schneller, Hotz, Prince and others, had urged upon the profession one surgical procedure or another, but when I first began to devote myself to ophthalmology in 1882 and for eight years thereafter, surgical measures had practically no place in the treatment of trachoma in a great majority of clinics in this country and in Europe. In the years 1890–92, however, ophthalmology suffered from what amounted almost to an epidemic of surgical cures for trachoma, and cutting, brushing, burning, scraping, squeezing and scarifying were recommended with an enthusiasm born of incomplete observation and hasty generalization. Nearly all of these methods were warranted to cure the great majority of cases in from one to four weeks and the prospects opened up to the general practitioner and to the oculist with a number of old trachoma cases on his hands, were so brilliant that it is not surprising that bluestone and nitrate of silver went to a discount, while Knapp's roller forceps and other mechanical appliances rose in favor correspondingly. Those, however, who had for several years previous to this epidemic been treating trachoma by surgical methods knew that these high expectations would not be fulfilled and that a reaction was inevitable. The signs of this reaction are now apparent enough and I think it not unlikely that unless the good which can be accomplished by surgical measures be urged systematically and with moderation, in fifteen years they will have no more of a place in ophthalmology than they had ten years ago. The trouble with these methods is that while each of them can do some good, no one of them is applicable to all sorts of cases, and it is even rare that any one of them is sufficient for any given case.

I began treating my trachoma cases surgically in 1886, and while the brilliant results which at first I thought I secured afterward, in many cases, turned out to be only moderate, I have persisted in the use of squeezing, cutting, scraping, burning and scarifying, each in its proper place, combined, nearly always, with applications of nitrate of silver and sulphate of copper, and have learned to make use of them in many cases in which, by some authorities, they are considered contra-indicated. The only cases in which I consider them, as a rule, contra-indicated are those of acute trachoma; for the great majority of these, if seen within a few days from the start, can be cured in from three to six weeks (and occasionally in much less time) by a thorough daily application of the sulphate of copper crystal to the retrotarsal folds. When at the end of the latter period there are still marked signs of infiltration, the use of expression or the excision of a strip from the folds is generally indicated.

With regard to the technique of expression, I use forceps, to be described later on, going over the tissues at least three times, with gradually increasing pressure. In this way the trachomatous foci are first broken up and then thoroughly squeezed out, without so much tearing of the folds as sometimes results if the attempt is made to squeeze them out completely at once. To prevent the adhesions which otherwise often give much trouble in the after-treatment, I have of late, at the close of extensive operations, everted each lid by two stitches, which are passed through the edge of the lid and the skin of the cheek or brow. A moist dressing is then applied, the moisture being retained by gutta-percha tissue and the cotton which comes next to the everted lids being well coated with

sterilized white vaselin. This and the stitches are removed permanently after twenty-four hours and by that time the abraded surfaces are so thoroughly glazed over that there is little or no subsequent trouble with adhesions. In some cases where the dense non-gelatinous nature of the infiltration of the folds and the edge of the upper tarsus indicate that expression alone will not get rid of the trachoma quickly, I combine expression, excision and sharp curetting at the first operation; the gelatinous portions of the folds being squeezed, the rest excised and the tarsi well scraped. With regard to the technique of excision of the folds, I use none of the clamps which have been devised for facilitating the operation, but simply raise the everted fold with a fine-toothed forceps and excise as broad a strip of it as seems necessary; and in the case of the upper lid I generally cut out from the central edge of the tarsus a strip from one-twelfth to one-eighth of an inch in breadth. I have never felt like going as far in this direction as Heisrath (*vide* Lehmann, "Inaug. Diss.," Königsberg, 1895) who, in many cases, excises nearly the whole tarsus, leaving only a strip 1 to 2 mm. in width at the ciliary margin; though I have no doubt that, in many cases it is an excellent method of getting the patient into a tolerable condition; and from what I have seen of one of his cases, it produces none of the bad results which, *a priori*, one might expect to follow so radical a procedure. Where the strip excised is narrow and includes little or none of the tarsus, no suture is required, a few days bandaging is enough; otherwise, I close the wound with a continuous suture,



Trachoma Forceps.

starting and finishing at the extreme ends of the lid, so that the knots are left on the skin side. This I consider important, because the knots of interrupted sutures are apt to irritate the cornea. I have seen one case in which serious ulceration was started by them and that this is not unusual I judge from the remark of Lehmann (*loc. cit.*, p. 12) who, in reporting Heisrath's excisions, naively remarks that if the patient complains of much pain it is best to remove the bandage and see if the sutures are not causing ulceration of the cornea.

The squeezing out of gelatinous matter can be accomplished with greater or less facility with any of the various forceps invented for this purpose. The original ring forceps of Prince is very efficient, and Noyes' stocking forceps has advantages in certain cases. One of the best all-round forceps was devised by my former colleague, Dr. Graddy, now of Nashville, Tenn. Knapp's roller forceps, though ingenious in principle, are not so useful, in my opinion, as any of those just mentioned. They can only work in straight lines, which makes them very unhandy for working in the pockets at the extremities of the lids; and the rollers are necessarily so thick that if the conjunctiva is atrophic, the infiltrated areas often can not be grasped by them. In the forceps which I use, I have had combined the advantages of the ordinary ring forceps, the strength and breadth of blade of Graddy's instrument, and at one portion of the ring, the narrow edge of Noyes' stocking forceps. In certain old cases with much atrophy of the conjunctiva, one not infrequently sees areas of infiltrated tissue in the corners, which can not be seized and properly expressed with any other forceps that I have seen. The butt end of this forceps is made of a single piece of rounded and thin-edged metal, thus forming a very useful instrument for squeezing, between it and the fingers, portions of the tarsi which can not be seized to advantage with the forceps blades.

Cases of old and so-called cicatricial trachoma are by many excluded from surgical treatment; but these are just the cases where it is of infinitely greater benefit than any form of medical application. Here, besides expression and excision, scraping with a sharp spoon, the actual cautery and scarification, followed by some medical application, are of the greatest value and will often produce the most rapid kind of cures. Occasionally the procedure of Noiszewski, namely, the deep excision of the diseased tarsal conjunctiva with grafting of lip membrane to replace it, is in order. I have tried it with good results in a few cases where the disease was so deep-seated that nothing but excision or the deepest kind of scraping or burning would remove it, and yet the membrane was so atrophic that practically no lining for the lids would remain after such measures, unless grafting were done. The use of the actual cautery I generally limit to cases in which small, deeply infiltrated islands of trachoma occur. Where these islands are larger I use the sharp spoon or scarification. Brushing seems to me to be a very crude and inaccurate method.

In nearly all cases, except the acute ones, some sort of surgical interference is called for more than once, and in the intervals between the surgical proceedings, the application of sulphate of copper, nitrate of silver or some other astringent or antiseptic is called for; and in many cases all the surgery which I think it safe or advisable to use upon the lids does not prevent the necessity for many months of medical treatment. I have spoken of sulphate of copper and nitrate of silver as equal in efficiency, but on account of the great advantage which copper possesses in not staining the tissues it is the only application which I recommend for a long continued use. The staining caused by silver is a disadvantage not merely from a cosmetic point of view, but because it renders intelligent treatment much more difficult by disguising the line between healthy and diseased tissue.

Finally, a word as to the dangers of the surgical treatment of trachoma. Some years ago I wrote a paper on this subject, in which reference was made to two cases of my own in which the cornea had been somewhat injured by ulceration following the use of surgical measures; while in the case of four other eyes, in the practice of other physicians, sight had been completely lost from a similar cause. Since then other writers have reported unfortunate results of the same sort and have confirmed me in the conclusions at which I then arrived, namely, that while the surgical treatment of trachoma is of great value in nearly all classes of cases, for the majority, it is not a swift and unfailing cure (unless we include follicular conjunctivitis); and where there is non-vascular ulceration of the cornea, its use may be attended with the most serious danger to sight. If I had to choose between the exclusive use of either the medical or surgical treatment of trachoma, I should certainly choose the medical, for with it nearly all cases can be kept from injury to the sight; and most cases can in

time be cured. The surgical treatment is of great value, but I seriously question whether in inexperienced hands it will not in the long run, do much more harm than good; for not only is there direct danger to the cornea in some cases, but where relapses occur after its use, I have a decided impression that the disease gets a deeper foothold in the tissues and is more apt to cause ulceration of the cornea than when medical applications alone have been employed. Instead of simplifying the treatment of trachoma, the introduction of surgical measures has decidedly complicated it, and no one should use them who is not thoroughly versed in the diagnosis and treatment of all diseases of the conjunctiva and cornea.

TRACHOMA, ITS RELATIVE INFREQUENCY IN SOUTHERN CALIFORNIA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY H. BERT. ELLIS, B.A., M.D.
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Although there is not a perfect agreement among pathologists as to the identity or non-identity of follicular conjunctivitis and trachoma (that is, as to whether they are independent affections), still the recent text-books on ophthalmology are almost unanimous in making a clinical if not a pathologic distinction between these manifestations. It is not my intention, nor is it necessary in a paper of this description, and on such an occasion, to enter into a dissertation giving the details of the arguments that have been, and are still being brought forward to prove the sameness or dissimilarity of these diseases. It is sufficient for the purposes of this article to state my own position in the controversy without giving the reasons for "the faith that is in me," and thus prevent any misunderstanding of terms.

"Granular lids" is a phrase that I but rarely use, and then always as a synonym for trachoma (Dr. Burnett to the contrary notwithstanding), a specific disease ordinarily depending on the transference of secretion from some other affected eye. Follicular conjunctivitis I believe to be entirely independent of the former, and not an early manifestation or stage of trachoma, but as in many other clinical conditions, differentiation is not always easy and both diseases may be present in the same eye at the same time.

As oculists we must all realize that to the laity all roughness of the conjunctivæ is, and all sandiness and smarting the result of, "granular lids." To what extent the general practitioner is accountable for this view I do not know, but I fear his responsibility is great; and I think that as a society and as individuals we should use every endeavor to correct this false, or to speak the best for it, this imperfect view. It seems to me that the terms "granular lids" and "granular conjunctivitis" should be eliminated from our vocabulary as not being scientific, and because they serve no useful purpose, but on the contrary tend to confusion.

In order that this paper might not express the views of the writer alone, and in order to know what the other oculists of Southern California thought concerning the relationship of these diseases, I sent the following questions to the leading eye men in Los Angeles and the surrounding country from Bakersfield in the North to San Diego in the South:

1. Do you make any distinction between follicular and granular conjunctivitis? If so, what?
2. In your ophthalmic practice in Southern California have you observed granular conjunctivitis (trachoma) frequently? In about what percentage of your cases?

While these questions were not designed to cover the field of the pathology of the diseases under consideration, they were sufficiently comprehensive to discover the manner in which the different men used these terms, and by this means I believe I have been able to quite accurately substantiate the inference of the title of my paper, that is, that trachoma is relatively infrequent in Southern California.

I tabulated the replies of the best known oculists in the southern portion of my State, and it was worthy of note that nine out of the ten differentiated between the diseases; that but one said there was practically no difference, and even he found only 1 per cent. approximately of both conditions together.

There were nearly as many ways of distinguishing between the affections as there were replies to my inquiries and the summary would seem to indicate that the differential diagnosis was not sufficiently clear to each one of the writers, as to make it possible for me to believe that each of the oculists was always absolutely certain of his diagnosis. However there was sufficient similarity and unanimity to show that the broad distinctions were concurred in by most of the writers. Nearly all considered trachoma or "granular lids" a specific disease, in all probability contagious, occurring principally among the poor who live in crowded and filthy localities. Follicular conjunctivitis might or might not be contagious, occurring more frequently among the "well-to-do." Trachoma always leads to the destruction in a greater or less degree of the conjunctival tissue, while the follicular trouble may exist indefinitely and yet result in no loss of conjunctiva. Every one replied that trachoma was relatively infrequent in this section of the country. The percentages varied from 0.5 of 1 per cent. to 2 per cent., with the exception of one which was 5 per cent.; but the man who gave this report had been here but a year, and remarked that most of his cases were chronic and imported from the East.

In my own practice, extending over a period of eight years in Los Angeles, I have had less than 1 per cent. of trachoma, including both my private work and college clinic, and the cases were about equally distributed among the poor and wealthy. Follicular conjunctivitis I have found relatively more frequent, but these cases do not reach higher than 5 per cent.

Why trachoma should be relatively infrequent in Southern California I do not know, but the statement of a few facts may throw some light upon the subject. We have a cosmopolitan population; the Irish, the English, the Scotch and the German; the Frenchman, the Italian and the Spaniard; Jews from all countries, negroes, "Japs" and Chinese, but mostly Americans. But the trouble is not confined to any particular nation. In no part of our city are the inhabitants particularly crowded. The great bulk of the population lives within twenty-five miles of the ocean and at an elevation of less than 1,000 feet. The climate is such that an out-of-door life is the rule. This fact with our relatively good sanitary conditions, helps to render our poorer citizens comparatively healthy and so they are enabled to resist, or rather they are rendered less susceptible to contagion of any kind.

THE SURGERY OF TRACHOMA.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1–4, 1897.

BY S. LEWIS ZIEGLER, M.D.

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Surgical procedures for the relief of trachoma are only indicated in the chronic stage of this disease, and especially for the relief of the complications and sequelæ, the most common of which are pannus, ulcerative keratitis (chiefly in the form of multiple erosion ulcers), blepharophimosis with its accompanying lid friction, and mucopurulent discharge or epiphora. A more remote sequela is the contraction which results in ectropion, or entropion with trichiasis.

Without going deeply into the subject of the *etiology* of trachoma, there is no doubt but that the essential elements in its *persistence* are, a partial occlusion of the tear duct, with consequent epiphora and regurgitation of septic secretions; a perversion of the ocular secretions themselves; the maceration of the cornea from the excessive amount of secretion and discharge present, and finally friction from tarsal pressure, with erosion of the corneal epithelium.

In the first place we can definitely assert that the persistent growth of the granulations which have already formed is kept up by the continued moisture present, together with the irritation of the septic secretions, just as polypoid growths increase in the presence of moisture. Furthermore, the tear-duct, even if it were not originally at fault, through participation in the inflammation and subsequent contraction, with a like perversion of the secretions contained within its lumen and the partial abolishment of its capillary action, due to its thickened mucous lining and viscid contents, not only prevents the tears from passing downward, but really adds to the trouble by the constant regurgitation of these septic secretions; in fact, not infrequently the local inflammation has gone so far as to have broken down the lining membrane of the tear-duct and involved the bony canal itself.

Manifestly then, the first object to be accomplished is to secure a patulous tear-duct, by means of *rapid dilatation*. It has been my custom for several years past to accomplish this without any incision of the tissues, as the latter only leads to subsequent cicatricial contraction. This is done by first introducing a needle-probe into the lachrymal puncta and passing it through the cartilaginous canal; it is then withdrawn and a conical dilator[1] with a maximum size equal to that of a No. 10 probe is passed through the cartilaginous canal, and thence through the bony canal into the nose. It is seldom necessary to repeat this procedure in order to maintain a patulous duct, but occasionally there will be sufficient contraction to require a second dilatation. By this method, without incision, the capillary action of the duct is retained and the current of lachrymal drainage directed downward toward the nasal orifice.

The second procedure is the operation of *canthoplasty*, to relieve the friction of the lids, and, at the same time, the tendency to maceration, which is an unavoidable accompaniment of this condition. This operation should be a more extensive one than that usually employed; in other words, a simple section of the external canthus with the scissors will not give sufficient relief to accomplish our purpose. The section of the lids having been accomplished with a pair of strong curved scissors, with the curve turned upward to correspond to that of the upper lid, a section of the external canthal ligament should follow, which can best be accomplished by grasping the end of the incised upper lid with a tenaculum or strong rat-tooth forceps and exerting slight traction, in order to make tense the superior canthal ligament, which is then cut with a pair of small scissors as near to its bony attachment as possible, in order to avoid any traumatism of the lachrymal gland. Sutures are then inserted in the usual manner, the conjunctiva and skin being brought together neatly.

Ordinarily if these two procedures are thoroughly and boldly performed but very little other treatment will be required, unless there is still some regurgitation from the tear-duct, in which case the nasal condition on that side should have some sedative treatment, and if, as is frequently the case, there are adenoid vegetations present operative measures for their removal should be at once undertaken. For the relief of the granulations themselves, slight scarifying of the lid, followed by the use of Knapp's roller forceps will usually accomplish all that is desired. If, however, hypertrophy is still persistent, electrolysis as suggested by Dr. Johnson, or the galvano-cautery may be required to reduce the exuberance and hasten resolution.

Certain other measures have been suggested from time to time, but do not appear to have the value that those outlined have shown to possess. Burow's operation, consisting of an incision of the superior tarsal cartilage along the whole inner margin of the lid, thus making a flail-like hinge, does not yield any more freedom from blepharophimosis than an *ordinary* canthoplasty, and by no means as much as canthoplasty combined with section of the superior canthal ligament. The operation of peritomy or syndectomy, consisting of a section of the blood vessels around the limbus corneæ, is not always successful in stopping this vascular invasion, and I have never found it necessary in cases where rapid dilatation and canthoplasty had been performed.

The local treatment to be applied to the mucous membrane itself should be of a mildly astringent character and not sufficiently irritating to keep up the disturbance. Tannin and glycerin may be applied every day, or on alternate days, while the nasal disturbance is best relieved by applications of tr. benzoin comp., which is antiseptic, astringent, depleting and stimulating. The multiple erosion ulcers generally disappear as soon as the friction and maceration have yielded to the treatment that has just been outlined. The relief from friction, pressure and maceration and the free drainage of the septic secretions seem to promptly bring about resolution and hasten convalescence.

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[1] The dilator is the writer's modification of the one devised by the late Dr. Lewis. It is made by Gemrig & Son.

DISCUSSION ON TRACHOMA.

Dr. HERMAN KNAPP of New York—I did not hear the paper of Dr. Weeks but as regards the treatment of trachoma we have certainly to distinguish two kinds of trachoma clinically, which I would like to call non-inflammatory or simple, and inflammatory. I meet in New York a relatively large number of cases where there is no trace of inflammation visible. Sometimes the discovery is made accidentally; when the lids are turned, the upper and lower retrotarsal folds are found more or less completely studded with granules. In the course of time, and by unfortunate circumstances, those granules will produce irritation and inflammation of the catarrhal kind, and so we get the mixture of pathologic condition which we call in-

flammatory trachoma, and this is certainly contagious, as the reverse process may take place just as well. These two conditions indicate different methods of treatment. For the simple granules, which may be excessively numerous, with no inflammatory symptoms, I know of no better remedy than the surgical treatment with some kind of forceps. I saw Dr. Noyes use his forceps, and I thought that a forceps that would be equally efficient in removing the granules and more saving with the tissue would be best, so I made the roller forceps. I do not go over the surface once or twice, but repeatedly, and with always a moderate amount of pressure. This I do in all parts of the conjunctiva. Nothing should be omitted. In the majority of cases medicinal treatment is necessary; there is only a relatively small number where surgical treatment alone will produce a cure, but it is possible for them to get well by surgical treatment, and I have in mind even that they will get well without treatment, but this I can not very well ascertain from personal observation, for I have never allowed myself to send a patient home and then watch him for a year. It would be, however, a permissible experiment. As for after-treatment, I mostly use sulphate of copper, applied every day and very mildly, but especially in the posterior retrotarsal folds.

I am quite in accordance with Dr. Burnett that the cleanliness of the atmosphere has a great influence on the treatment, just as it has on the production of the disease, for I know patients that I can take to a well-ventilated hospital, unlike their crowded homes, get well in a shorter time and show generally better results. When the patients go home it is necessary to watch them, because relapses, though in the minority, are not infrequent. If they expose themselves to an impure atmosphere they will have the same conditions and reproduce the disease.

With regard to the harmfulness of mechanical treatment, and especially the roller forceps, I am astonished to hear of the destruction of the cornea. I do not remember one single case where, by the roller forceps, a corneal ulcer was produced, or an existing one aggravated. In no case was there any such thing as sloughing, and I think that must be entirely accidental.

With regard to adhesions, I have seen two cases; I mean not of one part of the conjunctiva to another, but to the eye ball, symblepharon.

Dr. GIFFORD—I referred more particularly to adhesions in the conjunctiva of the lids.

Dr. KNAPP—I think the retrotarsal fold shrinks and gives the impression of adhesions, but it never distorts the lid at all, and I think we need not be afraid, on that account, to use the forceps. I would like Dr. Gifford, in closing, to explain more fully about going into the cicatricial conjunctiva to find trachoma foci; I have had no experience with it.

Dr. HAROLD GIFFORD of Omaha—With regard to Dr. Würdemann s paper, I disagree less with him than I expected to. I was expected to "rip him up the back," but I find small chance to insert the knife. I am in accord with him fully on the pathologic process so far as the microscope is concerned. I do not think you can distinguish with the microscope between trachoma, the papillary condition after gonorrheal conjunctivitis, and some forms of follicular catarrh. I have the best reasons for believing that trachoma is a contagious disease, for I contracted it myself from squeezing a granule and having a drop fly into my eye; I had the disease for two years. I have cases in which I wish for something new every now and then, but I have not branched off from the old treatment of silver and sulphate of copper, and the latter is my main reliance. After reading the original communications in which such good reports were made for argentanum, I sent for some of it and treated one case by applying argentanum to one lid and nitrate to the other, but I was disappointed to find that the former had less effect. Whether it will eventually stain the lids remains to be seen.

As to the method of treating cicatricial trachoma I do not wish to be understood as saying that where trachoma has run its course in certain portions of the lid you can take those portions and squeeze any matter out from them, but in all my cases I only know of one exception, in thousands of cases which I have treated, where I could not find undoubted foci of trachoma thickening. You would see some thickness, and on squeezing get quite a bubble of gelatinous matter. I was surprised to find it so. Where everything is atrophic there is no use in squeezing. This condition may keep up continuous ulceration of the cornea. It is found particularly toward the inner side, and by turning out this little area and burning it with the cautery, or scrape it out (I prefer the cautery), I have been able to cure them within a minute or two.

Before finishing I want to pay a tribute to Dr. Hotz's contribution to the treatment of trachoma. In the first place, his method of squeezing out the follicles with the thumb-nails was a decided advance, and while I do not think it is the proper method to continue now, it served to call the attention of the profession to the treatment. Dr. Hotz was the first man to insist on the method of pressing back the globe to force this fold of tissue into view. In regard to the treatment of the edge of the lid, Dr. Hotz described his method of putting in a skin flap in addition to his original operation. I am not prejudiced against the use of skin, for I was one of the first to suggest the use of the Thiersch flaps. I found a great many cases where the entropion would be cured entirely, but a little of this skin would be turned in to rub the cornea and while in many cases it produced no irritation, in some it did and made me want to get it out. So I use skin no more, but mucous membrane almost entirely. If you put skin into the under surface of the lid it stays skin, and does not become mucous membrane. You can scrape up rolls of epithelium with the nail for a long time, and it also collects there to decompose and produce irritation.

Dr. FRANK ALLPORT of Chicago—I have been much interested in the discussion of trachoma and its consequences. The subject appears to have been quite thoroughly exhausted and there remains but little to be said. Dr. Hotz's idea of the cause of entropium is certainly very seductive and plausible, and while I believe entropium to be frequently produced by contraction of the tarsus and conjunctiva, yet I have seen many cases where a dislocation of the soft portions of the lid covering the tarsus was the only evident pathologic condition. Dr. Hotz has so long been regarded as an authority on the subject of lid surgery, that I think but few of us would have the temerity to question any statement he might make, and I have nothing but praise to say of his operation for entropium, which I have used for some fifteen years with thorough satisfaction. I sometimes vary the operation by a canthoplasty or a transplantation of tissue into the lineal gaping wound along the margin of the lid, or the removal of a piece of cartilage from the face of the tarsus, or even the removal of some skin in people possessing very redundant lids; but Dr. Hotz's operation as described by him many years ago and reiterated in the paper which we have listened to has formed the basis of all of my entropium operations for many years, and I have never had reason to regret my allegiance to this procedure. By using the tip of the tarsal cartilage as a fulcrum upon which to evert the palpebral margin we have a firm and substantial point upon which we may depend, and therefore the operation is built upon a sure foundation. The mistake is sometimes made of making the cutaneous incision a little higher than the tip of the tarsal cartilage. In this event we will not secure the full benefit of the operation, as it is necessary that the incision should be nearly on a line with the tip of the cartilage or a little below it in order to evert the marginal lashes. I have known operators to discard Hotz's method where the cicatrix plainly showed that the line of incision had been too high, and consequently practically useless. Concerning the objections to Dr. Knapp's roller forceps, I have only to say that I have used them with thorough satisfaction for a number of years and have never seen any of the accidents to the cornea which have been reported as following their use. I can not but believe that the abraded or ulcerated corneæ that some gentlemen report have been due to a careless use of the instrument, which is more or less bulky, and may very easily abrade a cornea unless due care is taken. In using the instrument, I think the patient should first be thoroughly, generally anesthetized, as the operation is very painful, and the cornea may easily be injured during the struggles of an unanesthetized patient. The lid should then be gently but completely raised from the eyeball before the roller forceps are put in place, and this idea should be observed during the whole course of the operation. The expression of the trachomatous granules should not be done with the vigor which I have sometimes seen used. The forceps should be gently and repeatedly rolled, or milked, over the conjunctiva, which will produce in time a thorough eviscerating of the granules without the tearing and stripping of the conjunctiva which is complained of by some operators. I believe if Knapp's roller forceps are used in this way they will fulfil the purpose of any forceps designed for the eviscerating of trachomatous granules. After the granules have been thus expressed, a wealth of valuable and reliable methods of treatments may be adopted, and it is well to change the treatment from time to time. For several years I have been especially wedded to the boric acid powder, profusely dusted upon the everted lid and vigorously rubbed into the conjunctiva with the tip of the finger. This treatment is especially adapted to those cases of trachoma complicated with the various forms of keratitis, and although very efficient *is not irritating*. I have also lately used with much satisfaction a 1.5 per cent. solution of the pure iodin crystals in oil of vaselin freely daubed upon the lid by a camel's

hair brush. These two methods are merely suggestions which I have found valuable in my practice when I desire to change from the old orthodox copper and nitrate of silver applications. As I have seen some operators who have sustained infection from the spattering of the trachomatous granules into their eyes during an expression operation, I would beg leave to suggest that as a matter of self-protection we should use large isinglass eye-protectors while performing such operations.

Dr. S. Lewis Ziegler of Philadelphia—In regard to Dr. Knapp's forceps, I use a much shorter and thicker roller than I have seen here, because I can get into the folds so much better. In using them I draw them *diagonally* across the lids instead of straight up and down, and in that way do not pull so hard on the retrotarsal fold. There is very little reaction following this procedure, but where it does occur ice compresses will relieve it. I believe that no matter what the original cause of trachoma may be, the tear-duct has a considerable influence not only in the initial stage but continues as a disturbing factor at all times.

Dr. F. C. Hotz of Chicago—I was very much interested in what Dr. Gifford said regarding the isolated foci in the cicatricial stage, for it fully tallies with my own observations; I have many times seen this. When the lid looks perfectly smooth we may on careful inspection find these little foci. Another matter of importance to scrutinize is the condition of the Meibomian glands, which often lead to the formation of small pus foci in the lid; these ought to be punctured. I was rather surprised to hear of the danger of adhesions forming in the retrotarsal folds. I have to relate that existing ulcerations have not been aggravated, and squeezing out the follicles never produces them, but on the contrary the beneficial effect of the mechanical removal of the follicles upon the inflammatory processes of the cornea, I have often remarked; within twenty-four hours I have seen the most irritated eyeballs become quiet and the inflammation of the cornea subside. I have never seen adhesions, and I wonder why it is. I can only account for it, by the different methods and probably different instruments used. It has been mentioned by Dr. Gifford that I suggested using the finger-nails for squeezing the follicles. That might give the impression that I picked out the follicles, which is not correct. The way I do, and which I still regard as the most gentle way of evacuating the follicles in the upper lid, is to evert the lid, press the eyeball back, and while the thumb is on the everted surface of the lid the thumb of the other hand is placed under it, and you have the pressure of the two through the lid upon the fold, and the follicles can be evacuated, and you can gauge the pressure better by the fingers than by any instrument. On comparing the different forceps, I find that many of them have blades which when closed form almost seissor blades, and some are curved so that the conjunctiva is locked up in them, and when traction is made it is no wonder that laceration results. If the forceps blade is curved and absolutely rounded so that by the strongest pressure even the conjunctiva can not be held, extensive laceration can not occur. I would like to make one remark in reference to the implantation of skin in the lids. Dr. Gifford said that skin remains skin, and that is true, but if he says that desquamation of the skin continues and acts as an irritant, I beg to differ with him. I have never seen any irritation in my cases, and I have noticed after implanting skin-grafts, in cases of pterygium, that this desquamation ceases and the tissue looks smooth as conjunctiva, and you can scrape off no cells.

Dr. A. C. Corr of Carlinville, Ill.—I have a mental obliquity that makes me unable to see that trachoma is a disease of itself and of its own kind. I have seen nothing to convince me, and am not fully persuaded that it is so. I think it is a pathological condition growing out of a progressive inflammation of almost any kind. The follicular process is a diseased condition resulting from various causes (reading from manuscript). It was with great gratification I heard Dr. Knapp say that he had seen cases where no inflammation had preceded. I have everted the lid of persons who did not suppose they had any trouble with the eyes and discovered these sago-like grains. If you turn down the lower lid of many school children you will find the first stage of the follicular conjunctivitis, and it may get well without any treatment at all. If it goes on it will produce the condition you are familiar with, and I think may lead to thickening and chronic trouble.

Dr. G. C. Savage of Nashville—It would be well to go into the history of Dr. Gifford's own case; I have that history. At the same time that the Doctor's eye was infected his associate got some in his eye. The latter at once had instilled a 10 gr. solution of nitrate of silver. He did not develop a case of trachoma, and Dr. Gifford did. We had a similar example a few years ago. Dr. Price got some of this material in his eye. I gave him nitrate of silver immediately and he did not develop trachoma. That leads me to say that Muttermilch is not far from being right when he says that the germ is to be found early in the epithelium, and if we have some remedy to go into the epithelium and destroy them all will be well. We have a remedy that will destroy the epithelium, that is nitrate of silver. Acetic acid might be expected to cure them before they get into the epithelium. I have used silver in the strength of 120 gr. to the ounce and quickly neutralized it by potassium iodid. The first case of this kind occurred as an accident. I have entirely given up the use of sulphates in the treatment of conjunctival troubles, because I think I have in the acetates a class of remedies that accomplishes just as much without doing any harm.

Dr. H. V. Würdemann of Milwaukee—It is impossible to fully discuss this subject upon which many of us might write a volume, so I shall only take up a few of the points. It is certain to my mind that trachoma is a condition that supervenes upon a number of different irritations that might be caused by different infections. It is a condition largely brought about by mechanical irritation of a dust-filled atmosphere. In the Northwest we have a large foreign population, and we have the conditions in some portions of the country depending upon the atmosphere entirely. Our confrère, Ole Bull, states that he has seen but three or four cases of trachoma in his part of the country, although the condition of the peasantry is deplorable. He remarks that in his country washing and changing of the underwear is believed to be an unnecessary luxury, but even there he has seen very little trachoma. In regard to the use of powders, etc., I beg to remind Dr. Gifford that argentanum is of less strength than silver nitrate, and that comparisons should be made with comparative strengths. The principal point I want to bring forward is, that in local applications it is necessary to bring the fold into view and make the applications to that. Where the small hard granules appear they may be readily destroyed by the galvano-cautery. Burchard has made over three hundred and sixty applications to a single lid in several sittings, in many of them making fifty to one hundred punctures, and the cases have been cured.

Dr. S. M. Burnett of Washington, D. C.—I am sorry to hear so little said in regard to the hygienic treatment in the care and prevention of this disease. However gratifying to our vanity to perform brilliant operations, we must remember that in our profession it is a higher function to prevent than to cure disease. In order to prevent a disease it is necessary to know its natural history, and we should know the conditions of the individual and his surroundings. It seems to me that part of this subject has not been thoroughly studied. The time is coming when we should give more attention to the matter than we have in the past. It is only by collective investigation that we can study this in reference to the race, climate and habits of life and the conditions that surround the patient at the time of the development of this disease. When we do that we shall enter upon the peformance of our highest duties as medical men.

Dr. A. E. Bulson, Jr., of Fort Wayne, Ind.—One thing that interests me particularly is the question as to whether this disease is contagious. An instance that occurred to me has led me to believe that it is transmissible, and I will report the case. I attend an orphan asylum, located in a high and dry portion of the city and possessing good sanitary conditions. About two years ago my attention was called to a well-marked case of trachoma that had come into the institution a few days previously. I immediately informed the assistants to watch the case and keep it practically isolated, for otherwise we would have trouble with more cases. The advice was not heeded and we soon had a typic epidemic of trachoma in the institution. We had 165 cases and the last of them is not over yet. Those cases I consider all developed from the one child. It is not a dusty locality nor a dirty one, and the children are kept as neat and clean as possible. The treatment of these cases consisted principally of the use of Hodge's mixture, advocated by this Society in 1887. Some of the cases, eleven or twelve, were operated upon with Knapp's forceps. In a few of the cases powdered boracic acid was used and I was favorably impressed with its action.

Dr. A. E. Prince of Springfield, Ill.—Taking up Dr. Hotz's paper first, I would speak with reference to the line of incision. I commenced practicing the operation for inturned lids by making the incision recommended by Dr. Hotz, but I soon lowered the incision until I came to within 3 mm. of the lid margin. I did this almost without knowing it, and on one occasion, while reviewing the papers of Dr. Hotz, I found a footnote in which he described the operation of a Greek surgeon, and I found that I had been doing that operation. Dr. Knapp has called attention to the non-inflammatory trouble. I have seen three cases. In all these cases it disappeared without surgical treatment, and I think in such cases the

indication is not to operate. I have not seen the adhesions spoken of and I attribute it to the fact that the instruments I use have sharp edges, some of them almost scissors-like, as has been mentioned, and in the next place I apply cocain to prevent pain. I take a 10 per cent. solution, saturate a pledget of absorbent cotton, place it upon a piece of rubber tissue and slip that up in the retrotarsal fold and closing the lids leave it there for ten minutes. The cornea is protected, the cocain soaks into the lid and you can do the operation without any material pain.

SUBCUTANEOUS INJURIES OF SOFT PARTS.

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(*Concluded from p. 62.*)

SUBCUTANEOUS INJURIES OF THE ABDOMINAL ORGANS.

The stomach, when of normal size and in its proper position, is so well protected that it is seldom injured by non-penetrating forces. Contusions, laceration or complete rupture may result from a blow or kick, administered over the organ, when in a state of partial or complete distention. Violent emesis has caused rupture of the stomach in cases already weakened by constitutional or local disease. In O'Farrell's[14] case violent vomiting, during fever, caused a rupture of the posterior wall three inches long. Owing to the greater thickness of its walls and its better protection, the stomach is less frequently the subject of rupture than is the intestine. Other viscera are generally involved and the injury is, as a rule, fatal. The seat of the rupture is usually near the pylorus, or greater curvature, though it may be in any part. Morris's[15] case had a tear one and one-quarter inches long in the middle of the great curvature. Gaunett's[16] case had a vertical rupture, almost completely dividing the stomach. Elliot (July, 1895) found a linear tear in the anterior stomach wall, with rupture of the duodenum, caused by the kick of a horse; these wounds were sutured, but death followed, leaving, however, no traces of peritonitis.

Symptomatology.—There is pain and tenderness over the region of the abdomen. If the lesion is simply contusion, with partial laceration, the pain will be circumscribed. A limited inflammation follows, causing adhesion between the affected part and adjacent organs. Vomiting is usually present; bloody vomit indicates serious lesion of other viscera. The stomach may be inflated with hydrogen gas, or filtered air, through a stomach tube. If the walls of the stomach are intact, or but very slightly ruptured, it will be dilated, so that its contour can be made out by inspection and percussion. Complete rupture permits the gas to escape into the general abdominal cavity, causing no distention of the organ, and producing general tympanites. The following case[17] will give a clearer conception of these cases:

N. W., age 32, died June 21, 1892. The patient was supposed to have fallen from a moving train, striking on his abdomen. On admission to the hospital he complained of great pain and tenderness over the abdomen, especially over the upper part, where the skin showed some contusion. No paralysis. Pupils negative. No vomiting. Catheter drew off ℥viij of clear urine. Abdominal tympanites, tender and tense walls. Pulse 100 degrees and feeble.

Next day after admission.—Restless; thready, rapid pulse; expulsive vomiting of greenish fluid; abdominal distention with dulness, except over the epigastrium; exploratory puncture disclosed reddish fluid.

Postmortem examination.—Weight of body 200 pounds. Greenish discoloration. Nourishment good. Weight of heart 5 oz., 11 dr. Pleural adhesions over posterior of both lungs. Lungs edematous. Peritoneum contained about two quarts of reddish, acrid, shreddy fluid, with penetrating, enduring odor. Peritoneal layers rough, and covered here and there with detachable membranes, beneath which were small hemorrhages. Fluid found especially around spleen and beneath liver. There was a small tear in the stomach. Stomach: There was a rupture in the walls of the stomach, near the lesser curvature, two inches from the pylorus; it extended for two inches in the serous coat and to a less extent in the muscular coat, and finally made a small opening in the mucous membrane (Fig. 3). Near the esophagus was a small area of contusion in the stomach, with no lesion of the peritoneal or mucous coat. On the mucous surface there was found a small round perforating ulcer, one cm. in diameter, situated exactly opposite the tear described above, and without any thickened margins, but with much shining mucous membrane, in a very softened state, surrounding the opening. No lesion in intestines.

Diagnosis.—Rupture of stomach; diffuse peritonitis; gastro-malacia, or round ulcer.

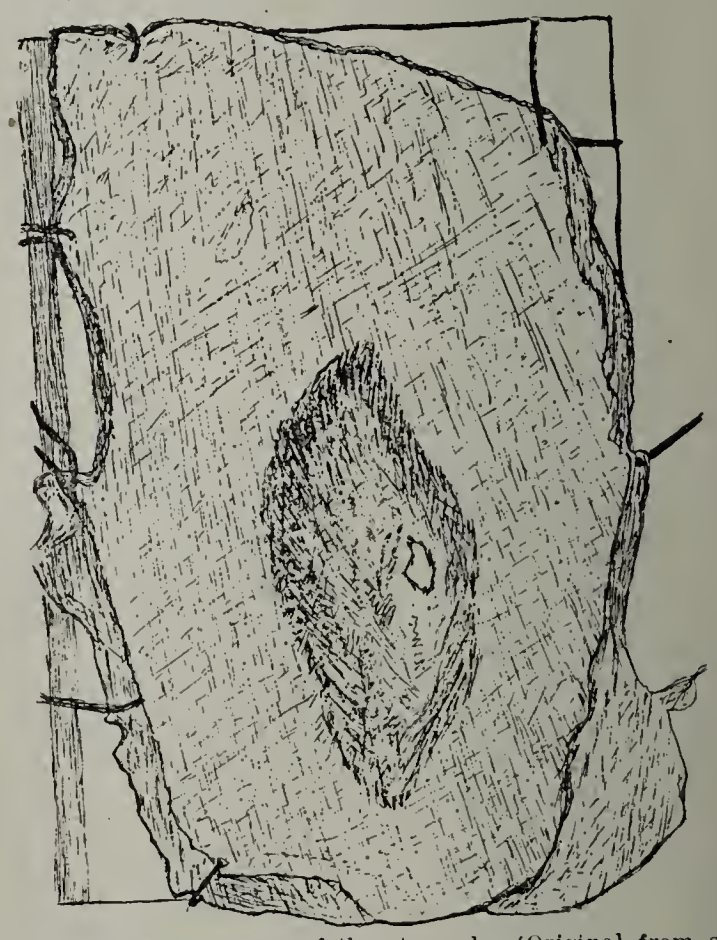


FIG. 3.—Traumatic rupture of the stomach. (Original from specimen in Rush Medical College Museum).

Owing to the fact that the stomach usually contains septic material, peritonitis would be expected to follow in all cases, though such does not seem to have been evident in Elliot's case, mentioned above. In the case just reported, gastro-malacia was an important factor in weakening the walls of the stomach. Shock is usually, if not invariably, attendant on such lesions.

Treatment.—In cases of simple contusion of the stomach, rest and external soothing applications will usually prove sufficient. No time is to be lost in treating complete rupture. The abdomen should be opened by an incision from the xiphoid cartilage to the umbilicus.[18] By repeated inflation the visceral wound can be readily found. If extravasation has taken place, the peritoneum should be thoroughly flushed with sterilized water, and carefully mopped out with an aseptic sponge. After seeing that the stomach is entirely empty and hemorrhage arrested, close the rent by two rows of sutures—the first row is applied to the muscular and mucous coats, and is buried by the second, which includes the peritoneum

14 Lancet, May 19, 1894.
15 Ashhurst's Encyclopedia, Vol. v, p. 69.
16 Warren: Museum of the Harvard Medical School.
17 From postmortem records of Dr. Hektoen.
18 American Text-Book of Surgery.

and enough of the muscular coat to furnish a good hold. It is well to use drainage if the peritoneum has been contaminated. This operation requires all the precaution necessary to avoid shock—external heat, stimulants sub-cutaneously and per rectum. Strychnin hypodermically, and whisky or brandy diluted with warm water, can usually be relied on as stimulants. The patient should be nourished by rectal alimentation for at least four days.

The liver is frequently the seat of contusions, which may result in abscess; in some cases, as in fatty liver, it may cause embolism.

Rupture of the liver is usually accompanied by serious lesions of other organs. Wounds of the liver heal readily, and hemorrhage is usually arrested by approximation of the torn edges. In a lad who died four days after being struck in his right side by the shaft of a runaway cab, an extensive tear of the liver, four inches in length, was found, adherent by a blood clot. In this case death was due to acute peritonitis, the skin and bones being unbroken.[19]

Wharry reports a case which illustrates how injuries to the liver accompany those of other organs.[20] The patient fell from a window, striking on the right side of the head and shoulder, and bending the trunk suddenly and violently upon itself. At the autopsy, the liver, lung and kidney on the right side were found to be extensively lacerated, but there was no apparent injury of the thoracic or abdominal walls. The weight of the liver, in this unusual contortion of the body, was one of the important factors in causing the injury.

Treatment.—Where the patient's condition is such as to justify even slight hope of success, the abdomen should be opened and the wound closed. Dalton estimates that in three out of four cases recovery follows operation after stab wounds of the liver, if sponged and drained without irrigation. The same, or an even better estimate would hold good for rupture. Vanverts[21] reported two cases of rupture, both of which were fatal; one in an hour and a half after injury, the other in twenty-four hours. He thought a prompt laparotomy might have saved the latter.

The spleen may suffer contusion from abdominal injuries, but other organs are involved. Traumatic rupture of the spleen results from direct violence, rarely from indirect. Falls, kicks and blows, fracture of the ribs, or a crushing force, as from the wheels of a vehicle, are the common causes. Fracture of the ribs was the commonest accompanying lesion in a number of cases studied. Among these cases was that of a child who had suffered a crushing injury, which had produced rupture of the spleen, total transverse rupture of the left kidney, rupture of the upper lobe of the left lung, with fractures of the seventh, eighth, tenth, eleventh and twelfth ribs; the broken ends of the seventh and eleventh ribs projected into the pleural and peritoneal cavities respectively. Emesis, convulsions and parturition are said to be rarer causative effects. Rupture of the spleen is usually fatal. If the patient is seen in time, an abdominal section should be made and hemorrhage stopped if possible. Excision of the spleen has been performed a number of times. Ashhurst[22] refers to twenty-one successful cases of splenectomy for traumatic conditions. Lane[23] reports two cases in which splenectomy was performed for rupture; both cases were fatal five hours after operation. Reigner[24] reports a successful case. Vulpius[25] maintains that this operation should be performed oftener. He has collected 117 cases of splenectomy, with a death rate of 50 per cent.; deducting thirty-two cases weakened by various pathologic conditions, the mortality of the remaining eighty-five cases is reduced to 33 per cent.

The pancreas, of all the abdominal organs, is the least liable to suffer traumatic injury. Rupture of the pancreas has resulted from severe contusing forces. Located in a very protected position, when injured, other important organs are complicated. If the pancreas should be crushed by a force not fatally injuring other organs or introducing septic material, the injury of itself need not prove fatal. Dr. Senn[26] has proven that subcutaneous crushing or comminution is, in itself, not a fatal or even dangerous injury, unless it interfere with the normal escape of pancreatic juice from the intact portion of the gland. Abdominal section will disclose the condition of the pancreas, and partial excision of the organ is justifiable in conditions seeming to demand it.

CONTUSED WOUNDS AND RUPTURES OF THE INTESTINES.

Postmortem examination has repeatedly demonstrated that blows, kicks, blunt and crushing forces may cause very serious injury to the intestines, without penetrating the abdominal wall. The force of a blow chiefly affects the distended intestines, and that portion directly contiguous to the point of impact.[27] While this may be the rule, there are exceptions, that while establishing the rule, are not self-explanatory. Why is it that some remote organ, carefully stowed away in seeming safety, behind a bulwark of other defending organs, is ruptured or destroyed by a force that leaves all the other organs unscathed? A rupture of the receptaculum chyli has been reported—all the other organs escaping serious injury.

Much damage can be done without external appearance of injury. Some years ago in the dissecting room of Harvard Medical School, a subject was found with the intestines torn in every direction and the spine extensively comminuted, yet there was no evidence of external injury. This subject, a man, had been caught between the dead-woods of two freight cars.

The nature of the traumatic force is an important element for consideration. The quick percussive or contusive blows, are not so frequently fatal as the crushing forces, though more common. A few cases of instant death have followed blows over the epigastrium. It is interesting to note the varied opinion of eminent authorities on this subject. Ashhurst[28] declared "that death may follow a severe blow over the abdomen." Bryant[29] says, "under certain circumstances, a trifling blow may give rise to alarming symptoms." Pirrie[30] considered blows over the stomach or duodenum more dangerous than over other parts of the abdomen. LeGros Clark[31] said, "that if the doctrine be true that a blow over the abdomen may cause death, it must be a very rare accident."

The writer noted, after inflating the intestines of a cadaver, that partial distension of the intestines

[19] Reported by Edgar Willett. [20] Brit. Med. Jour., June 14, 1890.
[21] Presse Méd., October 7, quoted in Am. Med. Jour., Nov. 14, 1897,
[22] Lancet, 1892, p. 692.
[23] Lancet, 1892.
[24] Encycl. Vol. v, p. 1103.
[25] American Text-Book of Surgery.
[26] Senn: Experimental Surgery.
[27] Dennis: Vol. iv, p. 291, et Davis.
[28] Ashhurst's Surgery, p. 391.
[29] Bryant: System of Surgery, p. 217.
[30] Principles of Surgery, p. 595. [31] Encycl. of Surgery, p. 988.

seemed to increase their mobility, while extreme distention made them stand out firm and resistant. If a contusing force had been applied to the abdomen while its walls were intact, it is easy to understand how the resistant, distended intestine would be much more liable to be bruised or ruptured by the bony spine behind, than the more mobile, partially distended intestine, which would tend to slip aside. The empty intestine is in a collapsed condition, and has little power of escaping injury, when exposed to severe blows or crushing forces; however, it may slip to one side of the bony framework and escape injury. There are many chances for the intestine to escape injury in contusion of the abdomen, and it is important to be mindful of this fact, in considering the early performance of laparotomy for rupture of the intestine. The most common causes of death, after contusion of the abdomen, are hemorrhage and shock.[32] Exploratory incision does not increase the danger, and should be performed. The danger is greatly increased by delay. Some cases of internal hemorrhage, otherwise fatal, can be saved by prompt action.

Dr. B. Farquhar Curtis, collected 116 cases of abdominal contusion, with the intention of studying their symptoms during the first six to twelve hours after injury. From the following facts, culled from his compilation, we can form our own judgment:

Causes in 87 cases reported:

	Cases.
Kick of horse or man	28
"Run-over" accident	13
Blow on abdomen by heavy weights	16
Blow on the abdomen by light weights	13
Fall upon projecting points	13
"Buffer accidents"	4

Nearly twice as many were caused by kicks as from any other cause. Evidently the great velocity and the small area of striking surface, are the elements that make a kick so dangerous. These same elements of causation enter into "falls upon projecting points." It is to be noted that "buffer accidents"—a term under which crushing injuries might be classified—are very rare, but four out of eighty-seven.

Location of the lesion, 113 cases reported:

	Cases.	Per Cent.
Injury to the duodenum	6	
Injury to the jejunum	44	
Injury to the ileum	38	
Injury to other parts of the small intestine	21	
Injury to the large intestine	4	
Injury to jejunum and ileum together	43	
Injury to first three feet of ileum	25	58
Injury to first one and one-half foot of jejunum	12	28
Injury to last one and one-half foot of jejunum	6	14

These facts support the theory that the danger of rupture is greatest in those parts of the intestine that are the most fixed in their position in the abdomen, but the large intestine must be excepted, on account of its more sheltered position.

The following variety of signs and symptoms were mentioned in these reports:

Shock may be delayed, as noted in three cases, but was present in ninety-five cases, or in 80 per cent.

	Cases.
Consciousness at time of accident	54
Consciousness almost lost at time of accident	4
Consciousness lost at time of accident	11

Vomiting in seventy-two cases out of ninety in which it was mentioned. Urinary symptoms—condition noted in forty-seven cases.

	Cases.
Bloody urine	2

Bladder function frequently disturbed:

	Cases.
Retention	25
Urination difficult	1
Urination normal	17
Tenesmus	4

Pain in abdomen one of the first and most constant symptoms. Tenderness constant.

	Cases.
Distention of the abdomen	42
Distention of the abdomen absent in	16

Tension of abdominal muscles.

Tympanitic resonance.

An area of dulness, on percussion, was discovered in six cases in the early stage and in two cases in the later stages.

Loss of liver dulness.

Among the later symptoms, temperature, constipation and fecal vomiting were almost constant.

Duration of life—the average in 112 cases was forty-eight hours, after the accident.



FIG. 4.—Traumatic rupture of the small intestine. (Original from specimen in Rush Medical College Museum.)

We can now sum up the symptoms from the foregoing facts. There is shock, with or without loss of consciousness; vomiting is usually present with the first symptoms, and constipation and fecal vomiting are almost constant later symptoms; there may be retention, or difficult urination, while pain and tenderness are constant symptoms. There will be various signs noted on physical examination—dulness, tympanitic resonance, discoloration, varying with the case and stage of progress; the pulse rapid, weak and irregular at times, temperature subnormal in shock, but rises during peritonitis, when this follows. Figure 4, an illustration of a traumatic rupture of the intestine, is an original drawing from a specimen in Rush Medical College Museum, taken from a man killed by a violent kick in the abdomen, this rupture being the only resulting lesion discoverable.

32 Curtis: Am. Jour. of Med. Sciences, October, 1887.

While, in our discussion some of the elements entering into the causation of subcutaneous wounds of the intestines have been considered, the condition of the tissues themselves has not been mentioned. Poorly nourished, diseased tissues will succumb most readily to any injurious force. Figure 5, drawn from a specimen in Rush Medical College Museum, illustrates this fact. The specimen consists of a portion of the pyloric end of the stomach and about two inches of the duodenum, taken from an old man who had received serious subcutaneous injuries, which ruptured a duodenal ulcer just below the pylorus and

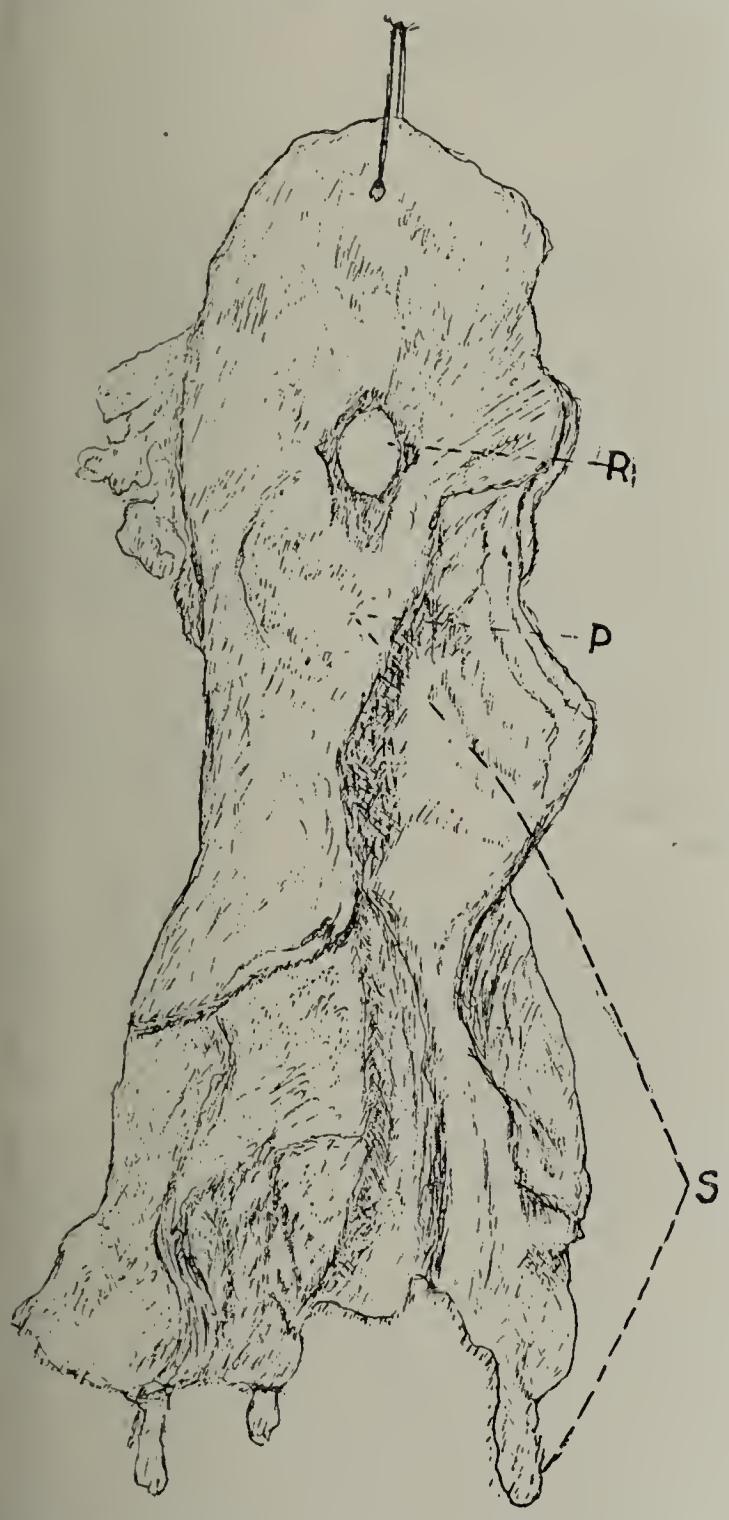


FIG. 5.—Traumatic rupture of duodenum. (Original from specimen Rush Medical College Museum). R, rupture in duodenum just below pylorus; P, pylorus; S, folds of stomach.

actured the second, third, fourth and fifth ribs, on e right side, and the fifth on the left side, besides using some other very superficial contusions not of particularly serious nature. Had it not been for e weakened condition of the intestine, due to this cer, the lesion would probably not have resulted m a force of no greater energy than the one eived.

Treatment.—Patients who have received injuries to e abdomen, which can be satisfactorily diagnosed simple contusion, should be kept in bed and on an absolute diet for some days, when recovery, as a rule, follows.

If the symptoms point to rupture, laparotomy should be performed, as already suggested. The external incision should be made through the linea alba. First, check hemorrhage. The laceration may be readily found by using Dr. Senn's method, rectal insufflation with hydrogen gas or filtered air. Close up all lacerated wounds, being careful to secure apposition between healthy surfaces, and suture all rents in the mesentery. It is advised that an omental graft be placed over the contused areas surrounding lacerated wounds, so as to avoid subsequent perforation. Flush out the abdominal cavity thoroughly with sterilized water; insert ample drainage; then stimulate to overcome shock. Administer opiates to quiet the intestines and withhold food by the mouth for several days.

SUBCUTANEOUS INJURIES OF THE KIDNEYS.

The kidneys may suffer severe subcutaneous injury from external violence, such as blows and crushing-in the abdominal region; or internal strain, induced by unusual flexion or contortion of the body, as in Wharry's case before cited. Violent shock from falls may cause sudden compression from other organs, as the liver, and may produce contusion or rupture.

Symptomatology.—Simple contusion without laceration sometimes causes prostration and severe pain. There may be frequent and painful micturition, or suppression of urine. The face wears an anxious look. The pulse is rapid and there is fever. If the injury is severe, shock and collapse may follow. Hematuria is the important symptom in laceration and rupture; however, it must not be forgotten that hematuria may occur without any injury to the kidney. It may follow some injury of the abdominal wall, or the dislodgment of a thrombus. Sometimes it is due to transudation from the blood vessels. It may be due to tumor of the bladder, as in Newman's[33] case. Then again hematuria may be absent in rupture of the kidney. Maas reported seventy-one cases, six of which had no hematuria. Four cases in Keen's table[34] were without hematuria. Clots may form in the bladder, as in three of Maas' cases, and stricture or occlusion of the ureter may cause absence of external evidence of hemorrhage of the kidney.

Clot of the ureter may be dislodged and re-form, repetition of the process causing intermittent hematuria. Should it persist, hydro-nephrosis or atrophy results. In Butler's[35] case, a clot completely occluded the left ureter. There was total suppression of the urine for fourteen days. Death ensued, and at the postmortem, the *right kidney* was found cystic and atrophied to one-eighteenth its normal size. The *left kidney* was enlarged, showing evidence of old and recent inflammation; the ureter was distended with urine and blocked half way down with inspissated clots, which had entered the pelvis through a tear extending from one calyx far into the softened renal tissue. Both supra-renal bodies were decidedly atrophied, but no other signs of Addison's disease were present. As a rule, however, profuse hematuria follows injuries to the kidney, coming on at once or in a few hours, and lasting for days. It has been known not to appear until the eighth day.[36] Pain is usually the first symptom. It is most acute in the loin, but

[33] Quoted by Keen.
[34] Annals of Surgery, August, 1896.
[35] Lancet, Jan. 11, 1890.

often inside the thigh toward the knee, the testicle being retracted. The lumbar region and abdomen, on the side of the affected parts, are very tender, though no bruise may be visible. Passage of clots through the ureter gives acute paroxysms of pain, with nausea and vomiting. Pain is not a constant symptom, as shown by D'Arcy Power's case,[37] in which there was absence of pain with hematuria for two days. Hemorrhage may take place into the surrounding tissues or beneath the capsule. It is, as a rule, apparent early, and is recognized by the ordinary signs and symptoms of internal hemorrhage There will be an external increasing area of dulness and swelling in the lumbar, and, it may be, in the iliac regions. Swelling and dulness in intra-renal distention is circumscribed, more slowly formed, and later. If confined to the pelvis and ureter, the tumor will rarely be appreciable, unless it burrows under an easily separable capsule. If it rupture into the peritoneal cavity, a fatal result is probable, especially if a large vessel be ruptured, for there will be no pressure to resist blood extravasation. Secondary hemorrhage may occur. Royer[38] observed hematoma six weeks after injury.

Mortality and Treatment.[39]—Keen's tables give 118 cases of rupture of the kidney. Of this number one was under treatment when reported. Of the 117 cases, sixty-seven recovered and fifty died—a mortality of 42.7 per cent. From these cases the following seventeen deaths, in which treatment was futile or impossible, should be deducted:

The other kidney absent	1
Both kidneys injured	2
Found dead	2
Died of other injuries in addition to renal injuries	12
Total	17

Of the 100 remaining, sixty-seven recovered and thirty-three died—a mortality of 33 per cent. Early death, without nephrectomy, occurred in thirteen cases, eleven dying from shock and hemorrhage, and two from peritonitis in addition. There were ten late deaths without nephrectomy, all excepting two due to sepsis, one due to continuous, the other to secondary hemorrhage. Dr. Keen says, "had nephrectomy been done in the twenty-three cases, it is, I think, a fair presumption that ten of them would have recovered, which would reduce the mortality to 23 per cent." There were twenty-two of nephrectomy with eight deaths—a mortality of 36.4 per cent.; there were forty-two deaths in ninety-five cases without nephrectomy —a mortality of 44.2 per cent. This makes a difference of 8 per cent. in favor of nephrectomy, though the operation was only done in the most serious cases, which makes the value of this life-saving operation the more evident, when we recall that the large number of cases without operative interference, were the slighter cases of injury. It becomes evident from consideration of these facts, that operative measures would have saved many of the ninety-five unoperated cases. A study of this same table shows secondary nephrectomy to be nearly twice as fatal as primary—38.5 per cent. to 20 per cent.

Lumbar nephrectomy is the preferable operation, because it is less apt to cause infection of the peritoneal cavity. In cases pointing to intra-peritoneal hemorrhage, or to serious injury to other abdominal viscera, abdominal section should be made. Hence a very careful study of all the conditions in each case is absolutely necessary to the best success.

Fifty of the 118 cases in Keen's tables died. The causes of death were tabulated as follows:

Primary hemorrhage and shock	11
Continuous hemorrhage	1
Secondary hemorrhage	2
Injuries to other organs	12
Found dead	2
Absence of the other kidney	1
Peritonitis	5
Coma	2
Pneumonia and empyema	1
Suppuration and exhaustion	10
Anuria	1
Nephritis	1
Uncertain	1
Total	50

It is to be noted that primary hemorrhage and shock (eleven), continued hemorrhage (one), and secondary hemorrhage (two), caused fourteen deaths; and suppuration (ten), empyema (one), and peritonitis (five) caused sixteen deaths; this certainly proves that hemorrhage and sepsis are the two great causal factors of fatal kidney rupture. Since the majority of recoveries in rupture of the kidney are the less severe cases, and since the graver ones do not recover, unless by operative interference, it is clear that the duty of the physician or surgeon is to resort to exploratory incision. It adds but little risk and will save a greater proportion of lives.

Rupture of the ureters may be produced by the same or similar causes inducing injury of the kidney. Barker[40] and Godlee,[41] have reported a case each, in which nephrectomy was performed, and recovery followed.

SUBCUTANEOUS INJURY OF THE BLADDER.

A solution of continuity in the walls of the bladder may be caused, by violent concussion, or by displaced fragments of bone in fractures of the pelvis. Owing to the fact, that the organ is well protected by the pelvic bones, and is usually in a state of only partial distention, such injuries are rare.

Rupture of the bladder may follow violent concussion, especially if the organ be distended and the force be exerted on the lower abdominal region. This force may be from a kick, a blow or crushing pressure. The accident is more frequent in men than women, in whom parturition and continuous pressure by uterine or ovarian tumors, are causative factors. Some years ago, Prof. Hektoen reported a case, that is a good example of the effect of resistant pressure from tumors. A woman died after being kicked in the abdomen, and beaten by her brutal husband. The post-mortem examination showed a tear one and one-half inches long in the posterior wall of the urinary bladder, near the fundus. This tear was transverse, ragged, and free from signs of inflammation, as was also the peritoneum. In the uterus were three sub-serous fibro-myomata, which filled the pelvis and acted as a firm, resisting body, against which the bladder was pressed when injured.

We can gain some idea of the frequency of the injury from the fact that in 8,000 surgical cases in the Cook County Hospital, between 1889 and 1892, five were proven to be traumatic rupture of the blad-

36 Burrow: Medical Press and Circular, London, 1890, N. S. L. 572. (Keen.)
37 Lancet. Feb. 8, 1890.
38 Traités des maladies des Reins.
39 W. W. Keen: The Treatment of Traumatic Lesions of the Kidney, with Tables of 155 Cases; Annals of Surgery, August, 1896.
40 Lancet, i. 95, 1885, quoted by Keen.
41 Trans. Clin. Soc., xx. 219, quoted by Keen.

der.[42] The St. Bartholomew Hospital reported but two cases of injury to the bladder, out of a total of 16,711 surgical cases from 1869 to 1875.[42]

Symptomatology.—The symptoms may be obscure. Two out of seven cases reported by Dr. Herrick were not diagnosed until after death. The rupture may be intra- or extra-peritoneal. Fortunately, it is usually the latter. When extra-peritoneal, the signs of infiltration into the pre-vesical connective tissue or into the vesico-rectal or vesico-uterine space, are readily recognized. External palpation or the introduction of the finger into the rectum, will reveal a peculiar doughy condition of the tissues. The hypodermic needle may withdraw a few drops of bloody urine from the tissue. In case of intraperitoneal rupture, shock is more marked, and there is dulness in the hypogastric and inguinal regions. The passage of a catheter or sound may confirm a diagnosis. Should the sound be felt beneath the abdominal wall, rupture is demonstrated. The passage of a small amount of bloody urine, with or without the catheter, is a suspicious sign. If the urine is passed more readily by aid of the abdominal muscles and pressure on the abdominal wall, evidence of a more convincing nature is added, but is not conclusive.

Eight or ten ounces of liquid will distend the bladder, so that it will rise into the abdominal region; hence, inject at least this quantity of some aseptic fluid, as sterile water, into the bladder. In case but a part of the water is returned, and the viscus does not rise, the organ is ruptured. Filtered air, or hydrogen gas may be injected, and in case of a rupture into the peritoneum, it will escape into the general peritoneal cavity; or form emphysema of the cellular tissue, in case of extraperitoneal rupture. Peritonitis does not necessarily follow intraperitoneal rupture, because urine has been demonstrated to be aseptic The case of Dr. Hektoen referred to above did not contract peritonitis, though living nine days after the rupture, and with her abdominal organs bathed in urine.

The symptoms are masked by drunkenness, pain and shock being but slight. That drunkenness is an important etiologic factor, is well known. "It furnishes the abundant secretion of urine; a paretic, and consequently distended bladder, which rises above the pelvic brim where it is exposed to injury; and a relaxed abdominal wall, so that the force strikes with unchecked vigor upon the viscus with the walls tightly stretched."[43]

Figure 6 represents a bladder with a very extensive rupture in its posterior wall, which readily allowed a passage into the peritoneal cavity. The patient passed his urine by aid of the abdominal muscles, pressing the urine through this very large rent. This caused a diagnosis against rupture by a consultant.

Peritonitis did not occur until after catheterization by some five different persons. The infection was undoubtedly due to the use of a septic catheter.

The patient in this case was drunk at the time of injury, and the symptoms were so masked that the physician originally called in thought it merely a pain in the abdomen and of no serious nature. The temperature never rose higher than 100 F., and the pulse was about 120. A gradual failure of strength took place and the patient died fifty-two hours after admission to Dr. C. W. Earle's hospital, and four days after being seen by the first physician. This case was reported by Dr. Jas. B. Herrick, who called particular attention to the fact that "when the rent is large and especially when there is no peritonitis, bloody urine may be obtained in quantity and in a stream."

We are inclined to the belief that operative interference when free from sepsis, would save all such cases or at least a large percentage.

Treatment.—In extraperitoneal rupture, immediate and free incision into the infiltrated regions, should be made. In order to find the rent in the organ, an incision should be made, as in suprapubic lithotomy. The rent should be found and carefully sewed up by Lembert's sutures. Fine silk is the best material, and should be inserted through the peritoneal and



FIG. 6.—Rupture of the posterior wall of the bladder. (Original from specimen in Rush Medical College Museum).

muscular coat, but not the mucous coat. It is well to test the sutures by distending the bladder before closing the abdominal incision. Intraperitoneal rupture demands a longer abdominal incision. The peritoneum must be thoroughly flushed out with aseptic water, or bichlorid solution (1–2000). In case of peritonitis, a drainage tube should be inserted. When it is recalled that intraperitoneal rupture is almost invariably fatal without operative intervention, the physician's duty is plainly indicated—operative interference is imperative.

INJURIES OF THE PENIS AND URETHRA.

It is seldom that wounds of the penis are met with. Fracture of penis has been known to occur, when the organ was in a state of extreme erection. Laceration

[42] Herrick: The Medical News, Feb. 25, 1893.
[43] Herrick: The Medical News, Feb. 25, 1893.

of the organ sometimes occurs. The treatment for such injuries is the same as for other parts similarly affected.

Rupture of the pendulous portion of the urethra is rare. While it is difficult to treat, it is not dangerous as a rule. The symptoms are what one would expect, pain, hemorrhage and swelling. Evaporating lotions, rest and very gentle catheterization is all that will usually be required for satisfactory results. Rupture of the urethra may be due to instrumental violence. Most cases reported have been caused by falling astride of resistant bodies. The writer had occasion some years ago, to assist in caring for a young man who had fallen astride a timber, literally crushing the bulbous portion of his urethra. In these injuries, the pubic bones and the vulnerating bodies furnish the two hard, unyielding factors, between which the soft urethra is contused, lacerated or crushed. There have been a number of explanations for the mechanism of urethral rupture, but the one just mentioned is sufficient for all practical purposes.

Treatment.—In mild cases, periodic use of the soft catheter, well greased with carbolized oil, may be sufficient, provided the patient is kept at rest. Fever and local swelling call for decided steps. Should extravasation be marked, and it be possible to pass a full-sized catheter, the instrument should be allowed to remain. The tissues involved in the extravasation should be laid open. It may be impossible in some cases to find the proximal end of the torn urethra, even after perineal section. Such was the condition in the case mentioned above; suprapubic cystotomy was performed, and retrograde catheterization soon located the proximal end. An elastic catheter was allowed to remain and the perineal wound was sutured. In the course of three or four weeks, the patient was discharged, after having been instructed in the art of passing the sound on himself, to avoid the cicatricial tissues closing the urethra by contraction. Where possible, it seems wisest to suture the divided ends of the urethra with catgut. Do not include the mucous membrane in the sutures.

[NOTE—Owing to limited time it has been impossible to treat this subject as fully as the writer desired. For this reason he did not deem it advisable to undertake the discussion of subcutaneous injuries to the brain. Only traumatic injuries of subcutaneous soft parts have been considered in this essay. The writer wishes to acknowledge his indebtedness to the various sources from which the information in the foregoing pages has been obtained. It has been his intention to mention by proper references, the authorities to whom credit is due. He is especially grateful to Prof. L. Hektoen for the use of his postmortem records, from which much very valuable information was acquired; also for the use of specimens from the Rush Medical College Museum, which enables the presentation of four original illustrations in this production.]

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from p. 92.*)

XX.—GUNSHOT WOUNDS, AMPUTATION, EXARTICULATION, RESECTION.

Gunshot wounds in general; Gunshot fractures; Conservative surgery; Gunshot wounds of the joints; Injuries by cannon balls; Primary or secondary amputation; Method of amputation; Exarticulation; Resections.

The twentieth chapter of our historical work! Has not the patience of the reader been already exhausted? Has not my work been already laid aside, with a "never more"? I would give something to know as to this. Yet to every colleague who has remained true to me until now I will extend a grateful hand and seek to refresh his severely tried patience, at the close, by a theme of more general interest, *gunshot wounds.*

To what teachings did they pay allegiance, in the year 1750, in case of a simple gunshot wound? Even then had begun, as previously mentioned, an opposition to the excessive probing of gunshot wounds. They distinguished a primitive and consecutive hemorrhage, which, if the scab dropped off, appeared more frequently at night than during the day. The bullets (of lead, iron and copper) were extracted as soon as they could be distinctly felt; a number of instruments were invented for that purpose, and the patient was placed in the same position as that in which he had received the wound. This principle originated with A. Paré. It was the general rule to enlarge the openings of every gunshot wound as soon as possible. Formerly this was done more frequently in a bloodless way, by means of absorbent lint and dilation, later with the knife. They also began to stuff up the path of the bullet with lint and to close it with the seton. The bandage materials were mostly irritating in order to accomplish a quick shedding of the scab and an abundant granulation.

It was characteristic of the advancement in the teachings on gunshot wounds, that it took place in a purely empiric way. There was no mention of principles based upon a physiologic foundation. How the healing process in the path of the bullet took place, no one knew; how the size of the wound was proportionate to the velocity of the bullet, no one considered. These and similar questions were first raised by John Hunter. He accordingly looked upon the accomplishments of the French military surgeons with insignificance, and said that "among the French the art of destruction is very highly perfected, while that of healing has not reached a like perfection. . . There has been little written on gunshot wounds and what has been written is so superficial that it deserves no special attention. Simple practice without principles appears to have been the guide of those who have occupied themselves with this branch of surgery. And if one fixes his eyes upon the practice hitherto followed, he finds it extremely limited and almost reduced to the ordinary rules of surgery." Hennen later sought to detract from these complaints when he extolled to the highest point the French surgeons before Hunter's time. We will submit a few of Hunter's theoretic doctrines on detailed questions. He distinguished gunshot wounds from other wounds, especially when fresh; then they demanded a particular kind of treatment. This classification depended chiefly upon the velocity of the bullet. If this was slight it occasioned only a small injury, seldom a fracture. If the velocity of the bullet was sufficient to fracture the bones the shattering was much more extensive than in the case of greater velocity; in the latter case the bullet carried away a piece of the bone almost as if by pincers. So gunshot wounds sometimes simulated a knife wound. The denser the bullet the less matter was rubbed off from it, and this was more abundant at the entering point than at the exit (Le Dran had taught the distinction between the two). The reddening of the skin in the canal of a superficial shot

wound was, according to Hunter, by no means of an inflammatory nature. He said it was like the rosiness of the cheeks; that the small blood-vessels allowed the red part of the blood to flow through more readily than usual. Healing could only take place by way of suppuration, although when there was very little contusion at the point of exit a prima intentio was possible. As a rule, Hunter observed the beginning of the healing at the point of exit, sometimes the contrary; it appeared to him to be the rule that the lower end of the bullet canal healed more quickly than the other.

In general they believed in the existence of the so-called air grazing shots, and attributed the most dangerous injuries from the simple grazing of the bullet to the pressure of the air. Tissot estimated the force of this and Plenk ascribed it to the electricity generated in the bullet by the explosion. The first who contradicted the air grazing shot was le Vacher of Bisançon (1768); he traced the injuries to an actual contact of the bullet with the body and declared them to be simple grazing shots. Richter agreed with him.

The after-ills in severe shot wounds were in general known; the pyemic fevers can be easily studied from the writings of Bilguer and Larrey. It is striking that Hunter, who was acquainted with phlebitis and expressed the supposition that its fatal results depended on the entrance of the pus into the circulation, said nothing of pyemia.

Among the practical questions, the *enlargement of the path of the shot* was earnestly discussed by surgeons. They adduced as advantages that it facilitated the extraction of foreign bodies, created a better outflow for the extravasation, transformed crooked wounds into straight ones, etc. The incision should be made immediately in order to promote the expansion, and should extend throughout the whole path of the bullet to the bottom of the wound, and in fractures should reach the bones and indeed extend over the whole length of these. Being earnestly recommended by A. Paré and Wiseman, they found acceptance everywhere and in France, as well as in Germany, were sadly abused. They were, indeed, legally prescribed in the Austrian regulations for field-surgeons (1788). Even at the end of the century they were recommended by J. Bell, and especially by Percy, who sought the first indications of healing in the transformation, so far as possible, of shot wounds into knife wounds. One of the first who opposed this nuisance was Ravaton. He allowed enlargement only in order to promote the discharge of pus, but never if there was danger of cutting through large blood-vessels and nerves. That he considered it necessary to describe the incision on every separate part of the body shows the low grade of anatomic culture among his countrymen. Theden had, after increased experience, abandoned the common use of the incision. J. Hunter especially deserves credit for having confined the incisions to narrower limits. Yet it must be recognized that Jackson of Dublin had, a few years before him, energetically opposed the principle of enlargement (*London Med. Jour.*, xi, 1790). He observed that it increased inflammation, delayed the healing, and caused danger of joint affections in consequence of the admission of air. Desault and the other surgeons in the Hôtel Dieu (1792) had long before desisted from cutting into gunshot wounds when Hunter had entirely discarded the method as an ordinary practice (1794). It contradicted the precept which held good in all other wounds, that as such they should not be enlarged. The practice in gunshot wounds should be also that of civil surgery. Without promoting the expansion the incisions increased the inflammation, readily closed again, and delayed the healing. Hunter considered dilation as required only under certain definite indications: 1. If foreign bodies irritated or pressed against an important part. 2. If a ligature was demanded for stopping hemorrhage. 3. If in a head wound a fracture was presumable. 4 and 5. If bone splinters and foreign bodies could be immediately extracted with advantage and their retention would have evil consequences. 6. If viscera protruded from the wound (bowel). 7. If important organs are compressed, as the lungs in case of rib fractures. On the other hand, Hunter limited the indications too narrowly; for when the bullet lay at some distance from the sound membrane and could be felt, then one should wait until the entering point had become inflamed. As a reason for this principle he alleged that the wound could readily heal with the bullet inside, that the inflammation occurred, therefore, not from the injury, but from the contact of the part with the external air and hence the admission of air must be prevented. In respect to the extraction of the bullet, he counted too much upon the help of nature and argued that the direction of the bullet was quite uncertain, for the heavier it was the easier would it curve and run obliquely when resisted. B. Bell and Boy also condemned the abuse of dilation. The latter criticized the extraction of a foreign body when the operation had more unfavorable results than the presence of the bullet. If it was necessary, the earlier it was done the better.

The number of *instruments for the extraction of bullets* had become very large; Ravaton alone had invented three. The apparatus grew simpler with time. Hunter came to think the usual ball extractor almost inapplicable. Many would banish all the hooks, screws, bores and ball extractors, and extract the bullet with the finger, or if that failed with a pair of small pincers (Richter). Finally they used almost entirely small bullet-tweezers, spoons and bores (Percy). The movement of balls healed in the bones was known; Ravaton observed a bullet situated in the antr. Highm. for twenty-five years, after which time it came out through the palate. Le Dran noticed one a year in the sella turcica, Pallas one for fifteen years in the os ethmoidale.

The *bandage material* also gradually became simpler, both in respect to number and to composition. The one bound fresh gunshot wounds with irritants (alcohol, wine and salt-water) in order to restore the weakened vital force of the vessels and to hasten the separation of dead from living matter. Another applied emollient, sedative remedies (tepid water and digestive salves), which were said to support the free discharge of secretions, but to allay swelling and inflammation. As a rule the whole wound was filled loosely with lint that it might absorb the pus and protect the muscles from sharp splinters of bone. Dry lint was used by Ravaton, and over it a diachylon plaster and a large compress wet with alcohol. On the third day he had the bandage removed, the channel of the shot syringed with oil, ungt. basilicum laid in the wound and over that a pledget with the same salve, and a compress dipped in vulnerary water applied. The bandage must not exert the slightest

pressure, and was removed twice a day. Theden's arquebusade-water made something of a sensation: "Take sorrel water and alcohol, one and one-half pounds of each, half a pound of white sugar and five ounces of spirits of vitriol; mix these and digest the mixture for eight days, then filter it." Theden preferred this arquebusade to all other remedies, not only for gunshot wounds but also for contusions, burns and swelling in fractures, luxations, etc. Surgeons were not united as to the use of warm and cold applications. Theden changed his opinions in so far that he had at first regarded warm poultices as entirely necessary, but in later years often found warmth injurious and observed the best results from cold applications. Jackson's experience was similar. On the contrary Hunter considered the cataplasma the best bandage for gunshot wounds and most lacerated wounds. B. Bell took the middle course, in that he used poultices only in the beginning but removed them as soon as suppuration ensued, because they relaxed the wound and increased suppuration unnecessarily. The Frenchman Boy, who a year later than Hunter, and entirely in the spirit of this great surgeon, wrote an excellent work without mentioning him, recommended common water, at first tepid but gradually cooler. "All salves and the damnable irritants are of no avail. . . . Let us simplify whatever can be simplified." He protested against the general use of poultices, and used them only to induce suppuration. Until the appearance of suppuration he rarely bandaged, and then kept the bandage wet. The injured limb was laid so that the muscles were relaxed as much as possible, and a bandage adjusted from the under part of the limb across the wound and above it in order to diminish the involuntary muscular movement and the pain; he laid the greatest stress in general upon the methodic adjustment of the bandage. He decried the drawing of a seton through fresh gunshot wounds (Bell), and availed himself of this instrument only in case the pus could not flow freely. Boy sought to restore to its rightful position the use of the syringe, against which a prejudice prevailed, but he cautioned against too strong injections on account of the possible laceration of the cellular tissue. After Mursinna had called attention (1796) to the fact that in many injuries the simplest treatment is the best, that gunshot wounds with injuries of the bones healed more easily and quickly if they were not cut or stopped up, but were only covered with a common wound salve, a great simplification in the treatment of wounds and the technique of bandaging began in the first part of our century with V. von Kern of Vienna (1810). With the exception of lukewarm water, which he recommended as the only covering for a suppurating wound, he considered that there is "no other salve nor balsam to further healing but the balsam which nature herself offers and which no apothecary can give us; the wound itself provides it. Accordingly everything which is used externally with this object is thoroughly injurious." With inspiration Kern said in a pamphlet to the surgeons in the Napoleonic wars, "let us also lay aside all salves and balsams; let us once forget the cinchona decoctions and all other expensive external remedies which have been hitherto employed. Let us give up the use of lint and all the bandages prepared from it, namely, the setons, pledgets and the like; they are foreign bodies, they can only irritate. Let us abolish the bad custom of filling wounds with lint; for it hinders the complete discharge of matter produced by the pus and induces putrefaction of the wound. Let us desist from the use of artificial bandages; it is only expensive, for it wastes so much linen which might be turned to other uses! Let us avoid all those liquid balsams which are injected into the channels of gunshot wounds; let us discontinue the rigid pressure with the hand along the course of these channels in order to force matter out through them. It only irritates the injured part and maintains a continual condition of inflammation! . . . . Follow my example. By the use of these principles you will save the soldiers endless pain and millions to the State."

In the general treatment *blood-letting* stood foremost. At first wantonly abused, they later began to limit it. It was always evident that the soldiers, exhausted by poor food and fatigue, bore repeated bleeding badly (Lombard), and that the strength must be preserved for the excessive suppuration. Therefore Hunter permitted only a moderate letting of blood, and Boy discarded it altogether as a general remedy. More and more the debilitating treatment was replaced by an invigorating one. Peruvian bark came into use, especially in England, in inflammations following injuries and operations (Hunter), and also in suppuration and gangrene.

They sought to arrest *hemorrhages* (see Chap. 14) from gunshot wounds when only a branch of an artery was injured, by direct ligature, or if that failed, by styptics and compression. But if a large artery bled they amputated (Ravaton). Bilguer had already conceived the idea of binding the main stem of the femoralis and the axillaris, in the hope that the small side branches would enlarge; even in case of shattered bones with arterial hemorrhage he advised ligature or compression and opposed amputation. Then Theden sought to displace the ligature with the tampon. Boy declared compression entirely unreliable, always used a stricture and only in the rarest cases considered the application of a ligature necessary. Since Larrey the laceration of the main artery was no longer regarded as an indication for amputation.

In case of *gunshot fractures* they amputated with a readiness scarcely to be believed, until in the middle of the century. In order to explain this we must anticipate the history of amputation. In Heister's time the rule was to amputate every limb with a shattered bone or an injured joint; the possibility of preserving it was considered as exceptional. J. L. Petit had advanced this doctrine. The causes of this mania for amputation reach far backward. In the fifteenth and the first of the sixteenth centuries the operation was always unusual but crude. The better surgeons sought with great patience to heal the most dangerous injuries and regarded amputation as the last resort (F. Würtz and Paré). Then came the age of Louis XIV. with its crowds of ignorant barbers. But the war developed a few skilled surgeons who, through large and bold undertakings, quickly became celebrated. But instead of improving the miserable methods in the treatment of gunshot fractures, they went over to the operation. Ever since Paré had applied the ligature after amputations and Morel had invented the tourniquet, the great fear of hemorrhage had vanished; surgeons had become more courageous. It was thought that the rarity of operations was to blame for many deaths, while the enormous mortality in the hospitals was due only to the bad treatment of the fractures. The men who fell into this error set the fashion for all Europe; in a

short time amputation became the most common operation. For example, Schmucker saw, in the year 1738, in the Hôtel Dieu in Paris, a double amputation of both thighs made on account of a simple fracture. The French surgeons in the Prussian army, who came from this school, cut off arms and legs without discrimination. A reaction began. Le Dran, indeed, and Bagieu were already convinced that amputations were conducted without due consideration; but the Frenchman Boucher first opposed the abuse in gunshot fractures, especially. He showed (Mém. de l'acad. de chir. ii, p. 304) that two-thirds of those so operated upon almost always died, while of 165 fractures which were treated without amputation not one resulted fatally. When the Académie de chirurgie (1754) offered a prize question on the necessity of amputations and the time for them, Faure won the prize with the answer that one should amputate in gunshot fractures in the second period.

During these discussions Bilguer appeared (1761). He boldly resisted the generally prevailing views and threw the gauntlet to all surgeons. He made it a rule to treat all gunshot fractures and joint injuries conservatively and to regard amputation as an exception. *Our conservative surgery began with Bilguer.* He protested against most of the indications for amputation and admitted only such a laceration of a main artery that the nourishment of the limb seemed impossible and extensive inflammation. Bilguer treated gunshot fractures in the following way: The wound was boldly enlarged by an incision which reached the bone and extended the length of the muscle. Loose splinters and foreign bodies were immediately extracted, firmly fastened fragments were brought to their proper position with the finger and left to nature, which sometimes healed them. Sharp, protruding ends were sawed off with a small saw, "for which one must have various thin, narrow, curved and straight blades." "In this way we have, with the greatest success, sawed pieces of bone three or four inches and more, from the bones of the lower leg, forearm and upper arm." Bones of the head and foot should be obstructed, be separated and taken out. A bullet fastened in the cavity of a bone was removed with the trepan. The wound was filled with lint from both openings of the channel, pledgets, compresses and a circular bandage laid around it and these were wet, for three or four days, with spiritus vini. Later he recommended digestive salve and emollients. The limb was lain in extension between board, pastebord or straw splints. Bilguer openly admitted that this conservative method caused the patient much pain and the surgeon much trouble and that it would bring about a cure only in the hands of skilled and experienced surgeons. If one asks for the results which he reported, the following figures give the answer: During the Seven Years' War he attended 6,618 wounded in his hospital, from its establishment to its suspension. Of these, 5,557 men were again fit for active service, 195 were half invalids, *i. e.*, fit for the garrison and civil service, 213 complete invalids, among whom not a single amputation had been made, and 653 died. Those 408 invalids all had "severe fractures, that is, shattered and bruised injuries to the bones . . . for at least everyone among us knows very well that none of our soldiers could become invalids on account of head and flesh wounds." He added that "it might be said that perhaps among those who died from their shattered limbs, some might have been saved if their limbs had been amputated at the right time and in the proper manner," but I also for my part can assert, that of the very many who during the first years of this war lost the limbs on account of severe wounds scarcely one or two have survived." And amputation in the field seemed to him very rarely indicated because it was impossible to perform it on the battle-field and a secondary amputation should be forbidden for many reasons. "Throughout the whole Seven Years' War I have had no one under my supervision lose a limb by amputation, and I can bring forward 1,800 cases in which I have saved the wounded from this most horrible operation." Caries, which might develop after gunshot fractures, did not appear to him an indication for amputation. "For caries we have found it necessary to do nothing more than expose the bones more or less according to the nature of the difficulty, then to scrape them with a knife or perforate them with a small bore or a sharp brad, or, if the caries extended to the other surface of the bone, to bore with a tampon in more than one place, or even, as in case of the hands and feet, to remove whole carious bones, or in large bones entire carious parts, with the help of this or that instrument and of the hand." In order to confirm his conservative principles by facts Bilguer mentions, in his work on amputations (1761), fifty-one cases of serious injuries to the bones, which had been treated in the field hospital at Torgau with the best success, by him and by other surgeons of the army. After the close of the war, in his surgical observations (1763), he was able to add 118 likewise conservatively treated cases "of shattered limbs and joint injuries" He discussed only severe injuries (extensive destruction of the diaphysis or the joints of hollow bones, which frequently were occasioned by canister shot or cannon balls). Among these 169 cases, 9 fractures of the thigh were healed, 42 of the lower leg, 19 of the ankle, 11 of the foot, one of the shoulder joint, 9 of the head of the humerus (among them one in which the humerus was exarticulated almost entirely from the shoulder joint by a blow), 16 of the diaphysis of the upper arm, 22 of the elbow joint, 9 of the forearm, 3 of the wrist, 8 of the hand (among them 5 in which the hand was shot or cut half off), and 6 fractures of various bones of the extremities.

Bilguer's service was extraordinarily great for that time of mania for amputation. But his mistake was in the extravagance that would displace amputation almost altogether. Although a hundred years have passed we have not the right to cast a stone at him on that account. Though conservative surgery has made so great progress since the time when, sometimes practiced with foolhardiness, it cost so many lives, we are not yet through. It is to Bilguer's discredit that he published cures almost entirely and no fatalities, and that he noticed many observations of entirely unknown surgeons, upon which one could not rely. Certain of his contemporaries might assert that no surgeon merited so much from the human race as he, and shortly afterward Ravaton also might have come forward with conservative cures of complicated gunshot fractures (l. c. 2. Ausgabe 1768; this is lacking in the first edition); they raged against Bilguer from all sides. Among Frenchmen, Martinière charged against him that the many incisions caused more pain than amputation, which led to a quicker and more certain healing, and finally that a stiff and useless leg

was the price of that useless treatment extending over months. And Morand thought this treatment "so cruel that one is dismayed even to read of it," and the number of external remedies so great that one is reminded of the charlatan, and that Bilguer's prescription's were faulty and too expensive. For example, a warm poultice applied in case of gangrene, cost 2 livres 10 sous. "Much is German balderdash . ., much is written obscurely without intelligence and without tact . . ., is madness a proper term to use of French surgeons who have the greatest reputation of any in the world?" An opposition was also raised in England. According to Charles White and Pott there were always some cases in which amputation was unavoidable, and Pott regarded the vaunting of remedies by which amputation was rendered unnecessary as quackery. In case of shattered bones he amputated immediately before inflammation had set in; for if this had already arisen, or if the air had already penetrated with injurious effect, then the operation only hastened death. The question as to whether more men with complicated fractures died without amputation than after the operation, according to his opinion, a single surgeon could never answer; but according to all experience the danger to life is greater if one seeks to save the limb. The objections of Pott and Morand, with whom Van Gesscher allied himself in an exhaustive criticism, were intellectual and were written with great insight, insomuch that they contributed much to support the doctrines of the German surgeons in their development. The attacks upon Bilguer from abroad had no end until he found a warm friend in the Englishman, Kirkland. The latter loudly proclaimed the principle that far more skill and art were required to save a limb than to cut it off, for there doubtless are cases when operation is unavoidable. "One must obviously seek to save the limb when there is even a slight probability that it can be saved;" however, the only consideration should not be as to whether there is less danger with amputation than without it. What man would gladly incur some danger in order to save a limb, . . . it is incredible what nature can do." Kirkland did not consider amputation absolutely indicated either in fractures of the joints, wounds of the large blood vessels or in caries. With certain limitations B. Bell agreed with Bilguer and would not amputate in case of fractures with slight injury to the soft parts, but would operate immediately in severe breaks with splinters, especially if they pressed into the joint. In doubtful cases he advised conservative treatment, since if that failed there was always time for an operation, and the secondary often gave better results than the primary. Frequently external conditions decided it. For example, Bell made it a rule to amputate after battles all complicated gunshot fractures immediately. To be sure a few limbs were lost in that way, but certainly far more human lives were saved, which without amputation would have been lost. If we look about us at Bilguer's countrymen we observe Schmucker take the golden middle course. He charged against some French surgeons that they often amputated unnecessarily; but there were always cases when amputation could not be avoided without exposing the patient to mortal danger. "It is just as extravagant to wish to abolish amputations altogether as to cut off all limbs without distinction. . . . Whether it is a blessing to live after amputation is a matter concerning which the surgeon does not have to discriminate; his duty is to preserve life as long as possible." Richter, who advised immediate amputation in case of severe splintering of the joints and laceration of the larger blood vessels and nerves, considered it impossible to give any general rule for the rest, since each individual case must be specially judged.

It was sought to cure gunshot fractures of the diaphysis of the *upper arm* in metal splints with the elbow joint bent, while fractures of the caput humeri and of the lower condyles for the most part demanded amputation (Ravaton). Attempts were made to cure considerable injuries by the conservative course. Once a humerus was shattered two inches below the shoulder joint, and the bones, muscles and cuticle so lacerated that the forearm hung from the upper arm by only a mass of muscles an inch and a half thick, which, by good fortune contained the large vessels and nerves. A cure was accomplished after three months with two splints (Seeliger). Gunshot fractures of the *forearm* had a better prognosis than that of the upper arm; there was no longer any talk of amputation.

The great danger in gunshot fractures of the *thigh* was sufficiently recognized. Ravaton indeed observed imperfect cures, but death always ensued if the bone was broken in its entire thickness. Then in spite of great care no remedy availed; neither incision, extraction of the splinters, nor the most careful bandaging in a metal case with apertures, in an elevated position. Ravaton therefore advised amputation and suggested a method of exarticulation. On the contrary he cured fractures of the trochanter after extraction of the ball if it was lodged in one of the condyles. Isolated cures of gunshot fractures of the diaphysis were indeed known to J. L. Petit who, however, preferred amputation for the sake of safety, also to Bilguer and Desault and to J. Hunter who saw such a one proceed successfully, as a simple fracture. Nevertheless, amputation was in general agreed upon. Schmucker regarded fractures close above the knee as less dangerous on account of the few musculatures, and considered an operation not urgently indicated, but amputated immediately in case the bone was broken in the middle or higher up. Boy's opinion was clear and decided. Convinced of the extraordinarily difficult treatment of all fractures of the thigh whose fragments it was almost impossible to fix, impressed by the especially great danger in splintered fractures, particularly in the upper third of the bone, he said: "Amputation is necessary in most femur fractures; otherwise the patient dies of exhaustion after three or four or even six months. Many surgeons could not decide upon amputation, because they saw so many of those operated on die, and because if one did not amputate the patient lived a while and thus the good reputation of the surgeon was better guarded. What egoism! One should first do his duty and take the subject of good reputation into consideration afterward. Why allow a man to suffer for six months if he must die in the end? The surgeon must know how to decide; too much fear is often more injurious than rashness. Certainly one should not abuse operations, but he is culpable if he does not operate when the conditions demand it. If one would listen to certain writers there are almost no conditions which allow amputation; they consider it a painful remedy to be entirely banished by friends of humanity. Yet how easy it is to operate and to write. But, unfortu-

nately, a battle-field and a hospital have nothing in common with the ideas which an author in his study forms of them. Even out of love to humanity one must have recourse to great operations, and it is a very deceitful remedy which only too often allows people to die who might yet serve the fatherland and their families for a long time." For treatment of gunshot fractures of the lower leg metal boots with suspension were used (Ravaton), Petit's cradle (Bilguer) and pasteboard and splints (Schmucker).

A similar change from operative to conservative treatment in *gunshot wounds of the joints* was initiated. They had always operated until Bilguer and Ravaton taught to avoid the operation, and the latter in particular insisted upon the curability of those injuries in which the ball had only made an aperture without breaking the bone. The former said: "When a ball has passed entirely through the elbow or knee joint and thereby injured and shattered more than one bone we find no method of treatment safer than that by which we enlarge the wound sufficiently to loosen the pieces of bone properly in the most extreme cases and especially in the knee-joint, not even sparing the ligaments, but proceeding in respect to the further bandaging, as has already been suggested for shattered fractures of the bones." In spite of all, Boy would not admit that he had been mistaken and advised amputation in general for gunshot wounds of the joints with shattering of the bones, especially in case of the large joints. "Experience brings discredit upon all contradiction, the seeming improvement only deceives." If amputation were not allowed then the ligaments could be boldly severed, for why spare them? There was no danger in cutting through them; if the wound healed ankylosis resulted so that the ligaments of the joints were of no use.

In case of shot through the *shoulder-joint*, at first every hope for the preservation of the limb was abandoned (J. L. Petit, le Dran, Heister and Z. Platner), because the head of the joint was always thought to be fractured and the shock was said to be imparted to the entire bone. But E. Platner thought this concussion transmitted from the head of the joint not readily possible, "since in youth the head is separated from the shaft by a visible line of demarkation, and there is no fixed and immediate communication between the two. For although in maturity the two seem to be completely grown together, yet the lines of demarkation so apparent at an earlier age have not flowed together to such an extent that the head and shaft could be said to enter into a complete, unbroken union. Experience also teaches that the shaft is not necessarily splintered when the head is shattered." That was the same idea as Stromeyer's in regard to splintering above the edge of the epiphysis. Bilguer, Ravaton and Schmucker reported cures by the conservative method; in that way large incisions were not necessary as soon as one felt certain of suppuration in the joint. Gunshot injuries to the *elbow-joint* were regarded as more dangerous than those of the shoulder-joint, on account of the number of ligaments and nerves and of the many bony projections, insomuch that amputation was looked upon as the rule. But in this case too conservative cures were more often reported (certainly by Paré). Ravaton thought that only those injuries offered a prospect of cure, which did not affect the entire joint, but nevertheless he would only amputate when gangrene and exhaustion threatened. Shots through the *wrist* were also cured but a stiff joint remained.

In *gunshot wounds of the knee-joint* with a simple capsular injury it was thought that amputation could be avoided (Ravaton); in those with shattered bones, lacerated ligaments or injury to the poplitea the rule prevailed to amputate immediately, the earlier the more successful (Schmucker and Boy).

The following, among others, were experiments in conservative treatment:

Ravaton (Obs. 90). The ball opened the capsule near the patella without injuring the bone. After three months, caries of the patella, amputation, death.

J. Hunter (Ausgabe von Palmer-Langenbeck, S. 890). The ball entered at the outer edge of the patella, went behind this through the joint and passed out through the cond. int. fem. Four days without treatment then superficial bandaging; cure.

Theden (Neue Bemerk. I Th. 11 Absch.). Shot through both condyles of the femur; extraction of many splinters. In the ninth week a fragment with a distinctly perceptible point penetrated into the knee-joint, and it was held down by graduated compresses and a specially constructed press. Without inflammation, suppuration or exfoliation ensuing, healing followed with a somewhat stiff joint.

Ehrlich (Chir. Beob. II Theil, S. 115). The ball entered at the condyl. ext. fem., passed through the knee-joint and out through the condyl. int. tibiæ. French surgeons urgently recommended amputation on the battle-field. The patient consented; but as the knife was so dull that it was more like a saw, he rebelled. Allowed to lie helpless, on the following day he was brought into the hospital. The patient with a four-inch circular incision which reached to the muscles, now very earnestly desired amputation. However Ehrlich could not decide upon that because he had already successfully cured several similar gunshot wounds of the joints; bandaged with plaster. After six weeks the swelling, suppuration and synovial discharge had diminished considerably and in eleven weeks the wound was healed. The patient was discharged with a stiff joint in three months.

Boy (l. c.). The ball injured the knee-joint, the outer edge of the patella and the condyle of the tibia. For several days the patient was so well that Boy did not think of amputation at all. Then swelling, excessive suppuration in the muscles of the thigh and caries. Repeated incisions, injections and careful diet brought about a cure in five and one-half months.

Boy regarded as an exception his conservatively cured case of gunshot injury to the knee-joint, and considered amputation as the rule. He did not know that during the campaign gunshot wounds in the knee were survived without amputation, but he had observed many die when the operation had not been performed. Of course the amputation of the thigh was a dangerous operation, but patients endured it rather than that injury. "It can well be that a few amputations were made when the patient would have recovered without one, but many will be saved by amputations who would die without them. . . What is very important in gunshot injuries to the knee, the amputation must not be postponed because it may soon become impossible to perform it successfully. The excessive suppuration which often extends even to the anus produces caries of the hip-joint and exposes the patient to the greatest danger."

If a *cannon ball had torn off one of the extremities* the stump was amputated in order to make a simple and clean wound and to prevent inflammation (Mar-

tinière). But similar injuries soon led to other principles. When an arm and shoulder-blade were torn off by a mill-wheel there followed no hemorrhage; a ligature was unnecessary and healing ensued (Cheselden). Ravaton saw an upper arm taken off close to the shoulder by a cannon ball; he bound up the artery, left the head of the humerus in place and thus avoided exarticulation; a cure resulted after seven months. Michaelis and Hunczovsky published two quite similar cases with ligature of the brachialis, the omission of amputation and ultimate healing. There were then submitted cures with and without amputation; one must take his choice. Bilguer was throughout opposed to a new amputation of the foot, lower leg, hand and forearm; he separated the ruptured soft parts still remaining, sawed off protruding ends of bones and removed all loose splinters. At the upper arm he made a ligature of the main vessels and in this way cured several cases; but in case of thighs shot off he saw, as a rule, death result so quickly from loss of blood that there was no longer any question of assistance. Schmucker also discarded amputation, and even considered it superfluous to saw off the ends of the bones, and he never observed severe hemorrhage follow because the arteries contracted quickly. When he found both upper arms taken off, the brachialis in only one needed to be bound; and even in case of the thigh the ligature of the femoralis was unnecessary. B. Bell and Larrey favored amputation, and also Richter, who however seemed to vacillate.

Whether one should amputate on the battle-field or later was a much discussed question. The older surgeons, Wiseman, Sharp and le Dran, had favored primary amputation. Faure in his prize work, declared this very dangerous on account of the increased sensibility and the anxiety of the patient, and would amputate only after three weeks or more, when the patients had recovered themselves. Boucher immediately opposed this view with some successful amputations made upon the battle-field (1756). Likewise thought B. Bell, Schmucker and the Siebolds, father and son, who would amputate immediately and even before transportation. These German surgeons frequently observed amputation of the thigh which were made on the first day heal, while if some days passed, and the wounded had been transported and inflammation, swelling and fever had arisen, the outcome was often fatal. Entirely opposed to this was the opinion of J. Hunter who, somewhat faint-hearted in his operative counsel, considered amputation upon the battle-field as the greatest mistake.

If hemorrhage did not indicate it at once he was willing always to postpone it until the inflammation was over, since the loss of a large limb, in perfect health and strength, was seldom endured. And if one should, with right, allege for the primary amputation that transportation is made more easily possible, yet experience opposes to this advantage that it costs more human lives than the secondary operation. These principles found a bitter opponent in Boy. He amputated as soon as the first shock was over, supported by the experience that in the field hospitals of the first class the operations always had the best results. Out of fifty-six amputations on the battle-field and upon soldiers treated in the hospital of Landau, fifty recovered. "If also many died whose limbs had been amputated on the battle-field, yet this does not throw aside the general experience. . . . Naturally, all those with fresh amputations did not recover. There are patients who will die whatever we may do; again there are others who will come through successfully, however unwisely one may proceed. Any unnecessary postponement of amputation increases the danger. If inflammatory conditions once appear, the patient is killed by increased irritation; if suppuration is present he readily dies of exhaustion. If one must postpone the operation, he should watch the periods of inflammation and amputate at the time of the suppurative period." It is seen also that our intermediary period was also known in the last century and amputation was foregone during that time. Among the French military physicians, primary amputation now soon received general recognition, although one finds the name of Boy nowhere cited. The chief physician of the French army, Larrey, exercised the greatest influence with his rough notes from the battles of Napoleon I. (Mém. sur les amput. des membres à la suite des coups de feu, 1797). Percy and Sabatier joined themselves to him. The latter wrote to Larrey: "Citoyen! je suis pénétré depuis longtemps de la vérité que vous y expremez, qu'il est nécessaire d'amputer sur le champ dans le plus grand nombre des cas, qui exigent cette opération." Larrey published a number of successful primary amputations and announced the following indications for it: 1, limbs carried off; 2, fractures with contusion of the soft parts; 3, laceration of the soft parts and main vessels; 4, fractures with laceration of the muscles and large nerves; 5, extensive exposures of the bone; 6, laceration of the bones, muscles and vessels without wider separation of the skin; 7, fractures of the joints of the foot and forearm, with laceration of the ligaments, and lodgment of a ball in the end or cavity of a joint, if it could not be readily extracted. Larrey considered a delay was indicated if gangrene was not yet limited, or if inflammation, fever and delirium appeared during the first twenty-four hours; then only could the secondary amputation come into question. He recommended conservative treatment in all simple fractures and in such as affected the joints.

(*To be concluded next week.*)

SOCIETY PROCEEDINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Proceedings of the Ninth Annual Meeting.

(*Concluded from last week.*)

Dr. F. X. DERCUM of Philadelphia read a paper on

THE PATHOLOGY OF FUNCTIONAL DISEASES AS A GUIDE TO TREATMENT.

He described the nerve cells and related observations on cell activity in lower forms of life. These show movement of nerve cells and that activity causes the cells to shrink. Alcoholism causes serious nutritional changes in cells, especially that the fine prolongations were corroded, swollen and destroyed. There may be changes in cells, destruction of same and changes in the prolongations. Symptoms: Fatigue, irritability in keeping with pathology, loss of cell substance; may be due to poisons in blood. He related experiments with frogs. This is neurasthenia simplex, not that form found with organic diseases in pelvis, which is neurasthenia symptomatica. The indications are: 1, rest and food; 2, removal of waste products. In hysteria, hypnotism should not be applied; may substitute worse condition; in insanity, rest, food, elimination of toxic agents. Autointoxication may come from: 1, excess of normal constituents; 2, due to diseased organs; 3, poisons from without.

Dr. J. B. COWAN emphasized the importance of the poisons in tissues.

Dr. R. M. CUNNINGHAM said that the experiments related wiped out the functional diseases. The pathology of the writer explains the symptoms and indicates the treatment.

Dr. L. S. McMURTRY said that nervous symptoms were often thought to be due to gross lesions. When these were removed the symptoms were not relieved. By elimination, rest and feeding, by improving the nervous system, they may improve.

Dr. G. C. SAVAGE related cases with pigeons which were killed in different stages of exhaustion, which showed that exhaustion reduced the size of the cell. We need not dispense with functional diseases. The changes are physiologic rather than pathologic.

In closing, Dr. DERCUM said that the essential in simple neurasthenia was fatigue, and might complicate symptomatic neurasthenia. To Hodge is due the credit of first making observations of cell changes.

Dr. F. B. SLOAN of Cowan, Tenn., illustrated "The Application of the Plaster Jacket and Dressings" on a subject on a frame by which the patient is to be suspended in a hammock while the jacket was applied. The patient was placed in hammock, which was supported by a roller around the body and around the top of the frame, and plaster jacket over hammock.

Dr. R. M. CUNNINGHAM had a case die just after suspension in the Sayre apparatus, in which there is severe shock after extension in Pott's disease.

Dr. SLOAN closed the discussion by relating three cases treated with the apparatus, which is the invention of Dr. T. W. Sloan of Seattle, Washington.

Dr. JOHN A. LARRABEE of Louisville, Ky., read a paper on

SOME POINTS IN THE TREATMENT OF TYPHOID FEVER

In which he claimed that as we are aborting other microbic diseases it is not unreasonable to attempt to abort typhoid. He thought that the products of the typhoid fever bacillus were far less injurious than the heterogenous microbes and ptomains formed in the intestinal tract by reason of improper diet and from poisonous gases, the product of putrefactive changes, all of which are in our power to prevent. Intestinal antisepsis is the *sine qua non* of treatment. Avoid narcotics lest the already cloudy typhoid cerebrum should forget to preside over the function of life; may occasionally be used with restlessness, factition and a dilated pupil, especially accompanying hemorrhages. Physical examination should be made every visit. Tympany should not be allowed to elevate above the spinous process. For this use:

℞ Ol. terebinth . . . . . dr. j
Rochelle salts . . . . . oz. j
Glycerin . . . . . oz. iv

M. Inject one-half in pint of water, and remainder if not relieved in two hours.

He endorsed the principle on which Dr. Woodbridge bases his treatment, intestinal antisepsis. The essence of cinnamon is more potent to destroy micro organisms than carbolic acid. For thirty years he has never been without a pill made after the formula of Dr. Fisher, an army surgeon, consisting of crude mercury with aromatic oils and terebenthinates, cubebs, copaiba, peppermint, aloes and colocynth. When purgation ensued he alternated with 5 or 10 grains "Tully's powder." The annoyance of the fifteen minute dosage advocated by Woodbridge, he thought deleterious. He advocated specific treatment, *i. e.*, all intestinal antiseptics, which are innocuous, and had used guiacol and guiaquin, especially where there is any probability of malarial complication, etc.

Hyperpyrexia is important but must be overcome by means not prejudicial to the patient. When the temperature persists at 104 degrees, use thirty drops externally to a small area of the abdomen. Never use antipyrin or acetanilid. If pulse and temperature rate are greatly disturbed, use small doses of strychnia.

It is a question whether the enforced feeding of the present day is not as deleterious as the venesection, almost to exsanguination, of former days. Complete anorexia helps to make early diagnosis. Bouillon, Axtell's capsules, buttermilk, Mellin's food with milk and plenty of sterilized water are quite sufficient to choose from, and never more than a gill at a time. He protested against the use of alcoholic stimulants. He had never seen any benefit from their use which could not have been obtained from tea or coffee. Digitalis has no place in typhoid. Strychnia is the one heart stimulant to be used. He should not wait for urgent and alarming symptoms before giving small doses. Whenever the pulse and temperature are disturbed in the relation of 10 to 1, strychnia should be used. Heat is a powerful stimulant to the heart and a hot water bag or Geyser hot appliance should be at hand for emergencies. Hemorrhage is from super-alkalinity and defibrination of the blood by the ptomains formed in the intestinal tract. In some, hemorrhagic diathesis; increased coagulability in some. This condition is favored by mineral acids and especially a diet of buttermilk, lactic acid, better safeguards against hemorrhage than hemostatics. Ergot controls bleeding only when unstriped muscular fibers can compress the vessels; in other forms of hemorrhage a therapeutic error. Antiseptic treatment is of value not from destruction of bacilli, but from prevention of formation of ptomains and poisonous gases, which are main factors in keeping up disease. Typhoid is a swallowed poison, hence the importance of pure water. Nothing equals chlorinated lime for disinfecting the dejecta. It is as criminal to deposit the non-disinfected stools in a vault or cesspool as to put Paris green in a neighbor's well.

Dr. J. W. DUNCAN said that the author was in accord with his views. For some years he has believed that typhoid fever could be aborted and had been using the best antiseptics obtainable. About two years ago he got Dr. Woodbridge's formula from Parke, Davis & Co., and had gotten good results in every case: had not lost a case since. He agrees that the patient should not drink well water; had not seen a case in last five years who did not drink well water. He also believes that the disease may be caused by using milk from cows that are allowed to drink impure water. He sustains patients with strychnia, careful feeding with liquids only.

Dr. G. W. DRAKE said that in Chattanooga there was very little typhoid since improved sanitary condition, sewers and water-supply. Would treat with baths, not as Brand, but at such a temperature as would not shock the patient. This was enjoyed by the patient. Accomplishes good not by reduction of temperature but by application of water.

Dr. J. Q. SUTTON stated that he had used Woodbridge's treatment three years, but that when he began to purge he dosed less often. In Tracy City those who used cistern water did not have disease, but those who had the disease used well-water.

Dr. J. A. WITHERSPOON said that the poison is not in the bowels but formed in the lymphoid tissue, hence intestinal antisepsis is not rational. The disease frequently reported as typhoid was not typhoid but a hybrid fever due to intestinal fermentation.

Dr. J. B. COWAN had not seen a case of typhoid for twenty years.

Dr. JAMES E. REEVES of Chattanooga had examined 300 cases and did not find the Eberth bacillus in one. The fever we have may be due to intestinal fermentation, and here intestinal antisepsis may be useful. Hemorrhage may be due to hypermedication.

Dr. ANDREW BOYD said that Dr. Cowan had discussed this disease at every meeting for ten years and had always advocated whisky, and he wondered that he had not mentioned it. Dr. COWAN replied that he was coming to that when his time was out. He gave whisky in every case of fever.

Dr. WILLIAM R. BLUE of Louisville, Ky., read a paper on "The Cystoscope in the Diagnosis of Bladder and Kidney Disease," with presentation of the Leiter-Brenner cystoscope, which he preferred. He related cases in which it had been used for foreign bodies, stone, tuberculosis, etc. The cystoscope is indicated in obscure urinary troubles and to aid in catheterizing the ureters.

Dr. W. FRANK GLENN said that the value of a cystoscope and endoscope could be appreciated only by those who used them. Stone can be diagnosed where not found with sound. He related a case where stone had been found postmortem which could not be found with a sound. In all obscure cases the cystoscope should be used. It is extremely difficult to catheterize the male ureter.

Dr. BLUE said that many condemned the instrument from want of skill in using it. This requires plenty of patience, skill and glycerin.

Dr. J. P. STEWART read a paper entitled "A Bouquet of Remedial Agencies," which was a discourse on the moral management of patients. He related a number of cases relieved of serious nervous troubles by giving way to their whims and thus securing their confidence; dealing on the influence of the mind over the body and the influence of one mind over another.

Dr. W. FRANK GLENN said that the subject of the influence of the mind over the body and over another mind was full of interest. The first duty of the physician was to get the confidence of the patient and then his suggestions would pretty surely be realized by the patient. Nineteen hundred years ago Jesus had taught this law every day, that the cure depended on the confidence of the patient. "Thy faith hath made thee whole."

Dr. G. W. DRAKE believed that every disease had a material basis. There are no imaginary diseases. Mind may act on the cell but has not complete power. In these cases give medicine and use suggestion.

Dr. E. B. SANGREE said that the paper was especially inter-

esting, as it dealt with a subject out of the general run. Since we are as ignorant of the ultimate constitution of matter as we are of mind it is well to be cautious in the use of the word. We know there are trophic nerves, and if nervous influence can affect cell metabolism it follows that anything that can stimulate nervous impulse can affect cell metabolism favorably. There is consequently no inherent reason why material effects can not be produced by mental action.

Dr. J. P. STEWART, in closing, mentioned a hystero-epilepsy of ten years' standing, where the convulsions were stopped in three minutes when otherwise they would last thirty-six hours. He suggests no return for a week; later, for a month. Has had no convulsion for five years.

Dr. LOUIS FRANK of Louisville, Ky., read a paper on "Hysterectomy; Is it Justifiable in Septic Diseases of the Appendages?" He believes vaginal hysterectomy a fad. The reason assigned is that the uterus after oöphorectomy is a useless organ, when the fact is that it is necessary to complete the pelvic floor. It is not more liable to gonorrhea, tuberculosis and cancer than before. He regards the operation as more dangerous than removal. There is less shock in abdominal operation without removal of uterus; position of bladder not disturbed. Total extirpation may not be necessary; less danger of tearing. Does not oppose vaginal hysterectomy for cancer but only in rare cases.

Dr. L. S. MCMURTRY said that a limited number might be cured by tapping. The French are experts in vaginal hysterectomy, but are not equal to the Americans and Euglish in abdominal section. The best surgery is that which cures the patient thoroughly and completely with the least mortality and preservation of most of the organs in their integrity; can not make accurate diagnosis, especially as to bowel involvement if uterus is sacrificed before complete diagnosis. Often suppurating tubes, etc., are not removed. Convalescence is retarded by slough from clamp; not a completed operation. In abdominal section we can drain *per vaginam* or above by suction. The personal equation of the surgeon cuts an important figure, but generally the abdominal route is best. Cases can be cured both ways.

Dr. W. D. HAGGARD, JR., was an American convert to the French school. He would not remove a healthy uterus. Where both tubes are infected the mucous membrane of the uterus is infected, then the uterus should be removed or it may be reinfected, necessitating subsequent operation. The reason for vaginal hysterectomy is on account of less mortality. The advantage is that we can break up adhesions and abscesses by fingers, per Douglas cul-de-sac, and determine extent of operation necessary.

Dr. R. M. CUNNINGHAM said that a thorough curetting of the uterus occasionally cured pus tubes. Removal of pus tubes per abdominal section and thorough curettage of uterus meets the indications.

Dr. B. SHERWOOD DUNN cited statistics showing that the mortality by the vagina was better. Since coming to America he had changed his mind. Vaginal hysterectomy had been pushed to extremes in Paris and there will be a reaction. He will operate by abdominal route in many of his cases hereafter. Vaginal hysterectomy will not be superceded in peri-uterine abscess and cancer. In bilateral pus tubes he would perform abdominal section. He had never had secondary infection in 500 cases.

Dr. G. W. DRAKE of Chattanooga, Tenn., read a paper on "Abnormal Metabolism," insisting on importance of proper nutrition. Disease is due to change which may not be seen even with the microscope. The animal extracts will largely supersede other remedies in future.

Dr. L. B. GRADDY of Nashville, Tenn., presented a case where there had been "Infectious Disease of the Brain from Acute Suppuration of the Middle Ear." Infectious disease of the brain, from chronic suppuration of middle ear is quite common; may have pachymeningitis, leptomeningitis or abscess of brain. In this case the inflammation was from the use of the douche. The membrana tympani was punctured but abscess of mastoid resulted. Nearly the whole of the mastoid was removed, followed by abscess of the posterior part of the middle lobe. Operation was followed by recovery.

Dr. N. C. STEELE emphasized the danger of using the nasal douche. Mastoid operations are successful as a rule. He insisted on the importance of opening mastoid when pain in this region was not relieved by leech and hot applications.

Dr. FRANK TRESTER SMITH called attention to the lesson of the importance of middle ear disease as a causative factor in producing brain lesions, especially abscess. As a rule abscess of the brain is caused by suppuration of the middle ear and hence it is important that the latter be cured.

Dr. C. M. DRAKE of Atlanta, Ga., read a paper on "Formaldehyde as a Disinfectant." He endorsed the use of this agent, which has the support of the Marine-Hospital Service. He described the lamp devised by Kinyoun, which is simple, cheap and effective. It is the most feasible and best germicide for disinfection. Trunks are to be filled with the fumes and placed in a room filled with the gas. The gas is very irritating to the eye, nose and throat.

Dr. J. A. GOGGANS related a case of ptomain poisoning (probably), due to eating oysters, with symptoms resembling atropin poisoning.

Dr. G. W. DRAKE said that urticaria was often the result of diet and medicine. He knew of cases due to eating strawberries.

Dr. GOGGANS said that it was not a case of urticaria, there was no itching.

Dr. DRAKE said the cause was similar and the treatment should be the same.

Dr. J. W. HOOPER said it was difficult to decide whether it was due to poison or reflex trouble. Patient gives history of similar trouble whenever he eats cheese. He thought it one of tyrotoxicon poisoning.

Dr. J. W. HOOPER of New Site, Ala., read a paper on "The Practical Application of the Microscope to Every-day Practice," relating cases where renal colic was diagnosed from appendicitis by examining the urine. The microscope should not be relied on exclusively. In an epidemic of diphtheria he found the streptococcus and gave an unfavorable prognosis. Many of the cases died.

Dr. R. M. CUNNINGHAM thought that the general practitioner should be able to count the blood corpuscles and estimate the amount of the hemoglobin. The microscope in the early diagnosis of tuberculosis is of questionable importance. The average practitioner will not give the time to recognize what he knows.

Dr. RICHARD DOUGLAS of Nashville, Tenn., related a case of a woman at full term with placenta previa and contracted pelvis two and three-fourths inches, hemorrhage increasing, and asked what the members thought the proper procedure.

Dr. J. B. COWAN suggested dilatation and delivery.

Dr. G. W. DRAKE co-incided; could not see that anything could be gained by waiting; craniotomy if necessary.

Dr. J. W. DUNCAN would advise, if pelvis large enough to deliver head, immediate dilatation, version and delivery as rapidly as possible. To attempt to apply forceps above the brim of the pelvis might cause delay, which would result in the death of the mother as well as the child. If the deformity precludes the possibility of natural delivery he agreed that Cæsarean section is the thing to do at once.

Dr. J. A. WITHERSPOON said that it was impossible to deliver head at two and one-half or three-fourths inches, and the case should be watched and Cæsarean section performed.

Dr. C. M. DRAKE recommended symphysiotomy and immediate delivery.

Dr. DOUGLAS thought the indications clear. In placenta previa deliver immediately, always. The high forceps operation is difficult and dangerous and his plan of procedure will be Cæsarean section.

The meeting was one of the most successful ones in the history of the society, scientifically and socially. The evening of the first day was spent at the Centennial Exposition and also the afternoon of the second day, when the physicians of Nashville tendered the visitors a luncheon at the Lion Roof Garden. About 200 members and their ladies were present. The X-rays were exhibited at the close of the night session of the second day showing bones, foreign bodies, deformities, etc.

The following resolution was passed:

Resolved, That the recent outburst of yellow fever in the South and numerous conflicting State and municipal quarantine regulations, emphasize the great need of national quarantine laws which are uniform and protective; and

Resolved, That the Tri-State Medical Society in convention assembled urge upon members of Congress the need of laws governing quarantine in the development of cholera, fever, smallpox and plague.

The Society will meet in Birmingham, Ala., next year. The date will be selected by the Committee of Arrangements.

The following officers were elected: President, J.A. Goggans, Alexander City, Ala.; vice-presidents, Andrew Boyd, Scottsboro, Ala., G. W. Drake, Nashville, Ala., and C. M. Drake, Atlanta, Ga.; secretary, Frank Trester Smith, Chattanooga, Tenn.; treasurer, Geo. R. West, Chattanooga, Tenn.; chairman Committee of Arrangements, George S. Brown, Birmingham, Ala.

Let us have a Department of Public Health!

SELECTIONS.

The Pest-Stratum of the Sites of Cities.—Dr. Robert Barnes, who as long ago as 1855 was a health official for a part of London, in *Scalpel*, treats of the dangerous properties of the superficial soil of cities, the careful future investigation of which will solve some of the mysteries of high civic mortalities. We agree with him that we do well to labor with the outstanding problems of water-supply, but as they will presently be mastered, the problems of the soil will become urgent and, as they too are solved, life-saving will begin in good earnest. Dr. Barnes says: "One of the most striking examples of the influence of soil, and soil governs water and air, is the generation of ague. Ague was at one time endemic in Shoreditch, but it has vanished. So we may reason that unhealthy sites may be made healthy by care; but it is not less true that sites, naturally the most salubrious, may by neglect become pestiferous and deadly. I showed that we were chiefly concerned with the soil to the depth of thirty feet. Proceeding from the surface we had a bed of variable thickness, commonly called 'made earth.' It is chiefly an artificial stratum. The proportions of 'virgin soil' to that of common earth had been reduced to a very insignificant amount. The great bulk was made up of refuse of every kind. . . This upper stratum so constituted had been further polluted, and its noxious qualities intensified, by innumerable perforations for cesspools, and constant saturation from defective sewers and drains, the poisonous emanations from gas-pipes, and every conceivable abomination resulting from the off-scourings of a population of 25,000. This layer of foul stuff, or pest-stratum, as it may appropriately be called, varied in thickness from one or two to sixteen feet or more. This description of the pest-stratum is a very important contribution to geology. This last stratum, the work of man, has to be cleared away. This done, geology reverts to its primeval natural purity. Another observation may be pardoned. If this pest-stratum, laden as it is with putrescent matter, could be kept dry, it would be comparatively harmless. Moisture is a necessary element for the evolution of its pestiferous properties. Hence good surface drainage is not less necessary than deep drainage. And we may see a happy illustration of this in the present condition of the city and the more perfect districts of London. The paving and other means for securing quick surface drainage not only lessen the emanation of foul air from the surface, and from the soil beneath, but they also promote the dryness of the air. The relative humidity of the air in London is often less than in the country. This is especially marked at night. There is little or no dew. The dry surface gives off no moisture for precipitation. And so we get in London the luxury of clear, dry, fresh air at night to a degree hardly known in many parts of the country. Doctors who have experience of night work have found this out. A practical lesson from this is: That windows may often be opened at night in London with benefit, when in the country, where grass is near, the practice is fraught with danger. I have had many proofs of this in country consultations. To secure this surface drainage and cleanliness to the greatest extent it is essential that the material for pavements be solid and impermeable to moisture. Flagstones and asphalt fulfil these conditions. Wood pavement, pleasant as it is in some respects, does not. It absorbs damp filth and gives off foul air and dust. The population actually living on the bosom of the Thames, whose every breath is a distillation from its water, is not especially liable to fever; not so much so, indeed, as the population whose dwellings skirt the banks. And this littoral population, it must be borne in mind, is exposed not only to the malaria arising from the banks, but also to that same class of pernicious influences attached to bad sites and badly constructed houses, which are found alone sufficient to generate fever. Few of the seamen who filled the medical deck of the *Dreadnought* contracted their illness on the river under circumstances which can be connected with the state of the waters; and of these few it will be found that the illness of most could be traced to cold, wet, exhaustion, bad food, drinking bad water, and overcrowding in the close ill-ventilated forecastles of unhealthy ships. Most erroneous assumptions still continue to guide the exertions of those who are most earnest in favor of the present scheme of what is called the dispollution of the Thames. I had studied the Gulf Stream as it flows in a distinct current across the Atlantic; I had seen the Plata propelling its stream of fresh water unmingled many miles into the ocean; I had traced the confluence of the Rhine and the Main, whose streams are colored, one red, the other green, running on side by side, two rivers in one bed, and I concluded that the great sewage stream would hold its course, a concentration of pollution. Sir John Simon, in his admirable reports, expressed conclusions in harmony with the above and with the evidence adduced in my observations on the Thames, read before the British Association at Dublin. In this memoir, based upon examinations of the Thames water, of which samples were taken weekly during a whole year, at high and low water, from alongside the *Dreadnought*, I was assisted in the chemic side by Odling, and Hassall in the microscopic side. During the construction of the eastern-most main sewer I had an opportunity, I will not say of enjoying, but of experiencing a festivity under conditions which few excepting professional sewermen, can appreciate. I accompanied a committee of my Vestry and the surveyor in an official survey of the sewer. We descended into this subterranean canal by a hole near St. Luke's Asylum, walked along as best we could, breathing the balmy sewerage air, to a point at the East end of London, where we emerged. It is needless to say that as a safeguard against accidents, we took with us a supply of alcohol; and, to make our visit and report more picturesque, we stopped on our way and had lunch with what appetite we could muster. This experience taught us, I hope, to look with indulgence upon the occasional breach of the law of temperance by professional sewermen. On coming into the free air above I felt as I fancy Dante felt on passing from the Inferno into Paradise. No one was the worse for the adventure."

Ambulant Treatment of Fractures of the Leg.—Dr. C. Walther, in the *Revue d'Orthopédie*, has made a critical study of the methods which have been tried by German surgeons to secure the use of the legs in standing and walking during the process of healing in fracture. In the first place, he takes exception to the term "ambulant treatment," and suggests "treatment by action" as contrasted with "treatment by rest." The question is, is it possible to enable one to walk usefully who has an united fracture of the leg or thigh? (By "usefully" meaning the resumption of work, sitting or standing.) The apparatus must be so arranged as to take from the lower segment, below the solution of continuity, the pressure from the weight of the body. The apparatus used by Korsch and Bardeleben was first applied to fractures of the malleoli and leg, and afterward to osteotomies and resections. The principle on which they were employed was that of continuous extension, first made actively while putting on the plaster bandage, second passively continued by the apparatus. The writer, in the *Revue de Chirurgie*, 1895, had shown that continuous extension could not be exercised except by elastic bodies, or by the action of a weight; by any other means it is intermittent or illusory. Burns' orthopedic apparatus is the one most widely known; it consists of a plaster bandage to which are attached two hollow tubes fastened above at the root of the thigh to a padded metallic ring, taking its point of support at the ischium. Below, a stirrup fixed two or three centimeters below the plaster sur-

face of the foot, maintains the foot above the ground while standing. Bardeleben enumerates the following claims for the new treatment: It would prevent the formation of scars, antagonize atrophy of the muscles, hasten formation of the definitive callus, keep the organism in good physiologic condition, and give great help to the aged, to alcoholics and to all with debilitated constitution.

1. All kinds of apparatus, however delicately applied, can produce scars by pressure on the point of support, or by some disturbance of nutrition from other cause. If this is so when the patient keeps his bed, the limb is immobile and nutrition is least disturbed, how impossible to avoid it when the limb is down and circulation and innervation are interfered with by pressure much more considerable.

2. The pressure inward on the tissues by the padded ring and outward by the consequent edema, interfering with circulation, will more than neutralize the good effects of muscular action; besides, action itself is refused if it can not take place without suffering.

3. The definitive callus is formed only after five or six months when the apparatus has already been taken away. Whatever increased nutritive gain to the fragments there might be in the increased activity, would be counterbalanced by the more frequent displacement of the contiguous ends of the fragments, this being known to be the most fruitful source of fibrocartilaginous union, thus postponing indefinitely the definitive callus.

4. The restraints within doors are about the same, because the treatment does not admit of resuming the usual employment.

5. Alcoholics suffer from delirium tremens too soon after the accident to be benefited by the apparatus, which is not applied till between the eighth and fifteenth days.

The points of support on the thigh must be the skin, the muscles and the bones. The skin in its intolerance to continued pressure, in its elasticity and in its mobility over the subjacent parts coated with the secretion of its numberless glands, would never be anything but an uncertain and intolerant point of support. The appliances to its wrinkling surface would cause suffering, phlyctenulæ, excoriations and scars. In the leg the gastrocnemius is the only support for an apparatus applied to the muscular tissue. If it is utilized its skin covering must participate, the muscle will atrophy and, at best, the force will be applied at the point of insertion of the tendo Achillis in the calcaneum so as to exert pressure upward on the lower segment of the fracture, the very thing sought to be avoided. As to the bony supports: The first indication is to maintain the foot above the ground by means of protectors embodied in the plaster bandage. The second is to find, above the solution of continuity, points of solid support on the bones of the leg or pelvis. There are only the tuberosities of the tibia in the leg. The condyles of the femur project too far for the tibial region; and it is out of the question to employ the patella because of its mobility. Besides, the skin would be intolerant of an apparatus applied over such sharp angles as those of the tuberosities of the tibia. The ischia offer better support when the fracture is above the knee, being solid, protected by a thick pad of cellulo-fibrous tissue imbedded in fat, which lessens shock and pain from pressure. But, with all this favorable, the most delicate skill in application would be needed as well as the most expensive materials, to utilize this point of support successfully; and there would still remain the danger of ankylosis of three large joints, besides the risk to be taken in interference with circulation, to edema, scars, etc.

The author believes that few, except transverse fractures of the leg, could be benefited by the "ambulant treatment." In the aged, in children, in most women and in fat, over-muscular or too feeble men, it would be contraindicated, or impossible. He sees in this method no real advantages as to definite results; he thinks it impracticable, for to apply suitable apparatus, exceptional skill would be needed to secure proper traction on the parts and permit use of the limb in walking. Besides, the cost would bar it from those most to be benefited by it. His conclusion is: To hope to enable those with fractured femur or tibia to walk usefully before consolidation, is at present a beautiful dream whose future, however desirable, can not yet be foreseen.—*Clinical Recorder.*

Imperforate Anus Treated by Kraske's Operation; Recovery.—Dr. Matas, in the *New Orleans Medical and Surgical Journal*, records a successful operation for the relief of congenitally imperforate rectum in a well grown male infant. The operation was done forty hours after birth, without anesthesia. There was no loss of blood, no blood vessels having been encountered. The infant went to sleep soon after the conclusion of the operation. A cough, the prodrome of pertussis, which was epidemic in the locality at the time, was noticed on the day following the operation. This complication seriously threatened the final success of the operation. The serious nature of the case was fully explained to the parents and an operation urged that would permit the establishment of an outlet through the normal anus or perineum, or of an artificial anus elsewhere, if the exploration of the pelvis revealed such a condition that made the restoration of the intestinal canal at the anal region an impossibility. The parents at once consented. The general condition of the baby was excellent. The abdomen, though slightly full and tense, did not give evidence of intestinal paresis. The stomach retained a few teaspoonfuls of sweetened water without vomiting. The frequent paroxysms of violent cough unquestionably precipitated a complication which would at least not have presented itself so soon after the operation. In consequence of the large pelvic outlet in the sacro-coccygeal region and the laxity of the anal orifice from weak sphincter control, the rectum began to protrude, and not many days elapsed before three inches of prolapsed rectum remained constantly extruded from the anus. All attempts to control the escape of the bowel failed. The constant protrusion of the rectal mucosa caused irritation and tenesmus, which distressed the child exceedingly and prevented rest. None of the local applications had the least influence in preventing the recurrence of prolapse and it became necessary to operate. "Having no faith in the palliative operations in such a case, I decided to excise the prolapse. Therefore, twenty-eight days after the first operation, I amputated three inches of protruding bowel. After finishing this operation, we found it necessary to circumcise the child on account of phimosis, which made urination painful. These operations were followed by no unpleasant consequences, and in ten days the child was entirely well, with the exception of an incipient inguinal hernia, which became less troublesome as the cough diminished. It is also worthy of note that, in addition to the anal defects, the phimosis and the disposition to hernia, the child was born a unilateral cryptorchid, one testicle having failed to reach the scrotum. After this event the child continued to grow and do well, though he has always been pale and not as vigorous as his other little brothers. About a year and a half after the operation, the baby was brought to the city and I had the opportunity of examining it. The child had normally three or four bowel movements a day. It was difficult to ascertain whether there is much bowel control, but the finger feels a certain amount of resistance and contraction when it is introduced a short distance beyond the anal margin. The baby appears to be disposed to frequent diarrheal and dysenteric attacks, which are probably due to digestive disturbances. When these occur, the anal region becomes irritated, and has to be most carefully washed to prevent eczema and excoriations. It is also noticed that under these circumstances there is no fecal control. There is also a tendency to recurrence of the prolap-

sus recti, though in a much less degree than when this condition first existed. The prolapse now appears to be due to the tenesmus of dysentery. It is probable that the operative treatment will be required if the prolapse continues to increase. If such is the case, I shall advocate a simple rectopexy or anchoring of the rectum by Verneuil's method. While the child has thus far survived, and is apparently in very fair condition, it is evident that it has had to travel over a very hard road, and that its future path is not likely to be strewn with roses. After a careful investigation of the literature of the subject, I find that this is the tenth in a list of twelve cases of ano-rectal imperforation in which relief has been attempted by Kraske's method or its modifications." The cases are reported by Vincent of Lyons, two cases, in 1887; Ceci of Genoa, 1890; Burrell, Boston, 1891; Chaput, Paris, 1892; Poisson, Nantes, 1892; Czerny, Heidelberg, 1893, two cases; Fochier, Lyons, 1894; the present case, New Orleans, 1894; Elliott, Boston, May, 1896; W. W. Keen, Philadelphia, December, 1896. Of the twelve cases reported only two succumbed to causes directly connected with the operative treatment, and in one of these death was caused by peritonitis due to the infection of the peritoneum with an exploring needle previous to the sacral operation (Czerny's second case). Eight out of the twelve cases died at variable periods, from a few days to two months after the operation, from diarrhea, marasmus, capillary bronchitis, and other conditions not directly connected with the operation. Four of the twelve cases had survived up to the time when they were reported; in Burrell's case, four and a half years after operation; in Poisson's, three years; in the writer's case, two years and nine months; in Elliott's case, six months after the operation.

Resume of John Howard's Sanitary Labors.—The editor of the *Scalpel* closes a long essay on the life and deeds of the great Howard with a digest of his sanitary efforts. He says: John Howard had no sort of sympathy with crime or criminals, but a sense of justice, a submission to duty, a moral and physical courage, an industry and perseverance, a truthfulness, simplicity and modesty, which never before met in the same man, and probably will never meet again. He was emphatically one of those Englishmen to whom, if I may use the grand patriotic language of Milton, "God, when he would work some great reformation, does as his manner is, first reveal himself."

Such a life if written would have to deal with the poor in prison and the sick in hospitals. It would be a tale of human suffering, but the moral would amply compensate for the painful details necessarily brought before the reader. It should be treated as Dr. Guy says, as a romance; a romance which shall to the end of time amuse and instruct, reprove and encourage, not those only who speak the language that Howard spoke, but those, too, all the world over, who are able to appreciate the magnitude of the evils that he attacked, and the greatness of the victory which he won.

Howard's labors were truly Herculean. We can hardly realize that it was in the physical power of one man to do so much work. In his mission of charity he traveled over 45,000 miles, and went through hardships and perils of the most trying kind. Fortunately, he was spared to write out the history of his travels. Howard's explorations differ from those of Livingstone, Speke or Burton. They were of a nature which would only attract a man animated by the highest and purest feelings of humanity. They would be repellant to an ordinary mind. To live in an atmosphere of crime and misery, to have to descend into the miserable cells and dungeons described by him in his "State of Prisons," to have to witness the revolting cruelty and the unkindness of man to man, were duties which few would be capable of undertaking. Howard suffered from the very sufferings he had to witness, and from his want of power of being able to redress them. He visited in Ireland fifty prisons and goals. Out of that number he found five clean and forty-five dirty. It will be noticed that the Scotch prisons were in an equally insanitary condition. Howard attempts to explain this. He says that the original cause of this seems to have been the following very severe maxim in the Scotch law: After a debtor is imprisoned he ought not to be indulged the benefit of the air, not even under a guard; for creditors have an interest that their debtors be kept under close confinement, that by the squalor carceris they may be brought to pay their debts. He visited in Scotland twelve prisons and gaols, and found none clean and twelve dirty. Howard has left us an almost equally unfavorable picture of the state of English prisons. He visited in England 253 prisons and gaols, and found ten clean and 243 dirty. He visited 108 prisons and gaols abroad and found the majority of them clean. I have laid it down as the experience of Howard that dirt and disease went together, so that the health of prisoners depended in a great measure upon cleanliness. We can form a very easy approximation of the value of Howard's sanitary reforms from one disease alone, gaol fever. It is a disease unknown at the present day in connection with prison life; it was but too well known in the days of Howard, not only in England but on the Continent. Taking Howard's figures we may agree with Dr. Guy that the disease haunted one-fourth at least of our gaols. On the hulks on the Thames, amongst the prisoners, the disease seems to have been most destructive. "From August, 1776, to March, 1778, 176 prisoners died out of 632. This is more than one in four." Taking this as an estimate we may make it the basis for the number of lives he has been the means of saving, not alone in England, but over the whole civilized world.

For the purpose of comparison it is unnecessary for me to state the number of prisoners who are confined in English and foreign prisons at the present moment or who have been confined during the past fifty years. As population has increased, and as crime unfortunately preserves an equal ratio of increase, we may assume that there are more prisoners now than there were in the days of Howard. The gaol fever is now extinct. It has been stamped out by man's agency and by attention to the elementary laws of health. If one in four died in the time of Howard of gaol fever, and none die at the present day, what a vast saving of life has been effected. Every life saved must be credited to the great prison reformer. If we only take the prison returns of fifty years the net gain in life would reach a goodly roll. By attention to hygiene, to construction and arrangement of prisons, our prisoners have been saved from the gaol and other fevers, and by the humane management of prisons now adopted, prisoners are not only saved from disease but preserved in a state of health.

PRACTICAL NOTES.

The Application of Collodion and Salves in Ophthalmology is much facilitated by using a glass stirrer with a rounded tip. The substances do not adhere to the glass, and it is easily sterilized, while the smooth, rounded surface can not injure the eye.

Strychnin in Chloroform Poisoning.—In a desperate case of voluntary poisoning with chloroform, after the failure of all other means, the patient was restored by injecting, several times, about three centigrams of strychnin, seconded by artificial respiration and electricity. No deleterious effects were noted.—*Semaine Méd.*, December 15.

Convenient Method of Preserving and Diluting Tuberculin.—To avoid wasting the expensive substance when small injections are required, Tuwim fills a Pravaz syringe with the original tuberculin and stands it upright in a glass with the hole in the needle stopped with a soft cork, all under the strictest aseptic

precautions and protected from the light. When needed, the tuberculin is squeezed out, one drop at a time, and the consistency is such that the quantity in each drop can be calculated with great accuracy.—*Deut. Med. Woch.*, December 2.

To Differentiate the Grippe in Deceptive Cases.—A drop of blood is drawn from the finger into a tube, which is closed with a little cotton and laid away for twenty-four hours. At the end of this time the blood has become converted into a culture of the diplo- and strepto-bacilli characteristic of the grippe, extremely motile and easily visible with an ordinary microscope, 600 to 700 diameters. If negative results are obtained in twenty-four hours repeat in forty-eight.—T. V. Coronado in *Revista de Méd. y Cir. de la Habana*, December 25.

Indigo-Carmin Test for Milk.—If a few drops of a solution of indigo-carmin are added to milk the tint produced by it vanishes as the action of the microbes in the milk decolorizes it. The length of time the milk has been standing can therefore be determined by the duration of the tint; the older the milk the briefer the period of coloration. In fresh milk it lasts about twelve hours at 15 degrees C.; five hours at 15 to 20 degrees and four hours at 20 degrees, while it vanishes almost instantaneously when there are several decigrams of lactic acid to the quart.—Vaudin in *Bull. de l'Acad. de Méd.* November 30.

Pyramidon.—The value of this new form of antipyrin (*vide* JOURNAL, Vol. 29, page 1318), is confirmed by the results announced from v. Limbeck's clinic where it has been tested in a hundred cases of various diseases. Its antipyretic effect in chronic tuberculosis was highly satisfactory in thirty-two cases out of forty, and it was so successful in nine cases of articular rheumatism that it is recommended as a substitute for salicylic acid whenever there is intolerance. The fever not only subsided but it seems to have a specific effect on the rheumatism, 1.5 gram in fractional doses during the day. Its analgesic effect was also striking in migraine, trigeminus neuralgia, and other nervous pains, for which it is especially recommended, The effect is slight in chronic rheumatism, negative in malaria and nervous tachycardia and there was intolerance in two tuberculous patients.—*Wien. klin. Woch.*, November 4.

Prolapsus of the Female Urethra.—This trouble is rare (100 to 120 cases on record). It sometimes occurs during a coughing paroxysm in pertussis. Various methods of treatment have been devised, but the use of the knife is frequently followed by stenosis, and by death in one case. Emmet's "buttonhole" is not advisable on account of the fistula left and the double operation. Kleinwächter's method of slitting the urethra and suturing the beginning of the prolapsus to the base, is only applicable to partial inversion, but Israel's method is effective, simple and permanent in its results, as Wohlgemuth has confirmed recently, describing his experience with it in the *Deutsche Med. Woch.* of November 4. The protruding mucous surface is cauterized in narcosis with the Paquelin in a radiating series of burnt strips lengthwise of the urethra, through the entire thickness of the mucosa. The cicatricial contraction that results puts an end to the prolapsus. Two applications were necessary.

Minor Points in Gynecologic Technique.—After vaginal hysterectomy Bélin applies tampons in three layers; aseptic, aniline dyed strings are fastened to each tampon, a different color for each layer, so that one layer can be removed and replaced at variable times without disturbing those that should remain undisturbed for longer periods. This trifling innovation, he states, has rendered him inestimable service during the last year. He also uses a cone-shaped cake of soap in making the toilet of the vagina, which does not slip out of the hand like the ordinary cake and get lost in the depths. Reverdin's further improvement consists of a tube passing through the cone-shaped cake of soap, which fits into and closes the orifice of the vagina, while the water passes through and distends the walls. We note *en passant* the increasing tendency evidenced at the last French Congress of Surgery to prefer the abdominal route for hysterectomy.—*Journal de Méd. de Paris*, December 19.

Olive Oil in Hepatic Colic.—Barth reports the successful result of the administration of large amounts of olive oil in two cases of hepatic colic with icterus, caused by incarcerated gallstones. In one case 200 grams were taken every other day, and in the other 150 grams each day, the taste improved by a few drops of essence of anise. Part of the oil was found in the feces in a saponified condition, in the shape of small green particles which were at first erroneously supposed to be fragments of the gallstones. The rest was split into stearic acid and glycerin. The oil, besides lubricating the mucous surfaces and thus facilitating the expulsion of the stones, excites powerfully the secretion of bile, which flushes the biliary passages and removes particles that might ultimately develop into stones. On account of the increased secretion of bile, oil affects the system injuriously in adhesive cholecystitis, and it is also useless in dilatation and ascending suppurating infection of the biliary passages, and even injurious, on account of the impaired digestion and extra work forced on the liver.—*Semaine Méd.*, Dec. 1, 1897.

Improved Method of Sterilizing Catheters.—H. Alapy has perfected his method of steam sterilization as follows: A glass tube is selected large enough to hold the catheters without crowding, and a sheet of filtering paper, rolled in the form of a hollow cylinder, is slipped inside, which clings tight to the glass and absorbs the condensed moisture. The catheters are placed inside the paper, the tips up. The tube is then plugged at both ends with cotton in gauze, the lower plug pushed well up into the tube, which is then placed in the steam. When removed from the steam the paper is taken out and the tube shaken to prevent the catheters sticking together. They can be left in the tube until needed, all in sight. Experiments with anthrax spores, etc., showed that even the smallest catheters were thoroughly sterilized by this method in seventeen, fifteen, twelve, and even in ten minutes. Those that had been oiled and infected several days previously, and not cleaned, were rendered sterile in twenty minutes. He recommends the method as simple, certain, and except for spreading a little in the course of time, the catheters stand frequent sterilization in this manner without injury.—*Cbl. f. Chir.*, November 6.

Capacity of the Stomach in Infants.—A comprehensive study of this subject in Escherich's pediatric clinic results in the statements: 1. That the stomach of maternally fed infants is smaller than in the artificially fed. 2. That the true capacity of healthy stomachs is less than that of the functionally or anatomically morbid. 3. That the elasticity is greater in small stomachs, and 4, that the true capacity of the stomach is a function depending upon the size of the pylorus. With a narrow pylorus the capacity is large and vice versa. The practical importance of the research lies in the facts established that every healthy infantile stomach can by passive increase in the internal pressure, or from lavages, attain a capacity and retain it for some time, which stimulates dilatation. Large capacity after a lavage does not indicate either atony or ectasia. Repeatedly produced artificial gastroparesis injures the functions of even a healthy stomach musculature, much more where there is motor insufficiency. Consequently loading the infantile stomach should be solicitously avoided, and systematic lavages completely rejected, especially where there are gastroparetic or dilated conditions. The maximal single amount that should be allowed a normally developed infant is: First month, 90 c.cm.; second, 100; third, 110; fourth, 125; fifth, 140; sixth, 160; seventh, 180; eighth, 200; ninth, 225; tenth, 250; eleventh, 275; twelfth, 290.—Moscow Congress, *Wien. klin. Woch.*, November 4.

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SATURDAY, JANUARY 15, 1898.

THE RENEWAL OF THE ANTIVIVISECTION AGITATION.

Dr. GALLINGER of New Hampshire on Dec. 15, 1897, gave notice to the United States Senate of his intention to take up at an early day Senate bill 1063, with a view to deciding by a vote whether the bill shall pass the Senate. The bill is the same as S. 1552 of the Fifty-fourth Congress, "for the further prevention of cruelty to animals in the District of Columbia," which was favorably reported from the Committee on the District, May 26, 1896, but which failed to obtain consideration during the short session, or, as stated by Dr. GALLINGER: "Upon solicitation from several senators saying that they were receiving letters from their constituents protesting against the passage of the bill, I allowed it to drift along and did not ask for the consideration of it." It was introduced in the present Congress March 22, 1897, and having been reported favorably from the Committee is now on the Calendar, No. 136. Moreover, the deterring influence of the solicitations from the Senators aforesaid seems to have evaporated, as the bill will not be allowed by its senatorial pilot to drift along any further but will be brought up for consideration and vote.

We have already in our issues of Jan. 23, Feb. 6 and April 3, 1897, called attention to the gross injustice of the proposed legislation in its assumption that the cruelties practiced by the biologists of the District of Columbia, many of them Federal officers and all scientific men of National or more extended distinction, are of such a character as to require Congressional legislation for their restriction. The absurdity of the main argument of the originators of the bill must be manifest to all who are not zealots in the cause of the Humane Society. This argument calls for legislation to restrict scientific research in the District of Columbia because members of the Humane Society have testified to the horror which filled their souls on observing the atrocities committed in certain of the biologic laboratories of Europe and in thinking of the atrocities which might similarly be committed in the laboratories of the United States. We have called attention also to the assertions on behalf of the bill that no advance has been made in medical knowledge by any work conducted in the laboratories of the biologists, assertions which can be explained only by gross ignorance of the recent history of medical and sanitary progress, or by refractive errors of intelligence which throw all facts bearing on this particular subject out of the focus of mental appreciation. We have also shown, on the other hand, the efforts made by the profession to quiet this agitation of the so-called antivivisectionists. We have shown that not only all the medical associations and societies of the country, but all the scientific and sanitary societies, have memorialized Congress in opposition to the bill, and that even the Department of Agriculture has entered its official protest, citing the benefits to the lower animals themselves in connection with pleuropneumonia, tuberculosis, glanders, anthrax, hog cholera and Texas cattle fever, which could not have been obtained had the Bureau of Animal Industry been handicapped by such restrictive legislation as is proposed by S. 1063.

The AMERICAN MEDICAL ASSOCIATION has done its duty in this connection by placing itself on record as opposed to the bill, but individual members of the ASSOCIATION should not remain passive because resolutions have been adopted in general meeting. Resolutions are all very well in their way, but it is questionable if they will have as telling an effect on a vote of the United States Senate, as an argument by individual members of the ASSOCIATION to individual members of the Senate. Every member of the ASSOCIATION whose opinions have weight should place his opinions where their weight will be felt in a struggle to preserve the right of the medical man to labor in the cause of humanity untrammeled by the restrictive demands of "an over-zealous and intolerant local society" which, according to the Assistant Secretary of Agriculture, "appears incapable of taking a broad and liberal view of the subject."

Medical men in every State of the Union should aid their brethren in the District of Columbia in this fight against restrictive legislation, for if this bill is carried in the United States Senate, its provisions will speedily be brought home to them by the consideration of similar measures in their State legislatures.

Let us have a Department of Public Health!

ETHER AND CHLOROFORM.

In the *British Medical Journal* of Nov. 20, 1897, there appears an interesting paper on the comparative action of the principal anesthetics, ether and chloroform in particular, which was read before the section on anatomy and physiology at the late meeting of the British Medical Association by its president, Dr. AUGUSTUS D. WALLER. It is noteworthy in that it gives the results of experimental studies by a prominent physiologist, whose conclusions have, therefore, a certain authority and it was deemed of sufficient importance to form the subject of a leading article in the same issue of the *British Medical Journal.*

Dr. WALLER'S method of experimentation was to test the direct action of the anesthetic on the excitability of the nerve, taking freshly prepared nerves and submitting them to electrical excitation while enclosed in a chamber filled with the vapors of the different anesthetics, the effects being shown by a photographically recording galvanometer. By this method he tested the effects of the vapors of ether, chloroform, nitrous oxid, carbon dioxid, ethyl bromid and other anesthetics upon the nerve and found the results in striking agreement generally with their otherwise observed effects. Thus, ethyl bromid was evanescent but irritating, ethyl iodid produced lingering after-effects, and chloroform and ether powerfully anesthetized the nerve as shown by its galvanometric reaction, the formerly permanently and completely the latter temporarily. It is in regard to these last two agents, which are so extensively employed as anesthetics, that he specially directed the investigation and deduced the practical conclusions.

The chief question at issue in the researches of the Hydrabad commission on chloroform was whether this agent caused death through the heart or the respiration, and the latter view is that maintained by the Edinburgh school, which still advocates by preference chloroform as an anesthetic. It matters practically very little how death occurs, if it does occur, and the real question is what can be done to prevent it. Dr. WALLER'S experiments show that both ether and chloroform have a paralysant action on the highest form of tissue, nervous substance; the former temporarily, the latter permanently. The most important results of his study are summed up by him as follows:

1. Using ether and chloroform at an indefinite but high degree of concentration (about 40 per cent. and 10 per cent. respectively), the nerve has nearly always been anesthetized (= temporarily immobilized) by ether, killed (= finally immobilized) by chloroform.

2. Using ether and chloroform at various definite degrees of concentration (5 to 40 per cent. of the former, 1 to 5 per cent. of the latter) *the action of chloroform has been seven times that of ether.*

3. The action of mixtures of ether and chloroform (seven parts of ether to one of chloroform) is cumulative, the sum of the action of the two constituents.

4. Carbon dioxid *per se* does not increase, but rather diminishes the prolonged anesthetic effect of chloroform.

It will be readily seen that the above conclusions have very important practical bearings, and it is the discussion of these that forms the most important part of Dr. WALLER'S communication. If chloroform is seven times stronger than ether in its anesthetizing effect, the quantity of it required is necessarily small and the margin between the proper amount and excess is consequently diminished, thus creating a serious possibility of accidents, quite apart from any specially lethal qualities it may possess. Dr. WALLER criticises the statistics of deaths from chloroform and points out how far they may have been affected by unconscious prepossessions. The fact that the results of the administration have been so generally favorable that it requires the collection of thousands of cases to furnish any appreciable comparative ratios of mortality aids in this error; it is impossible for some with only a fortunate experience to appreciate the real possibilities of danger. Another fact vitiating the statistics is that only a portion of the chloroform fatalities are ever reported and Dr. WALLER, judging from personal knowledge, is inclined evidently to believe that the unreported cases considerably outnumber the reported ones. In Great Britain where chloroform is, more than in America, the commonly used anesthetic, this is very possibly true, and it should be borne in mind in estimating the value of such statistics. That this should vitiate hospital statistics, as he states it does, is less comprehensible and certainly less excusable.

The fourth of the conclusions reached is a rather striking one, and is perhaps liable to misconstruction as regards its practical bearings. If CO_2 is an anesthetic itself and yet an agent capable of aiding the recovery of the nerves from the effects of chloroform, it might be understood that the dangers on the side of the respiration in chloroform anesthesia are non-existent, or at least overrated. Dr. WALLER takes pains to counteract this error, the danger from impeded respiration in chloroform anesthesia is not from the accumulation of carbon dioxid, but from the accumulation and stagnation of chloroform vapor in the lungs. It is possible, he holds, that some mixture of CO_2 may be beneficial in the outset of chloroform administration, and this may be one of the factors in the success of its use in the hands of its adherents, but he expressly says that he does not recommend the administration of carbon dioxid with chloroform, or yet the administration of chloroform alone, and while he says that he is not "altogether adverse to its use," it is evident that the occasions for its employment are in his opinion very limited in number. It is in minor surgery especially that he deprecates its use, and he

es the case forcibly in the following two proposi-
ıs, which he calls "the chloroform dilemma."
If chloroform is dangerous under all circumstances,
ıay not be employed in minor surgery. Death in
; class of cases is therefore unjustifiable, and
uld be considered as a criminal offence. If chloro-
n is dangerous only when unskilfully administered,
ı again death by chloroform is unjustifiable, and
ht to be considered as a criminal offence."
While this dilemma might be better stated, its logic
ertainly worthy of consideration; it leaves very
e chance for escape from uncomfortable associa-
s with any accident from the use of chloroform.
loubtedly the greater ease and convenience of
sthesia with this agent will still ensure its use in
ıy cases, but Dr. WALLER'S authority will prob-
have much weight and influence in diminishing
popularity it still enjoys.
he conclusion to be deduced from the investiga-
is that it is hardly necessary to seek for special
gers on the side of the heart or the respiration in
thesia, as nearly all anesthetics are direct paralys-
of nerve tissue, and the risk is not so much in
special organ they affect as in their strength as
otic poisons. The one exception appears to be
ous oxid, and we may possibly assume, with KEMP
nother paper in the same issue of the *British*
ical Journal, that it acts in some way on the
est nerve center, the cerebral cortex. Whether it
absolutely safe as is claimed is possibly open to
tion, though there is little doubt that it is com-
tively safer than some other agents. For lengthy
ations ether, with all its disadvantages, still seems
e the safest and therefore the preferable anes-
c. The study also emphasizes the necessity of
tmost care in the administration of chloroform,
ı that seems necessary, of avoiding the slightest
bility of carrying the dose above the danger
, which may be assumed to be not far above the
ıum anesthetic quantity. The strength of the
and the consequent small amount required
a correspondingly narrow margin of safety in
ase. The stronger the agent the greater the
on, altogether aside from any local action it may
pposed to have on special organs.

DIABETIC COMA.

OUT'S words that "Diabetic patients constantly
n the brink of a precipice," are especially appli-
to the most dreaded of all the complications of
tes, namely, the coma characteristic of that
e.

a recent lecture THOMAS B. FUTCHER[1] reviews
tiology, symptoms and treatment of diabetic
True diabetic coma was, it will be remembered,
curately described in 1874 by KUSSMAUL. The
frequency of the complication is shown in the collection of fatal cases by STEPHEN MACKENZIE from the London Hospital, in that all the cases under twenty-five, with one exception, died of coma. Of 400 cases studied by FRERICHS 250 died, and coma was the cause of death in 150 instances. Of the 39 cases treated in the Johns Hopkins Hospital 15 died, and in 12 death was produced by coma.

Young people, particularly children, are more liable to die of coma than are older patients.

SAUNDBY ranks constipation very high as a predisposing cause, as it diminishes elimination and affords time for fermentative processes that may produce toxic substances. In some cases coma has come on after nervous shock and exposure to cold.

Of the many theories devised as regards the exciting cause of diabetic coma it is necessary at this time to refer only to those which attribute the coma to the presence of either acetone, diacetic acid or β-oxybutyric acid. Now these three substances are very closely related, as shown by their chemic composition and reactions. The detection of acetone in the urine of patients with diabetic coma first led observers to believe that this was the cause of the coma, a view now no longer held because acetone can be given to animals in large quantities without causing intoxication. Acetone also occurs in the urine in many other diseases, especially in severe cachexia, as well as in certain acute infectious diseases.

The appearance of acetone in the urine in diabetes should put the physician on his guard, as its presence is often succeeded by that of diacetic acid and β-oxybutyric acid.

In 1874 RUBSTEIN[2] demonstrated that the substance discovered by GERHARDT[2] in 1865, and which gives a Burgundy red color with ferric chlorid, was diacetic acid. Now it was for some time believed that this acid resulted from the oxidation of sugar, and MINKOWSKI[2] tried to show that the intensity of the ferric chlorid reaction and the amount of sugar in the urine ran parallel, but that sugar is not necessary to the production of diacetic acid is shown in various ways, especially well by the fact that this substance has been repeatedly demonstrated in the urine of fevers, carcinoma, and other diseases without glycosuria. The present opinion is that diacetic acid and acetone are products of albuminous decompositisn. In the majority of instances of diabetic coma diacetic acid appears in the urine previous to and during the attack, but KUSSMAUL[2] and FRERICHS[2] have shown that it does not possess any poisonous properties, because ten to twenty grams of the acid can be given without any grave symptoms.

In 1884 STADELMANN, KUSSMAUL and MINKOWSKI showed that the urine of patients with diabetic coma contains considerable quantities of β-oxybutyric acid.

ork Medical Journal, Dec. 18, 1897.

[2] Futcher, loc. cit.

This acid is now believed by most observers to be the exciting cause of diabetic coma. It results from decomposition of the body albumins, and many believe that it is the first stage in the formation of diacetic acid. The amount of β-oxybutyric acid eliminated daily may be as much as 20 gms. Its occurrence in the urine in diabetes is of the gravest moment, as it is permanent and has a constant tendency to increase. VON NOORDEN[3] shows that this symptom is of the gravest prognostic significance; in most cases after a few days or weeks, diabetic coma ensues and the case passes on to a fatal ending. Hence it may be concluded that diabetic coma is caused by an acid intoxication, due to certain products of decomposition of the body albumins, viz.: β-oxybutyric acid, and possibly also diacetic acid.

The premonitory symptoms of diabetic coma vary. It may begin with maniacal excitement, or more commonly abdominal pain or headache; the pulse is sometimes rapid. At times suddenly, but occasionally after headache and indefinite symptoms resembling alcoholic intoxication for a few hours or days the patient becomes somnolent, and more or less rapidly falls into deep coma. He now lies quietly with at most but slight clonic twitchings; pupils dilated; the eyes may be open, or the lids are slowly raised and lowered. The pulse is small and rather rapid; the temperature at first elevated, later sinks far below normal. The respiration is marked by deep, long-drawn inspiration, succeeded by short expiration. In spite of full aeration of the lungs a gradually increasing cyanosis arises, due apparently to obstruction in the peripheral circulation. The breath may have a fruity odor from the exhalation of acetone. In this condition the patient remains for from twenty to forty-eight hours, rarely longer, and then death follows.

FRERICHS classifies cases of diabetic coma into three groups:

1. Those in which the attack begins suddenly, usually after exertion, and terminates fatally after a few hours.

2. Those in which the duration is longer, the attack being preceded by various symptoms, among others great distress and dyspnea, a condition called by KUSSMAUL "air hunger." The attack may last for from one to five days.

3. Those in which the attack begins without dyspnea or anxiety but preceded by headache, signs of intoxication, disordered gait and gradual onset of the coma. These cases were believed to be due to the action of the poison on the nervous system. The symptoms closely resemble alcoholic intoxication.

The prognosis is grave. There are only three or four cases reported in which recovery has taken place. Prevention is therefore the primary indication in the treatment. All predisposing causes such as constipation, fatigue, nervous shock and cold should be avoided. VON NOORDEN says that in the prodromal stage when this is recognized, a change of diet, no matter what this may have been, often exercises a beneficial influence. A large amount of alcohol in small doses is necessary. Constipation should be relieved by mild laxatives. Large doses of alkalies have been recommended, e. g., six or eight drachms of bicarbonate of soda per day, according to the theory that the condition is one of acid intoxication.

When the coma has actually set in our present remedies are helpless. Transfusion of blood, inhalation of oxygen, injection of weak solutions of phosphates and chlorids of sodium into the veins, and of a 3 per cent. solution of sodium carbonate have all been used. Intravenous injection of the last solution was successful in only one case of seventeen collected by CHADBOURNE[4], temporary improvement being obtained in seven. A very common method of treatment at the present time is the subcutaneous and intravenous injection of quantities of normal saline solution at frequent intervals. VON NOORDEN recommends this method highly, and it would seem to be a rational one. In ten of the twelve cases in which coma developed in the Johns Hopkins Hospital this treatment was used, and in two of the cases the patients were restored to consciousness so that they would have been capable of making a will. Subsequently both cases terminated fatally. In three other cases the pulse was improved and the respiration rendered much less labored. Subcutaneous and intravenous injection of salt solution seems to give the best results yet obtained in diabetic coma. In addition injection of camphor and ether may be advised, because they are indicated by one symptom seldom absent in diabetic coma, namely, weakness of the heart.

[3] Twentieth Century Practice of Medicine, vol. ii, p. 95.

HEALTH AND LONGEVITY.

The influence of various occupations upon health and longevity is the subject of an interesting investigation just completed by an officer of the Registrar-General's department of the British government. A vast collection of figures and comparative tables have just been issued as a public document, and although at first glance the array of statistics seems formidably dull, some of the deductions from them are instructive and of the widest interest. First and foremost comes overwhelming proof that the work or occupation of some sort, is the greatest promoter of longevity. It is almost alone in England of all civilized countries that this fact can be brought out clearly in public statistics, for it is only in England that the leisure class, so called, is sufficiently large for the comparison to be made. The disparity between the mortality of "occupied" and of "unoccupied" males is very great in favor of the workers, though the data do not

[4] Quoted by Futcher, loc. cit.

allow the naming of any precise percentage when certain necessary allowances have been made.

The influence of profession upon health and mortality, it is pointed out, begins to be strongly manifested at about the age of 25 years and continues until 65 years. Of course, the employments usually regarded as dangerous figure prominently, file-making taking a bad pre-eminence. The publican class (saloon-keepers) comes next. Innkeepers themselves die more rapidly than their servants, alcoholism and diseases of the liver being the chief causes. The mortality figures of public-house keepers show seven times and of their servants four times more rapid death rate than for the general average of occupied males. It is curious, however, that the death rate for these two classes is highest in the industrial districts of England and lowest in London. Brewers and butchers rank next among important occupations on the high mortality list. They are respectively two and one-half and two and one-fourth times the standard. Chimney-sweeps, dock laborers, coachmen and cabmen are all on the wrong side of the mortality average. At the other extreme are most of the liberal professions, and the clergy enjoy the enviable distinction of passing the greatest number of years in this vale of tears.

Locality seems to have a startling effect upon the mortality records, although this cause is shown to be much more apparent than real. Taking England as a whole, it is shown that 100,000 males born are reduced to 75,149 at the end of the fifth year, while 100,000 females will number 78,324 at the end of the same period. But in certain selected, so-called healthy districts of England and Wales, this reduction is not accomplished until after twenty-nine years in the case of males and twenty-seven years in the case of females. The contrast is even greater in the case of a single city. Thus, in the township of Manchester, which includes only the well-populated section of the city, 100,000 males are reduced to 62,326 in five years and 100,000 females to 66,623 in the same time. But in the healthy districts of Manchester this reduction is not accomplished until the age of 50 among males and the age of 48 among females. Whence it is fair to conclude that the general manner of life and condition of poverty or comfort are much more important factors in the problem of life than mere locality.

THE JOURNAL AND THE ASSOCIATION.

The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION began its new year with an increased number of pages, and proposes to continue to furnish the same amount of reading pages throughout the year, thus putting it a safe distance ahead of all its American contemporaries.

A new press has been purchased and is now in operation. The vast amount of MSS. now in the office awaiting publication will, we trust, be reached much earlier, although the members must be aware that it is a manifest impossibility to make use of all the valuable material that comes in to the office, even with the increased number of pages.

The growth of the ASSOCIATION during the past year has not been exceeded by its growth in any previous year, and all that is now needed to maintain it in a healthy condition is, that the members shall once more come to the front, look at their JOURNAL critically, compare it with similar publications, and induce their friends, not already members, to join the great ASSOCIATION. There is no reason why the AMERICAN MEDICAL ASSOCIATION should fail to occupy the same relation to the whole profession that the British Medical Association does to that of Great Britain, where every physician in good standing with his fellows, is, or is supposed to be, a member of the British Medical Association.

As for the JOURNAL, its work in the past speaks for itself, and its growth in the future will depend upon the support and encouragement received from the members of the ASSOCIATION, subscribers and contributors. At no time has its prospects seemed brighter; at no time did it seem to meet more closely the views of its founders. That it is capable of still further improvement, no one doubts, as the moment it ceases to improve, then will it begin to decay.

Not only is the JOURNAL useful to the ASSOCIATION and its important members, but it has a still far-reaching influence beyond that noticed, because at no time has it been more widely quoted at home and abroad by other medical journals than at the present time. The higher average medical education of the present date is having its influence on papers read at the ASSOCIATION meetings; much better work has been done in its Sections, and altogether the retrospective view is pleasant. The increase of reading pages will not only give room for more original matter, but will probably increase the amount of space for Society Proceedings—a very important department of the JOURNAL of which it is impossible to over-estimate the value. Important discoveries and the results of individual research are usually presented first to the local society, although the proceedings are necessarily reported in smaller type, as even the capacious columns of the JOURNAL with its sixty pages of reading matter, exclusive of the advertising pages, can not afford space for everything in pica. The reader must himself to some extent, also separate the wheat from the chaff, but it is interesting to remember, for instance, that the two communications which seemed to attract great attention at Moscow, "MURPHY'S suture of the arteries," and "FRANK'S absorbable coupler," were both presented at a meeting of the Illinois State Medical Society, and reported in the JOURNAL,

June 12, 1897, some time before the meeting of the Congress. "DOYEN'S drain," which was also presented in Society reports, and numerous other instances, crowd upon the memory, of the important achievements of the vanguard of science modestly chronicled in "Society Proceedings" without even a distinction of a separate place in the index, long before the medical world in general awakes to a realization of their value.

In the last year an important historic work, never before translated into English, has been placed at the disposal of American surgeons through the columns of the JOURNAL, without extra cost, and it is therefore with some satisfaction that we reflect on the achievements of the past year, and venture to express the hope that at the close of the year 1898 we shall be able to show even more substantial progress.

To this end we again urge that the members once more take up the aggressive and use their utmost endeavors to make the ASSOCIATION and its JOURNAL a fitting and worthy representative for all that is good for the American medical profession. The membership should be brought up to 10,000 before the Denver Meeting. Great strides have been made toward that end, but let us not relax our efforts.

THE DEATH OF MR. ERNEST HART.

The death of Mr. ERNEST HART, the editor of the *British Medical Journal*, comes with a shock to his many friends in America, most of whom had already learned that he was in feeble health. They sympathized with him in his recent illness and operation, but from the reports published they had been led to believe that he was fairly convalescent.

His death leaves a gap in the ranks of medical journalism which can never be filled. He had an instinctive delicacy of judgment, made few mistakes and popularized the *Journal* as no man preceding him had been able to do, and at the same time made it one of the financial successes of the age. He had learned the art of being aggressive without offending, and the *Journal* under his management has been right in its advocacy of all those reforms in which the whole profession is interested.

As a writer he was forceful, accurate and aggressive. As a man he was unassuming, polite and agreeable. As a physician he was well informed, and in certain lines in advance of his time. He will be greatly missed, for his place in medical literature was peculiarly his own.

CORRESPONDENCE.

Foreign Medical Training for Recent Graduates.

VIENNA, AUSTRIA, Dec. 20, 1897.

To the Editor:—"Foreign Medical Training for Recent Graduates" is the title of a late editorial article in the JOURNAL, and as it is a subject of most vital interest to many young men who belong to this class, I propose to discuss the question briefly in this letter. I do this the more readily from the fact that many of my friends, who are aware of the fact that I spent some years abroad, are in the habit of writing to m advice as to where they had better put in a few months' in brushing up on the practical points of their professio am prompted further in writing this letter, by the fact t meet here in Vienna, every day, young physicians from United States, full of energy and wide awake, who are w ing with an untiring will, but who [redacted]m the fact that the ignorant of the German language [redacted]do not propose to here until they master the same, are, if not wasting their t certainly not spending it in a profitable manner.

Let me suppose the case of a young man who has had a years of general practice, or perhaps has only just gradua The field that he occupies, or the one that he propose occupy, is one where he must play the rôle of the general p titioner in its widest sense.

To keep abreast of the times, he feels the necessity of ther instruction, especially in the more practical matters pertain to his profession. But in looking over his envi ments, two obstacles present themselves at the very ou His means are limited and he can only spend a few mo away from his field of labor. Where shall he put this tim at home or abroad? Most decidedly at home, unless how there is a large element of fraud and humbug in his make and he is seeking a very little knowledge and a good dea buncombe.

Our post graduate schools at home were organized for such men as he is, and they teach, in the main, just wha most needs to know. A couple of six weeks' courses at of the best of these will be of more benefit to him than m months spent in a foreign country, where he has first to l the language before he can profit by what he sees or hears.

Twenty odd years ago, when I first came to Vienna, the c dition of things was entirely different. There was no p graduate instruction to be gotten in the United States at t time, nor, in fact, anywhere else outside of the Austrian c ital. In fact, two decades ago this was the acknowled Mecca, to which all medical pilgrims turned their foots who were in search of a higher and more practical med education.

Some years ago, after leaving here, I went to Guy's Hosp in London, and giving the late Dr. Reese my card asked privilege of attending his lectures for a time. His reply w "Yes, Doctor, you are perfectly welcome to attend my lectu but if you have been taught clinical medicine by Jaksch Nothnagel at Vienna, you will find anything in that line t gotten here in London very thin." And thin I found it.

I am glad to say, however, that the number of young ph cians from America who are coming to Vienna is gradu diminishing, and we have not more than half as many h now as there were twenty years ago. I believe though t part of this falling off in numbers is due to the fact that m Americans go to Berlin for instruction than in former year

The private instruction given here is done by the ordin professors and privat docents. In several branches this c of instructors is far inferior to those of a decade and a h ago. For instance, Bandl, who taught us in gynecology, Ultzmann in the diseases of the genito-urinary organs in male, are both dead, while Jaksch, Pawlik and Chiari h been called to fill professorships in the German University Prague, and their places, in my opinion, have not been fil by men of equal merit as teachers.

Who should come to Germany, in which I include Aust to pursue their post-graduate studies in medicine, and w are some of the advantages to be obtained here? It is n sense to come here unless you have some knowledge of German language or intend to stay here long enough to quire the same. An ordinary traveling knowledge of the l guage will be of but little benefit to you. You must kn

medical German, and that requires a good deal of time and study, as their technical terms are not like ours and the French, derived from the Greek and Latin, but are mostly strictly German in their origin. It will take from three to six months' diligent study to be able to thoroughly understand what you hear. If, however, you are not too far advanced in years and have a sufficient amount of money and time at your disposal, the benefits of a course of study abroad are certainly not to be ignored, for besides what you know of medicine proper, the acquisition of the knowledge of a foreign language is no small factor in the make-up of an all-around educated man, which every physician should strive to be.

Supposing you understand German, or intend to stay in Germany until you acquire such a knowledge, what are the subjects that are better taught here than at home! First comes internal medicine. Not because the subject is better understood or more skilfully taught than by our best teachers, but because the clinical material is much more abundant here and can be much better utilized for clinical purposes, and the numbers of those to be taught are much fewer in proportion to material available. If one takes Professor Nothnagel and his first assistant, you have thus access to a large number of patients whom you can personally examine, make your own diagnosis, and have it corrected or criticized by your teacher; hear many of these cases discussed fully by one of the best teachers in Europe and follow them to the dead-house, if they die, and observe all the morbid changes that an autopsy reveals. There may be just as good courses as these at home, but I have not been able to avail myself of them, for I have not been able to find them. In the post-graduate courses I have taken in America the teaching of internal medicine has been extremely disappointing, partly on account of its being simply didactic in character, no material being available to give it a true clinical worth.

Again, in the line of obstetrics, you take Professor Schauta's course and that of his first assistant, and these will enable you to watch the course of a large number of natural labors, and you can be called at any hour of the day or night to witness any operative cases that may occur. When we consider that three or four thousand women are delivered annually in this service you can form some idea of the rich field of observation that it gives. Besides this you can examine a large number of women in the last weeks of pregnancy, measure their pelves, and determine the position and presentation of the child before labor begins.

Where, I ask, would you be able to get advantages like these in the United States? The larger number of Americans here are studying some special subjects, as the eye, ear, nose, throat and the like, and the merits of Vienna as compared with other places for studying these subjects I can not judge, though I find that many get discouraged after remaining here for a short time and return to London or New York. Many of these men who are preparing themselves to play the rôle of specialists are youths just out of college. Few of them seem to be studying that which should be the ground work of a thorough medical education, viz., internal medicine.

For one who understands German, and especially if he has had a few years' practice, the best place to put in a couple of months in Europe is at Berlin, taking in the "Ferien Curs für Ärzte," which begins early in the Autumn and lasts six weeks.

Still, as I said in the beginning, such a course can be gotten in our own country at a much less expense and, taken as a whole, just as good. The exception to this is that the course in gynecology, given by Martin, is better than can be gotten in America, and I am certain that his brilliancy as an operator is not excelled, if equaled, anywhere or by anyone.

A large number of our young men in the profession are surgery mad, scalpel crazy and see nothing in any case that is not associated with the spilling of blood, the tying of arteries, the closing of abdominal wounds and the application of the model antiseptic dressing. To such I would say, do not come to Europe at all, for I can assure you that you can do much better in America. Here, in Vienna especially, operations seem to be done principally for the benefit of the ten or a dozen assistants who surround the patient.

Then again the teaching is not so good as one can get in New York or Chicago, and the operating is certainly in no way superior. Especially will you find both the medical and surgical gynecology disappointing as compared with what one can see at home if he will follow the work of our best men.

Many of the teachers here in the Vienna school seem to have achieved their positions through some other consideration than their natural ability to teach, as in the case of Bilroth, who was one of the most scientific surgeons of this century, but never was a good teacher.

Hence, of late years, when I am in Europe I go to Paris for my surgery; not that it is better done there than here in Vienna, but because the French professor in the school of medicine in Paris is generally a born teacher, explains every step of his operation and allows you, if possible, to see what is done. Then again American physicians are treated courteously in France, while in Germany, if you are not a Senn, a Murphy or some other man of equal eminence you are not likely to get any civilities that you do not pay for; in fact, they seem inclined to put us all down as the graduates of a Buchanan school or some other quack institution.

W. S. Caldwell, M.D.

Medical Treatment of Appendicitis.

Oneida, N. Y., Jan 10, 1898.

To the Editor:—Much has been written of late years on the surgical treatment of appendicitis, but very little on the medical treatment. In a practice of nearly forty years I have had my share of cases, ranging from five to twenty yearly, and thus far have had no case that I have found it necessary to operate more than to aspirate in case of abscess. I have had only one death, a boy 15 years of age, who was hurt while playing at school, and this case, in my opinion, died from lack of good nursing.

My treatment can be given in brief. Although adopted more than thirty-five years ago, I have never witnessed another line of treatment that has caused me to change my own. Unfortunately, many physicians are not correct in their diagnosis, and frequently call peritonitis (especially if pelvic) appendicitis. It is true that the symptoms are in part alike. Both diseases are usually ushered in with a chill followed with fever and abnormal temperature, and my treatment is alike, or nearly so, in both diseases.

If called in the first stage, and there is much pain existing, I give a hypodermic of morphia and atropia, usually ¼ grain of the former and 1/150 of the latter. Ice-bags filled with chopped ice are applied over the seat of pain, and possibly followed after twenty-four or forty-eight hours with poultices, preferably of yeast and charcoal with a good quantity of nitrate of potassium added. The medical treatment consists of commencing at once with tinct. of aconite to control the fever and reduce inflammation, in ¼ minim doses repeated every two hours, and 1/120 grain of corrosive chlorid of mercury every hour, with a teaspoonful of olive- or castor-oil every two or three hours.

I have had cases where I have commenced with 15 to 20 grains of calomel, followed by the above treatment. In some very few cases an abscess has formed in the iliac region which I have aspirated, and then use compression. I have had cases where the abscess broke into the colon and the patient made a good recovery. About a year ago I was visiting in a city some seventy-five miles west of Chicago, and I was told that only a short time before, a man of that city was seriously sick with what was called appendicitis, and a celebrated surgeon of Chi-

cago was called and advised operation at once. This the family would not consent to, and in the evening an old lady came in and recommended giving the patient all he could drink of a tea made of timothy grass seed, and a huge poultice of the seed applied to abdomen. This was done and in less than twelve hours the man was better, and rapidly recovered. I tried the above in a case of a lady a few months ago, but feeling that it was unsafe to depend entirely upon this, I gave my usual treatment and she made an uneventful recovery.

H. W. CARPENTER, M.D.

The Antiseptic Versus the Antitoxin Treatment of Diphtheria.

PHILADELPHIA, PA., Jan. 10, 1898.

To the Editor:—I am not informed whether it is your custom to admit to your columns criticisms of papers appearing therein, but upon reading the paper of Dr. Braymer in the issue of November 27, I am tempted to test the facts in that direction. The point which the paper attempts to cover: "Is, or Is Not Antitoxin the Best Treatment Offered for the Cure of Diphtheria," is one that we supposed had been definitely settled through exhaustive clinical experience, covering a period of time sufficient, it would seem, to justify an affirmative answer in the minds of the most captious. On the contrary, like Banquo's ghost, the subject will not down, and following the usual experience in medical investigation, need we expect it to be set at rest for a century to come? Parallel cases may be cited to prove the likelihood of this prophecy; note the school of anti-vaccinationists which flourishes in our own day. Indeed, we find that there is hardly a proposition advanced in any school, no matter how probable, but finds it's opponents for a large number of years to come. With the results of clinical theories, however, if the antitoxin treatment can be so called at this time, this communication is not intended to deal, but more particularly with the handling of those theories.

Dr. B. in his second paragraph states: "I have had very limited experience with the remedy, but as yet can not feel that it is worthy of the *advertising* [italics are ours] it has received at the hands of the profession."

In a list of some seventy-four cases, covering a period of years, the Doctor recounts six cases treated with antitoxin. The mortality during the first period under potassium chlorate, iron and calomel treatment, was in thirty-six cases, seven, or 22.22 per cent. During the second period, under antiseptics, there were thirty-two cases with *nil* mortality; and during the third period six cases with two deaths, 33⅓ per cent. This would apparently make a strong showing for the antiseptic treatment were it not for the important qualifying elements of character of epidemic, class of cases, etc. The importance of this is well stated in another portion of the paper: "All who have met with many cases of diphtheria know how different the fatality is." "You also know that there is the factor of varying vitality manifesting itself in different individuals." Continuing the Doctor says: "I believe all will agree with me that diphtheria is primarily a local disease, (!) then we ask the question, why not treat it as you would any other like condition, why not treat it successfully by antiseptic?" Why not, indeed? The bite of a rattlesnake, if such can be called a disease, is primarily local, but how long does it remain so? The same might be said for anthrax and tetanus, syphilis, gonnorrhea, and in fact almost all contagious diseases.

In my student days it was the habit of an esteemed professor of surgery to give the class a literal and concise method of treatment for all surgical cases. "Take away the cause and put the part at rest." If this advice could be promptly followed in all cases, the practice of medicine and surgery would be a very simple affair.

If I may be allowed I will quote once more from the Doctor's paper and then conclude: "If antitoxin does any good at all it is only to counteract the effect of the absorbed toxin of the disease." "And those (cases) that have been of several days standing without treatment are admittedly not so much benefited by antitoxin, *perhaps* [italics mine] not more so than by any other rational treatment. Then again the use of antitoxin causes great pain and fright, especially in small children, and this alone might be a cause of death."

There are a few conclusions that I would draw from the reading of the paper. 1. That the Doctor greatly errs in ascribing to the profession generally, or individually, a lack of sincerity in the use of the antitoxin, or an intention to advance the interests of manufacturing houses in the advocacy of its use. 2. That after more insincerity is displayed in ill directed opposition to a remedy or the publication of incomplete collections of cases bearing on their face ample evidence of lack of careful analysis and detailed history.

W. H. BURR, M.D.

A Case of Puerperal Eclampsia (Ante Laborem) With Recovery.

PARK CITY, UTAH, Jan. 8, 1898.

To the Editor:—As there is a good deal of uncertainty in regard to the exact pathology and treatment of puerperal eclampsia, it would possibly throw more light on the management of this dreaded disease if the physicians reported every case in their practice and the line of treatment pursued; especially does this seem important when it is remembered that according to statistics the mortality is 40.5 per cent. if the convulsions set in before the time of labor and about 29 per cent. during labor.

Oct. 28, 1897, I was called on to prescribe for Mrs. S., age 22; pregnant about thirty-seven to thirty-eight weeks; primipara. She was troubled some with vomiting and complained of being very nervous and restless so that she could sleep but very little during the night; had quite a severe pain in the stomach and a good deal of headache. The urine was examined and found normal.

Anodynes were prescribed to quiet restlessness and also lithia water as a precaution, although no kidney lesions could be found. Her husband neglected to obtain the lithia water.

November 1, about 9 o'clock. P.M., I was sent for. Mrs. S. was in convulsions. On my arrival she had just passed out of the first convulsion and was snoring heavily. In about twenty minutes she had another severe one. A hypodermic injection of gr. ¼ morph. and gr. 1–150 atropin soon controlled it. There were no uterine contractions. A brisk cathartic was given.

She had during the night seven severe convulsions. She bit her tongue quite badly. The pulse at times went up to 122 per minute. The convulsions were held somewhat in check with morphin and atropin, and Norwood's tincture of veratrum viride. I bled her once by opening the median basilic vein of the right arm drawing about a quart of blood; this seemed to check the convulsions for a couple of hours.

As the convulsions toward morning increased in frequency, at 8 o'clock I decided to bring on labor. Under partial chloroform anesthesia, the cervix was gradually dilated by means of the Barnes bags and the fingers. At half past nine she was delivered of a dead baby. The placenta was removed after twenty minutes and the uterus contracted well. She had one convulsion during the manual dilatation of the cervix. About five hours after delivery she had another severe convulsion; this was the last, making in all nine convulsive attacks. She was unconscious to external surroundings and had no recollection of what had taken place from the first convulsive seizure and until about a day and a half after delivery.

During the puerperium the thermometer registered only

ce half a degree above normal. She was given lithia water d the bowels kept open every day. The wounds on the ngue were washed with antiseptics several times a day. ıe vagina was syringed three times a day with bichlorid of ercury solution. She made a splendid recovery.

E. Viko, M.D.

"A New Method of Inviting Sleep."

Northampton, Mass., Jan. 3, 1898.

To the Editor:—I hope a large number of the readers of the ɔurnal will refer to the September 25 issue and examine the ticle on "A New Method of Inviting Sleep" and express their ɔinion of the principle therein contained.

Thinking obstructs sleep. Draw away from the centers of ought power to carry on muscular effort as there described, ı equilibrium is established and the normal conditions of ɛep exist.

It is not necessary to put in practice this method in order to ıss judgment upon its claim as a scientific principle.

Will the many medical men interested in reducing our prac-cal work to the normal basis give us through the Journal ı estimate of this method?

I should personally be greatly pleased to receive through the ails any opinion at variance or in consonance with my own.

Respectfully, J. B. Learned, M.D.

ɔne Way to Prevent Abuse of Medical Charity.

Chicago Eye, Ear, Nose and Throat College.

Chicago, Ill., Dec. 14, 1897.

To the Editor:—In the *N. Y. Medical Record* of Novem-ɛr 27, is given a copy of a circular letter recently issued by ıe New York Cancer Hospital, which is sent to the family ıysician of all patients applying to their clinics for free treat-ent, in which inquiry is made as to the ability of the patient ɔ pay. In all cases wherein it is learned that the patient is ɔle to pay further clinical services are denied.

The same idea was adopted by the Chicago Eye, Ear, Nose ıd Throat College several months earlier as may be seen by ɔpended copy of letter issued at the time of its organization, ɔ every doctor in Cook County.

Would it not be just to place the credit for the idea where belongs, and give us the precedence of having adopted a ːactical means for discouraging clinical pauperism?

Yours truly, J. R. Hoffman, M.D., Sec.

Chicago Eye, Ear, Nose and Throat College,

Chicago, Ill., March 26, 1897.

r.————————

Dear Doctor:

M———— has applied to us for treatment as a charity pa-ent, and has given your name as having been the former med-al attendant. We have been led to suspect that this patient not entirely unable to pay, and hence is not entitled to free eatment, which it is our aim to extend only to the worthy ɔor.

Do you consider the above mentioned patient as being one ıtitled to free treatment?———— We will consider this ɔmmunication as strictly confidential. If not a worthy poor ıtient, will decline to extend further free treatment, and refer ıme to you. Yours very truly,

Chicago Eye, Ear, Nose and Throat College.

Confidential remarks.

Medical Law in Indiana.

Chicago, Jan. 10, 1898.

To the Editor:—Will you kindly give through the Journal ıe new or present medical law in Indiana, and oblige

A Subscriber.

New Indiana Law as to Practice of Medicine.—After the taking effect of the act approved March 8, 1897, any person desiring to begin the practice of medicine, surgery or obstetrics in Indiana, must procure from the State Board of Medical Registration and Examination a certificate that he is entitled to a license therefor. To do this, he must submit his diploma, and make affidavit of the time and under what circumstances he received it. Besides, the affidavits of two freeholders, resident in his county, stating that he is the person named in the diploma application for a certificate, must accompany the application. The fee is $6. All persons already practicing, are given ninety days to obtain a certificate, by presenting to the board the license possessed by them at the time of the passage of the law, with an affidavit that they are the legal possessors of the same, and the persons mentioned therein. The fee they must pay is $1. The board's certificate, when presented to the county clerk of the proper county, entitles the holder to a license to practice medicine, surgery and obstetrics in Indiana, on payment of 50 cents for issuing and recording it. If an applicant presents a diploma from a medical college which is not recognized as maintaining a sufficiently high grade or standard of medical education as defined and fixed in the records of the board, he is given the privilege of being examined as to his qualifications, in such manner as the board may provide, and if he fails once, may try again within twelve months. Fee, $25. An appeal also lies, on giving bond for costs, to the circuit or superior court, to require the board to show cause why he should not be permitted to practice. Change of residence from one county to another requires a new license, to be obtained by filing the old one with the county clerk of the latter county. The board is to be composed of five members, appointed by the Governor from reputable physicians of the State, graduates of a college of medicine of good repute. Each of the four schools or systems of medicine having the largest numerical representation in the State shall be represented on it, but not more than three members shall be of one political party. No professor or teacher in a medical college is eligible. Meetings shall be held on the second Tuesday in January, April, July and October of each year, at least. Schedules of the requirements made of applicants for examination, and of medical colleges, must be kept, and, after 1897, no change shall be made therein after the month of January of each year or affect students theretofore matriculated. The board is not to discriminate for or against any school or system of medicine, or prescribe which shall be taught in State institutions. But it shall have power to make all necessary rules and regulations for reciprocal recognition of certificates issued by other States, and to prevent unjust and arbitrary exclusiveness by other States of Indiana graduates who have filled its requirements. It may refuse to grant a certificate to any person guilty of felony or gross immorality, or addicted to the liquor or drug habit to such a degree as to render him unfit to practice medicine or surgery, and may, after notice, hearing and judgment of "guilty" thereon by the judge of the circuit court, revoke a certificate for like cause, subject to appeal. Midwives of ten years' practice are also allowed to procure certificates, within ninety days, on affidavits. Others must present diplomas from a recognized obstetric school, or pass an examination. Nothing in the act is to prevent rendering services in emergencies or administration of family remedies. Neither is it to apply to any commissioned officer of the United States army, navy or marine-hospital service in the discharge of his duties; nor to any physician or surgeon, who is legally qualified to practice in the State or Territory in which he resides, when in actual consultation with a legal practitioner of Indiana; nor to any physician or surgeon residing on the border of a neighboring State and duly authorized to practice under the laws thereof, whose practice extends into Indiana, provided, he shall not open an office or appoint a place to meet patients or receive calls in Indiana. It is further provided that this act shall not be construed to prevent medical students from practicing medicine and surgery under the immediate supervision of a licensed physician; nor shall it apply to legally qualified dentists when engaged in the exclusive practice of dentistry; nor to any optician who shall hereafter engage in the practice of optometry; nor to non-itinerant opticians engaged in the practice of optometry in Indiana at the time and prior to the passage of this act. To open an office for such purpose or to announce to the public in any way a readiness to practice medicine in any county in Indiana, or to prescribe for, or to give surgical assistance to those suffering from disease, injury or deformity, shall be to engage in the practice of medicine within the meaning of this act. Any person who shall practice medicine, surgery or obstetrics in Indiana, without having a license duly issued as provided therefor, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined not less than $25 nor more than $200.

"One Dr. Eastman."

INDIANAPOLIS, IND., Jan. 6, 1898.

To the Editor:—In the issue of the JOURNAL for December 25, Dr. M. Price of Philadelphia, discussing extra-uterine pregnancy, observes: "My case at term, reported some five years ago, was in the tenth month of gestation and in the amniotic sac. The mother and child are today both living and well, the child a beautiful little girl. This case is reported in 'Greig Smith's system of Abdominal Surgery' as operated by one Dr. Eastman. No one of the name is known to belong to the profession of Philadelphia. This goes to illustrate the worthless character of the statistics of even eminent authority. This case is stated by Smith to be the only one in America where mother and child both lived." At the onset we will disclaim any intention to champion the accuracy of Greig Smith's statistics, since indeed a typographic error in the volume referred to made it appear that "Eastman of Philadelphia" (*instead of Eastman of Indianapolis*) had operated in tubal pregnancy, saving mother and child. But because of this single error, shall Dr. M. Price conclude recklessly, "my operation has been credited to one Dr. Eastman?" We think not. In the statistic assailed the words "Eastman of Philadelphia," were marked by an obelisk which it was intended should refer attention to a foot-note at the bottom of the page, giving the *American Journal of Obstetrics* of October, 1888, as the source of the operation of "one Eastman." It is passing strange that Dr. M. Price did not remark this date, 1888. Why did he not take up his *American Journal of Obstetrics* and learn to whom Greig Smith alluded? Dr. Price says, "my case was reported some five years ago." According to his own statement, therefore, not earlier than 1892. The case of Dr. Joseph Eastman of Indianapolis, is recounted in nearly all of the standard text-books dealing with such matter, which have appeared since July 10, 1887, the date of his operation (Playfair, Greig Smith, Pozzi, Keating and Coe, etc.), and has been discussed in French, German and English magazines. In all instances except one (Greig Smith's work) this particular operation has been ascribed to Dr. Joseph Eastman of Indianapolis. Dr. Price in including the case among his own, indeed "illustrates the worthless character of the statistics of even eminent authority." Many of the works (notably that of Greig Smith, 1889) and magazine articles referred to were published several years before the confessed date of Dr. Price's operation.

We assume, with no thought to commentate concerning the scope of Dr. Price's reading, that none of these have come to his notice. It remains to be added that the method employed in the two operations controverted was essentially different. Dr. Price left the amniotic sac stitched to the wound and placenta *in situ*; whereas Dr. Eastman removed the entire sac, clamped the uterine end of the tube and the broad ligament, cut away the portion which contained the ovum and quilted the stump with iron-dyed silk.

JOSEPH RILUS EASTMAN, M.D.

License in Germany; American and European Medical Colleges.

CHICAGO, ILL., Jan. 10, 1898.

To the Editor:—I am again forced to reply to Dr. Becker of Toledo, and this time on a different subject. I must therefore apologize for using two headings for this communication.

As far as the laws regulating the practice of medicine in Germany are concerned, I am done and shall waste no more time with them.

But Dr. Becker accuses me of underrating the value of American medical colleges, particularly of Johns Hopkins or Harvard. Now any careful reader, familiar with the most rudimentary principles of English composition, will see that I *never expressed my opinion*, but that I was stating what *legal* value the diplomas of an American medical school has before the German licensing board in Germany.

My opinion puts Johns Hopkins and Harvard even above the average German university. To me Osler is second to none, and Kelly far outshines, as a surgeon, men of even the caliber of a Bergmann, which gentleman, for instance, although one of *the* German surgeons, has won for himself the distinction of carefully neglecting asepsis.

And now to the address of Dr. Becker a few well-meant advices: 1. "Polk's Directory" is a poor weapon to fight with, as it is not a scientific publication. 2. It is not considered good journalism to indulge in personalities. Stick to the subject in consideration, Doctor, and do not argue about a man's shoes and clothing, or his nose; babies only argue in this way. 3. Barnes Medical College is an excellent institution, and has men on the faculty who are far more able to teach than many professors in Zurich. So, for instance, Charles H. Hughes is well known throughout this country and Europe as an authority in neurology, Pinckney French as a most successful scientific and aseptic surgeon, Carpenter as a clinical lecturer of whom it has been justly said, "he is a clinical lecturer even if without clinical material."

Perhaps Dr. Becker will be surprised to learn that his diploma from Zurich is *absolutely valueless* in several States of the Union, as Kentucky, Tennessee, and that in order to practice medicine there he would have first to produce an American diploma. If he ever wished to move there, I would earnestly advise him to enter the graduating class of Barnes Medical College. I believe the faculty of that institution would give him three years credit for his diploma, and I am satisfied that he could yet learn something in that successful college, which in its six years existence had to abandon quarters for more spacious ones, larger than those assigned to the medical department of the University of Zurich.

G. A. BLECH, M.D.

A Simple Method of Preventing the Clouding of Mirrors.

MILWAUKEE, WIS., 1897.

To the Editor:—The *Medical Press and Circular* recently called attention to an ingenious, effective, and at the same time very simple device for preventing the clouding of mirrors used in the work of laryngologists and dentists.

The method was introduced by George Wallis, L. D. S., dental surgeon to the London Throat and Ear Hospital at a recent meeting of the staff.

It consists merely of smearing a thin layer of ordinary soap, soft but not moist, over the surface of the mirror, and afterward polishing the latter with a dry cloth. The effect of this procedure is that however much the mirror may be breathed upon, its reflecting surface remains perfectly clear and bright. When one takes into consideration the extreme simplicity of the procedure and the bothersome difficulties sometimes encountered in preventing the clouding of mirrors used in laryngology and dentistry, the value of this ready method can not be overestimated. It has proved very satisfactory to me, and as I have not yet seen it mentioned in the American journals, I take this opportunity of calling the attention of the profession to it.

Yours very truly,

GILBERT E. SEAMAN, M.D.

Birth Mark?

WAUKEGAN, ILL., Jan. 6, 1898.

To the Editor:—J. F. M. is 13 years old, and is usually in good health. He is myopic and his eyes are elongated antero-posteriorly. The pupils are exactly alike, ellipto-oval in shape, the pointed portion of the pupil being downward like a

snake's eye. The mother thinks the boy is "marked." While she was pregnant, a few months before his birth, she was frightened by a snake and for weeks afterward she fancied she could see that snake's eyes.

Is the boy "marked"?

Respectfully,
J. M. G. CARTER, M.D.

PUBLIC HEALTH.

Reappearance of the Plague in Bombay.—Bombay dispatches of January 6 give the plague returns for the preceding forty-eight hours, 142 new cases and 105 deaths. There is a general exodus of the population and a suspension of business threatened.

Appointments.—Mr. Nathan Straus, of sterilized-milk fame, has been appointed president of the Board of Health of the City of New York, *vice* Mr. Wilson. Dr. Wm. T. Jenkins and Dr. John B. Cosby have been appointed health commissioners. Dr. Jenkins brings to his new office the experience gained as former health officer of the port.

Health in Michigan.—Reports to the State Board of Health for December give the ten diseases most prevalent as: Rheumatism, neuralgia, bronchitis, influenza, tonsillitis, diarrhea, inflammation of kidney, pneumonia, pleuritis and erysipelas. Consumption was reported at 178 places; diphtheria, 85; typhoid fever, 84; scarlet fever, 72; measles, 56, and whooping cough at 20 places, there being an increase in consumption, diphtheria, scarlet fever, measles and whooping cough and a decrease in typhoid fever, as compared to the report for November.

The Pilgrimage to Mecca was accomplished this year in remarkably good sanitary conditions. Notwithstanding the 200,000 pilgrims gathered during the four days of the festival, not a single case of the bubonic plague nor of cholera was discovered, thanks to the action of the Anglo-Indian government in prohibiting the departure of pilgrims from the infected Indian ports. But twenty days after the close of the festival, the bubonic plague appeared at Djeddah, the nearest port to Mecca. Prompt measures in accordance with the program adopted by the International Conference at Venice, and the extreme heat, stamped out the epidemic by July, with a record of only fifty-eight deaths. It was undoubtedly due to the contraband trade in goods and transportation between India and Arabia, which will continue to be a menace to the health of Europe until suppressed by concerted action.—*Janus*, October.

Good Health at Pittsburg, Pa.—The annual report of the Board of Health of Pittsburg, for 1896 has recently been issued. The report shows the number of deaths to have been 4,907 or 17.3 per thousand of population (estimated at 282,500). The death rate is lower than at any time since 1886; and considerably lower than in 1891, when it was 23.6. The number of infants born during the year was 7,462, being an increase of 9 over the previous year. The births exceeded the deaths by 2,555. The Board makes bacteriologic tests in cases of suspected diphtheria and furnishes antitoxin, produced by the bacteriologist of the department, Dr. Matson, free of charge to physicians of Pittsburg, and adjacent districts. The report shows that 1,216 doses of antitoxin serum were distributed last year, 220 of these going outside of Pittsburg. Mr. Matson is of the opinion that the fatal cases of diphtheria were reduced one-half by the use of antitoxin last year. The disposal of garbage is satisfactory. The city has as yet no municipal hospital for contagious diseases. The health officers, as in duty bound, repeat the recommendation made in former years that one be established without delay. Let them not cease the necessary reiteration until they get it, for get it they will and must.

Neglect of Vaccination in Northern London.—The *Lancet* says that if Islington is again overtaken by one of those great epidemics of smallpox which have affected it more than once in the last twenty-seven years it will not be the fault of its indefatigable medical officer of health, Mr. Alfred E. Harris. Mr. Harris has just published some statistics which may well alarm that public of this great parish. These figures show that there has been a steady increase in the neglect of vaccination during the last twelve years, so that, whereas in 1885 of 9,683 children born, only 8 per cent. were finally unaccounted for, in 1896 of 9,752 children born no less than 22.4 per cent. are unaccounted for. Such wholesale violation of law is doubtless the fault of the guardians more than of the inhabitants. It is nothing short of a scandal that a board of guardians should override the wisdom of the legislature. The vestry of Islington has very properly protested against the guardians being in this matter the sanitary authority. One thing, however, is clear, that if at the approaching election of guardians this question is not put into the very front of those on which the election will turn the inhabitants will then become responsible for the unprotected state of the children, and for general treason to the teachings of science and of common observation.

Sanitary Care of Canned Foods.—Dr. T. Brown, at the Sanitary Congress at Leeds, avowed himself to be a strong advocate of legislation in the matter of canned foods. In regard to tinned fruits Dr. Brown said he had not heard of any case which had ended fatally. He had, however, made numerous analyses showing that in cans in which lead was used in tinning or soldering, the former metal was found in the fruits and syrup. How long foods hermetically sealed would keep was not definitely known. Having had canned foods, including meats, soups, rabbits, giblets, and oysters from twenty to thirty years, he had found that the tins, though rusty outside, were perfectly good inside. The meats were sound, though not as fresh and tempting to the eye as recently prepared samples. In canned fruits, however, the effect of age was that the acids of the fruits dissolved, by chemic and galvanic action, the plating and solder with disastrous consequences. To safeguard the public health, Dr. Brown recommended the government to forbid tinned foods in which tin used for plating contained more than 1 per cent. of lead or more than 10 per cent. in solder, the same law in fact which had been in force in Germany since 1889.

Relations between Medical Examiners and local Boards of Health.—Dr. Hurd, medical examiner at Newburyport, Mass., refers to a case of sudden death regarding the disposition of which there happened to arise a clashing of authority, and the courts were called upon to arbitrate between the two authorities. Dr. Hurd thus writes to the *Boston Medical and Surgical Journal*, for December 16, regarding the discrepancy and its settlement: "This is the case where the Board of Health of Ipswich, thinking their rights interfered with by the removal of this body to Newburyport (that is, from one town to an adjoining town) without their permission, and believing that the law defining the functions of boards of health gives such boards authority over medical examiners in such cases, who must apply to these boards for consent before they can legally remove bodies out of one town into another—this board, I say, appealed to Justice Sayward, of Ipswich, who sustained the view of the board, and fined the undertaker who took the body from Grape Island to Newburyport, $10 and costs. An appeal was made to the superior court, and the case was *nolle prossed* by District-Attorney White, so that, according to this judgment, medical examiners are not amenable to boards of health in the discharge of their duties within the limits of their districts."

Sanitary Regulations as to the Plague in South Eastern India.—Plague is increasing in India. It is feared that it will break

out somewhere in an epidemic form, and the necessity for active intervention occur. A recent telegram from Madras, reported: "Three fresh cases, one has terminated fatally." "The appearance of the plague," says the *British Medical Journal*, "at Madras is interesting epidemiologically, as we have no previous record of plague there. The cases, as far as we can learn, are important cases merely and in accordance with what we now know of plague we should not anticipate an outbreak there in an epidemic form. A telegram from Jullundur, a town in the Punjab, states that twenty-three deaths have occurred there 'from what is believed to be the plague.' Jullundur is directly in the track northward from Bombay of the course the plague has followed previously. In the hospitals at Poonah, 294 cases of the plague are being treated, and the physicians are attending 115 cases in Bombay hospitals. Whilst Poonah is relaxing her efforts by as far as possible annulling the severe segregation rules enforced when the plague first appeared, Bombay is strengthening hers by imposing quarantine upon new arrivals. The period of detention will extend to six days, and accommodation will be provided for about 6,000 people. With the quarantine arrangements surveillance tickets are issued, whereby well-known people can avoid the quarantine on the understanding that they present themselves for examination on the third and sixth days after arrival. As well-nigh a third of the cases occurring in Bombay are imported, these regulations have shown excellent results. The inspection is rigid, and no person passed out has been known to have become subsequently attacked."

The Ship Island Quarantine.—The resolution recently introduced in the United States Senate by Senator Walthall of Mississippi, instructing the Committee on Health and Quarantine to investigate by what right the Quarantine Station, which was removed some years ago from Ship Island, off the Mississippi coast to Chandeleur Island, had been returned to Ship Island, will receive general indorsement in this section. The resolution further instructed the committee to report, by bill or otherwise, the proper measure for removing the station from Ship Island to some other point in the Gulf remote from the mainland. This resolution undoubtedly voices the wishes of the people of the whole tier of States bordering on the Gulf of Mexico. Ship Island is not a fit place for a quarantine station, for the reason that it is too close to the mainland, and is in daily communication with all the towns along the coast, because a large amount of traffic goes on constantly between the ships taking in cargo at the island and the mainland; and lastly, because fishermen and pleasure-seekers are frequent visitors to the island. A quarantine so situated can not but be dangerous to the health of the watering places along the Gulf Coast, and through them to the neighboring cities of Mobile and New Orleans. There is a very grave suspicion that the recent visitation of yellow fever came through Ship Island. At any rate, it first made its appearance at Ocean Springs, which is but twelve miles from the island. No matter how strongly the Government officials may claim that the quarantine plant at Ship Island is not dangerous to the health of the people residing on the mainland, it should nevertheless be removed, as it is unwise to take any chances in matters affecting the public health. Moreover, the people of the coast towns firmly believe that the Ship Island Quarantine Station is a menace to them, and its perpetuation would materially retard their prosperity. It was a great error to have re-established it on Ship Island after it had once been removed from there, and Congress should promptly provide for its transfer to some more isolated place. Chandeleur Island is not a pleasant place of residence for the quarantine officials, but that is not to be considered in comparison with the safety of the entire Gulf coast.—Editorial in New Orleans *Picayune*, Dec. 16, 1897.

Inadequate Organization of Boards of Health Disclosed by the Yellow Fever Epidemic.—In proportion as the organization of sanitary boards is made complete and satisfactory, the panicky feeling in our epidemic-struck communities declines. The weak points in State and local boards are emphasized by such outbreaks of yellow fever as have visited our Gulf Coast, this year. A writer in the New Orleans *Medical and Surgical Journal*, November, alludes to the panic that has affected the Louisiana parish in which he lives, adding "and as is usual where there has been extreme fright, there has been almost complete absence of common sense in the exercise of powers conferred by law. Every neighborhood is suspicious of all other places; each municipality has enacted laws to protect itself without due regard to the rights of others, and in most instances very much more stringent than the situation demands. I suppose there are today, in the State of Louisiana alone, over five hundred local boards of health, each a law unto itself, and without the least attempt at uniformity or co-operation for securing protection against the yellow fever. The Board of Health of Louisiana, as at present created, serves an excellent purpose as far as the City of New Orleans is concerned, but in an emergency of this kind is of but little benefit to the State at large. I believe if a general law was passed, excessive and unwise quarantines, such as New Orleans and the entire State are suffering from now, would be impossible in the future. My suggestion is that the State Board of Health be composed, as at present, with the same number of members from the city of New Orleans, and also have a number from each parish in the State and one from each town of certain population. The Board should have its domicile at the State Capitol, and should hold annual meetings for discussing such questions as might come up of interest to the public health; in fact this board should take charge of the public health of the State in its broadest sense. Each member from a parish or town ought to be the regularly appointed health officer for that parish or town and, acting under rules adopted by the State Board, should take charge of all quarantines during an outbreak of any epidemic, or infectious disease. He should at all times look after the health of his parish or town, register births, deaths, etc. If some law of this kind could be passed and all laws repealed giving police juries and corporations power to form themselves into boards of health, I believe the end of shotgun quarantine would be at hand, while the public health would be more thoroughly protected than it is now; the embargo on freight, as far as this State is concerned, would not be necessary. Confidence among the people in a board of health of this kind, I believe, would soon be acquired, and no one would wish to go back to the primitive methods of complete isolation to prevent the spread of disease."—James Kilbourne, Clinton, La.

BOOK NOTICES.

Clinical Text Book of Surgical Diagnosis and Treatment. By J. W. MACDONALD, M.D. Professor of the Practice of Surgery and Clinical Surgery in Hamline University, Minneapolis. 328 illustrations, pp. 798. Philadelphia: W. P. Saunders. From W. T. Keener, Agt. 52 Randolph Street, Chicago. Price in cloth, $5.00, half morocco, $6.00.

This book might, with advantage, be compressed into two-thirds its size as it is verbose in its expressions, and the art of condensation, so far as the author is concerned, is a lost art.

The author's ideas are a little foggy in respect to tumors page 561, "Fibro-myomata and Fibromata." "Between the simple gelatinoid polypus and the true fibroma may be found mixed tumors of all grades, from those containing the slightest trace of fibrous material to those difficult to differentiate from the true fibroid; the gravity of the case varies in proportion to the amount of fibrous substance, because that is very vascular, and the chief danger of removal lies in the hemorrhage."

Page 563: "Adenomata and cysts are to be regarded as modifications of mucous polypi, with similar symptoms and treatment, though the former may take on the characteristics of

carcinoma and the latter do not tend to recur when once their contents are evacuated."

Page 667: "Psammomata are warts found only in the pia mater of the brain and spinal cord."

We notice on page 598, that the old student's lamp is introduced as a means of examining the larynx; in these days of gas and electricity, the student's lamp has not only ceased to shine in most offices but the electric head light has superseded the one here figured.

There are some funny errors in the text. We notice on page 579, in speaking of the deviated septum, he says: "One of the early proposed methods was that of "*Adanus*." Adanus we suppose must be the new way of spelling Adams.

There are some errors of statement; for instance, on page 241 the author says: "In the following table I have tried to place, side by side, the diagnostic difference in the three forms of obstruction;" and then under the first heading, "Strangulation by bands," we find that this is confined to "young males." Our personal experience is entirely contrary to this proposition, as we have repeatedly found these bands in young women, especially in cases that had been subject to former operation, and we believe it will be found, by most surgeons, that there is practically no difference in the relative frequency of strangulation by bands in one sex or the other. There are many good points in the work, which concludes with a chapter on the X-ray and surgical diagnosis.

Hugh Wynne, Free Quaker. Sometime Brevet Lieutenant Colonel on the Staff of his Excellency, General Washington. By S. Weir Mitchell, M.D., LL.D. (Harvard and Edinburgh.) Two volumes. New York: The Century Company. 1897.

From the days of "Ivanhoe," "Thaddeus of Warsaw," and "Leather Stocking" down to the present time, the historic novel has always been a favorite.

This book should be a favorite with physicians on account of the fact that it was written by one of the guild, so well written indeed that it is destined to take rank with the leading favorites of the past, and it seems at last as if the present generation would have, in the person of Dr. Mitchell, an American novelist worthy of the name.

This story is laid in the times of Washington and inside glimpses are given of early Quaker life in Philadelphia, and the names familiar to us in history are handled as familiar contemporary characters. The work ranks well as a novel and the reader's interest does not flag from beginning to end. Moreover, there is a certain charm in reading a story about which one knows, in a general way, the subsequent history of the principal characters of whom he is reading; and if in addition there is knack in telling the story, interest is all the deeper. "Hugh Wynne" is a book to be read with pleasure by American physicians and laymen alike, and most interesting is the account of life in the Philadelphia prison during the British occupancy of the city. Dr. Mitchell has scored another success.

Ambroise Pare and His Times, 1510–1590. By Stephen Paget. New York and London: G. P. Putnam's Sons; Knickerbocker Press. 1897.

The *fin de siècle* seems to be the age of reminiscences in historic matters, and medicine is feeling the effect of this wave of reminiscence. Last week we chronicled the appearance of two works, John Hunter and William Harvey, and here we record the appearance of a story of Ambroise Paré, newly told in English dress. The life of no surgeon has been more romantic, more full of adventure or of excellent professional work than that of Ambroise Paré, and heretofore there has been but little of it in the English except in scattered volumes, and Mr. Paget has placed the profession in his debt by reaccounting the details of his life.

The volume gives his boyhood and early life and his journeys in diverse places; notes of the journeys in diverse places; Paris from 1541 to 1572; Paris from 1573 to 1590; opera omnia; some aspects of Paré's life, and Paré's account of the plague.

There are some fine illustrations which the reader will find of interest, especially the frontispiece, which is a reproduction of a portrait in the possession of Mme. La Marquise Le Charron, a descendant of one of Paré's daughters and which was painted when he was 65 years old, with a *fac-simile* of Paré's signature written across it. The other illustrations in the work are reprints from Paré's books, from old prints in the British Museum and from M. Martial's "Ancien Paris."

A System of Medicine by Many Writers. Edited by Thomas Clifford Allbutt, Professor of Physic in the University of Cambridge, etc. Pages 1001. New York: The MacMillan Company, 66 Fifth Ave. 1897. Price $5.

This volume covers some topics which have not been provided for in the preceding volumes and scarcely provided for in the nomenclature. "General diseases of obscure causation," is the rather unscientific title of one of the chapters, under which head is included discussion on acute rheumatism, chronic muscular rheumatism, rheumatoid arthritis, rickets, acromegaly, hypertrophic pulmonary osteo-arthropathy, gout, diabetes mellitus, diabetes insipidus, lardaceous diseases, diseases of alimentation and secretion, including general pathology of digestion and secretion, shock and collapse; diseases of the mouth and esophagus, diseases of the stomach, diaphragmatic hernia, abdominal diagnosis from the gynecologic standpoint, enteroptosis, diseases of the peritoneum, diseases of the bowels. There are twenty-three illustrations, a plate and various charts and bibliographic references. The volume is quite up to date in its discussions on the treatment recommended. Drs. Church, Cheadle, Archibald Garrod, Kent Spender, Still, Ralfe, Mr. Bowlby, Sir William Roberts, Drs. Saundby, W. L. Dickinson, Fenwick, Bradford, Cobbett, Rollson, Brunton, Stocker, Allbutt, Dreschfeld, White, Howship Dickinson, Leith, Playfair, Mr. Treves, Drs. Allchin, Eustace Smith, Patrick Manson, Willis and Allingham are the contributors to the volume.

Rubaiyat of Doc Sifers. By James Whitcomb Riley. Illustrated by C. M. Relyea. New York: The Century Company. 1897.

This is a poem by James Whitcomb Riley, in which the life of "Doc Sifers," an ideal country doctor, is fully set forth in the dialect of Hooppole Township, Posey County. The Doctor's virtues are set forth in such fashion that one can not but love and esteem the old country practitioner. Riley depicts him, as follows:

"He's jes a child's what Sifers is! And sir I'd ruther see,
That happy, childish face o' his and puore simplicity,
Than any shape, er style er plan o' mortals otherwise——
With perfect faith in God and man a- shining in his eyes."

Mr. Riley makes the rustic worshiper of Doc Sifers speak thus of his library.

"Doc's lib'ry—as he calls it—yes, they's ha'f-a-dozen she'ves, Jam full o' books—I couldn't tell how many—count yourse'ves! One whole shef's works on medicine! And most the rest's about First Settlement, and Indians in here—'fore we driv 'em out."

Text Book of Materia Medica for Nurses. Compiled by Lavina L. Dock, graduate of Bellevue Training School for Nurses. Third Edition, revised and enlarged. New York and London: G. P. Putnam's Sons. 1897.

Much in these days is expected of the trained nurse, and her training includes lectures on surgery and materia medica as well as on the subjects supposed to be within her peculiar province. The contents of the volume are as follows:

Part 1. Inorganic materia medica; the alkalies; of alkaline earth; metals; non-metallic elements; inorganic acids; organic acids; the carbon compounds.

Part 2. The organic materia medica; the vegetable kingdom; the animal kingdom; new drugs arranged alphabetically; appendix; index.

Diseases of the Stomach, their Special Pathology, Diagnosis and Treatment, *with Sections on Anatomy, Physiology, Analysis of Stomach Contents, Dietetics, Surgery of the Stomach, Etc.*; in three parts. By JOHN C. HEMMETER, M.D., PH.D., with many original illustrations, a number of which are in color, and a lithograph frontispiece. Pp. 788. Philadelphia: P. Blakiston, Son & Company. 1897. Price $6.

The work is divided into three parts, of which part first is devoted to the anatomy and physiolgy of the digestive organs, methods and technics of diagnosis; Part 2, to the therapy and materia medica of stomach diseases; Part 3, to the gastric clinic.

The work is completely scientific, modern, accurate and creditable. There is one defect in it, however, which must strike the average reader with regret, and that is that the references are, with exceptions, foreign; work done in our own country escapes with scant mention. For example, under the head of foreign bodies in the stomach, a number of cases of hair ball are recorded all from foreign journals, while the one published in this journal (Vol. xxvi, page 199) by Allen, is unnoticed. Notwithstanding this defect, the book is an excellent one and stands fully abreast with the German works on this subject. We commend it. The illustrations are excellent, the paper is good and the publishers have given the work a handsome setting.

NECROLOGY.

JOSEPH O'DWYER, M.D., College of Physicians and Surgeons, N. Y., 1866, one of the visiting physicians of the New York Foundling Hospital, died of tubercular meningitis at his home in New York city, January 7, aged 55 years. Twelve years ago he achieved even international fame by his intubation method of treating laryngeal diphtheria. He was a progressive, enthusiastic physician, in much favor with the profession for his candid and kindly manner.

EDWARD L. DODGE, M.D., N. Y. University Medical College, 1888, died suddenly from blood poisoning following an operation, January 3, aged 39 years. He was born in Springfield, Mass., and practiced in Brooklyn, N. Y. for 12 years. Just before his death he had secured a position on the eligible list of Police Surgeons.

FRANZ HEUEL, M.D., N. Y. Medical College (now extinct), 1857, who belonged to the German revolutionary army of 1848, and emigrated to this country after its defeat, died in New York city, January 4. He was once attached to the Health Department, and also served as a Dispensary physician. He leaves two sons who are also members of the profession.

SAMUEL HENDERSON MCILROY, M.D., Long Island College Hospital, 1864, was a war veteran, member of the Grand Army of the Republic, a Fellow of the N. Y. State Medical and AMERICAN MEDICAL ASSOCIATION, and belonged to many fraternal bodies. He was born, June 21, 1839, in Scotland, Pennsylvania, not far from the Gettysburg battle field. He was a popular, well-read physician, and up to within a year of his death, when his health failed, he enjoyed a lucrative practice. He died January 5 and left a widow with three children.

ERNEST HART, Editor of the *British Medical Journal.* Mr. Hart was the author of a number of works on sanitation, etc., and had been conspicuous for his devotion to social and sanitary progress in London. He established a society for the abatement of smoke, and instituted cheap concerts for the poor. As chairman of the Parliamentary Bills Committee of the British Medical Association he took an active part in promoting a better organization of the medical departments of the British army and navy. Among sanitary investigations he especially inquired into the various epidemics due to the pollution of milk and devised a series of regulations for safeguarding the milk supply of towns. After investigating the conditions of the Irish peasantry in Galway, Donegal, and Mayo he published in the *Fortnightly Review* proposals for favoring the creation of a peasant proprietary and for reclaiming waste lands. These were adopted by the government.

WILLIAM SCOTT TREMAINE, M.D., U. S. A., retired, died Sunday Jan. 9. He had been ill for several weeks. He was a native of Charlottetown, Prince Edward Island, where he was born Sept. 13, 1838. He was graduated from the University of Pennsylvania, and entered on the practice of medicine, which he followed until Aug. 7, 1863, when he entered the volunteer service as assistant surgeon of the 24th Massachusetts Infantry, serving until April 12, 1864, when he was honorably mustered out. On May 2 he was commissioned surgeon of the 31st United States Infantry, from which he resigned Sept. 9. He then entered the United States Volunteers as assistant surgeon and on June 4, 1866, was honorably mustered out, having been appointed to a like position in the regular army. This appointment was made Feb. 28, 1866, but he did not accept until June 12, eight days after he was mustered out of the volunteer service. On September 16, he was promoted to the rank of Captain. He served on several stations in the Atlantic division, and then was sent to Ft. Dodge. While there he was taken ill, and for two years was absent on sick-leave. In 1882 he was promoted to surgeon, with the rank of Major, and detailed for active duty at Fort Porter. On Feb. 27, 1891, he was retired owing to disability, after having been on sick-leave for some time. He leaves a widow and six children, Morris Tremaine of New York city, William Tremaine of Chicago, Mrs. H. F. Hall of Jersey City, Mrs. Nairn Walsh and Miss Florence Tremaine of Pittsburg, and Miss Grace Tremaine, who lived with her parents in this city. Dr. Tremaine was one of the founders of the Medical Department of Niagara University, and one of its first professors of surgery. He was a member of the military order of the Loyal Legion, which is composed of commissioned officers of the Civil War, or their eldest sons; of the Masonic Order, of the Buffalo Club and the local medical societies.

Louis Crusius, M.D., Professor of Histology at the Marion-Sims Medical College, January 2, aged 36 years.——L. B. Lindsay, M.D., Cadiz, Kentucky, January 3, aged 71 years.——W. H. Negley, M.D., Dayton, Ohio, January 5.——James Stanton, M.D., San Francisco, Cal., December 28.——Dr. Zaccharin, physician of Czar Alexander III., Moscow, Russia.——John R. Preston, M.D., born February 15, 1809, died in Schuylerville, N. Y., January 2.

NEW INSTRUMENTS.

A NEW PHOROMETER.

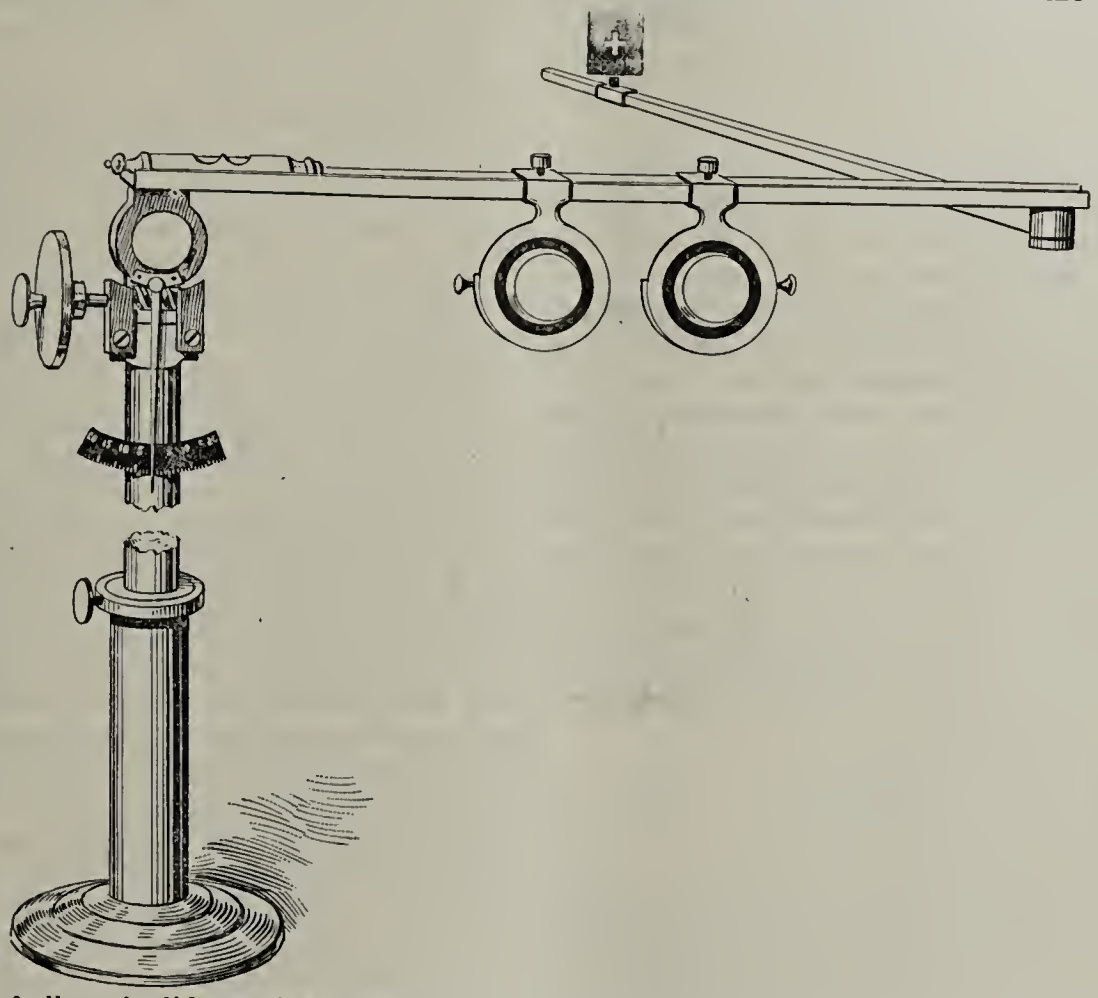
BY JOHN O. MCREYNOLDS, B.SC., M.D.
DALLAS, TEXAS.

In the department of ophthalmology no line of research in recent years has attracted so much attention as that pertaining to the extrinsic muscles of the eye. And in view of this rapidly growing importance of an accurate knowledge of the various anomalies of the ocular muscles, it becomes necessary to employ as aids in diagnosis instruments of the greatest precision and convenient of manipulation. This demand has been met in part by several devices invented for this purpose, but some of the best of these in frequent use have covered only a portion of the field of inquiry. Without offering any extended criticism on the very excellent instruments already introduced, I should like to present to the profession a phorometer, which in my judgment will combine every essential feature that could with reason be desired.

This instrument has been made for me by F. A. Hardy & Co. of Chicago, and their kind co-operation I wish sincerely to acknowledge in this connection.

The construction is roughly outlined in the illustration which accompanies the following brief description of the essential

atures of the phorometer. The instrument rests upon a aded metal base which can be placed upon a table as con- niently as if it were an ordinary lamp. It is supported by a rtical metal rod composed of two pieces, one of which slides ithin the other, and is provided with a fixation thumb screw, r means of which the height of the instrument can be regu- ted according to the height of the patient to be examined. ttached to the upper extremity of this supporting rod is a rizontal metal bar, which can be maintained in correct posi- n by means of an endless screw bearing upon a cogged wheel, e position of the bar being determined by a spirit level, with hich it is provided. The preservation of this horizontal posi- n is important, because any oblique position would modify e axes of the prisms employed. The horizontal bar is grooved, r the reception of two entirely similar slides which are situ- ed beneath the bar, and along which they can be made to ve freely, or can be firmly secured at any point by fixation umb-screws arranged for this purpose. This feature enables to regulate the phorometer according to the pupillary dis- nce of the patient. Each slide is also provided with a specially nstructed spring clip, which will hold in position a Maddox d double prisms, colored and stenopeic discs, or various fracting lenses.



But most important of all, each slide carries a cell which can made to revolve freely within the slide which contains it, or be fixed in any desired position by a set-screw. The advan- e of this fact is that the prismatic effect of the cell may be rted in any direction whatever, and this direction is indi- ed by the graduated circumference of the slide.

Each cell is composed of two prisms of 15 degrees each, super- posed one upon the other, the two prisms possessing the wer of revolving with equal rapidity, but always in exactly posite directions, the motion being communicated to them a thumb-screw whose distal end is provided with cogs artic- ting with the circumferences of the prisms between which placed. Since the two prisms always move simultaneously with equal rapidity and in opposite directions there are points in each complete revolution of the prisms at which y completely neutralize each other, and these points, which situated at opposite extremities of a diameter, are marked on the graduated circumference of the cell.

Now it is evident, that starting at a point at which the two prisms neutralize each other, a revolution through an arc of 90 degrees will cause the bases of the prisms to exactly coincide and their apices to correspond, thus giving a total prismatic effect of 30 degrees, equal to that of the two prisms combined. This point is accordingly marked 30 degrees on the circumference of the cell, and is situated just 90 degrees from the points marked 0 degrees. It is also evident that at 180 degrees from the point just marked 30 degrees there will obtain the identical relations of the prisms to each other, and this point should accordingly be marked 30 degrees. Then the intermediate points in each quadrant between points marked 0 degrees and 30 degrees can be easily determined by calculation or neutralization by prisms of known strength, and thus the graduation of the circumference of the cell is completed. The cell as thus arranged is capable of manifesting in a rectilinear direction a prismatic effect varying by insensible gradations from 0 degrees to 30 degrees. The cell in the other slide is capable of accomplishing the identical result, and hence with the complete phorometer we can secure any amount of prismatic power from 0 degrees to 60 degrees. Not only this, but since each cell is freely movable within the slide which contains it, we can at will determine the direction in which this prismatic power shall be exerted.

The important feature in the effect of two equal and superimposed prisms revolving in contrary directions within the same cell, is that the image transmitted through them is always deflected in a straight line and not in curves, and that the increments of prismatic power are infinitesimal, so that the maximum impulse to fusion of images is secured.

For the practical application of this instrument to the various forms of heterophoria, the procedure would be briefly as follows:

To test for esophoria and exophoria; so adjust one cell that it will produce a vertical diplopia. Then so adjust the other cell that it shall be neutral, and in such a position that subsequent rotation of its prisms will produce horizontal deflection. Then if the images are in the same vertical line the examination shows orthophoria, and if the images are not in the same vertical line rotate the prisms, producing lateral deviation, until the images pass through the same vertical line and the index

of the instrument will point out the number of degrees of esorphoria or exophoria, according to the circumstances of the case.

To test for hyperphoria, right or left, start with the cells in the same positions as above, then rotate the prisms of cell producing lateral deflection until horizontal diplopia is produced, and then rotate prisms of cell producing vertical deviation until the images appear in the same horizontal line, and read off the hyperphoria upon the graduated arc of the cell.

For measuring abduction, start with the same positions as above and rotate prisms of cell causing lateral deflection so that their bases pass inward, and as soon as fusion of images is no longer possible the limit of abduction is reached and can be read from the arc.

For measuring adduction, adjust both cells so that the subsequent rotation of prisms will cause horizontal deflection of images and then rotate the prisms so that their bases turn outward and continue until diplopia develops and then read the degrees from the two cells, and the sum will represent the total power of adduction.

For testing sursum-duction and deorsum-duction, place both cells in neutral position, one of which must have the axes of its prisms horizontal, and then rotate these prisms until the power of fusing the images is lost, and read from the arc the degrees of sursum-duction, or deorsum-duction, as the case may be.

Finally, for any kind of oblique, horizontal or vertical rectilinear deviation leading to diplopia, adjust the neutralized cells so that their prismatic power when exerted shall be in the direction favoring the fusion of images, and when monocular vision follows the phorometer will indicate the strength and position of the prisms which measure the heterotropia. These possibilities are true whether the deviation is due to spasm, or paresis, or paralysis of one or more ocular muscles, provided the extent of the deviation does not exceed 60 degrees, which is the maximum capacity of the instrument described. But if it is desired the strength of the component prisms could be readily increased so as to extend still further the field of investigation.

In conclusion I would say, that with this phorometer we can measure with rapidity and accuracy any form of simple or compound heterophoria and any form of diplopia within the combined power of the prisms employed.

SOCIETY NEWS.

Boston Medical Society.—At a meeting of the Boston Medical Society held on Jan. 1, 1898, the following officers were elected for the ensuing term: Dr. S. Goodman, president; Dr. R. K. Noyes, first vice-president; Dr. F. J. Kelleher, second vice-president; Dr. M. Gerstein, secretary; Dr. V. Bychower, treasurer; Drs. N. M. Goodman, Chas. F. Parker, A. Rovinsky, H. P. Leonard, J. J. Hanley, B. L. Bernard, directors. The subject for discussion was "Medical Abuses in the Hospitals and Dispensaries, Their Causes and Remedies for the Same." The following took part in the discussion: S. Goodman, F. F. Whittier, N. M. Goodman, F. J. Kelleher, Gustavus Liebman, Ph. Losnowsky and A. Rovinsky. Papers on the subject were read by Drs. R. K. Noyes, Chas. F. Parker, M. Gerstein, the latter dwelling on the abuses in the lying-in-hospital out-patient department.

MISCELLANY.

The Russian Kvas as a Substitute for Beer.—Dr. Karl Frankel has suggested the Russian drink kvas as a substitute for beer, which so many of the members of the congress at Moscow, though tasting it for the first time, found so pleasant and refreshing. During the hot days at Moscow nothing seemed more palatable than this simple fermented liquor, which is not unlike our own popular root beer. Kvas contains scarcely 0.5 per cent. of alcohol, and most Americans who attended the congress would agree with Dr. Frankel that it would form an excellent substitute for beer during the heated term when the desire to consume a good deal of liquid is almost irresistible. —Correspondent of the *Medical News*.

Can Not Testify to Own Insanity.—For the purpose of avoiding the legal consequences which would naturally follow from joining in the erection of a division fence, the plaintiff, in the case of O'Connell against Beecher, was permitted to testify that in 1883 he fell from a building, and was severely injured. This, the fourth appellate division of the supreme court of New York holds, October, 1897, was competent. But he was further permitted to testify that for eight or nine years thereafter his mind was not right. That this latter testimony was not stricken out, on objection, the court pronounces reversible error, on the ground that the witness was not an expert, and was not competent to give an opinion upon this question. It would establish a dangerous rule, the court goes on to say, to hold that a party to a contract or a transaction is competent to testify that he was not of sound mind at the time of the transaction, or at the date of the contract.

Naval Hospital Corps Proposed.—Secretary Long has sent to the House Naval Committee a draft of a bill "to organize a hospital corps of the United States Navy, to define its duties and regulate its pay." The Secretary says it is understood that the operations of the Army Hospital Corps are satisfactory, and that a similar organization in the Navy can be established and maintained with practically no additional expense. The corps, as proposed, is to consist of twenty pharmacists at $75 per month and five at $100; sixty-five hospital stewards at $60; thirty first-class hospital apprentices at $24; sixty hospital apprentices at $18. The proposed naval hospitals are to be located at Portsmouth, N. H.; Chelsea, Mass.; Newport, R. I.; New York City, Philadelphia, Washington, Norfolk, Va.; Pensacola, Fla.; Mare Island, Cal., and Yokohama, Japan. The scheme includes navy yards and flagships.

Suggestive Statistics.—New York, or since the opening of the year, more correctly Borough of Manhattan, New York City, has one ward, the tenth, with a population of 413,000 to the square mile and a voting strength of nearly the unit. The population of the Whitechapel district of London is 393,000 to the square mile. New York consumes daily 25,000,000 more gallons of water than does London; the former city has a birth every nine minutes and a death every ten and a half minutes, while the latter city has a birth every three minutes and a death every five minutes. In London one out of every sixteen inhabitants seeks relief through public charity, while similar aid is sought in New York by one out of each two hundred. London has a police force of 16,000 while New York has to depend upon not quite half that number, but in London the population moves more like a procession than in New York and much more alertness is required in the management of its street traffic, with perhaps a greater respect for the rights of the individual. Still, New York arrogates to itself the finest constabulary of the world. Travelers agree that both these great communities display the racial stoicism of the Teuton even in their crimes, without the leaven of gayety in their sports so apparent in Paris. The struggle for existence in all three of these dense communities has nearly obliterated the Spartan simplicity of the home and has focused their wealth in divers enterprises. The whole three at the present time are trying to refract their accumulations over the diminished areas of a more compact aggregation of living masses. In other words, the moneyless are in a state of siege, with the watchword that the world owes them a living. Sanitation may make life more tolerable, but can scarcely be expected to enter too deeply into moving causes.

Retirement of Dr. Julius Kohl.—At the annual meeting of the Illinois State Board of Health held at Springfield, Ill., Jan. 4, 1898, the following was adopted relative to Dr. Julius Kohl, whose time on the Board had just expired:

WHEREAS, The term of service of Dr. Julius Kohl as member of the Illinois State Board of Health having expired by limitation, we, his late associates, take the occasion of his retiring to express our regard for his ability, professional probity and sterling manliness. Honest, sincere, discreet, fearless in the discharge of every duty, Dr. Kohl won our respect and esteem while with us, and at parting, carries with him our solicitude for his welfare, our best wishes for his happiness.

Hereditary Insanity as a Defense.—In the murder case of State vs. Van Tassel, the defendant's father testified to the insanity of a brother, an uncle of the defendant. Was this single circumstance admissible in evidence? The supreme court of Iowa holds that it was not (October, 1897). It says that when there is evidence of a want of motive, or other evidence furnishing a basis for inquiry as to the insanity of the accused at the time of committing the criminal act, evidence of hereditary insanity may be introduced. But mere proof of insanity in a parent will not be sufficient to constitute a defense if the other evidence negatives the presence of insanity in the accused. Proof of hereditary insanity is admitted as cumulative evidence, and insanity of ancestors is of itself no defense. The reason for this, undoubtedly, continues the court, is that the burden is upon the defendant to establish this defense by a preponderance of the evidence. And proof of an isolated case of insanity in the family, especially that of a remote relative, will not of itself overcome the presumption of sanity.

Intratracheal Medication.—Dr. J. A. Thompson's article in the JOURNAL of June 26 has received the compliment of editorial discussion in the London *Lancet* for September 4. The writer in that discussion may be said to be in agreement with the American physician, but has doubts whether or not the localization of treatment along the respiratory tract can be extended beyond dilated bronchi. It may be expected that if a large tuberculous cavity communicates with a bronchus it is possible that a tracheal injection of guaiacol might prove beneficial; but that the drug acts locally on the lung tissue itself, especially at the apices, has by no means been proved. The *Lancet* article also remarks that medicines administered by tracheal injection are not changed by passing through the digestive organs into unknown compounds, and for this reason we can be more certain of their action. "No one would think of treating a tuberculous laryngitis by internal medication alone. There is just as much reason for applying medicines of known beneficial local action directly to the lungs as there is for using them in the larynx." (Quotation from Dr. Thompson.) The weak point of this suggestion is that we can not get at the diseased portions of the lungs as we can at the larynx, but at the same time if guaiacol has a local action on tuberculous deposits, if the injection is well tolerated, inspiratory efforts may carry the drug some little distance into the lung and some of it may be absorbed by the parenchyma of the lung, and so the desired effect be produced. Guaiacol and similar preparations frequently produce ill effects when taken by the mouth, and have to be discontinued; so also various expectorants, such as are used in acute and subacute catarrhal diseases, act injuriously on the stomach and intestine. The name of one class, nauseating expectorants, testifies to the universal recognition of this fact. The diseases most suitable to this form of treatment, according to the writer, are pulmonary tuberculosis, pulmonary syphilis, chronic bronchitis, inflammation of the trachea, asthma and bronchiectasis. Tracheal injections have been most extensively tried in pulmonary tuberculosis and with varying success by different observers. The writer appears to indorse the opinion of the American physician when advocating his method in chronic bronchitis. He believes there is no comparison between the two methods of treatment. The results are so much more rapid and satisfactory by intratracheal medication that no patient who has once been given this treatment is ever willing to continue internal medication. The method will doubtless be given an extended trial, and the experiences of other physicians will be awaited with interest.

Surgery of the Lungs.—The more accurate diagnosis which is now possible with radiography, more general recognition of the tolerance of the lungs and improved technique are leading to more frequent intervention, Tuffier remarked in his address at Moscow on this subject. Most of the 306 operations on record have been performed for gangrene. The immediate result is the disappearance of the putrid expectoration and of the fever. Much depends upon a soft, well-adjusted drain. The following remarkable results have been attained: Thirty-nine recoveries in fifty-five metapneumonic gangrenes; one in four cases of gangrene with ectasia of the bronchi; two recoveries in seven cases of embolism; one in one from a gunshot wound. In forty-nine cases of abscess of the lung, probably mostly encapsulated intralobular suppurating pleuritis, 23. per cent. succumbed to the pneumotomy. Three cases of incipient tuberculous foci were cured, but the operation in cavities was followed by death in thirteen out of twenty-six cases operated. The opened cavities rarely cicatrized and only one or two were improved. Intraparenchymatous injections in tuberculosis also proved ineffectual. No primary neoplasms have yet been operated, but seven cases are on record in which a sarcoma had extended to the wall over the lung and been operated. For these difficult operations he resorts to tracheal insufflation with respiration by pressure through a tamponed canula introduced into the larynx. He rejects puncture in hydatid cysts as unreliable and dangerous, from possible perforation of the bronchi. There are twenty-nine operations for aseptic lesions on record (twenty-two recovered, 75.8 per cent.; and seven died, 24.1 per cent). This includes traumatic lesions, hernia, neoplasms and tuberculous nodules. Sixty-one operations were performed for hydatid cysts (fifty-five recoveries and six deaths). The remaining 215 were performed for septic lesions (140 recovered, 64.8 per cent.; 75 died, 35.2 per cent.). This includes tuberculous cavities, 36, 16 deaths; abscesses, 49, 12 deaths; bronchiectasia, 45, 13 deaths; foreign bodies, 11, 4 deaths; gangrene, 74, 30 deaths; actinomycosis, 1, no death. Total 306; cured, 217; died, 88. Sapiejko stated that he locates adhesions with an exploratory needle connected with a manometer; when the point of the needle projects into an open space the manometer is lowered, while it remains stationary if the needle encounters adhesions. Doyen urges the utmost possible haste in suturing the pleura. He exhibited a laryngeal canula with bulb to produce strong artificial respiration in asphyxia. D'Antona recommends provoking coughing, compressing the sound lung at the same time, which causes the diseased lung to bulge out through the wound and prevents pneumothorax.

Lowell Institute Lectures, 1897.—One of the Lowell lectureships was this year held by Prof. Michael Foster of Cambridge University, who is to consider a subject of unusual interest to our profession. "Some Features of Brain Work" were presented by this well-known English physiologist in a course of six lectures, beginning October 18. From the brief summary printed on the tickets, as well as from the success of the opening lecture, it is evident that the physiology of the nervous system in its unity as well as its complexity, as revealed by modern research, is to be sketched by a master hand. Professor Foster requires no introduction to those members of the medical profession who have obtained their medical education within twenty years. In his text-book, published for the first time in 1877, the advanced student and the original investigator found not a collection of isolated and often conflicting statements, but a logical and careful presentation of evidence, with wise suggestions as to the direction in which truth was to be sought in those fields where investigations had yielded only uncertain results. In its successive editions the work has kept pace with the advance of physiology, and its author has shown us how in physiology, as in other sciences, the "solid nucleus of acquired truth year by year grows larger at the expense of its envelope or zone of strife where truth and error mingle in conflict." Professor Foster began his career as a physiologist in 1867, as lecturer on practical physiology in University College, London. In 1869 he was appointed professor in the same institution. In 1870 he became prelector in physiology at Trinity College, Cambridge, and in 1883 was appointed first professor of physiology in the University of Cambridge. Since 1881 he has held the position of secretary of the Royal Society, and in this capacity has exerted a strong influence upon the develop-

ment of science in England. He took a prominent part in the deliberations of the International Congress of 1896, in which it was decided that, beginning with the year 1900, a card catalogue of the scientific literature of the world shall be published under the auspices of the Royal Society, and when this great undertaking shall be inaugurated the result will be largely due to the energy and sagacity of Michael Foster.—*Boston Medical and Surgical Journal.*

Successful Evacuation of Hydatid Cysts of the Liver.—Cheney (*Archives of Pediatrics*, Vol. xiv, No. 11, p. 851) has reported the case of an Italian boy, 7 years old, who came under observation with vague symptoms: Occasional pain in the right side, headache now and then but not constantly, and during the previous week several vomiting spells. His appetite was reported to be fair. He slept well at night and his bowels moved regularly each day, but his mother had noticed a swelling in the right side, about two years before, which had never disappeared, but had rather grown larger. The child appeared healthy, although his body and limbs were moderately emaciated. No icteric hue could be detected about the skin or conjunctivæ. The tongue was heavily coated with a yellowish fur. On inspection a swelling was plainly visible in the region of the liver, and on palpation it was found to extend downward as far as the level of the anterior superior iliac spine, and inward to the median line. The swelling was evidently somewhat tender to the touch. Its outline was smooth, not nodular, and its consistence hard throughout most of the extent, but in one part, about three inches below the border of the rib, the swelling was distinctly fluctuating. Running across the right side of the abdomen, just below the border of the ribs, there was appreciable to touch and sight a sulcus or groove, apparently separating the mass below from the liver above. The lower border of the tumor was sharp and distinct, and the examining fingers could easily be inserted beneath it, and it descended on deep inspiration. On percussion there was dulness over the area of swelling directly continuous with the liver-dulness above, but not extending to the lower edge of the tumor as determined by palpation. In a zone about two inches in width over the lowest portion of the tumor the percussion note was tympanitic. The dulness extended to the median line internally and to the axillary line externally. Directly back of the axillary line and posteriorly toward the spine the percussion note was tympanitic, the dulness not extending in that region below the normal liver-dulness. Heart, lungs and urinary secretion were normal. Fluoroscopic examination showed distinctly the upper rounded border of the liver rising and falling with each respiration, but it failed to give any idea of the relation of the parts below the level of the ribs and, therefore, left the character of the tumor in doubt. As a final resort puncture with a hypodermic needle was made at the point where fluctuation had been found, and fluid was obtained which was turbid and looked like thin pus. Under the microscope it showed many pus cells, but no echinococcus hooklets. The diagnosis lay between malignant disease, abscess, or hydatid disease of the liver and sarcoma of the kidney or pyonephrosis. To remove the doubt an abdominal incision was made, when it was at once seen that the tumor involved the substance of the liver. From the superficial appearances it was thought to be an abscess of the liver and this organ was accordingly stitched to the edges of the incision, the wound packed with gauze and the boy put back in bed to await the formation of adhesions before opening the abscess. On incising the tumor three days later, thin turbid fluid escaped, together with numerous transparent glistening cysts the size of grapes. The cavity was washed out and the wall of the mother cyst removed. The latter when distended must have measured between four and six inches in diameter. After its removal the liver still seemed to be too large, so that a long hypodermic needle was passed from the cyst cavity upward into the liver beneath the ribs and with this there was withdrawn perfectly clear transparent fluid. An incision was then made in the track of the needle and another cyst, equally as large as the first, was evacuated of its contents of fluid and daughter cysts. Drainage tubes were inserted, the wound dressed and the boy put back to bed. He recovered slowly but without complication.

Societies.

The following meetings are noted:

Alabama.—Madison County Medical Society, Huntsville, January 3.

Illinois.—Chicago Medical Society, January 12, Chicago. Pathological Society, January 10.

Indiana.—Vigo Medical Society, Terre Haute, January 6.

Iowa.—Clinton County Medical Society, Clinton, January 4.

Michigan.—Academy of Medicine, Kalamazoo, January 4.

Missouri.—Annual meeting of the St. Louis Academy of Medical and Surgical Sciences, January 4.

New York.—Medical Society of the County of New York, New York City, December 27.

Ohio.—Guernsey County Medical Society, Cambridge, January 4; Marion County Medical Society, Marion, January 4.

Texas.—Central Texas Medical Association, Hillsboro, January 11 and 12; Corsicana Medical Society, Corsicana, December 26.

Louisville.

GOVERNOR'S MESSAGE.—The message of the Governor to the assembled legislature contains many valuable suggestions which are of interest to the profession. Among many may be mentioned:

Charitable Institutions.—The report of all the Asylums for Insane shows an average decrease in expenditure per capita of $11.35, which in the main is due to the reduction of the salaries of many of the officers. The Central Asylum has saved $10,000 from the appropriation and an ice-plant will be erected which will furnish ice for the institution and by its sale in an adjoining town realize sufficient to pay the running expenses. The Blind Asylum through its excellent management has saved $17,000, which is being used in the construction of additional buildings providing a hospital for the inmates, and remodeling the old building. The Deaf and Dumb Institute is recommended to have its appropriation increased as it has labored under the disadvantage of want of room. An appropriation is asked for the providing of adequate sewerage at the Central and Eastern Asylums.

Houses of Reform.—It is urged that the appropriation necessary for the erection of this institution be provided at once, and that one additional commissioner be appointed as the Board, as at present constituted, is often evenly divided and much important work thus hindered. The appointment of an additional Commissioner would obviate this.

Board of Health.—Attention is called to the fact that there is no State in the Union in which the appropriation is so small for the purposes of this Board as in Kentucky, and that there is none where the Board renders more efficient service. He concludes his reference to the Board of Health as follows: "The operations of the Board in preventing the spread of yellow fever and the prevention of the shipment of diseased cattle into this State is worthy of especial commendation. By their persistent and intelligent action the advertising quack has been driven from the State, on account of which the people have reason to congratulate themselves."

PROFESSOR LAPLACE, of Philadelphia, was the guest of honor at the meeting of the Medico-Chirurgical Society, held on the evening of the 7th inst., the Society being entertained by Dr. Wm. L. Rodman. Because of the social feature of the evening, there was no essay presented, but in lieu of that Dr. Rodman presented several very interesting and instructive cases, chief among which was the patient a picture of whom is to be found in the "System of Surgery," by Park, of multiple enchondromata. The patient was to be operated on the next day, it being necessary for him to sustain an amputation of the right arm, on account of a sarcoma involving the elbow-joint. The Society was entertained by Prof. Laplace in a discussion of this case. At the conclusion of the meeting the following gentlemen met around the banquet board, at the Pendennis Club: Drs. W. L. Rodman; Ernest Laplace of Philadelphia; Johnson of Bowling Green, Ky.; Carl Weidner, Wm. V. Laws, T. H. Baker, Henry Orendorf, George W. Griffith, Jno. G. Cecil, J. A. Larrabee, M. F. Coomes, W. O. Roberts, H. A. Cottell, W. E. Grant, S. E. Woody, J. W. Irwin, Jos. M. Mathews, Louis Frank, A. M. Cartledge, I. N. Bloom, W. H. Wathen, Fouche Samuel, T. S. Bullock, Ap Morgan Vance, H. H. Grant, J. M. Ray, J. E. Hays, Wm. Cheatham, T. H. Stucky, Frank Wilson, Jno. Williams, T. C. Evans, S. G. Dabney, Henry E. Tuley, and Dr. Wm. Bailey, who acted as toast-master. The following toasts were responded to: "The Medico Chirugical Society" by Dr. John A. Larrabee; "The Medico-Chirurgical College," Prof. Laplace: "The Clinical Society" by Dr. I. N. Bloom; "The Surgical Society" by Dr. Lewis S. McMurtry; "The Commonwealth and the State Board of Health" by Jos. M. Mathews, and "Reminiscences" by Dr. H. A. Cottell.

Dr. Long.—It is announced that the Governor has accepted the resignation of Dr. J. P. Huff, for some time Superintendent of the Feeble Minded Institute and has appointed in his stead Dr. Jno. L. Long, formerly of this city, but of late First Assistant Physician at the Central Kentucky Asylum for the Insane. There will be a promotion among the assistant physicians and the position of third assistant has been offered Dr. Louise Bergman, and has been accepted. This is the first opportunity that the woman in medicine has had for showing what she is worth in the minds of the profession of the State and the community.

Philadelphia.

Death Rate—The total number of deaths in Philadelphia during last year was 22,735; the mortality ratio being 18.72 per 1,000 living; the smallest death rate in this city since 1879, when the ratio was 17.37. The highest ratio during the last ten years was 22.25, in 1892.

Prevalent Diseases in 1897.—During 1897 the deaths from some of the principal causes were assigned in the Registrar's Report as follows: Consumption of the lungs, 2,388; inflammation of the lungs, 2,723; diseases of the heart, 1,297; cholera infantum, 852; marasmus, 765; inanition, 523; convulsions, 670; teething, 90; apoplexy, 798; cancer, 688; tumor, 118; typhoid fever, 401; uremia, 343; diphtheria, 1,231, and membranous croup, 243. In addition to the above there were 22 deaths from sunstroke, 143 from suicide and 814 from old age.

Diphtheria.—There has been, during the last three or four months, an epidemic of diphtheria of moderate severity, affecting principally Germantown, which is one of the choice residents wards of the city, and which being on elevated ground and well drained is usually regarded as one of the healthiest. All the usual measures and some extraordinary precautions were taken. Nevertheless, the cases continued to increase until it was found advisable to close the neighboring schools temporarily. An attempt was made by the physicians of the health board to make a systematic inspection of the throats of all the pupils before admitting them to the class rooms, each morning, but after a brief experience it was found to be impracticable and was abandoned. Indeed, some of the pupils positively declined to permit the physical examination of their throats to be made and when they were refused admission to the schoolroom the parents, in one or two instances, sent them back with threats of legal proceedings, including injunctions and mandamuses, which complicated matters so much that the directors concluded to send all the children home and to have the infected schools thoroughly cleansed. The number of deaths from diphtheria in 1896 was 862; 1897 it was 1,231 exclusive the 243 deaths returned as membranous croup. It is probable that the antitoxin treatment has been used more extensively in this epidemic than in any which preceded it and from the experience obtained in such a large series of cases it is hoped that valuable deductions will soon be made in contributions to our medical journals and medical societies. The marked increase of the fatal cases of diphtheria over the preceding year of 369 deaths does not warrant an unfavorable verdict in the absence of other data, although if it had been the other way it might have been claimed by enthusiastic advocates as a triumph for antitoxin (*vide* report of the New York Board of Health for 1895). The mortality rate under this treatment will be given later when the entire number of patients treated by this agent has been made known and its value may then be more definitely settled. There was also an increase of 221 in the number of deaths from scarlatina last year over that of the preceding year.

Hygienic School Regulations.—The Committee on Hygiene of the Board of Education considered favorably the suggestions contained in a communication from the City Board of Health and recommended their adoption: 1. That individual drinking cups be provided for each of the pupils. 2. That passing of pencils from one pupil to another be prohibited. 3. That schools in infected districts be scrubbed once a week and floors and walls washed with carbolic acid solution. 4. That children having symptoms of illness be promptly sent home to remain until well. 5. That wall decorations of plants and shrubbery be not allowed to remain on the walls of class rooms longer than between sweepings.

College of Physicians.—At the annual election January 5, Dr. John Ashhurst, Jr., was elected president of the College; Dr. William W. Keen, vice-president and Dr. Thomas R. Neilson, secretary. Dr. M. B. Hartzell read a paper entitled "Infectious Multiple Gangrene of the Skin, Report of a Case with Illustrations." Dr. John B. Deaver read a communication on "The Necessity for Prompt Surgical Interference in Typhoid Perforation and Appendicitis Complicating Typhoid Fever with Report of Cases" The discussion was opened by Dr. James C. Wilson.

Presentation of a Portrait of the Late Dr. Thomas S. Kirkbride.—At the same meeting of the College, there occurred the impressive ceremony, the unveiling of a portrait of Dr. Thomas Story Kirkbride, M.D., LL.D., who had been a Fellow of the College from 1839 until he died in 1883. The painting which is life size and an admirable likeness, was presented on behalf of the family of the late medical superintendent of the Pennsylvania Hospital for the Insane, by Dr. John B. Chapin, who is the successor in that office of Dr. Kirkbride. The president of the College, Dr. J. M. DaCosta, in a few words acknowledged the gift and returned the thanks of the College to the donors.

The Anatomical Board and the Colleges.—The trustees of the University of Pennsylvania, by Charles C. Harrison, the Provost of the institution, filed a bond in court in the sum of $1,000, given to the Commonwealth of Pennsylvania for the faithful performance of their duties under the Act of Assembly relating to the use of unclaimed human bodies. It is said that the State Anatomical Board are investigating the fulfillment of the provisions of the act among the various medical colleges in this city, and will require all of them to file a bond similar to that of the University of Pennsylvania. The trustees of the University are bound as follows: "The condition of this obligation is such that if the above bounded obligators do well and truly comply with the terms and provisions of an Act of Assembly approved the 13th of June, 1883, entitled 'An act for the promotion of medical science by the distribution of unclaimed human bodies for scientific purposes through a board created for that purpose, and to prevent the unauthorized uses and traffic in human bodies,' and shall only use human bodies received by them under the terms and provisions of the said Act of Assembly for the promotion of medical science within this State, then this obligation will be void, otherwise to remain in full force and virtue."

Medico-Chirurgical College.—Dr. Sajous, on account of pressure of other engagements, has resigned the deanship of the Medico-Chirurgical College and has withdrawn from the faculty. Dr. Seneca Egbert was elected dean and secretary of the faculty.

Reception to the County Medical Society.—Dr. James Tyson, President of the County Medical Society, followed the very pleasant custom, introduced several years ago, of giving a reception to the members of the County Medical Society at the close of his term as president. Dr. Tyson's reception was given at the Hotel Bellevue on the 8th inst., and was largely attended. Among the out-of-town guests were Dr. Flint of New York and Dr. Howard A. Kelly of Baltimore.

CHANGE OF ADDRESS.

Avery, S. J., from 34 Washington to 780 Walnut St., Chicago.
Curry, Wm., from Palmyra to Burr, Neb.
Craig, D. W., from 1102 N. Halsted to 985 N. Halsted St., Chicago.
Gibbons, J. H., from 2052 Locust to 324 S. 19th St., Philadelphia, Pa.
Greenebaum, E. C., from 468 E. 42d St. to 29th and Groveland Ave., Chicago.
Gihon, A. L., from 233 5th Ave. to 101 E. 25th St., New York.
Hoge, M. D., Jr., from 7 N. 3d to 308 E. Grace St., Richmond, Va.
Lemon, C. H., from 449 Farrell to 465 Murray Ave., Milwaukee, Wis.
Meany, W. B., from St. Louis, Mo., to 1608 Fourth Ave., Louisville, Ky.
Mullen, T. R., from Marcus, Iowa, to Eddy Bldg., Bloomington, Ill.
Murray, S. J., from 207 Washington Park, Brooklyn, N. Y., to Charlestown, N. Y.
Mattison, F. C. E., from Chicago to Pasadena, Cal.
Peterson, R., from Grand Rapids, Mich., to 4621 Woodlawn Ave., Chicago.
Silverberg, G. M., from 465 Marshfield to 314 Center Ave., Chicago.
Taylor, J. T., from Acworth to Bedford, N. H.
Yeager, F. N., from 2400 Oxford to 2826 Oxford St., Philadelphia, Pa.

LETTERS RECEIVED.

Allen, J. B., Cambridge City, Ind.; Arlington Chemical Co., Yonkers N. Y.; Aronson, E., Dallas, Texas; Allport, Frank, Chicago; American Therapeutic Co., New York; Adcock, J. A. B., Warrensburg, Mo.
Brown, J. E., Columbus, Ohio; Bennett, J. W. (2), Brook Haven, Miss.; Bulletin Mercantile Co., Hornellsville, N. Y.; Bryce, P. H., Toronto, Canada; Becton, Dicklnson & Co., New York; Barnes & McFarland, Stamford, Conn.; Boyers, J. S., Decatur, Ind.
Cullen, G. I., Cincinnati, Ohio; Cukier, X., New York.
Dodd, F. B., Waucoma, Iowa; Douglas, D. E., Quercus Grove, Ind.; Dorman, H. W., Ashtabula, Ohio.
Elliott, H. G. (2), New York; Eldenmuller, W. C., San Francisco, Cal.; Eastman, Joseph R. Indianapolis, Ind.; Emerich, E. L., Cleveland, Ohio.
Fenn, C. M., San Diego, Cal.
Grube, John E., Braddock, Pa.; Greaves, W., Northfield, Minn.; Green C. C., Beaver City, Neb.; Greene, C. M., Lexington, Ky.; Greene, B. E.

New York; German-American Bottling, Brewery, Wiue and Distillery Co., Frankfort-on-Main, Germany; Gessner, H. B., New Orleans, La.

Hummel, A. L., Advertising Agency, New York; Hektoen, L., Chicago; Hopkins, J. N., Burnt Prairie, Ill.; Hattendorf, Louis, 54 E. 109th St., New York; Hawkins, T. H., Denver, Colo.; Haas, Edw. H., St. Paul, Minn.; Hare, H. A.. Philadelphia, Pa.; Hatch, Theo. L., Owatonna, Minn.

Ingals, E. Fletcher, Chicago.

Johnson, S. S., Starbuck, Wash.; Jackson, Edward. Philadelphia, Pa.

Keen, W. W. (2), Philadelphia, Pa.; Kerr, Norman, Chicago; Knopf, S. A., New York.

Lumley. W. A., Renville, Minn.; Loveland, B. C., Clifton Springs, N. Y.; Leal, Manuel T., Mexico, Mexico; Lehn & Funk, New York.

Murphy, J. M., Arcadia, Ind.; Mariani & Co., New York; Mattice, R. I., Omaha, Neb.; McCray, F. H., Schaller, Iowa; McGillicuddy, T. J., New York; Miles, A. J., Cincinnati, Ohio; Medical and Surgical Reporter, Toledo, Ohio; Mulford, H. K., Company, Philadelphia, Pa.; Moss, H. P., Parkersburg, W. Va.; Mullen, T. R., Bloomington, Ill.; Mattison, C. E. Chicago.

Newman, W. H., Grinnell, Iowa.

Osbaldeston, J. T., Detroit, Mich.; O'Ferrall, R. M., Piqua, Ohio.

Perkins, L. J., Pendleton, Ore.; Parker, A. A., Omaha, Neb.; Pancoast, J. W., Philadelphia, Pa.; Parrish, J. C., Vandalia, Mo.

Roush, William, Spencerville, Ohio; Robertson, Lee C., Dunkirk, N. Y.; Reynolds, Albert, Clinton, Iowa; Ritchey, J. B., Allegheny, Pa.; Rosenthal, Edwin, Philadelphia, Pa.; Roop, J. W. (2), Petersburg, Ark.; Rhodes, L. J., Plainfield, Wis.

Sargent, J. P., Stockton, Cal.; Schering & Glatz (2), New York; Sternberg, G. M., Washington, D. C.; Stearns, F. & Co., Detroit, Mich.; Stubbers, J. E., Liberty, N. Y.; Schultz, E. F., Milwaukee, Wis.; Seidler, W. F., Newark, N. J.; Stevens, C. S., Athens, Ga.; Shastid, T. H. (2), Battle Creek, Mich.; Swantees, S. F., Madison, Wis.; Stearns, Frederick & Co., Detroit, Mich.; Strong, Mrs. O. D., Fort Atkinson, Wis.

Tannenbaum, S. A., New York; Thompson, U. M., Wilmiugton, Del.; Thomson, T. Ferguson, Milwaukee, Wis.

Veasey, Clarence A., Philadelphia, Pa.; Vandervoort, J. W., Harveysburg, Ohio.

Wakely, T. A., Jacksonville, Ill.; Webster, W. B., Schuylerville, N. Y.; Woodbury, Frank, Philadelphia, Pa.; Worden, J. E., Chicago; Watson, W. S., Matteawau, N. Y.

PAMPHLETS RECEIVED.

Address in Opbthalmology. By J. E. Willetts. Paper, 22 pages. Reprinted from Pa. Med. Jour.

Alcohol as a Medicine; Appendicitis; Are We as Physicians Doing Our Duty to the Public in Matters Pertaining to Heredity? Immediate Operations; Medical Laws of Tennessee; Medical Legislation; Morphinism in its relation to the Sexual Functions and Appetite, and Its Effect on the Offspring. By T. J. Happel. Reprints.

Alcoholism in Women; Its Cause, Consequence and Cure. By Agnes Sparks. Paper, 8 pages. Reprinted from Medico Legal Jour.

Angina Pectoris; Case of Carcinoma of Descending Colon; Excision and Anastomosis, Recovery; Case of Leucemia; Clinical Study of Widal's Serum Diagnosis of Typhoid Fever; Disappearance of Endocardial Murmurs of Organic Origin. By J. H. Musser. Reprints.

Annual Reports of the State Board of Medical Examiners of Tennessee, I. vii. Paper.

Antivenene in the Treatment of Leprosy. By Isadore Dyer. Paper, 24 pages.

An Unusual Phyto-Bezoar. By Wm. Trelease. Paper, 8 pages. Illustrated.

Appendicitis, My Receut Work In. By A. C. Bernays. Paper, 15 pages. Reprinted from St. Louis Med. and Surg. Jour.

Aseptic Celiotomy, results of; Treatment of Intraligamentous and Retroperitoneal Uterine Myomata; Treatment of Uterine Myomata and Diseases of the Uterine Adnexa per Vaginam; Umbilical and Ventral Hernia: Vaginal Hysterectomy. By W. H. Wathen. Reprints.

Atropin Rhinitis; Hereditary Deafness. By Lewis S. Somes. Reprints.

Cholelithotomy, Report of Seven Cases; Surgical Technique of Operations for Pus in the Pelvis; Twenty-five Consecutive Successful Supravaginal Hysterectomies for Fibroid Tumors. By I. S. Stone. Reprints.

Circular Resection of Pylorus, Cecum with Ascending Colon and Sigmoid Flexure. Report of Cases. By J. J. Buchanan. Paper, 6 pages. Reprinted from Annals of Surgery.

Clinical Value aud Chemic Results of Using Prof. Gaertner's Mother Milk for Children. By Louis Fischer. Paper, 24 pages; charts. Reprinted from Med. Record.

Contusions of the Lids, Treatment of. By Charles H. May. Paper, 8 pages. Reprinted from Med. Record.

Cornea and the Cautery, The; Ophthalmic Science in its Application to School Hygiene. By C. S. Rodman. Reprinted from Med. Record.

Dermatitis Herpetiformis, Presenting Many of the Features of Impetigo Herpetiformis; Report of Seveu Cases of. By J. A. Fordyce. Paper, 12 pages. Illustrated. Reprinted from Jour. of Cut. and Genito-Urinary Dis.

Diagnosis by Inspection in the Urinary Tract; The Origin of Corpora Amylacea in the Prostate Gland. By J. R. Eastman. Reprints.

Differential Diagnosis of Ascites. By A. R. Edwards. Paper, 12 pages. Reprinted from Medicine

Element of Fear in Hemoptysis. By W. T. English. Paper, 14 pages. Reprinted from Pa. Med. Jour.

Endemic Multiple Neuritis (Beriberi), By E. D. Bondurant. Paper, 38 pages. Illustrated. Reprinted from N. Y. Med. Jour.

Evolution and Perfection of the Aseptic Surgical Technique; The Operation Itself in Appeudicitis. By L. S. McMurtry. Reprints.

Feasibility of Controlling Pernicious Vomiting by Means of Intubation of the Larynx with a Specially Adapted Tube. By C. L. Green. Paper, 4 pages. Reprinted from Br. Med. Jour.

Histologic Basis of the Neuron Theory. By D. I. Wolfstein. Paper, 35 pages. Illustrated. Reprinted from Lancet Clinic.

Hysteria Simulating Organic Disease of the Brain; Nervous Disorders Simulating Peritonitis; Respiratory Paralysis from Hemorrhages Around the Medulla. By S. D. Hopkins. Reprints.

Indications for Examination of the Uterus and the Treatment of Certain Conditions Immediately Followiug Childbirth. By H. D. Fry. Paper, 12 pages. Reprinted from Am. Jour. of Obstet.

Is There a Daily Rhythm in Epilepsy? By A. F. Witmer. Paper, 10 pages; charts. Reprinted from Med. aud Surg. Rep.

John Crerar Library; Annual Report for 1895 and for 1896. Paper. Chicago: 1897.

Law Regulating the Practice of Medicine and Surgery in Idaho. Paper, 12 pages. Boise, Idaho: 1897.

Leadville Campaign, The; New Apparatus for the Fixation of Bones after Resection and in Fractures with a Tendency to Displacement. By Claytou Parkhill. Reprints.

Ligation of the Dorsal Vein of the Penis for Impotency. By E. E. Tracy. Paper, 7 pages. Reprinted from Med. Standard.

Malarial Fevers, Exact Treatment of. By C. D. Slagle. Paper, 12 pages. Reprinted from Ther. Gaz.

Malignant Papillary Dermatitis with Especial Reference to its Pathology. By F. H. Wiggin and J. A. Fordyce. Paper, 14 pages. Illustrated. Reprinted from N. Y. Med. Jour.

Massage Movements and Bandaging in the Treatment of Displaced Semilunar Cartilages. By Douglas Graham. Paper, 12 pages. Reprinted from Am. Jour. of the Med. Sciences.

Operative Treatment of Anchylosis of the Shoulder Joint; Simultaueous Double Aneurysm. By E. Souchon. Reprints.

Plica Polonica. By F. E. Fronzak. Paper, 40 pages. Reprinted from St. Louis Med. and Surg. Jour.

Progress of Laryngology; Treatment of Laryngeal Tuberculosis with Cupric Interstitial Cataphoresis; Transillumination in Diseases of the Nose, Throat and Ear. By W. Scheppegrell. Repriuts.

Psychiatry in the Southern States. By T. O. Powell. Paper, 58 pages. Reprints from Proceedings of Am. Medico-Psychologic Association.

Rabies; Hydrophobia. By T. R. MacClure. Paper, 51 pages. Reprinted from Proc. of Sanitary Convention, Charlotte, Mich., 1894.

Radical Cure of Inguinal Hernia. By J. M. Banister. Paper, 16 pages. Reprinted from Proc. of seventh annual meeting of Associatiou of Military Surgeons of the United States.

Resection and Advancement of the Levator Palpebræ Muscle in Traumatic Ptosis. By C. A. Oliver. Paper. Reprinted from Univ. Med. Mag.

Rheumatic Affections of the Throat and Nose. By G. E. Seaman. Paper, 14 pages. Reprinted from Milwaukee Med. Jour.

Silber als Aeusseres und Inneres Antiseptum. Von Dr. Credé. Paper, 13 pages. Reprinted from Archiv für klin. Chir.

Skiagraphic Dermatitis. By J. Y. Dale. Paper, 6 pages. Reprinted from Med. News.

So-called Hot Air Treatment of Painful and Partially Ankylosed Joints and an Experimental Investigation of the Physiologic Effect of the Local Application of Hot Air on General Metabolism; Suicide. By C. H. Hughes. Reprints.

Syphilis of the Central Nervous System. By Sidney Kuh. Paper, 28 pages. Reprinted from Alienist and Neurologist.

The Union Label in Theory and in Fact. By S. H. Nichols. Paper, 14 pages. Reprinted from North Am. Rev.

Thyroid Gland Treatment of Cretinism, with Report of a Case. By S. H. Friend. Paper, 16 pages. Reprinted from Med. News.

Treatment of Diphtheria with Diphtheria Antitoxin. By E. Rosenthal. Paper, 43 pages.

Treatment of Retroversion and Providentia Uteri by the Method of Dr. Irish. By Frank Blaisdel. Paper, 15 pages. Reprinted from Atlantic Med. Weekly.

Tuberculin in Dermatology. By A. Ravogli. Paper, 8 pages.

Two Cases of Erythromelalgia. By D. W. Prentiss. Paper, 13 pages.

Urgent Need of Sanatoria for the Consumptive Poor of Our Large Cities. By S. A. Knopf. Paper, 11 pages. Reprinted from N. Y. Medical Record.

Warm Bath, a Modification of Brand's Method, The. By Otto Lerch. Paper, 8 pages, Reprinted from New Orleans Med. and Surg. Jour.

Trade Pamphlets.

Acute Peritonitis; Exophthalmic Goiter; Traumatic Tetanus. St. Louis: Battle & Co.

"Apenta," Reports and Opinions. London: The Apollinaris Co.

Chloralamid. New York: Lehn & Fink,

Daniel's Concentrated Tiucture Passiflora Incarnata. Atlauta: J. B. Daniel.

Do Not Stammer. The Philadelphia Institute.

Eureka Spriugs. Illustrated. St. Louis: Woodward and Turner Printing Company.

Hospital Reports; Caruogen; The Marrow Treatment. New York: Am. Therapeutic Co.

Nutrient Preparations as Substitutes for Meat. New York: Victor Koechl & Co.

Somatose. New York: Am. Biscuit and Mfg. Co.

The Country Doctor. By Will Carleton. Illustrated. Yonkers, N. Y.: The Arlington Chemical Co.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from December 22, 1897, to January 7, 1898.

Capt. William O. Owen, Asst. Surgeon, leave of absence granted is extended one month.

Major Louis Brechemin, Surgeon (Ft. Sherman, Idaho), leave of absence granted is extended two months.

First Lieut. Alex. S. Porter, Asst. Surgeon U. S. A., is granted four months' leave of absence.

Major Charles K. Winne, Surgeon (Ft. McHenry, Md.), is granted leave of absence for one month on surgeon's certificate of disability, with permission to leave the Department of the East.

Major Egon A. Koerper, Surgeon (Ft. Crook, Neb.), is granted leave of absence for oue month, to take effect on or about Jan. 4, 1898, with permission to apply for an extension of two months.

Capt. Charles F. Mason, Asst. Surgeon (U. S. Military Academy, West Point, N. Y.), is granted leave of absence for two months and seven days.

First Lieut. Peane C. Howard, Asst. Surgeon, will be relieved from duty iu the Dept. of Dakota when his services are no longer required at Ft. Custer, Mont., and will proceed to Ft. Crook, Neb., aud report for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending Jauuary 8, 1898.

P. A. Surgeon A. Farenholt, detached from the New York navy yard and ordered to the Puget Souud naval station.

P. A. Surgeon F. W. Olcott, detached from duty at the Puget Sound naval station and ordered to the "Mohican."

Asst. Surgeon T. W. Richards, ordered to examination for promotion January 17 and to the New York navy yard.

The Journal of the American Medical Association

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ORIGINAL ARTICLES.

THE ORIENTAL EUNUCHS.

BY EDMUND ANDREWS, M.D., LL.D.

PROFESSOR OF CLINICAL SURGERY IN THE MEDICAL DEPARTMENT OF THE NORTHWESTERN UNIVERSITY. CHICAGO, ILL.

The word eunuch is Greek and derived from εύνη and ἔχων, literally having charge of the bedchamber, i. e., a chamberlain. In Hebrew it was *Saris*, meaning mutilated; probably because the first royal chamberlains were castrated men. However, men officially called eunuchs soon began to be employed in all sorts of offices, though many of them were really not such in the surgical sense, and the word became merely equivalent to the term officer. A figure of speech also crept into use in which certain persons for religious reasons are said to have "eunuchized" themselves, who, in the opinion of commentators, underwent no mutilation, but merely lived in total celibacy, like eunuchs, as in the third class mentioned in Matthew, 19, 12. This habit of broadening the definition of words at the expense of their precision is a linguistic trait of oriental countries. The people were very fond of this figurative and hazy use of language; greatly to the perplexity of young western scholars, accustomed from childhood to the clean-cut precision of English definitions.

EFFECTS OF CASTRATION ON ANIMALS.

It will facilitate our study of human eunuchism if we first consider the effects of castration in the lower animals.

The elk.—The finest investigation ever made on this animal was carried out by the late Judge Caton, who had a deer park at Ottawa, Ill. He possessed there a considerable herd of the *Cervus Canadensis*, commonly called the American elk, though strictly speaking it is not a true elk at all, but a very large deer, like the English stag. Two of the males became dangerous from their fighting propensities, and one of them killed a man who had wandered into the park. The Judge had them castrated to reduce their pugnacity, and for two or three years observed the effects on their horns.

The course of horn growth in the uncastrated buck is this: Their so-called horns are not composed of real horny material, but of true bone, and are developed into antlers of immense size. They are shed annually, as in all the deer tribe. During the spring and summer they grow rapidly. They are then covered with skin, hair and connective tissue, and supplied with numerous large arteries and veins running between the bone and the skin. This is the stage called "the velvet." Toward autumn a narrow knobby ridge, or ring of bone, like a narrow provisional callus begins to develop around the base of each horn, which ridge pushes out and presses hard against the nutrient vessels supplying the horn, and in some weeks obliterates them. Then the velvety skin and connective tissue covering the antlers is cut off from nutrition and dies. The bony horn itself also dies later and the dead skin dries and becomes loose, and the animal rubs it off among the trees and bushes, leaving the superb antlers in their perfected condition. The antlers now have no nutrition, except a little derived from the small interior vessels of the cancellated tissue, which are soon obliterated. They are now two immense necrosed bones and in the course of the winter undergo a separation, like any other necrosed bones, and drop off. In the spring a new pair sprouts and develops, like their predecessors. Judge Caton found that if while the young horns were in the velvet the buck be castrated the pair of horns then developing would go on, finish their growth and be shed the following winter as usual, but the next pair were never shed. The effect of the castration is to prevent the formation of the bony ring at the base. Consequently the blood vessels are not obliterated, the horns continue in the velvet, they do not die and are not shed. In our climate however the severity of the winter freezes the antlers and kills them down to a point perhaps eight inches from the skull. The frozen parts ultimately drop off and in the spring numerous small horns, like fingers, sprout up from the stumps. The next winter these are partly frozen, and so on until a pair of large knobby bunches of bone stand up on the top of the head.

So far as I know, no one has ever tried protecting these horns from the winter's cold to see what they would grow to. They would probably attain an immense size.

The ox.—When a calf is castrated he grows to be a larger and taller animal than the bull, but his neck and forequarters are thinner. His cerebellum becomes larger than that of the bull and his horns become both thicker and longer. The voice is changed in pitch while "lowing," but not while "bellowing." There are only three words, so to speak, in the bovine vocabulary: 1. The "low," with which they call each other at a distance. 2. A rough purring, which is used in speaking to each other near by and is made by a slight vibration of the vocal cords with the lips closed; it is especially used by the cow to the calf. 3. The "bellow," which is a growl of defiance.

The change of pitch caused by castration affects only the distant call in "lowing," and affects it in a directly opposite way from the voice of the human eunuch. In the latter the voice remains soprano, as in a boy or woman, while in the adult bull the voice in lowing is an octave higher than that of the cow. The ox retains the pitch of the cow's voice; but the lowing of the young bull rises a full octave when he comes to the age of puberty. The type of sound reminds one of the high falsetto voice sometimes

forced out by an untrained bass singer trying to reach a high note.

The horse.—These animals grow larger of frame if castrated young. The voice and the "bridle teeth" do not seem to be changed.

The sheep.—The "wethers," or castrated sheep do not become strikingly larger. The wool of the ram is, however, much more oily than that of the wether, the little yellow drops of oil (called lanolin in pharmacy) being very abundant, so that wool buyer's make a deduction from the price paid for rams' wool on account of the increased weight caused by the oil—or lanolin.

The cat.—These animals grow larger if castrated and are excellent mousers. They take great pains to display their hunting trophies, seeming to take a pride in them and desiring to be petted for their exploits. The voice is not changed.

The squirrel.—Naturalists state that black or gray male squirrels in fighting seek to castrate each other with their teeth, so that many of those taken by hunters are thus mutilated. As they do it only in adult life it does not materially change their general development.

The capon (castrated chicken).—These birds grow to a large size, being 50 per cent. heavier than the full-grown cocks. The flesh is delicate and very tender. Their spurs remain undeveloped, the colored comb and wattles about the head remain very small and the gay ornamental plumage of the cock is mostly wanting Veterinary surgeons assert that capons develop a remarkable nursing instinct and that some of them will take care of a brood of chickens better than a hen.

In general terms, if an animal is castrated young he develops the distinctively male peculiarities in only a slight degree, yet some species produce much larger horns than the perfect male. The ox and the gelding do not completely lose their sexual passion, but make frequent efforts to copulate with females in heat. We will discuss the mental and physical effects on men a little further on.

EUNUCHS IN NINEVEH.

The recent excavations in the ruins of Nineveh, made by Layard and his successors have brought to light many sculptured figures of eunuchs in the retinues of the kings of Assyria. Several palaces were examined and immense numbers of bas-reliefs and inscriptions recovered. These palaces were erected at different periods not very far from 800 B.C. The portals were decorated with colossal winged bulls, and lions with human heads, while the halls and apartments were lined with immense numbers of large bas-reliefs cut on slabs of alabaster; showing historic sieges, battles, hawking excursions, deer hunts, lion hunts, scenes of worship, trains of captives and of spoils taken in war, etc. The Ninevites patronized the hairdressers to a surprising extent, and the sculptors fairly revelled in the elaborateness with which they copied, in stone, these hirsute adornments. The hair, both of the scalp and of the face, was combed neatly in the center, but elaborately waved, crinkled and curled all about the margins in a way that would excite the wonder and envy of any modern dude. The very manes and tails of the horses were treated in a similar way, and also the tufts of hair on the tips of the tails of the colossal winged bulls. Here and there along the sculptured processions, in strong contrast to the bearded men, the eunuchs stand out with their smooth, beardless faces, fat cheeks and bald double-chins. The artists adopted these features as a conventional mode of representing them. They are quite numerous in the royal retinues, and not confined to any particular rank or department of service. They are figured as cooks in the royal kitchen, musicians, personal attendants on the king, cupbearers, foresters, gamekeepers, sword-bearers, military commanders and civil officers of high rank. In the Hebrew scriptures of this same period one of the three high officers sent by the King of Nineveh to demand the surrender of King Hezekiah, is called Rab-Saris, *i. e.*, Master of the Eunuchs (2 Kings: 18;17). At a later period the King of Babylon deputed the "Master of Eunuchs" to select from the captive Hebrew families a number of children to be brought up in the palace, probably as eunuchs and future officers of the royal retinue in Babylon. Daniel, the prophet, is designated as one of these children, and has often been believed or inferred to have been himself an eunuch, though that fact is not explicitly stated, and high Hebrew authorities disbelieve it.

THE PERSIANS.

The great historian, Xenophon, says that eunuchs in Persia were held in such high esteem that they filled offices of the greatest rank and responsibility.

Herodotus, a still earlier writer and called the "Father of History," says the Persian kings prized them most highly for their faithfulness, and entrusted them with the highest offices.

THE HEBREWS.

Eunuchs appear to some extent in the Hebrew records, under the name *saris*, but the term soon partly lost its primary meaning of "'mutilated" and became shaded off into the general signification of "officer" whether the person referred to was surgically an eunuch or not. Thus in the story of Potiphar, he is called a "saris," but still he is said to have had a wife. Jewish scholars of high authority think the word had already acquired a secondary meaning, just as in modern armies there are grenadiers who never saw a grenade, and brigadier-generals who never commanded brigades. Kremer says that in modern times there have been actual eunuchs who took wives presumably for the regulation of their households, the government of their female servants, and for the dignity and comfort of a home life.

In Deuteronomy, xxiii; 1, two mutilations analagous to those of a "complete" castration are mentioned, but not as in the same person (a castration is called "complete" when both the testes and the penis are removed). The English version says: "He that is wounded (Hebrew, squeezed or crushed) in his stones, or has his privy member cut off (Hebrew, torn out) shall not enter into the congregation." Jewish commentators understand this to mean that he can not legally marry a Jewish woman.

The "Talmud," which is the literature of the rabbinical schools from 200 B. C. to 400 A. D., mentions both castration of the testicles and the mutilation of the penis. The Hebrew historian describes a successful insurrection headed by Jehu against King Joram and his mother, the talented and forceful Queen Jezebel or Izabel, as the real name probably was, for the English sound of J did not exist in the Hebrew alphabet. The account states that several eunuchs in the queen's palace sided with Jehu (2 Kings: 9; 32). This Izabel, whatever the pronunciation of her nam

ay be, was a Phœnician princess when she married ing Ahab, and probably brought the eunuchs with ır from Tyre as household servants. Some oriental holars think that the name Izabel or Isabel, being mmon in Phœnicia, first went westward with the ıigrants from Tyre who founded the city and colony Carthage, and thence went with the Carthaginians Spain. There it became a favorite name and at a er period spread all over Christendom, few persons ognizing its identity with Jezebel. Eunuchs are casionally mentioned in other parts of the "old tesnent," but in fully half the cases it appears to be in e secondary sense of "officer." The moral sense of e people seems to have been averse to their produc-n and they never became a prominent factor in the vernment.

ANCIENT EGYPT.

Some Egyptologists doubt whether eunuchs regu-ly existed in ancient Egypt until the invasions of Persians and the Babylonians. Professor Breasted the University of Chicago says, there is some diffi-ty in identifying eunuchs in the bas-reliefs and ıral paintings of Egypt because of the prevalent hion of shaving, which prevents the absence of a ırd in a figure from being any positive proof of tration. Further, he thinks the mural decorations ow that in early times the women were not secluded, had great social liberty, so that there would be le demand for eunuchs. Rosellini, however, imed to have found them on the monuments, and psius (II. 126) gives a picture of two of them ied from a tomb at Beni Hassan, clearly showing ir condition by their beardless and fat counten-es. Further, the sacred "Book of the Dead" ii, 26) represents the good god Horus, as tearing the testicles of his enemy, the evil god, Set; while tarch, in "Isis and Osiris" (55) says that in Kop- in Egypt, Horus was pictured as holding in one d the penis which he had cut off from the god . These quotations show that the Egyptians knew both steps in the operation of "complete castra-." and supposed that Horus made a "complete" uch of Set. This myth reminds one of a some-t similar story among the ancient Greeks, that the Chronos castrated his father Ouranos, performing operation with a sickle made of diamond.

MORE MODERN TIMES.

s long as the Roman power remained confined to Italian peninsula we do not find any conspicuous loyments of eunuchs, though they doubtless eared there to some extent on the Phœnician and haginian trading vessels, but as the imperial er spread eastward it began to be permeated with e intriguing agents of orientalism. Among the est of these immigrants were the priests of the less Cybele, from Asia Minor, who were required heir religion to be eunuchs. In process of time ous talented eunuchs exerted great influence in affairs of government. One of them named Her- became governor of a province in Asia Minor. great philosopher Aristotle celebrated the fame his Hermias in a poem which is still extant, and ed sacrifices to his manes. In the "New Testa-" (Acts, 8: 27) mention is made of "an eunuch reat authority under Candace, queen of the opians."

hile the capital of the Roman Empire was at tantinople, under the Emperor Justinian, an eunuch named Narses, born in the Armenian part of Persia, arrived and took service under the Emperor, where he gradually attained very high rank and influence. After a series of years an insurrection broke out in Constantinople which the imperial guards and troops were unable to suppress. Narses, backed by a large sum of money, got interviews with the leaders, bought them up, and by his skill and adroitness put an end to the whole trouble. Some time later the Goths overran and conquered nearly the whole peninsula of Italy. After many failures by the Roman generals, Narses was put in command of the army, and in two campaigns he drove the Goths completely out of the peninsula. This occurred in the years 552–553 A. D. He proved himself a military commander of great energy and talent. Narses was not the sole example of executive capacity among his class. There were frequent occasions when the eunuchs were all powerful at the imperial court both in Rome and in Constantinople. (*Grand Dictionnaire Universelle du XIXe Siècle*).

THE POSITION OF THE CHURCH.

Very early the church authorities began to discourage the barbarity of castration, but individuals to some extent favored it. The Patriarch of Alexandria was annoyed in the third century by a small party of fanatics named Valesians who defied his authority, and taught that castration was necessary to salvation. The celebrated Christian writer, Origen, born about 185 A.D., who was the first strong intellect to reduce Christian doctrines to something like a philosophic system, conceived that his usefulness would be greatly increased if he were an eunuch. He therefore caused himself to be castrated, which act he greatly regretted in after life. The Patriarch of Alexandria disapproved of it, and refused to admit him to the priesthood. Origen then went to Palestine, where the Sub-Patriarch of Jerusalem admitted him. Origen afterward founded a very celebrated Christian school or seminary.

At Constantinople there seems to have been no prevailing objection to eunuchs, for Nicetes, Photius, Ignatius and Methodius, all eunuchs, were made Patriarchs. However, the general sentiment grew steadily stronger against these mutilations until in 325 A.D., the celebrated Council of Nice prohibited the admission of any more eunuchs to the priesthood. The practice of making eunuchs, however, never fully died out from the laity, and when the Mahommedans conquered all the territories of the Eastern Empire they gave a tenfold impetus to the nefarious business of mutilating children to produce harem guards.

In Italy the Mahommedans got no permanent foothold, but a small clandestine business had existed ever since pagan times of making male soprano singers by castrating boys before the change of voice, which occurred at puberty. These male soprano singers were bought at high prices or employed in the opera houses and in some churches. Some of the popes forbade their admission to church choirs, but the underclergy did not fully obey them. Even down almost to the present time they were employed in the Vatican choir at Rome, but the present pope early in his reign put an end to the scandal and forbade the further use of eunuchs in the Vatican choirs. This prohibition, combined with the public sentiment of Italy has pretty well extinguished the infamous business, though Italian physicians say that a few

eunuchs are still clandestinely made in defiance of law.

In the Turkish Empire most of the eunuchs are furnished by the monastery called Abou-Gerhè in upper Egypt, where the Coptic priests castrate Nubian and Abyssinian slave boys at about 8 years of age and afterward sell them to the Turkish market. Turks in Asia Minor are also partly supplied by Circassian eunuchs. The Coptic priests before mentioned perform on the stronger part of the children what is called the "complete" operation. That is, they cut away the whole scrotum, testes and penis. The mortality of the operation is said to be very great. Clot Bey, chief physician of the Pasha, said that only one in three survived. Chardin stated that only one in seven survived. Dr. Dadirrian of New York, who practiced thirteen years in Constantinople, says he had no means of ascertaining the mortality during his residence in Turkey. Owing to so many dying on their hands, the survivors have to be sold at very high prices to cover the loss. This large proportion of deaths shows gross surgical ignorance and incompetency and the technique of the operation, unless recently improved, is very barbarous. I presume aseptic measures are among the things unknown in that quarter.

In Hindustan eunuchs are abundant among the Mohammedans of the Northwest provinces. A physician who had lived there did not think that they were common among those of other faiths. However, the *Indian Annals of Medical Science* reports them as numerous in Southern India, where they are called Kojahs.

In China eunuchs have existed for ages. The emperor has a retinue of them, which if full would number 3,000, but as a fact there are at present only about 2,000. They perform the work of the household and are divided into forty-eight classes under proper officers. All the emperor's sons and sons-in-law are obliged to keep from thirty down to four eunuchs each. Most of these servants were castrated by their parents (not always poor) between the ages of four and eight years, because it insures the children a career in which they can get a good living (Williams' "Middle Kingdom," Vol. 1, pp. 407–8).

Russia.—There are large tribes of Mahommedans in portions of Russia whose higher classes employ eunuchs, considerable numbers of whom are sold, or at least sent into Turkey, where also many Circassian marriageable girls find homes in the harems. Among the Russian Christians a secret sect or society has lately been discovered who clandestinely practice castration. They are called *Skopzi*, a word which signifies castrated.

Australia.—Reputable authors assert that the wild natives limit the increase of families by crushing the testicles of the father after his first child is born. I have not been able to verify this assertion. The plan of crushing the testicles coincides with the "squeezed" testes mentioned in Deuteronomy: xxiii; 1, and marked with disapproval by exclusion from the congregation.

PHYSICAL EFFECTS OF CASTRATION IN MAN.

Eunuchs made such in childhood grow taller and have larger frames than average men. They are also fatter. The hair of the pubes and of the face does not grow. The result is that the cheeks are round and prominent, the chin is apt to be double, and there is no beard. Those in whom the penis is removed use a tube to assist micturition. This is probably for two reasons: 1. To convey the urine clear of the person and of the clothing; 2, to prevent the contraction of the cicatricial orifice, which, unless attended to, is in some patients prone to form a stricture. It is thought that eunuchs, like women, are less subject than men to the occurrence of stone in the bladder, and when old they are doubtless all free from senile hypertrophy of the prostate gland.

The effect on the voice.—A boy's voice below the age of puberty is at about the same pitch as that of a woman, but as puberty comes on "the voice changes," that is, it lowers its pitch as the vocal cords and the larynx enlarge, and in about two or three years is found an octave lower than that of the woman. Hence it is a favorite practice in some churches to have boys instead of women to sing soprano and contralto, and to those who care only for the pitch and not at all for the "timbre" of the voices the result is fairly good but trained auditors are not fully satisfied. I have listened to some of the best boy choirs in this country and Europe, who rendered the pitch perfectly, but the quality, the timbre as it is called, never attains the richness and flute-like splendor found in the adult woman. The fact is the boy's voice is never a true soprano. If a vocal teacher of a large class will separate the boys from the girls and have them sing alternately he will instantly perceive that the girls sing in a flute-like tone, while the boys' voices have a slight clarionet quality, a kind of vibrant character, the forerunner of the trumpet note of the coming man's voice. Eunuchs preserve the high pitch of the boy's voice and often make effective singers, but yet it is the vibrant boy tone, a voice slightly mixed with the reedy clarionet timbre. There is no truly pure and glorious soprano to be had on earth except from a woman's voice. Yet some of the eunuch vocalists were very fine. Those who heard the Vatican choir some twenty-five years ago may remember a stately, almost gigantic, eunuch soprano with a voice of great sweetness and tremendous power. Still it was vibrant and not a pure flute tone but it was excellent. He was probably the last of his kind to lift up his voice in the Vatican.

MENTAL EFFECTS OF CASTRATION.

I have not found in ancient writers any tendency to stigmatize eunuchs as feeble-minded, but modern authors indulge in the most absurd and contradictory statements on this subject.

The effect on sexual desires.—Some writers assert that if castrated young the eunuchs remain perfectly indifferent to female attractions, and articles are often written in medical journals advocating the castration of sundry criminals in adult life under the assumption that their sexual temptations will all be removed by the simple ablation of the testes. The Turks, however, have no confidence in that kind of moral reform. They require that their eunuchs shall be castrated in childhood, and that the operation shall remove scrotum, testes and penis all at one fell sweep. The Roman poet, Juvenal, alleged that in simple castration of the testes the eunuch, excited by "soft kisses," could still obtain an erection and gratify his desires, "without there being any necessity for an abortion afterward" (Satire vi, 366).

The fact appears to be that men castrated in adult life often retain a troublesome amount of sexual desire and that even if it is done in childhood there is by no means a total absence of it, though it is much lessened

Moral qualities.—Here come in a host of contradictions by careless observers. The Persians, Assyrians and Romans evidently entrusted the highest responsibilities to their eunuchs with success, which implies that they were not at that time weak, deceitful and corrupt beyond other men, as those of Turkey are now accused of being. I suspect the difference in training had much to do with the contrast in results. According to the book of Daniel, the king of Babylon sent the chief of the eunuchs to select boys from the best of the families of his captives. They were removed to the royal palace and apparently supported, educated, trained and carefully brought up to become counsellors and officials of the empire, and if any or all of them were made eunuchs, they might be expected to be very different from the Nubian negro boys now bought and castrated for market by the Coptic priests. However, I have not been able to ascertain what degree of training and culture is actually given to these young negro eunuchs. "Le Grand Dictionnaire Universelle du XIXe Siècle," says of them: "They get ahead by servility and not by talent." The "Cyclopedia of Religious Knowledge" says: "Eunuchs are jealous, intriguing, shameless, peculiarly subject to melancholy, and many commit suicide." Smith's "Dictionary of the Bible," in the article on eunuchs, says of them. They are full of "a blind, malignant jealousy. They are defective in courage, gentleness, shame and remorse, and develop malice, melancholy and a tendency to suicide." The "blind malignant jealousy" attributed to eunuchs seems absurd. Of all men in the world, why should an eunuch be jealous?

Dr. Dadirrian of New York, a highly educated Armenian physician, who practiced thirteen years in Constantinople, and knows many eunuchs, says: "To my knowledge they are brave, faithful and accurate in their duties. The Chief Eunuch can always communcate with the Sultan personally and is held almost equal to the Grand Vizier. The eunuchs' position is always very high and the ladies of the harem treat them very kindly. They are melancholy, not from ill treatment, but because they feel their isolation and deprivation of manly enjoyments." Dr. Dadirrian says that the common statement that they are malignantly jealous is an amusing blunder of western travelers, who do not understand the laws and etiquette of Constantiople. The truth is this: When any of the ladies of the harem go out to ride, one or more eunuchs go with them as protectors, sometimes on horseback, sometimes on foot. Now in Constantinople it is a serious insult to any royal lady, and through her to the Sultan, to stare intently at her in passing. The eunuch's official duty is to protect her from that or any other insult by instantly attacking the offender, whom he may beat or even kill, and no questions will be asked. Western travelers seem to have supposed him to be actuated by "malignant jealousy." The fact is there is no more personal jealousy in him than there is in a paving stone. He is simply doing his official duty as a harem guard, and he takes pains to execute it with such an appearance of alertness and force as will satisfy any imperial spy that may be watching him that he is an officer who understands his business and guards his ladies with what a Yankee would call "vim and snap." By continuing to do this he hopes to stand well at the palace as a protector of the ladies and to obtain future promotion.

The modern eunuchs grow up and live in a very bad moral atmosphere, but so far as I can unravel the contradictory statements about them I conclude that if we except their weakened sexual emotions, their powers of mind are as strong and their morals as good as those of other men brought up under similar training and surroundings.

In gathering such of the above facts and references as are derived from the monuments and dead languages of the far East, I am indebted to the kindness and assistance of the Rev. Simon J. Pherson, D.D., Rev. Emil G. Hirsch, Ph.D., LL.D., Professor Carrier of McCormick Seminary, and Professor Breasted of the University of Chicago.

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SYPHILIS.

A Clinical Lecture to Members of the American Medical Association, Delivered in the Medico-Chirurgical Hospital of Philadelphia.

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PHILADELPHIA, PA.

I have present today several well marked examples of constitutional syphilis. I bring them before you not because they are rare types, but because they collectively represent some of the most characteristic phases of the disease.

MACULAR SYPHILIDE.

This young man, 22 years of age, contracted a chancre three months ago. The period of incubation was sixteen days and the lesion lasted three weeks. Nine weeks and a half after inoculation, having regarded himself in the meantime as entirely well, he noticed that his hair came out when he used the brush. He also found a few small scattered papules upon his scalp. The hair has continued to fall and is now quite thin. The papules are of a coppery color. Upon his back and sides I observed what the patient had not yet detected, viz., a macular eruption. There have been no osteocopes or noticeable fever. His throat has felt sore for several days past. The mucous membrane is erythematous and there are two or three minute erosions.

This case illustrates several points in connection with syphilis. The manifestations are mild, they have existed but for two and a half weeks and there is a a distinct history of infection. An admitted exposure followed sixteen days later by a single sore upon the penis, the presence of small, hard and painless inguinal enlargement, loss of hair, an eruption upon the skin and soreness of the throat can signify nothing else than syphilis. The sore upon the penis was undoubtedly a chancre. Yet he tells me that after the lesion was healed he thought that he was completely cured. He was not aware that there was any relationship between the chancre and secondary outbreak. He had not perceived the exanthem. Now, unless he be sufficiently instructed as to the beginning and persistent nature of the malady which he has unfortunately contracted, and submit himself to a thorough, systematic prolonged course of treatment, he will be subject to frequent relapses and become a menace to every one with whom he is brought into intimate contact. On the contrary, if after its importance is explained to him, he will faithfully regulate his habits and conform to instructions, the present manifestations will rapidly disappear and he will eventually be cured.

The predominant rash upon the body is macular,

but the polymorphous character of syphilis is shown by the coexistence of small papules upon the scalp and shoulders. He has come to us in good time. In a few days without treatment the erosions of the mouth would become distinct syphilitic ulcers. He shall be warned as to the manner in which he might communicate the disease to innocent persons, and be placed at once upon the protiodid of mercury. As he is a robust individual I shall combine with the specific the tartar emetic and a small dose of powdered opium, as:

℞	Antimonii et potassii tartratis. . . . . gr. v.	32
	Hydrargyri iodidi viridis	
	Pulveris opii . . . . . āā gr. xv.	96

M. et ft. pilulæ No. LX. Sig.—One pill three times daily.

The antimony favors the action of the mercurial and the opium restrains its influence upon the bowels. At the end of a week the patient shall be directed to take a fourth pill at bed time. At the end of three weeks the tartar emetic shall be discontinued and the green iodid be given continuously for three or four months. At the expiration of that period if no manifestation of disease are present the drug may be advantageously suspended for two weeks, or at least given in diminished doses, as one-sixteenth grain twice a day. The full dose is then resumed for another period of three or four months. After the lapse of a year the specific may be discontinued for a longer interval. In this manner by promptly producing a decided mercurial impression and subsequently suspending or diminishing treatment during stated intervals, the virus of the disease will in most cases be totally eradicated by the end of the second year. The opium need not be continued uninterruptedly. Some writers deprecate its use and advise a combination with tannic acid or the administration of mercurious tannate. A small dose of opium, however, will prevent intestinal pains as well as check diarrhea.

When mercury is given in this guarded manner it seldom excites ptyalism. A serviceable precaution also to observe in this connection is scrupulous care of the patient's mouth, which should be frequently cleansed with mild astringent and antiseptic mouth-washes.

The form in which the mercurial is given is of minor importance provided that enough be absorbed to antagonize the disease. The tiny ulcers within the mouth may be effectively touched with solutions of nitrate of silver, nitrate of mercury or sulphate of copper of suitable strength. The patient should abstain entirely from tobacco and alcoholic liquors. A stimulant hair tonic will facilitate the return of the hair. All local treatment, however, is simply accessory.

MACULAR AND PAPULAR SYPHILIDE.

A second man, 23 years of age, exhibits an abundant, symmetrical, copper colored, polymorphous rash upon the trunk and limbs. There is a predominance of small papules, but macules, large papules and pustules are also present. Prior to the evolution of the rash the man suffered from headache and aching pain over the upper part of the sternum. He has of late lost eighteen pounds in weight. He has a sore throat of the erythematous type. The patient contracted a chancre two and a half months ago, and the sore was treated at that time in our dispensary service. The eruption has been present for about five weeks. There are enlarged glands in each groin. The rash is attended by some itching, especially in the evening. Absence of itching is given as one of the diagnostic signs of a syphilide, but the rule, though general, is not absolute. From time to time I meet with a case of itching syphilide.

This case is of some individual interest in contrast with that of the first patient. In both instances the infection dates from nearly the same time. The disease, however, has made more rapid progress in this case, probably owing to the social conditions and habits of the young man. Though the small papular syphilide develops not much later than the macular, yet the large papules and pustules usually belong to a later period. When pustules occur early in the course of syphilis they generally indicate decided constitutional depression.

The treatment of this case will be conducted upon the same principles as the first. A mildly astringent gargle will be ordered, not as having direct therapeutic value but for the reasons already given. On account of the progress which the disease has made I will make use of the corrosive sublimate, as:

℞	Hydrargyri chloridi corrosivi . . . . . gr. iij	20
	Glycerini . . . . . ʒ j	32
	Syrupi sarsaparillæ compositæ. . . . . ʒ iij	96

M. ft. sol. Sig.—Teaspoonful three times a day.

TUBERCULAR SYPHILIDE.

A young man, 24 years of age, entered the hospital on account of a tubercular eruption which has affected a large part of the body for the last two years. The lesions began upon the face and at first were small. They are at the present time of various sizes, soft and semisolid in consistence. Many of them have broken down to form ulcers and a number of cicatrices are seen upon the face. In other places the eruption is in more active progress, ulcerated lesions appearing upon the surface.

This case differs altogether from those which I have already brought before you today. The man professes, and I see no reason to doubt his word, ignorance of the manner in which the disease was acquired. The lesions have been steadily growing worse for some time and cause him great distress of mind. He is extremely anxious to be cured and perfectly willing to throw all the light he can upon his case. However, he knows nothing of its origin. At his age the history can not be obscured by the mists of time. In one of "rounders" of forty and more, who have pursued a course of venereal alcoholic dissipation, in whom syphilis has never been cured but recurs in various guises from time to time, we often fail to obtain any definite history of the origin. Chancre, chancroid and mucous patches have upon different occasions involved the virile organ. It is almost a hopeless task to endeavor to distinguish an orderly and characteristic sequence of events. Tubercles, rupia and gummata point nevertheless to a syphilitic origin. We feel that we can make no mistake in adopting specific combined, it may be, or alternating with tonic treatment. Here, however, we have a patient in the flower of youth as far as mere years count. It does seem strange, indeed, that there is no reminiscence of primary disease. The man has been an industrious mechanic and has not been given to sexual excesses.

If I have seemed to assume the diagnosis it is because I have already had the opportunity of convincing myself of the nature of the malady. In fact what other disease than syphilis could cause such lesions? It is possible to form an opinion by exclusion. Tubercular lesions are common to syphilis, lupus vulgaris, lepra, carcinoma and certain rare forms of cutaneo

disease which need not here be taken into consideration. Leprosy need not long engage our attention. A stray case is now and then seen in Philadelphia, it is true, but the patient is a foreigner or one who has lived abroad. Leprous tubercles grow more slowly than those of syphilis, occasion a more hideous deformity, and moreover are characterized by more or less anesthesia. Lupus vulgaris generally begins before the twenty-second year, the tubercles are small and soft; the ulcer of lupus is superficial as a rule, and the scales are thin. Rarely in lupus should we see so disseminated an eruption. Cancer may be thrown out of question on account of the youth of the patient, the number and distribution of the lesions.

The diagnosis established, the next point concerns the treatment. The tubercular eruption belongs to the tertiary stage. As a general rule it is benefited by the administration of the corrosive chlorid of mercury combined with potassium iodid. There are, however, cases now and then encountered which prove unamenable to such a course. In such instances I have often derived benefit from the use of vegetable alteratives and tonics given until the secretions have improved. The specific treatment can then be resumed with greater advantage. In this case I shall adopt, provisionally, the method which is ordinarily attended by success, and prescribe:

℞	Hydrargyri chloridi corrosivi	gr. iss	10
	Potassii iodidi.	ʒ iij	12
	Syrupi zingiberis	ʒ j	32
	Aquæ	ʒ iij	96

M. ft. sol. Sig.—Dessertspoonful three times a day.

MOIST PAPULES.

In a fourth patient, likewise a male, 25 years of age, syphilis displays itself principally upon the mucous membrane of the mouth, leaving the skin almost intact. There are a few papules and pustules upon the back, and presumably from the man's somewhat indistinct account there has been a generalized eruption. He has been afflicted with sores in the mouth and upon the tongue for the last three months. There is no history of primary disease. He is not conscious of ever having had a chancre, but about a year ago he suffered from an attack of gonorrhea. Coincident with the attack the inguinal glands enlarged but did not suppurate. Shortly afterward he lost much of his hair and also had sores in the mouth. It is probable that he had a urethral chancre coexistent with the gonorrhea. At all events the history is well nigh conclusive as to syphilis infection, and it is strongly corroborated by the clinical evidence. Upon the roof of the mouth is a typic mucous patch, and ulcers are seen upon each side of the anterior half of the tongue extending nearly to the tip. There are also one or two just within the angle of the mouth. The moist papule, mucous papule, mucous patch or condyloma, for it is known under all of these names, is the analogue of the large flat papular or lenticular syphilide. Under the influence of the heat and moisture of mucous cavities this lesion is modified in its aspect and mode of growth. It flourishes within and around mucocutaneous outlets. The term "mucous patch," by which it is perhaps most generally known, is appropriate, inasmuch as it is frequently due to the coalescence of adjacent papules. Around the outlet of the anus and vagina these lesions may assume large proportions and a most repulsive appearance.

I have said that upon the roof of the mouth is a typic mucous patch. Now a mucous patch is characteristic only of syphilis. It occurs in no other disease. Nor is it usually difficult to recognize. This lesion is generally raised a little above the level of the surrounding surface, though in some cases it is depressed. Moist papules are soft and smooth; sometimes they are of a deep red color and again they are grayish, as if the surface had been touched with nitrate of silver. They are sometimes the seat of luxuriant papillary outgrowths. Mucous patches may develop between the toes, in the groins and about the umbilicus.

This lesion is one of the most constant of syphilis. It exhibits an inveterate tendency to recurrence. Long after all marks of the disease have disappeared from the skin we may, to our disgust, witness the return of the mucous patch. So notorious is this characteristic that Jullien, with that epigrammatic terseness so highly valued by French writers, and which is so emphatic, declares the average course of syphilis to consist of a chancre, a macular rash, mucous patches, relapses of mucous patches, more mucous patches.

The same disposition to recur is seen in the small ulcers so common in the mouth during the secondary period. Much of this obstinacy depends upon irritation due to tobacco, alcoholic drinks, and carelessness in the toilet of the mouth.

Another peculiarity makes the mucous patch remarkable among the lesions of syphilis. Next to the primary infecting sore, the chancre, it is most responsible for the spread of the disease. It is the great source of extra-genital syphilis. Innocent embraces and lascivious dalliance alike spread infection when mucous patches are present in the mouth.

Local treatment expedites the cure of mucous patches or rather, I should say, their suppression, for they are never entirely cured until the disease which produced them is extinct. Solutions of silver nitrate, copper sulphate and mercuric nitrate are among the most justly prized applications. The official solution of mercuric nitrate, diluted with eight to twelve parts of water is often of speedy benefit, and I will make use of it in this case. In advanced secondary syphilis Gibert's syrup is an excellent remedy. This combination consists of the red mercuric iodid or biniodid, together with potassium iodid. It may be thus ordered:

℞	Hydrargyri iodidi rubri	gr. j	06
	Potassii iodidi	ʒ ss	16
	Aquæ destillatæ	ʒ ij	8
	Syrupi	q. s. ad. ʒ vi	196

M. ft. sol. Sig.—Dessertspoonful three times a day.

This patient shall be forbidden to use, above all to chew, tobacco. He should also avoid spiritous liquors. Every subject of mucous patches should be informed of the danger that he may spread the disease by kissing, common use of table utensils, etc.

In unusually obstinate or in "galloping" syphilis we may advantageously have recourse to other methods. Our aim being to saturate the blood rapidly with the antidote we may have recourse to mercurial inunction or to hypodermic injections. The former procedure is no doubt efficacious, but it is in many respects inconvenient to carry out in private practice. Hypodermic injections are cleanly and avoid the publicity which is so apt to attach to inunction. A host of mercurials have been recommended by different writers. I have had a large experience with this method of treatment and believe that no preparation surpasses the bichlorid in efficiency. I dissolve 4 grains of corrosive chlorid in an ounce of water and

inject 5 minims of this solution, increasing the dose minim by minim every second or third day until improvement or a constitutional effect of the mercury occurs.

SOME OBSERVATIONS ON THE TREATMENT OF TABES DORSALIS.

BY DANIEL R. BROWER, A.M., M.D.

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CHICAGO, ILL.

The treatment of any disease, as a matter of course, is largely based upon its pathogenesis; and while we may safely assume that at least 90 per cent. of the cases of tabes dorsalis have an antecedent syphilitic history, yet it is not a true syphilitic disease, for in the remaining percentage of cases other etiologic factors are at work, among which are trauma, the acute infections, alcoholism, and the auto-intoxications, so that we may call the disease rather a degenerative sequela of these various processes, and we know not whether the disease begins in the neurons, in the connective tissue, or in the blood vessels. But let it begin where it may, the resultant is a sclerosis terminating in hypertrophy of the connective tissue and a destruction of the sensory neurons of the spinal cord. I am of the opinion that with many a too gloomy prognosis is made. In my experience the arrest of the disease is not infrequent, when the treatment is commenced in the pre-ataxic stage, and considerable improvement is possible even when the second and third stages of the disease have been reached prior to its commencement. The disease does not always interfere with the very successful use of the inherent powers of the patients. I have one patient who, since the pre-ataxic stage began about twenty years ago, has carried on a large manufacturing concern, employing at times several hundred men, and has accumulated a large fortune. I have another patient who, since the disease began about fifteen years ago, has attained eminence as a lawyer and as a politician, and has been the Governor of a great State, and is still in the active pursuit of his profession.

Treatment.— The first consideration in the treatment is the climate, and whenever it is practicable, as it often is in a great country like the United States, a warm, dry, equable climate of low level or moderate altitude should be selected as the place of permanent residence for the patient.

If the case is not advancing rapidly, an ocean voyage, giving the maximum amount of fresh air with a minimum amount of exertion, is often beneficial. I am in the habit of recommending to my Chicago patients, when possible, to spend two or three of the spring months in the Ozark Mountains of Missouri, in the mountains of North Carolina, or in a similar moderate altitude; or at Atlanta, Ga., or Los Angeles, Cal., or in similar low level climates, thus avoiding the cold and dampness and exceedingly variable climates of this season of the year in this locality.

The next important consideration is rest. When the disease is advancing rapidly, absolute rest in bed, with daily massage and the faradic exercise of the muscles is indicated, and this may often be continued with advantage for six or eight weeks, and then patients gradually resume their ordinary avocations; and in every case I think a portion of each day should be spent in the recumbent position. I advise business men to provide themselves with a lounge in their office, and spend at least one hour in the recumbent position, and in this position they can transact much business, and at the same time give rest to the spinal cord. Excessive mental work and physical fatigue should be avoided; sexual excesses are especially harmful and seem to contribute to the production of optic nerve atrophy; whatever exercise the patient takes should always stop short of fatigue. Traumas being of serious consequence, especially concussion of the spine, should be avoided with great care. The training of the muscles in the work of co-ordination, as proposed by Fraenkel, I endorse, and advise various exercises, such as he proposed, for an hour or an hour and a half daily, and it is surprising what amount of power of co-ordination will be regained by the judicious following of this teaching.

The gastro-intestinal tract demands special attention; lavage and bowel irrigation are often indicated. Gastric crises are provoked by indigestion and colonic impaction. Food, therefore, should be easily digested, and constipation should be avoided. A change of life from one of activity to one of inactivity, forced upon the patient by the disease, tends to develop gout in those who are predisposed to it, and this should be constantly borne in mind and the diet regulated accordingly. Excesses in alcoholics and in smoking should be avoided. Electricity, especially the static form, from a machine of high potential, by insulation and by heavy sparks from the spine and lower extremities, is usually of very much service. Faradization of the skin by the wire brush electrode is also beneficial. These two forms of electricity, in my judgment, are very far superior to galvanization. When the bladder or its sphincter is weak faradization of this organ is often of service.

Suspension, first brought to our notice by the Russian physician, Motschutkowski, is of service when the disease is advancing after a more or less lengthened stationary period. I am sure that it is of service, although the practice is being abandoned by a great many. Stretching the sciatic nerves by manipulation, in the same class of cases gives results somewhat similar to suspension. Cold or tepid baths at a temperature not to exceed 96 degrees F., especially with jet or shower accompaniments. are useful. A hot bath, in my judgment, is often very injurious.

In those cases of tabes dorsalis in which the symptoms have developed very rapidly and the syphilitic infection is recent, vigorous antisyphilitic treatment is beneficial, and it should consist in the largest possible doses of the iodid of potassium together with the hypodermatic use of mercury. But in those cases of locomotor ataxia where the development has been slow, and where a long interval has elapsed since the primary symptoms occurred, I am sure that this form of medication often does great harm. An alterative on which I place the greatest reliance in the chloride of gold and sodium. I think that this drug has some power in arresting the progression of connective tissue hypertrophy in the spinal cord, as well as in the liver and kidneys. I am in the habit of giving this drug in the tenth of a grain doses (.006 gram) three times a day, and usually combine it with the resin of guaiac (.18 grams). Chlorid of gold and sodium is a very unstable drug and great care shoul

be exercised in its preparation by the pharmacist and in its administration by the physician. It is my practice to have the drug rubbed up dry with the pulverized resin of guaiac placed in capsules, and given one hour before meals; or, in more urgent cases, I have it prepared freshly in solution and use it hypodermatically, thus hoping to avoid by the one method or the other the destruction of the drug in the stomach. This drug being a tonic, as well as an alterative, it is indicated in the several stages of the disease and may be continued with advantage for months at a time.

The next drug upon which I place reliance is a preparation of phosphorus, and for this purpose prefer the phosphid of zinc. This I give in the eighth (.008 gram) or tenth (.006 gram) of a grain doses, three times a day after meals. As a tonic and alterative, in alternation with the above I use arsenic, preferring the arsenate of sodium in about the twelfth of a grain (.0054 gram) doses, to any other of the preparations of arsenic.

When the disease has taken upon itself a rapid developmental state, full doses of ergot with the rest before indicated will sometimes stop the rapid progression of the disease. For the pains I have found that extract of cannabis indica, injections of cocain, and acetanilid alone, or in combination, are the most successful. I have seen no especially beneficial results from the use of nitrate of silver, aluminum chlorid or of mercury in ordinary cases, and my experience is emphatically against the use of strychnia in this disease. I am very confident that I have seen more than one case very greatly injured by the use of even ordinary doses of strychnia.

GUMMATA OF THE HEART IN A CASE OF CONGENITAL SYPHILIS.

FROM THE PATHOLOGICAL LABORATORY OF RUSH MEDICAL COLLEGE.

Read before the Chicago Pathological Society, Jan. 11. 1897.

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The following case is of interest as an instance of a lesion observed very infrequently, viz: gummata of the heart as a feature of congenital syphilis.

A child born at term, of young parents, died almost immediately following birth and was sent to the laboratory of Rush Medical College by Dr. A. B. Strong, of Chicago, in whose practice the case occurred and to whom I am indebted for the opportunity of making the examination.

Autopsy Abstract.—Weight 2,500 gm., length 50 cm.; the umbilical cord showed a recent ligature. The external surface of the body was the seat of a vesicular and pustular inflammation, most marked over the face, hands, feet and buttocks. The contents of these eruptions, although generally clear, were occasionally purulent and less often of soft, cheese-like necrotic material. The peritoneum was normal and its cavity empty. The thymus weighed 7.5 gm., and possessed several softened areas containing gray viscid pus.[1] The thyroid, submaxillary and parotid glands were normal in appearance except for an excess of blood. The pleural cavities were empty. The lungs contained numerous firm, white nodules, some of them as large as cherries. On section these presented a smooth surface and appeared of equal consistency throughout. The lung tissue was non-crepitant or very slightly crepitant, fairly firm and oozed dark blood. The pleura over the left lower lobe was roughened by an easily removable fibrinous exudate. The liver was engorged with blood and extended to the level of the umbilicus. The spleen was slightly enlarged and congested; the pancreas was negative; the kidneys, stomach, intestines, lymphatic apparatus and the central nervous system all appeared unchanged.

The lines of ossification in both long and flat bones were irregular, wider than normal, and hemorrhagic.

The heart.—On the anterior surface of the heart midway between the base and the apex, involving that part of the ventricular wall which faces toward the left, and also overlapping the ventricular septum, was a white area, quite circular in form and measuring approximately 1 cm. in diameter. The edge of this white area fused gradually with the adjacent heart tissue, and on section appeared less firm than the unchanged myocardium (Fig. 1.) It was seen to involve the entire thickness of the ventricular wall, spreading out more as it approached the pericardium, which was unchanged except as to color. The change in the muscle also extended into the columnæ carneæ of the left ventricle. On the posterior or diaphragmatic surface, near the right border of the heart, were situated three smaller but similar areas.

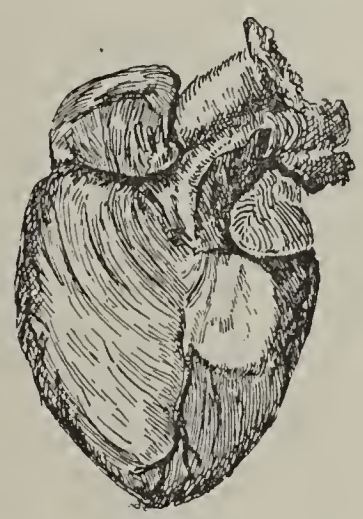


FIG. 1.—Gumma near the interventricular septum.

The heart cavities contained considerable blood partially coagulated. The valves and orifices showed no changes.

Anatomic diagnosis.—Congenital syphilis, syphilitic interstitial pneumonia (nodular); syphilitic osteochondritis; gummata of the heart; pustular syphilides of the skin; multiple abscesses of the thymus; hyperemia of the liver and spleen.

Microscopic examination.—The presence of syphilis was confirmed by the examination of the viscera, characteristic changes being found in the liver, lungs, spleen and lines of epiphyseal ossification. In sections made through the large lesion on the anterior surface of the heart, the following changes were found: Between the heart muscle fibers throughout the area, which to the naked eye appeared white, there existed a marked infiltration of round or partially fibrillated cells, with faintly staining vesicular nuclei. Although the change prevailed throughout it was most marked around the blood vessels (small arterioles). The change here began immediately outside the media, where distorted cells and cells of peculiar shapes, with faintly stained nuclei occurred. These were evidently formative cells, and resulted from proliferative

[1] The mixed infection which had resulted in this case was investigated by Mr. H. G. Wells and reported by him to the Chicago Pathological Society (Transactions Chicago Path. Soc., Vol. II, 1897).

changes in the adventitia (Fig. 2). Occasionally mitotic nuclear figures were here met with.

A marked proliferation of the subpericardial connective tissue had also taken place and the resulting new cells had invaded the heart muscle to a considerable depth. The phenomena observed resulting from leucocytic invasion were: 1. Leucocytes of the polymorphous variety in transit through the vessel wall (Fig. 2). This was distinct and frequent, resulting



FIG. 2.—Showing the proliferation of the adventitia. *a*, intima of a small arteriole; *b*, nuclei of the muscle cells in the tunica media; *c*, leucocytes; *d*, muscle fibers.

in, 2, accumulations of leucocytes in the adventitia among the formative cells. 3. The occasional presence of single leucocytes at long distances from the vessels where all changes were slight and, 4, the accumulation of leucocytes in foci in which degeneration and necrosis of heart muscle fibers had taken place (Fig. 3). Not only had muscle fibers disappeared in such areas, but in some foci nuclear fragmentation of all the cells in the center of the focus had resulted and dust-like chromatin elements of the degenerated cells occupied that region. No bacteria were found in these foci of necrosis. Multinuclear cells were present in the perivascular cell increase, but the nuclei of such were closely set together and showed no peripheral arrangement or central necrosis as is so frequent in the giant-cells of acquired syphilis. No changes were found in or about the veins or in the endocardium.

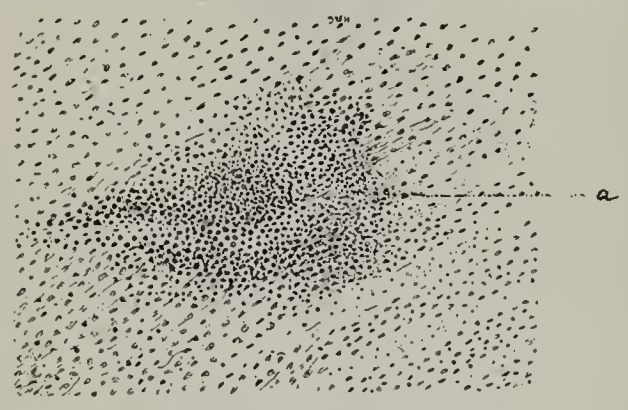


FIG. 3.—Area of necrosis and round cell infiltration. *a*, leucocytes.

The literature on congenital syphilis of the heart has been thoroughly summarized by Ludvig Hektoen in a case recently reported of "Multiple Foci of Interstitial Myocarditis in Hereditary Syphilis" (*Journal of Pathology and Bacteriology*, Edinburgh and London, January, 1896), and a search through the *Index Medicus* revealed no additional cases reported since his summary. The author above mentioned was able to find only nine previously recorded cases of hereditary syphilis of the heart, and these were collated in the well-known treatise by Mraçek.[2] In 112 cases of heart syphilis considered by Mraçek, nine had to do with hereditary syphilis and the syphilitic nature of some of these was doubtful.

Conclusions.—That this is an instance of syphilitic myocarditis is conclusively proven by the changes present in other viscera and the syphilitic osteochondritis. The title of "gummata" is simply a matter of preference; multiple foci of interstitial myocarditis with leucocytic invasion, areas of degeneration of the heart muscle and the occurrence of multinuclear cells resulted in areas which to the naked eye were of limited extent, whitish, and appeared softened, in other words, gummatous.

[2] "Die Syphilis des Herzens bei erworbener und ererbter Lues." Arch. f. Dermat. u. Syph., Wien, Ergänzungsheft, ii, 1893.

WHAT WE EAT AND WHAT IT COSTS.

BY D. H. GALLOWAY, M.D.
CHICAGO.

Few of us have any idea of the number of kinds of food which we eat in a year or of their absolute or relative cost. Man is said to be an omnivorous animal and this is generally taken to mean that he eats about equally of animal and vegetable food. The feeding of people collectively, as in the large public institutions, is not a test of the amount and variety of food consumed by the average man nor of the cost of it. Some time ago one of the Chicago papers instituted a prize competition for the best bill of fare which could be furnished for $500 a year for a family of five persons. This brought forward a great many statements of the cost of living. Some of these were doubtless accurate, while many others bore such evidence of inaccuracies as to make them worthless.

There is no question but that some persons habitually eat vastly more than others; one family may eat more expensive food than another without necessarily being better fed; in fact the value of food may be in inverse ratio to its cost. While in college I had a roommate who weighed 250 pounds, which was just about twice my weight. We occupied the same room, were about the same age, attended the some classes and in many ways our habits were similar. We took our meals at a co-operative boarding club of thirty students. Without our knowledge, some of our fellow boarders kept a record of the approximate quantity of food which we ate in a week and they found that my heavy roommate ate more than three times as much as I did. Obese people are not always extraordinarily large eaters, but they usually are and they eat excessively of heat- and fat-producing foods. Some persons eat too little and keep their vital fires too low but there are many more who eat too much.

Eating too much food, or food that is unsuitable, or at an unsuitable time or in an unsuitable manner, is the principal cause of the great number of distressing affections which go by the various names of dyspepsia, indigestion, etc., and every physician will testify to the great prevalence of these diseases in this country. Probably more suffering is caused by errors of eating than by the use of alcoholic beverages, enormous as the latter undoubtedly is. Not all they pay for is eaten by every family. The margin of waste in some is a very large factor, while in others practically nothing is wasted. In households where the culinary department is left to servants who are not constantly watched, a larger or a smaller percentage of the food cooked finds its way into the garbage can. Quantities of meat and vegetables, too small to make another meal, are thrown out and stale bread is disposed of in the same manner. In other families these things

e gathered up and go into hash or soup for the ext meal, while the stale bread returns in whole- me bread pudding or as toast. Material which is asted in one family often makes a wholesome, utritious and appetizing meal for another.

It is not, however, so much the purpose of this ticle to show what we might live on as to indicate hat we do live on and to present a table which has en carefully prepared from accounts which are curate and from conditions which approximate ose of the average comfortably situated American mily. This table is made up from the books of r. Bayard Holmes' private hospital. The patients this hospital were nearly all surgical cases and it a well-known fact that patients who have under- ne surgical operations eat as heartily as laborers ring the period of convalescence. With one excep- n, these patients were all adults. I believe this ble represents wholesome diet, adequate in quantity r the average family of equal size. It covers a riod of 333 days, from May 1 of one year to March of the next. The average number in this hospital nily was 10.67 persons, so that we have listed here d sufficient for 3,582 persons one day or one per- n 3,582 days. It is equal to the board of 9.813 per- ns one year or one person 9.813 years. The first lumn of figures is the amount, where the amount n be given, of the item bought during the 333 days. ie second column is the cost of the first. The third lumn is the amount consumed by one person in one ar and the fourth column is the cost of the third. course, 158 loaves is not all the bread which was en by these ten people in 333 days, but only that ich was bought as bread; most of the flour was de into bread in the house. This table is abso- ely accurate in the main, though there may be all errors in a few things.

In order to obtain this record, I took the grocer's d butcher's books at the close of each month, checked each entry and put all items of a kind together on ard. These cards were then ranged alphabetically d copied into a book. An item might appear in grocer's book twenty times during the month, but would appear but once in the account, the amount d cost including in one entry the total for the nth. Since the numbers in the first column repre- t the amount consumed by 9.813 persons in one r, the amount consumed by one person is found dividing the former number by the latter. Prac- lly, I took the reciprocal of 9.813, which is approxi- tely .102, and multiplied the numbers in the first umn by this factor to get the numbers in the third mn and by the same process the numbers in the rth column are obtained from those in the second. ere are 128 items in the table.

Article.	Amount bought.		Cost.	Amount Consumed.	Cost.
ng powder	lbs.,	9	$ 4.05	.9181	$ .41319
ey	lbs.,	4	.21	.4080	.02142
extract	lb.,	1	1.60	.1020	.16320
d, 158 loaves			10.05	....	1.02510
kfast food	lbs.,	206	14.51	21.0120	1.48000
er	lbs.,	324	82.81	33.048	8.44662
erine	lbs.,	10	1.10	1.020	.11220
			1.95	....	.19890
ied cherries, 5 cans	lbs.,	12.5	.73	1.275	.07446
ed corn, 57 cans	lbs.,	114	7.40	11.628	.75480
ed peaches, 6 cans	lbs.,	15	1.00	1.530	.10200
ed peas, 42 cans	lbs ,	84	7.17	8.568	.73134
ed plums, 1 can	lbs.,	2.5	.28	.255	.02856
ed salmon, 53 cans	lbs.,	53	10.60	5.406	1.08120
ed shrimp, 1 can	lb.,	1	.25	.051	.02550
ed succotash, 12 cans	lbs.,	24	1.00	2.448	.10200
ed tomatoes, 74 cans	lbs.,	222	9.35	22.644	.95289
s, 1 bottle			.18	.102	.01836
p	pts.,	17	4.25	1.734	.43350
e	lbs.,	7	1.30	.714	.13260
late		.5	.20	.051	.02010
Chow-chow		2	.70	....	.07140
Cider	qts.,	6	.72	.612	.07344
Citron			.22	....	.02244
Cocoa		6.5	2.88	.663	.29376
Cocoanut, shredded			.68	....	.06936
Coffee	lbs.,	57	21.66	5.814	2.20932
Cornstarch	lbs.,	5	.50	.501	.05100
Crackers	lbs.,	180	24.97	18.360	2.54694
Cream tartar	ozs.,	2	.10	.204	.01020
Eggs		4,536	69.21	462.672	7.05942
Flour	lbs.,	986	24.10	100.572	2.48520
Fruit, apples	pks.,	48	14.28	4.896	1.45656
Fruit, bananas		132	2.14	13.464	.21828
Fruit, blackberries		3	.44	.306	.04488
Fruit, cherries	boxes,	9	.83	.918	.08466
Fruit, cranberries	qts.,	6	.80	.612	.08160
Fruit, gooseberries	boxes,	2	.20	.204	.02040
Fruit, grapes	bskts,	25	7.03	2.550	.71706
Fruit, lemons		621	14.24	63.342	1.45248
Fruit, melons—canteloupes			3.24	....	.33048
Fruit, watermelons		18	5.40	1.836	.55080
Fruit, olives	pts.,	6	1.59	.612	.16218
Fruit, oranges		738	19.63	75.276	2.00226
Fruit, peaches	bskts,	22	7.30	2.244	.74460
Fruit, pears		12	.25	1.224	.02550
Fruit, pineapples		17	2.59	1.734	.26418
Fruit, raspberries	boxes,	9	1.65	.918	.16830
Fruit, strawberries	boxes,	84	10.59	8.568	1.08018
Fruit, whortleberries	boxes,	2	.30	.204	.03060
Fruit, dried apricots	lbs.,	16	2.80	1.632	.28560
Fruit, dried currants	lbs.,	3	.39	.306	.03978
Fruit, dried figs	lbs.,	16	3.10	1.632	.31620
Fruit, dried prunes	lbs.,	21	3.43	2.142	.34986
Fruit, dried raisins	lbs.,	12	1.55	1.224	.15810
Gelatin	ozs.,	70	7.00	7.140	.71400
Ginger ale	bottle,	1	.20	.102	.02040
Hominy	lbs.,	5	.20	.510	.02040
Honey	lbs.,	3	.60	.306	.06120
Ice	lbs.,	6,200	31.00	632.400	3.16200
Jelly	lbs.,	13	6.40	1.326	.65280
Lard	lbs.,	74	8.85	7.548	.90270
Macaroni	lbs.,	3	.45	.306	.04590
Matzoon	qts.,	107	24.35	10.911	2.48370
Meats			263.12	....	26.83824
Milk	qts.,	3,558.5	208.25	362.967	21.23946
Nuts	lbs.,	16	2.40	1.632	.24480
Okra			.18	....	.01836
Oysters	qts.,	25	6.41	....	.65382
Pumpkin pie		1	.15	....	.01530
Rennet		1	.25	.102	.02550
Rice	lbs.,	37	3.70	3.774	.37740
Spice, all-			.15	....	.01530
Spice, bay leaves			.05	....	.00510
Spice, cassia			.05	....	.00510
Spice, celery seed			.05	....	.00510
Spice, celery salt			.15	....	.01530
Spice, cinnamon			.13	....	.01326
Spice, cloves			.33	....	.03366
Spice, ess. lemon			.35	....	.03570
Spice, ess. vanilla		9	2.00	....	.20400
Spice, ess. ginger		2	.25	....	.02550
Spice, horseradish			.30	....	.03060
Spice, mint			.25	....	.02550
Spice, mustard			.45	....	.04590
Spice, nutmeg	oz.,	1	.10	....	.01020
Spice, pepper			.70	....	.07140
Spice, pickles			.05	....	.00510
Spice, sage			.05	....	.00510
Rock salt	lbs.,	110	1.10	11.220	.11220
Table salt	lbs.,	100	1.00	10.200	.10200
Spighetta	lbs.,	3	.45	.306	.04900
Corn starch	lbs.,	5	.50	.510	.05100
Sugar	lbs.,	671	34.19	68.442	3.48730
Syrup	qts.,	4	.60	.408	.06120
Maple syrup	oz.,	64	.70	6.528	.07148
Tapioca	lbs.,	1	.06	.102	.00610
Tea	lbs.,	15.75	13.52	1.606	1.37900
Vegetables, green, soup bchs			.52	....	.05302
Vegetables, asparagus			1.73	....	.17644
Vegetables, beans			3.16	....	.32234
Vegetables, beets			1.22	....	.12446
Vegetables, cabbage			.72	....	.07342
Vegetables, cauliflower			.25	....	.02554
Vegetables, celery			1.20	....	.12244
Vegetables, corn	ears.	222	3.04	22.644	.31008
Vegetables, watercress			.60	....	.06210
Vegetables, cucumbers			.88	....	.08976
Vegetables, eggplant		8	1.18	.816	.12036
Vegetables, lettuce			2.78	....	.28356
Vegetables, onions	qts.,	12	1.12	1.224	.11424
Vegetables, oysterplant			.25	....	.02550
Vegetables, parsley			1.55	....	.15810
Vegetables, parsnip			.02	....	.00204
Vegetables, peas			5.00	....	.51000
Vegetables, potatoes	pks.,	120	20.56	12.24	2.09712
Vegetables, Saratoga chips			.15	....	.01530
Vegetables, sweet potatoes			4.48	....	.45696
Vegetables, pumpkins			.10	....	.01020
Vegetables, rhubarb			.04	....	.00408
Vegetables, radishes			.80	....	.08160
Vegetables, spinach			.35	....	.03570
Vegetables, squash		2	.17	....	.01734
Vegetables, tomatoes	bskts.,	44	6.34	....	.64668
Vegetables, turnips			.10	....	.01020
Vermicelli			.25	....	.02550
Vinegar	qts.,	36	1.13	4.080	.11526
Yeast cakes		237	4.74	24.174	.48384
					111.72262

The following table is a synopsis of the foregoing one. I have grouped the items by classes and arranged them in the order of expense. The amount

in the column of figures is the cost of the article named for one person for one year.

Meats (including fish, oysters and lard)	$29.28082
Milk (cream and matzoon)	23.72316
Fruit (fresh, canned and dry)	10.79096
Vegetables (green and canned)	8.50791
Butter	8.44662
Breadstuffs (bread, flour, crackers and cereals)	7.55866
Eggs	7.05942
Coffee, tea and chocolate	3.60876
Sugar	3.48738
Ice	3.16200

Add together the foods of animal origin, meat, milk butter and eggs and a few more small items and we have $69.85516 as the cost of animal food which each one of us eats in a year, against $41.86736 for foods of vegetable origin which we eat in the same time.

It will be seen by reference to the table that in a year the average man eats 33 pounds of butter and pays $8.44 for it, 63 lemons at a cost of $1.45, 75 oranges at $2, uses 632 pounds of ice at $3.16, consumes 363 quarts of milk at a cost of $21.23, 462 eggs at a cost of $7 and 10 pounds of salt at 10 cents. It shows also that we spend as much for oranges as we do for potatoes, and more for fruit than for vegetables.

We paid for rent for each person $72.93. I looked over my private accounts and found that I paid for clothing in ten years (from the time I was 20 till I was 30 years of age) $525.73, an average of $52.57 for each year. Taking these figures as a reasonable average I find that it costs for the three principal necessaries of life as follows: Food, $111.72; shelter, $72.93, clothing, $52.57.

During this time (333 days with an average of 10.67 persons) we used 37,500 matches, 399 bars of laundry soap, 79 bars of cleaning soap and 206 bars of toilet soap. This indicates that each person uses 3,750 matches a year, or more than ten every day, and this is below the real number consumed, as we had one or two thousand on hand when this account began. It will be seen also that each person uses 20 cakes of toilet soap in a year or nearly two each month. This includes bath soap, and in this hospital every patient got at least one bath every day. During the entire time this hospital was under my management there was not sent out of it one pound of garbage nor any combustible refuse whatsoever; nothing but ashes and broken glassware and crockery was put out for the scavenger. Everything combustible was made into bundles with old newspapers and burned in the furnaces both in winter and in summer.

During this period we used 92,000 cubic feet of illuminating gas, for which we paid $99.54, equivalent to 9,384 cubic feet, at a cost of $10.15 per person per year. I have since looked up the amount of gas consumed for lighting purposes by a family of four people and found it to be 38,400 cubic feet, which makes 9,600 cubic feet for each person, and this corresponds very closely with the previous statement.

200 Oakwood Boulevard.

THOUGHTS ON THE APPENDIX.

Read at the meeting of the Middle Tennessee Medical Society, Nov. 18, 1897.

BY S. T. HARDISON, M.D.

LEWISBURG, TENN.

For the last decade the mind of the medical world has been turned to the region of the appendix, and possibly no part of the body has been so often before the profession for attention, both medical and surgical. The professional gentleman who has not had numerous cases of appendicitis to treat has either been careless in his diagnosis and investigations, or has had a clientele that is far behind in medical fad and fancies. The increased frequency of troubles that involve the appendix either primarily or secondarily, has caused much thought and many theories in regard to its treatment both medical and surgical, conservative and radical.

Many learned men of wide experience have espoused the conservative course, but possibly a greater number favor prompt surgical interference. Quite a degree of success has been attained, and many are almost entitled to be called experts in its management, and if failure to bring relief is the result, it is almost always attributable to the lateness of the operation. Indeed, some have advocated the removal of the appendix as a superfluous organ, a menace to health and comfort. Doubtless, this is a wise conclusion if it has no function to perform. When I mention the use or function of the appendix, I am aware of the fact that I am approaching a subject that not only has not been investigated, but one so unimportant and prospectively so barren and uninviting as to forbid investigation. Years have come and gone, medical students with scapel in hand have carefully studied the anatomy of the appendix and have often asked the question, What purpose do you serve in the mysterious make-up and mechanism of this creature so fearfully and wonderfully made? Up to the present moment no satisfactory answer has been returned. Some have suggested that it is a rudimentary appendage, and that possibly man in his early existence had different viscera from what he now has, and as his condition changed, his anatomic make-up changed to keep in harmony with his environments. Another theory is that the troublesome appendix is an accidental formation which never had any mission. I think that both these theories are unsatisfactory and humiliating, and without intent are a reflection on the wisdom, power and goodness of Him who not only doeth all things well, but who doeth all things perfectly. No imperfections can be attributed to Him. No accident can happen to mar His work. And man, the last, most wonderful and most exalted of all His creatures could not come from His hands with defects and imperfections that are unknown to the make-up of his inferior creatures. Therefore, I must be permitted to emphasize the statement that the appendix is not a useless appendage, occupying its place without use or function; and while I may not be able to explain to you its function clearly and satisfactorily and demonstrate it beyond doubt or cavil, I do hope to encourage you to examine the matter, and not cast it aside as did the builders of the temple, that stone that was to become the head of the corner, because we already know that the appendage often becomes an important tail on the corner.

Let us look for a moment at the anatomy of the parts. First, we have the valve at the termination of the ileum that prevents almost completely the regurgitation of the contents of the bowels. We have the cecum as a kind of the receptacle or depot, and the ascending colon is indeed an elevator whose power to remove the accumulations in the cecum, opposed by gravitation when in the upright position, smaller diameter, dependent alone upon peristaltic action, and the least failure on its part to do the work produces stoppage and accumulation in the cecum. Now we want more power. The colon, the elevator is read

it no power to put it in motion. The accumulation creases so gradually that the cecum distends slowly ıtil the imperfect valve of the appendix is open, and e contents of the cecum press in. Irritation and imulation is the result producing contraction and :pulsion. This irritation and stimulation is com-unicated to the cecum, and by its contraction the ıntents are forced up through the colon or elevator, ıd the depot is emptied and the appendix closes (if) grape seed or any other hard substance becomes ıtangled in its valve) and remains quiet and in a stful state, until there shall be a similar demand ade on it, to assist in removing undue accumula-ons in the cecum in a similar way. This would not ə necessary if man did not maintain the upright ɔsition, hence no animals have an appendix except ıose that maintain the upright position, viz., the ombat, orang-outang and man. This is a strong rcumstance in favor of the position taken. The ɔpendix like any other organ has a limit to its capac-y. If overworked and badly treated, it will break ɔwn and fail, and instead of performing its functions will allow the contents to remain in it, producing ıflammation resulting in gangrene, not only being əstroyed itself but inviting destruction upon the hole body, upon the principle that a little leaven aveneth the whole lump. This sacred adage has never een more forcibly illustrated than in the diffusible-ess of a poison germ originating in or developing in ıe abdominal viscera.

Another potent factor that neutralizes the function the appendix, is slow bowels or constipation exer-sing its influence by the damming-back process clos-ıg up the elevator or colon, increasing the demand ı the appendix beyond its capacity until appendi-tis is the result, and once developed it is almost ıre to return. And as slow bowels have so alarm-ıgly increased until constipation to a degree is almost ıe rule or natural condition of a majority of the eople this is an easy explanation as to why appendi-itis has grown from a very rare affection to one of ɔmarkable frequency. Therefore, it is not true, that has always existed to the extent that it does now ıd was overlooked by our illustrious predecessors, ɔr in all other things they proved themselves the quals of the present day of great and glorious workers ı medical and scientific research. Man's habits have hanged. In fact the man himself has changed. He nce had a large foot and a small head. He used a umber ten shoe and a number six hat. He now ants a number seven shoe and a number eight hat. here is less physical exercise and labor for him. here is more mental worry and work for him. He oes not go to bed and sleep all night as did his fathers. Ie does not live on coarse laxative food that required ıuch mastication, developed his teeth and strength-ned all his digestive powers. Hence indigestion, ɔnstipation and appendicitis were unknown to our ncestors, and would be unknown to us if we had roper food rightly prepared, taken at proper intervals, ı necessary quantities, without hurtful stimulants nd narcotics and all other things that have a tendency ɔ retard digestion. Then let us not remove the ap-endix, but let it remain to perform its God-given ınction.

Let us relieve it and protect it. Take time to eat nd time to sleep and to do everything that is neces-ıry to preserve and protect the body, and so for as ıis life is concerned all will be well.

PHYSICAL DEVELOPMENT OF WOMEN.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY HARRIET E. GARRISON, M.D.
DIXON, ILL.

"Our civilization is hard upon the women," remarked a highly cultivated woman as she sat in my office discussing the way by which she could be restored to her usual vigor. This remark was called forth by my insistence upon the statement that nothing but absolute rest would enable the overwrought mind and body to recover their usual tone. The family inheritance of acumen and mental vigor, which had carried a brother to a seat upon the bench of the Supreme Court of our State, had sent the sister into all kinds of philanthropic works. These, and looking well to the ways of her household, had made serious inroads upon a once vigorous constitution.

Our civilization is hard upon women only because they are in a state of transition from the wholly material to the entirely intellectual. When all that was required of woman's brain was to read a little and write sufficient to keep up a limited correspondence, she had strength and energy sufficient to develop into a healthy, hearty housewife and mother. But now our school system demands that every girl, whatever her after-life is to be, must have brains developed sufficiently to write a book, without regard to the effect this may have upon her physical development. And every woman must engage in some kind of benevolent work no matter if she is starving for outdoor exercise, fresh air and sunshine.

Is there much inherent difference between the physical capacity of the sexes? A study of the agricultural laboring classes leads me to think that woman can be trained to as much physical endurance as man. Among the foreign peasants the women work side by side in the fields with their husbands and brothers, usually doing the more laborious part of the work. It is the woman of Germany, who, hitched side by side with her faithful cow draws the plow, while the man takes the less muscular but more intellectual task of guiding it. While on a visit to "the great red pipe-stone quarry" of Minnesota, as a tribe of indians were taking out their supply of pipe-stone, I noticed that the men cut the stone from the quarry but the women were out along the railroad track splitting discarded ties into fire-wood, and as we drove back to the town we marveled to see the immense load of wood fastened upon the back of each squaw as she returned to the camp. Among our own agriculturists I have been surprised at the amount of endurance displayed by the women. In one case a woman, the mother of four young children, after pitching hay upon the wagon all day endured the pangs of labor all night and called me in the morning; but the fetus had not yet reached maturity and I advised rest in bed after a quieting potion. But as soon as the pains were relieved she got out of bed and did the family washing and then went back into the hay field until the fetus matured, when she was delivered without the aid of an obstetrician. Again I was summoned in haste to find her kneeling beside her bed with the livid face and gasping breath of the extreme anguish of angina pectoris. Hot applications, morphia and heart stimulants soon brought relief and then I found that she was within four weeks of her ninth accouchment. Besides her usual house and field-work she had been milking six-

teen cows night and morning. In two days after I saw her she went back to her usual work and in two weeks after her delivery she returned to her place in the dairy. Nor is this an isolated case; there are hundreds of women who enjoy such work.

But these cases are in marked contrast to those we meet among our intellectual women who are semi- or whole invalids from early childhood to the grave. Some of these are born invalids, inheriting neurosis from neurotic ancestors; others have invalidism thrust upon them. While we do not care to have our women become farm laborers, we would like to have them with sufficient physical endurance to do the work, both physical and intellectual, which falls to their share without that constant tired feeling of which so many of them are continually complaining.

I think the late Dr. Frank Hamilton gave us the key to the lack of physical development in our women when he wrote: "Calisthenics may be very genteel and romping very ungenteel, but one is the shadow, the other the substance of healthful exercise. Girls need health as much, nay, more than boys. They can only obtain it as boys do by running, tumbling, by all sorts of innocent vagrancy. At least once a day girls should have their halters taken off, the bars let down and be turned loose like young colts."

If our girls were turned loose to amuse themselves spontaneously, to run up hill and roll down, to skip and jump without rhyme or reason, except as it is supplied by the exuberance of their own innocent natures, there would be less headache in adult life. Only the other day an earnest, conscientious mother asked me about her little girl of seven, whether I thought it just right for her to allow her to romp on the floor with her little baby sister. As the mother expressed the matter, the girl had grown so rapidly she looked very ungainly rolling over the floor. "So much the more need for her to roll on the floor or grass that she may grow in strength and beauty," was the advice I gave the mother. In the tall, rapidly growing girl there is not sufficient nutriment supplied to the muscles to support the trunk in the erect attitude of standing, and rolling gives exercise to various sets of muscles without overtaxing them in trying to support the trunk. Many of our girls with round shoulders and rickety spines would have been saved these deformities had they done more rolling. A few weeks ago I had under my charge a girl of 12 years who was round-shouldered and small looking. She was very sick with la grippe and developed dangerous heart symptoms, for which I confined her in the recumbent posture for two weeks. When I finally allowed her to leave her bed, her mother was astonished at her great increase in height and declared she had grown four inches while in bed. I did not suppose there had been any actual gain as she had not taken sufficient nourishment, in fact she had lost in weight and the increase in height was due to the muscles having become rested and strong enough to hold the body in perfect shape. I advised the mother to have the girl spend half the time in bed until the muscles became more fully developed.

Fresh air, fresh water and sunshine should be the inalienable right of every child in this land of the free and home of the brave, but our women are starving for these very things. Not only are the girls from the sweat-shops and factories; who are shut in for ten or twelve hours where no sunshine or fresh air can reach them, crying Hood's refrain,

"It's O, to be a slave,
Along with the barbarous Turk,
Where woman has ne'er a soul to save,
If this is Christian work,"

but the woman of social position must give at leas ten hours daily to her duties, shut in as closely fron fresh air and sunshine as her humble sister.

Our school authorities do not recognize the need o fresh air and exercise in the sunshine, with plenty o fresh water, but year after year try to drill into starve brains knowledge, a greater part of which is of n practical benefit to that particular individual. If th State wishes to educate the children let it make th education common. As the schools now stand th privilege is extended to but a small fraction of th children, and these are the ones who least need th State's help. Let our school curriculum be mad broad enough to include development of body as wel as mind; let the schoolhouses be set away from othe buildings with large, surrounding playgrounds. It i not necessary for the schoolhouse to be placed at th door of the scholar's home, but let there be public con veyances to carry the scholars to the door of th schoolhouse.

Nothing which the municipality could do woul elevate Mott Street in New York more than for th children to be gathered up every day and carried few miles into the country by an electric line to pleasant school building with a ten-acre playgroun arranged as a park, with hills to climb and valleys t explore, and grounds for all games; with bath-house and swimming pools, where once a week every chil is made to plunge and taught to swim. This can b done with no more expense than our present schoo system. It may be necessary to shorten the time i which the scholar is the ward of the State, and ou sweet girl graduates with their beautiful ribbons, lace and fluffs, with their tired, drawn faces which eve "opalin" will not make young and fresh, may disap pear, but in their places will come the fresh glad girl able with their strong, healthy, young bodies to fi every sphere.

With this change must come other changes. Ou civic authorities must take cognizance of the physica needs of our girls and provide places, with ever facility for reaching them, where girls are incited t healthy exercise with basket-ball and other hard games. The State levies a tax for free libraries wher the girls may be shut in with foul air and with litera ture as detrimental to their minds as the air is to thei bodies. If any one doubts this statement let the look over the list of books most called for in our pub lic libraries. We do not want to banish all publi libraries, though there is a class of books which shoul be banished, but with these supply play places wit games and bathing facilities, where every girl can en gage in the healthy exercise of swimming. The ple is sometimes urged that bacterial disease is transmi ted in free bathing establishments, and so is ever book used in a free library covered with germs; an more dangerous germs as they are gathered from th homes of diphtheria and typhus fever. If the wate is frequently changed in the bathing pools the dange of contagion is reduced to an infinitesmal quantity In communities where there are clear running stream there are hundreds of women who never have a plunge bath from the cradle to the grave; from birth to buri they never know the cleansing which only submersio in clear, pure water can give. Here the fastidiousne

f the community prevents the bountiful provisions f nature for woman's physical needs from being util-ed; and even boys are fined for yielding to tempta-ion of the pure sweet influence of the running water nywhere within telescopic view of the over-nice asser-by. Verily, those who do not bathe should pay he fines, as the crimes of the community are perpe-rated by the great unwashed. To be unwashed for a eek should be a crime. Every community too large r cultivated to use primitive bathing methods should rovide free bathing facilities within its borders, and he women of the community should be urged to make se of these unless they have private arrangements or plunge-baths. Nature has clearly indicated that o be thoroughly cleansed the body must be sub-nerged in water, even the ears which so many fill ith cotton before a plunge will be none the worse for eing washed out with pure water.

Let every physician assist in enforcing the law for horter working hours for women, and urge that their ree hours be spent in healthful outdoor exercise, and e will have a brighter, healthier, happier set of omen.

A CASE OF VICARIOUS MENSTRUATION FROM THE LUNGS.

BY T. L. CHADBOURNE, B.S., M.D.
COLUMBUS, OHIO.

Cases of vicarious menstruation are not rare, but ases of long-standing vicarious bleeding from the ungs are tolerably uncommon.

On consulting the literature one is struck by the mall number of such cases that have been reported n this country.

The *Index Medicus* from 1888 to June, 1896, has nly about twenty-five distinct references, the *Amer-can Journal of Obstetrics* from 1886 less than ten, nd the *American Journal of the Medical Sciences* or the same time has but one case indexed.

The chief interest of these cases lies in their con-ection with the question of tuberculosis. Some of hem are mistaken for phthisis, while many of them eally are tuberculosis, and only later develop the igns of the disease.

Thomas[1] reports a case of a patient, age 40 years, ho, after twenty years of normal menstrual life, lowly began to have hemorrhages from the lungs. She ost weight greatly and had every appearance of pul-nonary phthisis. Physical examination showed no igns in the lungs, but disclosed an occluded cervical anal. After operation the patient recovered entirely n six weeks.

Ford[2] reports a case of a patient aged 25 years, who enstruated at 15, at 19 took cold and ever since has ad pulmonary hemorrhage for three or four days very month; has not lost weight.

Stuart[3] calls attention to a patient with the follow-ng history: Age 15 years; menstruated at 14; tuber-ulous family history.

The patient suddenly began to have vomiting of lood with occasional hemoptysis. After seven months he developed signs of tuberculosis and a few months ter died of this disease.

Stuart calls attention to the fact that, from the first, ne case was thought to be tuberculous, although for even months no signs could be made out.

Kober[4] gives a very interesting case as follows: Age 18 years and 9 months; has never been ill; menstruated for two years.

February 10 she had a slight period and marked hemoptysis; was very sick at stomach. At this time she developed a mild pneumonia behind, below, which resolved in ten days.

March 4, again hemorrhage, nausea and pneumonia. Soon after this, catarrh of the right apex. A third time she had hemorrhage, with other symptoms as before. She died in June, of tuberculosis.

The hemoptysis came on at a time when no suspicion of pulmonary disease could exist, and the author insists that the prognosis in cases of recurring hemoptysis must be very guarded.

May 8, 1896, there came to the Michigan University Hospital a patient for examination of her lungs, as she was thought to have consumption.

The patient gave the following history: Age 18 years, menstruated at 14; one sister dead of spinal disease; no history of lung trouble. The patient has generally been well; three years ago had typhoid; says she has had slight hacking since. For the last year, slight yellowish expectoration, never bloody except as stated below.

Since her eighth year she has had enlarged glands in the neck. These have varied in size, have never suppurated. Have once or twice been favorably influenced by iodin.

Fifteen months ago she took cold, and the next afternoon, during a severe coughing fit, suddenly began to spit blood, which came up rapidly; for the most part rather thick, although some of it was frothy; quantity sufficient to saturate two or three handkerchiefs. Her period was due at this time. Regular flow did not occur, but she continued to spit blood for four days. She missed her next three menstrual periods, but at the times these were due she spat blood, although never so much as at first.

The regular flow then reappeared and was normal for four months, during which time there was no hemoptysis. During the five next succeeding months the hemoptysis again replaced the catamenia. During the last three months the flow has occurred in the normal manner.

The bleeding has usually occurred just at the time of the catamenia, although in one instance last winter it was delayed about a week.

With the hemorrhage she has pain in the chest and a good deal of nausea, both before and afterward. There is no disturbance of the stomach at other times.

She has slight bearing down pains during the first part of her period. The flow is scanty and she is slightly irregular, usually postponing.

Physical examination at this time showed, aside from the enlarged glands in the neck, no anomaly, the lungs being entirely negative.

May 27, she entered the hospital and, during a stay of a week, was several times examined and the following notes were made: Patient undersized; muscles in fair condition; tongue large, with thin white coating; on both sides of neck enlarged glands, varying in size from a walnut to a pea; glands in left axilla also slightly enlarged; they are elastic, not tender, not adherent; skin not reddened. Thorax long, narrow, especially below; of moderate depth; epigastric angle narrow. Lying, supraclavicular spaces are symmetric. Expansion slight but symmetric. Palpation is negative.

Percussion: Good resonance over apices and clavicles, slightly fuller left than right. Further percussion yields good resonance everywhere.

Auscultation: Normal vesicular over both apices; slightly interrupted vesicular under clavicles on both sides; normal vesicular elsewhere; no adventitious sounds.

Heart negative.

Genital tract examined by Professor Martin, who found, aside from a rather small uterus, no abnormity.

Further physical examination negative.

Urine: Small amount, negative.

Blood: Covers show some variation in the size of the erythrocytes; leucocytes 4,200; reds, 4,446,000; hemoglobin (Gowers) 70 per cent.

Although she remained in the hospital a week, no sputum could be obtained.

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[1] Amer. Jour. Obst., XIX.
[2] Amer. Jour. Obst., XXII.
[3] Journal American Medical Association, IX.
[4] Berl. Klin. Wochenschr., 1895.

She was lost sight of till Feb. 2, 1897. She now reports herself as being in good health, weighing fifteen pounds more than last May. During the past summer she twice noticed small amounts of blood in the sputum, not at times of period; probably accidental. Physical examination at this date is again, aside from the enlarged glands, which have changed but little, entirely negative. Menstruation has been regular.

The following points seem worth noting:

1. The patient has had periodic hemorrhage from the lungs for a long time, at least nine times within a period of fifteen months, without having, up to the present date, any demonstrable signs of lung disease.

2. In view of the fact that so many such cases are later seen to be tuberculous, prognosis was guarded, the more so on account of the enlarged glands.[5] The fact that the patient has to all appearance recovered does not make it impossible that she may still have a healed tuberculous lesion in her lungs.

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PRIMARY SARCOMA OF THE IRIS.

A STATISTICAL STUDY, WITH THE REPORT OF AN ADDITIONAL CASE IN WHICH THE GROWTH WAS SUCCESSFULLY REMOVED BY IRIDECTOMY.

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Primary sarcoma of the iris is an affection so seldom met with that a report of each isolated case requires no apology. The following notes are from a very interesting case, kindly referred to me by Dr. Joseph J. Burke, from whom the growth was successfully removed by a broad peripheral iridectomy.

M. B., aged 46 years, a male, had been suffering from an inflamed left eye for three weeks when I was first asked to see him at his home. There was excruciating pain in the bulb that extended backward through the temporal region to the left side of the head, accompanied by intense photophobia on the least exposure to light, which was attributed by the patient to an attack of neuralgia. An examination, however, revealed marked pericorneal injection, a discolored iris, a contracted pupil with numerous posterior synechiæ and what appeared to be a brownish growth in the upper inner quadrant of the iris. Hot compresses at frequent intervals followed by the instillation of a solution of sulphate of atropin was the treatment prescribed and the patient was told to report at my office on the following day for further examination. Upon this occasion his vision was found to be for O. D. 5–9 and for O. S. 5–27, the latter eye being under the influence of a mydriatic and the patient complaining of everything looking very foggy. The vision of the left eye was unimproved by glasses. An examination of the right eye showed it to be normal with the exception of a low refractive error, which, when corrected, gave him perfect visual acuity.

An examination of the left eye showed an evenly dilated pupil except up and in. In this portion there were no synechiæ, but a small brownish tumor of the iris, somewhat ovoidal in shape, could be seen, the lower end of which was pushing the posterior pigment layer of the iris downward and backward giving to the pupil the shape seen in Fig. 1. With the red reflex from the fundus as a background the position of the lower end of the growth could be distinctly observed in the pupillary space. The growth itself was not so long as the entire width of the iris, as some iris tissue seemed unaffected both on the ciliary and pupillary ends, as well as upon the sides. It had the appearance of a foreign body making a bed, as it were, in the stroma of the iris, yet entirely separated from it and pushing the pigment layer before it as it grew backward. No blood vessels could be detected passing over its surface nor could any hemorrhages be seen. The capsule of the lens was somewhat cloudy and there remained a ring of pigment spots where the iris had been attached. No family history of tumors of any kind or specific personal history could be elicited. The patient had had some necrosis of one of the bones of the leg many years before, which had been entirely cured. He has three healthy living children.

Upon examining a photograph of the patient taken eight years before, there was a suspicious looking shadow on that portion of the iris occupied by the growth that looked as if it might have been a dark spot. A history of two other attacks of "neuralgia," evidently iritis, during this period affords additional evidence that the growth had existed for some time, though unnoticed by any of the patient's friends or members of his family. For three weeks before my examination it had been increasing rapidly in size and there was present a severe plastic iritis.

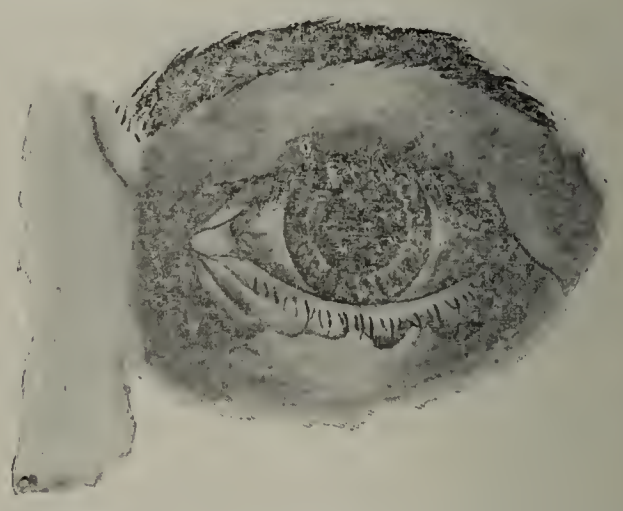


FIGURE 1.

Upon consultation with Dr. George E. de Schweinitz he agreed with me that the growth was probably a primary sarcoma of the iris, but to give the patient the benefit of the doubt it was thought proper to administer mercurial inunctions and rapidly increasing doses of potassium iodid for a short time to see what effect might be obtained. These remedies were faithfully employed for one week. at expiration of which time the growth was nearly twice as large as when first seen and the iritis was fully as bad, the pain still being intense, while the lens as well as the capsule was undoubtedly becoming opaque through the backward pressure of the lower, or pupillary end.

The growth was excised with a broad peripheral iridectomy without complication, except a profuse hemorrhage as soon as the inflamed iris was cut, a bent keratome and ordinary iris forceps being employed, there being no difficulty in drawing it out with the portion of the iris in which it was embedded. A small tag of the iris caught between the lips of the wound giving some pain for a moment, but as soon as it was released the pain disappeared. The eye made

[5] We wished to remove one of these for purposes of diagnosis, but were not allowed.

n uneventful recovery notwithstanding iritis was resent at the time of operation. The opacity of the ns continued to increase until vision was reduced to ght perception, when, though much clear lens substance was present, it was extracted through a three illimeter corneal flap without complication. This as about eight months after the first operation. hough the vision in the left eye, before the growth as removed by the iridectomy, equaled only 5–27, fter the extraction of the opaque lens with the corecting glass vision equaled 5–6 and Jaeger 1 was easy read. So far as can be seen there has been no ecurrence of the disease, fourteen months having lapsed since the growth was removed.

The tumor was somewhat crescentic in shape, being narkedly concave on its inner surface and convex on s outer surface, measuring 2.5 millimeters in length, .5 millimeters in breadth and 1.5 millimeters in thickess. It was hardened in Müller's fluid and several ections were submitted to my friend, Dr. H. F. Harris of the pathologic laboratory of the Jefferson Medcal College, who kindly furnished me with the following description of the growth and superintended the rawings, which were made by Miss Elizabeth Hard-

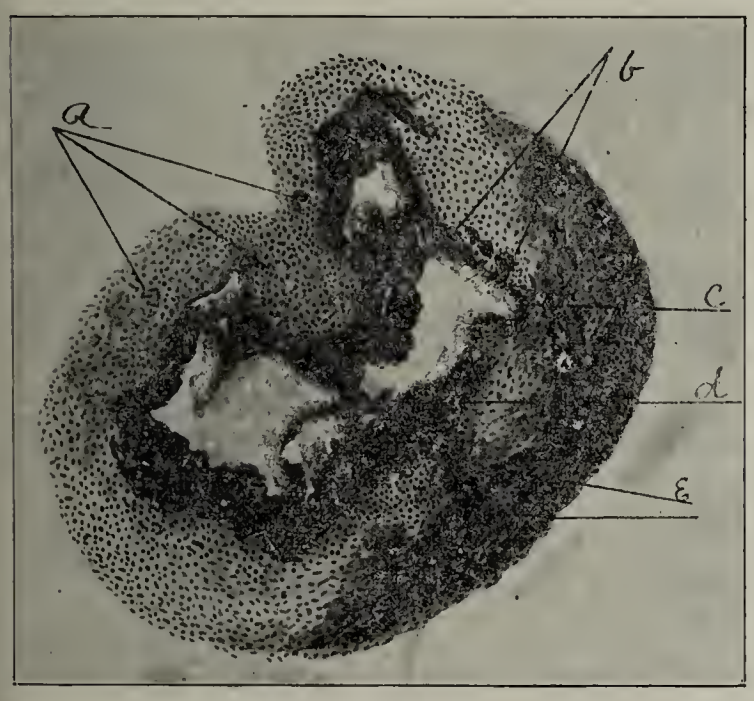


FIGURE 2.

ng: "Four sections of the tumor were submitted to ne for microscopic examination. In general outline nd size they are practically identical; in form they are omewhat kidney-shaped. In the center of each is a J-shaped open space (Fig. 2), the convex border of hich corresponds with the convex border of the mass. Bounding this opening and forming the inner layer f the tumor is a continuous layer of dark pigment lainly discernible with the unaided eye. The sections of the tumor given to me are thus seen to consist of an irregular but continuous ring surrounding n irregular opening. The convex portion of this ing is more than double the thickness of the concave portion. The portion where the iris was attached is ot seen in any of the preparations. This fact and he peculiar shape of the section can only be explained p the supposition that the tumor had grown forward orming a hollow somewhat hemispheric mass, the oncave surface of which was lined by the pigment ayer of the iris, and that segments of this mass were ut anterior to its attachments. One of the sections as stained with hematoxylin and eosin, and the others ith carmin. Under a low power the tumor was seen to consist of small round cells with a considerable amount of intercellular substance. Numerous blood vessels were seen scattered through the growth. These vessels were especially numerous in the tissue forming the thin concave portion of the ring, and were remarkable for the thickness of their walls and for the fact that they contained no blood. The vessels of the thicker portions were filled with blood, and so far as could be seen had no walls, the blood being apparently in direct contact with the cells of the tumor. Numerous dark brown pigment granules were seen scattered through the tissues of the thicker portions of the ring. This was especially marked around the outer border. The pigment layer surrounding the inner border of the tumor was dark brown, almost black in color, and while continuous, was very irregularly disposed over the surface, several bands projecting into the open space in the center of the mass.

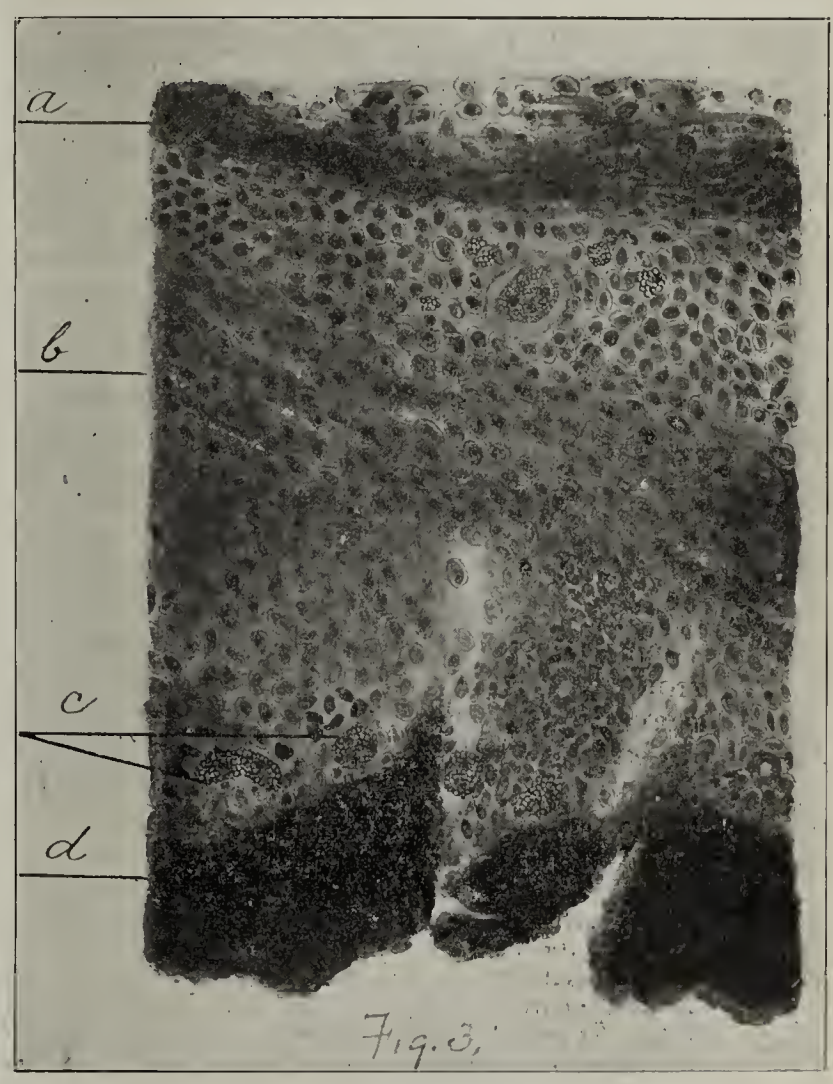


FIGURE 3.

"When examined with higher powers the cells which compose the greater part of the tumor were seen to be small round cells with which were intermingled a few oval ones (Fig. 3). These cells were almost of uniform size, having a diameter of from 10 to 12 microns. Their nuclei were stained of an almost solid color both in the hematoxylin and carmin preparations, in no case being sufficiently well preserved or stained to show the finer details. The nuclei were surrounded by a thin rim of protoplasm in which there were often embedded multiples of small pigment growths. In many situations, notably about the center of the thicker portions of the tumor, there is a considerable amount of firmly granular intercellular substance. In several places distinct bands of fibrous tissue and minute bundles of involuntary muscular fibers can be distinguished. Most prominent along its convex border,

but scattered throughout the tumor, are numerous masses of granular dark brown pigment, varying in size from immeasurably small particles to collections having a diameter considerably greater than that of the cells which compose the tumor. From the pigment layer which covers the inner surface of the tumor numerous fine spiculæ of pigment substance are seen projecting between the neighboring cells. The tumor is, however, much less pigmented here than along the outer border and as has been before mentioned, much of this pigment is found within the protoplasm of the cells. The inner pigment layer presents the characteristic appearance of the pigment layer of the iris. The tumor is I think beyond doubt a pigmented, small round-cell sarcoma."

During the past twenty years several analyses of the previously recorded cases of sarcoma of the iris have been published, the most extensive, however, being those of Fuchs, Andrews and Werther. In 1882 the former published his classic treatise, "Das Sarcom des Uveal Tractus," in which he analyzed sixteen cases that he had collected from the literature up to that time. In a recent number of the *Archiv für Augenheilkunde*, F. Werther adds to Fuchs's list twenty-three cases collected from the literature appearing between 1882 and 1893. These tables have to a considerable extent evidently been compiled from incomplete abstracts of the original reports, as many of the important details of some of the cases have been omitted in the former but are found in the latter. In addition some of the cases have been found to be incorrectly classed; for example, when a non-pigmented sarcoma is placed under the heading "melanotic," and some of the cases were never operated on and are therefore useless for statistical purposes.

In the following list a few cases recorded prior to 1893 that seemed to have been overlooked in the previous papers, as well as those that have been reported from that date to the time of writing this paper (February, 1897), have been added. No case in which the growth was not operated on, and hence no histologic examination made has been included. Briefly, the principal points in the history of each case are as follows:

Case 1.—Adams. A female, 13 years of age, was brought to the author with a small brown tumor about twice as large as a pin's head situated on the lower and outer part of the left iris. While treating with mercury the size increased and another mass appeared in the neighborhood of the first. Vision equaled $^{20}/_{50}$. Several opaque spots were observed in the deeper layers of the cornea. Enucleation was performed and the growth was found to be a round-celled sarcoma.

Case 2.—Alt. This case was a female 2 years of age. One month before the examination a small growth had been noticed on the right iris. The lens was cataractous. Tension at first was normal but later became elevated. There were several nodules throughout the iris, the largest being in the lower and outer quadrant. Enucleation was performed and the growth, which originated in the parenchymatous tissue of the iris, was a round-celled sarcoma.

Case 3.—Andrews. The patient, a female 47 years of age, had noticed discoloration of the left iris at the site of the growth for many years. The vision of this eye had been periodically obscured for fifteen months. There was no pain and the vision of each eye equaled $^{20}/_{100}$. Iridectomy was performed and was followed by suppuration of the globe requiring enucleation a week later. Microscopic examination showed that the entire growth had been removed by the iridectomy. There had been no recurrence eight years later.

Case 4.—Andrews. This patient was a female, aged 43 years. A small growth on the left iris had been observed for a long time. The tension was elevated but the vision equaled $^{20}/_{20}$. There was some circum-corneal injection but no pain. Enucleation was performed and the growth proved to be a pigmented spindle celled sarcoma originating in the stroma of the iris. The canal of Schlemm was somewhat narrowed and surrounded by a collection of the spindle-shaped cells.

Case 5.—Buffum. A female, aged 55 years, had noticed a "peculiar appearance" of the right iris for eight years. She had become blind in this eye gradually after repeated attacks of inflammation. The last attack was present three weeks before the examination. Since then the pain had continued. There was an injected bulb and the tension was about + 2. In the upper part of the iris there was a cyst-like development involving the upper two-thirds. The lower third contained several brownish spots. The aqueous was muddy, the lens hazy and the fundus indistinguishable. The growth was removed by iridectomy. Recurrence took place in three months. Enucleation was then performed. No recurrence had taken place at the expiration of eighteen months. The tumor was a spindle-celled sarcoma. The ciliary body had become secondarily involved.

Case 6.—Carter. The patient was a male, age 15 years, who had noticed several small specks on the left iris for three months, and two small specks on the right iris for fourteen days. At the time of the examination there was a yellowish growth half as large as a pea in the lower and inner quadrant of the left iris and small yellowish spots at the margin of the right iris in the external half. There were small circular opaque deposits in the layers of the cornea. The tension was normal and Jaeger 1 could be read with each eye. Iridectomy was performed in the left eye but the growth recurred. In the right eye the spots were so enlarged nine months after the operation that only large objects could be seen. The tumor was a round-celled sarcoma.

Case 7.—Charnley. This patient was a male, aged 16 years. A spot had been observed on the iris eleven years before and there had been occasional attacks of obscuration of vision from hemorrhage into the anterior chamber. At the time of the examination there was found on the lower and inner quadrant of the iris a small brownish-gray tumor about one-twentieth of an inch in diameter. Vision equaled ⅔. Recently red spots had appeared on its surface. It was removed by iridectomy and proved to be a non-pigmented spindle-celled sarcoma.

Case 8.—Collins. A male, aged 21 years, presented himself for the treatment of a brownish growth of the left iris that was situated on the inner and lower quadrant. A photograph of the patient taken four years before the examination showed a brown spot on the lower and outer portion of the iris. At the time of the operation, however, the larger portion of the growth was on the lower and inner quadrant of the iris. Vision equaled ⅔ and the tension was "full." Enucleation was performed and the growth, which was a pigmented, small round-celled sarcoma, had not recurred in seventeen months.

Case 9.—Dreschfeld. A female, aged 53 years, had noticed some trouble with the left iris for two and one-half years. Examination showed a reddish-grey tumor about the size of a split pea in the lower part of the iris. The eye was enucleated and the growth, which probably originated from the intermuscular tissue of the iris, was a non-pigmented spindle celled sarcoma. The patient was under observation for several years, there having been no recurrence when last seen.

Case 10.—Edsall. A female, aged 23 years, had observed a small growth on the temporal side of the left iris, midway between the peripheral and pupillary margins about two years before. At the time of the examination the growth was about the size of a split pea covering the pupillary space and of a dark gray color with a smooth surface. The tension was elevated and the vision equaled $^{20}/_{30}$ through a small hole in the center of the growth. Frequent hemorrhages were observed in the anterior chamber. Although the personal and family histories were negative, mercury and potassium iodid were administered for a time but without any beneficial result. Enucleation was then performed and the growth was a pigmented, small spindle celled sarcoma.

Case 11.—Ewetzky. This patient, a male, aged 38 years had noticed some trouble with his left eye for two weeks. Examination revealed a growth in the posterior part of the upper half of the iris pushing the iris forward and pressing on the lens. The tension was normal at this time but later became elevated. Vision equaled $^{10}/_{70}$. As there was a history of syphilis acquired fifteen years before, the patient was treated with mercury, but vision became reduced to the counting of fingers. Enucleation was then performed and the growth proved to be a pigmented round-celled sarcoma.

Case 12.—Fano. The patient was a male, aged 19 years, who had a small brownish growth partially filling the anterior chamber of the left eye. There was same injection of the eyeball and slight vascularization of the cornea with hypopyon. Light could not be distinguished. The cornea was perforated. The operation for staphyloma was first performed and a wee

ıter the stump was enucleated. The examination showed mall, regular, pigmented cells.

Case 13.—Hirschberg. The patient was a man aged 38 years, vho had noticed a dark spot on the iris of the right eye since hildhood, but which had been increasing in size for one year. 'he visual acuity equaled $^{20}/_{30}$ and the tension was normal. \t the time of the operation there was a brownish growth oc- upying the lower two-thirds of the anterior chamber that ıad originated in the lower portion of the iris. Enucleation vas performed, and microscopically the growth was a pig- ıented spindle-celled sarcoma, probably originating from the ınterior layers of the iris. There was no recurrence in six ıonths.

Case 14.—Hosch. A male, aged 66 years, had observed a ›rown spot on his right iris since youth. There was some in- ection in the lower part of the conjunctiva but no pain. The ower part of the anterior chamber was filled with a light brown ;rowth that was pushing the iris slightly backward, and that xtended almost to the center of the pupil. Externally the ıargin of the tumor was well defined; internally it disappeared ıto the iris stroma so that no line of demarcation could be ıade out macroscopically. The tension was normal and the ision, which at first equaled $^{16}/_{30}$ with a Hm. of 2D., at the ime of the operation equaled $^{16}/_{100}$. The bulb was enucleated ınd the growth, which was 4 millimeters thick and 7 milli- ıeters high, was confined to the iris and microscopically proved o be a pigmented spindle-celled sarcoma.

Case 15.—Kipp. A male, aged 36 years, had noticed a spot ın the right iris twelve years before. For one month it had ›een growing very rapidly. At the time of the operation there vas a whitish growth that covered a large portion of the pupil. 'ension was normal and vision equaled $^{20}/_{20}$. The growth ›egan in the lower and inner quadrant of the iris. It was ex- ised by iridectomy and proved to be a non-pigmented spindle- elled sarcoma that probably originated in the iris stroma. 'here was no recurrence in eighteen months.

Case 16.—Knapp. A male, aged 36 years, had a growth oc- upying about one-third of the iris, which was whitish and ›bstructed the entire pupil when the latter was not dilated. Vision equaled $^{20}/_{70}$. Iridectomy was performed and there ıad been no recurrence of the growth at the expiration of a ear. The latter was a non-pigmented spindle-celled sarcoma ›riginating in the iris stroma without any definite line of lemarcation.

Case 17.—Knapp. A female, aged 35 years, had a blackish ;rowth about as large as a pea, situated in the lower part of he iris that had been present for many years. During the our years preceding the examination there had been attacks ›f iritis and temporary increase of intra ocular tension. At the ime of the examination, however, the tension was normal and he visual acuity equaled $^{20}/_{100}$. There was some lenticular ›pacity that was supposed to have been congenital. An iridec- omy was performed and the tumor, which proved to be a pig- ıented spindle-celled sarcoma, grew from the iris stroma vithout any definite line of demarcation. There were two mild ttacks of iritis after the operation, but no recurrence of the ;rowth had taken place in three years.

Case 18.—Knapp. A male, aged 22 years, had observed a mall speck in his left iris ten years before. Examination howed a yellowish red growth extending from the iris into the nterior chamber, originating in the lower and outer quadrant nd studded with red dots and lines. The tension was normal, lthough temporarily elevated at times, and the vision was $^{9}/_{20}$. The growth was removed by an iridectomy and proved o be a non-pigmented round-celled sarcoma originating from he iris stroma without any definite boundary line.

Case 19.—Knapp. A female, aged 53 years, had observed a umor of the upper and outer quadrant of the iris four months ›efore the examination that had been rapidly increasing in size. t was rather reddish and about the size of a cherry stone. 'he tension was normal and the vision equaled the perception f light. The eye was enucleated and the tumor, a round-celled arcoma, was found to have originated from the root of the iris ear the ciliary processes.

Case 20.—Krükow. A woman, 25 years old, had noticed for ıore than seven years a small black spot in the upper and outer uadrant of the right iris. The growth filled about one-fourth f the anterior chamber, covered half of the pupillary space nd reached to the cornea. There had been some hemorrhages ıto the anterior chamber but these were always absorbed. 'ision equaled $^{12}/_{30}$ (myopia $^{1}/_{36}$). The tension was normal. ridectomy was performed for the removal of the growth which 'as a pigmented sarcoma consisting of spindle and round cells. here was no recurrence in one year.

Case 21.—Lebrun. A female, aged 36 years, had noticed ıiling vision for three months, during which time some brown- ish spots about the size of a radish seed were observed near the external periphery of the iris. The eye was blind. After treating for a while with negative results an iridectomy was performed. Inflammatory symptoms were so great, however, that two weeks later enucleation was performed. The growth was a pigmented mixed, round and spindle-celled sarcoma.

Case 22.—Limbourg. This patient was a female, seven and one half years of age, whose vision in the left eye had been much reduced for fourteen days. There was slight episcleral injection and some fine lymph exudate was observed on the posterior surface of the cornea. The anterior chamber appeared to be deeper than normal. The upper and inner part of the iris was occupied by a small yellowish growth, with a smooth surface that reached to the cornea in front. The tension was elevated and vision equaled the counting of fingers at 1 M. The eyeball was enucleated and the growth proved to be a non-pigmented round-celled sarcoma. The ciliary body and canal of Schlemm had become secondarily involved.

Case 23.—Little. The patient, a female, aged 20 years, gave the history of sudden blindness in the right eye sixteen months before while stooping. This lasted for about one week. On recovering her vision she noticed for the first time a spot on the colored part of the eye. During those sixteen months there had been three or four attacks of dimness of vision at irregular intervals, but after each attack vision had returned. These were presumed to be due to hemorrhage into the anterior chamber. At the time of examination there was a pale brown mass about the size of a small pea in the lower and outer quadrant of the iris that extended from the pupillary margin to the periphery. Vision equaled $^{20}/_{20}$. The growth was removed by an iridectomy and was found to be a pigmented round-celled sarcoma. There had been no recurrence in twenty-one months.

Case 24.—Oemisch. A female, aged 42 years, had observed six years before a dark spot on the lower and inner quadrant of the iris, from which there were occasionally hemorrhages. During these periods the vision was markedly reduced. After a period of quiescence it began to grow rapidly. In the anterior chamber there was a dark grayish-blue mass that reached nearly to the surface of the cornea and covered a large part of the lower and inner quadrant of the iris. It was about as large as a pea and reached to the pupillary margin. Iritis had been present. Vision equaled $^{5}/_{9}$. The growth was removed by iridectomy and was a non-pigmented spindle-celled sarcoma. There was no recurrence in four months and the patient had useful vision, being able to read "calendar figures" at 6 M.

Case 25.—Pflüger. The patient was a female, aged 55 years, who had observed a growth on the right iris six years before. It had been gradually increasing in size and there was entire absence of pain. There was a history of malignant disease in the mother originating in the naso-orbital region and extending to the globe of the eye. In the present case the cornea was normal. In the lower outer quadrant of the iris there was a dark brown tumor of irregular contour about 3 by 4 by 5 mm. in size, extending from the periphery of the iris almost to the pupillary margin. Above the horizontal meridian there was a second smaller growth, separated from the other near the pupil by healthy iris tissue, but connected with it near the periphery of the iris. The pupil was round, but with mydriasis there seemed to be posterior synechiæ and opacity of the lens and capsule. Vision equaled $^{5}/_{15}$ in each eye. A broad peripheral iridectomy was performed, removing both parts, and there had been no recurrence in two years. The visual acuity remained $^{5}/_{15}$. The growth was a pigmented spindle-celled sarcoma.

Case 26.—Pflüger. In the same paper the author records a case occurring in the practice of Dr. Horner, the history of which is as follows: A female, 36 years of age, had been aware for ten years of the existence of a small black spot on the lower quadrant of the left iris, that for a short period had been gradually increasing in size. The eyes were not inflamed. The pupil was oval and the growth extended from the margin of the pupil to the angle of the anterior chamber. It was removed by iridectomy and had not recurred at the expiration of three years. The microscopic examination is simply stated to have proved the diagnosis of sarcoma to have been correct.

Case 27.—Quaglino and Guiato. The patient was a female child, aged 6 years, on whose left iris there had been observed a small growth three months before. There was no irritation nor severe pain. Tension equaled + 2. The patient could only count fingers, and the mass occupied about two-thirds of the anterior chamber. The parents were perfectly healthy. Enucleation was performed and was followed by a phlegmonous inflammation of the orbit. Microscopic examination showed the growth to be a pigmented round and spindle-celled sarcoma.

Case 28.—Robertson and Knapp. A female, aged 24 years, complained of poor vision in the right eye for one year. Exam-

Number.	Author.	Sex and age.	Eye affected.	First noticed.	Condition at time of operation.	Tension.	Visual acuity.	Primary position of growth in iris.	Operation.	Later history.	Histology.
1	Adams	F., 13	O. S.	. . . . .	Brown growth as large as two pins' heads with a smaller one adjoining.	. . . . .	20/50	Lower and outer quad.	Enucleation.	. . . . .	Round-celled.
2	Alt	F., 2	O. D.	One month before examination.	Several nodules throughout iris, the largest being in the lower outer quadrant.	At first normal in 2 weeks +	L. P.	Lower and outer quad.	Enucleation.	. . . . .	Round-celled.
3	Andrews	F., 47	O. S.	Discoloration at site of growth for many years.	. . . . .	. . . . .	20/100 20/100	. . . . .	Iridectomy, fol. by suppu. in globe necessitating enucleation a week later.	. . . . .	. . . . .
4	Andrews	F., 43	O. S.	Small growth observed for a long time.	. . . . .	+	20/20	. . . . .	Enucleation.	No recurrence in 8 years.	Pigmented spindle-celled.
5	Buffum	F., 55	O. D.	Had observed a "peculiar appearance" of the right iris for 8 years.	Cyst-like development occupying upper ⅔ of iris; in the lower part there were several brown spots.	+	0	Upper half.	Iridectomy: 3 months later enuclea. because of recurrence.	No recurrence in 18 months.	Spindle-celled.
6	Carter	M., 15	O. D. O. S.	For 3 months small specks on left iris and for 14 days on right iris.	O. D., yellow spots on outer half at margin. O. S., yellow growth half as large as pea.	Normal. . . .	Jg. 1; Jg. 1	O.D. outer ½. O. S. lower inner quad.	Iridectomy in O. S. . . .	O. S. recurred; O. D. spots so large 9 mos. after operation only large objects seen.	Round-celled.
7	Charnley	M., 16	. . .	Spot on iris noticed 11 years before.	Small growth, one-twentieth inch in diameter overlapping pupillary margin.	. . . . .	6/9	Lower and inner quad.	Iridectomy.	. . . . .	Non-pigmented spindle-celled.
8	Collins	M., 21	O. S.	Photograph taken 4 years before examination showed spot on the iris.	Brown growth.	+	6/6	Lower and inner quad.	Enucleation.	No recurrence in 17 months.	Pigmented round-celled.
9	Dreschfeld	F., 53	O. S.	Two and half years before.	Reddish-green growth the size of a split pea in lower part of iris.	+	. . . . .	Lower half.	Enucleation.	No recurrence in several years.	Non-pigmented spindle-celled.
10	Edsall	F., 23	O. S.	Two years before.	Smooth, dark gray growth, size of a split pea, covering pupillary space.	+	20/30 through a hole in center	Outer half.	Enucleation.	. . . . .	Pigmented small spindle-celled.
11	Ewetsky	M., 38	O. S.	Two weeks before	Growth in posterior part of iris pressing on the lens and pushing iris forward.	At first normal, later +	10/70	Upper half.	Enucleation.	. . . . .	Pigmented round-celled.
12	Fano	M., 19	O. S.	. . . . .	Injection of bulb; slight vascularization of the cornea and hypopyon; cornea perforated by brownish tumor.	. . . . .	0	. . . . .	Enucleation.	. . . . .	"Small regular" pigmented cells.
13	Hirschberg	M., 38	O. D.	Dark spot in iris since childb.; enlarging 1 year.	Brownish growth occupying lower two-thirds of anterior chamber.	Normal. . . .	20/30	Lower half.	Enucleation.	No recurrence in 6 months.	Pigmented spindle-celled.
14	Hosch	M., 66	O. D.	Spot observed since youth that does not enlarge.	Light brown growth occupying ⅔ of anterior chamber so that pupil shows only as a small fissure.	Normal. . . .	16/100	. . . . .	Enucleation.	. . . . .	Pigmented spindle-celled.
15	Klpp	M., 36	O. D.	Observed 12 years, growing rapidly 1 month.	Whitish growth covering a large portion of the pupil.	Normal. . . .	20/20	Lower and inner quad.	Iridectomy.	No recurrence in several years.	Non-pigmented spindle-celled.
16	Knapp	M., 36	. . .	. . . . .	Whitish growth occupied ⅓ of iris and obstructed pupil when latter was not dilated.	. . . . .	20/70	. . . . .	Iridectomy.	No recurrence in 1 year.	Non-pigmented spindle-celled.
17	Knapp	F., 35	. . .	For years blackish growth size pea in lower part iris.	For 4 years had been having attacks of iritis with transient elevation of tension.	Normal; at times +	20/100	Lower half .	Iridectomy.	No recurrence in 3 years.	Pigmented spindle-celled.
18	Knapp	M., 22	O. S.	Small specks noticed in iris 10 years before.	Yellowish red growth extending from iris into anterior chamber and studded with red dots and lines.	Normal; at times +	20/20	Lower and outer quad.	Iridectomy.	. . . . .	Non-pigmented round-celled.
19	Knapp	F., 53	. . .	Four months before examination; rapid growth.	Reddish growth as large as a cherry stone. .	Normal. . . .	L. P.	Upper and outer quad.	Enucleation.	. . . . .	Round-celled.
20	Krükow	F., 25	O. D.	Small black spot for seven years.	Fills ¼ of anterior chamber, covers half the pupil and reaches to the cornea.	Normal. . . .	Myopia, 1/36 12/30	Upper and outer quad.	Iridectomy.	No recurrence in 1 year.	Pigmented spindle- and round-celled.
21	Lebrun	F., 36	O. S.	Failing vision for 3 months. Some brown spots external part of iris the size of radish seed.	. . . . .	. . . . .	0	. . . . .	Iridect'y followed by inflam. symptoms, enucleat. performed 2 weeks later.	. . . . .	Pigmented spindle- and round-celled.
22	Limbourg	F., 7½	O. S.	Impaired vision 14 days; evidently from hemorrhage in anterior chamb.	Yellowish growth in upper part of iris reaching to the cornea.	+	Counts fingers at 1 M.	Upper and inner quad.	Enucleation.	. . . . .	Non-pigmented round-celled.
23	Little	F., 20	O. D.	Spot observed on iris after attack of sudden blind. 16 mos. before exam.; several attacks dim vision since.	Pale brown mass as large as a pea extending from margin of pupil to periphery of iris.	. . . . .	20/20	Lower and outer quad.	Iridectomy.	No recurrence in 21 months.	Pigmented round-celled.
24	Oemisch	F., 42	O. D.	Dark spot observed for six years, frequently bleeds.	Dark grayish-blue mass size of pea reaching nearly to cornea; iritis had existed.	. . . . .	5/9	Lower and inner quad.	Iridectomy.	No recurrence in 4 months.	Non-pigmented spindle-celled.
25	Pflüger	F., 55	O. D.	Spot on iris for 6 years; gradually inc. in size.	Dark brown growth connected with a smaller one in outer part of iris.	. . . . .	5/15	Lower and outer quad.	Iridectomy.	. . . . .	Pigmented spindle-celled.
26	Pflüger	F., 36	O. S.	For 10 years a small black spot on left iris, increasing slowly in size.	Growth extends from margin of pupil to angle of anterior chamber.	. . . . .	. . . . .	Lower and outer quad.	Iridectomy.	No recurrence 3 years later.	. . . . .
27	Quaglino and Guiato	F., 6	O. S.	Small growth observed for 3 months.	Two-thirds of the anterior chamber filled by tumor mass.	+	Counts fingers	. . . . .	Enucleation.	. . . . .	Pigmented spindle- and round-celled.
28	Robertson and Knapp.	F., 24	O. D.	Poor vision 1 year	Brownish growth near ciliary mar.; extending downward, still keeping to ciliary margin, chain of three smaller growths.	+	Counts fingers	Upper and outer quad.	Enucleation.	No recurrence in 2 years.	Pigmented round-celled with a few spindle-cells.
29	Romiée	F., 74	. . .	Poor vision for 34 years.	Growth occupies the whole anterior part of eyeball, involving the cornea.	. . . . .	. . . . .	Upper half.	Enucleation.	. . . . .	Pigmented small round-celled.
30	St. John	M., 50	O. S.	Black spot observed for one year.	Large brown mass filling external half of anterior chamber, pushing iris backward.	Normal. . . .	6/100 excen.	. . . . .	Enucleation.	. . . . .	Pigmented spindle-celled.

											Pigmented spindle-cel'ed.
y	+	Normal	20/100	Upper and inner quad.	Enucleation						Pigmented spindle- and round-celled.
			20/20	Lower and outer quad.	Enucleation						"Medullary cancer with pigment."
i	+		0	Lower half	Operation for secondary cat. followed by enucleation.						Non-pigmented round-and spindle celled.
g		Normal	5/27	Upper and inuer quad.	Iridectomy						Pigmented small round-celled.
t			0	Lower and outer quad.	Enucleation						Pigmented spindle-celled.
			2/5	Lower and outer quad.	Enucleation						Pigmented spindle-celled.
					Dieclsion, followed 3 weeks later by enucleation.						Small spindle-celled.
	+		20/70	Lower and outer quad.	Enucleation						Pigmented spindle-celled.
f				Lower and outer quad.	Enucleation						Pigmented spindle-celled.
f			Hm. 1.50 D. 2/5	Lower and inuer quad.	Enucleation						Splndle-celled, part pigmented, part uon-pigmented.
t		Normal at first later +	At first 20/70; later 0.	Lower and inner quad.	Enucleation					6	Pigmented mixed-celled, the round predominating.
y		Normal	5/5	Lower and outer quad.	Iridectomy; galvano-cautery to dark spot in wound 9 mo. later	No recurrence in year.				1	Pigmented spindle-celled.
h				Lower and outer quad.	Irideet.; 3 days later enucleation, growth attached by deep adhesions.	No recurrence in years.				2	Non-pigmented spindle-celled.
f		Normal	Counts fingers at 2½ M.	Lower half	Iridectomy	No recurrence in months.				6	Non-pigment. small spindle-celled.

											Pigmented spindle-celled.
y	+	Normal	20/100	Upper and inner quad.	Enucleation						Pigmented spindle- and round-celled.
			20/20	Lower and outer quad.	Enucleation						"Medullary cancer with pigment."
i	+		0	Lower half	Operation for secondary cat. followed by enucleation.						Non-pigmented round-and spindle celled.
g		Normal	5/27	Upper and inuer quad.	Iridectomy						Pigmented small round-celled.
t			0	Lower and outer quad.	Enucleation						Pigmented spindle-celled.
			2/5	Lower and outer quad.	Enucleation						Pigmented spindle-celled.
					Dieclsion, followed 3 weeks later by enucleation.						Small spindle-celled.
	+		20/70	Lower and outer quad.	Enucleation						Pigmented spindle-celled.
f				Lower and outer quad.	Enucleation						Pigmented spindle-celled.
f			Hm. 1.50 D. 2/5	Lower and inuer quad.	Enucleation						Splndle-celled, part pigmented, part uon-pigmented.
t		Normal at first later +	At first 20/70; later 0.	Lower and inner quad.	Enucleation					6	Pigmented mixed-celled, the round predominating.
y		Normal	5/5	Lower and outer quad.	Iridectomy; galvano-cautery to dark spot in wound 9 mo. later	No recurrence in year.				1	Pigmented spindle-celled.
h				Lower and outer quad.	Irideet.; 3 days later enucleation, growth attached by deep adhesions.	No recurrence in years.				2	Non-pigmented spindle-celled.
f		Normal	Counts fingers at 2½ M.	Lower half	Iridectomy	No recurrence in months.				6	Non-pigment. small spindle-celled.

33	Solomon	F., 43	O. D.	For 20 years a small spot in iris growing slowly toward pupillary margin.	Photograph taken 8 years showed dark spots on iris. Growing rapidly 3 weeks.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
34	Tay	M, 25	O. S.	Ten years before examination.	Followed an operation for cataract.	Iridectomy	No recurrence in years.			2	Non-pigmented spindle-celled.
35	Thalberg	F., 64	O. D.	Followed an operation for cataract.	Photograph taken 8 years showed dark spots on iris. Growing rapidly 3 weeks.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
36	Veasey	M., 46	O. S.	Photograph taken 8 years showed dark spots on iris. Growing rapidly 3 weeks.	Had observed spot on iris for several weeks.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
37	Verter	F., 72	O. D.	. . . . .	A few weeks before examination.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
38	Verter	F., 60	O. D.	Had observed spot on iris for several weeks.	For 4 weeks a "purple mist" before the eye.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
39	Walker	F., 59	O. S.	A few weeks before examination.	. . . . .	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
40	Webster and Van Gleson	F., 60	O. S.	For 4 weeks a "purple mist" before the eye.	Few weeks before examination.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
41	Werther	F., 72	O. D.	. . . . .	Spot observed on left iris since 10 years of age.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
42	Werther	F, 60	O. D.	Few weeks before examination.	Dark tumor on iris at birth; unchanged for 42 years.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
43	Whiting	M., 49	O. S.	Spot observed on left iris since 10 years of age.	Six months before examination.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
44	Wiegmann	F., 42	O. D.	Dark tumor on iris at birth; unchanged for 42 years.	For long time small spot on iris: rap. growth for 6 wks	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
45	Williamson	F., 14	O. S.	Six months before examination.	. . . . .	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.
46	Zellweger	F., 75	O. D.	For long time small spot on iris: rap. growth for 6 wks	Pale pink vascular growth in lower part of iris and incipient cataract.	Enucleation	No recurrence in months.			6	Non-pigment. small spindle-celled.

ination showed a brownish tumor in the upper and outer part of the iris at the ciliary margin, and extending downward from this a chain of three smaller growths still keeping to the ciliary margin. Vision equaled the counting of fingers and the tension was elevated. Enucleation was performed and microscopic examination showed the growth to be a pigmented round-celled sarcoma with a few spindle-cells here and there. There had been no recurrence at the expiration of two years. The origin was supposed to have been from the anterior layers of the ciliary portion of the iris.

Case 29.—Romiée. This patient was a female, aged 74 years, who had not been very well since she was 40 years of age. Examination showed an irregular growth occupying the whole of the anterior portion of the bulb, the cornea being involved. Enucleation was performed and the growth was a pigmented, small, round celled sarcoma that had its origin in the upper half of the iris. The retina was found detached, but the lens, choroid and sclera were unaffected. The growth had pierced the cornea in the upper part.

Case 30.—St. John. A male, 50 years of age, had noticed a black spot on the left iris for one year. The tension was normal and the vision equaled $^{6}/_{100}$ eccentrically inward. There was a large brown mass filling the external half of the anterior chamber and pushing the iris backward. Pressure on the cornea in front had caused a "hazy spot." The bulb was enucleated and the growth was a pigmented spindle-celled sarcoma.

Case 31.—Sauer. The patient was a female, 7 years of age. Four months before, there had been observed a growth on the left iris that had been rapidly increasing in size. At the time of operation the whole stroma of the iris seemed to have been converted into a tumor mass that occupied the whole anterior chamber. Enucleation was performed and the growth was a mixed-celled sarcoma, consisting of round and spindle cells. No recurrence had taken place at the expiration of three years.

Case 32.—Schiess. This case is a most interesting one. A female, 55 years of age, had noticed a gradual failure of vision of the right eye for seven weeks. There were also temporary attacks of increased intra-ocular tension. At the time of examination a tumor was found in the posterior chamber pushing the iris forward. There were also seven large and small brownish spots in the ciliary region of the sclera. The eye was not sensitive nor was there any pain or irritation. The bulb was enucleated and microscopic examination showed that the ciliary body contained a true melanoma, while the growth in the iris was a pigmented spindle-celled sarcoma. The latter was supposed to have been secondary to the first and originated in the upper and inner quadrant of the iris.

Case 33.—Solomon. A female, 43 years of age, had noticed a small brownish speck about as large as a pin's head on the outer ciliary margin of the right iris twenty years before. It had been gradually increasing in size and growing toward the pupillary margin, which it overlapped at the time of the operation. The tension was normal and vision equaled $^{20}/_{100}$. The lens was clear but the vitreous cloudy. Enucleation was performed and the growth proved to be a pigmented round and spindle-celled sarcoma, some cells having passed into the sclera, following the course of Schlemm's canal.

Case 34.—Tay. A male, aged 25 years, had observed a peculiar growth on the lower half of the left iris for ten years. There was a grayish jelly-like mass with opaque points scattered through it covering the pupil. The vision remained normal until the pupil was covered by the growth. The eye was enucleated and the microscopic description of the growth was that of a "medullary cancer with pigment," which in all probability was a sarcoma.

Case 35.—Thalberg. The patient was a female, aged 64 years. Following the extraction of cataract and looking very much like a secondary cataract, there developed in the anterior chamber filling the pupillary space and involving the iris a whitish growth. The cornea became somewhat thickened, the tension was increased and vision was totally destroyed. The growth looked so much like a secondary cataract that an operation for the latter was performed. Pain persisted, however, and the growth increased in size so that enucleation was finally performed. The whole iris was found to have been involved by a non-pigmented sarcoma composed of large and small round, spindle and polygonal cells. The growth had its origin in the endothelial cells of the iris.

Case 36.—Verter. A female, 72 years of age, possessed a dark brown tumor of the right iris about the size of a hempseed, involving the peripheral portion of the iris and lying closely against the posterior surface of the cornea, occupying about one-third of the anterior chamber. There was present an over-ripe cataract and the eye was blind. There was no pain nor irritation, and the patient could give no account of the growth. The eyeball was enucleated and sections of the

tumor showed it to be a pigmented spindle-celled sarcoma. The ciliary body, the spaces of the pectinate ligament, the venous plexus and the equator of the lens were all secondarily involved.

Case 37.—Verter. This patient was a female, aged 60 years, who had observed some weeks before a small dark, cinnamon-colored growth upon the right iris. The media were transparent and the visual acuity equaled ⅔ with + S 1.50 D. The vision of the left eye was normal with + S 1.50 D. Iridectomy had been advised at the time of first observation of the growth, but at the time consent to the operation was obtained the size was so much increased that enucleation was performed. The tumor was a pigmented spindle-celled sarcoma, and had secondarily involved the ciliary body, Schlemm's canal, Fontana's spaces and the cornea. A small cyst was also found in the periphery of the retina.

Case 38.—Walker. Patient was a female, aged 59 years, who had a cataract extracted from the left eye three years before without iridectomy. For a time before the examination the vision had been failing in this eye. There was no pain or inflammatory symptoms, but inspection showed a pinkish growth filling the pupillary space and strongly resembling secondary cataract. Discission was performed without benefit, the iris being rotten and adherent to the capsule. Three weeks later the eye was enucleated and the mass found to be a small spindle-celled sarcoma. Before enucleation the growth had extended to the cornea in front, obliterating the anterior chamber and looking very much like a large dislocated lens.

Case 39.—Webster and Van Gieson. The patient was a female, aged 60 years. For four weeks she had seen a "purple mist" before the left eye. There was found a growth about the size of a small pea in the lower and outer quadrant of the iris. The tension was elevated and the vision equaled $^{20}/_{70}$. There was also present anterior polar cataract and edema of the retina. Enucleation was performed and the growth was found to be a pigmented spindle-celled sarcoma.

Case 40.—Werther. A female, aged 72 years, had a brownish-black semiglobular tumor about the size of a hemp-seed, in the lower and outer quadrant of the right iris. Enucleation was performed and the growth was found to be a pigmented spindle-celled sarcoma.

Case 41.—Werther. A female, aged 60 years, had observed a few weeks before a semiblobular, brownish-black tumor of the right iris about the size of a hemp-seed. There was a hypermetropia of 1.50 D., and the vision equaled ⅔. The growth was situated in the lower and inner quadrant. The eyeball was removed by enucleation and the growth proved to be a spindle-celled sarcoma, part pigmented and part non-pigmented. There was also found a cyst formation in the periphery of the retina.

Case 42.—Whiting. The patient was a male, aged 49 years, who had observed a spot on the left iris since 10 years of age. Several years before he had consulted Dr. Knapp, and at that time the eyeball became occasionally inflamed and there were hemorrhages into the anterior chamber. At the present examination there was a dark brown growth filling the entire lower inner quadrant of the anterior chamber, covering the inferior internal margin of the pupil, which was oblong. There were no synechiæ. The cornea was slightly hazy from contact at several points. Vision of the right eye equaled $^{20}/_{20}$; of the left, $^{20}/_{70}$. Nine years later the patient returned on account of severe ocular pain and inflammation of the eyeball, which was now totally blind. The tension was elevated. Enucleation was performed and the growth was a pigmented mixed-celled sarcoma, the round cells predominating. The choroid had become secondarily involved and contained a true bony formation.

The case is exceedingly interesting, as the growth was watched for a long time, being observed at ten years of age, remaining harmless for twenty-five years, slowly growing for thirteen years with occasional attacks of iritis and hemorrhages into the anterior chamber for seven years there being no doubt as to its malignancy. The patient refused earlier operative interference. There had been no recurrence at the expiration of six months.

Case 43.—Wiegmann. The patient was a female, aged 42 years. At birth there was observed a dark tumor about ⅔ mm. in diameter on the lower and outer quadrant of the iris, that had remained unchanged until seven months before the examination, when it began to enlarge. The tension was normal and vision equaled ⅝. Iridectomy was performed and was followed nine months later by the application of the galvanocautery to a dark spot in the wound. This was repeated in about two weeks. The tumor was a pigmented spindle-celled sarcoma and no recurrence had been noted at the expiration of one year.

Case 44.—Williamson. This patient was a female, 14 years of age. Six months before, there had been noticed on the lower and outer quadrant of the left iris a yellowish spot. At the time of the examination the growth reached to the pupillary margin, having begun in the periphery. An attempt was made to remove the tumor by an iridectomy, but this was followed, three days later, by enucleation of the eyeball as the growth was found to be firmly attached by deep adhesions. Microscopic examination showed it to be a non-pigmented spindle celled sarcoma.

Case 45.—Zellweger. A female, aged 75 years, had noticed a small spot on the right iris for a long time. During the six weeks preceding the examination it had been growing very rapidly. There had been no pain or inflammatory symptoms at any time. The examination showed a pale, pinkish, vascular growth in the lower part of the iris, and beginning cataract. The tension was normal and the vision equaled the counting of fingers at 2½ M. The growth was removed by iridectomy and was a non-pigmented small spindle-celled sarcoma originating from the anterior layers of the iris. There was no recurrence *in situ* in six months, but as the patient had some loss of appetite the author questions whether a recurrence had taken place by metastasis. Of this there was no later proof.

Arlt refers to two cases from whom the growth was removed by iridectomy, and to a third case requiring enucleation of the eyeball. In neither were there any details of the histories, either prior or subsequent to the operations.

Fuchs, in the discussion of a paper, refers to a case of primary sarcoma of the iris for which the eyeball was enucleated, but the details of the history are too meager to be of any use.

Cases in which primary sarcoma of the iris was diagnosed but which were not operated upon, are recorded by Berthold, Fuchs, Galezowski, von Graefe, Hasner, Owen, Pflüger, Saltzmann, St. John Roosa and Stober.

In order that the cases may be more easily analyzed, and to facilitate reference to any particular point in connection with them the accompanying table has been prepared somewhat after the manner of Fuchs. It will be seen therefore from the above that there have been recorded forty-six cases of primary sarcomata of the iris in which operative procedures have been undertaken and microscopic examinations made. Of these cases we have fourteen males, thirty-two females, giving, in round numbers, 69.5 per cent. of females and 30.5 per cent. of males.

The ages range as follows: From 1 to 5 years, one case; from 6 to 15 years, six cases; from 16 to 25 years, nine cases; from 26 to 35 years, 1 case; from 36 to 45 years, ten cases; from 46 to 55 years, nine cases; from 56 to 65 years, five cases; 66 to 75 years, five cases.[1]

By referring to the above it will be seen that between the ages of 15 and 25 inclusive there occurred ten cases, and between 35 and 45 inclusive there occurred eleven cases, whereas the intervening period, from 25 to 35, contained only one case. There seem, therefore, to be two periods during which the disease is most likely to manifest itself, viz., between the ages of 15 and 25 and between the ages of 35 and 45, with a very moderate increase of predisposition in favor of the latter period, the intervening period, that is from 25 to 35 being almost free from the affection, as only

[1] If instead of analyzing the ages according to decades, we take 5-year periods, the age of predisposition can be reduced even further, still conforming with the statistics of the above tables. From 1 to 5 years, one case; from 6 to 10 years, three cases; from 11 to 15 years, three cases; from 16 to 20 years three cases; from 21 to 25 years, six cases: from 26 to 30 years, no cases; from 31 to 35 years, one case; from 36 to 40 years, six cases; from 41 to 45 years, four cases; from 46 to 50 years, four cases; from 51 to 55 years, five cases; from 56 to 60 years, four cases; from 61 to 65 years, one case; from 66 to 70 years, one case; from 71 to 75 years, four cases. It will be seen, therefore, according to this, that from 20 to 25 and from 35 to 40 years of age afford the periods of greatest predisposition. This result entirely agrees with that obtained from the first table, the former, perhaps, being slightly more accurate as it affords a greater range.

one of the forty-six cases occurred during this time. Beyond the age of 45 the predisposition decreases very gradually and *vice versa*, the nearer we approach this age the greater becomes this predisposition.

It must be considered, however, that the above figures represent in many cases the ages at which the patients were operated upon. But as the greater number of cases were operated upon shortly after coming under the observation of the various authors, and as most of them came under observation shortly after the growths in the iris were discovered, the two periods given represent quite fairly the decades of greatest predisposition.

The youngest case in the list was 2 years of age and the oldest 75 years of age, the average age being 39.3 years.

It is to be noted also that seventeen of the cases occurred before the 35th year and twenty-nine after the 35th year; or, if the 40th year be taken as the dividing line we have an equal number on either side, namely, twenty-three.

As to the ages when the growths were first observed to be in an active state, it is impossible to give any definite statistics. The larger number of patients consulted surgeons within a short time after the discovery of the affection, but it must be remembered that many of the growths have the history of originating from apparently dark tumors of the iris, melanomata, which after remaining in a state of quiesence for many years assumed a malignancy that microscopic examinations afterward proved to be sarcomata.

We find that the left eye has been more frequently affected, though the difference in predisposition is not marked, the actual ratio being as follows: Right eye affected in nineteen cases; left eye affected in twenty-one cases; both eyes affected in one case; not stated in five cases.

The tension as given in the histories is as follows: Normal in eleven cases: elevated in sixteen cases; not stated in nineteen cases.

In five of the cases given as "elevated" the histories state that the tension was normal as a rule, but at times elevated. Thus of those cases in which the condition of the tension is recorded we have 40.7 per cent. normal, 40.7 per cent. elevated and 18.6 per cent. as varying, being sometimes normal and sometimes elevated. This differs somewhat from the recently published statistics of Devreaux Marshall, who has found in intra-ocular neoplasms affecting the iris or ciliary body that the tension is increased in 35.71 per cent. diminished in 14.28 per cent. and normal in 50 per cent. As his cases were not, however, exclusively primary growths of the iris, but growths affecting either the ciliary body or the iris, or both, being primary and secondary, the difference may be easily accounted for. In no one of the cases of primary sarcomata of the iris was the tension stated to have been diminished.

The condition of the visual acuity in these cases ranged thus: Normal in nine cases; 20/100, or better, in fourteen cases; less than 20/100 in eight cases; light perception in two cases; blind in six cases; not stated in eight cases.

In some of the cases the lens was more or less cataractous (Alt's, Knapp's, Oemisch's, Verter's and my own). In the latter case, after the extraction of the lens the patient obtained vision equal to 5/6 and easily read Jaeger 1.

The positions occupied by the tumors on the surfaces of the irides are variously given as follows: Lower and inner quadrant, seven cases; lower and outer quadrant, eleven cases; upper and inner quadrant, three cases: upper and outer quadrant, three cases; lower half, five cases; upper half, three cases; outer half, two cases; not stated, thirteen cases.

Of the thirty-two definitely stated cases we have, therefore, twenty-three cases, or 71.8 per cent. orignating from the lower half of the iris, and nine cases, or 28.2 per cent. originating from the upper half of the iris. There seems also to be a somewhat greater predisposition to occur in the outer portion of the lower half, or in the lower outer quadrant of the iris.

The operations that were performed in the recorded cases were: Enucleation in thirty-two cases; iridectomy in fourteen cases. In the above thirty-two cases under the heading "enucleation" are included four cases in which iridectomy was first performed and in which enucleation was subsequently required. In Andrews' case, enucleation was performed a week after the iridectomy, because of suppuration of the globe; in Lebrun's case it was performed two weeks later because of "inflammatory symptoms" in the globe; in Williamson's case three days later, because the iridectomy disclosed the fact that the growth was attached by "deep adhesions;" in Buffum's case three months later, because of recurrence. In Carter's case the growth recurred, but it was so distinctly unfavorable that nothing else could have been expected. So that we have out of forty-six cases operated upon, the successful removal of the growth in thirteen cases, by iridectomies, in which no recurrence is recorded during the time they remained under observation, which varied from four months to many years. In none of the enucleations are recurrences positively recorded, but in one (Zellweger's case) a loss of appetite with some gastro-intestinal disturbance was looked upon as probably the beginning of a metastatic process, though no subsequent mention is made of it.

The histologic examinations of the growths showed that twenty-seven were pigmented, ten cases were non-pigmented, and nine cases not definitely stated.

It seems somewhat odd that in a tissue so highly pigmented as the iris we should have a non-pigmented growth, yet in the thirty-seven cases definitely recorded we have in round numbers 27 per cent. of the non-pigmented variety and 73 per cent. of the pigmented variety.

As to the cellular formation of the growths we have twenty-three cases of spindle celled; eleven cases of round celled; seven cases of mixed celled; five cases not definitely stated.

This, in round numbers, places in the spindle celled classification 56 per cent.; in the round celled classification 27 per cent, and in the mixed celled classification 17 per cent. of the reported cases.

Symptoms.—From a study of the recorded cases it is seen that primary sarcoma of the iris may occur at almost any age, the youngest being 2 years, the eldest 75 years of age, the periods of greatest predisposition being between the 15th and the 25th, and between the 35th and the 45th years. As a rule it is first observed as a spot of discoloration upon the iris, which, after a period of quiescence varying from a few weeks to many years, begins to increase rapidly in size, interfering with vision according to the degree of inflammation it has caused and the amount of pupillary space covered. Vision is also sometimes obscured for short periods of time by transient increase of the intra-ocular tension or by hemorrhages from the growth

into the anterior chamber. Sooner or later it is apt to produce iritis and by pressure backward to cause opacity of the capsule and lens. Tension is presumably increased when the growth attains sufficient size, or has brought about sufficiently violent inflammation to interfere with the interchange of the ocular fluids. If left to itself it attains considerable size, perforating the external coats of the eye, and usually produces blindness. It occurs twice as frequently in females as in males, each eye seems to be equally predisposed and the favorite position seems to be in the lower half, and especially in the lower and outer quadrant of the iris.

Diagnosis.—Primary sarcoma of the iris may be mistaken for simple melanoma, for gumma, or for primary tubercle of the iris.

A simple melanoma becomes darker and darker while a melano-sarcoma ordinarily retains its primary shade. A melanoma is also a congenital growth while sarcoma is not. If the patient, or patient's family, can give no accurate information on this point the growth must be watched for some time to note if there is any progress (Fuchs).

Whenever a gumma of the iris appears there is a severe iritis, whereas in the early stage of sarcoma of the iris there are no inflammatory symptoms. In gumma of the iris, also, there is a specific history with other symptoms referable to syphilitic infection.

The color of the gumma is either an iron-red or deep yellowish-red, while that of sarcoma is reddish-gray, blackish or light brown, or flesh-color (Andrews.) Gumma is non-vascular and yellowish-white in color at the summit, but at the base it is vascular and has a yellowish-red border (Fuchs). If the diagnosis can not be positively made from the examination, the administration of anti-syphilitic remedies, for a short time, in large doses will clear up the matter.

Tubercle of the iris is of much more rapid growth than sarcoma and in color is of a light yellowish-white, or light grayish-white, or light grayish yellow (Andrews). As a rule no vessels are seen on its surface, whereas in sarcoma superficial vascularization can usually be detected. The larger number of cases of tubercle have occurred in subjects under 15 years of age, whereas the larger number of cases of sarcoma have been found in older persons. Tubercle is much more irregular in form than sarcoma and the accompanying inflammatory symptoms also appear earlier.

Treatment.—If the growth is sufficiently small and does not extend to the extreme ciliary portion of the iris an attempt should be made to remove it by an extremely broad peripheral iridectomy. The statistics conclusively prove that in many cases not only has the eyeball been preserved but with useful vision, and that no recurrence has been noted years after the removal of the growth by this operation. If the growth, however, is so large or is situated so near the ciliary margin of the iris that it is impossible to remove all of it by an iridectomy, or if any other portion of the eye has become secondarily involved, immediate enucleation should be performed.

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DISCUSSION.

Dr. HOWARD F. HANSELL of Philadelphia—My remarks on

this intercsting addition to the literature of primary sarcoma of the iris concern chiefly the differential diagnosis betwecn this and other forms of tumor of the iris and ciliary body as I have had opportunity to observe them in my practice. These affections, with the exception of tumors of syphilitic origin, are among the rarest of eye diseases and it is only by a collation of individual experiences rather than by the classic and oft-repeated dicta of any one writer that advance may be made in our knowledgc. Until very recently I believe it was the common impression that sarcoma of the uveal tract was a distinctly fatal disease, but the paper of Mathews and the discussion that followed it showed conclusively that in many cases it was years before enucleation was necessary. The slowness of growth may be attributed to the serous sac that in cavities that have serous linings, forms over the tumor and prevents involvement and disintegration of neighboring structures. Eventually this envelope becomes attenuated to such a degree that it is no longer able to sustain the pressure from within and, rupturing, the sarcoma cells find new soil for development. Two cases exhibited this winter by Carpenter and Perrine, before the Section on Ophthalmology of the College of Physicians of Philadelphia, had been of extremely slow growth and enucleation was finally resorted to in order to relieve the pain of secondary glaucoma rather than because the tumors showed a tendency to spread. Identical grounds for treatment prevail when the tumor is recognized as belonging to the so-called benign variety, and we may therefore infer that primary sarcoma of the uveal tract is *per se* not an especially malignant affection.

The diseases that most closely resemble sarcoma of the iris are fibroma, cyst, gumma and primary tuberculosis; yet in none of these should the diagnosis long remain uncertain, particularly after operative interference. Considered clinically only, a fibroma offers the following points of difference: It occurs as a rule in young patients as the result of traumatism, and is not a result of inflammatory exudation although it often gives rise to inflammation; the color is that of the iris stroma or darker; it is oblong in shape and shows a tendency to extend by increase in the area of its base and not by layers of deposit; its surface is rough, presenting a strong contrast to the smooth encapsulated shining surface of the sarcoma. It is non-vascular except when the associated iritis is of high grade; exacerbations of iritis are common, hence posterior synechiæ, not limited to the site of the tumor although secondary to it, are numerous. Vision is interfered with according to the situation, size, rate of growth and the degree of transparency of the anterior capsule. Family history in the cases I have seen did not enter into a consideration of the diagnosis. In sarcoma there is perhaps a family history of tumor, the patients have reached middle age; the outline is sharp and well defined, the surface is smooth and shiny to oblique illumination and its form round and, if old, nodulated; the pupil dilates irregularly, the non involved portion of the iris dilating to light and mydriatics while the portion adjacent to the tumor is adherent to the anterior capsule.

In cyst a history of traumatism can invariably be elicited; the tumor grows rapidly, soon coming into contact with the cornea anteriorly and dislocating the lens posteriorly; there is no iritis and but little interference with vision until adjoining parts are disturbed in their function; it is pearl color, non-vascular and painless, its outer limiting membrane is fibrous and its inner is serous in its nature; its contents is straw-colored, nearly transparent and semi-fluid. Thus in nearly every essential it differs from sarcoma.

Gumma is always associated with and causatively related to the iritis of secondary or tertiary syphilis. In color, in intensity of inflammation, in the presence of hypopyon or collections of broken-off necrosed masses of the tumor in the anterior chamber, in the severity and character of the pain, in the loss of vision and in the history, it offers few points of resemblance to sarcoma. In primary tuberculosis the iris is dotted in numerous places with small deposits, averaging the size of a pin's head, of somewhat lighter color than the healthy iris tissue. In the only case that has fallen under my observation it appeared in the early childhood of the offspring of a tuberculous parent. The vision was reduced to the perception of light, and there were no signs of inflammation.

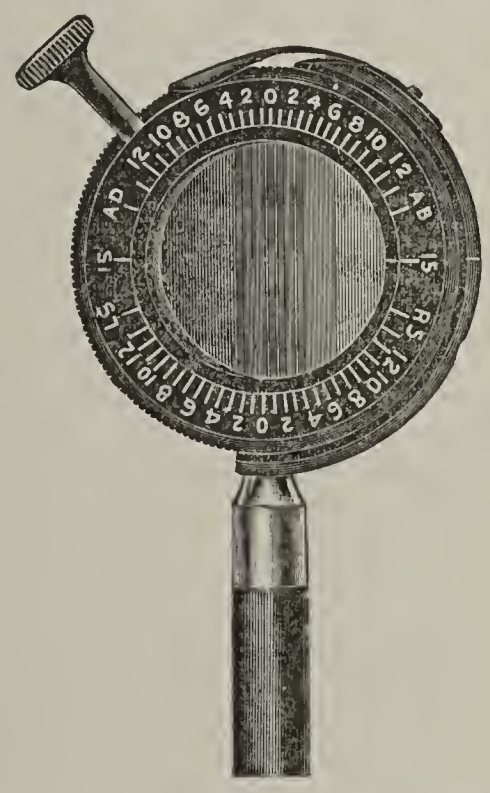
One point of interest common to all cases of tumor either of the iris or other tissues of the eye, may be mentioned. I refer to the intra ocular tension. I have found tension to be unaltered until the late stages, when I have regarded the increased pressure to be the result of secondary glaucoma and not to an increase in the contents or to a change in their character but to a disturbance of the relation between secretion and excretion. If perforation of the coats of the ball has taken place, high will naturally be succeeded by low tension and such a succession would indicate an advance in the growth.

A DUCTION INDICATOR AND PHOROMETER COMBINED.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY A. E. PRINCE, M.D., PH.D.
SPRINGFIELD, ILL.

In 1892 I conceived the idea of simplifying the determination of the static relation of the optic axes by placing a Maddox rod behind two rotating prisms, thus avoiding the necessity of employing a series of prisms, and presented this conception in a paper read before the Ophthalmological Section of the AMERICAN MEDICAL ASSOCIATION, at Detroit. In 1893 this idea was embodied in my phorometer published in the *Archives of Ophthalmology*. This conception has been adopted by Wilson in the construction of his instrument. The dial is so graduated as to indicate the combined effect of the two prisms in every possible relation to one another, and each quadrant of the dial is lettered to indicate the character of heterophoria. In testing for hyperphoria, the index will point to R.H., L.H., or 0, denoting the degree of right or left hyperphoria, or the existence of neither. Similarly in observations relative to esophoria or exophoria, the index will point to Ex., Es., or 0, denoting the degree of exophoria, esophoria or the absence of either of these conditions.



Prompted by the successful operation of this instrument in determining the static relation of the recti muscles, Bonschur & Holmes in 1894 made, at my suggestion, an instrument for determining the dynamic capacity of the recti muscles. The prism employed had a strength of seven and a half degrees, thus furnishing every possible prism from 0 to 15 degrees. The graduated quadrants were lettered respectively Ad., Ab., R. S., and L.S., to indicate adduction, abduction, right sursumduction and left sursumduction. This instrument was presented to the profession through the *Ophthalmic Record*, July 1894, under the title of "A Duction Indicator and Developer."

The third step in the evolution is the use of a Maddox multiple red rod in place of a single rod, thus avoiding the necessity of centering the instrument

before the eye, which was the case with the original phorometer.

The fourth step in the evolution completes the instrument which I offer you today. It consists of two seven and a half degree prisms mounted in a circular metal frame and caused to rotate in reverse directions; in this manner every possible degree may be obtained.

The direction of the base of the resultant prism is always in a line transverse to the diameter joining the two zero points, and the strength is always indicated on the margin of the frames opposite the middle point of the base of the prism. Behind this variable prism is placed a Maddox multiple red rod, the axis of which is transverse to the diameter joining the zero points.

In testing the relation of the recti muscles, the instrument is first used as a phorometer, for by so doing the static (or rest) condition may be obtained before any spasm shall have been induced by the requirement of the muscles to overcome prisms.

In testing exophoria and esophoria the instrument is held by the observer, before the right eye and rods, horizontal dial out, and the patient is directed to look at a candle flame placed on a level with the eye and before a dark background. The pinion is then rotated until the vertical red image of light is seen superimposed over the candle flame. The quadrant occupied by the base of the prism will indicate either esophoria or exophoria, and at the point where the middle of the base of the prism cuts the quadrant will be found the degree of heterophoria.

The rods are then rotated into the vertical position when the red streak will be seen in the horizontal plane; when this is brought in line with the flame the amount and character of the hyperphoria when it exists will be indicated on the quadrants corresponding to hyperphoria.

Having ascertained the relation of the optical axes in a state of rest the efficiency of the various muscles to overcome prisms is ascertained by converting the instrument into a duction indicator and proceeding as follows: The multiple red rod having been removed the instrument is held before the right eye as before. The diameter corresponding to the zero points occupy the vertical plane in testing adduction and abduction; the horizontal plane in testing right and left sursumduction. The pinion is rotated until diplopia results, when the amount of prism deviation is read off on the corresponding quadrant indicated by Ad., Ab., R.S. or L.S. In testing R. and L. S. and abduction the prismatic amplitude being fifteen degrees it is usually sufficient, but in testing adduction an auxiliary prism is required.

Auxiliary prisms may be placed in a trial frame, but to economize time and avoid any possible obliquity of the axis, I place before the eyes an ordinary frame in which is mounted two ten-degree prisms base out. The duction indicator will now have an amplitude of from five to thirty-five degrees depending on whether the action of the variable prism acts in conjunction or opposite to the stationary prisms.

The duction indicator and phorometer, as I present it to you today, has been in daily use during the past three years, and I have made numerous comparisons between it and Gould's prism battery, both for determining maximum abduction and adduction, as well as cultivating the capacity of the muscles to overcome prisms of a greater and greater strength, and almost invariably the duction indicator has shown a superiority over the prism battery. This superiority is due to the fact that the increment of increase is infinitesimal, while the increment of increase with Gould's prism battery is two degrees, e. g., in ascertaining the maximum adduction, the patient gets to a point where the overcoming of two degrees in the ascending series is more than the muscles will accomplish, and diplopia, therefore, results. In the use of the duction indicator, turning the pinion slowly, a fraction of a degree is all the muscles are obliged to overcome, and the patient is gradually enabled to exercise the muscles to a greater extent before diplopia asserts itself. In the effort, therefore, to obtain a maximum capacity of the recti muscles in their effort to overcome prisms, the duction indicator is undoubtedly an instrument far superior to any prism battery.

A CLINICAL STUDY OF HYPERPHORIA.

BY JOHN T. CARPENTER, JR., M.D.

Read in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

PHILADELPHIA, PA.

The importance of recognizing and correcting with absolute accuracy, any existing error of refraction, has long since become an axiom, a truth too evident to require demonstration. In the past decade, mainly as a result of careful clinical study, errors of muscular balance have been attracting the attention of the ophthalmic surgeon; but in this field there still exist wide differences of opinion both as to the importance of muscular defects and the necessity for their treatment. One may find almost anything desired by searching the literature of this subject. If he be naturally conservative he may read of that wonderful and unfailing "cure-all" for muscular imbalance, prismatic exercise. The method of cure is both simple in its application and positively harmless. It is even monotonous in the uniformity of its good results. On the other hand, should the ophthalmologist be surgically inclined; should his desire be to refute the base insinuation that he is a mere "fitter of glasses;" he can find enthusiastic advocates of a measure apparently no less magic in its results, tenotomy of the ocular muscles. There is discord in regard to the prescribing of prisms in the position of rest, a procedure which according to some will transform orthophoria into heterophoria, and increase the amount of heterophoria already existing. Certainly there is need of a more satisfactory presentation of this entire subject of muscular abnormalties, and in passing I wish to mention the excellent work done in this direction by Duane whose valuable contributions in the *Annals of Ophthalmology* (Vols. v and vi), deserve the highest commendation. Risley has put himself on record as an advocate of a more scientific classification of motor anomalies (*University Medical Magazine*, January, 1895).

Hyperphoria is not rare, if by it we mean the tending of one visual axis above that of its fellow. From my case-books I find it in about 35 per cent. of my cases, as discovered by the Maddox rod at the first visit. By no means all of these are true hyperphoria or demand treatment. In these are included cases of hyperphoria combined with esophoria or exophoria as well as those which may justly be termed spurious hyperphoria dependent upon disturbed refractive or muscular conditions and disappearing after these have

been corrected. I have notes of cases in which a change made in the axis of the cylinders in astigmatism resulted in the disappearance of the hyperphoria. (Such cases have also been seen by Risley, *loc. cit.*) I have attributed this kind of hyperphoria to the spasm of the oblique muscles set up by the false position of the cylinder. Spasm of the obliques might readily cause hyperphoria, especially when of variable nature or degree. In these cases prisms in position of rest only aggravate the conditions and result in gradual increase in the amount of the vertical error.

It is important to remember that besides the mere existence of muscular anomalies we must consider their relation to other local ocular states, refractive and accommodative, as well as to general systemic conditions. It is a matter of clinical observation that gouty or rheumatic muscles can closely simulate the clinical picture of heterophoria, and many errors in treatment, notably surgical treatment, are caused by too little regard for this fact. Our efforts should be directed toward the study and arrangement of this subject into definite clinical groups, having a similar causative relation and, therefore demanding a similar and definite line of treatment. It is the lack of this which has brought discredit upon tenotomy as a method of treatment, and much of the uncertainty in, and many of the apparently contradictory results of, tenotomy would be avoided were the anatomic and physiologic questions involved more carefully and accurately studied.

Classification.—For teaching purposes and as an aid to the clinical study of hyperphoria I have adopted the following classification, which though by no means perfect possesses to my mind distinct practical advantages. It avoids the confusion arising from a merely symptomatic arrangement in which cases widely dissimilar in nature are yet grouped together because they reveal a similar tendency to divergence, convergence or vertical deviation.

1. Spurious Hyperphoria. Including:

A. Hyperphoria due to a general disease: gout, rheumatism.

B. Hyperphoria appearing in disease of central nervous system.

C. Hyperphoria secondary to abnormal refractive or muscular states.

2. True Hyperphoria. Including:

A. Concomitant.

B. Spasmodic.

C. Paretic.

Symptoms of hyperphoria include local or ocular, and remote or general symptoms. My case-books show among the ocular disturbances due to hyperphoria:

1. Affections of the lids. The most characteristic is chronic palpebral hyperemia or inflammation, with intense burning pain, as in the "hot eye" of gout and blepharitis; recurring attacks of hordeoli or chalazia, usually in the eye in which the muscle is at fault, seem to be truthfully attributable to hyperphoria, as they have in several cases been cured by correction of the hyperphoria by prism or operation.

2. Reflex ocular neuroses, e.g., epiphora of a very annoying character, photophobia. In one case a quite marked ptosis of the left eye with hyperphoria of 5 degrees almost entirely disappeared after correcting the hyperphoria.

3. Visual disturbance: Amblyopia of the hyperphoric eye (Stevens); transient diplopia which to my mind accounts for most of the inability to carry on work at a near point; ocular vertigo sometimes severe enough to simulate intra-cranial disease.

4. Muscular asthenopia due to defects in the lateral muscles resulting from effort to correct the vertical error.

The remote symptoms include: Severe headaches made worse by close work; general reflex derangements of the nervous system often most remote from the ocular seat of trouble; nausea and various symptoms whose disappearance after correction of the hyperphoria leads the clinician to infer that they were caused by the muscular defect. No justification exists for the treatment of hyperphoria from which the patient suffers no discomfort and of whose existence he is "sublimely unconscious."

Tests for the determination of hyperphoria.—I find the optometer and phorometer devised by Risley, with two rotary prisms, one fixed for the vertical and the other for lateral muscles, the most satisfactory form of apparatus. I should certainly hesitate to accept results gained by the use of the ordinary trial-frame and prisms in *approximately* accurate positions. The familiar test with the Maddox rod and small point of light reveals any tendency to hyperphoria in most cases. I wish to lay particular stress upon the value of the plane red glass placed before one eye, which gives many valuable hints as to binocular vision, its existence and the conditions under which enjoyed. The cover test slightly modified by allowing the covered eye to be excluded from the binocular vision for some moments will, in hyperphoria give blurred distant vision or even vertical diplopia for the smaller letters, which diplopia is always indicative of the nature and character of the hyperphoria. The value of the field of fixation and the tropometer of Stevens is certainly great in enabling the surgeon to arrive at a complete understanding of the conditions present in the neuro-muscular system of the eyes. Having ascertained the existence of hyperphoria it is necessary to determine its true nature. Just as we refer departures from the standard refractive condition, emmetropia, to that ideal so must we have a standard for cases of muscular anomalies. I feel sure that standard as regards the vertical muscles is a condition of equilibrium at 6 m. as revealed by the tests herein enumerated. The vertical muscles should in health be able to overcome the diplopia caused by 2°–4° prism held vertically. Normal muscular balance certainly means a condition of tension of the extra-ocular muscles with power to bring both visual axes promptly into line on the object viewed. Defects of refraction with their compensatory accommodative and muscular efforts must be eliminated by a careful measurement under a cycloplegic and the correction by properly ground and accurately centered lenses made of all important defects, which in my judgment include small amounts of astigmatism. It is important to decide whether the hyperphoria is produced by a general or local cause; neurasthenia, lowered vitality during convalescence from an illness or surgical shock; gouty or rheumatic inflammatory attacks of ocular muscles, and lastly the involvement of the cranial nerves supplying ocular muscles as part of central nervous disease must all be carefully considered in deciding this question.

Neurasthenia with lowered nervous and muscular tone is shown by inability on the part of various muscle groups to overcome the normal prism degree. Insufficiency of convergence is particularly indicative of this trouble. Other symptoms of gout or rheumatism;

dull aching in the eyeballs; congested condition of the ocular and palpebral conjunctiva help one in arriving at definite conclusions as to the gouty or rheumatic origin.

A knowledge of general nervous disease is absolutely essential to the ophthalmic surgeon.

Local causes are best grouped, as Duane has done, into those resulting from overaction and those from underaction, hyper- and hypo-kinesis. In the first class we must place anatomic defects causing true concomitant hyperphoria and also spasmodic hyperphoria from efforts to compensate for a weak or paretic muscle. In the second class are defects varying from simple weakness to absolute paresis of a muscle.

In this connection I should like to emphasize the importance of carefully taking the field of fixation, which should show 35–38° upward and 50–55° downward rotation. Of equal import is the use of a red glass at 6 m. and a small fixation object-type or small dots, with which diplopia should be sought for in all parts of the field. An increase in the amount of separation in any definite direction leads of course to the belief that the muscle or muscles whose function it is to carry the eye in that direction are weak or paretic.

Treatment.—The therapeutic measures applicable to hyperphoria include local and general measures. Local: Corrective refractive prisms in position of rest; prismatic exercise; operative measures; tenotomy and advancement or muscle shortening. General treatment: Therapeutic measure indicated by the underlying cause. In many cases, painstaking, accurate measurement and correction of the refractive error results in disappearance of the hyperphoria; attention to refractive errors is always the first proceeding. Prisms in position of rest give the greatest relief to some cases, while in other instances only aggravate the discomfort of the patient. Probably the cases in which they give marked and lasting relief are those of long standing and practically stationary paresis of one or more of the vertical muscles. Temporary relief, often very prompt and astonishing, may be gained by hooking on a prism in front of the refractive correction. The relief to remote symptoms by the procedure (at times little short of wonderful) indicates that operative measures will prove equally gratifying in their results. In many cases the result can not be foretold and the practice of allowing patients to wear prisms temporarily, so made as to hook on top of the glass, is one which I can thoroughly commend.

Operative treatment is not applicable in hyperphoria of variable degree; in paretic cases where there is some central nervous disease or where the condition is recent and progressive. Cases of hyperphoria dependent upon a disease of the muscles, rheumatic or gouty occurring in patients well on toward 50 years of age, who have not possessed binocular vision for some years, are also unfavorable for operative procedures.

Tenotomy is perfectly satisfactory and often brilliant in results when the hyperphoria is of the concomitant variety and where it is constant in amount and character, where prism tests and fixation field and other methods show marked overaction of one of the vertical muscles.

Advancement should be preferred to tenotmy in cases of long standing and non-progressive paresis of a vertical muscle, and also where prism tests or fixation field show manifest weakness of the vertical muscles.

In hyperphoria of 1 to 2° and rarely of 0.5°, I have had unexpectedly brilliant results from both prismatic and operative treatment and we should always bear in mind the relatively great disturbance of 0.5° to 1° of hyperphoria when the total strength of the vertical muscles is represented by 2.5° to 3° prism.

My experience with prismatic exercises for the vertical muscles has shown that immediately after tenotomies, where the effect gained has been insufficient, a persistent and faithful course of prismatic exercises, carried on while the conditions of healing are as yet unsettled, results in marked benefit, which I have found to be permanent in its effect.

CONCLUSIONS.

1. It is essential at the outset that a distinction should be made between true and spurious hyperphoria.

2. It is absolutely imperative that before deciding upon any line of treatment for hyperphoria a careful and accurate examination of existing anatomic conditions should be made, which should include: Estimation of refraction, determination of tension of extra-ocular muscles as indicated by their ability to overcome diplopia produced by prisms properly placed; measurement of the field of fixation, monocular and binocular, and an employment of all the tests which tend to remove the strong impulse to binocular single vision and reveal latent defects such as the red glass, Maddox rod, etc.

3. Treatment should be directed against the underlying cause after determination whether the defect be due to spasm, paresis or actual overaction from anatomic conditions, tendon insertion, etc.

4. Tenotomy is indicated only in muscles showing too great power. Advancement or muscle shortening in cases revealing weakness of a muscle or at least no overwhelming power in its antagonist.

5. There is urgent need of a more satisfactory classification of the entire subject of motor abnormalities.

DISCUSSION ON PAPERS OF DRS. PRINCE AND CARPENTER.

Dr. EDWARD JACKSON of Philadelphia—I have not seen Dr. Prince's instrument until now, so I can not give results of any trial of it. I notice one thing in the mechanical execution, that is, the rods are made very perfectly. You can not take half rods for this purpose without getting a slight interval separating the parts of the streak that each rod gives. This has been made by taking a little less than one-half of each rod. The principles involved are not new, but the method of working them out is, and it seems a very simple and efficient instrument.

In noting down the results of such examinations, for several years I have employed certain signs that require less time to write them, less room in the case-book, and can be read more quickly and more unmistakably than other abbreviations indicating orthophoria or heterophoria of any kind. Some of them have been employed by others and some, I think, are new. They include the sign of libra (⎓) for lateral balance, and vertical parallel lines( ) to indicate vertical balance. For exophoria the lines diverge from left to right thus <, and for esophoria they converge from left to right thus >. For right hyperphoria I take the two lines, which for vertical balance are both vertical, and simply place the right line sloping away from the other, thus V; in left hyperphoria, in the opposite direction Λ. These lines can be read very easily and you can record a half dozen observations, made at different times, on the same line of the case book.

As regards this instrument, the only thing I have to remark is on the extent of the scale, running up to 15 degrees. That is considerable less than rotary prisms have usually been made to give, but will answer all practical purposes. There are many persons with good rotation who do not get more than 15 degrees of adduction on the first trial. If one finds with this that there are 15 prism degrees of adduction, unless there be something pointing to weakness of adduction, this may be assumed in a routine examination to be enough. The weaker the prism, of

course, the more accurate its work for the lower degrees. Still I think this is not equal to the triple rotary prisms which I proposed, which give the long spaces instead of the short spaces between the low degrees. The Maddox rod, in some form, I rely upon chiefly for routine examination for heterophoria. I use it in all cases, and if there is reason to follow out that line of investigation further, I afterward resort to other tests of muscular balance.

Dr. H. M. STARKEY of Chicago—I used the new instrument of Dr. Prince for a short time, it having been sent to me for study, but not long enough to give any definite idea as to whether I should consider it more useful than other instruments we have. I made, in my mind, the same criticism that Dr. Jackson has spoken of, that it would be more easily used if arranged as Dr. Jackson's adduction prisms are. One point in exercising the adductors; if we use the prisms and find adduction of 10, 15 or 25 degrees, we can then place the duction indicator over that and rotate it to the same extent of 15 degrees and the image would still be kept single. If we put a prism of 20 degrees in front of the eyes for stimulating adduction and placing the Prince thorometer in front of that, rotate it until we add 15 degrees, we can not afterward go up to 15 degrees with the prisms; it did not stimulate the muscles except in just that way.

Dr. S. D. RISLEY of Philadelphia—I have been very much interested in this very ingenious instrument and will take an early opportunity to study it more carefully. This is the first I have seen of it in its latest form. I wish to speak particularly of Dr. Carpenter's paper, and to say that I am thoroughly in accord with the principles of classification and the methods of examinations to which he has so briefly but clearly referred. I was glad to see him separate those cases that may be due to general dyscrasia. I am sure these may be readily overlooked. There are many persons with rheumatic or gouty diatheses that have transient spells where the amount of variation in the ocular balance is very irregular. We have all seen transient palsy due to gouty disturbance, and before we enter upon operative procedures these cases should be excluded. One class of cases that were not mentioned is the group where abnormalties are simulated by disease at the macula. I have seen cases in which the eyes were drawn this way or that to get rid of an absolute scotoma. If the Maddox rod is used and you guide the patient a little, you will find a blurred spot in the line itself, or that a section of the rod is absolutely cut out by the blind spot of the macula. I presented a paper at Edinburgh in which I divided these into two classes, 1, those due to some anatomic defect in the muscle or its relation to the ball or to disease, leading to muscular anomalies, and 2, those due to errors of refraction. The last were relative and disappeared when the refractive error was corrected or with brief training of the muscles. The patient had to be taught to overcome the relation between convergence and accommodation.

In this group the correcting glasses make it necessary for him to learn a new order of things as regards the relation between accommodation and convergence, but when he has learned this the relative insufficiencies disappear. I am sure that heterophoria often exists in consequence of anatomic defects in the skull. We know perfectly well that the skull is distorted in a large number of persons. The first group, or the absolute insufficiencies frequently grow out of these abnormalities in the skull and shape of the orbit, which give rise to disturbances in the length of the muscles and their attachments to the eyeball, and in those cases we may correct the error of refraction, but the abnormality of balance will remain until we have adopted some form of operative interference. These I have called absolute insufficiency.

Dr. J. T. CARPENTER, Jr., of Philadelphia—There was one point in my paper in regard to prism exercise for the muscles, which I did not have time to read; that is the value of using the prism exercises after an operation that has not produced sufficient results, I mean immediately after the operation. The result of such exercise has in some cases done permanent good and increased the effect of an operation that was not sufficient; this is especially applicable when the hyperphoria is of low degree and yet a disturbing element. A point that we should not forget is that the entire strength of the vertical muscles is represented by 2 to 4 degrees and a defect of 0.5 degrees even is a serious burden for these muscles.

Dr. A. E. PRINCE of Springfield—I want to call attention to a point that has occurred to me in regard to discovering a small amount of hyperphoria that does not render itself apparent upon application of the rod test. It is by sursumduction; in this way, do not commence with the weak prisms and run up, but take a prism that will give you diplopia and then go to weaker ones. That gives the balance and you will find indications that will be quite useful. I will make it clear by a case which had been examined by different men and showed no hyperphoria. I found that if I used a prism that gave diplopia, one of 4 degrees, and then used a 3, 2.5 and 2 degrees prism, and then worked the other eye in the same way, that they come together, one at 2 degrees and one 2.5 degrees, so there was 0.5 degree difference. By putting that correction in the glasses the little patient was entirely relieved of all trouble.

AMBLYOPIA EX ANOPSIA, WITH CASE.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY A. C. SIMONTON, M.D.
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The only apology that need be offered for presuming to discuss the question of amblyopia ex anopsia before this learned section of the AMERICAN MEDICAL ASSOCIATION is to state the existing fact that in this year 1897 there are eminent ophthalmologists who deny the possibility of the occurrence of the said condition. It would seem that this question should have been definitely settled long since, but it was discussed extensively, *pro* and *con*, at the meeting of this ASSOCIATION in 1893, and at this meeting we are to have some more *pros* and *cons*, no doubt.

How any ophthalmologist who observes closely, thinks clearly and weighs well the terms he is using, will venture to assert that there is no such condition as amblyopia ex anopsia I shall not attempt to explain. While it is a fact that it has not fallen to the good fortune of many oculists to observe the restoration to perfect vision of an eye almost totally blind from disuse, yet many ophthalmologists have observed many cases in which there has been partial restoration of vision after a strabismic eye has been rendered parallel with its fellow. But the restoration not being complete they assert, by the careless line of reasoning and expression before mentioned, that inasmuch as there yet remains amblyopia, the strabismus was caused by original amblyopia and not amblyopia by the strabismus. But when it is acknowledged, as is the case by all authorities, that in a strabismic eye which is highly amblyopic a large percentage of vision may be acquired when the eye is rendered parallel with its fellow and the function of fixation established, is it not equivalent to acknowledging, at least, that the vision thus gained had been in abeyance by reason of lack of use? If so, does not that constitute amblyopia ex anopsia? If this eye, which gains much vision, had always been parallel with its fellow, does any one suppose for a moment that its visual power would ever have fallen below the full amount now gained by virtue of use in later life? Whether such eye had an original defect which would have rendered it more or less permanently amblyopic or not, it is clear that to the extent vision is restored by use, vision had been lost by virtue of non-use. If one-fourth, one-half or three-fourths of the visual power may be lost or never acquired in a strabismic eye by non-use, is it not logical to conclude that in many cases the total loss in visual power is attributable to this cause? If not logical then why not?

No doubt quite a percentage of eyes become strabismic because of opacities of the cornea, lens or other media, or defective retina, and we find the same class of individuals who deny the existence of amblyopia ex anopsia contend that all strabismic eyes become so by virtue of defect of vision in the converging or diverging eye, and not on account of any conditions relating to accommodation and convergence as

maintained by Donders. But all agree that there is frequently partial restoration of vision; therefore, there must have been partial amblyopia ex anopsia. And as said before, if part of an amblyopia may be due to want of use the total amblyopia may be thus caused.

The members of our profession who admit fully the existence of amblyopia ex anopsia are also those who agree with Donders that convergent strabismus in a very large majority of cases is due to hypermetropia. The question is raised by those who deny the existence of amblyopia ex anopsia that if convergent strabismus is caused by hypermetropia why do we not have a thousand cases for every one that now exists, since the number of hypermetropes is very great compared with the cases of strabismus? But why are there comparatively so few cases of strabismus when there are so many cases of hypermetropia, has been asked many times and long ago. All students of physiologic optics are familiar with the relations that exist in emmetropia between accommodation and convergence, that these relations are co-ordinate and reciprocal. Now while it is true that under exactly normal conditions there is precisely a given amount of convergence corresponding with a given amount of accommodation, yet these conditions are frequently in abeyance for one reason or another; therefore there is another fortunate possibility on the part of human eyes provided for, and that is the power of *dissociating* the two functions of convergence and accommodation. All know how this must be done in adult life in the use of optic instruments, and in presbyopia when spectacles are used. But in adult life, after the individual has long enjoyed perfect binocular vision, there has supervened a greater adaptability to varied visual conditions than possibly existed at a time when binocular vision at the near point was being established in infancy.

In a certain percentage of children this power of disassociating the two functions of convergence and accommodation is nil; in other words, they have no relative range of accommodation and convergence. In an infant who can not disassociate these functions and in whom hypermetropia exists there must inevitably follow convergent strabismus, since accommodation and convergence must be equal. This to my mind is the exact reason why a certain per cent. of hypermetropes become strabismic when accurate binocular vision at close range is being established, and this without the existence of any defect of vision on the part of the converging eye. And again, this theory will explain why it is not necessarily in high degrees of hypermetropia, rather than how, that strabismus occurs.

It is not nearly so difficult to ignore, mentally, an indistinct image in an eye out of parallel with its fellow, as many are given to suppose. Quite occasionally in our tests of muscle equilibrium we find that our patient, although possessed of good binocular vision, can with difficulty recognize the second image produced by the use of prisms.

But when the focal point in a strabismic eye falls upon the disk, as it often does in convergent strabismus, there will be no nervous impression to ignore. It is in these cases of convergent strabismus where the focal point falls on the blind spot that we have early amblyopia, and if conditions are allowed to continue almost total loss of vision in a few years. It is different in divergent strabismus. In this case the focal point falls on sensitive retinæ outside the macula. It has been my observation that in outward deviation the amblyopia is not nearly so great, as a rule, as in the convergent form. In many cases a large amount of vision remains in a divergent eye and yet the person is not troubled with double vision in the least. Close the habitually fixed eye and fair vision will be manifest in the diverging eye. Some of these patients, no doubt, use their eyes alternately, as is the case with many of the lower animals whose eyes are so placed as to preclude binocular fixation. It seems that these animals have the power of acute vision with either eye while ignoring the image in the fellow eye for the time. At all events it remains a fact that in divergent strabismus, in many cases, quite a percentage of vision remains in the divergent eye with no recognized diplopia. But on account of the fact that the focal point does fall upon sensitive retina, although said impression is not recognized in the sensorium, it results in preserving to a greater extent the function of the nervous apparatus of the eye than would be the case did the focal point fall upon the blind spot.

So few have been the cases reported of complete restoration of vision of an eye that has been strabismic and amblyopic that the profession is almost incredulous in regard to such reports. Learned ophthalmologists were surprised by the report of a case by Dr. Johnson at the Milwaukee meeting of this ASSOCIATION in 1893, in which case there was complete restoration of vision in an eye that had been strabismic and amblyopic from early iafancy, to the extent that vision was almost *nil*. Some of these able confrères remarked that it was the first and only case that had come to their notice seeming to establish the doctrine of amblyopia ex anopsia, forgetting, as I have stated before, that partial restoration of vision of an amblyopic eye is as much evidence of amblyopia ex anopsia as full restoration.

In concluding this paper I will report a case, in my own practice, in which a highly strabismic and amblyopic eye was restored to perfect vision by correcting hypermetropia alone.

Case.—March 31, 1892, Pauline C., aged 8 years, was brought to my office for consultation about strabismus of the left eye, which had existed from the age of three years. The convergence was in high degree. Owing to the fact that fixation of the left eye had practically always been in abeyance, it was somewhat difficult to assume this function with the right eye covered. Our first test of vision elicited the information that the patient could recognize her father at about five feet and recognized a pencil held in the hand at four feet, but could not tell how many fingers were held before her at the distance. I attributed this low state of vision on this occasion to inability to fix the left eye. Vision of right eye was $\frac{1}{6}$ and with — spherical 1 D. she read in part $\frac{1}{6}\frac{0}{20}$. Plus glasses obscured vision more. Owing to meager vision manifested by the left eye at short range I did not test acuity of vision at distant letters. I put the eyes under the influence of duboisia for further and better examination. R. V. $\frac{8}{200}$. With + S. D. read $\frac{1}{6}\frac{0}{20}$. Here was positive evidence that ciliary spasm had existed in this case making an apparent myopia in a case of hypermetropia. Under duboisia and with + S. 2 D. the left eye now read indistinctly, $\frac{1}{6}\frac{0}{60}$. This was the best vision that could be obtained with lenses. Skiascopy confirmed the existence of 2 dioptrics of hypermetropia.

I placed + 2.50 S. before these eyes and sent the child home, the eyes being fully under the influence of duboisia. I hoped on account of the vision remaining in the left eye to be able to overcome the strabismus and acquired amblyopia by glasses alone. The sequel proves that my hope was well founded. It will be observed that I gave over-correction. The

patient called at my office April 4, 1892, when I dis-covered the eyes were about parallel. On April 9 strabismus had disappeared. At this time, with + 3. 2 D., read $\frac{16}{40}$ with left, showing quite an improve-nent. I directed that the right eye be covered for wo hours each day for distant vision. July 13, three nd a half months after adjusting glasses, distant ision of left was $\frac{16}{16}$, and medium print at fourteen nches. I have seen this patient often since the last late and vision is perfect. I have continued, from he first, the use of 2.50 D. lenses, both for distance nd near. They blurr distant vision slightly, but re no detriment at the near point. My reason for ontinuing the strong glasses is that the tendency to quint has never disappeared and the instant the lasses are raised from the eyes the left one again onverges.

While this was not a case of the most extreme am-lyopia, yet it was amblyopia in quite high degree, and demonstrates most clearly that the strabismus was ot due to original amblyopia, for there is none nally left. It demonstrates, also, as clearly as though ne case were an extreme one, that the entire ambly-pia was due to the strabismus, and if the strabismus ad continued a few years longer vision would have een almost totally lost in the left eye. There is othing clearer to my mind than that this conclusion correct, and there is such a condition as amblyopia x anopsia.

AMBLYOPIA FROM SUPPRESSION, CONGENITAL IMPERFECTION OR DISUSE: WHICH OR ALL?

esented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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Since different writers use the term "amblyopia anopsia" to express radically diverse ideas, it is edful to define its meaning in this discussion. Neg-ively it is not applied to a dulness of vision induced her by an organic lesion, which can be objectively en with the ophthalmoscope or otherwise; nor by clusion of light from the retina, in part or whole, ring long periods; nor by defective refraction or sturbed muscular equilibrium of either ciliary, rec-s or oblique muscles. Positively it is applied to at dulness of vision which attends the inability of e brain to recognize impressions sent it from the ina.

As to the nature and causes of the dulled vision, we ve three widely differing views. The first contends at the brain actively inhibits the visual center from eiving impressions, until it loses its receptive power whole or part; the second says that the brain or ual center was not properly constructed; while the rd argues that the phenomena result from simple use, like the disability induced in other organs by essation of much or all of their functional activity ing a considerable period. The relative importance these views is of a practical nature. If we adopt genital imperfection, it matters little whether cases squint with amblyopia are operated upon early or ; whether the refractive defects be corrected at e or at convenience; the visual results will be the e. If suppression be accepted, then it were crim-to delay in the rectification of those causes which are believed to induce the loss of sight, lest the inhibitory power of the brain continue to the production of absolute blindness. If the amblyopia be regarded as due to simple disuse, then surely every consideration prompts to an immediate restoration of the fullest functional activity.

Ophthalmologic literature affords abundant authority in support of either of these views, and of the practice based thereupon. In this state of the question, discussion by experts is of more than passing moment, and to secure such discussion from this Section is the object of this paper.

The suppression view of amblyopia claims that the brain, being disturbed by conflicting images sent it from separate eyes, inhibits the visual center from recognizing the least perfect one. Frequent repetition of this inhibition, at last, so changes the cell action of the visual centers that they become unable to recognize the imperfect image. These imperfect images are due to a variety of causes, as refracting errors, muscular derangements individually or combined in all sorts of ways. On the suppression view there could be no amblyopia except for imperfect images sent to the visual center and so none without lack of muscular equilibrium, or refractive errors alone or variously combined.

The congenital imperfection view of amblyopia affirms that the visual centers were never normally developed or, if developed, were damaged anterior to birth; it is uncertain whether the defect be in the brain outside or within the visual centers, in the retina or optic nerve fibers. The central scotomas of many cases suggest a pathologic anatomy like that of the toxic amblyopias; they are sometimes for form alone and sometimes for both color and form.

A presumption against the suppression view arises from the fact that in no other instance is it claimed that the brain, by inhibition. actually destroys the functional activity of any organ beyond possibility of restoration. We have many illustrations of imperfectly formed organs, as clubfoot, harelip, colobomas of the iris, retina or choroid, but we know of no organ born with normal development, rendered imperfect by the capricious dislike of the cerebrum.

To determine what light, if any, clinical evidence would throw upon this subject, I studied 7,500 recorded cases of imperfect vision, all from private practice. The standard of amblyopia adopted was an inability to see 20/40 or more after correcting all defective refraction, under full mydriasis, removing all muscular disabilities and securing a normal condition of the general health. Of these above 4,000 were anisometropic, but only sixty were amblyopic; showing that amblyopia was a very infrequent attendant of anisometropia, and so unlikely to be caused by it. Anisometropia was found a frequent condition in all cases of convergent squint, but of the fifty-four amblyopic squint cases, only twenty-two were anisometropic. As there was more than three times as many cases of non-amblyopic as of amblyopic squint, it is plain that anisometropia was an unimportant factor in causing amblyopia in the squint cases. Thus my own observations give no reason to believe that anisometropia is a factor in causing amblyopia. According to the suppression view squint is regarded as an important factor in producing amblyopia, while according to the imperfection view, the amblyopia aids in causing squint.

My records do not exhibit a single instance of ambly-

opia among cases of vertical squint; though on the suppression view we should have expected a proportion similar to their frequency in other varieties of squint, because there must have been at the beginning an equal degree of confusion among the images sent the brain. Of 219 cases of convergent squint only fifty-four were amblyopic, a small proportion if squint was an active cause of amblyopia. Of fifty-four amblyopes that squinted only twenty-two were anisometropic; so that neither the squint or the squint combined with anisometropia were important factors in producing these cases of amblyopia. Of 127 cases of amblyopia, only fifty-four ever squinted. It thus appears that the majority of cases of convergent squint are not amblyopic, and the majority of amblyopes do not squint; evidence weighing strongly against squint as a cause of amblyopia.

Donders showed that hyperopia accompanied most cases of convergent squint, but farther studies prove the problem far less simple than he thought. Thus, since the normal condition of all eyes at birth is hyperopic, why does not squint occur more frequently? The suppression view says that hyperopia causes confused images, which induce the brain to inhibit the visual centers and thus cause amblyopia. In truth, only few hyperopes squint, and very few are amblyopic. The facts militate against the suppression view here also. Incidentally the facts seem to show that lack of muscular equilibrium rather than either hyperopia or imperfection of the visual centers, is the essential factor in causing squint. In common with others, notably Dr. Valk, I have found that the normal power of the internal rectus to that of the external is as four to one. If this be changed, we have convergent or divergent squint according to the refractive defect; if it remain unchanged there is no squint. On the assumption that squint caused amblyopia, we should expect that the cure of squint by operation, or the correction of existing refractive defects or exercise, or a combination of all, would improve vision, but I am unable to find a single case with central scotoma in which the vision was materially improved. Other cases were improved in the ability to use the eyes for longer periods, but their actual visual acuity was unaltered. On the suppression view we ought to find cases in which the squint or anisometropia remaining uncorrected, the sight became progressively worse to such a degree that even the patient would note the loss; but I have failed to find such cases.

Then, if all eyes were born with normal vision, some observer ought to have noted good vision in an eye which afterward became amblyopic, and thus demonstrated the fact of suppression. I am aware of the difficulty attending such studies, but it has happened to me to occasionally meet with a child so tractable as to admit of a satisfactory determination of its vision and refraction by objective and subjective methods, and I have failed to observe any loss of visual power without a cause recognizable with the ophthalmoscope. Nor have I found any reports of such observations. Hence, we have no direct proof of the suppression of good vision as a cause of amblyopia.

We do find cases of children born with monocular amblyopia. Twenty such I found in my own records, and Schweigger reported ninety-eight having varied defects of refraction. They could not have been caused either by squint, anisometropia or dissue, and so must be from congenital defect.

It is claimed that cases of scotoma like those found in squinting eyes are unknown; but my record show twenty cases who never squinted, and yet exhib ited a central scotoma of more or less density. Possi bly these might be found more frequently, were the carefully looked for. It is reasonable to ascribe thes similar scotomas in both squinting and non-squintin eyes to the same cause. That of suppression bein untenable, congenital defect must be accepted. A diplopia from ocular paralysis, even in the very young is a source of distress, we should expect to find som indication of such distress antedate the developmer of amblyopia, but I have no indication of such dis tress, though I have often looked for it. Monocula amblyopia, with central scotoma, without squint anisometropia, would seem to form a combinatio impossible to account for on any other view tha congenital defect. I found four such cases, aged 13, 19 and 45 years. As far as the most searchin investigation could determine, there had never bee any squint, the scotoma had existed at birth, and the was no anisometropia.

Case 1.—Ava P. Bancroft of Michigan, aged 6 years, broug to me Sept. 4, 1891, by her physician, Dr. Harvey, on accou of defective sight. Vision of right eye, $^{20}/_{200}$; left eye $^{1}/_{2}$ A total hyperopia of plus D. 2.50 S. was found in each eye, the ophthalmoscope and retinoscope, and subjectively co firmed by test objects. The examination was made befo mydriasis, under mydriasis and after it had passed off. T correction of the total hyperopia gave the right eye vision $^{20}/_{3}$ the left $^{20}/_{100}$. In the left eye the vision was best at the left the median line both for color and form. Dr. Harvey h noticed the defective vision three years previous, and no chan had been observed by either the doctor or the parents. re-study of the case two years later showed the vision and sc toma unchanged.

Case 2.—Miss M. A., Toledo, Ohio, aged 19 years, was se March 13, 1887, on account of intense headaches. Vision right eye, $^{20}/_{40}$; left eye fingers at six inches and only at t borders of the visual field with any distinctness. Under my riasis vision of the right eye $= {}^{20}/_{20}$ with plus D. 2.25 S. $\frown$ + 0.50 C. ax. 60. Determined objectively by ophthalmosco and retinoscope the refraction of the left eye was the same the right, but its vision was not materially increased by correction. Two years later, patient reported entire relief fr headaches while wearing full correction of the defective refr tion, but there was no change in vision. Her father, a care physician, said that he had observed the defective vision pef any attempts of the child to read letters, but had never notic any squint.

Case 3.—Miss A. H., Windsor, Ontario, aged 13 years, June 14, 1881, consulted me for dimness of vision in her rig eye. Vision of right eye, $^{2}/_{200}$; left eye $^{20}/_{50}$. Under myd asis she was found to have a hypermetropia of two dioptrics each eye. The correction of this increased the vision of right eye to $^{6}/_{200}$; left eye $^{20}/_{20}$, Jaeger No. 1. The right eye h a large scotoma for both form and color. Five years later condition was practically the same. No history of squ could be obtained from either patient, friends or fam physician.

Case 4.—Miss F. H. H., aged 45 years, consulted me Ju 10, 1890, for a dimness of vision. Her uncle, an accomplish physician, in whose family she had been born and reared, s that before she was two years old the defect in her left eye noticeable, and had remained unchanged, but he had ne observed any squint.

V. O. D. $= {}^{20}/_{40}$, $^{20}/_{30}$ w. — D. 1.00 C. ax. 90° $\frown$ + D. S.; J. 1, w. + D. 2.25 S.

O. S. $= {}^{20}/_{200}$ w. — D. 1.00 C. ax. 90° $\frown$ + D. 0.75 S. J. w. + D. 2.25 S.

In this case the amblyopia was observed long before attempts to read, there was an absence of anisometropia any tendency to squint. There was a central scotoma of left eye like that found in cases of squint.

In each of these cases, as there was complete abse of all the causes of suppression of defective imag the amblyopia must have been from congenital def

The data thus far presented show that the existe of amblyopia from suppression is at least doubt while that from congenital defect is certain.

There is another class of cases, often confounded with true amblyopia, and so causing much confusion in both thinking and practice. Hence it is necessary to consider it in this connection. Their vision is more or less diminished, there is no scotoma, and they improve under appropriate management. This impaired vision is from disuse more or less complete from a variety of causes, as refractive defects, lack of muscular balance, from constitutional disease, overwork, etc. Any disuse of the eye operates unfavorably upon visual acuity by impairing the power of fixation, by giving imperfect control of accommodation and by rendering the retina easily fatigued. In these cases sight is often improved and occasionally entirely restored by removing the occasion of the disease. Illustrative of this is the following case; that the subject was approaching middle life shows that improvement of these cases is not confined to childhood.

Mr. G. W., a lawyer, aged 36 years, on Aug. 22, 1885, consulted me for poor sight in his left eye. The ophthalmoscope revealed no organic change in either eye. Vision of right eye was $^{20}/_{40}$; left $^{20}/_{100}$. J. N. 4 with right eye, No. 10 with left eye. Under mydriatic, the right eye gave vision $^{20}/_{30}$ with + D. 1.25 C. ax. 180° ⌒ D. 1.00 S.; the left eye $^{20}/_{70}$ with plus D. 1.50 C. ax. 180° ⌒ + D. 3.50 S. On recovering from the mydriatic, with correcting glasses he could read J. No. 1 with right eye and J. No. 4 with left. He was directed to wear the glasses constantly, soak his eyes in hot water ten minutes after concluding work daily. Five months later vision of right eye was $^{20}/_{20}$; left $^{20}/_{50}$. Since, at intervals, his glasses have been changed to meet advancing presbyopia, until Dec. 26, 1896, with glasses, vision of each eye was $^{20}/_{20}$ and J. No. 1.

Not all cases give as favorable results, owing doubtless to lack of faithfulness on the part of the patient, or often from complicating actual defect in the visual apparatus less than occurs in amblyopia, though of the same nature.

In children these cases are often benefited by compulsory use of the bad eye, and of a magnifying glass for near objects, by turning them out of doors as much as atmospheric conditions will permit, and otherwise adjusting their lives so as to develop the greatest physical vigor.

Cases are reported of the speedy cure of the amblyopia of a squinting eye after the destruction of its fellow. Thus, Dr. Walter B. Johnson (*Amer. Oph. Jour.*, January, 1894) reports two cases. In both the good eye was destroyed by accident. In one the squinting eye sufficed to count fingers, but normal vision was established ten days after the accident. The second case was a man 30 years of age, with a history of convergent squint from childhood. At 16 he discovered that he was unable to read as well with the right eye as with the left, and no glass which he could select at the optician's greatly improved his sight. At 17 he was operated on at the New York Eye and Ear Infirmary. On Aug. 28, 1893, while working at his trade, his left eye was so injured by a piece of iron as to reduce vision to the counting of fingers at six inches. The vision of his right eye as tested by Dr. Johnson just after the accident was $\frac{20}{70}$, not improved by glasses. Four days later the vision of the right eye was $\frac{20}{20}$, with or without a plus 1.24 S. Three months later he could merely count fingers with the injured eye at six inches; with the right eye vision was $\frac{20}{20}$, or with plus 1.24 $\frac{20}{10}$.

I have one case of the same nature in which the result was less satisfactory.

E. B., aged 28 years, a laborer in the Penin. Car Works, was brought to me for an injury to his right eye on Nov. 26, 1890. He and his friends said that the left eye always converged, and that he never could see anything with it. The accident had torn the eyelids, smashed through the eyeball, tearing the ciliary body, the lens and sclerotic in such a manner as to practically destroy all sight. Because of the blind left eye every effort was made to save some sight in the right eye, but to no purpose. An examination of the squinting eye, at the time of the accident and many times thereafter, failed to detect any disease of either optic nerve or any of the media, choroid or retina. There was mere perception of light at the periphery of the visual field. This perception did not increase to any appreciable degree, nor has it done so when last seen, three years after the accident.

The explanation of these cases is that one is from congenital defect and the other from disuse. The amblyopia from disuse develops its latent power when the necessity for the same presents; the other having no latent power because of congenital defect, and so remains blind, even after destruction of its fellow eye. In my case, there was certainly a central scotoma, and the history of Dr. Johnson's cases would seem to make evident the fact of a normal field of vision, as no mention is made of a scotoma.

Conclusions. — 1. There are undoubted cases of amblyopia from congenital imperfection; characterized by central scotoma, and being unaffected by any treatment; they are found in eyes that squint and eyes that do not squint, in the hyperopic, astigmatic, the anisometropic and in eyes free from one or more of these defects.

2. There is no positive evidence of the existence of amblyopia from suppression, viz., a loss of sight from the inhibitory action of the brain upon the visual center.

3. There is a class of cases often confounded with amblyopia, characterized by lack of persistent vision, rather than absolute loss; by the absence of scotoma; improved often by proper management, is never congenital; found in all varieties of refraction and all sorts of muscular disturbance; having the same nature as diminished functional power of any sound organ from non-use or diminished use.

4. There is a class of cases in which a congenital amblyopia is still farther crippled by disuse; in these proper management often produces satisfactory results in removing the latter factor.

5. It therefore remains good practice to study every case of amblyopia with or without squint at the earliest possible moment, correct its refractive defects and restore its muscular equilibrium, because, while we can not repair the congenital imperfection, we may remove the disability from disuse and thus secure some improvement of vision.

103 Cass Street.

DISCUSSION.

Dr. H. M. Starkey of Chicago in opening the discussion said: The author of the paper has covered the ground so completely from a theoretic standpoint that little remains to be said in that direction. The definition he proposes is new to me and gives quite a difierent conception of this term from that previously held by me and from that usually held, if one may judge from that given in most text-books. I did not suppose that amblyopia ex anopsia is usually applied solely to cases in which there is inability of the brain to perceive images impressed upon the retina. We have found, as Dr. Connor has, that much confusion arises from considering several different conditions under the same name, but if we restrict the term amblyopia ex anopsia to those cases in which the brain refuses to receive images, we are under the necessity of coining another term for the cases that have usually been so called, while we are not at all

certain that we have any cases to which the term may be rightfully applied. As the author has well stated, we have little or no evidence that amblyopia is ever due to suppression, by the brain, of an impression that has been properly conveyed to it. But if the generally accepted meaning is given to this term, namely, that through non-use of the eye the faculty of vision is lessened or lost, we must, unless we ignore facts, admit that such a condition exists. We most of us, I am sure, see cases of defective vision in one or both eyes, in which after careful stimulation of the sight under favorable conditions, the vision improves. There are two classes of these improvable cases. The first class includes young persons having a high degree of ametropia and who, consequently, have never seen clearly. Many such young people, after careful correction of the ametropia, will have vision only one-fourth or one-half normal, but after they have worn the correcting glasses for a few months, vision improves so that they see 50 or 100 per cent. better with the same glass than they did when the glass was first prescribed.

The second class contains persons having strabismus with habitual disuse of one eye. We all recognize that there are many strabismus cases in which there are central scotomata and which are doubtless congenital, in which an improvement of vision is possible; but on the other hand, there are many strabismics in whom a very decided improvement in the vision of the deviating eye can be brought about by systematic and persistent use of that eye. So frequent is this improvement, that it is my custom in treatment of strabismus to first correct any refractive error present and then direct systematic use of the deviating eye, deferring the operation till a later time. And in a considerable proportion of cases, I expect and secure very decided improvement both in the position and in the acuity of vision of the deviating eye. Whether we call the condition present in these cases amblyopia ex anopsia, or by some other term, is beside the question. The condition is present and can be improved. I repeat this statement because I have lately heard a prominent teacher in a neighboring city make the statement to his class, that the amblyopia found in the deviating eye in strabismus is never due to disuse and is never materially improved by operation or by any other means. I will give a brief outline of a few recent private cases illustrating the points I have tried to make. I have the original records of the cases, so that any of the members of the Section who desire to do so may examine them.

Case 1.—Gertrude P., schoolgirl aged 15, referred to me July 17, 1896, by Dr. C. S. Bacon. Vision right eye $^{20}/_{20}$ — not improved by any lens; vision left eye $^{20}/_{200}$ with 4. D. C. axis 170° $^{20}/_{30}$ —. The vision of the left eye has gradually improved until at the last examination, a few days before I came away, she saw with the same lens the 20 line better than she at first saw the 30 line.

Case 2.—Lottie S., schoolgirl, aged 13 years, referred to me Feb. 3, 1897, by Dr. F. C. Schaefer. Vision right eye $^{20}/_{200}$ with — 3.50 D. S. ⌒ — 7. D. C. axis 10° $^{20}/_{70}$; left eye $^{20}/_{100}$ with — 1.00 D. S. ⌒ — 7 D. C. axis 180° $^{20}/_{50}$ —. With these lenses, February 24, vision was $^{20}/_{60}$, and $^{20}/_{40}$, and May 17 it was $^{20}/_{40}$ and $^{20}/_{30}$ except that one letter was missed in each line.

Case 3 is the most marked case of improvement in a deviating eye that has come under my observation, though numerous others could be cited with marked improvement. Gertrude R., schoolgirl, aged 9 years, was referred to me for convergent strabismus, by Dr. John H. Hollister, July 19, 1894. The vision at that time in the deviating eye was $^{1}/_{200}$, and with careful correction under atropia, $^{20}/_{200}$. Under proper use of the eye vision steadily improved, being in August, 1894, $^{20}/_{70}$, in October, 1894, $^{20}/_{50}$, in December, 1894, $^{20}/_{40}$, in July, 1895, $^{20}/_{30}$ —, in May, 1896, $^{20}/_{30}$ +, and in October, 1896, $^{20}/_{20}$, and she now sees with this same eye most of the letters in the 15 line at twenty feet.

Dr. D. W. STEVENSON of Richmond, Ind.—I quite agree with Dr. Starkey that the definitions in the text-books no not quite agree with that of Dr. Connor. Amblyopia may exist with three conditions: 1. When there is no central fixation; 2, where there is, and 3, where there is lack of use. A person may have fairly good vision and yet not have central fixation. And here I would urge in examining children with muscle trouble, even if only 2 or 3 years of age, that it is important to treat them as thoroughly and carefully as older people, for if we can only guide that child to central fixation, it may prevent disfigurement in later life. Central fixation can only be learned in childhood. You can not expect a child whose vision has been blurred to learn central fixation in after years, for it can probably only be learned in the first few years of life. We note the difference in operating upon congenital and senile cataracts; in the latter though it may have lasted forty years, if he learned central fixation in youth he will still be able to fix. The important point we ought to learn is to look after these patients year by year until we operate upon them, and we ought to take every means to force them to learn central fixation.

Dr. C. H. THOMAS of Philadelphia—I remember the case of a child 4 years of age, who was able to be tested by test-types almost as well as an adult. He had strabismus on alternate days. It was on this account that I tested his refraction under mydriasis and found him practically emmetropic, full $^{20}/_{20}$ in each eye. After a year or more the strabismus settled down to a strong convergence of the left eye. This continued a year or so when I discovered that he was losing his vision in the left eye, it had fallen to $^{20}/_{50}$. I then operated and the relief obtained was considerable from the complete section of one internus, but there was something like 8 degrees remaining uncorrected. I performed a partial tenotomy of the fellow eye and obtained perfect balance. Within a year the vision was restored in the amblyopic eye and remains perfect to this day. He is now a grown man and I have examined the eye within the last few days; his vision is full $^{20}/_{20}$ in either eye. I had him under careful observation in the stage of perfect vision, in the stage of developing amblyopia and in the stage of perfect recovery.

Dr. J. L. THOMPSON of Indianapolis—While you may operate upon a man for cataract, and he will have just as good vision in one eye in which cataract has existed for a long time as in the one of shorter duration, I take it that nature seems to abhor a deviation as she does a vacuum.

Dr. WALTER B. JOHNSON of Paterson, N. J.—I have been interested in this subject for a long time. None of us would want to make the statement that there is no such thing as congenital amblyopia and not many of us would, in the light of occurrences, be willing to say there is no such thing as amblyopia ex anopsia. I think the suggestion that Dr. Connor made in regard to cases in which amblyopia, apparently from suppression, had developed, has been substantiated in many instances. I reported a case two years ago, at the American Ophthalmological Society, of a girl of 12 who came to me first with diplopia and in the course of a short while passed from observation. The diplopia having passed she was comfortable, and in the course of a number of years I saw her again. Her vision at first had been perfect, but in the eye which is now squinting it is only $^{20}/_{70}$. Now from the other side of the question, coming from lost to improved vision, I have reported two cases, one to the American Ophthalmological and one to the Ophthalmic Section of the Academy of Medicine. In both cases the good eye was lost, one requiring enucleation and the other by traumatic cataract. In each case the vision, in what had been the poor eye, returned to normal within three weeks. I know that in these cases we did not see anything with the ophthalmoscope, and, as Dr. Thompson has said, we can not yet view the cerebral apparatus.

Dr. G. C. SAVAGE of Nashville—Nature in my judgment has two methods of preventing diplopia; one the deviation of the visual axis and the other the suppression of the object mentally. In the lower forms of heterophoria and in orthophoria the method adopted is to cause the visual lines to cross, but in the higher degrees of heterophoria the other method is the one chosen, and it is applicable only in the earlier years of life. Every one of us knows that a squint developed late in life is always attended by double vision. It is too late for the mind to bring about the process of suppression and the patient must get on with double vision unless he covers one eye. The author of the paper has stated that there are cases of amblyopia in which there is no perceptible squint. We have other muscles than the recti.

I want to place myself on record in regard to one point about squint, that is, that when we have a squint that has existed from early life and yet vision as good in one eye as in the other, we are tampering with a case that will confuse us as we go further with it and which is almost impossible of correction.

Dr. G. E. DE SCHWEINITZ of Philadelphia—It was with much interest that I heard Dr. Connor's classification and investigation of the scotomas present in these cases. I have made a similar study. You find cases of squint, with amblyopia, in which the ophthalmoscopic picture, the visual field, etc., are perfectly normal; the vision can be improved with exercise; in others in which there is a distinct scotoma, neither exercise or anything else improves the vision. In a third class in which there is not an entirely normal ophthalmoscopic appearance, inasmuch as there are some changes about the macula, and the visual fields are similar to those produced by retinal tire the visual acuity is capable of a certain amount of improvement.

Dr. LEARTUS CONNOR—You see from the discussion how necessary it was to define what we meant. The amblyopia to which I referred, you will remember, I characterized as being always attended with central scotoma. The cases reported here were not so attended. Now, to confound such cases, that

re due to defects of refraction or lack of muscular balance, is imply confusing conditions, and I think it very important to se the same measure in all our work in these cases. I started ut, too, with the idea that the ordinary definition was the cor- ect one, but I found it used very differently by those who be- ieve in the suppression theory. I correct, under mydriasis, nd attain all the improvement I can, correct all the muscular quilibrium and then if there is loss of vision I report it as am- lyopia. Such cases are absolutely incapable of benefit. They nay be attended by the results of disuse as in other organs.

REPORT OF EYE EXAMINATIONS IN THE MINNEAPOLIS PUBLIC SCHOOLS.

TOGETHER WITH REPORTS OF THE EXAMINATIONS OF THE MOTORMEN OF THE TWIN CITY RAPID TRANSIT COMPANY, AND THE LOCOMOTIVE ENGINEERS OF THE MINNEAPOLIS, ST. PAUL AND SAULT SAINTE MARIE RAILROAD.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY FRANK ALLPORT, M.D.

CHICAGO, ILL. (FORMERLY OF MINNEAPOLIS).

While it is true that a large proportion of school hildren possess inadequate distant vision, or irksome lose vision, or but little vision at all, and are thereby nequally provided with a most important sense, which laces them at a decided disadvantage in the world's rena, with its struggling, pushing applicants for place nd power, and while it is of the utmost importance hat such deficiencies be overcome by the application f modern ophthalmologic therapeusis, yet the search y our profession for an efficient and practical remedy or the general detection and relief of such infirmi- ies, has not been crowned with success.

Undoubtedly ideal results could be obtained in etecting and relieving ocular defects in school chil- ren, through their systematic and personal examina- ion by properly qualified oculists appointed for such ork by boards of education, as was accomplished in hiladelphia some years ago by Risley, Randall and thers. But the "City of Brotherly Love" is happily ossessed of a singularly united and harmonious profes- ion, with an inherent *esprit du corps*, rendering possi- le many professional movements practically unfeasi- le elsewhere, under circumstances of professional ealousy and strife. The writer feels therefore that the hiladelphia plan, while most desirable, is not gener- lly possible, and that another method, simple, inex- ensive and reasonably accurate in character, possible f manipulation by the laity, applicable to all cities, f a non-compulsory nature, giving free liberty as o choice of consultant and rendering impossible ersonal contact between a board appointee and the chool children, except as they come as private or ispensary patients, should be devised and endorsed y ophthalmologists.

With this end in view the writer, Feb. 6, 1895, pre- nted a paper to the Minnesota Academy of Medi- ne, which was published in the JOURNAL OF THE MERICAN MEDICAL ASSOCIATION, March 2, 1895, em- odying a plan for the systematic examination of chool children's eyes by school principals. This plan as received favorably by the Academy and a formal equest was forwarded to the Minneapolis Board of ducation, requesting its adoption, but owing to asons probably satisfactory to itself, the Board prac- cally tabled the request until the election of the w Board in January, 1897, when it was promptly lopted and the writer appointed as Board oculist. But in the interim the writer has been given an opportunity of teaching the method at the University Summer School, and before the senior class in the department of pedagogy in the Minnesota State University, with the result of seeing it quite generally and favorably received in the University and many adjacent cities.

Drs. Harlan and Wood of Baltimore have used a similar plan, during the past two years, in the public schools of that city, and reported flattering results at the last meeting of this Section in Atlanta.

The expense in Minneapolis has not equaled $100, a little printed matter being the only requisite, as no salary is involved. The plan, though necessitating some extra labor, has been easily carried into practice, and the principals and teachers are its warmest advocates, feeling as they do, that it is a beneficent movement and will eventually lighten their labors, as the children are placed in better conditions for work and application.

The preliminary eye tests are to be made annually as near the commencement of the fall term as possible, in order to give ample opportunity for the observation of results. The examination should not be conducted in the presence of other scholars, as familiarity with the letters leads to incorrect responses. Children already wearing glasses should be tested with such glasses on the face, as this tends to mitigate any possible opposition from parents and attendant oculists, on the ground of meddlesome interference. It has been found useless, laborious and impracticable to examine first grade children, consequently they may be excluded from the tests.

One of the chief obstacles to success in the Minneapolis tests has been the consulting of opticians instead of oculists, through the fulsome circulars and advertisements of the former which were thrown broadcast as soon as the tests began; and the prevalent impression that this has been merely a test for glasses, and not for the development of ocular diseases in general. This fact leads me to urge principals and teachers to explain and emphasize these matters preliminary to the tests, and from time to time during the year.

The plan is briefly as follows: A superintending oculist shall be appointed by the Board of Education, whose duties shall be to superintend the details of the plan. He shall each year, at the beginning of the fall term, deliver a lecture to the principals upon practical ocular anatomy, physiology, refraction and its errors, the general use of the eye. etc., and shall demonstrate the plan upon from twenty-five to fifty pupils furnished for the occasion. He shall afterward be accessible to the principals for advice and counsel, and shall finally receive the principals' reports and systematically submit them to the Board, together with deductions, recommendations, etc. It will be observed that in an office of this kind there will be but little opportunity for adverse manifestations of professional jealousy, or accusations of unjust pressure upon children from business motives.

It should be first ascertained if the child habitually suffers from red or inflamed eyes or lids, after which the visual tests should be conducted. Snellen's test card should be used for the purpose of uniformity, and the vision of each eye recorded in the proper line of the statistic blank, as 20, 30, 40, 200, 0, etc., instead of 20-20, 20-30, 20-40, 20-200, 20-0, etc., being more intelligible to the laity, bearing in mind that only

defectives need tabulation. The child should be given credit for the smallest line of which he sees a *majority* of the letters, as it has been found inexpedient to be too strict in this particular. It should then be ascertained if the child *habitually* suffers from asthenopia after study, being careful that a correct and thoughtful answer has been secured. This question develops the existence of troublesome hypermetropia, astigmatism, muscular anomalies, etc., while the former question indicates the presence of myopia, astigmatism, cataracts, choroiditis, most cases of strabismus, etc.

If inflamed eyes are not habitual, the vision is normal in *both* eyes and actual asthenopia is not present, the child is not further molested until the next fall examination. But if inflamed eyes are habitual, or the vision is defective in either eye, or asthenopia develops, a card of warning should be sent to the parents urging that an oculist be consulted at his office or dispensary. The principals and teachers should bear these cards in mind and from time to time urge the children and their parents to heed them, though their influence should not be exerted in favor of any particular oculist.

These cards urge the parents to consult an "eye doctor," which is rather a broad expression, but rendered necessary by the fact that many intelligent people do not distinguish between an oculist and an optician, and the cards will go into many homes where dense ignorance prevails. Upon the backs of the cards should be printed the names, addresses and office hours of the different dispensaries.

The fact should in due course of time be chronicled as to whether a pupil has consulted an oculist or not, and the effect that such a consultation has upon his school life, character, physical condition, etc., and when the report is thus completed it should be handed to the Board oculist for presentation to the Board of Education.

This last spring, 25,696 children were thus examined in Minneapolis, of which 8,166 or 32 per cent. were deemed ocularly defective. Amongst these 6,451 *eyes* were found possessing a vision of 20-30; 2,256 *eyes* had a vision of 20-40; 1,214 a vision of 20-50; 1,130 a vision of 20-70; 745 a vision of 20-100; 447 a vision of 20-200 and 43 a vision of 20-0. Four thousand four hundred and seventy-two children complained of distinct asthenopia after study. The individual percentages of defectives in the different schools have ranged all the way from 11 to 67 per cent., the latter occurring in a conspicuously poorly lighted and insanitary building.

One of the disadvantages of this plan is the impossibility of obtaining the most accurate and valuable statistics, such as would be possible if all scholars were scientifically examined by a united force of oculists. But enough is already positively known through the information of principals, duly chronicled in the statistic blanks received May 1, to fully warrant the statement that already over 1,000 pupils have been distinctly benefited through the tests, and the matter is only in its infancy as many children will subsequently seek advice when prejudice, ignorance and carelessness have been overcome, or the days of the long vacation are at hand, with more leisure to devote to ocular consultations.

Copies of the statistic blanks and warning cards are here submitted:

MINNEAPOLIS PUBLIC SCHOOLS.

MINNEAPOLIS, MINN . . . . . 189 . .

Dear Sir: Your child's eyes have been examined by me this day. I believe it advisable to consult an EYE DOCTOR of recognized standing, and if you feel unable to consult one at his office, a Dispensary will do the work free of charge. Respectfully,

. . . . . Principal . . . . . School.

[OVER.]

[Front of Warning Card.]

FOR THE POOR.

UNIVERSITY DISPENSARY—On the University grounds, Medical Building. Hours 12 to 2 P.M.

UNIVERSITY HOMEOPATHIC DISPENSARY—Seven corners. Hours 12 to 2 P.M.

ASBURY HOSPITAL DISPENSARY—Corner Sixth Street and Ninth Avenue south. Hours 12 to 2 P.M.

ST. BARNABAS HOSPITAL DISPENSARY—Corner Sixth Street and Ninth Avenue south. Hours 12 to 2 P.M.

GOOD SAMARITAN DISPENSARY—Corner Seventh Street and Sixth Avenue south. Hours 12 to 2 P.M.

[Back of Warning Card.]

MINNEAPOLIS PUBLIC SCHOOLS.

EYE EXAMINATIONS.

. . . . . School. Date . . . . . 189 . .

Principal . . . . . Examiner . . . . . .

Entire number of pupils examined . . . . . .

Number advised to consult an Oculist . . . . . .

INSTRUCTIONS FOR EYE EXAMINATIONS.

The examination should be made privately and singly, in a room apart from the general school session.

Ascertain if the pupil habitually suffers from inflamed lids or eyes.

Children already wearing glasses, should be tested with such glasses properly adjusted on the face.

Place a card of Snellen's Test Types on the wall in good light; do not allow the face of the card to be covered by glass.

The line marked XX (20) should be seen at twenty feet, therefore place the pupil twenty feet from the card.

Each eye should be examined separately.

Hold a card over one eye while the other is being examined. Do not press upon the covered eye, as the pressure might induce an incorrect examination.

Have the pupil begin at the top of the test card, and read aloud down as far as he can, first with one eye and then with the other.

If the pupil does not habitually suffer from inflamed lids or eyes, and can read a *majority* of the XX (20) test type with *each* eye and does not, upon inquiry, complain of *habitually* tired and painful eyes or headache after study, his eyes may be considered satisfactory, but if he habitually suffers from inflamed lids or eyes, or can not read a *majority* of the XX (20) test type with *both* eyes or *habitually* complains of tired and painful eyes or headache after study, a card of information should be sent to the parent or guardian.

Please examine your entire school by this method, but only such pupils as are thought necessary to send to an Oculist need tabulation in this blank.

May 1 of each year please complete this report and send it to Dr. C. M. Jordan, Supt. of Schools, and a duplicate to the Board Oculist, Dr. Frank Allport, 602 Nicollet Avenue, Minneapolis, Minn.

This will afford you an opportunity to examine your pupils, to note if they follow your suggestions, with regard to consulting an Oculist, and if so to observe the effect upon the pupil's conduct, health, application to study, etc., which you will please carefully, but briefly, note in the proper place in this sheet.

First grade children need not be examined.

No. . . . . Name . . . . . Sex . . . . . Age . . . . .

Column 1.—Does the pupil habitually suffer from Inflamed Lids or Eyes?

Column 2.—State number of last line seen by pupil with Right Eye.

Column 3.—State number of last line seen by pupil with Left Eye.

Column 4.—Do the Eyes and Head habitually grow weary and painful after study?

Column 5.—Did pupil consult an Oculist and follow his advice?

Column 6.—Briefly describe the results of treatment.

I beg leave at this time to also report some interesting examinations made the past spring. The writer is not aware as to whether men who run electric or cable cars through our cities are examined as to their ocular and aural condition or not, but at his suggestion the Twin City Rapid Transit Company of Minneapolis and St. Paul, operating electric cars in those cities, requested him to examine the eyes and ears of their motormen. The writer feels there can be no question as to the extreme necessity for such examinations in men driving cars through our crowded thoroughfares, and believes that such examinations should be made obligatory with street car companies, in order to protect the life and limbs of citizens. The writer believes that many accidents could thereby be avoided, and that it would be an excellent investment for all street car companies to know positively that their drivers possess good eye-sight and hearing, and to have on file certificates therefor from reputable examiners, produceable in possible litigation.

The standard adopted by the writer in these examinations was, that at least one eye should possess a vision of 20-30; that a watch should be heard by at

least one ear, at a distance of one foot, and that an ordinarily low voice should be heard by at least one ear; and that color blindness should not exist. The writer is confident that these exactions were sufficiently lax, possibly too much so, but the company requested that as much leniency as possible should be shown to old employes, but that *new* applicants for the position of motormen should be subjected to the closest scrutiny.

At the request of the writer the company also agreed to allow old motormen to wear glasses while on duty, in case they were found necessary, but will not extend such indulgence to new applicants.

The writer examined 218 motormen, and found but one color blind individual in that number. Several men had a weak chromatic sense, but were not distinctly color blind. All of the men possessed sufficiently accurate hearing to enable them to carry on their work. Ten men were found with vision below the standard. I briefly submit their records:

No. 1. J. H. V. R. E. = 20/40, with — 0.75 cyl. ax. 90° V. = 20/20.

V. L. E. = 20/60, with — 1.25 cyl. ax. 90° V. = 20/20.

No. 2. W. H. P. V. R. E. = 20/40, with + 0.50 cyl. ax. 90° ⊂ — 1.00 cyl. ax. 180° V. = 20/20.

V. L. E. = 20/60, with + 0.50 cyl. ax. 90° ⊂ — 1.25 cyl. ax. 180° V. = 20/20.

No. 3. J. S. V. R. E. = 20/60, with + 0.50 sph. ⊂ + 0.75 cyl. ax. 180° V. = 20/20.

V. L. E. = 20/60, with + 0.75 sph. V = 20/20.

No. 4. C. H. H. V. R. E. = 20/100, with — 3.00 sph. ⊂ — 1.75 cyl. ax. 170° V. = 20/20.

V. L. E. = 20/100, with — 3.00 sph. ⊂ — 2.00 cyl. ax. 10° V. = 20/20.

No. 5. M. K. V. R. E. = 20/100, with — 1.25 cyl. ax. 180° V. = 20/30.

V. L. E. = 20/60, with — 0.25 sph. ⊂ — 0.75 cyl. ax. 180° V. = 20/30.

No. 6. M. F. V. R. E. = 20/60, with — 1.25 cyl. ax. 90° V. = 20/30.

V. L. E. = 20/60, with + 2.00 cyl. ax. 90° V. = 20/20.

No. 7. C. A. V. R. E. = 20/70, with — 4.00 cyl. ax. 180° V. = 20/30.

V. L. E. = 20/70, with — 4.00 cyl. ax. 180° V. = 20-30.

It will be observed that all of these seven men were enabled, by the aid of properly adjusted glasses, to obtain suitable vision for their occupation. They were therefore allowed to resume their work, with the distinct understanding that they should obtain the glasses, which should be inspected by the writer, and should always wear them when on duty.

Three cases possessed vision so poor as to render them unsafe for the company to employ, and a menace to the public. Their records are as follows:

No. 1. J. L. V. R. E. = 20/50. Unimproved by glasses. Opaque cornea.

V. L. E. = 20/200. Conical cornea.

No. 2. J. T. V. R. E. = 20/50. Unimproved by glasses.

V. L. E. = 20/50. Unimproved by glasses.

No. 3. D. J. V. R. E. = 20/60.

V. L. E. = 20/200. Vision can be slightly improved in each eye by glasses, but not sufficiently to render him a safe employe.

These last three cases, then, were in the interest of the company and of the public, unconditionally condemned and removed from their positions. The company, however, indulgently gave them other employment, so that no hard feelings were engendered.

It will therefore be seen that, out of 218 men, seven were required to wear glasses, three removed on account of imperfect and uncorrectable vision, and one because he was color blind.

In conclusion the writer begs leave to report the examination of ninety locomotive engineers of the Minneapolis, St. Paul and Sault Sainte Marie Railroad. About one hundred still remain to be examined, but have not presented themselves up to the present writing.

When the writer presented the subject to the manager, he was met with the opinion that the men had already been examined by one of the railroad employes, and as such matters were very simply performed he regarded it as sufficient. But upon the writer's urging the value of a medical man's certificate, in case of accident, to say nothing of a sense of added security on the part of the road for a comparatively small outlay, together with the firm belief that such non-professional examinations, while frequently correct, were in no wise reliable, the manager being a good business man, as most railroad men are, quickly ordered the work to be done. The standard adopted was that a man should have at least a vision of 20-30 in one eye, should hear a watch tick at a distance of one foot and low conversation in at least one ear, and should not be color blind. The manager gave permission for defectives to wear glasses when they were capable of bringing vision to a satisfactory standard. This rule applies only to old employes and new applicants will have to pass a more rigid examination. The writer desires to emphasize the fact that all these men have passed the regular railroad examinations as to sight, hearing and color sense, and the results amply confirm the opinion that such examinations are totally superficial, unreliable, inadequate and dangerous. All men passed the aural examinations.

I submit the record of those having insufficient vision:

No. 1. E. D. V. R. E. = 20/60, with + 1.75 sph. V. = 20/20.

V. L. E. = 20/70, with + 2.25 sph. V. = 20/20.

No. 2. J. McG. V. R. E. = 20/40, with + 1.00 sph. ⊂ + 0.50 cyl. ax. 5° V. = 20/20.

V. L. E. = 20/40, with + 1.00 sph. ⊂ + 0.50 cyl. ax. 180° V. = 20/20.

No. 3. M. D. G. V. R. E. = 20/70. Iritic adhesions. No improvement with glasses.

V. L. E. = 20/40, with — 0.50 sph. ⊂ — 1.00 cyl. ax. 15° V. = 20/20.

No. 4. E. W. S. *Has been a locomotive engineer for twenty years.* V. R. E. = *20/100*, with — 4.50 cyl. ax. 100° V. = 20/30.

V. L. E. = *20/200*, with — 4.50 cyl. ax. 85° V. = 20/20.

He states that he sees as well now as he ever has, and the above glasses were simply a startling revelation to him. It is remarkable that he could have passed any kind of a previous examination and could have retained his position for so many years. He claims never to have had an accident attributable to poor vision. He must have been favored with good firemen to assist him in noticing signals, etc., and must have been a man of good judgment and blessed with unusual luck.

No. 5. M. B. V. R. E. = 20/100, with + 1.75 sph. ⊂ + 0.50 cyl. ax. 180° V. = 20/20.

V. L. E. = 20/100, with + 1.75 sph. ⊂ + 0.50 cyl. ax. 180° V. = 20/20.

No. 6. R. B. V. R. E. = 20/40.

V. L. E. = 20/30.

Mention is made of this case because he was under the writer's care in August, 1896, for tobacco amblyopia, at which time his vision was dimly 20-50 in each eye. He recovered with above result, but at this last examination he pledged himself to the superintendent and the writer that he would absolutely abstain from tobacco and intoxicants, and he retained employment upon this understanding.

No. 7. J. H. This man is color ignorant, and at first was thought to be color blind. After several days of instruction he was able to unerringly separate the worsteds; but it is difficult to understand how he passed the road examiner, for he puzzled four oculists.

No. 8. L. G. Distinctly color blind.

No. 9. D. N. B. Distinctly color blind.

It will therefore be seen that out of ninety men, eight defectives were found. No. 6, R. B., who had tobacco amblyopia, will not be so classed. Four men were fitted for their work with glasses. One man was educated in colors, and two men were unreservedly removed from their positions on account of unmistakable color blindness. The road has now directed their firemen to apply to the writer for examination, which is eminently proper, as they occupy important positions and are prospective engineers, and it would be a hardship to them to allow them to serve their apprenticeship with high hopes for the future, and then throw them out when they apply for an engineer's examination.

No. . . . MINNEAPOLIS, MINN. . . . . 189 . .
I have this day examined . . . . . with the following result:
Vision . . . . . Color Sense . . . . . Hearing . . . . . .
I would recommend his employment as . . . . . .
Remarks . . . . . .

FRANK ALLPORT, M.D.

I submit the cards used in these tests, which are of a character to be easily understood by railroad authorities. The word "good" or "bad" is written after the words "vision," "color sense" and "hearing." The railroad authorities do not care to enter into any technicalities. They simply want to know if a man can pass the examination or not. The examiner can make all desirable observations in his private notebook, as they may be useful for future reference. There should be a space between the words "would" and "recommend," where the word "not" may be inserted if the applicant is deemed defective.

Stewart Building, State and Washington Streets.

DISCUSSION.

Dr. HERBERT HARLAN of Baltimore—There is not a great deal for me to say in regard to Dr. Allport's method of testing the eyes of school children because it is almost identical with the method he published a few years ago, and which Dr. Woods and I worked out independently about one year ago. I stated a year ago that as a result of our experience there were several objections to our method. One was that the blank that was sent to the parent by the teacher, after the vision of the child had been found to be less than $^{20}/_{30}$, had a return blank to be filled by the oculist. They were rarely filled, and when they were, it was frequently by opticians and others, and so this year it was omitted. On the notice sent to the parents the wording was something like this: You are advised that this child's vision is below what the Board considers necessary to the proper performance of school duties, and you are advised to consult a physician who makes a specialty of eye diseases. This has been an improvement. The second objection was that last year the examinations were all made at the beginning of the school year, and within three or four weeks every dispensary was filled and it was absolutely impossible for any proper refraction work to be done, so most of those children did not get the benefits they should have had. It has been arranged this year to distribute the work over the eight or nine months of school life. We also found it necessary to drop all the tests for the first grade, which contained all the younger children. We have records of 40,631 cases covering the other seven grades. Blanks were sent to all having less vision than $^{20}/_{30}$ in the better eye. Many of them paid no attention to the notices last year, but the School Board holds that all it is required to do is to place the responsibility upon the parents. It has been shown, quite satisfactorily to me, that in some of the badly lighted schools vision has deteriorated within one year, and I think within five years we shall be able to show what this has been.

Dr. LEARTUS CONNOR of Detroit—Stimulated no doubt by the researches of our friends in Philadelphia many years ago, and those in Minneapolis that have been reported to us, something has been done in many other places. In Detroit it took this form: The Board selected a person interested in child culture, to make the examinations. Those familiar with the latest phase of teaching know that there are people who think it proper also to study the physique of children and to encourage proper teaching in this direction. I think there should be hung over the top of the door of every schoolhouse, "Factory of American Citizens." This person told me last fall that in her own observations she had detected, out of 35,000 children, 3,000 who were unfit to do the work a child ought to do in school. Some could not see, some could not hear and others were defective in other ways. She came to me to see if something could not be done to help them, and as the Children's Free Hospital is organized for that purpose we did all we could. The principals of the several schools have organized a Mothers' League, and they give the mothers of the children, once a month in the schoolhouse, a lecture or demonstration by some physician or scientist. We never shall make progress until we can carry the mothers along with us in this work. The work in Philadelphia had its best fruition in bringing the parents to realize what they could and ought to do to help their children. One of the best contributions to modern medicine was that of Dr. Risley, who showed how correction of the early defects prevented the malignant troubles of later years.

Dr. S. D. RISLEY of Philadelphia—I have said so much on the subject it seems hardly necessary to rehearse the views I have so long entertained. I do feel like expressing the great gratification I feel on seeing this good missionary work being done in the schools. I regard it as of the greatest practical value. I agree with Dr. Allport that the examination must be made in such a way that no suspicion can attach as to any personal benefit to the doctor. If it does, the profession becomes sensitive about it and the family will think there is some ulterior purpose. I would say also that much the same plan as that suggested by Dr. Allport has been outlined in my article on school hygiene which is just about to appear. It is, I am sure, the correct plan.

Dr. G. EDGAR DEAN of Scranton, Pa.—I would call attention to one thing that has not been brought out; that is that the railroad men often while needing glasses do not wear them for the fear of incurring the displeasure of the railroad officials, and I have noticed repeatedly that they refrain from having their eyes examined on that account.

Dr. WILLIAM THOMSON—(Reading a note on the subject) In 1880 the Pennsylvania Railway adopted a complete system prepared by the writer to eliminate from the service men with poor vision, color blindness and deafness, which fully answered the purpose, is yet in use and has been widely copied by other roads. Its details are probably known to you, having been widely published. In the future the roads may be able to place all their examinations in the hands of professional experts who will improve upon the simple apparatus now in use, which supposes one ophthalmic surgeon only to supperintend its application. It is believed that a brief report of the extent of the reform will be of interest. From 1880 to 1894 the example of the Pennsylvania Railway had been followed and their system adopted by twenty-four corporations, which controled 38,786 miles of track; eleven companies, using other methods for detecting color blindness, controlled 15,679 miles; thirty-one companies, controlling 29,428 miles, used no tests, and thirty-four companies made no report. The investigation was limited to one hundred of the main roads, controlling 129,970 miles. The so-called color-stick had met with but one criticism, namely, that it was too formal in its arrangement of skeins. This led the writer to propose "A new wool test," described in the *Medical News* in August, 1894. This has been used with the older color-stick and from the best sources of information at hand I estimate that up to Jan. 1, 1897, when the total mileage of the country was 180,955 miles, and the

employes nearly a million in number, this entire system had been adopted by seventy-eight corporations having under their control a total mileage of 106,395 miles of track. The publication of these facts may aid us in persuading the officers of roads now unprotected to adopt either this or some other system for disposing of dangerous employes.

Dr. G. E. SEAMAN of Milwaukee—I do not desire to discuss Dr. Allport's paper in a general way, but only to criticize briefly this card, which I understand is given to every pupil with defective vision. It would seem to me that in view of the spread of dispensary abuse in the cities this is a mistake. It would seem better, if this system is adopted, to take some pains to find out the financial standing of the people, and the teacher knowing the parties well might easily do this and give a card with the address of the dispensaries only to the very poor. If this card is given out to every one it will lead to more dispensary abuse.

Dr. C. D. WESTCOTT of Chicago—The dispensary abuse can be avoided, and the going to opticians also, by suggesting to the parents that they consult the family physician; he is the one I think should always advise in regard to consulting a specialist and the matter then becomes very simple.

Dr. E. E. HOLT of Portland, Me.—If the suggestion of the last speaker be adopted we should have to do some pioneer work among the family physicians.

Dr. ALLPORT—I have been much gratified by the commendation of the different members of the Section concerning this method of examining the eyes of school children. I have been especially glad to hear what Dr. Risley has to say upon the subject. The fact that he has probably had more to do with the personal examination of school children than any of us, adds especial significance to his endorsement of this plan.

The method which Dr. Risley adopted in Philadelphia some years ago was the *personal* examination of all school children in the city by *himself* or his *associates*. The plan which I advocate is the *preliminary* examination of all scholars (except those in first grade) by *school principals*, and then the sending of those deemed defective to competent authorities for further examination. I wish to distinctly emphasize two points: 1. That the method advocated in my paper is not perfect and can never be perfect. The fact that children are simply examined by a school principal and then, if found defective, sent to various sources for further examination, renders the accumulation of scientific data an utter impossibility. Defective children under this method are given a card of warning which they are to take to their parents, urging upon them the necessity of consultation with an oculist. Some of these children may go to a competent ophthalmologist, either at his office or dispensary; some may go to their family physician, who will undertake their treatment; some may go to an optician where they may receive ignorant or dishonest advice; others may go to a department store where worse conditions exist, and still others may not consult anybody. Under these divers and complicated conditions it will be manifestly seen, without further explanation, that the accumulation of scientific data will become an utter impossibility. 2. This method is not advocated for the accumulation of scientific data. It is advocated for the purpose of benefiting the coming generation, and I am perfectly satisfied that if the plan becomes generally adopted that, while subject to many criticisms, while being manifestly and necessarily imperfect, and while not facilitating the accumulation of scientific data, it will inevitably accomplish an enormous amount of good in these United States, and be the means of placing hundreds of thousands of children in better condition to face the various problems of life.

Dr. Harlan's blanks, which he presented at the Atlanta meeting, and has spoken of today, would undoubtedly be valuable if they could be followed up; but inasmuch as these defectives pass into the hands of a great variety of men, who may be friendly or unfriendly to the plan, or broad or jealous in their natures, it will be manifestly impossible to depend upon the different ophthalmologists and institutions in any city to fill out these blanks in a manner to make them at all valuable. Besides this, they are an additional burden upon the principals, who will be sufficiently burdened by the tests themselves and the rendering of the most primitive reports. It has been my aim to eliminate all forms of complication from this plan, and to make it as meager and simple as possible, hoping by this policy to secure its general adoption.

One of the gentlemen has objected to the printing of the names of the dispensaries upon the backs of the cards, fearing a congestion of charity patients. This course has been taken advisedly, after one year's experience. In the first place it is a great convenience to the principals and scholars, and in the second place it emphasizes the fact that free dispensaries are in existence, where people can get proper advice gratuitously, which I am confident will greatly lessen the number of people seeking the advice of opticians. If the dispensaries suspect that individuals are not of the class that should patronize dispensaries, they can very easily eliminate them.

I hope that this ocular examination in schools will lead to tests for color blindness, deafness, and even more extensive physical examinations; but have desired first to secure the adoption of the plan referred to in my paper, and then gradually add to it other material.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

XX.—GUNSHOT WOUNDS, AMPUTATION, EXARTICULATION, RESECTION.

(*Concluded from p. 146.*)

Let us return to the technique of *amputation* and place a knife in the hand of a German surgeon of the first and second halves of the century in order to learn the most customary methods of operation.

In Heister's time six assistants aided the operator, who girded himself with a "towel." A tourniquet was applied to the main artery and the nerves also compressed with it, in order to lessen the pain. The skin was drawn back as far as possible and a linen cord the breadth of the finger adjusted tightly around the limb somewhat above the point of operation that the muscles might be held together and not cut unevenly. When the patient had drunk a glass of wine or "Kraftwasser," the surgeon made a circular incision with a small knife through the skin and some of the muscles, had the skin drawn up still further and at its edge completed the circular incision with a large curved knife. On the forearm and leg a pointed two-edged knife separated the interosseous muscles. The periosteum was quickly pushed up, the musculature held back by a slit piece of linen and the bone sawed off as high as possible. On the large extremities the vessels were ligated or sutured, but it was thought that in the forearm the hemorrhage could be arrested by a piece of vitriol, a remedy, which indeed, along with the hot iron, was not widely disseminated on account of the pain and danger. Some considered ligature not generally necessary and awaited the closing of the vessels by the coagulated thrombus (Schaarschmidt). A bleeding was made either just before the amputation (Wreden) or, if little blood was lost by the operation, immediately after it (Z. Platner), or when severe inflammation ensued (Heister). The wound was bandaged with dry lint, a piece of puff-ball laid over that, then a fresh calf's or pig's bladder and several compresses. Only on the following day was the tourniquet loosened little by little and, provided no after-hemorrhage occurred, the first bandage was not removed before the fourth day. Later the wound was bound with digestive salve or balsam. At that time they amputated: 1. In case of mortification. 2. In entirely crushed limbs. 3. In incurable caries and spina ventosa. 4. In injures of the art. brachialis and cruralis, if the hemorrhage could not be controlled. 5. In carious and deformed limbs as soon as they became painful.

In the second half of the century some surgeons bound a cord as tightly as possible around the limb just below and others just above the point where the amputation was to be made. An assistant laid upon the main artery a flattened linen roll and pressed it

close with both thumbs. This digital compression, introduced by Louis and adopted by Desault, Richter and the two Siebolds, was preferred to the tourniquet because the latter obstructed the free drawing back of the soft parts before sawing the bone. Instead of the curved sickle-like knife, which Schmucker, for example, still employed, the disadvantages of which Desault was one of the first to point out, the straight knife was used (Pott, B. Bell and Richter). The skin was cut by a special movement of the knife and afterward drawn backward as far as possible, and at its edge a circular incision was made in the muscles as far as the bone. The muscles were also drawn far upward by a slit compress of linen, parchment or leather, so that the bone could be sawed off as high as possible and its protrusion be prevented. The periosteum was cut but it was considered unnecessary to push it back; then the bone was sawed off and the large vessels bound up by means of artery pincers, the small ones with Bromfield hooks. (In regard to the arrest of the hemorrhage we refer to Chapter 14.) One sought first to report a healing by prima intentio, which method proceeded from the English surgeons and was introduced into Germany, especially by Richter. "The chief object of the surgeon in bandaging is to further the healing of the wound by a speedy union. The more the bandage serves this purpose and the simpler it is the better." For this purpose the double circular incision was the preferred method, because by it enough skin was preserved to cover the entire stump and prevent as far as possible the protrusion of the bone. The skin being drawn down was fastened by adhesive plaster laid crosswise, lint laid on that, a linen bag, "English cap," drawn tight over the stump to properly press together the lint and the skin. On both sides a thick compress was laid, which, held firm by a band, pressed the muscles together so that they could cohere; thus the wound formed a somewhat long fissure. By this method, as B. Bell and Richter applied it, a healing by prima intentio was indeed possible, but Bell said it came to pass only rarely and rather in private practice than in hospitals, and that it was the fault of this method to force a healing by sutures and too closely applied plasters. Surgeons soon became generally aware that any pressure exerted by the bandage injured, hence Desault adjusted it as gently as possible. Wardenburg also decried adhesive plasters and compresses, which acted very disadvantageously, and he would only use plaster to hold together the edges of the skin. Pouteau indeed discarded all bandages and left the stump to nature. The suture seemed to have fallen entirely into oblivion although Paré had known it and fastened the skin crosswise. Perhaps he had seen it in Italy, for Maggi, who wrote during Paré's time, mentioned this method quite clearly and said he had learned it from the executioners of Venice, who when they cut off the head of a criminal, brought down the skin previously drawn back, and sewed it around. Sharp and Bagieu again took up the suture. Bandaging was gradually further simplified and the many salves and bandages thrown aside. Larrey covered the stump with pure water with an occasional addition of wine or vinegar, although he could not justify healing by prima intentio, for he regarded it as reliable only in cases of amputations on account of injuries to healthful parts, but very pernicious after amputations on account of chronic diseases. Von Kern left the stump open without bandaging and without suture, only cold applications by means of wet bath sponges or compresses were laid over the open surface of the wound during the first ten hours. Only if the wound was overlaid with plastic lymph he joined the edges of the stump with the greatest care by a few strips of adhesive plaster. If suppuration ensued, warm water was applied. Kern condemned the bandages, in use until then, because they kept the stump too warm and thus induced inflammation and suppuration, mechanically and chemically irritated the surface of the wound, and therefore for the most part prevented prima intentio, and the pressure of the adhesive plaster furthered the retraction of the soft parts. The effect of the atmosphere on the surface of the wound he regarded as not injurious, but on the contrary as useful. The results of Kern's experiments sounded very fortunate. In the second half of the century, according to B. Bell, the indications were as follows: 1. Complicated fractures, when the external conditions of the patient were bad, the fracture ran obliquely, the soft parts were much lacerated or in case of severe hemorrhage. 2. Large flesh wounds with laceration of the main artery. 3. A limb torn off by a cannon ball. 4. Mortification, when it became permanent. 5. White swelling in an advanced stage. 6. Sometimes in exostosis if it caused much pain. 7. Caries with extensive destruction of the soft parts, for without this one might remove the carious bone alone. 8. Cancer. 9. Various tumors which might destroy the soft parts and bone by continued pressure. 10. Stiff and crippled limbs when they cause the patient much suffering.

Until the beginning of the eighteenth century the single circular incision, according to Celsus, was in use; hence, for more than fifteen hundred years it was the only method. The simple flap incision, which Lowdham of Oxford devised for the leg, and imparted in a letter to Young, who published the method (1679) and which was then described by Verduin of Amsterdam (1696), had only just appeared. It was seen that the danger in amputation was very much reduced if the wound was made as small as possible, so that it healed quickly by prima intentio, and suppuration would be entirely or mostly avoided if the protrusion of the bone could be prevented and a thick cushion of flesh retained. With this object various methods were suggested: the circular incision made at two different times by Cheselden and J. L. Petit, the double-flap incision by Ravaton and Vermale, funnel incision by Alanson.

J. L. Petit especially deserves the credit of the *double circular incision.* Proceeding from the principle that only the skin was adapted to a quick junction and the preservation of the muscles affords no essential advantages for the covering of the stump of the bone, he cut through the skin at a deeper point, then when it had been pushed back, cut through the muscles at its edge and drew these up with a slit band. To pare off the periosteum before sawing he did not consider necessary. Louis allowed the protrusion of the bone to depend upon the contraction of the muscles and therefore enveloped the limb from above downward. This circular bandage came very much into use, but was rejected by some surgeons because it hindered the return flow of the blood, and if it was to be used with success had to be too tightly applied (Richter). The cutting through of the muscles was done in various ways; now with one stroke (Louis) again in layers (Desault); either with extreme relax

tion of the limb (Portal) or in extreme extension Valentin). In both ways it was sought to avoid a protrusion of the bone. The covering of the stump by a simple flap of skin was recommended, especially by J. L. Petit, Kirkland and Brünninghausen.

Verduin's *simple flap incision* from within outward found many opponents (Heister, Z. Platner, la Faye and Sharp); on the other hand, the *double flap incision* found many advocates. Ravaton began four inches under the point where the bone was to be sawed through with a circular incision through the soft parts, and by incisions from without inward formed two four-cornered flaps. Vermale discountenanced the circular incision and formed the lobes by two incisions from within outward. The double flap incision was in the beginning very favorably received in France, but was later pushed into the background by the double circular incision which the English surgeons, and especially Larrey, recommended. Desault, Pott and C. C. von Siebold secured with it very successful results; Richter, also, for the upper thigh, preferred a double flap to all other methods.

Alanson of Liverpool (Pract. obs. on amputation, 1779) invented the *funnel incision*. After a circular incision through the skin the knife was passed upward and inward and in this direction around the limb so that the wound received the form of a funnel and its point fell where the bone was to be sawed off. This was an unlucky proposition which found almost no indorsement. Loder was one of the few to praise certain features of this method, while the French surgeons as well as B. Bell and Richter rejected it entirely. The last named called it a fancy of the study (stubeneinfall) as it was not at all possible to make the above described incision.

We must yet notice the *bloodless amputation*, a discovery of Guy de Chauliac, who enveloped the whole limb with pitch plaster and so laced it at the joint that it finally fell off. The Austrian surgeon, Wrabetz, gave a new procedure for this operation (1782). How atrocious it was is shown by the following description: "I had the skin around the healthy part drawn back, bound a cord around the sound portion four fingers' breadth above the elbow, which cord had lain twelve hours in a mixture of spirits of turpentine, tobacco leaves, rue, Spanish fly and camphor, and twisted it with a short stick, applied upon it the mixture in which it had lain, spreading it over the cord upon the arm, along the artery, but applying and fastening a rather long pad in order to obstruct the inflow of the blood. The cord I had twisted more from time to time and in the furrow which it made in the flesh I had a powder of cinchona, myrrh, camphor and alum strewn. The fourth day all the soft parts were separated down to the bone without the least flow of blood, whereupon I sawed off the bone. The stump was healed in five weeks." Wrabetz in this way bound off fingers, toes, hands and feet with success, and Ploucquet of Tübingen recommended it in case of thin and timid people.

The low amputation of the lower leg claimed an special interest. They were accustomed always to cut it off three fingers below the knee, even if the ailment was limited to the foot, because they considered a long stump inconvenient and did not believe an artificial leg could be applied. Paré had entirely discarded the low amputation and relates the story of a captain who, after he had recovered from it again had his leg amputated in the calf because the stump was too burdensome to him. Even at the end of the seventeenth century Solingen and Dionis advised this amputation and Garengeot asserted that the long stump was no hindrance at all. The practice was, however, entirely forgotten. The first who again showed the practical possibility of this method appears to have been Ravaton (*Journ. de Nandermone*, vi, p. 130, 1756), without, however, having discovered it as he believed. He made several amputations of this kind and argued as its advantages the slight danger, the smallness and quick healing of the wound and the small number of the large blood vessels and nerves, and asserted that with two flaps the operation was very easy. With his artificial leg devised for this purpose the patient could walk conveniently; indeed, one upon whom he had operated made three campaigns afterward. After him Trecourt ("Mém. de Chir.," 1769, p. 256) and especially Charles White ("Cases in Surgery," 1770) came for this operation, with which the latter had several successful results to show. He advised as low an amputation as possible always by means of the lobed incision, but would fasten the lobes upon the stump with court plaster when after some fourteen days the suppuration was in progress and the bones had covered themselves with granulations. He also constructed for the purpose a boot-like apparatus. Since that the low amputation has become established in surgery. On the other hand, if it were a question of amputation just under the knee, some would not amputate at this point but above the knee, because shattering of the bone and caries might possibly extend into the joint, and besides the artificial leg would have a better hold on the thigh (B. Bell and Richter).

Artificial limbs had already been devised by Paré, Fabr. v. Hilden and Solingen. Heister spoke of wooden and silver limbs, which "had been very curiously devised by various mechanics." Besides the above mentioned, one known in Germany as the best was that of Brünninghausen for the high amputation of the thigh. This consisted of a calf made of copper, a heel, middle foot and toe-piece, which were fashioned out of light but firm wood by a sculptor, exactly after the sound foot.

There prevailed a great horror of *exarticulation*. Performed by Fabr. von Hilden, Paré and other older surgeons, and not entirely rejected by Heister and J. L. Petit, in the middle of the century, they had fallen very much out of use. Brasdor, le Blanc, Sabatier, Larrey and others sought to allay the loudly expressed terror and argued that the dangers would be entirely avoided if one cut entirely through the sinewy parts, and that the bone exfoliated slightly and soon became covered with granulation. They considered exarticulation as easily practicable and warmly recommended it.

The second birth of these operations began with the exarticulation of the *upper arm*. This was first done by Morand, senior (1710), then by le Dran and improved by la Faye (1740). In caries and inflammation Heister would never have the large limbs taken out at the joints, but still he exhaustively described le Dran's operation. Later Bromfield and Desault performed this exarticulation with success, and Larrey introduced it into military surgery. Almost every one of these surgeons had his own methods. The circular incision was soon superseded by the lobed incision; Morand, Garengeot, Sharp and Alanson operated with the former. In order to the more easily control

the hemorrhage, la Faye devised the flap incision, which either with forward and backward, or with outer and inner flaps was adopted by Bromfield, Desault, B. Bell and Larrey, and is still practiced. Later Larrey devised the oval method. It was the hemorrhage chiefly which gave rise to the many modifications in the methods. Morand punctured the axillaris subcutaneously with a curved needle and bound the provisionary ligature over a compress in the axillary cavity; he then exarticulated it, bound the artery definitely and released the provisionary ligature. Le Dran recommended that the artery, before the operation, be punctured in the axillary cavity; la Faye advised the continuous binding of the axillaris before the formation of the two flaps. The essential improvement, which controlled the hemorrhages, was the method of Poyet (1759) who, before the cutting of the second flap, which contained the artery, had an assistant reach into the wound and compress the flap. This manual compression, already in use by Desault, has continued to the present day. Bromfield also deserves the credit for compressing the subclavia against the first rib with the finger instead of with the tourniquet, a method which soon found general acceptance and superseded the legion of inconvenient tourniquets constructed especially for that purpose. The technique was extraordinarily varied; some would bind the blood vessels as high up as possible, others as low as possible, so that the flaps would be sufficiently nourished through the side branches; one pared the cartilage of the socket off, another did not because the soft parts united with the cartilage as readily as with the bones. The indications for exarticulatio humeri were caries and shattering of the bone, in consequence of a shot (Alanson with success, 1779). Soon, however, the operation experienced a limitation, since, when the soft parts were affected slightly or not at all, the resection of the head of the humerus was substituted. The exarticulation of the *elbow joint* first made by Paré (1536) and afterward by a Brandenburg surgeon, Chr. Rumphtun (1671) was somewhat outside the usual course. Now it was recommended again (Brasdor and Richter); but it was stated against it that the stump had not a sufficient cushion of flesh, and in the aponeurotic parts a good suppuration never arose (Schmucker). Exarticulation of the hand joint, which it appears was first accomplished by Fabr. v. Hilden, and indeed with the circular incision, was very rare. Heister never made it nor saw it made, and Z. Platner does not mention it at all. Later, in France, it found acceptance, where Sabatier and others performed it with success. On the other hand, *fingers* and *toes* were exarticulated with the greatest partiality, and it was advised that the cartilage be cut through in order to shorten the time of the cure.

The bold idea of exarticulation of the shoulder joint was scarcely sketched out and a few successful cures heard of when courageous surgeons found the exarticulation of the *hip joint* suggested, an operation which demanded the greatest care. The Danish military surgeon Wohler and the Swiss Puthod, both pupils of Morand, had first expressed the idea of this operation, had tried it with their teacher on a cadaver, and in 1739 submitted their proposition to the Académie de chirurgie. Le Dran and Guérin rendered a favorable judgment. Later Lalouette wrote on the subject; he did not consider the operation absolutely dangerous, as the art. iliaca could be compressed, and in his experiments on cadavers, scarcely twelve ounces of the water injected into the aorta flowed out of the severed artery of the thigh. Then Ravaton wished to carry out the exarticulation upon a living person, but was restrained by the consulting surgeons. When the Academy upon the suggestion of Morand, in 1754 called for prize essays on the indications and best technique, among forty-four works submitted, there were thirty which held the operation to be possible. The marine physician, Barbet, received the prize, expressing himself in favor of the operation in case of shattered bones and caries of the neck and head of the femur, and in aneurysm and gangrene. This impelled Morand to make known the work of his two pupils (1768) and to recommend the operation in case of shattering and caries, where it must be regarded as the only way of saving from death. He sought to meet the charge of cruelty and of enormously large wounds and hemorrhages, and argued that the operation had been performed successfully upon three dogs and two sheep. Among the surgeons who championed the operation was, strangely enough, the conservative Bilguer. But he, as well as his translator Tissot, preferred exarticulation to the amputation of the upper thigh. The former indeed recognized the great difficulties, but would in that way avoid the inconveniences of a stump; the latter, from his student's chamber had arrived at the conclusion that the hemorrhage could be more readily stilled in articulation. Pott combatted these views in so far that, although he admitted the possibility of the operation, which he himself had never performed but had seen performed, he however expressed the safe conviction that he would never perform it, because in most cases of caries of the head of the femur the cavity of the joint was also carious. When Schmucker had become acquainted with the difficulties of the operation on cadavers and in cases of fracture, he thought that hardly anybody would be bold enough to carry out the operation, called it the most cruel in all surgery, one which nobody would recover from, and one compared with which Cæsarean section itself was but a trifle.

B. Bell and Richter could not coincide with these entirely dogmatic views. Indeed they did not ignore the dangers, but believed that by the formation of two flaps as the former suggested, they could be overcome, in which way the arteries would be severed deep down, where their diameter was less and a healing by prima intentio could be attempted. For Bell a chief difficulty consisted in the uncertain diagnosis, as one could not know whether the caries extended also to the cavity and pelvic bones, so that the operation might probably result fatally. Besides, if the soft parts were affected slightly or not at all it might be avoided by the resection of the head of the femur, while in case of the destruction of the soft parts the exhaustion of the patient might make success very doubtful. To Richter the exarticulation was very seldom unavoidably necessary. Later Sabatier argued that it caused less pain and occasioned a smaller wound surface than amputation. It is not exactly known who first carried out the exarticulation on a living person, whether Henry Thompson or Perrault, in 1770. The French gave Lacroix the honor but his operation (1748) performed on a 14 year old girl for gangrene consisted only in a few shears-cuts to sever the extremity; the patient died on the eleventh day. In 1779 Kerr of Northampton oper-

ated upon a girl, who died on the eighteenth day in consequence of pelvic suppuration. Larrey first made the exarticulation in the field, and indeed made it eight times with success, during his twenty-five campaigns.

The exarticulation of the *knee joint* was mentioned by Fabr. von Hilden as a common operation, was discarded by Dionis and performed by J. L. Petit twice with success, and without the occurrence of ill consequences. Brasdor (1774) sought to introduce it again. He considered amputation of the upper thigh in the larger wounds as more dangerous, and did not fear caries of the naked joint surface because the cartilage soon became covered with granulations; he lauded the easy accomplishment and the slight pain of the exarticulation. He recommended the formation of a posterior flap and the sparing of the patella. While Richter recognized the arguments of Brasdor, Schmucker ruled against the exarticulation for the same reasons as in the case of the elbow joint. It did not meet with acceptance at that time. The exarticulation of the *astragalus*, which Sédillier had accomplished without ill consequences, and with quick healing of the wound (1774), also found no approval although Brasdor and Sabatier submitted special methods for it. Amputation above the tarsal bones was preferred. The exarticulation of the *tarsal joint*, the possibility of which von Abbeville demonstrated (1746), was also mentioned by Heister; "the surgeons of today are accustomed in case of a diseased foot to amputate it at the joint with a knife, to separate the toes from the metatarsus, or the metatarsus from the tarsus, or ossa tarsi from each other, so that one could go about again, somewhat, upon the foot as upon a crutch." Its first accomplishment became known through Hunczovsky, who in 1780 when with du Vivier in Rochefort, saw an 8 year old boy whose foot had been severed at the joint for caries, the talus and calcaneum being left. Two months later the patient began to walk comfortably. The operation was forgotten until Chopart took it up anew. He performed it in 1791 and described the practice which has since borne his name. He was followed by Lafiteau and M. A. Petit, the latter of whom observed a retraction of the heel which rendered walking entirely impossible so that he decided upon severing the tendon of Achilles (1799). The exarticulation of all the *bones of the metatarsus*, pointed out by Garengeot and Heister, was first performed by Percy (1789) and was later introduced into practice by Lisfranc (1815).

To the ingenious ideas which were conceived in the foregoing century belongs *joint resection*. Like most great discoveries, this also had its precursors which consisted in the removal of the ends of dislocated joints and in the extraction of necrotic or splintered pieces of bone. It is not without interest to observe how within the space of a few years the beginnings of a conservative surgery converged from two different sides. To save limbs and avoid mutilating operations was the aim, but the ways differed. In the year 1761 Bilguer came forward with his conservative treatment. *In 1768 Charles White of Manchester, gave the first impetus to joint resection with his now celebrated operation.* With it he desired to avoid amputation and exarticulation in many cases, if not to entirely supersede them, as was Bilguer's wish. A 14 year old boy contracted an acute osteomyelitis of the arm, in consequence of which the head of the humerus became necrotic. Ichorous pus, diarrhea and fever had enfeebled the patient to the last degree. Instead of exarticulating the arm, which must have been regarded at that time as the only means of saving the patient, White opened the joint with a single large, longitudinal incision, extending to the middle of the arm, and removed the loosened necrotic head of the upper arm. Improvement began immediately and six weeks later an unexpected firmness was found in the joint. Soon thereafter a piece of the diaphysis separated itself so that from the upper end of the humerus a piece five inches long was lost. The arm was lightly bound without splints or other bandages; indeed, the patient sat in a chair during almost the whole treatment. Perfect recovery ensued and the replacement of the bone was so complete that the arm was only an inch shorter than the sound one and moved freely and could be not only lifted but also rotated. White said, "I think I may safely say, the head, neck, and part of the body of the os humeri are actually regenerated" ("Cases in surgery," 1770; "Philosoph. Transact.," vol. 59 for the year 1769, London, 1770).

The advantages of this operation, through which the exarticulation of the upper arm could frequently be avoided, were too brilliant for his contemporaries to be able to overlook them. In Germany they soon became aware of the great value of this operation. When Richter became acquainted with White's work, shortly after its achievement, he recommended that resection be made as soon as the soft parts had suffered slightly. And the first one who repeated the resection, and indeed on the upper arm, was a German, Lentin. He performed it in 1771 in case of a 14 year old girl for caries, removed at one time almost the whole diaphysis of the humerus, and as a result of bone regeneration restored the use of the arm with limited mobility. Soon E. Platner recommended this operation in case of caries. Foreign countries followed. The Englishmen, Bent and Orred in the seventies performed the resection of the head of the upper arm; the former used the longitudinal incision with two other transverse incisions; the latter, in order to spare the artery, placed a piece of pasteboard under the bone before he sawed it off. The piece which had been removed was replaced by callus and after three months the arm could be moved in all directions without hindrance. In France Sabatier and the elder Moreau especially took an interest in this resection; the latter formed the four-cornered lobe. Percy and Larrey enriched military surgery with it. The latter as early as 1795 was enabled to report to his colleague, Sabatier, nine soldiers for whom the resection of the shoulder joint had been performed by him; Larrey made this operation ten times in Egypt.

If joint resection did not become established as soon as had been expected, this was due to several obstacles: 1. The experiments in France on animals, which were conducted by Chaussier and Vermandois, did not succeed because they spared neither periosteum nor joint capsule. 2. Many surgeons regarded joint resection as equivalent to *resection of the bones where continuous.* This was frequently brought into use in complicated and gunshot fractures, caries, necrosis and pseudo-arthrosis. We have already mentioned that the military surgeons, Bilguer and Theden, also Percy and Larrey in gunshot fractures, frequently laid bare the broken place by large incisions and resected the sharp ends successfully. Large pieces of bone were

fearlessly removed. A. F. Vogel sawed one and one-half inches from both ends of the broken bone, whereupon the arm, without shortening, grew so as to be used; le Cat sawed off three inches; indeed Siegwart of Tübingen removed an entire carious tibia (1770), which became completely regenerated. While W. Hey could also show successes relative to this bone, Moreau, senior, did not succeed in the resection of long carious bones on account of failure of regeneration. Partial resection of the ribs, known even in antiquity, was not infrequent in case of caries (Gooch, Acrel and Percy).

If we turn back to joint resection we find that the next advancement, after White, was made by H. Park, Liverpool. He was acquainted with the operations of his countrymen and made the hitherto unheard of proposition to entirely eradicate the joint, i. e., the whole of the abutting bone ends, and to remove the whole joint capsule or the greater part of it. In this way in tumor albus, suppuration of joints and complicated shot fractures amputation could be avoided and the loss of the extremity prevented. Park's work in the shape of a letter to Percival Pott, dated Sept. 18, 1782, an account of a new method of treating diseases of the joints of the knee and elbow (1783), is surpassingly well written, and is simple and practical. All the objections which could be urged against this method Park believed he was able to overcome, since they were only apparent. The large blood vessels could be avoided readily in the arm as well as in the knee; a violent inflammation was less to be feared in large wounds where all the parts were completely cut through. That a sufficiently firm callus would develop was, after experience in complicated fractures, not to be doubted; on the other hand, the loss of the extensor muscles was of no importance as the limb became ankylosed. Walking with a stiff shortened leg was safe enough and amputation afforded no better chance of removing all disease and preventing relapse. The investigations of Park were limited to the knee and elbow joints. In his experiment on cadavers he made only a longitudinal incision in the knee joint, which White had already established as a principle in case of a shoulder joint and found it sufficient, but had in general difficulty in making it serve. In his first resection of the *knee joint* made on a sailor thirty years old, for caries (July 2, 1781), Park began with a single longitudinal incision, but after several fruitless experiments found a transverse incision necessary, which he made from the middle over the patella. After carefully removing the knee capsule a spatula was applied behind the bone to protect the large blood vessels from the saw. The piece resected from the femur was two inches long; that from the tibia, one inch long. In order to hold the bones close together they laid the limb in metallic splints, stitched the skin together and bandaged it but slightly. A violent, bad smelling suppuration ensued for which a pulp of turnip was applied and cinchona given internally; the fever remained moderate. After four weeks a partially osseous union existed. In its later course several abcesses must be opened. After nine months the bones were firmly united and the wounds healed. The patient walked without crutches with one limb three inches shorter than the other, wore a shoe with a high heel and later went to sea again. Park was well aware that the cure always took a long time and that the operation would not always succeed. (His second knee-joint resection in 1789 proved fatal after four months); therefore he hesitated about suggesting it in the large hospitals of London where complicated fractures were so seldom cured. But amputation also frequently resulted fatally; however, resection which has better chances in injuries than in diseases from internal causes should never supersede amputation, for the latter always deserves the preference where the soft parts have suffered severely or the bone disease has extended far upward.

Park's operation, through which the resection of the knee joint with the presentation of certain indications and a systematic technique, was introduced in surgery (for Filkin of Norwich, who had performed this resection with success in 1762, first published it later), found favorable acceptance. B. Bell endorsed it, although experience must first teach whether the method deserved a general application. It would always remain difficult to prevent the accumulation of pus, the generation of fistulæ, and to fix the limb properly. For this purpose Richter would maintain the limb in a straight position as well as extended and placed no importance upon the shortening. In spite of everything the Frenchman, Lancelot-Haine, pronounced a thoroughly depreciative judgment upon Park's resection, regarded it as very difficult and horrible and said that after much pain, trouble and danger a newly acquired stiff bone was less useful than an artificial one (1787). The resection of the knee joint was first repeated by Moreau, senior, in case of caries (1792). To partial resection might belong the extirpation of the patella, which Theden made in case of a shot fracture, but the patient died of gangrene.

Gradually resection was applied to other joints and anchylosis was regarded as the most favorable result. The greatest credit for its wider development is due to Moreau, senior. who operated upon various joints, in the 80's and 90's, and communicated his experiences to the Académie de Chirurgie (1789). Unfortunately, this body, ruled by prejudice and influenced by Chaussier's unfavorable experiments, showed no interest in one of the most valuable achievements of surgery. Moreau did not allow himself to be terrified; he perfected the technique and operated in his private practice, while the great Parisian hospital surgeons remained indifferent. Moreau, the son, followed in the footsteps of his father and in the Académie de Médecine had the same melancholy experiences. Nevertheless the outcast child of Sabatier, Percy, Larrey and Ph. Roux was sheltered and nursed. In the year 1812 Percy wrote that the number of joint resections accomplished by him, Larrey and other French military surgeons was already so great that one could not count the cases. Above all others the English surgeons should have been interested in the discovery of their countryman; they remained indifferent So the flowering time of joint resections only began in our century.

Extraction of splinters from the *elbow joint* in gunshot fractures, and a partial resection, which consisted in sawing off the humerus condyles in a complicated luxation (Wainmann, 1758), had taken place, when Park proposed the total joint resection. Here he considered a longitudinal incision as not sufficient and a crucial incision necessary. If he himself did not carry out the operation yet he recommended it, as his much more difficult resection of the knee joint had succeeded. After Görcke in a shot wound had successfully made a partial resection by removing the

head of the ulna (1793) and Bilguer had resected the olecranon, Moreau, senior, first performed the total resection in a case of caries in 1794. He made an H-shaped incision, took one inch off each of the three bones and after seven months obtained a cure. He repeated the operation several times and found a follower in Percy, who first accomplished the total resection in a gunshot fracture. The honor of first making an experiment in resection of the wrist, belongs to the Prussian staff physician Beyer. As Bilguer relates, Beyer in 1762, at the battle of Freiburg, removed both under epiphyses of the forearm bones and the ends of the ossa carpi and metacarpi from a wounded soldier's hand, shattered by a howitzer. The hand indeed did not again become so as to be used, and the operation was not a methodic resection; but if it were correctly performed, it deserved to be imitated, as an immobile hand is always better than the stump of an amputated forearm.

The resection of the *hip joint* was proposed by Charles White in 1769 and practiced on cadavers; yet a half century passed before it was carried out on living persons. Vermandois and Koeler of Göttingen, undertook experiments on animals and endeavored to determine the possibility of the operation and its results. Observation at the bedside also contributed to that end. It was seen that in the last stage of coxitis, in case of long standing caries of the head of the femur, this might become loosened naturally, and after its artificial removal a cure might result. Schlichting (1730) after the outbreak of pus and the previous enlargement of the fistula, had removed the whole head; the wound healed after six weeks and the girl could walk again. A. F. Vogel also (1771) in a suppuration of the hip joint removed the bad-smelling pus and found the head of the femur sundered from the neck. The diaphysis with the neck lay upon the oval cavity, where it was allowed to remain and cicatrize. After three months, recovery ensued; the patient could walk about, limping, but without a cane. Fear of the difficulty of the operation may for a long time have prevented its perfect fulfilment; for only in the year 1817 a German physician, Schmalz of Pirna, first applied the knife to the resection. He would indeed have carried it out but found that nature had already sundered the carious neck of the femur so that he needed only to grasp it and draw it out with the hand. In truth, Anthony White of London was the first who carried out the operation, in 1821; he resected four inches of carious femur and accomplished a cure with great mobility and slight shortening of the limb. Oppenheim performed it in 1829 in the Russo-Turkish war; first in a gunshot injury. If we except the removal of luxated or fractured parts of the ankle, which had in all times been performed (by W. Hey, and Kirkland, on both lower leg bones, by Gooch on the tibia, etc.), then the history of the total resection of the *ankle* began in 1792 when it was successfully accomplished by Rumsey in a complicated luxation with fracture of the astragalus, and by Moreau, senior, in case of caries. The resection of one or more tarsal bones did no longer belong among rarities (Moreau, Desault, Hey, Bilguer and others).

Finally resections of the jaw.—Partial removal of a part of the *upper jaw* was accomplished on account of carcinoma (Gensoul); sarcoma and exostosis (Desault). Among those of the *lower jaw* was the exarticulation of one-half of the bone, in the last century, which operation the Austrian military surgeon Fischer first performed in 1793 in a shot wound. A large incision through the masseter and the parotid exposed the proc. condyloideus and coronoideus; the joint cavity was opened and the entire left half of the lower jaw removed, whereupon healing followed. In closing, a remembrance to a German surgeon and namesake!

THE END.

[ERRATA.—In the JOURNAL for March 13, 1897, page 494, second column, nineteenth line from the bottom, the word "peritoneum" should read "perineum;" also, in the JOURNAL for July 31, 1897, page 234, first column, fifteenth line from top, the word "anterior" should read "posterior."]

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

A regular meeting was held Nov. 12, 1897, with Dr. A. E. BALDWIN in the Chair.

Dr. R. B. PREBLE read a paper entitled

GASTRECTASIS, WITH A TETANOID CONDITION AND THE SO-CALLED PULMONARY HYPERTROPHIC OSTEO-ARTHRITIS OF MARIE.

The case upon which the paper is based is that of a Pole, a male of 32 years, free from all hereditary taints, bad habits and venereal infection. For past six months has complained of eructations, nausea, vomiting, attacks of diarrhea, anorexia, loss of strength and emaciation.

Physical examination of chest negative. Abdomen full and distended, especially in the epigastric region. Marked succussion over stomach. Distention of stomach with gas shows it to extend from normal borders above to hand breadth below umbilicus and far to the right. Urine negative. Temperature of 101 once. The distal phalanges of the hands very much thickened; typical clubbed fingers. A week later returned with tonic spasm of the masseters, the flexors of forearm, wrist and fingers. Arms held against chest, elbows at right angles, thumbs adducted, the fingers flexed in all joints, *i.e.*, an almost but not quite typical spasm of tetany. Reflexes exaggerated, sensation normal, Chvostek and Trousseau signs absent. Has had such spasms at intervals for some time.

The clinical diagnosis made was gastrectasis, with the so-called pulmonary hypertrophic osteo-arthritis of Marie and with a tetanoid condition. The association of gastrectasis with true tetany is rare, with incomplete tetany or tetanoid condition more common. The common theories of the etiology of tetany were reviewed, especial attention being given to that of auto-intoxication. The efforts of various experimenters to discover the causal toxins in the gastric contents and their failures so far were reviewed. Gumprect failed in a recent case to discover any pecular toxic bodies in the urine of such a case. The urine, however, showed twice the normal toxicity. The clubbing of the fingers, in the absence of any other demonstrable lesion, was referred to the gastrectasis. The popular explanation of this condition is, that it is due to the action of absorbed toxins upon the bones. The source of these poisons is oftenest a bronchiectasis or empyema, but they may be absorbed from other places as cysto-pyelonephritis, the intestines in dysentery. This case is the first example where the source of the toxins seemed to be the stagnating contents of a gastrectasis. An X-ray photograph showed that the bulk of the thickening was in the soft parts rather than in the bones. The bones, however, showed some excrescences and were also more transparent than normal, probably the result of a rarefying ostitis, such as is often seen in this condition.

The case is of interest because it shows in one individual two conditions of uncertain etiology, both of which are generally believed to be due to an auto-intoxication of the organism with toxins. Secondly, it would seem to be a connecting link between rachitis, a nutritional disturbance in which the bones are affected and which is often accompanied by tetany and the tetany of adults, which until now has not been seen in association with osteal changes, apparently due to the condition which caused the tetany.

DISCUSSION.

Dr. FENTON B. TURCK—There are some objections to the word tetany as used in these cases. It is to be borne in mind that some of these patients have exhibited signs of tetany and have at other times manifested almost the epileptic form of convulsions. I wish to present tonight the reason, so far as my observation goes, of what I believe to be the cause of this

disease, and also to report two or three interesting cases in my own experience. In all cases of true gastrectasis we will find a marked atony of the stomach with hypertrophy of the pyloric orifice. In other words, we have obstruction of the pylorus *plus* atony of the stomach wall. In other cases we have primary hypertrophy of the pylorus when compensation occurs, the wall becomes thicker and stronger, but subsequently results in true dilatation. The pathology of true dilatation is markedly different in many of these cases. The round cell infiltration that occurs produces the true dilatation. The round cell infiltration, resulting in atrophy, usually begins in the glandular area and extends into the muscular tissue, this condition necessarily causing retention and stagnation. The micro-organisms already present there have abundant opportunity to develop, resulting in putrefactive decomposition and fermentation. These toxic products, whether we have tetany or not, found in a patient's stomach, will produce tetanic convulsions when injected into animals. Evidence derived from frequent experiments I have made, leads me to conclude that in many of these conditions we can prove a toxic condition of the stomach contents. I have made a series of experiments on the stomachs of soldiers in the regular army, in the normal condition, and have compared them with various cases of dilatation and retention, which show decided hypertoxicity of the stomach contents. In these cases there is another condition to which I would call attention, namely, starvation. It will be remembered that Van Gieson referred to this starvation as being a form of intoxication, and that we have coupled with this a lowered vitality and resistance to the action of the poisons, which is the second condition that must be considered. A third condition which I wish to call attention to in this class of patients which I have observed is that there is usually a "neurotic tendency." The patients themselves have not the inhibitory power that we find in other patients manifesting similar conditions of gastric dilatation. I mention these three factors to be considered as relating to tetany.

A word or two as to diagnosis. The method that has been heretofore practiced is simply that of outlining the organ by the use of gas or air introduced into the stomach. This is faulty from the fact that the gas or air will frequently pass into the intestines, and percussion will show the stomach as if located further down or to the right than would be shown by direct methods. The use of the electric light (Einhorn's method) is valuable in the hands of an expert, but it is impracticable for general practice. We know that the use of the gyromele (revolving sound) affords us exact evidence of the size and location of the stomach in every case.

I wish now to report a case that was referred to me by Dr. C. S. Bacon in 1893, in which I found hypertrophy and stenosis of the pylorus with marked dilatation of the stomach and stagnation. On examining the stomach contents I secured 800 c.c. of fluid. A peculiarity of these cases, which is often noted, is that upon the introduction of a stomach tube a convulsion sometimes follows. In this case there was no convulsion after passing the tube until the patient had returned home, when I found him in a condition simulating opisthotonus. I found contraction of the jaws, the arms flexed upon the breast, and in this rigid condition the patient seemed to breathe heavily, the pulse was rapid and the temperature 101.5 degrees. Subsequently he had two or three lighter attacks, but following the tetany the attacks became more epileptiform in character. The patient was treated for a while and compensation occurred, *i. e.*, the stomach wall became thicker and stronger and the food passed out of the stomach into the intestines normally and in time, and the symptoms disappeared. But some time after the symptoms reappeared and it was decided to do a pyloroplastic operation. The Heineke-Mikulicz operation was performed and from that time the symptoms entirely disappeared.

The second case was one which resembled the first in some of its manifestations and was sent to me by Drs. Ferguson and Sanger Brown. Mrs. S. had had more or less epileptic attacks, but there was a peculiar form of tetany in this case which occurred in the abdominal muscles. A clonic spasm would make its appearance and then was followed by a tetanic spasm until contractions occurred so markedly as to extend to the arms and involve the jaws. The peculiarity in this case was that the symptoms began in the abdominal muscles.

A third case was sent to me by Dr. Cuthbertson and was that of a woman who had hyperemesis of pregnancy and the patient had had a previous history of two or three attacks during which she could not open her jaws. In her case there were mild periodic attacks of tetany. She was treated and we found such a large mass of sarcinæ that the other physicians thought it was pus. I withdrew something like two liters in two days. The patient, after being observed a week, had an attack of tetany which commenced with difficulty in swallowing, at 3 o'clock in the afternoon; at 5 o'clock the jaws were closed, at 6 arms were involved, and then the legs, and at 9 she died from tetany. In the meantime I brought with me tetanus antitoxin, thinking it would have some effect on the tetany, but it produced no effect.

There is one point I wish to mention, and that is, in most cases associated with gastric tetany there is either a total obstruction or the pylorus is so narrow that material can not be forced into the intestines. In all cases of this character we should advise operative interference at once and perform the Heineke-Mikulicz pyloroplastic operation.

Dr. JAMES C. KIERNAN—In dealing with these conditions the two hypotheses can very well be combined that have been advanced by Dr. Preble and Dr. Turck. There are few cases, especially among the conditions hinted at by Dr. Preble, in which neurasthenia with its consequence and its gastric expression is unlikely to occur. Dr. Turck has hinted at a large number of cases being neurotic. The last case which he reported was, I think, one of puerperal tetanus and not tetany, as I understand the term. The condition of tetany is by no means rare, as Dr. Preble has remarked, in children, not merely with reference to rickets, but with regard to an expression of both nerve tire and irregular nutrition which is recognized now to a considerable extent as one of the underlying factors of scurvy. The conditions which today are placed under scurvy of the infant and charged to diet were some years back charged to innutrition, many of them being placed under the condition known as piliosis rheumatica nodosum, whose dermic lesions resembled the ecchymoses. In many of the cases the true condition known as tetany, or, as I have been accustomed to term it, tetanilla, is to be found. Neurasthenia, either attacking the sound organism or one which is already neurotic, is by no means rare in Europeans. It was quite common with its gastric phenomena in the male and female shoemakers in Lynn, Mass. Nearly forty years back there was a condition so closely resembling it there that it was first described as epidemic, and then as endemic. This so closely resembled tetanilla that it could be placed under the same category. It was then charged that a good many of the conditions were due to dyspepsia, and dyspepsia in those days meant a large number of neurotic states charged up to these gastric conditions. In dealing with these and allied conditions of the intestines the fact is often ignored that they are not primary, but secondary to a constitutional condition. Glénard, when he dealt with enteroptosis, did not take into account the fact that very frequently nerve tire and allied conditions preceded the neurasthenia to which he charged them. This would seem to serve as a predisposing factor. With regard to the direct etiologic factor I can see good reasons, from what is known of many of the morbid products (call them alkaloids, toxins, leukomains or allied products), why they should produce this condition. Certainly the occurrence of tetanilla in connection with infantile scurvy or rickets bears out Dr. Preble's position as an exciting factor of this kind.

Another thing which is purely hypothetic is whether interference or partial inhibition of the functions in gastrectasis may not produce the temporary, or, in some cases, permanent atrophic changes to which Dr. Preble has referred.

Dr. PREBLE (closing the discussion): It was not my intention to enter into the pathology of gastrectasis. The case, simply as one of gastrectasis would have no interest, and only little interest as one of gastrectasis with tetany or a tetanoid condition, but because we find here a tetanoid condition with drum-stick fingers, both apparently due to a gastrectasis, the case seemed to me to be worthy of record. I must accentuate again the criticism manifested in regard to Dr. Turck's use of the words tetanus and tetany. One condition is absolutely distinct from the other and they should not be confused. The last case mentioned by Dr. Turck would seem to be one of tetanus rather than tetany, and if so, it has no place in the consideration of this subject.

In regard to his first case there are one or two things which attract my attention. In the first place I have never seen opisthotonic convulsions with tetany, nor have I ever heard of them occurring with it. There is, however, a functional neurosis often accompanied by opisthotonic convulsions, namely, hysteria, and with hysteria we frequently have epileptoid convulsions. It might, however, be that she had tetany, and associated with it epileptoid convulsions. The line between the two can not be so nicely drawn as to say that she had tetany and later on an epileptoid condition. It is more interesting to note that in these cases the masseters are more frequently involved than in ordinary cases. Tetany as it occurs in normal individuals, especially in shoemakers, is rarely accompanied by spasm of the masseters. The external muscles of the eye may also be involved in the spasm, but not

as often as the laryngeal muscles, particularly the laryngeal muscles in rachitic children.

Dr. Kiernan spoke of a condition which resembles tetany as being observed in the factories of Lynn. I am much interested to hear of these cases, for tetany seems to be rare in this country. I saw a number of cases abroad, so that its clinical picture is familiar to me, but I have not seen one here. This case is not typically tetany at all. The most we can say is that we have tetanoid conditions. So far as I have seen (and my opportunities for observation have not been ideal by any means) the case lacks two important signs, namely, spasm following pressure over the large vessels or nerves, and facial phenomena. These are absent entirely.

In regard to the use of the word tetanilla, I never heard it employed until Dr. Kiernan used it, and then I was interested enough to look it up. I found the word tetanilla was proposed by Trousseau many years ago, but in his lectures he makes no use of it. He makes use of the word tetany only. One has to hunt the dictionary or monographs upon tetany to find the word tetanilla at all.

AMPUTATIONS AT THE KNEE JOINT.

Dr. Wm. Cuthbertson—This is an operation of considerable antiquity, having been advised by Hoin in the last century and reintroduced by Brinton, Velpeau, Markoe and others.

In discussing amputations at the knee, various causes requiring the operation must be taken into consideration before determining the operation to be performed. It is a foregone conclusion that in all crushing injuries, such as railroad accidents, limbs being caught in machinery, wounds of the femoral or popliteal arteries, the incision must be made according to the extent of the destruction of tissue or the location of the arterial wound. Again the amount of shock resulting from the injury must be considered as a determining factor, it being a well known fact that the higher the point of amputation the greater the shock and consequent mortality. The third determining factor is the ability of the patient to procure a prosthetic appliance to replace the loss of the amputated limb.

It should be imperative that the line of suture in all cases of amputation at the knee joint should be behind and not across the end of the stump.

MORTALITY OF KNEE AMPUTATION.

An analysis of a mortality table compiled by John Ashhurst, Jr., M.D., in the International Encyclopedia of Surgery, Vol. , 1888, gives a death rate of 50 per cent. A later compilation by the same author in 1895 of seventeen cases with eight recoveries and nine deaths gives a mortality of 52.9 per cent., or a total mortality in both series of 52.4 per cent. These cases comprise operations for all causes.

A further analysis of these statistics shows that of seven amputations by the antero posterior flap method through the knee joint, four died and three recovered, a mortality of 57 1-7 per cent. Amputation by the same flap method through the condyles of the femur, nine operations were performed with five deaths and four recoveries, a mortality of 55 5-9 per cent.

From statistics of the Civil War 132 cases are reported with 64 deaths; mortality 48.4 per cent. Of these, 49 were primary with 16 deaths, a mortality of 32.6 per cent. Brinton gives 62 cases for disease with 14 deaths, a mortality of 22.6 per cent. Max Schede gives in civil practice for injury 314 cases with 103 deaths, a mortality of 32.8 per cent. For disease 124 cases with 30 deaths; mortality 24.4 per cent.

Rioblanc (year book 1897, page 229) gives the records of 85 cases of Gritti's operation with a mortality of 19 per cent.

He states not one of the deaths was due to the operation but to other causes. A further report of this operation gives 25 cases for injury with 4 deaths, a mortality of 16 per cent.; for disease 196 cases with 5 deaths, mortality 26.3 per cent.

Amputations through the condyles of the femur: For injury 111 cases with 40 deaths; mortality 36.1 per cent; for disease 60 cases with 15 deaths; mortality 25 per cent.

Totals: Simple disarticulation, 648 cases with 220 deaths; mortality 3.3 per cent. Gritti's operation, 306 with 13 deaths; 4.2 per cent.

Amputation through condyles of femur, 171 cases with 55 deaths; mortality 3.2 per cent. Grand total, 1,125 cases with 328 deaths; mortality 2.50 per cent.

The age of the patient has a distinct bearing on the mortality of the operation; other things being equal, children stand amputation better than adults, the reason being, in my opinion, in addition to a better constitution, as a rule, the shock is lessened by the child not being aware of the enormous loss it sustains through the amputation of the limb. The operations which would seem to meet with the most favor are the following:

1. The antero-posterior flap method, formed by cutting an anterior flap, beginning the incision near the back of the tuberosity of the tibia, curving around the front of the knee from one to three inches below the tubercle of the tibia and ending at a point half an inch below the head of the fibula. The ligamentum patellæ is reached, divided, the knee flexed and the lateral and crucial ligaments cut through; the knife is slipped behind the joint, an outward cut made and a short posterior flap formed. The edges of the flap are united, which brings the line of cicatrix well behind the condyles of the femur. In this operation the patella is preserved and, in my opinion, the articular cartilages of the femur should also be retained.

2. The bilateral flap method of Stephen Smith: An incision is made beginning below the tubercle of the tibia, curving downward and forward around the outer side of the leg, inward and backward to middle of leg, then upward to the popliteal space. Another incision, a counterpart of this, is made on the opposite side of the leg, the joint opened and disarticulated and the edges of the wound united by interrupted silkworm gut sutures.

3. Cardens' operation, in which a large anterior cutaneous flap is made. The deeper structures are divided down to the bone above the patella, the posterior incision is made, transversely from without inward on a level with the base of the anterior flap; the lateral and crucial ligaments are cut, the limb divided and the edges of the skin flap sutured.

4, is Stokes' modification of Gritti's operation. A long anterior and short posterior flap is made, the bone sawed through above the condyles, the posterior surface of the patella denuded with a small saw, the freshened surfaces of the patella and femur brought into apposition and sutured by catgut passing through the muscles of the thigh and the margin of the patellar structures.

A great objection to this operation is the sliding of the patella on the end of the femur and its annoyance to the patient as well as the danger of non-union occurring between femur and patella. I have obviated this by peeling back the periosteum from the lower end of the femur and, after approximating the femur and patella, sewing the periosteum to the margin of the patella. This makes a clubbed end to the femur and strengthens its attachment to the patella. Drainage should be used in all amputations at the knee. That operation which retains the patella is the preferable one. I am also of the opinion that all injuries which necessitate immediate amputation should be operated by the antero-posterior flap method with simple disarticulation, as this is the most easily performed. In operations of election, Stephen Smith's lateral flap or Stokes' modification of Gritti's should be selected; the latter, in my judgment, being preferable in robust persons, as it requires so much more time to perform, the lateral flap method being restricted to weakened constitutions.

The operation of simple disarticulation with preservation of the patella affords an excellent stump for bearing weight and in indiscriminate cases is the preferable operation. Gritti's operation leaves a bad stump, as the edges of the wound almost invariably become painful through pressing upon the socket of the artificial limb. Stokes' modification of this operation with the femur sawed through about two inches above the condyle, is a much preferable operation.

In all of these operations the skin should not be allowed to become adherent to the bone, as it is certain to cause pain and discomfort by being dragged upon by the artificial limb. Hence the advisability of preserving the patella.

The tendency of the patella to retract on the front of the thigh can be obviated by severing the quadriceps tendon above the patella.

(To be continued.)

French Association of Urology.

This association held its second annual general assembly at Paris in October, with Prof. Guyon in the chair, and a large attendance, including many foreign corresponding members of the association. In the address on "Hypertrophy of the Prostate," Carlier remarked that the five hundred cases on record in which castration has been performed, show a remarkable variety in the results obtained, some extremely successful and others entire failures. The consecutive mortality is quite large, 19 per cent., probably due to the previous physical condition of the patients. The operation has succeeded in cases in which there seemed scarcely any hope and has failed in others in which it seemed urgently indicated. It is difficult to explain the retrogression of the lesions if we accept Launois' theory that they are due to arterio-sclerosis, but if we adopt Albarran's suggestion that the hypertrophy of the prostate is a hypertrophic cirrhosis of glandular origin, we can understand

better the atrophy of the enlarged prostate after castration. Motz has found that 63 per cent. owe their hypertrophy to the abundance of glandular tissue. Arterio-sclerosis was not observed in the cases in which the glandular tissue was extremely abundant, nor even in those in which the glandular tissue formed one-half of the section. But the clinic is not able yet to differentiate between the hypertrophy due to glandular tissue and that due to the connective or muscular tissue, or sclerosis. Castration has accomplished many remarkable cures, and often induces a rapid decongestion of the prostato-vesical apparatus, but its uncertainty, with its other disadvantages, forbid it a brilliant future. Resection of the vasodeferentia is still more unreliable, and he thinks it probable that well-managed catheterization would have reduced the congestion of the prostate, as well as the vasectomy, in the successful cases. The future of this operation is therefore no more promising than that of double castration. Albarran described a new operation, which he calls "Angioneurectomy of the Cord." It consists in resecting for a short distance all the elements of the cord, with the exception of the vas deferens, the artery of the vas, and one or two of the accompanying veins. He has performed it on numbers of dogs and in three months the testes were completely atrophied. The prostate at the same time showed generalized atrophic lesions similar to those secured with double castration. This operation has been performed on a patient, but too recently to announce the results. Legue observed that if vesical contractility is entirely gone, intervention is useless. It only promises success when the lesions are recent and probably not severe. In incomplete retention with diminished but not suppressed vesical contractility, he has obtained excellent results with both castration and vasectomy. Desnos reports the observation of 296 elderly patients with urinary troubles. In 220 the prostate was enlarged. Among these there was retention in 112 and 108 without. Under the age of 65 there was retention in 14 to 80 without. Above this age the proportion was reversed, 98 with retention to 28 without. Examination of 76 patients with retention, but without enlargement of the prostate, showed the same relative proportion in regard to the age. The conclusion seems to be that the prostatic hypertrophy is not a factor in the retention of urine, a conclusion evidently exaggerated, but still not without significance. The recent results reported show for castration seven brilliant successes (Legueu, Chevalier, Loumeau and Motz); two complete failures; three much improved. Loumeau noticed a decrepitude and weakness in his two cases afterward greater than the age warranted. His 21 vasectomies did not affect the functions nor the condition of the prostate in any case. Carlier reported 9 satisfactory vasectomies. Motz 3 vasectomies; 1 case cured; 1 not benefited, and 1 died in seventeen days. Nicolich 27 vasectomies; 8 completely cured; 3 still continue to have sexual relations; 14 improved; 5 unaffected. One vasectomy was reported in which the patient was relieved of some calculi at the same time, and possibly the marked benefit derived may have been due to this fact. No new cases of psychic disturbances from either castration or vasectomy were noted in the reports presented.

Carlier reported a case of tumor in the left kidney the size of a man's head with periodic attacks of hematuria but no other disturbances. The general health is perfect, although the patient has been carrying the tumor for ten years. He queries whether the result would have been any better after nephrectomy than at present. Chevalier described a case in which one kidney had been removed for uropyonephrosis, followed later by a similar condition in the remaining kidney with total anuria and grave symptoms. Lumbar nephrotomy released an enormous quantity of urine and the patient recovered at once, although the fistula persists to this day and all the urine is discharged through it; Chevalier considers it the safeguard of her health, as renewed tension of the kidney would certainly terminate fatally and advises keeping the fistula open the rest of her life. Bégouin stated that absolute anuria from calculi lasting forty-eight hours should be treated like a strangulated hernia. If medical treatment (morphin, electrization and massage of the urethra, elastic compression of the inferior members, etc.) energetically applied, is not followed by success in a few hours, an operation should be performed withot delay. Legueu and Donnadieu consider five days the longest limit of delay. Numerous incidents were related in which intervention at the fifth to seventh day were followed by death. Although the operation had succeeded in restoring the functions, it had been too late to save the patient from uremic intoxication. "The importance of varicocele in the diagnosis and prognosis of renal tumor" was confirmed by Legueu, who has established that the compression of the spermatic vein is not produced by the tumor, but by degenerated ganglia. The varicocele is only the external manifestation of the secondary adenopathy, and bears no proportion to the size of the tumor. If a cancer therefore is accompanied by a varicocele, the conclusion should be that there is already ganglionary propagation. This conclusion attenuates the hopes based on the small size of the tumor, and if operated, the ganglionary masses should be removed with it. Eraud's address on "Non gonococcic Uretritis" emphasized the prevailing tendency to consider that specificity comes less from the species, whose rôle is rapidly dwindling in importance, and more from the poison which is constantly acquiring greater significance. He concluded with the statement that the problem is more complex than hitherto supposed. Along with the polymorphism of the microbes there is the question of the toxalbumins, scarcely outlined as yet, which may locate farther still the mechanism that we have been ascribing to the single rôle of the microbe; in other words, behind the microbe hides the poison. Hogge urged that greater attention be paid the prostate in cases of primary urethral suppuration, as its anatomic conditions render it especially liable to react to inflammation. Carlier and Daret observed that the vesical phenomena accompanying renal tumors and tuberculosis must not be considered a counterindication to surgical intervention otherwise called for, as they frequently are but a reflection of the renal trouble and subside with it. J. Albarran confirmed the success of his cystoscopic catheterism of the ureters already announced, and Sorel described a form of neurasthenia in which acute retention occurs periodically, cured by catheterism. Boursier suggested that a bath will sometimes cure these cases if catheterism is difficult.

PRACTICAL NOTES.

Pruritus an Early Symptom of General Paralysis.—Sarbo has observed two cases in which an intolerable pruritus was the first symptom of the disease.—*Semaine Méd.*, from *Pesth. med. chir. Presse.*, Sept. 12, 1896.

Parenchymatous Injections of Alcohol in Actinomycosis have been found a valuable adjuvant of the potassium iodid or surgical treatment. If they do not cure directly they render the foci more amenable to other treatment, especially surgical intervention.

Thyroid Chlorosis.—Capitan believes that certain forms of chlorosis are traceable to disturbances in the thyroid gland and has found marked improvement follow iodin treatment, and also that the patients were almost entirely cured in four to five weeks on administration of iodothyrin tablets.—*Semaine Méd.*, December 22.

Buckskin Dressing for Eczema.—Davesac has found that buckskin applied over the salve, fits smoothly to the surface, yielding to every movement, never rots nor produces erythema, does not absorb the salve and does not stick to the tissues, while it is easily washed and keeps the dressing moist inside and dry without, and the scabs leave a healthly surface when they drop off.—*Semaine Méd.*, December 22.

Radiography of the Skull.—Contremoulins' apparatus locates a foreign body in the skull with absolutely mathematical accuracy, but its expense forbids its general use, although it is highly endorsed by several members of the Paris Acad. de Méd. Approximate accuracy is secured by Mergier with a very simple and inexpensive apparatus, which has rendered invaluable service in the hands of Pean and others. He first quarters the field with two straight wires at right angles, which alone is a great help in locating the foreign body.—*Bulletin de l'Acad. de Méd.*

Liebmann's Method of Treating Stuttering.—A hundred severe cases cured in the brief space of four weeks are reported by A. Liebmann of Berlin (*Memorabilien*, November 13). He has the patient repeat sentences after him, drawling the vowels and pronouncing the consonants sharp but distinctly, maintaining the conversational tone throughout without any rhythm, and avoiding the singing tone altogether. When the patient finds himself thus speaking several sentences fluently at the first sitting the psychic stimulus is immense. The method can be applied to quite small children.

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SATURDAY, JANUARY 22, 1898.

THE MEDICAL CARE OF THE SEAFARING CLASS.

The U. S. Marine-Hospital Service has in late years
)me into such notoriety in connection with the pro-
)sed establishment of a National Department of
ealth that its proper office has quite dropped out of
ght. A considerable number of educated people,
'en among the medical fraternity, believe it to be an
stitution for the care of sick *marines*, and many
hers, who are cognizant of the Marine Corps as a
rt of the United States Navy, identify it with the
edical department of the naval service, and infer
at this association with National vessels and through
em with foreign countries where naval officers are
ought in contact with the breeding-places of the
eat maritime pestilences, justifies the assignment to
of the duties of a seaboard quarantine. This con-
sion of function has been one of the obstacles in
e way of the establishment of an organized inde-
ndent National Health Department. The officers
the Marine-Hospital Service know nothing practi-
lly of these alien pestilential breeding-places; they
ve no reason to know it. Their duties properly
strict them to the treatment and care of the sick
d disabled seamen among the crews of merchant
ssels, at the commercial ports on the sea-board and
ke-board. The U. S. Marine-Hospital Service was
eated for this purpose and for this solely. Its hos-
tals have been built and dispensaries and sick-
arters established for the benefit of the crews of
erchantmen only, as U. S. Naval Hospitals receive
ly the officers and crews of men-of-war and other
ational vessels, the sailors and marines (sea soldiers)
the U. S. Navy. For this medical care of the mer-
cantile class, Congress has appropriated liberally and the numerous Marine Hospitals have been erected well equipped with every modern appointment and officered by a corps of carefully selected, thoroughly competent physicians and surgeons of deservedly high repute in the profession. In the organic law, instituting the Marine Hospital-Service, this was all it was expected to do. The relegation to it of quarantine duties, a part only of the responsibilities of a National Health Department, has come about without predetermination, and now that the wisdom of such an assignment is contested, the claim is made that the material for such a department exists within the Marine-Hospital Service, which can be developed without much further expense to the Government. An establishment already equiped as this is, it is said, can do all the work required without change of personnel, additional expenditure, or interference with the other duties of the officers to be diverted to it.

Can this be so? Is it possible that the officers of this strictly hospital corps can be detached from their original and legitimate duties to assume this charge without the appointment of others to take their places? Why should the physician employed to take care of the sick of the vessels of the merchant service be sent to foreign countries and located at foreign seaports and consulates? With better reason, medical officers of the U. S. Navy might be detailed for this duty. Is there any other reason for the hybrid sought to be consummated than the accidental one that the officers of the Marine-Hospital Service are employes of the Treasury Department, which Department has control of the commerce of which these merchant vessels are the carriers. There is very evident disposition at Washington for each department to extend its operations in every possible direction and any attempt at abridging this amplification is resented. As sick sailors were taken in charge by the Marine-Hospital Service and cared for in the Marine Hospitals in cases of ordinary ailments when they were affected with communicable diseases of the pestilential class, it was taken for granted that this Service was the proper one to consider the means for the prevention of their communication; and as this evidently was a matter of National cognizance, involving, as it did, foreign relations, the need was admitted for some uniformity in the provisions for the inhibition of these maladies as menaces of the public health; and as other diseases were no less prejudicial to the general health, the necessity for their restriction and control was recognized and it was evident that the department which had the power to hinder the spread of foreign-born communicable diseases should also have control of these, and hence the assumption that the Marine-Hospital Service was that specially endowed epartment. Thus, step by step this Service has strayed farther and farther from its proper field, and the time

has come when the medical profession shall consider whether the National sanitary interests do not demand something else for their administration than the makeshift adaptation of a bureau specially constituted for other purposes.

But quarantine is only a small part of the matter; there are great and important functions for the new department quite outside of quarantine and irrespective of it which can not be performed satisfactorily by the Marine-Hospital Bureau.

Happily the State boards of health are examples of such an organized establishment for the Nation as they are for the States, a National Department of Health harmonizing, unifying, connecting and supplementing all these in accordance with the representative character of our American institutions. The Department of Health as at present proposed simply creates an independent bureau, such as the Department of Agriculture was before its chief officer became a cabinet officer, and such as the Department of Labor now is. An *ad captandum* appeal for the sympathy of the medical profession has been made in the gratuitous assumption that the advocates of the bill before Congress, which has the *indorsement* of the AMERICAN MEDICAL ASSOCIATION, the American Public Health Association and the State boards of health, are urging the creation of a Department of Health with a politician instead of a physician as its chief. Were there but one physician in the United States eligible by reason of recognized ability as a sanitarian to be chief of such a department this might be feared, but as long as such men live as WALCOTT and ABBOTT of Massachusetts, STEPHEN SMITH and RAYMOND of New York, ROHÉ and WELCH of Baltimore, MATHEWS and MACCORMACK of Kentucky, HOLT, WILKINSON and OLLIPHANT of New Orleans, HORLBECK of Charleston, PORTER of Florida, and the multitude of able and experienced sanitarians of the Northwest, who drew their inspiration from the illustrious JOHN H. RAUCH of Illinois, all physicians, there is no reason to fear that an honest, intelligent, able and impartial President of the United States, such as is the present incumbent, will ever call to this high office a man who is not physician as well as politician, using the latter word in its honorable and legitimate sense of "one versed in the science of government." The Supervising Surgeon-General of the Marine-Hospital Service has abundant opportunity for the administration of his own bureau, and were he ten times as able he can find therein all that he can do, if he do that all well. *Ne sutor ultra crepidam.*

TO HELP THE CAUSE, let each member of the ASSOCIATION write his Senator and member of Congress at once in regard to this matter. If it is understood that the *whole* profession really take an interest in the matter the local lobbyists at Washington will be powerless to stop the reform.

THE SURGERY OF THE THYROID FROM A NEUROLOGIC STANDPOINT.

In a suggestively written paper in the Januai number of the *American Journal of the Medic Sciences*, Dr. J. J. PUTNAM uses the following word "We are rather in the habit of assuming that th removal of large portions of the thyroid does n harm, provided it does not cause myxedema. But th probability is that we shall learn to recognize affe tions which lie between myxedema and health, as we as peculiarities of development and disorders nutrition for which the thyroid is more or less respor sible." . . . That this is a statement of fact wi hardly be disputed by any neurologist, but that expresses a truth that has as yet been insufficientl impressed on the profession generally is another fa the importance of which is not likely to be over-est mated. It is only within a comparatively brief perio that we have learned that the thyroid had any definit function and our knowledge of its physiology is sti very far from being exhaustive. The dangers also interference with it are as yet also only partiall known, but it is certain that they are not confined t the operation itself. The cases of sudden fatal dyspne occurring hours after an apparently prosperous ope ation in Graves' disease, recently reported by DEBOV and others, are in evidence of this, and Dr. PUTNA adduces other important facts and arguments again any too venturesome surgery of the thyroid glan Among these are the experiments of HALSTED sho ing that excision of the gland in dogs had a seriou and very evident disturbing effect upon their offsprin and that even very slight operative interference pr duced hypertrophic changes and apparent increase secretion in the gland itself; and the observations KOCHER of goiter and cretinism inherited from parent with no disease other than impaired thyroid functio are also cases in point. Still another fact brough forward by PUTNAM is the one that removal or atroph of the thyroid in infancy checks the growth an function of the reproductive organs, and gives rise t the various disturbances of development that follo the suppression of this very important function. Th close relations of the various internally secretin glands, the thyroid, the testicles and ovaries, th suprarenal glands, and the pituitary body, for this seems probable must be included in this category, ar revealed in many pathologic conditions and the thyroi as the largest, and presumably the most importan has apparently a larger part in the disturbances tha any of the others. It seems to be involved to som extent in many cases of acromegaly; its relations wit the genital development have already been mentione and its implication in many pathologic conditions organs is probable and is strongly suggested by th clinical history in certain cases of Graves' disease SEELIGMANN has indeed recently reported a case

this affection apparently closely associated with genital disorder in which he obtained decided benefit from the administration of ovarian extract, thus adding another suggestion to the therapeutics of the disorder.

When any organ is removed, as PUTNAM says, two factors are set in operation which may have more or less important effects upon the system generally. One of these is the action of toxins, the other is the effort of the organism to adapt itself to the new and changed conditions. The first of these is important enough in the case of removal of the thyroid gland, but the other, from what we are beginning to know of its physiology, must be even more important. Because the function of the organ is already deranged it does not necessarily follow that matters will be remedied by its removal. The operation may only make a bad matter worse. The mortality of thyroidectomy, according to PONCET, is from 15 to 30 per cent., which is alone enough to induce caution. When the facts brought forward by Dr. PUTNAM are also considered, the known and the possible and hinted though yet unknown effects of thyroid ablation, there is still more reason for prudence and hesitancy in this operation.

Of course when a goiter has become a dangerous mechanical embarrassment to important functions, or when a tumor exists in the thyroid that by its growth and situation has become a threatening danger, the case is clear and operation may not only be justifiable but necessary. It is in such affections as Graves' disease, in which thyroid operations are still somewhat popular, that we are likely to have not only useless but dangerous surgery, and the time seems to have come to emphasize the cautions implied in Dr. PUTNAM'S paper. The theory of hyperthyroidization in this disease, though it has apparently much in its favor, is not yet sufficiently demonstrated, and even were it so would not form a justification for any indiscriminate or frequent practice of operative interference. Graves' disease is not by any means a hopeless disorder under medical treatment, even in its advanced stages; it is therefore impossible to say when surgery is indicated as a last resort. When the facts of its absolute inefficiency in perhaps the larger proportion of instances in which it has been tried, the immediate dangers of the operation which are not slight, and the remote ones pointed out by Dr. PUTNAM, are all taken into consideration, it would seem that it ought to be relegated to innocuous desuetude.

ON THE PRESENCE IN THE BLOOD OF FREE GRANULES DERIVED FROM THE LEUCOCYTES, AND THEIR POSSIBLE RELATIONS TO IMMUNITY.

H. F. MUELLER[1] of Vienna recently described certain small, round, colorless granules as constantly present in the fresh blood. These granules were regarded as entirely distinct from the blood plates. This observation did not seem at first to attract very much attention. In the last number of the *Bulletin* of the Johns Hopkins Hospital WM. R. STOKES and ARTHUR WEGEFARTH publish an article from the Bacteriological Laboratory of the Health Department of Baltimore, in which they state that they have confirmed MUELLER'S observation, and in which they recite a number of very interesting experiments that appear to throw considerable light upon the much discussed question of the relation of the leucocytes to the bactericidal properties of the blood serum and to immunity.

MUELLER described these bodies as small, round and colorless, about the size of the finest fat granules. They are highly refractile and show a dancing molecular movement, but have no independent motion. MUELLER concluded that these granules are normal constituents of the blood, but he does not consider them as oxyphile or neutrophile granules that have escaped from the leucocytes, and he leaves the question as to their fatty or albuminous nature open. STOKES and WEGEFARTH were able to demonstrate these granules in the fresh blood taken in dispensary clinics and otherwise from about 500 persons. Having observed that these granules occurred in all specimens of blood examined, the question naturally arose as to their origin. It was noticed that when examined by artificial light, as for instance by means of the Welsbach gas burner, the granules resembled very much those found in the protoplasm of the oxyphile and neutrophile leucocytes. When a blood specimen is surrounded by vaselin so as to prevent drying and then exposed to a temperature of 35 degrees C. for an hour or more, the granular leucocytes became actively ameboid, the granules in the neutrophile cells become very lively, and the number of granules in the blood plasma becomes perceptibly increased. The characteristic dancing motion of the granules of the neutrophile leucocytes is shown very well by simply mixing the drop of blood with an equal amount of distilled water containing 1 per cent. of alcohol. The investigators believe they have noted that these granules may leave the protoplasm of the ameboid leucocytes.

Under similar conditions the granules in the oxyphile (eosinophile) leucocytes also show a tremulous motion, though less vigorously.

The blood of various animals was also examined as regards the presence of these granules, and it was found that the observations made concerning the human blood are in the main applicable *mutatis mutandis* to the blood of horses, rabbits, cats, guinea pigs, rats, frogs, fishes, etc. These observations strengthen the conclusion that the granules of the oxyphile and neutrophile leucocytes may appear as free bodies in the blood serum.

[1] Centralb. f. allg. Path. u. path. Anat., viii, 1896.

After reviewing the two principles in regard to immunity, viz., METSCHNIKOFF'S well known theory of phagocytosis, and the theory of those investigators that attribute immunity to the bactericidal properties of the blood serum and to the extracellular action of the leucocytes, STOKES and WEGEFARTH detail certain investigations for the purpose of determining whether there existed any difference in the bactericidal power of fresh blood serum before and after it had been filtered through new sterile Müncke filter cylinders. From these experiments it appears to be demonstrated that the filtration of the serum of the guinea pig and rabbit through new porcelain filters removes its normal power of causing the agglutination and cessation of motility of many motile pathogenic bacteria and of destroying large numbers of these organisms. This power can be restored by adding to the serum leucocytes, free granules and red blood corpuscles. As the red blood corpuscles are not regarded as bactericidal it follows that the restoration of the bactericidal power is due to the leucocytes and free granules, and that these cells can furnish bactericidal material.

Having demonstrated that the leucocytes not only contain bactericidal substances, but also under certain conditions can give up the power of their protoplasm to the surrounding medium, it naturally became tempting to try to show by means of some experimental proof that the germicidal substance and the granules that leave the leucocytes are related or identical. This proof is, however, extremely difficult to furnish. STOKES and WEGEFARTH added the typhoid bacillus to various normal bloods and serums, but did not notice any distinct attraction of the bacillus for the free granules. Having immunized guinea pigs against the typhoid bacillus and adding a 24 hour culture of motile bacilli to the fresh blood of such animals it was found that the bacilli became motionless and clumped, and that in about fifteen minutes fine granules could be seen around the periphery of the clumps and in the meshes of the massed organisms. Often several granules could be seen about a certain bacillus. It will be recalled that VAUGHAN and NOVY[2] extracted a germicidal nuclein from the serum, which they think is derived from the leucocytes, and that HANKIN[3] believes that the granules of the eosinophiles gradually become dissolved in the serum and thereby furnish the protective substance or alexin found in the blood serum. The work of KANTHACK and HARDY[4] is also very suggestive in connection with this phase of the subject.

Upon injecting anthrax bacilli into the various lymph sacs of frogs they found that the destruction of bacteria could be divided into two distinct stages: In the first oxyphilic leucocytes approach the chains of bacilli. These cells then apply themselves to the surface of the bacilli and discharge their granules by quick, streaming motions, when the bacilli begin to show signs of degeneration. Then follows phagocytosis of the degenerating bacilli by the hyaline cells. STOKES and WEGEFARTH repeated these experiments and found that any distinct clinging of the oxyphiles to the anthrax bacilli did not occur, but that the cells very soon appeared to contain much smaller numbers of granules than before, and that many large (oxyphiles) granules could be found free in plasma, as well as small, dust-like granules which they believe are derived from the polymorphonuclear (finely granular) leucocytes. They conclude, therefore, that it seems likely that the free granules both from the oxyphile and the finely granular or neutrophile leucocytes may weaken and destroy anthrax bacilli by their presence in the plasma, and that the work of destruction is completed by phagocytosis.

The many suggestive facts which have been hinted at imperfectly induce our authors to advance the following theory: First, the bactericidal power of the leucocytes of the blood and the serum of man and many animals is due to the presence of specific granules, derived especially from the neutrophile and oxyphile granular cells. Second, in order to resist the action of invading bacteria the granular leucocytes can give off their granules to the surrounding tissues. Third, this throws light on the bactericidal powers of cell-free fluids, and this mode of production of alexins also offers an explanation of the hyperleucocytosis of infection. At the same time the supposition or observation is not disproved that leucocytes can act as phagocytes and take up bacteria either while alive or after they have been destroyed by the germicidal granules. It seems to us that these investigations are of especial interest, because they appear to throw additional light upon the protective and adaptive processes that occur in the reaction of the organism to local and general infection, and because they in a measure reconcile the two theories that obtain in regard to the mode that these protective mechanisms perform their functions, namely, that of intracellular action or phagocytosis and that of extracellular action due to the microbe-killing powers of the serum. The investigations also open up an apparently fertile field for further studies in regard to these important phenomena as they occur in the various forms of infection and intoxication.

[2] Ptomaines and Leucomaines, 1896.
[3] Centralb. f. Bakt., xii.
[4] Phil. Transactions, clxxxv, 1894.

MEDICAL LIBRARIES.

In going over a list of the principal public medical libraries of the country one is struck with their peculiar distribution. We notice one in Maine, another in South Carolina, a third in Colorado, while between lie many more populous States, some of them known as centers of medical education, without any public medical library at all.

Considering more closely the towns in which some of them are located the facts are yet more striking. For instance, in Maine the library is situated in Brunswick, a town of 6,000 inhabitants, the twelfth in point of size in that State. It belongs to the Medical School of Maine, Bowdoin College, and by the figures before us is larger than any other medical library in New England, outside of Boston. Again we find the Medico-Chirurgical Faculty of Maryland has a very respectable library, while scarcely one of the larger State Medical Societies has anything of the sort worth mentioning.

Medical libraries have not developed in response to certain peculiarly favorable conditions confined to large cities. It seems clear that most of them have been built up by the activity of a very few individuals, sometimes aided by a local institution or society, sometimes without any aid whatever. They are in many instances enduring monuments of the work of a single member of our profession, who perhaps was, apart from this, the busiest, most overworked man in his community.

These facts should be brought prominently forward because of the encouragement they give to others to take up this line of work. It seems that in almost any town in the country the conditions render possible the formation of a good medical library and wherever one is formed it will be a lasting public benefit.

The subject is one of real professional interest, and we are glad to learn that Dr. C. D. SPIVAK of Denver is collecting facts for a more complete account of the medical libraries of the country than now exists, to be brought before the coming Meeting of the ASSOCIATION in that city, and in due time to be laid before our readers. It is to be hoped that those who have given thought and labor to the subject will use this opportunity to place many valuable suggestions before the profession.

Dr. SPIVAK has himself suggested an important idea and has carried it into practical effect in connection with the Colorado Medical Library Association of Denver. He prepared a card catalogue of the medical works to be found in the private libraries of that city, which were not represented in the public medical library. In this way he was able to add more than 6,000 volumes to the medical works generally available for reference to the profession of Denver.

Some such plan might be followed in any large town or city and would be of very wide benefit to the profession. The essence of a reference library is to have the books obtainable, with some ready means of knowing just where each is to be found. It is not necessary that they should all be collected under one roof and one ownership. It is only necessary that their titles and location should be furnished in a well-arranged catalogue.

Probably in every city in the country may be found several private collections of medical books. Even where large public libraries exist they lack many valuable books of reference that might be found on the shelves of private libraries in the same city. A card catalogue representing all of these books, and giving their location and the hours at which they might be consulted, would furnish each of these cities with a good practical reference library, or greatly extend the value of the library it already possesses.

The work of preparing such catalogues should be done by the younger members of the profession; they can furnish the time and energy, their older colleagues can furnish the books. Only bring the two together and a great professional benefit will result to both. The physician with a large private library finds with each addition to it an increasing difficulty in remembering just what he has to refer to and comes to feel keenly the need of a good catalogue; which he can not supply for himself, and can not secure without the aid of some one with a medical education. The catalogue of his own books would be worth far more than the inconvenience of having them consulted by others would ever cost; and to have with it also the access to all medical works in his city that he does not possess would be a practical extension of his library that he could not hope to accomplish in any other way.

On the other hand, for the young man who will take up this work of cataloguing, the opportunity is one of unmixed benefit. In arranging and classifying the medical books in the catalogue, he will be arranging and classifying the facts of medicine in his own mind; and at the same time learning just where he can put his hand on any particular reference when he wants it; and acquiring for all practical purposes (when he most needs it), a library such as he could never hope to buy for himself, no matter how great his professional success in after life.

With the private medical libraries of a city thus connected by a catalogue it would be almost certain that with the death of an individual owner his collection of books would not be allowed to become scattered or sold as waste paper. But the necessary effort would be made to secure them for permanent usefulness, in the possession of some medical society, or general public library, or educational institution, there to develop by accretions of similar sort into a true public medical library.

Will there not, before the time of the Denver Meeting, be other cities to report experience with Dr. SPIVAK'S plan?

CORRESPONDENCE.

The Lepra Conference Again.

NEW YORK, Dec. 15, 1897.

To the Editor:—Dr. Dyer, one of the editors of the *New Orleans Medical and Surgical Journal*, has published on his

return from Berlin, where he attended the Leprosy Conference, not only a very accurate (I have the Berlin *Wochenschrift* before me) report of the doings of the Conference, but also a very curious one. It has a quality, which I'll be bound, will not be encountered in any reports of the same events, now being published or hereafter to be given to the world by his European colleagues; it will be found even, or rather especially, outside of the profession intensely amusing. Would those Teutons, Latins, Scandinavians, Slavonians, have ever imagined that the novelty of their European festival, the great men assembled in the capital of Germany, the beer and the emperor could violently *wake to ecstasy the living lyre* of a Yankee (as they call all Americans)? This ebullition of Pindaric lyricism (for has not the author come back, as it were, from the Olympian games; not, indeed, with palms and bays, but with that precious badge?) is not, however, the only condiment (excuse mixed metaphors) with which Dr. Dyer has tried to give flavor to his tale. Something of a more pungent nature seems to have been required by his literary taste, *das Strenge mit dem Zartem*; it would be ridiculous to doubt that Dr. Dyer understands so much German. He thus conceived the happy idea of having a Turk's head, at which he might pound away for the delectation of his audience, and perhaps, who knows? to make good some harmless boast uttered in the blissful trance of those never to be forgotten days—that he would settle the hash of his Yankee colleague (give him time to return!) and let him have it right down the neck. Dr. Dyer, in fact, has gone out of his way to throw out at me a handful or two of vague and rather obscure obloquy. Does Dr. Dyer really think himself such a deep-rooted authority because, forsooth, he belongs to what he ludicrously calls the *personnel* of the Berlin Conference, that he may safely dispense with knowing himself what he means when he girds at his neighbor? "The relation," says the New Orleans member of the Berlin *personnel*, "of Ashmead to the Berlin Conference was well shown when a resolution of his relating to a conference in 1898 was quietly dropped without discussion. Ashmead wrote in the *Sei-I-Kwai*, in far-off Japan, a vituperative article which reflected upon the intelligence, upon the purpose and upon the ability of the *personnel* of the Conference in Berlin."

First, then, Dr. Dyer avers that Dr. Ashmead wishing to proclaim his contempt of certain European personages (who ought to have been sacred to him, as they are to Dr. Dyer), of their *intelligence*, their *ability* and their immediate *purpose*, conceived the extraordinary idea of going to *far-off Japan* and there (probably at the foot of the renowned Fujiyama) blazed away and relieved his bile by unlimited vituperation. The imputation of such nonsensical conduct I consider as downright slander. If there is anything that I feel obliged to say (even if it should be vituperation) I am not in the habit, as my friends and even the others will testify, to run to the "Flowery Kingdom" or to the antipodes. The fact is, that the article in question was published February, 1897, in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, *and that reprints of it were sent to all known (to me) European leprologists.* The *Sei-I-Kwai Medical Journal* of Tokio reprinted it July, 1897. Dr. Dyer, in a passage which I shall quote presently, speaks in a very indefinite and puzzling manner of *Ashmead and his methods.* Is this mention of my article, as *published in far-off Japan*, an instance by which we may judge *Dr. Dyer and his methods?*

As to the quiet dropping of Dr. Ashmead's resolution relating to a Conference in 1898, it does not by any means, whatever Dr. Dyer says *show Ashmead's relation to the Berlin Conference.* This rash assertion is simply the result of careless ignorance. All those with whom Dr. Ashmead has been in correspondence with for the last two years in relation to the Leprosy Congress know better. The relation of Dr. Ashmead to the Conference is shown by the presence in it of twenty-two persons who represented their governments respectively. I do not wish to explain again here Dr. Goldschmidt's and my own idea of an international committee, formed by delegates of the different nations interested in the question of leprosy. I have, single-handed, fought for that idea and in a large correspondence discussed it with men of all parts of the world. Both Hansen and Ehlers were against it, and I say nothing that I can not prove. It did not obtain a complete triumph, I am sorry to say, but that it was, at least in a certain measure, successful no one can seriously deny. In this, modest as the victory may seem, appears *the relation of Dr. Ashmead to the Conference.*

"Ashmead conceived the Conference, and because men of world-wide honesty and reputation were making it a success, he tried to discourage interest in it by writing abuses of these men. In justice to Goldschmidt, to Hansen, to Arning, to Lassar and to Ehlers, who suffered most, the above should be said. Goldschmidt allowed himself to be led into the organization of a conference because of the objects aimed at and washed his hands of Ashmead and his methods as soon as he saw behind the veil.

"This was the end of the eventful Lepra Conference, one which Ashmead ridiculed because he was not ring-master and manager as well as director, etc."

When Dr. Dyer states that Dr. Ashmead, after conceiving the Conference tried to discourage interest in it he does not seem to understand what an incredible mental phenomenon he is describing; this statement, which seems to Dr. Dyer quite natural and needing no further explanation, hardly requires to be seriously refuted; for am I not writing these lines in my office and not in a lunatic asylum? However, some persons who have been either disgusted or offended or abused by me are quoted. The reader of the *New Orleans Medical and Surgical Journal* is informed that shocked by the wickedness of my ways, Dr. Goldschmidt at last determined *to wash his hands of me.* It is clear that he was for a long time in utter ignorance of my nefarious proceedings, for he has written to me and encouraged me for the best part of the last two years, complaining of some persons considerably more than I did myself. However, it occurred to him *to look behind the veil*, and then he did not hesitate one moment to perform those condemnatory ablutions. But what did he see behind that metaphoric obstacle to sight? Evidently nothing but the constant, laborious, undismayed activity with which Dr. Ashmead was and still is trying to call the attention of the public to the possibility of stamping out by international arrangements a disease, of which as Dr. Dyer says, 2,000,000 of men are the victims, and which threatens the other millions. But why should I be accused of veiling what I was unremittingly proclaiming with all my might? O, Lord, clear our style of metaphors!

But there are others, and I ask myself with sincere searching whether I ever blasphemed (it could not be called with a milder name) against Hansen. When I most displeased this eminent leprologist was, to the best of knowledge, when I intimated that the microscopic creature on whose discovery his great fame rests, has distinguished itself by gigantic ingratitude, inasmuch as it has never done anything in return for all the regard, study, observation, cultivation, etc., which have been lavished on it. That is hardly abuse. I also said that Hansen had been compelled, *nolens volens*, to swallow the diluted delegational idea. That is the truth, and if it was not it would not be abuse, it would be a lie, or perchance, a mistake. And Arning? He and I are on the friendliest terms, which I am ready to show, if required. And Lassar. Let Dr. Dyer indicate one passage in any article or pamphlet of mine in which he was abused. I am not quite so sure, I admit, about Dr. Ehlers. I made, in speaking of him, a very few and, in my intention and opinion, very harmless jokes, for instance, about the 159 lepers he looked at in

land. Was this joke or abuse? Dr. Dyer's article first jured up that doubt in my mind. Ought not he to know? not he a judge? Who among his numerous readers will r forget his delicate appreciation of Dr. Virchow's attic e, when this venerable sage expresses his regret not to 'e been informed at an earlier period that free beer was be had for the asking at the lunch counter!

'here is, however, in these lunges of Dr. Dyer, made with at I take the liberty of calling a vicious but also ridiculous elessness, one which claims a little more attention. It ıains for me to explain to Dr. Dyer's readers, should y come across these lines, what must, if they take Dr. Dyer *sérieux*, rather startle them. How could Dr. Ashmead, in w York, aspire to be the ring-master (whatever that may and manager as well as the director of the Berlin Lepra ıference? And yet, this is easy to answer. Dr. Dyer ans that Dr. Ashmead in every article he wrote for a long e insisted upon one point, from which he never swerved for moment, that the Conference, or Congress as it was orig-lly called, could only do one thing that was useful: obtain enforcement everywhere of absolute isolation and the ctment of laws preventing the contamination of one country another; that every thing else was vanity; that what would said and read in the Conference and printed by the author-of the Conference, could be said, heard and printed every-ere without conference; that the time for talk should be ly admitted to be past, and that the mind of those who ended the first Leprosy Congress should rise to one great ception, easy to understand and easy to carry out and infi-ly salutary to mankind. This is what Dr. Ashmead repeated efatigably and, no doubt, he irritated some people.

'here was once at Rome a senator who believed that the ety of his country depended on the destruction of a certain n in Africa. This man allowed no influential person to ıain in ignorance of his views, and proclaimed them in and of season after every one of his speeches in the senate: *Car-go delenda est.* Yet no one ever suggested that he intended become the ring-master, manager and director of the ublic. Dr. Dyer, happily, did not want to destroy Carthage, l could enjoy himself without getting at loggerheads with rybody.

I was waked by the band Sunday morning and saw a host oldiers going to the palace for new flags, and they marched rily and looked well and they were men. Long live Ber-! Long live the Emperor! Long live the Lepra Conference its work!"

uppose now I should indulge in some banter like that of ich I rendered myself guilty against the renowned *privat ent* of Copenhagen, this dithyrambic gush, this touching erialism (which might draw tears from a stone), and even innocent enjoyment of the medal (reproduced in Dr. Dyer's er) which informed those whom he met in Berlin that the rer was a member of the Conference and that his name was er, would suffice for a little string of light pleasantry. But ight be abuse. Perhaps even quoting Dr. Dyer might be strued into abuse of him. ALBERT S. ASHMEAD, M.D.

Appendicitis.

DETROIT, MICH., Jan. 11, 1898.

To the Editor:—In the January 8 issue of the JOURNAL I nd an article on appendicitis, by an old practitioner, oppos-operation and advising conservative treatment.

he article refutes itself, as the report of eight cases with recoveries and three deaths, or a mortality of 37.5 per cent., terrible that if surgeons would report any such mortality, ıe and a cry would be raised which could be heard across continent. I simply want to call attention to it for fear the article might have been overlooked. It is the same old story. By conservative treatment a good many cases will recover, and about 15 per cent will die. This man's statistics are far worse.

There may be surgeons who are ambitious and inexperienced and who consequently operate when a patient is convalescing and there is no need of it, but every experienced abdominal surgeon will refrain from operating when the patient is recovering, but will postpone it and urge an operation in the interval. However, all experienced surgeons urge *immediate* operation upon every case, claiming that if all cases are operated upon the mortality will not be more than 2 to 5 per cent. Although in that case a certain number will be operated upon who would never have another attack, still they can not be distinguished beforehand, and we claim best results by prompt operation in every case as soon as diagnosticated. Of those five cases which recovered in the article spoken of, four will have recurrent attacks; some will die with the second, some will die with the third, or the fifth, or the tenth, but all will die from appendicitis, not to mention the long continued illness and the suffering they undergo in the meantime. So that out of eight cases there will finally be one who will live and have no recurrences, and all the rest will be dead. While if the eight cases had been promptly operated upon the first day, seven at least would have recovered and not been in danger of any subsequent attacks, and one might have died.

With this and the other side of the question, any reasonable and conscientions member of the AMERICAN MEDICAL ASSOCIATION can easily decide which is the correct method of treatment.

Yours truly, J. H. CARSTENS, M.D.

X-Ray Blindness.

NASHVILLE, TENN., Jan. 10, 1898.

To the Editor:—Though possibly it may already have been mentioned, I am not conversant with any report on what may be called X-ray blindness. During the Centennial Exposition here this summer there were several X ray machines in operation. One of these was attended by a gentleman of my acquaintance, of more than average intelligence and observation, and also possessed of a fair amount of electric knowledge. He tells me that out of about 3,500 persons who looked into the tungstate of calcium screen, at his hand or other object, four were unable to see anything. They were not only unable to see the bones of the hand or other objects more or less opaque to those rays, but they could not even distinguish the fluorescent light; the interior of the box was just as dark to them as before the light of the tube was turned on. These individuals he allowed to make a number of trials, even bringing them back at night, so as to avoid the disturbance of daylight, but without avail; the screen remained persistently black. My acquaintance learned, also, that the general agent who installed the machines, possessed the same peculiarity. This gentleman said that though he had tried many times he had never been able to see anything in the screen. This condition, it seems to me, is one that would not be unexpected. The eyes of some individuals read, abnormally, certain colors, and that there should be some eyes unable to grasp the X-ray is no more remarkable than the phenomena of color-blindness.

ERNEST B. SANGREE, M.D.

Another Interesting Case: An Impacted Quid.

CHICAGO, ILL., Jan. 15, 1898.

To the Editor:—The case reported by Dr. Tufts of Sioux Falls, in which death was caused by the sudden plugging of the bronchi with a quid of chewing tobacco, recalls a less tragic case in my own experience.

A number of years ago I had a paper-hanger at work for me, who was using as a stage to reach the ceiling he was decorating, the top of a ten foot partition. Busy at his work with his head

thrown back as he looked directly above, he failed to notice that the board on which he was sitting was insecurely placed.

I had been watching the man, but had gone perhaps seventy-five feet away, when I heard a mighty crash, but no outcry. Calling out and receiving no reply, I hastened to the spot to find my man perfectly livid and completely unconscious. My first thought was that he had been killed, so free was he from all motion; no gasping and struggling, just an inert mass of flesh and blood.

The thought ran through my brain as I pulled his vest open to reach his heart, which, just as in Dr. Tuft's case, was beating, was that the distance the man had fallen had not been sufficient to produce such seemingly disastrous results. What was the trouble?

The man's mouth was open, and from it trickled a little tobacco stained saliva, hint enough to warrant my cramming my fingers down his throat and fishing out a great wad of moist fine cut that was simply packed in the back of the mouth, covering the trachea and extending down into it.

Hastily turning the man upon his face and giving him a few hearty thumps on the back, I had the satisfaction of seeing my patient within fifteen minutes cough himself back into lusty but somewhat profane existence.

The moral of my tale and that of Dr. Tufts is that the emergency physician should look out sharply for impacted quids.

JOHN E. BEEBE, M.D.

Bureau of Public Health.

UNITED STATES SENATE,
WASHINGTON, D. C., Dec. 23, 1897.

To the Editor:—Your favor of the 16th inst. has been received and read with interest. I note what you say with reference to the united effort on the part of the medical profession of our State, supported by the medical men throughout the country, in favor of the establishment of an independent bureau with a commissioner to be appointed by the President at its head.

There is no class of professional men in this or any other country more entitled to the highest consideration than that of the medical profession. Upon that profession the people always rely in times of physical distress in their everyday life, or in times when contagious diseases seize and threaten the lives of the people of a locality and the communities surrounding it, among whom the malady is likely to be spread.

I therefore should be very glad to be of service in any reasonable direction looking to the support and encouragement of the medical profession and also to the interest of the whole people. I think we have within a year or two had evidence that those in authority have failed in the performance of their whole duty in protecting the lives of the people against the ravages of yellow fever in certain portions of our country.

Wishing success in the conduct of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, I am, sincerely yours,

S. M. CULLOM.

National Legislation on Sanitation.

MILWAUKEE, Dec. 29, 1897.

To the Editor of the New York Medical Journal:—In an editorial in the last issue of your valuable *Journal* there appears the following statement: "The American Public Health Association bill seems to us a retrograde measure. It would involve a departure from all existing methods of departmental work. It would create, to stand between the executive of the department and the management of an epidemic, a deliberative body of forty-five men whose opinions would have to be had before action could be taken."

Permit me to state that this is not the meaning or intent of the measure at all. It is intended that rules and regulations can be made by the department concerning which every State and Territory can have a voice, the only satisfactory way su rules and regulations can be adopted, and that such rules sh be standing provisions under which the head of the depa ment can act at any moment when occasion occurs and wit out any delay whatever. No other bill thus far presented do more than provide for quarantine regulations, and such reg lations are to be under the entire control of the Marine-Ho pital Service. States are to have no voice in the matter, b must submit to the federal government. There are no prov ions in any measure presented, except the bill presented t the AMERICAN MEDICAL ASSOCIATION and approved by th American Public Health Association at its last meeting, th provides in any way for internal sanitation, vital statistics, et so much needed, and which are far more important than th maritime quarantine provisions, which are but a small part the needed sanitary legislation in this country. To say th the bill is retrograde seems to the writer to result from a ve imperfect understanding of the measure. It is true that th bill as printed contains a number of errors and is more or le ambiguous in its language. A new draft of the bill is bei made, and when it is introduced into Congress it will prese a clearer meaning and we trust will be less objectionable.

U. O. B. WINGATE, M.D.

Medical Courtesy.

SHELBYVILLE, IND., Jan. 11, 1898.

To the Editor:—I can not agree with you in your answ to R. A. H. on "Medical Courtesy," in the JOURNAL of Ja uary 8. My understanding is, and has been for more th forty years, that on this point of medical etiquette the rule the reverse of that in social life, and for very obvious reaso When a physician locates in a town, it is his duty to call members of the regular profession at the earliest convenie time, if he is a regular physician himself. By this action manifests his intention to continue in the regular professi and wishes to associate with its members.

He may, as is sometimes the case, be changing his locati for the purpose of engaging in quackery, and to avoid a embarrassments, he should be left free to indicate his futu intentions, which he can do in an emphatic manner by calli only on those of the regular profession.

Very respectfully, W. G. MCFADDEN, M.D.

BOSTON, Jan. 10, 1898.

To the Editor:—In the JOURNAL of January 8, page 1 "Medical Courtesy," I would suggest adding to the answ but the newcomer should first leave or send his card as introduction or announcement of his coming.

Respectfully, J. S. W.

ANS.—Amendment is accepted.

PUBLIC HEALTH.

Influenza at Angers.—The French exchanges mention that t hospitals at Angers are full and patients turned away, from epidemic of influenza.

Hospital Contagion of Typhoid Fever.—A number of instanc were related at the meeting of the Paris Soc. Méd. des Hôpita in which patients and nurses in the hospitals acquired typho fever, presumably from other patients. Stricter precautiona measures were urged upon the attendants and the use special vessels, etc., for typhoid patients.—*Semaine Mé* December 22.

Health in Chicago.—The report for December, 1897, gives t total deaths during the month as 1,790, or 1.10 per 1,000 inha itants, the rate for December, 1896, being 1.12 per 1,000. these 1,790 deaths 361 were persons under 1 year old and 2 from 1 to 5 years. The causes were: Diseases of the nervo

stem 260, pneumonia 221, consumption 168, diseases of the art 135, bronchitis 106, acute intestinal diseases 77, diphteria and membranous croup 73, cancer 70, typhoid fever 35.

Large Special Grant for the Control of the White Plague in New rk City.—The Department of Health of New York City, after titioning the "City Fathers" for four years for financial pport in its efforts to control the spread of consumption, has n a victory. The Board of Estimate and Apportionment s added to the health department budget for 1898 the sum $60,000 for the management of the tuberculous sick under e supervision of the department. In the argument for this owance, or fund, it was alleged that one in seven of the deaths the city was caused by tuberculosis, and that in some tenent districts the rate was one in four; that many hospitals uld not receive such cases, and that the hospitals that reved them sought to get rid of them as soon as possible. The ton Hospital at Fordham Heights, which was built especially consumptives, would receive patients at the rate of $1 a y. Dr. Biggs, the health department bacteriologist and pertent warrior against the white plague, is reported to have ted that it was the purpose of the department to take charge such patients as could not pay for treatment. He added at there was no longer any doubt that the disease could be mped out if it could be properly treated and isolated.

Hygiene for Tourists in France.—Dr. G. Morice of Paris, has itten a little book on the above subject. He points out the eds of travelers both on the train and at the hotel or auge, emphasizing cleanliness as the great desideratum. But st important of all, the latrine accommodation should be ove reproach. At present the filthiness of hotel privies in ance is for the most part excessive. So much so, indeed, at in their Revue the Touring-Club have commenced what y call "La Croisade des W. C." "First nation in the rld for touring, roads, and climate," says Dr. Morice in nclusion, "we are not yet within measurable distance of English, the Americans, or even the Swiss, as regards linary comforts in our retiring closets. Then put your oulders to the wheel, French landlords, and by paying a litattention to hygiene enable your 'Golden Lions' and your hite Horses' to at length earn the respect of their patrons." cording to an anonymous writer on the same subject the ople who expectorate promiscuously in railway carriages, nibuses, etc., are the chief offenders against decency and itation. Until women are allowed to dispense with skirts l appear uncriticised in rational costume, says this bold gienist, they must, when making use of public vehicles conue exposed to the risk of soiling their petticoats with most ensive and dangerous filth. On a journey, women, he says, generally encumbered with babies and parcels, and it thus comes impossible for them to attend properly to their dray when about to take their seats.

he Annual Report of the Chicago Health Department.—In the nual report for the year 1894, a table of the populations, al reported deaths and the death rates per 1,000 of popula- of all cities in the United States claiming to have popula- of more than 200,000 inhabitants showed Chicago to have lowest rate. For the year just closed a similar table is en with the rates for 1894 appended for comparison:

	Claimed Population July 1, 1897.	Death Rate per 1000. 1897.	1894.
New York	1,990,881	19.5	21.0
Chicago	1,619,226	13.5	15.2
Philadelphia	1,214,256	18.8	18.3
Brooklyn	1,140,000	18.2	20.1
St. Louis	600,000	15.9	16.1
Boston	576,305	21.5	22.9
Baltimore	506,398	18.5	19.1
Cincinnati	500,000	14.3	18.3
San Francisco	360,000	17.1	18.8
Buffalo	360,000	12.5	16.7
Cleveland	350,000	14.2	15.8
Pittsburg	287,500	16.5	18.2
Washington	278,000	19.8	20.2
Detroit	275,000	15.0	15.5
Milwaukee	275,000	13.1	15.7
New Orleans	270,000	25.3	24.9

his is a most satisfactory showing of generally improved ic health throughout the country during the past three years—Philadelphia and New Orleans only showing no reduction of mortality. The rate of Chicago, 13.46 per cent. per 1000 is the lowest mortality rate ever recorded, so far as is known, for any city of more than 500,000 inhabitants, either in this country or in any other.

The principal reduction, and the one most gratifying is that in the deaths of infants and young children—fewer by 12 per cent. among the former, and by 12.5 per cent. among the latter, than during the previous year. Since there was nothing in the condition of the weather to account for this, it is only fair to attribute this saving of infant and child life chiefly to steadily improving sanitary conditions.

The result of this growing improvement is also seen in the marked diminution of deaths from the preventable diseases generally—diphtheria, typhoid fever, consumption, etc. The sanitary quality of the water-supply has averaged distinctly better than in 1896. To this better quality is largely due the reduction in the mortality from typhoid fever and the other impure water diseases. Some share of this reduction is undoubtedly due to the increasing care exercised by the public in the use of the hydrant water when it is found to be polluted. The daily laboratory examinations and the warnings based thereon are known to cause many persons to resort to boiling, or some other means of purification when the water is announced by the daily press to be "suspicious" or "bad." Fewer deaths from diphtheria have occurred during the year than in any other since 1884. Antitoxin in the treatment of diphtheria is probably used more freely and successfully by Chicago physicians than by any similar body of the medical profession elsewhere in the world. To their general, prompt and scientific employment of the remedy is to be ascribed the wonderful reduction in diphtheria mortality from an average of 35 per cent. prior to its introduction to 6.6 per cent. in nearly 4,000 cases coming under the direct observation of the Department. The inception of the antitoxin treatment of diphtheria by the Chicago Department of Health dates from the importation by the Commissioner in the fall of 1893 of 100 vials of the Behring serum. The remedy is now made available to physicians at a greatly reduced price and the Department further supplements their labors in the treatment of diphtheria by maintaining upward of a hundred antitoxin stations throughout the city for sub-laboratories for prompt bacteriologic diagnosis, and a corps of experts for assistance in various ways. In the laboratory 26,028 chemic and 3,919 bacteriologic examinations were made. Out of upward of 23,000 samples of milk and cream collected by the inspectors and analyzed in the laboratory, only 1,080 or 4.7 per cent. were found below grade. Through the inspections of the sources of the city's ice supply, including analysis of the waters of the ice fields, and the strict control of the disposition of impure ice made practicable under the permit system, there has been a great improvement in the quality of ice furnished for domestic use, and it is now almost impossible to deliver impure ice for domestic use without prompt detection. The Department meat inspectors have condemned approximately 2,000,000 pounds of meat as unfit for food, and supervised its destruction. Inspection of groceries and general food supplies has become a regular part of the laboratory work. The list now includes almost every variety of food products. Total mortality and mortality from principal causes during 1897 (compared with 1896): Total for 1897: All causes, 21,809; deaths under 1 year, 5,735; deaths from 1 to 5 years, 2,811; diseases of nervous system, 2,787; consumption, 2,180; pneumonia, 2,152; acute intestinal diseases, 1,386; violence, 1,410; diseases of the heart, 1,365; infantile diarrhea, 1,085; bronchitis, 1,026; diphtheria, 702; nephritis, 937; typhoid fever, 437; cancer, 773; other zymotic diseases, 542; other tuberculous diseases, 394; croup, 72; scarlet fever, 81. Total for 1896: All causes, 23,257; deaths under 1 year, 6,512; deaths from 1 to 5 years, 3,201; diseases of nervous system, 3,018; consumption, 2,310; pneumonia, 2,141; acute intestinal diseases, 1,859: violence, 1,362; diseases of the heart, 1,231; infantile diarrhea, 1,202; bronchitis, 1,165; diphtheria, 956; nephritis, 818; typhoid fever, 751; cancer, 734; other zymotic diseases, 517; other tuberculous diseases, 357; croup, 142; scarlet fever, 54.

ASSOCIATION NEWS.

The Senn Medal.—Those members of the AMERICAN MEDICAL ASSOCIATION intending to compete for the medal offered by Dr. Senn for the best essay on some surgical subject, are requested to forward the type-written copies of contributions before March 1, 1898. Address,

J. MCFADDEN GASTON, M.D., Chairman, Atlanta, Ga.

SOCIETY NEWS.

The Medical Society of the State of New York will hold its ninety-second annual meeting in the City Hall, Albany, N. Y., January 25, 26 and 27. The provisional program presents titles of thirty-nine papers.

Iowa State Medical Society.—The forty-seventh annual meeting of the Iowa State Medical Society will be held in Des Moines, Iowa, May 18, 19 and 20. The president is Dr. Edward Hornibrook of Cherokee; the secretary, Dr. James W. Cokenower of Des Moines.

Obstetrical Society of Cincinnati.—The Society, at its annual election, chose the following officers: President, E. S. McKee; vice-president, W. D. Porter; recording secretary, Wm. Gillespie; corresponding secretary, M. A. Tate; treasurer, Geo. E. Jones; librarian, Dr. Bonnifield.

Milwaukee Medical Society.—At the annual meeting of the Milwaukee Medical Society, recently held, the following officers were elected for the ensuing year: President, F. E. Walbridge; first vice-president, A. I. Comfort; second vice-president, John Madden; secretary, Gilbert E. Seaman; treasurer, U. O. B. Wingate; librarian, Louis F. Frank; curator, Arthur J. Patek.

MISCELLANY.

Action of Saliva on Bacteria.—Triolo states that filtered saliva has no bactericidal power, but that fresh sterile saliva will kill all the germs of staphyl. aureus, the bacteria of the air, of diphtheria, typhus, etc., in five day cultures, and greatly reduce their numbers in eighteen hour cultures.—*Gaz. d. Osp. e. d. Clin.*, December 12.

Anti-depopulation Measures.—A project has been presented to the French legislature that girl-mothers convicted of infanticide should be sent to some specially created colony and "condemned to one, two or three years according to the degree of criminality." His Excellency the Minister of the Interior is said to have taken the matter under advisement.

New Hints for Radiography.—Marcus states that iodoform, vaselin and iodoformed ether introduced into deep cold abscesses, form a mixture with the contents of the abscess impermeable to the Roentgen ray. Also that insufflation of air into hollow organs renders them perfectly transparent to the ray, which fact can be utilized in obtaining information in regard to the stomach, or the intestines insufflated from below, as they leave a blank space on the plate.—*Presse Méd.*, November 27.

Wanted.—We desire to secure a copy of No. 8, Vol. 21, of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for completion of above volume for a State Board of Health Library. Any of our readers having a duplicate of this number will confer a favor by returning same to this office and we will remit charges on same.

Necropsy of a Case of Pure Verbal Deafness.—For four years the patient's only symptoms were the typic verbal deafness (inability to understand spoken words or to write from dictation), progressing then into sensory aphasia and death four years later. A double and symmetric poly-encephalitis was discovered in the temporal lobes, reduced one-half in size, diminishing in intensity from above downward and from the front backward. This was the only lesion and is the only case on record in which the lesion was purely cellular.—*Semaine Méd.*, December 22.

Nature of the Alterations in the Spinal Cord in Tabes.—Darkschewitch considers that the present status of our knowledge conflicts with the assumption that tabes is due to a primary affection of the cord. He attributes it to a preceding affection of the peripheral nervous system of apparently varying character and varying localization. The alterations in the posterior column appears as the consequence of at least two morbid processes, a polyneuritis and a pachymeningitis in the ramification region of the art. spin. post. The affection of the lateral ventricles is apparently only the result of a polyneuritis.—Moscow Congress, *Wien. klin. Rundschau*, December 12.

Live Frogs as an Antithermic.—An English practitioner of Constanta, Roumania, writes: On the evening of October 19, I was called to visit a Roumanian boy, 6 years old, suffering from typhoid fever. I found him *in extremis*, almost pulseless. The child's head was completely wrapped over with a large white sheet, and as I looked at it this enormous white envelope seemed to be on the move and while I was surveying this covering there crept from under it a small frog, which quietly sat over the child's left arm. It seemed quite content. I immediately called the mother's attention to it and requested her to take the animal away, thinking it had crept there as an intruder. "Oh, no!" said the old lady, "a doctor recommended that a lot of them should be kept to the head to keep it cool." Seeing the head covering still on the move, I raised it for curiosity, and in a second out jumped about twenty other frogs and hopped away in all directions. I have often heard the expression "as cold as a frog," but this was the first time I had seen a frog applied as a head-cooler.—London *Lancet*.

The Address in Surgery Before the British Medical Association.—According to an editorial writer in the *British Medical Journal*, the recent presidential address of Mr. Mitchell Banks has fallen in divers errors about Ambroise Paré, errors that have been exploited beyond repair. That writer says, "Mr. Banks, will need to reconstruct his account of Paré. For all that Malgaigne says about it, the date of Paré's birth was 1509 or 1510, not 1517; nor did he 'lead an incessantly active life,' in the ordinary sense of the words, for the first few years after he was born. It is not probable that the Verdum story is genuine; there was no battle or siege of Rheims or of La Fère; he went to Dreux the day after the battle; and we do not know that he was at Saint Quentin or at Moncontour, or that he attended Charles IX. in his last illness. He did not write to his wife for ransom after the fall of Hesdin; it was M. Goguier who wrote. He did not 'invent the ligature,' and never said that he did; he only invented the use of it in amputations; and he did not take for his motto that favorite saying of his *Je le pansay, Dieu le guarist*; the motto he chose for his own portrait in his books was *Labor improbus omnia vincit*."

The General and Special Hospitals of London.—A statistical statement issued by the Hospital Reform Association shows that in London the general hospitals have 5,349 beds, the special hospitals 3,475, and cottage hospitals 299, making a total of 9,123. The in-patients treated in one year were 62,774 in the general hospitals and 27,701 in the special. In the same year the general hospitals treated 897,389 out-patients and the special 439,338. Among the general hospitals the largest number of in-patients appertains to the London, where they amounted to 10,559; at St. Bartholomew's they were 7,290, at Guy's 6,325, and at St. Thomas' 5,493. St. Bartholomew's appears with the largest number of out-patients, 161,419. The special hospitals include five for diseases of the eye. For diseases of the throat, ear and nose there are six hospitals. There are five hospitals for diseases of the skin, six hospitals for diseases of the chest. The Hospital for Consumption has 320 beds and treated 1,851 in-patients during the year, the out-patients being 13,750. There are three orthopedic hospitals. For incurable diseases there are twelve institutions, having 611 beds, while the in-patients were 839, no out-patients being attended by these institutions. Hospitals for diseases of the nervous system are three in number. There are six hospitals for diseases of women and eleven for diseases of children. There are also six lying-in

ıospitals and the hospital for cancer. Concerning the latter, he Middlesex Hospital has thirty-five beds set apart for the reatment of cancer, the patients being allowed to remain ıntil they die.

The Toxin of the Gonococcus.—The *Annales de l'Institut Pasteur* for August, 1897, contain the results of an interesting eries of experiments with the toxin of the gonococcus. It ıroduces local and general phenomena, injected experimentlly, with pronounced phlogogenic properties if injected into he eye or the pleura of the rabbit, while no effect follows ts application on the mucous membrane of the conjunctiva or ırethra. On the other hand, it produces in man a decided eaction in the urethra, transient but acute while it lasts. The ırethra is not immunized by the process, as the same experince was repeated five times in succession. This reaction of he human urethra is special to the gonococcus toxin. Other oxins tested failed to produce any such result. Certain facts ndicate that the toxin is located in the body of the coccus and ıberated as it dies. It will stand heat to 70 degrees C., and is ırecipitated by alcohol. Attempts at immunization were successful with rabbits and goats. The serum of goats injected vith increasing amounts of the toxin during the course of a ear, rendered rabbits immune to the phlogogenic action of he toxin, which can then be injected into the eye and pleura vithout reaction. These facts have not yet been applied to herapeutics, but de Christmas hopes to obtain in time a serum ıowerful enough to arrest the progress of local gonorrhea and ffect favorably the general phenomena caused by its toxin.—*Presse Méd.*, November 27.

Temporary Gastrostomy for Cicatricial Stricture of Esophagus.—Villard, in reporting a case of the above character, expresses he opinion that we must not consider gastrostomy as a definiive procedure, but rather as a temporary measure, to give the ıperator time to adapt his means to his case, and to give rest o the esophagus, thereby suppressing the spasmodic and inlammatory condition of that organ and allowing the surgeon o resume the necessarily suspended catheterization. The folowing observation confirms these views: A woman, aged 45 ears, had a cicatricial stricture for the past four years, due to ngestion of sulphuric acid. Regularly catheterized, this voman was fed through the esophagus until June, 1897, when, rom unskilful catheterization, deglutition even of liquids bcame impossible. This woman, after ten days of absolute diet, vas in a very bad general condition, weighing only thirty-nine ilograms—about seventy-eight pounds. Villard then perormed gastrostomy in two sittings, and for nine days the ıatient was fed through the stomach. Esophageal catheterıation then became again possible, as well as deglutition of iquids. From this on, regular dilatation of the esophagus vas performed. Two months after, an operation was done to bliterate gastric fistula; autoplasty with three planes of uture; an insignificant fistulette, persisting for some time; omplete cure in November; the patient had then gained leven kilograms. At present she is fed by the mouth regularly and catheterized from time to time, so as to maintain the aliber of the esophagus. This is not, however, a unique case. n a report by Lefort, comprising sixteen patients, thirteen ecovered, with a permeable esophagus after gastrostomy; and ı one case of Jabouley of Lyons, gastrostomy performed lmost *in extremis* enabled esophageal catheterization twenty ays after, with a complete subsequent cure.—*Lyon Médical.*

Medico-Literary Notes.—A governmental report by Sir Richard 'horne, M.D., and Dr. Copeman, on the new preparations of ovine lymph, has been issued by the Local Government ;oard.

A Linnucus wanted in chemistry—Some change must soon e made in chemic nomenclature or a large portion of a lecture n chemistry will be occupied in articulating the name of the subject which it is proposed to discuss. In a late number of the Comptes Rendus, MM. A. Haller and A. Guyot describe a new substance they have obtained which has the portentous title of the "tétramethyldiamidodiphenyldianthranoltetramethylédiamidé symmetrical with the correspondent oxanthranol." This, we think, would be hard to beat even amongst German sesquipedalian words. The chemists want a Linnæus.

Hirschwald's Medical Directory for 1898.—According to the directory the number of medical men in the German empire is 24,393, of whom 14,582 practice in Prussia, 2,612 in Bavaria, 1,785 in Saxony, 977 in Baden, 826 in Wurtemberg, 702 in Alsace-Lorraine. Of the large towns Berlin has 2,148 medical men, Munich 510, Hamburg 496, Breslau 432, Leipzig 379, Dresden 360, Frankfort 288, and Hanover 218. Of the members of the profession residing in Berlin one qualified in 1830, one in 1841, two in 1842, two in 1843, and four in 1844, of whom Professor Virchow is one. The proportion of medical men to the population is 463 per 10,000 throughout the whole empire and 12.81 in Berlin.

"*The Scholar in Medicine.*"—Dr. George Foy, of Dublin, has made a partial list, as he terms it, of the eminent names of medico-literary men who were natives of the British Isles: John Arbuthnot, author of "Scribilerius;" Wm. Barrington of Coleraine, founder of the Geological Socicty; Thomas Beddoes, the linguist; John Bell, whose work on Italy justifies his inclusion; J. Berkenhout of Leeds, author of the "Outlines of the Natural History of Great Britain and Ireland;" Wm. Black of Belfast, author of the "Geyser and Rikam Springs in Iceland;" George Cheyne, author of "Physiological Principles of Natural Religion;" Erasmus Darwin, author of the "Phylologia;" Samuel Garth, translator of Ovid's "Metamorphoses;" Francis Glisson, the Aristotelian scholar; Samuel Gmelin, the scientist; Oliver Goldsmith, (?) the poet; John Gerarde, the traveler and botanist; John Mason Good, the translator of "Lucretius;" William Musgrave, the antiquarian; Mungo Park, the African explorer; Thomas Percival, founder of the Manchester Philosophical Society; Sir Wm. Petty, author of the "Political Anatomy of Ireland;" Archibald Pitcairne, the mathematician; John Radcliffe, founder of the Radcliffe Library; Sir William Wilde, author of the "Valley of the Boyne;" William Withering, the mineralogist; John Wolcott, the satirist; William Woodville, author of the "Medical Botany;" Robert William, the antiquarian. Will not some of our readers undertake to compile a similar list for this Western world?

Arthurian Medicine.—Dr. G. M. Gould and W. L. Pyle have collaborated, for the Johns Hopkins Hospital Historical Club, a sketch of the medicine and surgery of King Arthur's time and of how the Knights of the Round Table fared after their many warrings and woundings. There is no mention in the Arthurian writings of a court physician. The sick and wounded were often taken to the nunneries, monasteries and to the abode of some hermit. Salves and ointments were used in the treatment of wounds, and the Sangrail was effective both for wounds and sicknesses. The bath medicated with herbs and phlebotomy were not unknown. Not only the religious inmates of nunneries but the noble women elsewhere undertook the dressing of wounds. The queen "la belle Isoud" was spoken of as "the noble surgeon."

The century birthday of a Scottish medical poet.—January 5, the birthday of Dr. David Macbeth Moir, the medical poet, whose birthplace was Musselburgh, Scotland, was set apart by many literary and scientific men to commemorate the beloved physician of their section, by the founding of a scholarship. Dr. Moir's sonnet on "The Hospice of Saint Bernard" is the writing especially noted as containing the spirit and warmth of a "medical poet." "Delta," as he signed himself in some of his writings, was born in 1798 and died in 1851.

The Pirogoff memorial: Billroth's sentiment.—The museum of anatomy and surgery recently built to the memory of Pirogoff and to be called the Pirogoff Museum was opened in St. Petersburg on Sunday, October 26 (old style). The total funds collected for the memorial were 115,000 roubles and the building has cost 85,000 roubles (about £9,000). The opening

ceremony was attended by the Prince and Princess of Oldenburg and a large number of other distinguished guests. It is not generally known that the famous Viennese surgeon Billroth was a great admirer of Pirogoff, but that this was the fact is attested by the interesting sentiment or endorsement, made by the former when presenting his picture to his friend and patient Pirogoff, that runs as follows: "To the honored Master, Nicholas Pirogoff. Truth and clearness in thought and in feeling, as well as in word and deed, are the steps on the ladder which lead men up to a seat with the gods. To follow your guidance, equally courageous and sure, on this path, which is not without its dangers, is my earnest intention. Your sincere admirer and friend, Billroth." In writing to a Russian surgeon regarding the fatal malady of Pirogoff, a palatal neoplasm, he refused to operate or to advise an operation, saying "I am not that bold operator whom you knew years ago in Zurich. Before deciding on the necessity for an operation, I always propose to myself this question, Would you permit such an operation as you intend performing on your patient to be done on yourself? Years and experience bring in their train a certain degree of hesitancy (Zurückhaltung). Every year brings out clearer and clearer the shortcomings of our art."

The last of the Valois and his assassin.—Recently some interesting facts have been made known in regard to the assassination of King Henry of Valois, at St. Cloud, Aug. 1, 1589. It would appear that the king was slain by a man who was, like himself, intensely neurotic. Henry III. is one of the best known historic bad characters. His face was small and unsymmetric; his tastes varied between violent exercise in the worst weather and the effeminate coddling of himself in midsummer. Abject superstition made him walk barefoot at the head of a procession, and a few days later he would delight in swearing complicated oaths with intent to insure his final reprobation. He rouged his face, and wore kid gloves in bed to keep his hands white, and was subject to the worst perversions of instinct. But Jacques Clement, his assassin, was also, it would appear, a being who lived on the borderland of crime and insanity. The religious monomania, undeniably the immediate cause of the crime, followed a life of license alternated with extreme mortification of the flesh. It was said at the time that a court ecclesiastic had hocussed him to cause him to dream, and to fancy that he heard voices. The truth is that his mind, weakened by vice and bigotry, was thoroughly unhinged by the horrors of the religious wars of his time, and he sincerely believed that heaven had ordered him to slay a man who, both from a medical and a moral point of view, was his perfect counterpart. Acting on that belief Clement made history by extinguishing the line of the Valois. —*British Medical Journal.*

Washington.

MEDICAL SOCIETY ELECTION.—At the annual meeting of the Medical Society recently held, the election of officers resulted as follows: President, Dr. Samuel C. Busey; vice-presidents, Drs. Charles W. Richardson and G. M. Kober; corresponding secretary, Dr. Thomas C. Smith; recording secretary, Dr. Samuel C. Adams; treasurer, Dr. C. W. Franzoni; librarian, E. L. Morgan; censors, Drs. C. W. Richardson, Winter, French, Kleinschmidt and Acker. Dr. Busey was president of the Society some years ago, and this election gives him the office for the sixth term, five of which have been consecutive. Dr. Franzoni was re-elected to serve his twenty-sixth term as treasurer, and Dr. Adams was re-elected to serve a ninth term as recording secretary. At this, one of the largest attended meetings in the history of the Society, the almost unanimous election of these officers is a fitting testimonial of their fidelity to duty and the recognition of their valuable services. Dr. Robbins read a paper entitled "Dangers of the Barber Shop;" Dr. Snyder, "Abscess of Gall-bladder with Typhoid Ulcers;" and Dr. J. Taber Johnson reported two cases of hysterectomy, with specimens.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 273d meeting of the Society was held at the residence of Dr. Bromwell, at which Dr. W. S. Bowen read a valuable paper on "Ventral Hernia."

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the recent meeting of the directors of the hospital, the following report for the month of December was read: New cases, 726; total number of visits, 2,174; number of deaths, 1; number of operations, 155; ward patients, 37; number of prescriptions, 2,351; ambulance calls, 45. The directors decided to have the annual donation day February 16, at which time donations of money, clothing, medical supplies and instruments will be gratefully received. The list of donations and donors will appear in the public press.

CHANGE OF ADDRESS.

Baker, L. H., from Oak Park, Ill., to Fitzgerald, Ga,
Capp, W. M., from 2211 Spruce Street to 123 N. 11th Street, Philadelphia.
Eichberg, L. R., from 211 E. 62d Street, to 225 W. 106th Street, New York.
Formaneck, F., from 251 Ogden Avenue, to 803 Warren Avenue, Chicago; Fite, C. C., from 102 W. 93d Street to 1 Madison Square, New York, N. Y.; Frank, C. P., from 77 E. High Street to 167 E. High Street, Detroit, Mich.
Hoffman, F. N. A., from Evanston to Stewardson, Ill.
McDaniel, E. D., from Camden to Coy, Ala.; Motter, M. G., from 30th and U Streets, N. W. to 2114 Connecticut Avenue, N. W. Washington, D. C.
Nahensky, H., from 165 Hudson Avenue to 23 Erving Place, Chicago; Nolder, S. M., from Fairmount, Ind., to 500½ Main Street, Newton, Kas.
Proctor, C. M., from Helene to White Sclphur Springs, Mont.
Stewart, H. J., from 105 S. Campbell Avenue to 2118 W. Lake Street, Chicago.
Thomas, C. H., from Philadelphia, Pa., to Dansville, N. Y.; Tomlin, W. S., from North and Illinois to 48 W. North Street, Indianapolis, Ind.
Van Hood, E., from Ocala, Fla., to 214 E. 34th Street, New York City.

LETTERS RECEIVED.

Allport, Frank, Chicago, Ill.; Allen, J. B., Cambridge City, Ind.; American Sports Publishing Co., New York, N. Y.
Bleazley, L. F., Detroit, Mich.; Baker, L. H., Oak Park, Ill.; Bowcock, C. M., Springfield, Ill.; Busey, S. C., Washington, D. C.; Blaine, J. M., Denver, Colo.; Bishop, Alfred & Sons, Limited, London, Eng.; Bogie, M. A., Kansas City, Mo.; Buttermiller, J. C., Cincinnati, Ohio.
Coughlin, John H., (2) New York, N. Y.; Cleaves. Margaret A., New York, N. Y.; Conner, Robt. E., Hickory, Pa.; Carstens, J. H., Detroit, Mich.; Cotrell, D. D., North Cohocton, N. Y.; Campbell, R. D., Grand Forks, N. D.
Divine, Chas. A., Mt. Vernon, N. Y.; Dower, T. J., Livermore, Ia.; Dutton, C. E., Minneapolis, Minn.; Davis, O. P., Topeka, Kas.
Ensign, W. O., Rutland, Ill.; Edwards, Wm. M., Kalamazoo, Mich.
Fite, C. C. New York, N. Y.; Fox, L. Webster, Philadelphia, Pa.; Fries Brothers, New York, N. Y.; Fischer Chemical Importing Co., New York, N. Y.; Fougera, E. & Co., New York, N. Y.
Guillaudan, W. L., New York, N. Y.; Gustin, Mackie L. V., Attleboro, Mass.; Gay, B. F., Pierce, Neb.; Galloway, D, H., Chicago, Ill.
Horlick's Food Co., Racine, Wis.; Hall & Ruckel, New York, N. Y.; Haubold, H. A., New York, N. Y.; Hummel, A. L, Advertising Agency, New York, N. Y.; Holmes, Bayard, Chicago, Ill.; Huff, S. M., Lamar, Pa.; Harriman, W. E., Ames, Iowa; Hardy, Neal, Massillion, Ohio.
Ingals, E. Fletcher, Chicago, Ill.
Jayne, W. A., Denver, Colo.; Jeffers, G. D., Cunningham, Kas.; Jones, Hamilton, P., New Orleans, La.; Justice, J. D., Quincy, Ill.
King, A. D., Des Moines, Iowa.
Lehn & Fink, New York, N. Y.; Library of Congress, Washington, D. C.; Larned, E. R., Joliet, Ill.; Lambert, Wm. (2), Kansas City, Kas.
Marchand, P. A., Cincinnati, Ohio; Maker, L. E., Sac City, Iowa; Motter, M. G., Washington, D. C.; Molder, S. M., Fairmount, Ind.; Malcolm, J. W., Wynnewood, I. T.; McArthur, J. H., East Barre, Vt.; McNeel, H. W., Mill Point, W. Va.; Macdonald, W. H., Lake Geneva, Wis.
Newell & Heldman, Chicago, Ill.
Oelrichs & Co., New York, N. Y.
Parrish, J. C., Vandalia, Mo.; Pope, Curran, Louisville, Ky.; Porter, G. H., Steamboat Rock, Iowa; Plummer, H., Harrodsburg, Ky.; Pancoast, J. W., Philadelphia, Pa.; Paul Paquin Laboratories, (2) St. Louis, Mo.; Parke Davis & Co., Derroit, Mich.
Ryan, Charles, Springfield, Ill.; Root, H. A., Toledo, Ohio; Reed R. H., Asheville, N. C.
Sternberg Geo., Washington, D. C.; Sewanee Medical College, Sewanee, Tenn.; Scheel, E. E., Bloomington, Ill.; Schultz, E. F., Milwaukee, Wis.; Stanton, Dr. Grand Rapids, Mich.; Shoemaker, John V., Philadelphia, Pa.; Smith, M. M., Cedar Chapel, Tenn.: Smith, Gould, Taylorville, Ill.; Schick, G., Los Angeles, Cal.; Sanborn, E. A., Somerville, Kas.; Smith, D. D., New Richland, Minn.; Stearns & Co., Detroit, Mich.
Thorp, C., Denver, Colo.; Thorington, J., Philadelphia, Pa.
Wyeth, Jno. & Bro., Philadelphia, Pa.; Weir, S. D., Terre Haute, Ind.; Weidman, W. Murray, Reading, Pa.; White Rock Mineral Spring Co. Waukesha, Wis.; Wall, G. A., Alburquerque, N. M.; Wray, W. E., Waupun, Wis.
Zeit, F. R., Chicago, Ill.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from January 8 to 14, 1898.

Major Egon A. Koerper, Surgeon (Ft. Crook, Neb.), leave of absence granted is extended two months.

Lieut.-Col. David L. Huntington, Deputy Surgeon-General (Surgeon-General's office, Washington, D. C.), is granted leave of absence from or about Feb. 1 to April 10, 1898.

Capt. Peter R. Egan, Asst. Surgeon, is relieved from duty at Ft. Hamilton, N. Y., and assigned to duty at Ft. Hancock and the Sandy Hook Proving Ground, N. J., with station in New York City, and will make daily visits to and between thoae points until he shall be furnished with suitable quarters at Ft. Hancock.

Col. Dallas Bache, Asst. Surgeon-General, will be relieved from duty as chief surgeon, Dept. of the Platte, on Jan. 20, 1898, and will repair to Washington, D. C., and report in person to the Surgeon General of the Army, to assume charge of the museum and library division of his office, to enter upon duty April 10, 1898, as professor of military medicine in the Army medical school, to which he is assigned accordingly.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending January 15, 1898.

Medical Director B. H. Kidder, detached from duty with the medical examining board, Washington, January 21, and ordered home on waiting orders.

Medical Director B. H. Kidder, retired January 23.

P. A. Surgeon A. W. Dunbar, detached from the "Vermont" and ordered to the "Nashville" January 15; on arrival of the "Nashville" on the European station ordered to the "San Francisco."

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ORIGINAL ARTICLES.

BACILLUS ICTEROIDES AND BACILLUS X.

BY GEO. M. STERNBERG, M.D., LL.D.

SURGEON-GENERAL U. S. ARMY.

WASHINGTON, D. C.

In order that there may be no misapprehension upon the part of bacteriologists who are now engaged in researches relating to the etiology of yellow fever, I give below a brief extract from a paper which I shall send to the *Centralblatt für Bakteriologie* for publication.

EXTRACT.

As stated in my previous paper, my information relating to Sanarelli's bacillus, when this paper was written, was obtained from a translation in the *British Medical Journal*, of his "Address" given before the University of Montevideo, June 10, 1897. I have since read his paper in the *Annales* of the Pasteur Institut, and upon my return from Europe in September I passed through Paris, and through the courtesy of Dr. Roux obtained a culture of the "bacillus icteroides" which had recently been sent to the Pasteur Institut by Dr. Sanarelli. I now recognize the fact that there are certain cultural differences, some of which have been pointed out by Sanarelli in his paper in that journal. At present bacillus X is non-motile, while Sanarelli's bacillus is actively motile. But in my original cultures, as stated in my published report, bacillus X was motile. The presence of flagella may now be demonstrated by proper staining methods.

In judging of cultural differences now existing, it must be remembered that bacillus X has been cultivated in artificial media for eight years. In the comparative study now being made in the pathologic laboratory of the Army Medical Museum in this city, the peculiar seal-like colonies, to which Sanarelli attaches so much importance, have not been observed in cultures of bacillus X. Again, bacillus X causes gas production in lactose bouillon, while Sanarelli's bacillus does not.

In view of these facts complete identity in biologic characters can not be maintained.

The next question which arises is, whether the bacillus obtained by Sanarelli from yellow fever cadavers in Rio de Janeiro, and by me from yellow fever cadavers in Havana, are varieties of the same species. Comparative experiments are now being made under my direction with a view to determining this question.

In my opinion bacteriologists are often too much inclined to differentiate species upon slight cultural differences, such as the appearance of colonies, ferment action, etc. Sanarelli himself has shown us, in his paper published in the *Annales* of the Pasteur Institut, three varieties of the colon bacillus, which may be distinguished by differences in the colonies formed upon gelatin plates. Every experienced bacteriologist knows that varieties of all the best known species of bacteria exist and that these may differ as to their pathogenic power, the rapidity and character of their growth in various culture media, their power to produce pigment, the production of acid, of gas, etc.

If bacillus X and Sanarelli's bacillus icteroides are not even varieties of the same species, the question will remain whether one, or the other, or neither, is concerned in the etiology of yellow fever.

It is evident that neither has a claim worthy of serious consideration upon any other ground than that which relates to its pathogenic action. Sanarelli's claim is based chiefly upon his inoculation experiments upon the lower animals and upon man, and his results deserve the most careful consideration. Comparative experiments upon dogs, rabbits and guinea pigs are now being made, under my direction, with Sanarelli's bacillus and with my bacillus X. It is my intention to publish full details of these experiments hereafter. At present I must content myself with an account of some preliminary experiments which show that bacillus X has remarkable pathogenic properties when tested upon dogs by Sanarelli's method (injection into a vein). These experiments have been performed in the pathologic laboratory of the Army Medical Museum by Maj. Walter Reed, surgeon U. S. A., in charge, assisted by Dr. James Carroll, hospital steward U. S. A., and the record given below has been made for me by Dr. Reed.

Experiment 13.—July 23, 1897, 1:20 P. M. Young dog, No. 327, weight thirteen pounds, inoculated into ear vein with 5 c.c. of a twenty-four hour culture in glucose bouillon of X from blood of rabbit 314. A very active lively animal. At 1:35 P. M. appears very sick, lying down, does not respond to voice. At 2:05 P. M. vomits considerable quantity of partially digested food, followed by fluid stool with tenesmus. At 2:23 P. M. a small brown watery stool. This repeated at short intervals with much tenesmus. At 2:51 P. M. and 3:05 P. M. vomits with much effort a small quantity of grayish frothy fluid mixed with mucus; 3:30 P. M. vomits; 4 P. M. dog lies on its side with extremities rigidly extended. Temperature in rectum 104.1 F.; prior to injection, temperature 101 F. July 24, 9 A. M., temperature 102; refuses food or drink; lies on side with extremities extended; during the day has several thin dark fluid stools containing blood and mucus; 4 P. M. temperature 104; died at 6 P. M., twenty-eight and one-half hours after inoculation.

Autopsy.—Thorax: Thymus gland large, dark red; shows a number of small hemorrhages beneath surface. Mediastinal glands swollen, dark red in color. A small hemorrhage over right auricle, which is distended with blood. Left auricle empty. Right ventricle distended, left contracted. Hemorrhages beneath endocardium in latter. Valves normal. Myocardium, pale red. Numerous hemorrhagic areas beneath pleura over right lung. Both lungs, all lobes congested. Lower lobe right lung edematous. On cut section, reddish fluid exuded freely.

Abdomen: Numerous hemorrhages beneath peritoneal surface of duodenum.

Liver: Of a mottled pale and red color, the light color predominating.

Spleen: Enlarged, dark red, firm.

Kidneys: Enlarged, cortex swollen, pale.

Adrenals: Small, pale.

Stomach: Mucous membrane over greater curvature, of uniform dark red color. No erosions to be seen.

Intestines: Duodenum and upper part of jejunum contains considerable quantity of a fluid black tarry material. Mucous membrane of small intestine pale throughout. Peyer's patches not swollen.

From ileo-cecal valve to anus the longitudinal rugæ of mucous membrane are the seat of marked hemorrhage, which extends into submucosa. Some fluid blood in large intestine.

Bladder: Contracted, containing about 4 c.c. of albuminous urine. Cultures from blood, liver and spleen show numerous colonies of X. Kidney, urine and bile negative.

Microscopic examination of sections shows wide spread necrosis, with fatty degeneration of liver parenchyma and cloudy swelling of renal epithelium.

Experiment 35.—August 6, 1897. Dog No. 347. Weight ten pounds. Injected at 2:45 P. M., with 13 c.c. of a seventy-two hour culture in 2 per cent. lactose bouillon of X from rabbit No. 338. Animal much prostrated by injection; 3:05 P. M. vomits food with much retching; again vomits at 3:15 P. M., followed by watery stool containing mucus. Temperature 4 P. M. 96.4 F.; prior to injection, rectal temperature 101 F. Found dead at 8 o'clock following morning, less than eighteen hours.

Autopsy.—Thorax: Subendocardial hemorrhages in left ventricle. Sub-pleural hemorrhages, upper lobe, right lung. Hemorrhagic infarct lower lobe, same lung.

Abdomen: Liver pale, grayish color.

Spleen: Slightly swollen, dark red, soft.

Kidneys: Deeply congested.

Stomach: Contains about 200 c.c. of fluid blood. Mucous membrane throughout of a dark red color. Both small and large intestines contain much fluid blood. Mucous membrane of small intestine swollen and of a uniform dark raspberry red. Less injection of large intestine, though this is quite marked. Bladder contracted, empty.

Cultures positive from blood, liver, spleen and urine. Negative from bile and kidney.

Microscopic examination of sections of liver show cloudy swelling of cells with congestion of capillaries.

These experiments show that bacillus X injected into the circulation of dogs, produces symptoms and pathologic lesions similar to those produced by equal quantities of a culture of Sanarelli's bacillus. The persistent vomiting, intestinal hemorrhage, albuminous urine (dog 327) and profound changes in the liver cells are certainly very remarkable and give additional weight to the supposition made in my report that "it is possible that this bacillus is concerned in the etiology of yellow fever" (p. 272).

AN IMPROVED METHOD OF DETECTING CASTS IN THE URINE.

BY WALTER S. HAINES, M.D.,
PROFESSOR OF CHEMISTRY IN RUSH MEDICAL COLLEGE.
AND JAMES E. SKINNER, M.D.
FORMERLY FELLOW IN CHEMISTRY IN RUSH MEDICAL COLLEGE,
CHICAGO, ILL.

As is well known, two methods are in use for obtaining the sediment from urine for the purpose of microscopic examination. The oldest and most frequently used is by natural subsidence. A quantity of the urine is placed in a cylindric or conical vessel and allowed to stand at rest for twelve or twenty-four hours, or even longer, when the sediment thrown down is removed by a pipette and a drop or more of it examined under the microscope. The other method is by the use of the centrifuge; the urine being placed in suitable tubes and subjected to rapid revolution the sediment is quickly thrown to the outer ends of the tubes, from which it may readily be removed by a pipette and placed under the microscope for examination.

Each of these methods has its advantages and each its disadvantages. The method by subsidence has the advantage of permitting a large amount of urine to be operated on, but it requires much time and the deposit produced, especially in urine from cases of interstitial nephritis, is apt to be very light and occupy a considerable space, so that the microscopic examination of two or three drops of it reveals the character of but a small fraction of the entire sediment, easily permitting casts and other elements to escape detection when they are sparingly present.

In quickness of application and concentration of sediment to a small bulk, easy of exhaustive examination under the microscope, the use of the centrifuge is greatly to be preferred, and on these accounts it has of late years come more and more into general use. It has, however, one serious drawback, particularly in searching for casts when sparingly present, and that is the small amount of urine from which the sediment is obtained. In most centrifuges the tubes for holding the urine are of not more than 15 c.c. capacity, and since in using them they are never completely filled the sediment obtained, even when two of the tubes are used, represents only from 20 to 25 c.c. of the fluid under examination. It is perfectly obvious that in looking, for example, for casts in a case of suspected cirrhosis of the kidney, negative results from comparatively so small an amount of urine would not be of great value; 200 or 300 c.c. of the urine might reveal the presence of casts while 30 c.c. might show none.

During the past two years a combined subsidence and centrifuge method has been devised and put in use by us which leaves little or nothing to be desired for ease and certainty in detecting casts. While much value in examining for casts in any specimen of urine, it is particularly useful in those many and perplexing doubtful cases in which casts, if present at all, are very sparingly found and which, by either of the usual methods, can be detected, if at all, only after repeated and tedious microscopic examination.

Our method is practiced as follows: About 250 c.c. or more of the urine, as freshly voided as possible, are poured into a glass percolator, such as are used by druggists in making tinctures and fluid extracts. The cylindric or Oldberg form is to be preferred, as the sediment collects more completely at the bottom than when using the conical form. The opening at the bottom of the percolator is closed with a perforated rubber or cork stopper through which passes a piece of glass tubing about 4 centimeters long, and this is connected with a short piece of pure rubber tubing provided with a pinch cock. The entire apparatus before pouring the urine in, should be washed thoroughly clean and sterilized by the application for a sufficient length of time of a suitable germicidal agent, such as a dilute solution of formaldehyde, followed by washing with recently boiled water. After pouring in the urine a gram or two of chloral hydrate dissolved in a few cubic centimeters of warm distilled water, are added to retard decomposition; the percolator is now covered with a glass plate and set aside in a cool place for eighteen or twenty-four hours. At the end of this time the sediment of the urine will be found in the bottom of the percolator; if the urine is from a case of suspected interstitial nephritis, for which this method is particularly adapted, the deposit will usually be a light flocculent cloud, and sometimes instead of being at the very bottom of the percolator it will be found floating a few centimeters above it. By opening the pinch cock on the rubber tubing the sediment is drawn off and collected in one or two centrifuging tubes; in all cases the first cubic cen

meter or two may be rejected as it contains little or none of the sediment, and in case the deposit, as spoken of above, floats somewhat above the bottom of the percolator, enough of the urine should be slowly drawn off to bring the deposit down to the outlet before collecting in the centrifuge tubes. The latter, which now contain in 20 or 25 c.c. practically all the sediment from the original 250 c.c. or more of urine, are placed in the centrifuge and submitted for a few minutes to about 3,000 revolutions a minute. By this treatment the sediment is condensed to a small deposit at the apex of one or two tubes, from which it is removed by a pipette and examined under the microscope. With suitable care essentially the entire sediment from 250 c.c., or even 500 c c., of urine from the average patient with suspected cirrhosis of the kidney, may by this procedure be reduced to from one to four small drops within which, it is evident, are practically all the casts of the large volume of urine employed. The work of examining this small volume of sediment under the microscope is usually brief. If casts are present in sufficient number to be of clinical significance they are generally found quickly.

If, as just described, the percolator is sterile and sufficient chloral hydrate has been added to the urine, the latter generally undergoes during the 18 to 24 hours of its subsidence only a slight change, and this instead of being a detriment is undoubtedly of considerable advantage for the purpose in view. The change referred to is the coagulation in a very light, flocculent state of a part of the mucin of the urine which in settling out unquestionably collects and carries down with it any casts that may be present, acting very much as the white of an egg does in clarifying or "settling" turbid coffee.

Instead of a percolator, as directed above, a tall glass cylinder or bottle may be used, the sediment being drawn off at the end of 18 to 24 hours by means of a pipette and transferred to centrifuging tubes. A percolator, however, or some other similar device is considerably to be preferred, the deposit from the urine being much more perfectly collected and easily drawn off in its entirety than by the other method.

If we wish to stain the casts or other sediment the appropriate dye may be added to the liquid in the centrifuge tubes before centrifuging, and in a like manner chemical reagents, such as acetic acid to clear up phosphates, may sometimes be used to advantage.

To the conscientious physician who has not infrequently devoted many long sittings to examining under the microscope, often with negative or questionable results, the sediment (whether obtained by gravity or centrifuging) from repeated samples of urine from a patient suspected of having incipient cirrhosis of the kidney, the method just described will be, if our experience is any criterion, a most welcome change. It is true that eighteen to twenty-four hours must elapse after receiving the urine before results may be obtained; but these hours involve no labor and when, at their close, the drop or two of ultimate sediment are placed under the microscope their examination in the great majority of cases may be made with at least comparative ease and rapidity, and with a confidence in the results, even if they are negative, that is in very gratifying contrast to the uncertainty often following the previous laborious methods.

The following test shows the superior ease and accuracy of this method of detecting casts. A sample of urine was secured that was known to contain a very few casts; it was divided into three parts, one of which was submitted to the centrifugal, another to the gravity, and the third to the present described combined process. Although the sediment obtained in the centrifuge was examined with exhaustive care no casts were found; an equally painstaking examination of the gravity deposit revealed a single cast; with the combined process, however, four or five casts were easily found in the first slide placed under the microscope and with an expenditure of time not one quarter as great as that given to either of the other two examinations.

We give only one of the several cases that have recently come under our observation illustrating the clinical value of this method of searching for casts.

Mr. X., 58 years of age, robust physique, a gentleman of means, and assiduously engaged in many commercial enterprises; a good liver, but temperate in the use of tobacco and alcohol; has never had any very serious sickness; family history good, although one and possibly two brothers are believed to have died with Bright's disease. He has had many persistent neuralgic attacks in different parts of his body and has suffered from frequent backache. There is slight enlargement of the left ventricle with moderate increase in arterial tension. The urine is of light color, averages 1,500 c. c., specific gravity about 1,017, slight increase of total acidity; upon standing, only a little light sediment is as a rule thrown down. For two or three years both he and his family physician have feared some organic kidney trouble and as a consequence he has consulted a number of doctors making more or less of a specialty of these disorders. They have all examined his urine and he has preserved their written reports. All have found minute traces of albumin at times, but only one has been able to find casts, and he after long and repeated search had discovered only two. The various physicians differed in their diagnoses, most of them, however, believing that, in the entire absence of casts, organic kidney trouble did not exist, or at least could not be demonstrated. During the past few months the gentleman has been repeatedly under our observation. His urine has been examined microscopically by us several times, using both the gravity and centrifugal methods of getting the sediment, with negative results except on one occasion when by the use of the centrifuge a single hyaline cast was discovered. Upon applying the present combined method, however, we have never failed to find, even with only a moderate amount of search, from two to five casts and sometimes even more. This in conjunction with the other features presented by the case makes the diagnosis certain.

It is evident that this method, while designed especially for detecting casts, may be used with great advantage in examining for any other sediment in the urine, and we have not infrequently employed it in searching for spermatozoa, epithelial cells, micro-organisms, etc., especially when these elements were sparingly present.

In conclusion we should say that, singular as it may seem, the chief defect for clinical purposes in the present method is possibly its too great delicacy. By its use we have found that if sufficient time and care be given to the microscopic examination casts may be found in the majority of samples of urine even

from persons in perfect health. Our observations on this important subject are not yet quite complete, but before long we shall publish our results.

A NEW AND SIMPLE METHOD OF OBTAINING THE URINE SEPARATELY FROM THE TWO KIDNEYS IN EITHER SEX.

Read before the Chicago Medical Society, Jan. 12, 1897.

BY M. L. HARRIS, M.D.
PROFESSOR OF SURGERY, CHICAGO POLICLINIC.
CHICAGO, ILL.

Owing to the vital importance of the renal function the desirability of being able to determine the presence or absence of a kidney, as well as its functional capacity, has long been recognized by every surgeon who has been called upon to remove one of these organs for some incurable disease. It is a well-known fact that, owing to an error or arrest of development, an individual may be possessed of but a single kidney, or one of the kidneys may be so atrophied or misformed as to possess but little, if any, functional activity. It has more than once been found at the autopsy that the kidney removed by the surgeon was the only one possessed by the patient.

While absence of a kidney is quite rare, being found in only one out of about thirty-three hundred cases (Morris) or 0.03 per cent., still where but a single kidney exists, it is much more liable to become diseased.

In De Jong's (quoted by Wagner, *Deutsch. Zeit. f. Chir.*, 24, 581) collection of 197 cases of nephrectomy with 81 deaths, in 2, or nearly 2.5 per cent. of the 81 deaths, the other kidney was found to be absent, while in 9 it was so atrophied or diseased as to be practically functionless. Thus in 11, or 13.5 per cent., death could have been avoided, or at least not directly charged to the surgical operation, could the condition of the opposite kidney have been determined beforehand. Much thought and ingenuity has been expended in devising ways and means for determining the presence or absence of a kidney. It is quite universally acknowledged that physical examination by palpation, percussion, etc., is absolutely unreliable under ordinary circumstances in determining the presence of a normal kidney, normally located. Hence, attention was early directed in the line of securing the urine separately from the two kidneys. Could this be done with certainty it would not only establish absolutely the presence of two kidneys (except in a few rare anomalies of development), but would be of very great service from a diagnostic point. Even when it is quite certain that the kidney is diseased it is often impossible to determine from the symptoms and a physical examination which kidney is at fault. To be able to collect the urine separately from the kidneys is thus of inestimable diagnostic value.

It is unnecessary to describe in detail the various methods and appliances that have been devised to accomplish this object, still in presenting anything which is claimed as new and original it is well to mention what has preceded in the same line.

We may mention first Simon's suggestion of compressing the ureter at the brim of the pelvis with the hand introduced into the rectum. On account of the great difficulty and danger of introducing the whole hand into the rectum, it was substituted by Davy's rectal lever as in compressing the common iliac artery to control hemorrage. Following this appeared numerous forceps or compressors for shutting off or closing one ureter temporarily while urine escaped from the opposite one. To this class belongs Tuchman's forceps, shaped like a lithotrite. With it one was supposed to be able to feel the ureteral orifice in the bladder and compress it in the jaws of the forceps.

Ebermann's forceps for compressing the ureter with one blade in the bladder and the other in the rectum. Polk's S-shaped catheter for compressing the ureter against the finger in the rectum. Müller's curved spring pad introduced into the rectum. Silbermann's rubber bag introduced into the bladder and filled with mercury so as to compress the ureter on one side.

Some of these compression instruments were visionary, while all of them were so unreliable as to be of no practical value. Next we may mention Hegar's and Sänger's method of cutting down upon the ureter in the anterior vaginal fornix and temporarily compressing it with a ligature, and Warkalla's "umsteckungs" method.

Attention was now directed to the ureteral openings and Pawlick with a delicacy of touch and manipulation that has not been equaled by anyone else, has repeatedly been able to catheterize the ureters of the female through the urethra by touch alone.

Fenwick devised a curved catheter with a large lateral opening, which he hoped to be able to place over the opening of the ureter, and thus by means of a rubber bulb suck the urine directly from the ureter. Considerable light was now thrown upon the subject by the appearance in the field of a number of cystoscopes after the Nitze-Leiter plan by the aid of which the ureters have been successfully catheterized. They are so complicated, however, and require so much practice and dexterity to use them successfully as to be practically beyond the ordinary practitioner.

Simon devised a female urethral speculum through which by means of a reflector or electric headlight the interior of the bladder could be seen as it became distended with air and the ureters thus catheterized by sight. Kelly improved and popularized this method and following his directions many operators have been able to catheterize the female ureters.

It is however no simple thing, but requires considerable practice, great patience and dexterity, and have seen those experienced in the method obliged to give up after many minutes of fruitless endeavor. It is likewise at times so painful to the patient as to require an anesthetic, and repeated unsuccessful attempts to enter the ureter may cause a hemorrhage which may seriously interfere with the object in view.

Numerous operators have resorted to suprapubic and perineal cystotomy in the male and vesico-vaginal fistula in the female in order to catheterize the ureter.

Two quite recent methods which do not have in view the catheterization of the ureters deserve mention. Rose (*Centralbl. f. Gyn.*, 1897, Nos. 5 and 21) uses an urethral speculum similar to Simon's and Kelly's, the inner end of which is cut obliquely or on the bias.

The idea is to cover the ureteral opening in the bladder with the end of the speculum so the urine will flow directly into the speculum, from which it can be secured. He admits that this is at times very difficult to do and other methods may have to be tried.

Neumann (*Deutsch. Med. Woch.*, 1897, No. 43) describes a large-sized catheter-like instrument with a septum extending longitudinally throughout its entire length. The septum extends beyond the inner

end of the tubes. which open respectively one on either side. When introduced, it is intended the septum should lie snugly against the posterior wall of the bladder, aided by the finger in the vagina, so as to form a water-tight partition and thus guide the urine from each side into the respective side of the catheter. Rose (*Deutsch. Med. Woch.*, 1897, No. 48) criticised Neumann's instrument and showed the unreliability of his method.

Nearly all the preceding devices have been applicable only to the female, the male being practically out of the question.

The great difficulties and unreliability of the methods proposed have led such practical surgeons as Czerny and Israel to establish renal and ureteral fistulæ in the lumbar region in order to decide which organ is the seat of disease, and such men as Thornton, Morris, Fenger and others to perform preliminary ventral celiotomy and bilateral lumbar incisions, in order to permit palpation of the kidneys.

The above does not contain all the slight modifications which have been proposed, but illustrates all of the principles thus far brought out. With this brief introduction then, we may proceed to a description of our own device and the method of its application.

The instrument although quite simple is, as usual, somewhat difficult to clearly describe. It consists of a double catheter, each being separate throughout, but both being enclosed in a common sheath throughout its shaft or straight portion, thus giving it the appearance of a single tube flattened from before backward. Each catheter, however, is separately movable about its longitudinal axis within the sheath. The sheath, or longitudinal straight portion of the catheters, is 20 cm. in length, graduated in centimeters along its upper surface. A detachable handle is attached to the longitudinal portion. The proximal extremity (in reference to the patient) is curved somewhat similar to an ordinary male sound—forming an arc of about 60 degrees of a circle, with a radius of 35 mm.

This curved portion does not pass at once into the straight portion, but is set on a slight forward angular displacement about 3 or 4 mm. in length. Upon transverse section this curved portion is approximately a semicircle, so that when the flattened surface of the two catheters are opposed it is nearly round. Near the end on the flattened surfaces and the lateral portions of the semicircular surfaces are three or four small perforations. The distal extremity of each catheter is round and curved in the same plane as the proximal extremity, forming about the quadrant of a circle, the same as the curved end of an ordinary male sound. (Fig. 1.)

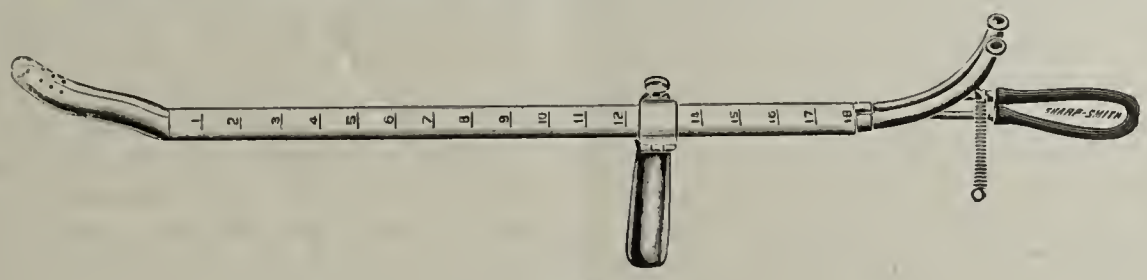


FIGURE 1.

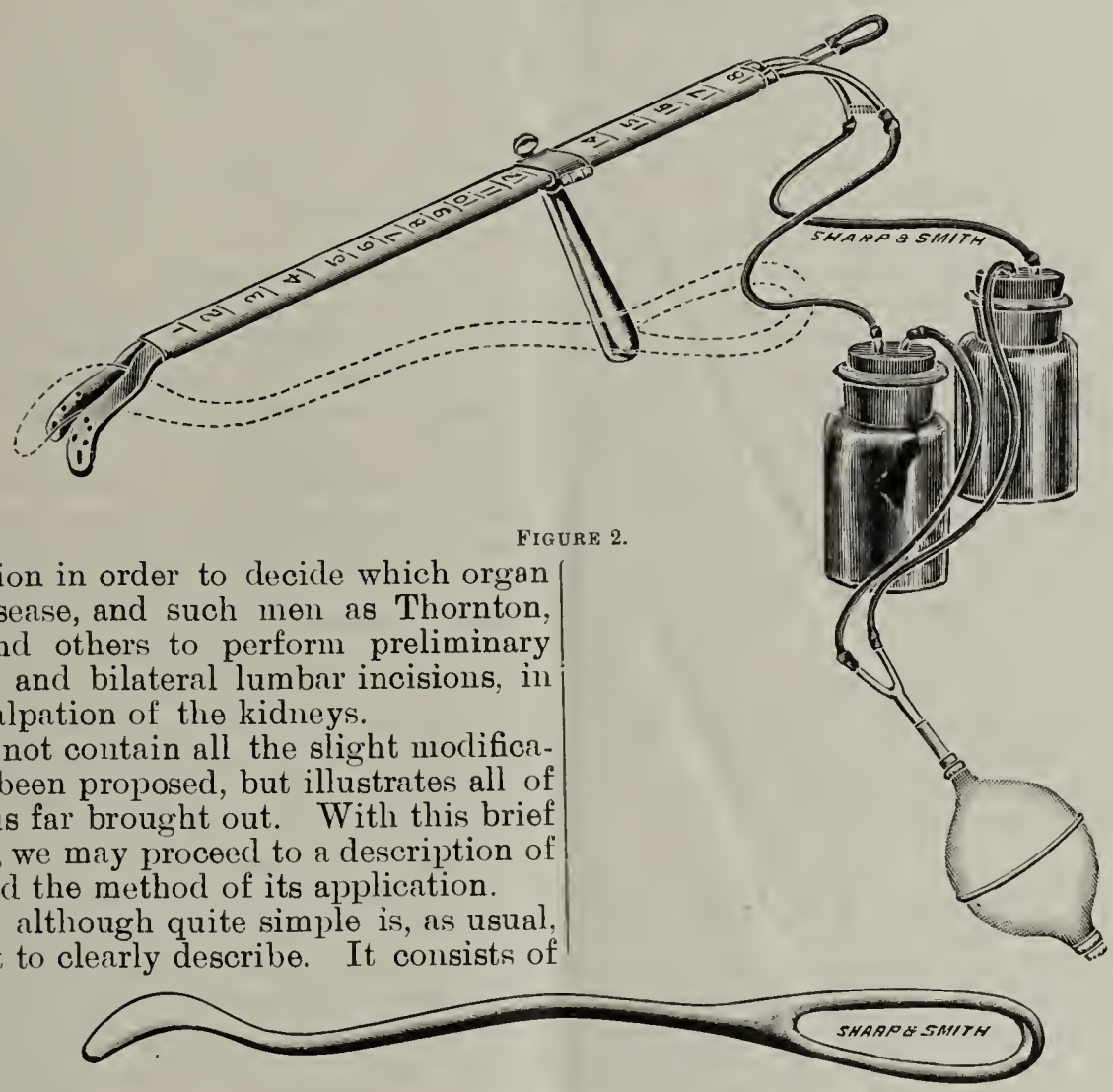


FIGURE 2.

FIGURE 3.

The curves of the two extremities being in the same plane, the distal end will always indicate accurately the exact direction of the proximal end. At about the junction of the distal curved with the straight portion is a short tube, continued in the line of the straight portion and opening into it. The distal extremity of each catheter is connected by means of a short piece of rubber tubing with a separate glass vial. The corks of the vials are doubly perforated. Each vial is finally connected by means of a piece of rubber tubing with a single rubber exhaust bulb. (Fig. 2.) As part of the device there is a metal

lever about 25 cm. in length, with a handle at one end, the opposite extremity being suitably curved and flattened laterally. (Fig. 3.)

The instrument is used in the following manner: The patient, male or female, is placed comfortably on a table in the ordinary lithotomy position, with the hips slightly elevated. The instrument, with the flattened surfaces in contact so as to form practically a single catheter, is introduced into the bladder in the ordinary way. So soon as the proximal curved extremity is within the bladder, the proper distance being indicated by the graduated scale, each catheter is rotated about its longitudinal axis until each proximal end, as indicated by the distal end, is directed outward and backward. The end of each catheter should pass through an arch of about 110 to 120 degrees, or so that the angle subtended posteriorly by the two catheters will be about 120 or 140 degrees. They are held in this position by a small spiral spring. The ends of the proximal extremity will now be in the neighborhood of, but not exactly at, the ureteral openings. The ends are separated a greater distance than the distance between the ureteral openings so as to avoid the danger of compressing the opening of the ureter, and thus preventing the escape of the urine. The lever is now introduced into the vagina in the female or rectum in the male. By gentle pressure forward directly in the midline, the base of the bladder is raised into a longitudinal fold between the ureteral openings.

The curve of the lever is such that it fits nicely in the angle formed by the separating extremities of the catheters, thus forming a complete watershed. The end of each catheter now lies at the most dependent part of a little pocket, a perfect watershed separating the two. The ureters open, one on either side of the watershed near the base of the declivity in the immediate vicinity of the respective end of the catheter.

By producing a gentle exhaustion of the air in the vials by means of the bulb, the urine, as fast as it escapes from the ureters, drops directly into the ends of the catheters and flows at once into the vials, right and left respectively.

The instrument and its application are so simple that its advantages are apparent at once, and hence need no arguments to support them.

This being the case, we may proceed at once to dispose of any possible objections that may suggest themselves.

The first question which naturally suggests itself is, is the watershed perfect and complete so that there can be no intermixture of the urine escaping from the opposite ureters? My first experiment was made on the cadaver. A supra-pubic cystotomy was made on a male cadaver, so as to thoroughly expose the interior of the bladder to view. The end of the rubber tube of an ordinary irrigator was inserted into the upper end of one of the ureters. The watershed was now made by the lever introduced into the rectum and the water from the irrigator allowed to slowly flow into the bladder. It would flow at once to the inner end of the catheter on that side without leakage to the opposite side.

Through the kindness of Dr. C. E. Manierre, I had an opportunity of using the instrument on one of his patients, which afforded an absolute demonstration of the completeness of the watershed. It was a female, from whom he had removed the right kidney about a year previous; hence, no urine could possibly enter the bladder except through the left ureter. Although the instrument was used several minutes and considerable urine collected in the left vial, the right vial remained perfectly dry, not a drop of urine appearing in it. We must conclude from this that the septum or watershed is perfect.

The possibility of compressing the opening of the ureter and thus preventing the escape of the urine from that side is obviated, as already mentioned.

In diseased conditions of the vesical mucosa the value of an examination may, upon first thought, appear to be considerably lessened, owing to contamination of the urine with products of vesical origin. Upon reflection, however, this will be found not so. The bladder, when necessary, should be thoroughly cleansed by irrigation before introducing the instrument. After the instrument is in place the little pockets may be again cleansed by irrigating them directly through the little straight tubes on the distal end of the instrument provided for that purpose.

The urine as fast as it escapes from the ureters is sucked at once into the catheters, so that it does not remain in contact with the mucosa. The end of the catheter is so near the opening of the ureter that the urine comes in contact with an extremely small portion of the bladder surface. The examination is not continued long enough at any one time for pus (for instance) to be formed in sufficient quantity to be taken up by the catheter. Hence it will be seen that contamination, even when the bladder is diseased will be slight.

It is likely that in certain greatly enlarged prostates or growths of the so-called middle lobe or in vesical calculi or chronically inflamed and contracted bladders, the instrument would not be applicable, but such cases form a very small minority of those in which its use would be desirable.

A few words in regard to the use of the instrument. The little straight tubes, when not being used for irrigation, must of course be closed air tight by simply tying the little rubber tubes attached to them, or passing the opposite ends of a single tube over each straight end. Aspiration with the bulb should not be too great so as to draw the mucosa into openings of the catheter. Very slight aspiration is all that is necessary. As a few drops of fluid are apt to remain in the bladder even after the use of a catheter, the first few drops that come over should be discarded.

The instrument should be opened carefully when in the bladder, so as not to excite hemorrhage by injuring the mucosa. The proximal curve should be just within the bladder, which is determined by noting the length of the urethra on the scale. Introduce the instrument into the bladder and open it before introducing the lever into the vagina or rectum. The ends of the catheters are easily felt through the vagina or rectum, and the lever should be directly in the midline, midway between the two ends and pressed snugly into the angle. Sufficient pressure should not be used to cause pain, as the watershed is very easily formed. The urine does not drop continually into the vials but intermittingly, just as it escapes from the ureters. The use of the instrument is not painful and does not require an anesthetic, except possibly in an oversensitive or nervous patient, who would not submit to any manipulation whatsoever.

By attention to these simple rules the application of the instrument will be found very simple, and the results all that could be desired.

FEEDING OF SURGICAL PATIENTS.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY ALBERT H. TUTTLE, S.B., M.D.
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Certain special considerations in regard to the feeding of surgical patients have induced me to take up this subject for discussion, that is, the need of definite instruction which will enable the nurse to practically comprehend the requirements of her patient and the simplification of the food materials employed. The subject is naturally divided into three periods, viz.: Before operation; after operation up to the time that the bowels are established, or the immediate effects of the anesthetic are eliminated· and finally the period of convalescence.

The first period is of variable length from a few hours to days or even weeks, depending upon the condition of the patient, the severity of the disease and operation and the necessary amount of preliminary preparation required. During the first period it is the aim of the surgeon to build up the strength and resistance power of his patient and, just before the operation, to prepare the bowels by emptying them as completely as possible. Unless we have been careful about the preliminary treatment it will be difficult to completely clear the bowels without exhausting the strength of the patient, owing to the fact that the bowels are affected by the nervous condition of the patient, which is generally present and perhaps has existed for a long period. In my experience most female surgical patients suffer from enervation of gastro-intestinal tract, with constipation, mal-assimilation and imperfect nutrition as a result of this weakness of the nervous system. Before a severe operation this should be overcome by toning up the patient as much as possible by overfeeding and tonics. The more severe the operation the more important it is that the bowels should be satisfactorily cleared of all the fecal matter and, at the same time, every effort should be made to support the patient and guard against subsequent shock. In order that we shall accomplish this we must feed the patient for some time before the operation on an efficient diet, yet one which will leave as little residue as possible for removal by catharsis. I believe that during this period we should use liquid foods which consist of a combination of nitrogenous and vegetable substances. Milk alone and combined with eggs, sugar and liquor, form one of the best nitrogenous preparations we have at our disposal, and another is beef juice prepared as follows: Thick, juicy meat from the bottom of the round is cut into slices an inch or more thick. This is heated in a slightly buttered, hot spider, so as to rapidly sear both surfaces and warm the meat completely. (This starts the juices and is very essential to success.) The slices are now cut up into cubes or strips and squeezed in a meat press which has been previously warmed in hot water, until all the juice is extracted. The juice should be collected in a warm vessel, salted and seasoned to taste and administered while it is still warm.[1] I have found that many patients prefer to take the juice in port wine that has previously been diluted with water. The number of patients who dislike either of these preparations are very few, which is more than I can say of any of the nitrogenous prepared foods on the market. They also offer the advantages of fresh preparation and lower costs. The meat juice to a certain extent acts as an iron tonic owing to the amount of hemoglobin which it contains. For the vegetables constituents of the diet I have depended upon barley, oats, flour, rice and corn meal prepared in the form of gruels and strained before ingestion. The fluid foods should be given at regular intervals of two hours from 6 A.M. to 8 P.M. and in a variable quantity, according to the demands of the patient. Coffee, tea or chocolate are given in small quantities only or completely withheld. Liquid malt is a valuable adjunct, aiding digestion and assimilation and in a measure serving as a pleasant bitter tonic. In certain cases an occasional dose of malt and cascara are of value in assisting the action of the bowels. The triple bromids in doses of 6 grains, t. i. d., act as a sedative to the nervous system as well as a bland aperient and indirectly help in the feeding of the patient. It sometimes happens that a patient can not bear liquid food well as it induces gaseous and acid fermentations with symptoms of abdominal distress. In these cases a carefully selected diet of solid or soft-solid food may be substituted during the preliminary treatment and until the day previous to the operation. On this day liquid food only should be given and on the day of operation all food should be withheld. Some surgeons are in the habit of giving their patients a bowl of clear soup early in the morning of the operation, but I prefer to substitute for this a cup of strong coffee. With careful attention to the above details the bowels can be easily moved or will act spontaneously at least once daily as a rule. If in obstinate cases they fail to do so, a mild aperient will produce a satisfactory evacuation. The result is that just preceding the operation the bowels can be efficiently cleared without upsetting the patient, by the administration of a small dose of castor oil during the evening before, and by washing out the lower bowels with soapsuds early on the morning of the operation. Formerly it was my practice to administer calomel and follow this up with salts, but I found it upset the patient, often caused many unnecessary discharges of a watery and depressing nature and, unless given in large doses, was uncertain. If the calomel is not entirely eliminated there is danger of some subsequent salivation and stomatitis. Patients do not complain of the bad taste of the oil if it is covered up with coffee or the oil is given in the form of an emulsion. After an operation all food should be withheld for a certain length of time. In the simplest class of cases patients feel better if they eat nothing until the following morning, and in abdominal cases it is absolutely necessary to maintain total abstinence for one or more days. In abdominal cases it should be the rule not to feed by the mouth until the normal peristaltic action of the bowels is fairly well established. This is marked by the passage of flatus per rectum and the flatness and softness of the abdominal wall. This rule should be imperative and, no matter how long it may take to establish the bowels, should be carefully followed. It is well to remember that by rectal feeding one often helps the bowels by starting peristalsis from below upward and in the normal direction. The first food after the administration of an anesthetic should be of a bland nature and of a limited amount. Three to four ounces of gruel or a few crackers with

[1] The Enterprise Manufacturing Company have placed upon the market a meat-juice extractor which is modified from their meat chopper and which gives very satisfactory results.

black coffee are well borne. Malted milk and Mellin's food are sometimes preferred; their peculiar flavors seem to suit the taste of certain individuals. If the patient is suffering much from enervation of the gastro-intestinal tract before the operation, liquid food with occasionally a cracker or piece of dry toast will often be tolerated when more substantial food would cause distress. If the operation has been one of abdominal section, then the first feeding should be per rectum and peptonized milk and gruel in one-half pint quantities are given at the intervals of five to eight hours. This is first employed at the end of the second or third day, according to the case, and is continued from one to three or more days, until the bowels are free from gas and distension and the passage of flatus from time to time indicates the establishment of normal peristalsis. Simple cases rapidly advance toward the natural condition and in the course of twenty-four to forty-eight hours become fit for the feeding of the third period. The abdominal and cases with nervous depression are less rapid and suffer from distension and symptoms of distress with the slightest excess of food. The use of malted and peptonized foods in these cases should be persisted in for several days. After they become inefficient the patient feels a desire for more substantial food and the bowels are usually active with a daily dejection, or at least one every other day. At this stage a meal of soft solids can be given at midday, consisting of eggs, oysters, custards, rice, tapioca, bread pudding, blanc mange or the various oat, barley or wheat mushes. At the end of a couple of days, with this feeding, meat and potatoes can be added to the main meal of the day, and mush, eggs, toast and fish can be given for breakfast. By the end of a week from the time the patient has begun the taking of solid food, three regular meals can be given daily. It is better, however, to withhold meat from that of the evening.

The third period is characterized by house diet three times a day and such extra feeding as may be specially indicated by the condition of the patient. Three regular meals a day and two or three lunches are usually prescribed. Breakfast consists of mush, hot bread or gems (made from whole wheat, corn meal or flour), broiled chops, steak, fresh fish or eggs, with chocolate or coffee. Dinner comprises soup, a roast of meat (lamb, beef, chicken, game, turkey), fish, potatoes, green vegetables, bread and pudding (custard, bread, tapioca, rice, etc.). Supper is made of bread, toast, oysters, cold meat, hot gems, cold custard, blanc mange, assorted crackers, with tea or chocolate. All sweets, as candy and preserves, should be withheld and fruits allowed only in limited quantities. Cake and pastry and all articles cooked in fat are also prohibited. Lunches are served two and a half hours after each regular meal and consist of milk, eggs and crackers. By careful feeding in the above manner a large amount of food may be taken, digested and assimilated daily, and at no time will the stomach become over-distended.

If symptoms of distress from gaseous or acid fermentation occur, the regular feeding is suspended for a few hours and the condition corrected by the administration of bismuth and salol and sometimes in urgent cases, a small dose of morphin (one-sixteenth of a grain) is given, which controls the discomfort and nervous state of the patient better than anything I have hitherto tried. Every effort should be made to vary as much as possible the diet of each day. A careful study of the patient will often reveal some idiosyncrasy or special weakness in the digestion of particular food. Whenever a patient expresses herself as unable to eat certain things without a great deal of subsequent discomfort, I believe it is wise to respect this opinion and withhold the food complained of for the effect on the mental condition, if nothing more.

DISCUSSION.

The Secretary, Dr. EPHRAIM CUTTER of New York, remarked that the title of this paper included the feeding of surgical patients so as to do away with surgical operations. For example, some years ago a man was brought to him with chronic pleurisy and empyema. A fistula had discharged pus for four years. It had been proposed to resect the ribs as a last resort. This case entirely recovered in a few months by feeding only. Another case of the same kind came under the care of the speaker a few years ago but in a female and of less years standing. It was permanently cured in two months' time by feeding. The diet in both these cases was one pint of hot water before meals and on going to bed, and beef broiled after removing the white fribrous or glue tissue, which glue tissue ferments as sugar does in the alimentary canal. Two mouthfuls of broiled beef to one mouthful of vegetable food (*i. e.*, bread made from the Franklin Mills entire wheat flour) were thus proportionately eaten. A bad case of frog felon came into the hands of a surgeon who cut, but said the man would die as it was very severe. He was right, had the feeding been conventional. But the writer, called in consultation, advised large porterhouse steaks thrice a day as medicine. The man made a fine recovery. Perhaps some may say that these are not germain. Let me then give another case. Some twenty years ago a lady dieted for a round fibroid about three inches in diameter, sessile, on the fundus of the uterus. She tired of the slow process and T. Gaillard Thomas, M.D., LL.D., removed it by the knife. I saw the case during the convalescence. Dr. T. assured us that he never had a case do so well. While I think that the writer is right I should like it much better if people would feed so that no surgical operations would be necessary, but as man now is, this is too much to be hoped for.

WHAT THE MEXICANS EAT AND DRINK.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY F. SEMELEDER, M.D.
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At the time of the conquest, Mexico was very poor in vegetable and animal food. The people consequently had to make up for the different things they lacked and eat certain indigenous animals and plants, some of which a European would hardly think of tasting, unless compelled to it by the most extreme hunger.

Wealthy people eat as do the same class in Europe, but their table will always show some national dishes, and in the most fashionable houses pulque will be found on the table.

In dedicating these lines to the especial Mexican dishes it will be understood that we refer to the Indians and the poorer class of people, their food is mostly vegetable. The basis of it is Indian corn in different forms, from the green and half ripe ear to the grits and flour.

Half of the food of the Mexicans consists of *tortillas*. The corn is soaked in hot water with a little lime. In that state it is called *nixtamal*. Then it is ground on a flat stone (*metate*) with a stone roller (*metlapil*) and reduced to a thick mass, out of which the flat, thin cakes, called in Spanish tortillas, and tlaxcales in Nahuatl, are formed with the hands and baked on a flat dish (*comal*) over the fire. To make tortillas is the business of the women and takes most of their time. In order to avoid this and enable the

women to do other work, mills have been set up to grind the corn, but in general the country people do not like the tortillas made by this process. It is certainly a great economic drawback that almost the whole time of the women of the poor should be required to make their tortillas, instead of employing themselves in some other profitable work. When the corn is boiled they make with lard, butter, red pepper, sweets or meat, a kind of rolls, enveloped in corn husks and boiled. These are the *tamales*. In the north and in certain parts of the coast the Indians mix corn flour with brown sugar. This mixture is called *pinole*. With a small bag of that an Indian will work and travel several days.

Another necessity of the Mexican is red and green pepper, which is used to season every dish. A Mexican meal is not complete without a dish of *frijoles*, beans. The Mexican can hardly do without chocolate and, if he can afford it, he will take it in the morning and in the afternoon or at night; it is always flavored with cinnamon.

The Mexican is not a great eater, nor can he be called an epicure. The hot taste of the red pepper seems to dull his palate and render him unable to appreciate the refinements of gastronomy. Salt is scarce and dear and little used; for the Indian a pinch of white salt is a great luxury. The indigenous vegetables are many and we can only enumerate a few: The sprouts of a *Smilacea*, eaten like asparagus; the buds and flower of the palm *Chamaedorea* tepejilote (called *quetepehuiles*), the sprout of a large palm which is eaten like cabbage; the young and tender leaves of the *Opuntia* (nopal, prickly pear) called nopalitos, the leaves of a *Piperacea, tlalnepaquelitl;* the flower of the *Yucca gloriosa*; the gombo, *Hibiscus gombo;* the flowers of a *Papilionacea, Erythrina coralloides*, called *quimites* and *gasparitos;* the red and green pepper (Capsicum annuum); tomatoes, red and green (Lycopersicum and other solaneas); the pumpkin, when young and tender or when fully developed; the pumpkin flower; melon and watermelon (introduced from Europe); the flower of the *quaunzontle* (blitus bonus Henricus). In the northern states the prickly-pear (*tuna* in Spanish) forms a great item in the subsistence of poor people. To season dishes they use *epazotl* (chenopodium ambrosioides) and *papaloquelitl* (porophyllum coloratum, D. C.), the *Amaranthus hypochondriacus* (quintonil). The chenopodium (*quelitl*), the *romeritos*, the marshmallow, the purslane (portulaca), the *xoconoxtli* (literally red berry), the sour tasting fruit of a certain cactus. The *mohitli* (sericographis mohitli), *tè limon* (Andropogon citratus, D. C.) *tè de milpa* (bidens tetragonum) and orange leaves in infusion are common beverages taken in the morning with or without milk. Fish and amphibia: Of the latter the iguana (cyclura and iguana), lizards which are sometimes three feet long, in the warm lands; turtles and their eggs. In the lakes of the tableland the white fish (Atherina Humboldtii), the *juil* (Cyprinus Americanus), the *mextlapique*, a viviparous small fish; the *axolotl* (various classes of *amblystoma*) which was only lately found to develop to a lizard; a kind of clam (*almeja*, a strange derivation from mytilus, Anodonta Mexicana); a small kind of fresh water shrimp, about one inch long, *acaucil* (Cambarus Moctezumae). In the rivers along the coast crawfish is found, but rarely; also eels and shad. A small kind of snipe (*chichicuilotes*) living in great numbers on the marshes of the valley of Mexico; ducks when they pass through on their passage north and south. *Ahuautle*, the roe of a kind of fly of the hemipterous family, coryza femorata; the locust, when it appears on the coast; the *xumil*, in the south, with a peculiar odor like bugs; the chrysalis of a night butterfly, living in the maguey plant; a kind of caterpillar, over an inch long, with black hair, living in nests on trees, etc. Of quadrupeds: In the warm lands, the armadillo and a kind of opossum.

What the Mexicans drink: Water, first of all, though even that in many places is rare, bad and unwholesome.

Pulque, the national drink, called the "Mexican wine." We shall have to devote a special chapter to the plant that yields pulque and to the process by which it is prepared. In this place we consider pulque only as a drink. It comes from the northern parts of the States of Pueblo and Mexico, along the Vera Cruz railway. The maguey plant grows on soil where nothing else can be produced and, as the pulque has a ready sale at a profitable price, the cultivation constitutes the special wealth of all this part of the country. Pulque is consumed in large quantities; the Vera Cruz railroad runs a train every night to carry it down from Apam, to be distributed in the City of Mexico in the early morning. The railway freight for pulque is on an average $1,000 a day. Pulque is a white liquid, with dregs of slimy flocks, of sour taste and smell, with a putrid flavor. Besides the alcoholic and acetic, likewise putrid fermentation is going on; the latter explaining why pulque can not be preserved, as it continues fermenting until the whole liquid is spoiled. It is drunk two or three days after being made while it is yet fermenting, and is adulterated, as is everything that is extensively used. Pulque is alcoholic and highly intoxicating; as it is very cheap it ought to be the delight of drunkards; for one cent you can get a big tumbler full and for two or three cents a man can drink himself beastly drunk. The common people in Mexico are great drunkards. It is said to have digestive and nutritive properties; but this can not be true, for nowhere in the world do you find more anemics and with poorer digestion. For festivals pulque is cured with different classes of fruit. Some years ago a speculative fellow tried to export preserved pulque. An advertisement has been sent to us, with the information that somewhere in Jersey City genuine preserved pulque can be had. The advertisement contributed to it every good quality and went far enough to say: "Pulque, notwithstanding the alcohol it contains, never produces the bad effects of alcoholism, even when taken in excess." That is humbug. Pulque can not be preserved. When fermentation is artificially interrupted, the liquid is no longer pulque. An inferior class of pulque is called *tlachique*. The sap of other kinds agave furnishes a fine brandy called *mexcal*, which has a smocky flavor, much like Scotch whisky. The brandy made at a certain hacienda in Jalisco takes the name of the place: Tequila.

Cheap brandy, aguardiente, burning water, is made in sugar factories and called chinguirite. A certain class of brandy supposed to come from Spain and to be made of grapes, is called catalan.

Colonche.—In the interior of the country where the Agave will not grow, an alcoholic drink is made from the juice of the red tuna (prickly-pear). By adding water and brown sugar, the juice is made fit for alcoholic fermentation. To make it stronger and more

durable, brandy is added. It is quite intoxicating.

Beer of good quality and high price of late is extensively made in the country.

Wine.—The cultivation of the grape was prohibited by the Spanish rule in order to monopolize the sale of wine for Spain. Now grape is cultivated in different parts of the Republic. In the central and lower lands it does not yield well, for the rainy season begins just when the grapes need dryness and heat. The same circumstance prevents the culture of hops. The places where wine is best grown are Dolores (State of Guanajuato), Parras and other places in the State of Coahuila. Genuine and good Mexican wine, like an inferior class of sherry, can be had in the City of Mexico for twenty-five cents a bottle. As it is not appreciated and finds no sale, all that wine goes to Texas. Certain extensive plantations in Coahuila, where good care is taken of the grape, produce a first-class quality, equal to the better classes of Spanish and Greek wines. By adding large quantities of sugar, the juice of oranges can be made to ferment into a kind of cider.

Chia.—The seed of a species of sage (salvia chian) a small black grain, when kept in water for some time covers itself with a grayish, slimy layer and looks then very much like frog-spawn; it is diluted with water, sweetened and flavored with the juice of certain classes of fruit and makes a nice refreshing drink.

Chicha is made by boiling barley; then the water and barley is exposed to the sun and air for a few days; when it begins to ferment it is sweetened and mixed with pineapple juice and is then a cooling beverage.

Tepache.—Dregs of pulque or toasted barley or crushed sugar-cane form the basis; mixed with water, pineapples, bananas, guayabas and sugar it is put to ferment; then nutmeg, clover or cinnamon is added, as well as molasses, and the liquor is ready. It is alcoholic.

Tibico.—When sugar-cane in the factories has gone through the cylinders the remains fall into a tub; the larger fibers are taken away to make brandy; the smaller ones like bran, remain a few days in the tub, fermentation begins and a kind of microscopic fungus develops. In this state it is called tibico; that is taken out and beaten with water, which causes an enormous and rapid growth of the fungi, so that the liquid increases under your eye. It is then diluted with water, sweetened with brown sugar, flavored and drunk. Hence tibico has become the synonym for exuberance.

A great comfort in hot countries is a refreshing drink. Plenty of natural ice is obtained from the volcanoes, and lately in several places artificial ice is to be had. In all the other places of the country, to get a cool drink of water, porous clay jars are used; by the constant oozing and evaporation of the water on the surface the contents of the jar are kept cool. In many places of the hot lands you see these jars hanging from the roof in the hall or in the corridor of the house and whoever feels like it helps himself to a drink.

Tuba.—On the Pacific Coast there grows a kind of coco-palm, not known on the Gulf Coast. The nut is of the size of a child's head, the flesh abundant and soft, so as to be eaten with a spoon. When the bud comes out, before the flower is developed the bud is cut off and a milky, very sweet sap distills out, which is drunk fresh or after fermentation. This is in Colima the drink of the poor people and is called tuba.

The lowest class of Mexicans have always been great drunkards. Pulque has a disastrious effect on the body and mind, but not quite so bad perhaps as common brandy. The Mexicans of the better classes were formerly exceedingly sober; twenty-five years ago there were not more than half a dozen cantinas in the City of Mexico; now there is one at nearly every corner. Drunkenness is now a common vice with young men of good families; they consider themselves more like men and equal to the Americans if they indulge in excessive drinking. Older people drink hardly anything but water; wine is very dear on account of the heavy duties; the wine of the country is not appreciated. And so we have again arrived at the water, which after all is the best, cheapest and healthiest drink. Ἄριστον μέν ὑδώρ, in spite of the German students who sing: *Cervisiam bibunt homines, Animalia cetera fontes.*

THE MAGUEY PLANT AND THE MAKING OF PULQUE.

The maguey plant, *metl* in the Aztec language, botanically Agave Americana (centennial plant in the United States, as it is supposed to bloom only once in a hundred years), called aloe in some parts of Europe, belongs to the liliacea family, tribe alströmeria. It is indigenous in Mexico; it grows everywhere in the hot and clod lands, on dry or marshy ground. But the finer varieties, tecometl or tlacametl, those that yield pulque or tlachique, only grow in the cold and high lands, principally in the northern parts of the States of Puebla and Mexico, called the plains of Anahuac. The plant, as is well known, is characterized by an extraordinary development; the stem is solid, covered by the leaves and measures sometimes 50 cm. in diameter. The leaves are stiff, of the form of a gutter, concave on the upper side and convex on the lower. The edges of the leaves are full of thorns; the fleshy part is full of thin parallel fibers, the surface being thick like leather and shiny. When the plant is completely developed, which takes at least ten years, it is of considerable size; the leaves are over 3 m. long, more than 30 cm. wide, 10 cm. thick at the bottom, the edges lined with wreathed thorns the upper one of them 5 or 6 cm. long. The bud is at first enclosed in a straight cone. While the whole plant needs at least ten years to fully develop, the stalk, which grows over 5 m. high, reaches maturity in a few days. The upper end of the stalk, when it blooms, spreads out in candelabra, each of them crowned at its end by a corymb of greenish yellow flowers.

A maguey plant that has flowered dies within two or three years. If the bud is cut off, which is done with a special instrument made of oak wood, and a deep hole is scraped out in the stem, the sap that was intended to form the stalk and the flower collects in that hole. That sweet sap is what they call *aguamiel*, honeywater; it contains water, sugar and gluten. A plant that is tapped in that way will die within four or six months, during which time it will continue to give aguamiel; but then the stem will already be surrounded by little plants, that only need transplanting. That is the only nursing the maguey requires.

The aguamiel is collected twice a day by means of a calabash, used like a siphon; it is emptied in raw ox hides, spread out on a wooden frame so as to form a trough, in which some old pulque dregs are thrown. There the fermentation sets in; alcohol, acetic acid

arbonic acid and putrid fermentation are formed and
ı two or three days the pulque is ready for use. It
ɜ sent to Mexico in barrels or in pipes made of hog
kins.

There are more than thirty varieties of maguey,
nly twenty-two of which are fit for making pulque.
'hese plants are cultivated, one might say civilized;
ıe others grow wild and are valuable only for hedges
ıd for fiber. Since the discovery of America the
ıaguey plant has been introduced and acclimated in
ıe south of Europe, and all along the coast of the
[editerranean Sea it grows without culture and like
ı indigenous plant, giving the landscape a charac-
ɔristic aspect. The maguey is one of the most use-
ıl plants; an Indian might almost live on maguey
one.

Messrs. P. and J. Blasquez, to whom we are in-
ɔbted for many details about the maguey, give the
llowing enumeration: The underground part of the
em, ground with some maize, is made into cakes.
ɔme varieties give a brandy; the stem fried and dis-
lled gives the brandy called mezcal and tequila.
guamiel, pulque and tlachique are drunk extensively
ıd often to excess. Old pulque may be converted
to excellent vinegar. The stalks are used as poles
build huts; the leaves furnish the roof; the thorns
e used for needles and nails, the skin of the leaves
r sandals, the fiber of the leaves, pita, for thread
d is also made up into ropes, textures and paper;
e coarser fibers furnish brooms and a kind of
ushes; the roots are used for soap. When the bud
torn off there is found a coil of fiber which weighs
lf a pound and is as fine as silk. The dry leaves,
ems and roots are used for fuel. The bud, half
ed, becomes sweet and furnishes food for the poor.
ıe tender flowers, mixed with eggs, make a kind of
ıelet.

A species of butterfly, Teria agaves, Papilio agaves,
ɔs its eggs in the fleshy leaves of the maguey; in
ɜ next spring the caterpillar is formed. It is about
o and one-half inches long and of the thickness of
inger. The Mexicans dig them out and eat them
ed, with salt and red pepper. These worms are
ısidered a great delicacy; they are said to taste
e almonds or hazelnuts. We have never tried
ɔm. Besides this the maguey is the habitat of
ɔther kind of butterfly, Bombyx agaves, and of two
ɔcies of hemipterous insects, Lystra bombycida and
lia agaves.

THE PREVALENT DISEASES.

The prevalent diseases and those which cause the
ıatest mortality in the Mexican Republic, accord-
; to a valuable work of Dr. Orvañanos: "Geografia
ɔdica de la Republica Mexicana," and of course dif-
ɜnt according to states and localities, are: Contin-
ıs fevers (including, I suppose, typhus, rheuma-
n, etc.); pneumonia (with bronchitis and catarrhal
ɔctions of the respiratory organs); intestinal affec-
ıs (dysentery and catarrhal, in great part due to
ıse of alcohol); intermittent fever (including per-
ious, remittent and malarial); leprosy exists in
tain parts, and pellagra and "*el pinto*" a cutane-
affection not sufficiently studied (in the States of
errero, Michoacan, Tabasco and Chiapas); goiter,
:inism occurs, deaf dumbness (limited); yellow
ɜr (endemic on the Gulf Coast, in certain districts
:he States of Vera Cruz, Tabasco, Campeachy and
ɜatan; epidemic occasionally in large parts of the country, always confined to the coasts, but of both oceans); cholera visited almost the entire country in the thirties; smallpox, general, doing great havoc, as vaccination is not properly attended to; measles and scarlet fever; diphtheria (the Mexicans pretend that it was unknown until the last invasion of the French, who are said to have imported it; not extensive); whooping cough (limited).

Pneumonia and bronchial troubles, common and deleterious, principally in the higher parts of the country and during the cold season (fibrinous rare) and many other diseases; rabies occurs, so does lithiasis; liver abscess, even in persons who have never lived in the hot country nor had dysentery; tuberculosis is not frequent, but especially deleterious in the hot lands; tetanus, not rare in the hot low lands, traumatic as well as neonatorum; snake bite very rare; insolation never heard of.

One of the particular features of our climate is the almost total absence of typhoid fever. Indeed, most of the Mexican physicians assert that it never occurs. I myself, and other foreign physicians who have observed typhoid in Europe, am not of that same opinion, but we admit that it is quite rare and never takes an epidemic form.

Another strange phenomenon is observed with regard to typhus. That disease is endemic and epidemic all over the elevated table land and causes numerous deaths. It seems that an elevation over the sea of less than 4,000 feet is quite unfavorable to its production and establishment and we may practically say that it does not occur in the low lands. Here Dr. Orvañanos is decidedly mistaken in his geography, when he says that typhus occurs in places where physicians of thirty or more years practice affirm to have seen but one case or none at all, and those isolated cases might have been imported.

It would seem that the habitat and conditions of development of yellow fever and typhus are precisely the reverse and that where one is endemic the other does not find a favorable ground. How that is remains unexplained until now.[1]

VICIOUS READING DISTANCE AS A CAUSE OF ASTHENOPIA.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia. June 1-4, 1897.

BY CHARLES HERMON THOMAS, M.D.
PHILADELPHIA, PA.

The review in outline of a single typic case must serve to illustrate the present topic.

J. B. J., male, student, aged 15 years, consulted me in October, 1896; wearing weak, minus compound cylindricals giving vision $\frac{6}{6}$ in each eye. It was stated that the refraction had formerly been hyperopic and the progress of the myopia rapid; had been refracted some months previously at competent hands and no additional myopia had since developed. Glasses were left unchanged. Muscular tests, including tropometer, gave no indication of heterophoria. Ophthalmoscope shows slight striation with slightly heightened color. Asthenopic symptoms were very distressing. He complained chiefly of brow pain on use of the eyes in reading, which was accompanied by nervous depression of a disabling character. These symptoms, however,

[1] With this paper was shown a box containing Mexican plants that were used for ptizans, sent by Dr. Semeleder specially for this Section.

were absent during vacation periods. He had much difficulty in his school work, was backward in his classes, at least two years behind those with whom he started, though he was intellectually bright and a member of a talented and scholarly family. The question of his entire removal from school was, and for some time had been, under consideration. The book in reading is held habitually at something less than *seven inches*, though as his vision for distance would indicate, he reads the smallest type at thirteen to fifteen inches with entire ease. I advised the strict adoption of a thirteen-inch reading distance, which being tested for one week, complete relief of symptoms was reported; he has been able to keep up with his studies without difficulty. Two months later the same favorable report was confirmed.

I refrain from the further citation of cases, though my note-books show a number closely allied to the one just related. Many must have seen cases of this class, notwithstanding which it is probable that they are not as frequently recognized as their importance calls for. Plainly in this instance the asthenopia and the nervous symptoms were of combined accommodative and muscular origin due to the vicious reading distance. It will be seen that the strain here thrown upon the ciliary muscle amounted to about 3 D. beyond that normally employed, aggregating when the eyes were used in reading about 6 D. of accommodative effort; while at the same time there was an equivalent muscular strain involving a like number of meter angles of active convergence.

The habit of holding the eyes too close to the work is one common among school children, and experience shows that many of them can not bear the strain involved without serious ocular and nervous damage.

Vicious reading distance, as a cause of asthenopia and apart from its relation to myopia, appears to be deserving of more consideration than it has yet received. As to the cause of the condition, it is doubtless a continuation of the habit of infancy of holding objects close to the eyes to obtain the larger retinal images; aggravated and confirmed by faulty relations of study tables and school desks. As to its correction the prognosis is not always encouraging. Few patients will be found to yield such implicit obedience as did the one in question. Indeed the difficulty in securing any considerable improvement in this respect, even with the aid of teachers and parents, is often almost insurmountable.

1633 Locust Street.

DISCUSSION.

Dr. EDWARD JACKSON, Philadelphia—This matter has seemed to me to be one of a great deal of practical importance, but one of its direct difficulties is to get patients to realize this. I think some times after an elaborate examination and the prescribing of glasses, that if we bring out the point that simply by holding the book one, two or three inches too close to the eyes the patient can undo all the good work of the glasses, he might be induced to appreciate the importance of it.

The harm of excessive accommodation is perhaps not fully measured by the number of diopters, if our theory of accommodation is correct, and it depends on elasticity of the lens. The lens acts like a spring, and we know it takes more force to affect a spring after it has been deflected than to deflect it to the same extent in the start. The same principle may apply to the work of the ciliary muscle. A patient using 3 D. of accommodation more than necessary is giving more than twice the effort necessary for 3 D. of accommodation.

There is a reason for this vicious working point in the fact that the larger images are easier of mental recognition than the smaller ones. That accounts for the habit that all infants have of holding things very close.

Dr. J. A. LIPPINCOTT of Pittsburg—I have had an opportunity of observing several cases of the kind reported without esophoria in the majority, but in one with esophoria it seemed to be sufficient to account for the malposition. I found all the cases benefited or cured by wearing a frame attached to the head, upon the distal end of which was a support for holding the book to be read. In that way the patient can not move the head without moving the book, and the proper distance is maintained.

Dr. WILLIAM THOMPSON of Philadelphia—I have under my care now a case very nearly like the one reported. A very intelligent lady is preparing herself for the position of librarian and she is anxious to do many hours of near work. A few years ago she had 3 or 4 D. of myopia; it is now about 6 D., but she is wearing her old glasses which I allow her to use. She has about 2 degrees of esophoria. I have found it impossible to make her read at the proper distance though she has been told over and over again. When she writes she puts her head down with the nose almost against the paper. She suffers with headaches because she persists in removing her glasses and reading within her far point.

THE USE OF FULL CORRECTION CYLINDRIC GLASSES IN ALL CASES OF ASTIGMATISM.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY LOUIS J. LAUTENBACH, M.D.

PHILADELPHIA, PA.

I believe that the entire correction of the astigmatism present in every eye, is a necessity, that is, provided the eye is used at all for near work. If there is no use for a knife there is no need to sharpen it, but just as soon as the eye is used as an instrument for seeing, its refraction must be so adjusted that the ciliary muscle fibers act equally, and not unequally as in astigmatism, to produce a clear, distinct image on the retina.

The disturbances of the recti muscles of which we hear so much today are in a great part but a development of nature's effort to allow the tired ciliary muscle some rest by presenting on the retina an image which requires other fibers of the muscle than those previously exhausted, to do an extra share of work, relieving those which have become tired from overuse. Of course the neurotic element in developing recti disturbance is a very important one, but is often only the reflex condition brought about by the train of pathologic circumstances portrayed.

In addition to the effect on the recti muscles exerted in the manner described, there is still another influence at work whenever there is present any astigmatism whatever. In a paper presented to this Section at the Baltimore Meeting, I advanced a theory as to the formation, retention and want of retention of the normal corneal curvatures, and I think demonstrated that the recti, oblique and the ciliary muscles were, in addition to the influence of the eylid, the pressure of the orbital cavity and structures, concerned in the retention and alteration of the corneal meridians. In a paper recently printed in the *Ophthalmic Record*, I recorded some observations on the influence of nasal affections on these curves, exerted through reflex influence on the recti and oblique muscles. Now, if the muscles can and do affect the curvatures, does it not seem reasonable that the reflex influence of an indistinct image on the retina and an unequally tired ciliary muscle can and does exert itself on the oblique and recti muscles to such an extent as to occasion insufficiency of the recti with disturbances of the obliques as well, and does it not then

follow that some of the cases which now have prisms used, and others in which graduated tenotomy plays an important part, are but such in which the muscular balance should not be interfered with, as the inequality of the muscular action is but Nature's method to relieve a pathologic condition by the rest cure? Should we not rather re-examine the eye as to the refractive error, especially as to the amount and axis of the astigmatism present, correcting it fully, as it may have varied since the preceding examination, not being always a constant quantity. Then, in addition, give the eye the nearest approach to perfect rest possible by abstention from close work.

I feel confident that if in cases of disturbed muscle balance, work in accordance with the suggestions here presented be instituted, there will be quite a group of these cases which will be curable without any thought of operation or of propping up of the apparently weakened muscles by prisms.

The theoretic conditions seem borne out by practical experience, and, in fact, they have been suggested by the results obtained through the re-examination of heterophoric eyes and the use of full astigmatic correction glasses.

DISCUSSION ON PAPERS OF DRS. DEAN AND LAUTENBACH.

Dr. L. J. LAUTENBACH of Philadelphia—There is a thought that I would like to give voice to here, and it is a growing one, that is that the lenticular astigmatism does not remain constant, but varies, under some conditions, from moment to moment. I have had a patient wearing astigmatic glasses correcting in part the corneal and lenticular astigmatism, using one set of glasses for near and another for far work and I have tried in every possible way to obtain a glass that would combine the same cylindric effects, and have failed to do so.

Dr. J. A. LIPPINCOTT of Pittsburg—In regard to the statement made in the paper, there was no way of explaining the discrepancy between the general refraction and the corneal refraction as given by the Javal ophthalmometer except by the lenticular astigmatism. I have not very infrequently seen, in cases from which cataract had been removed, a decided difference between the real refraction and the corneal refraction as shown by the ophthalmometer. This astigmatism I assume to be found in a peculiar curvature of the posterior part of the eyeball. The posterior curvature of the cornea may perhaps be an influential factor, the anterior portion being the part determined by the ophthalmometer.

Dr. W. L. THOMPSON of Indianapolis—Did I understand Dr. Lautenbach that he would correct the full astigmatism no matter how high the degree? Would you if there were five or six degrees in the vertical meridian and as much in the oblique? I would expect the patient to have diplopia under the circumstances.

Dr. G. E. DEAN of Scranton, Pa.—Dr. Lautenbach brought out one interesting point in regard to the rapid variation of the conformation of the lens. This may be the reason why so many cases, after very careful correction by good oculists, change within the first eighteen months and require a re-examination and stronger correction, and then remain in the same condition for several years. I have seen a patient while being examined by the ophthalmometer change the conformation of the lens to the extent of 0.5 D. and it is a very interesting thing to watch. It is done by muscular action. In regard to Dr. Lippincott's point, I did not intend to exclude the conditions at the posterior pole of the eye.

Dr. L. J. LAUTENBACH of Philadelphia—In answer to Dr. Thompson, I would say that I never fail to order a full correcting cylinder, but may vary the general refracting glass.

Medical Law Unconstitutional.—According to the *Idaho Daily Statesman*, the medical law in Idaho has been declared unconstitutional, having passed the Senate irregularly. This was the decision of the Supreme Court, December 4, in a case brought to compel the Board of Medical Examiners to issue a license to the plaintiff to practice medicine. The decision virtually makes the Board of Medical Examiners a thing of the past.

EXAMINATION OF THE EYE BY OBLIQUE ILLUMINATION, WITH THE BINOCULAR MAGNIFIER.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY EDWARD JACKSON, A.M., M.D.

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC; SURGEON TO WILLS' EYE HOSPITAL.

PHILADELPHIA, PA.

The original form of the binocular magnifier was that of two partial lenses cemented together at an angle. Its proportions were not what have since proved to be the best, but they were sufficiently good to make it a very practical working instrument, as soon as it had been learned how to use it. But the writer's first attempt to employ it, persisted in until it caused severe eyeache and headache, resulted in complete failure; so that the lens was thrown aside for weeks before the second attempt was made. The same difficulty has been experienced by others.

The use of such lenses seems easiest to young persons who have worked little with optical instruments, and are accustomed only to normal binocular vision. In proportion as one has learned to use monocular optical instruments, like the microscope and ophthalmoscope, and especially the ordinary magnifier or corneal loupe, is the difficulty of learning to see through the binocular magnifier increased. Still this difficulty is not, for any one, greater than the difficulty of learning to use the ophthalmoscope; and when once you have learned to see through it the difficulty of the instrument has been overcome. The appearances that are to be studied with it are those with which we are already familiar by binocular vision, or through the monocular magnifier, only that these appearances are with this instrument more striking and definite, and the finer details are brought out and made more prominent. The first difficulty is greater than most persons would suppose; but that first difficulty having been mastered it is an easy instrument to use.

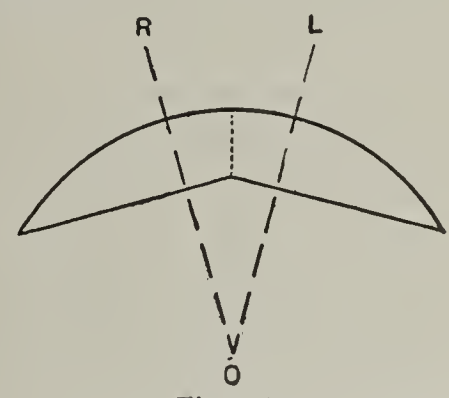


Figure 1.

The difficulty is decidedly greater with the simple decentered double lens (Fig. 1) than with the lenses and prisms mounted in separate tubes. One reason for this is, that with the former one eye can see both halves of the lens, and the surgeon accustomed to exclude one eye in working with other optical instruments, invariably does the same with this and becomes conscious of the double images seen by one eye through the two halves of the lens, instead of selecting and fusing the proper images presented to the two eyes, and excluding what is, in this examination, irrevalent.

Another difficulty experienced with this original form of the lens comes from the reflections from its

surface. In a room with diffused illumination this may quite prevent one from seeing through the lens, even though he be familiar with its use. In a room properly darkened for oblique illumination such reflections are readily avoided.

The later form of magnifier, inclosing the lenses in the tubes (Fig. 2), gets rid of annoying reflections altogether. It also prevents one eye from seeing through both lenses. With this form of instrument, I have not found any one possessing good binocular vision, who could not get the binocular effect at the first attempt with the magnifier, although it might readily happen that false adjustment of the instrument, or the holding it improperly with relation to the eye looked at, or with relation to the surgeon's eyes, would prevent this.

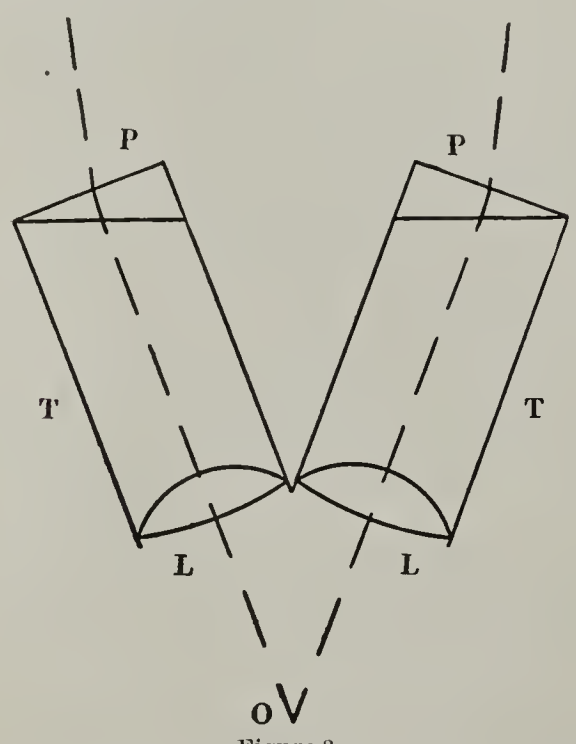


Figure 2.

Every ophthalmic surgeon knows that any new pair of glasses must be used for some little time before they will prove satisfactory. This is eminently true of such strong lenses as are furnished in the binocular magnifier, especially as they are used quite intermittently. One has, with it, to learn the fusion of images rather more diverse than he has before attempted to fuse; and perhaps it should really be a cause for surprise that so many ophthalmic surgeons have so quickly gained sufficient familiarity with the instrument to make it of practical service.

Adjustment.—The most important point in the adjustment of the instrument is that the prisms shall be so turned as to bring the two images for the respective eyes to the same level. Any one free from hyperphoria can make this adjustment by holding the lenses at rather less than their focal distance from a sheet of paper on which is a straight line. The instrument is held with the bar joining the two tubes parallel to the line which is to be seen through the tubes, the right eye looking through the right tube, the left eye through the left. The eyes are not brought close to the diverging ends of the tubes, as in using the instrument, but are withdrawn some inches from them, so that the portion seen through one tube does not appear to coincide with the part seen through the other tube, but the two areas appear to lie side by side, each crossed by the line which is used at a test. Under these circumstances the line should appear continuous across both areas. If in one area the line appears higher, it shows that the apex of the prism of that side is directed too mu upward, and this is to be corrected by properly rot ting the prism, having first loosened the screw th binds it. When the line is thus made continuo across both fields the instrument has been adjuste and the binding screw should be again tightene The best adjustment is with the bases of both prisn turned exactly toward the nose, in which position tl line appears continuous in the two tubes, and whe made to cross the middle of the field is also contin ous with the line as seen outside of the tubes. B if both prisms are turned equally up or equally dow a slight deviation from this exactly horizontal pos tion of their bases is of no practical importance.

In the matter of adjustment of the width betwe the surgeon's pupils, no special attention is necessar since it matters little whether the surgeon's pup comes opposite the nasal or the temporal portion the prism. The adjustment can, however, be effecte by varying the distance of the lenses from the su geon's eye. The diverging ends of the tubes a close enough together to suit a very narrow inte pupillary distance, if the eyes are brought close the end of the tubes; but by withdrawing the ey from the ends of the tubes the widest interpupilla distance can be equally well accommodated.

In adjusting the position of the object it must b borne in mind that with this instrument each eye ca see only within a tubular space, and both eyes ca see the same object only when it is held at the inte section of these tubular spaces. The lenses and tl inclination of the tubes are calculated to give emm tropic eyes distinct vision, with little or no effort accommodation, at the distance of this intersectio If one has high myopia, he must either have tl lenses in the instrument replaced by weaker lense or he must have the instrument adjusted so that tl tubes will meet at a slightly greater angle, so that tl intersection of their fields of vision will occur clos to the lenses. To be used by a surgeon of hig hyperopia, the tubes of the instrument should b more nearly parallel, or the lenses should be mad correspondingly stronger.

Aberration.—The surfaces of the lenses are s selected as to reduce spherical aberration to the min mum, by making the radius of curvature of the su face toward the surgeon's eye the shorter, and tl reducing of curvature of the surface toward th object. The simple lens is made plano-convex, an the proportion is 1 to 6 for the lenses mounted i tubes. Some aberration may, however, be noticed a the periphery of the field, with the stronger lens employed. The field has been made as large as wa available, without resorting to some combination fo the correction of aberration. It has seemed to th writer that simplicity and cheapness were ver much more important than the slight gain to b made by correcting aberration through the use of complex lens.

Chromatic aberration is never noticed except whe one looks at black lines on a white ground. Then becomes perceptible, although the two eyes correc each other so that in the center of the field the ler gives no chromatic effect. What dispersion doe occur at the center of the field is due to the prisn Now the prism before the right eye (with its base t the left) gives to a black line running perpendicula to the visual plane, a red fringe on the right border an a blue fringe on the left. The left eye, lookin

through a prism with its base turned toward the right, sees the same black line with the red fringe on its left side and the blue fringe on its right. If the lines be brought to the center of the fields for both eyes, so that dispersion is as great in the one image as in the other, their combination in binocular vision causes the color effect to almost entirely disappear, giving an achromatic image.

If, however, such a line be seen at one side of the field, the colors seen by the eye of the same side will predominate and become noticeable in binocular vision. If while looking through both tubes, one eye becomes excluded from the visual act, as by habit from the use of other optical instruments, the colors seen by the eye used may be noticed. For looking at objects like the anterior segment of the eye, that do not present the especial contrast of black and white, no chromatic aberration is noticed.

Strength of lens.—The stronger the lenses employed the closer must they be brought to the eye looked at when in use. The strength that it is possible to employ is therefore limited as the strength of the monocular corneal loupe is limited. The strength of lens, of course, directly determines the magnifying power. The writer had supposed that within such limits the greater the magnifying power the more useful would the instrument be, but experience shows that this is not the case.

For studying certain minute details of the iris or cornea the strongest lenses that can be used, probably about one-half inch lenses magnifying 20 diameters, may be of service. But for ordinary clinical work, including the inspection of the cornea and iris, much weaker lenses will be found of more general service. Thus, even the one-inch lens is too strong to see at the same time, with comfort and profit, the iris in normal position and the cornea. A weaker lens, as the 2 inch, 20 D., will give a much better idea of the depth of the anterior chamber; and is quite as good in discriminating the depth of opacities in the cornea and crystalline. In general, it may be laid down that it is wise for the surgeon to start with the binocular lens, not stronger than the monocular magnifier that he has been accustomed to employ.

Value.—The benefit of the binocular magnifier in giving a better idea of the relative depth of the objects seen is obvious. An equally important benefit, which would scarcely be expected from *a priori* consideration, lies in the increased vividness of the impressions from binocular, over those obtained in monocular vision. We are accustomed to think that one eye can see just as much as two. And in a strong light, for the recognition of perfectly familiar objects, this may be almost true. Still, even with the best illumination, and such familiar objects as test-letters, if the two eyes see about equally well there is always a distinct gain in acuteness of vision when the two are used together.

If the illumination becomes feeble this gain is very much greater. If one trying to find his way in a darkened room will cover one eye, he will notice a very great reduction in his power of recognizing objects. Something of the same sort is true of vision with the best illumination, if the objects to be recognized are unfamiliar. Only one who has tried it can appreciate the increased force and definiteness of the visual impressions, obtained through the binocular magnifier. By such impressions points will very often be recognized that would otherwise quite escape the observer; although after his attention was drawn to them he might be able to make them out fairly well with the monocular image.

Of the use of the instrument mounted on a head-band, Fig. 3, for operations I have only to say that it is a great help in the removal of small foreign bodies from the cornea, and in operations upon the iris or lens capsule. In certain points, as the recognition of incarceration of the iris, or in the opening of the lens capsule, it is a decided help for cataract extraction. Of course, weaker lenses which would be of service in other operations, could be mounted in this same way. Yet as they were made weaker the advantages of the instrument over a special pair of operating spectacles would diminish. Probably with lenses of the same strength as those so far employed in eye work, or even with stronger lenses, the instrument may be found serviceable in dentistry, and in certain operations on the skin and hair bulbs. It seems certain that the binocular simple microscope will give very important aid as an instrument for study and investigation in the biologic sciences.

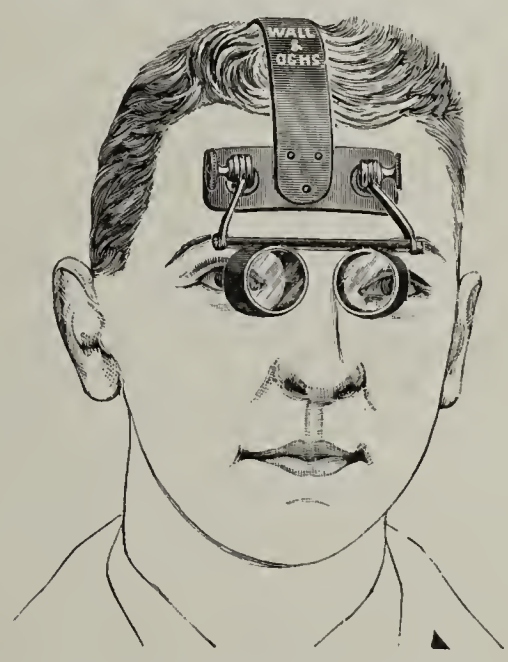


Figure 3.

The different forms of the magnifier are made by Messrs. Wall & Ochs of Philadelphia.

DISCUSSION.

Dr. C. F. CLARK of Columbus—I would like to ask whether, in case of hyperphoria that does not require correction for comfort, Dr. Jackson would consider it worth while to have an instrument constructed with particular reference to that, or should it be corrected on the glasses being worn.

Dr. JACKSON—I think an amount of heterophoria that might not cause serious trouble in the ordinary use of the eye might be a considerable obstacle to learning the use of the instrument, particularly if it were hyperphoria. It can be readily compensated for, however, by simply turning the prism, which is adjustable.

CONGENITAL OPACITY OF THE CORNEA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY H. MOULTON, M.D.

FORT SMITH, ARK.

The recent articles by Tepljaschin (*Arch. Ophth.*, Vol. xxvi, p. 74) and by Barbacheff (review in *Ophth. Rec.*, Vol. vi, p. 88) have stimulated interest in the rare anomalies of corneal transparency of congenital origin.

The point of practical interest is to determine whether such a case is due to arrested development or

to an inflammatory process, especially interstitial keratitis of syphilitic origin *in utero*.

My case was that of a boy seen Nov. 14, 1896, at that time 8 years old. The case had also been seen by my colleague Dr. W. G. Smith in January, 1890, who noted as follows: "Total opacity of left cornea, said by parents to have been present from birth. The parents also stated that opacity would sometimes clear up so that the outline of the pupil could be seen. V.=Pl." There was no record made of nystagmus, but a concomitant convergent squint was noted. To me the parents made the same statement, viz., that the opacity was discovered within a few hours after birth, and that there had never been any redness or secretion about the eye. This statement can be credited, for the father was of sufficient intelligence to have observed correctly. The opacity occupied the whole of the cornea but was most dense in an area above and to the nasal side of the center. It was least dense below and to the temporal side, and through this latter area by focal illumination the outline of the pupil could be dimly observed. The superficial and middle layers were the ones that were opaque.

The diameter of the cornea was found by measurement to be 1.5 mm. less than that of its fellow.

The right eye also presented interesting conditions. The cornea was perfectly transparent and the eyeball was normal in shape and size, but the eye was myopic and amblyopic. V.=$\frac{15}{200}$. Under a strong mydriatic with —5 D. Spher. V.=$\frac{15}{80}$. Owing to nystagmus the fundus was difficult to explore, but changes were made out in the papillo-macular region. These consisted of a thinning of the retina and choroid, greatest at the temporal side of the disc and of a pigmented stippling about the macula with a few pin-head sized spots of pigment irregularly placed about half way between the macula and papilla. A marked horizontal and rotary nystagmus affected both eyes. After wearing glasses a few weeks this still remained, but to a much less degree.

The parents gave no history of syphilis and neither they or the boy presented any objective evidence of it.

It is needless to call attention to the fact that the best text-books have very little to say on this subject, and that cases are very seldom met with or reported. I shall not take up time with an account of the literature, but I have imperfectly studied the published accounts of ten cases. No two of them were alike, and in none of them was the opacity complete. Manz remarks that cases of congenital total opacity are extremely rare. In six of these cases both eyes were affected; in four, but one eye. Of the first, three were stated to be developmental and three inflammatory. Of the latter, three were developmental and one inflammatory. In each instance the inflammatory cases were traced to interstitial keratitis of syphilic origin. From these cases it would seem that where a single eye is affected, arrested development is most likely to be the cause of the anomaly. Another fact is made indisputably evident, viz., in all the cases of syphilitic inflammatory origin the deep layers were the only ones affected by the opacity. This was proven microscopically in some of the cases. In all the cases where the changes were described as developmental, these changes were found in the superficial layers. This observation is of value in deciding upon the etiology of a given case, and with other data in my own case, places it in the category of developmental anomalies.

Besides these two main forms of congenital opacities De Wecker describes two other subtypes of the inflammatory variety, viz., those occurring in buphthalmos, and those in consequence of embryonic perforations of the cornea. But the two main types are the ones in which chief prognostic, diagnostic and therapeutic interest centers.

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ANOMALIES OF THE RETINAL PIGMENT EPITHELIUM AND THEIR CLINICAL SIGNIFICANCE.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

BY H. GRADLE, M.D.
CHICAGO.

The homogeneous appearance of the normal fundus of the eye depends in part upon the integrity of the retinal pigment epithelium, which acts as a turbid medium obscuring the structures behind it. Whenever these cells contain no pigment, or less than the usual amount, the choroidal vessels become visible, as in albinos and often in myopic eyes. In the present paper, however, I propose to consider not the absence of pigment, but the appearance due to its irregular distribution.

Structural changes in the retinal epithelium have been demonstrated anatomically by Donders, E. Mueller, Leber, Goldzieher and Fuchs, and were attributed by them to the influence of globular hypertrophies ("Drusenbildung") of the vitreous lamella of the choroid. According to Rosa Kerschbaumer (v. Graefe's *Arch. f. Ophth.*, Vol. 38, I., p. 217) anomalies are found in the pigment epithelium in three-fourths of all eyes of persons over 50 years of age, but are confined mostly to the anterior (ciliar region) and extend only exceptionally toward the posterior pole. According to Kerschbaumer's description some cells increase in size even up to six times their normal dimension, and lose their well-defined contours. Their nuclei multiply and karyokinetic figures appear; degeneration takes place, the nuclei refuse stains, become pale and vacuolated. In some instances the entire cell disintegrates, leaving its pigment in a mass on the basal membrane. Some cells contain an increased amount of pigment, others less than normally, or none at all. The pigment grains themselves may lose their rod-like shape and become round, small and dark brown. Larger round masses of pigment may also be seen between cells. On the other hand, rarefaction of pigment alone may occur without other visible changes in the cells. Sometimes small areas are thus found devoid of coloring matter.

Since these changes incident to advanced age are mostly confined to the anterior part of the fundus, invisible to the ophthalmoscope, or seen only imperfectly, they seem to have been but little studied during life. There are, however, certain easily observed ophthalmoscopic appearances which can only be referred to similar anomalies of the pigment in the retinal epithelium, although these changes have not yet been anatomically demonstrated. I refer to the stippling or granular appearance of the fundus seen com-

only around foci of choroiditis or retinochoroiditis. have also noted the same granular condition during e retrogressive stage of optic neuritis, in which cases seemed most pronounced in the area adjoining the tic papilla. In purely retinal lesions I have never served this peculiarity.

The special object of this paper, however, is to call tention to the frequent occurrence of the same ap-arances in the fundus of children and young people ffering from severe asthenopia. While the healthy ndus of adults presents almost always a homogen-us appearance, I have observed a more or less pro-unced stippling or "granular" condition in about to 8 per cent. of young people examined by me on count of asthenopic complaints. Since all transi-ns occur between a perfectly homogeneous fundus d the extreme granular appearance, such as I shall scribe presently, it is obviously impossible to state curately the frequency with which this anomaly curs. By limiting myself to those records which e fairly complete in details, and which refer ly to well-pronounced appearances in the fundus, I n base this report on the histories of forty cases. nese were all instances of what I have described sewhere as exaggerated asthenopia, ocular discom-rt out of proportion to any existing error of refrac-n or other local anomaly present.

The ophthalmoscopic peculiarities to be described e usually most pronounced in the inferior nasal uadrant of the fundus. Less commonly they ex-nd around the periphery of the entire ophthalmo-opic field and least often are they seen at the pos-rior pole. It must not be overlooked that in dark bjects the macular region has often normally a ghtly stippled appearance, which however, may be nsiderably exaggerated in these patients.

The peculiar granular appearance of the fundus I n not describe better than by comparing it to a sur-ce covered with a mixture of black and reddish wders with preponderance of the latter. Most of e separate grains are barely within the range of vis-ility; occasionally a few larger black points are en sometimes, but less commonly a few white ecks of pin-point size can be found. There are ten in the same fundus small areas with so little gment that the choroidal vessels become visible. hen the rarefaction of pigment is not so extensive e surface appears, in the words of Loring ("Text-ok of Ophthalmoscopy," I, p. 50), not "smooth and rd like a cloth with no nap to it," but "like one at has a plush or velvety feel." Some authors pre-mably mean this condition when they speak of a wooly fundus." The condition is always symme-c in both eyes, though sometimes more pronounced one.

There are probably various reasons why these ap-arances have been so little noticed in literature. curring in eyes not otherwise diseased, they are sily overlooked, especially in the inverted image, less specifically searched for. Moreover, when not onounced these appearances would be classed by st observers as within the normal range unless sys-natic comparisons were made. Yet the infrequency this granular appearance in perfect eyes and its iking occurrence in connection with fresh choroi-l disease suggest positively that it is a deviation m the normal type.

The subjects in whom I have observed this peculiar ndus were all of the neurotic type. In fact the *most striking appearances were found in the most pronounced cases of nervous disturbance.* The most extreme instance I have ever seen was in the case of a boy with very low vision, presumably due to some obscure brain lesion, but without ocular disease, where the fundus could literally be called finely "speckled." As evidence of the neurotic state I have on my records the histories of frequent head-aches, chorea or habit-spasm, general restlessness, emotional irritability and sometimes other manifesta-tions of general neurasthenia, such as fatigue on slight exertion, and insomnia. Very often the ner-vous condition was due to heredity. In other instan-ces it could be referred to improper nutrition during infancy. In some, presumably digestive disturbances were of influence and a few times anemia co-existed, perhaps had preceded it. The ages ranged from 5 to 22 years with preponderance of the period from 8 to 15 years.

All these patients complained of ocular discomfort described sometimes as a burning, rather oftener, however, as an ache, and usually accompanied by more or less headache. While reading intensified the discomfort, most patients complained more or less even while resting the eyes, and indeed, very com-monly, much discomfort was noticed at once on rising in the morning. Perhaps this was due to the effect of daylight upon the eye sensitized by darkness, for as a rule these patients were annoyed by strong light of any kind.

No indication was found that the pigment changes affect the acuity of sight. While perhaps a large num-ber of the patients had less than perfect vision, there seemed to be no relation between the lowered vision and the amount of stippling either in the periphery or in the macular region. In no case was there any history of gradual failure of sight. Amongst forty patients (after the correction of all ametropia), V. was 20/20 or over in 10, 20/20 to 20/25 in 12, 20/25 to 20/30 in 12, under 20/30 or over in 3, and under 20/30 in one eye only in 3. In no case was there any intra-ocular lesion found to account for the low vision. In most instances the presumable cause must have been irregular astigmatism. Of the three patients with vision under 20/30, one had M. of 3.5 D.; in the other two no cause could be found for vision of 20/60. In the three instances of one-sided poor sight, the condition seemed analogous to the not infrequent amblyopia found in an eye slightly more ametropic than its fellow.

The refraction in the forty patients was: E. in 9, H. or As. under 1 Dioptry in 24, H. or As. over 1 Dioptry in 3, M. under 3.5 Dioptries in 4.

Very few so-called muscular anomalies were found. Not one of these patients had hyperphoria and none of them had esophoria over 1 degree or exophoria over 3 degrees. In thirty of them the converging power was normal; in ten, more or less reduced.

The asthenopia was of course not of refractive ori-gin in the emmetropic patients, while complete failure to relieve by glasses proved that in fourteen of the cases with low degree of H. or As., the complaints were likewise not dependent on the ametropia present. In nine others correction of the error proved of some benefit, by allowing them to use their eyes with less discomfort, but could not be said to have given com-plete relief. In only four (three of these had errors above 1 D.) were all complaints stopped by glasses, as long as they were worn. Yet even these cases do

not come under the head of ordinary asthenopia due to refractive errors, since their complaints, though really dependent on the ametropia, were so decidedly more intense than we find to be the case in ametropes in good health. I have therefore come to the conclusion that in most of these patients the ametropia was only a complicating factor, and generally one of minor importance.

The pigmentary changes are not necessarily of a permanent nature. I judge so partly by the fact that I have scarcely ever seen a pronounced granular appearance in the healthy fundus of people much over 20 years of age, even when suffering from neurasthenic asthenopia of long duration. Furthermore, I have watched the fundus a number of times during months and once for several years in a patient with patches of localized choroiditis or chorioretinitis and have observed that the stippling surrounding the foci can change or even wholly disappear after the disease has come to a standstill. Six of the juvenile asthenopes in this series of forty I have been able to see for many months, and two of these I re-examined after the lapse of one and a half and six years. In all of these the pigmentary stippling seemed to have diminished to a variable extent. In the one seen after six years it had disappeared entirely, but I must add that in this one it had never been very striking.

The treatment of these patients consisted principally in relative rest of the eyes and general hygienic measures. While abstinence from eyework proved of benefit in most instances, it alone was not fully curative. Indeed, some of the children were brought to me on account of the persistence of their discomfort during school vacation. In some instances the temporary relief from the use of smoked glasses was very striking, more so than I have ever seen in any other form of functional disturbance of the eyes. In all cases in which the correction of existing ametropia gave any relief, even if only partial, the glasses were continued while under observation. For ultimate success, however, I trusted mainly to measures directed against the neurotic condition, liberal outdoor exercise, sojourn in the country, bathing, correction of habits and diet, iron if required and sometimes strychnia. About one-third of the patients lost their eye complaints and headache under this treatment, in the course of months; another third were improved to a variable extent, while the balance could not be watched a sufficiently long time to be recorded regarding the final outcome.

The exact significance of the pigmentary changes described is not made plain by these observations. It must not be forgotten that cases of very similar clinical history, *but with homogeneous fundus*, are not uncommon. On the other hand, the frequent association of stippling and granular appearance with this exaggerated asthenopia of young subjects and its rare occurrence in eyes without complaint suggest a definite relationship. It does not seem probable to me that the changes in the pigment epithelium are the direct cause of the asthenopia. Yet they presumably contribute to make the eye more sensitive. The occurrence of similar changes in these cells around choroiditic foci suggests that they may result from nutritive or circulatory disturbances in the choroid. What role such disturbances play in asthenopia of the type described we do not know. At any rate the greater prominence which the pigmentary changes present in markedly neurotic subjects raises the question whether instability of the central nervous system may not reveal itself by the liability of the retinal pigment epithelium to structural changes. For these cells like the retina proper are embryologically a part of the brain.

DISCUSSION.

Dr. G. E. DE SCHWEINITZ of Philadelphia—I have also observed the cases he has described as if grains of powder were dusted over the fundus. We used to call these cases, when I was in the Hospital, powder-grain fundus; I think Dr. Risley gave it the name. I have not noticed any relation between asthenopia and this fundus condition. In the most pronounced case I ever saw I thought of having a consultation with some of the older men because I thought there might be some unusual change going on of grave importance, which I had never seen. It would be interesting to get one of these cases for histologic examination.

Dr. HAROLD GIFFORD of Omaha—I would like to ask if Dr. Gradle has not examined a large number of children that complained of nothing whatever and yet presented the same kind of changes in the eye. I think it is purely an anatomic condition and has nothing to do with the asthenopia.

Dr. EDWARD JACKSON of Philadelphia—I think I have noticed something of the kind among school children, at least such cases occur without being noticeably connected with eye symptoms. Two of the most striking cases I recall now occurred in young persons under 20, and the father of one of them presented very much the same appearance.

Dr. CASSIUS WESTCOTT of Chicago—I have observed a number of these cases and have studied the condition chiefly in the children. I did not relieve by correction of the error of refraction and that has made me think the condition accountable for the asthenopic symptoms. I have not as Dr. Gifford suggests examined any number of children without errors of refraction to see whether the condition exists.

Dr. A. B. HALE of Chicago—My dispensary work is done near a large manual training school and I examine a great many children that have nothing at all the matter with them I have not seen these conditions.

Dr. J. A. LIPPINCOTT of Pittsburg—My attention has been drawn in this direction also and I used to think the changes were pathologic, but I have seen so many cases in which there was nothing of the kind and in which the asthenopic symptoms were quite as pronounced that I began to doubt my conclusions, and then in examining a great many otherwise normal eyes I have found this condition. At the same time I think it is a very important point and we are indebted to Dr. Gradle for calling attention to the subject so that we may investigate it in the future.

Dr. J. B. JENNINGS of St. Louis—Some years ago Dr. Gunn of London, described very minute yellow dots in the retina which he thought were always present in the cases of asthenopia, but I have never been able to see them even when I tried to point them out; still it may be well to make a search for them.

Dr. FRANK ALLPORT of Chicago—I have had an opportunity within the past four months of observing quite a number of typic Gunn's dots, especially in the region of the macula among children.

Dr. HERBERT HARLAN of Baltimore—I have seen several cases where there were asthenopic symptoms that were relieved by glasses and some where there were no symptoms whatever.

Dr. GRADLE—I expressed some hesitation at the end of my paper in interpreting the phenomena. I did not say they caused the asthenopia but they probably increased the sensitiveness. I have seen it probably in cases where it did not provoke asthenopia. I always examine patients ophthalmoscopically and amongst many hundred young people examined the appearances did not seem to be present in a striking manner except where asthenopia was present, and that was always so excessive that it indicated a lessened resisting power of the central nervous system, hence I spoke of it as instability of the central nervous system.

EMBOLISM OF THE CENTRAL ARTERY OF THE RETINA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY C. F. CLARK, M.D.
COLUMBUS, OHIO.

The first instance in which a correct diagnosis of mbolism of the central artery of the retina was made y the use of the ophthalmoscope was the classic case ɔen by that pioneer in ophthalmology, Von Graefe, in 858, and described by Schweigger a few years later.

While there is a general agreement among ophthalologists as to the phenomena of complete embolic bstruction of the central artery, the relatively rare ıstances in which a portion of the retina has retained s vascular supply and continued to perform its functons have been the subject of some differences of pinion among careful observers, and this fact would ɔem to warrant us in bringing to the attention of the rofession such cases as may come within the range f our experience.

Case 1.—On Jan. 12, 1896, I was consulted by Mrs. C. E., ged 51 years, who was referred to me by her physician, r. Barcroft of Coshocton, Ohio, on account of the condition her left eye. She had known of no defect in her vision ntil nine days before the above date, when suddenly while weeping, she noticed what she described as a "glimmering" efore the left eye and in a few moments the whole visual field ouded over with the exception of a small space near the cenr. Although not robust, her general health had been good ith the exception of one severe attack of malarial fever from hich she suffered some twenty years before and occasional ild attacks of the same disease in the spring and fall. She new of no cause to which she could attribute the disease of ıe eye.

Her vision was R. E. 6/—, L. E. 6/30—, seen only within a limed area near the disc and with this eye she could by the d of a 4 D. sph. glass read Jaeger 9 with difficulty. The upillary reaction could not be determined, as she had a few ays before used atropia. In the right eye the visual field was pparently normal, while in the left it was irregularly elliptic nd extended only from the blind spot to the macula. At a istance of one foot it measured two inches in its vertical diamer and three inches horizontally.

On examination with the ophthalmoscope it was found that ıe field of vision corresponded with the papillo-macular area, hich was normal in color in the midst of a whitish, edematous ɔne surrounding the disc. The macula which, while not like ıat of typic, complete embolism of the central artery, preented a marked contrast to the surrounding pale retina and ɔrmed the apex of an irregularly triangular island of normal ssue, the base of which was formed in part by the disc. The pper and lower borders of the triangle were formed by vessels, ıe lower of which seemed to be a vein, while the character of ıe upper one was difficult to determine, though probably of ıe same nature. Both this upper vessel and a smaller one hich extended some distance into the center of the normal ea appeared to emerge from the disc at some distance from ıe central vessels and could therefore be said to have their igin possibly behind the situation of the embolus. A supercial hemorrhage of considerable size was observed near the ıargin of the disc about the upper vessel above mentioned and small one on the vessel supplying the central portion of the iangle. The larger veins of the retina, especially the inferior, ere somewhat distended, while the arteries were all quite narɔw. No vessel of the so called "cilio retinal" variety could be ıade out and, indeed, there was ample nutrition supplied to the ɔrmal area by other vessels without resorting to the assumpon of the existence of such a supply.

Case 2.—Mrs. J. W. M., aged 34 years, was referred to me by r. Buckingham of Springfield, Ohio, on Aug. 18, 1896, with ıe following history: While walking on the street the eveng of the 15th, three days before her visit to me she had a fall, hich, however, seemed to her of no significance as she caught erself with her hands and did not strike her head, but on waking the next morning she found that the vision in her ft eye was very defective and the field greatly limited. No use other than the above fall could be discovered, as her neral health had been good.

A physical examination by Dr. Rogers revealed a slight, soft, diastolic murmur along the left side of the sternum, heard with maximum intensity in the fourth intercostal space four inches from the medial line and so far to the left as the axilla. The general appearance of the eyes was normal, the pupils responded to light and there was no discomfort excepting that caused by the defective vision and limited field of the left eye.

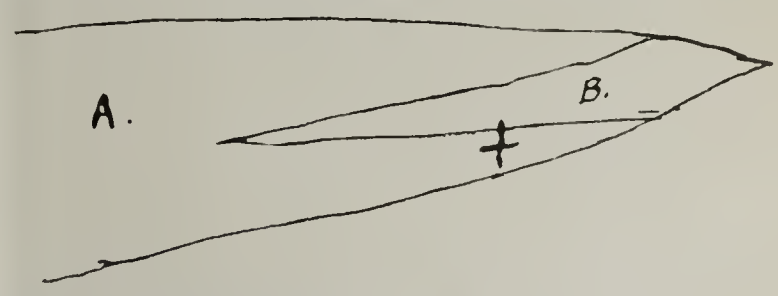
The vision of the right eye was 5/5, and she read J.1 at 5 to 14 inches. In the left the vision was 5/12, and the field, which was difficult to measure, seems to take the form of an irregular, acute-angled triangle, the apex of which was at a somewhat eccentric point of imperfect fixation, the center corresponding appoximately with the normal point of fixation, and the base to the temporal side. Outside of this area there was absolute blindness. The portion of retina therefore which retained imperfect vision extended in the form of an irregular triangle from a point near enough to the macula to give vision of 5/12 to the disc and beyond it in a somewhat irregular zone into the nasal quadrant. This corresponded approximately with what was seen with the ophthalmoscope, namely, that while there was slight, general edema of the retina, an irregular, horizontal zone including the disc and extending toward both the nasal and temporal sides and increasing in width both to the right and left of the disc was fairly clear. Two vessels of apparently somewhat deep origin extended from the disc near its center to the inferior temporal quadrant of the retina, the upper one of which seemed to pass just beneath the macula and formed a rather sharp outline to the grayish edema which was to be seen in the lower portion and to a less degree in the upper portion of the retina. A small, well defined, independent vessel of deep origin could also be seen on the oppposite side of the disc extending into the nasal quadrant. Directing the patient to fix the eye as well as it was possible for her to do I obtained a visual field approximating the form outlined in the following diagram:



A. Area in which vision remains. X. Point of fixation.

The patient continued to enjoy the above vision of 5/12 with the same visual field for more than three months, when her baby accidentally struck her in the left eye with a child's bow, which, without causing pain or other evidence of traumatism, instantly deprived her of this power and produced a long, narrow, cloudy scotoma in what had been the best portion of her narrow, triangular visual field. On April 16, 1897, when I saw her last, she could with difficulty count fingers at a distance of one or two feet when held so that the image should fall in the nasal portion of the limited field.

The patient, who is an intelligent observer of her own symptoms, drew the accompanying diagram to indicate the form of the scotoma which made its appearance after her recent injury, and it will be seen that it corresponds to what might be expected were an embolus to find lodgment or a thrombus be formed in the small macular artery mentioned above.



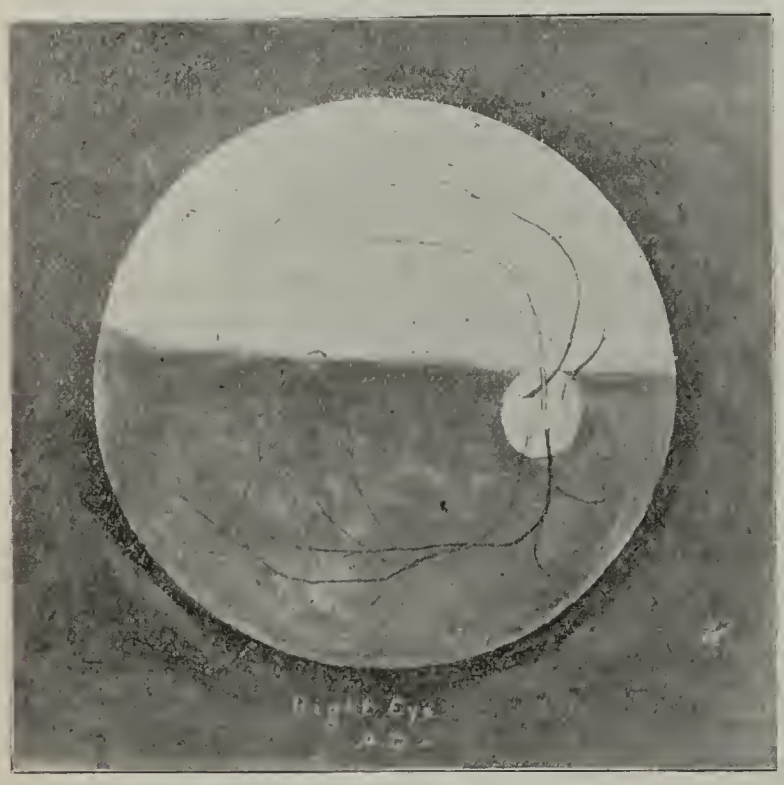
A. Area in which vision remains. B. Partial scotoma due to second accident. X. Point of fixation.

Case 3.—On Aug. 1, 1893, I was consulted by Mr. A. D. S., a botanist, 33 years of age, of good habits and of good general health, who gave the following history: While camping he awoke on the morning of the day before his visit to me with the sensation of a veil over the right eye and with vision defective in the lower portion of the field. He thought the visual field had increased since, but while a rough test revealed a normal outline for the left eye, in the right there was blind-

ness below a horizontal line through or a little above the center of the field. For three or four weeks he had been somewhat indisposed, complaining of pain in the chest. About sixteen months before, he had grippe followed by rheumatism, which did not, however, assume the acute inflammatory form. At one time , while suffering from grippe, he fainted and fell out of his chair. As the result of a physical examination made by Dr. Rankin it was determined that he had a slight cardiac murmur due to roughening which was the result of endocarditis, and as there was a tendency to recurrence of the rheumatic symptoms, he was given appropriate treatment.

His vision in the left eye was normal and the field was good. In the right eye the lower half of the visual field was defective, but the superior half was normal, as also was his central vision when tested at a distance. R. E. ⅓—, L. E. ⅓—. But when attempting to read he was hindered somewhat by limitation of the visual field, which made it difficult for him to quickly find the line beneath the one upon which his attention had been fixed. The general appearance of the eyes was normal and he complained of no pain.

The ophthalmoscopic appearance of the left eye was normal, but in the right was seen a most striking picture. The lower half of the retina presented the usual appearance, while the upper half was white and edematous. The lower border of this area of edema was clearly defined and it extended further to the temporal than to the nasal side. Above, it did not seem to extend to the extreme periphery. The arteries were a little smaller than normal and at the point of bifurcation above and near the disc there was a slight interruption of the line of light reflex which should be seen in the center of the artery.



The most important, and to me the most interesting feature of the case was a short, slightly crescentic red line lying above the apparently normal but well defined macula. This short crescent had its convexity upward, was approximately concentric with the macula and seemed to correspond with, and in fact, to be the upper segment of the cherry red spot seen in cases of embolism of the main trunk of the central artery. In other words, the sharply defined lower border of the edematous area of the retina passed through the upper portion of the macula, and therefore, it was only at this point that the contrast was noticeable.

On Aug. 4, three days later, the patient detected some improvement in his vision in the defective portion of the field. The superior and superior temporal portions of the disc still seemed slightly swollen. The region of the macula was more evenly red and the concentric red spot above had disappeared. The outlines of the defective portion of the field of vision corresponded with those of the edematous portion of the retina as seen with the ophthalmoscope. (See diagram of retina and field of vision.)

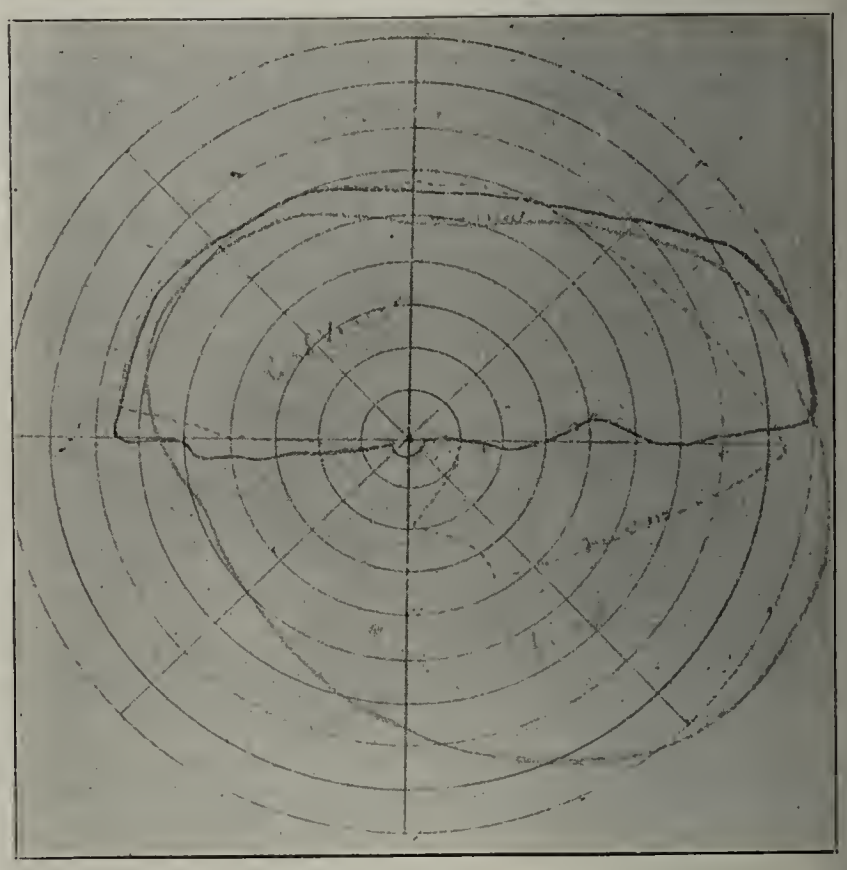
On August 12 the superior portion of the retina had assumed a more pinkish tint, but was still far from normal and there was no improvement in the visual field.

On October 5, sixty-six days after the appearance of the embolism, Dr. Rankin reported that a few days before Mr. S. had an attack of dizziness which he described as peculiar and not at all like that of ordinary vertigo, and his wife stated that he was for a few moments absolutely blind in the right eye. He told Dr. Rankin that on turning his head to one side he had a tendency to continue to turn it. Notwithstanding the above symptoms and marked anemia, and in spite of my remonstrances he continued his work.

On October 13 he stated that the lower portion of letters seemed slightly indistinct, which is in keeping with the fact that the upper portion of the macula was affected, but this indistinctness was not sufficient to prevent him from having vision of ¼— in each eye improved by the correction of his hypermetropia and low degree of astigmatism to ⅓—, nor from reading Jaeger 1.

The ophthalmoscope revealed some pallor of the optic disc with slight indistinctness of outline at the upper border, possibly indicating very slight swelling. The superior retinal artery was somewhat diminished in size and the line of light in its center was very narrow, indicating marked diminution in its caliber. The dense white of the superior half of the retina was at that time replaced by an almost imperceptible blush of opacity slightly masking the normal pink beneath it. The field of vision had improved and objects could be seen at a point 15 to 20 below the line of central vision.

In June, 1894, I found that the central vision had remained good and there had been decided improvement in the visual field. The light sense was imperfect, but present in the defective portion of the retina.



On July 18, 1896, about three years after the embolism first made its appearance, a careful examination of this patient by Dr. Rogers still revealed normal central vision with a pale disc. It seemed that there was atrophy of the superior fibers of the retina and of the nerve fibers of the upper portion of the disc. The vessels in the superior portion of the retina were small and the retinal tissue was dull in appearance. In the upper portion of the visual field his vision was good. In a broad zone below the center it was dull, while the lower portion was practically blind.

Whether or not in this case the preservation of vision in the macular region was due to the existence of a cilio-retinal vessel is a question which might naturally arise, but I detected no such vessel, and Dr. Rogers assures me that in his recent examination he satisfied himself that none existed. Had there been such a supply I do not think the edema would have followed in so direct a line across the upper half of the macular region.

It is probable that there *never* was *complete* obstruction of the superior retinal artery, but it was sufficient to produce the sharply outlined area of edema which confined itself to the field of distribution of that vessel. In the macular area, however, the anastomosis of the smaller vessels with those of the inferior branch of the central artery was so complete as to preserve all excepting its upper quadrant from the temporary disturbance of function produced by the edema. Had the obstruction ever involved the whole caliber of the artery it is not probable that on the one hand the vision in the superior half of the retina would have been almost completely preserved, or on the other that the macula would have continued to perform its function so perfectly even at the time when the edema was most marked.

The fact that the edema, which in the days immediately after the occurrence of embolism, is usually found to correspond in a general way in its area of distribution with the area which remains blind, is merely an incident and does not stand in a causative relation with the permanent blindness is, I think, demonstrated by this case. It will be remembered that this edema did not extend to the periphery in the superior portion of the retina, while an examination at a later period revealed blindness of the extreme lower portion of the visual field and the ophthalmoscope discovered evidences of atrophy of the retinal tissue of the corresponding region. The lower portion of the upper half of the retina, on the other hand, which was the seat of the most marked edema, recovered almost perfect vision.

One would conclude from this, that whatever may be the temporary effects on vision produced by edema of the retina, the permanent effects in a case of embolism are produced by impairment of the nutrition of the nerve-fiber layer. If this occurs for only a limited period of time, as by cutting off the vascular supply, the nerve fibers do not seem to have power to recover their functional activity.

While the case I have just described is, so far as I can learn, unique in the fact that in it we had a crescentic or partial, cherry-red spot in the macular region, Cases 1 and 2 are of more real interest as belonging to a group which for a number of years has attracted the attention of ophthalmologists owing to the belief on the part of many, that by means of what are termed "cilio-retinal" vessels, the papillo-macular region obtains a blood supply which is independent of the central retinal artery.

In the crosier-like vessels, which in many individuals are seen to emerge apparently from the temporal border of the optic disc at such a depth in the nerve tissue as to suggest their origin in the choroid, and then curve upward and outward to be distributed to the papillo-macular portion of the retina, really belonging to the choroidal system and are not branches of the central retinal artery, we certainly should be able with the evidence afforded by the microscope and the ophthalmoscope in the number of cases of embolism of the central retinal artery which have been recorded, to demonstrate that fact. And if they are merely branches of the central artery, which having their origin at some depth in the nerve head, pass outward to its temporal sheath at a point behind the lamina cribrosa are then reflected toward its center as they emerge, and thus take the form which gives the impression that they come from the choroid, we should also be able to demonstrate that fact. That the question is one of great importance is apparent when we consider the comparative frequency of the occurrence of such vessels and the distinctive form which they assume.

De Schweinitz ("Diseases of the Eye," Ed. 1896, p. 113) states that "in a series of examinations Land and Barrett found this vessel present in 16.7, Veasey in 14.2 and the author [de Schweinitz] in 10.6 per cent." (It is possible that these observers may have included as "cilio-retinal" vessels all vessels of considerable size emerging from the disc at its temporal margin and distributed to the papillo-macular region.)

Dr. W. K. Rogers and the writer have for a few months made notes on this point in all ophthalmoscopic examinations. We distinguished between a vessel appearing near the margin of the disc and turning directly into the retina and one which had its apparent origin beneath the scleral ring and, after being directed toward the center curved again toward the periphery. This latter crosier-like vessel we classed as a "cilio-retinal" vessel, and in the examination of 310 eyes Dr. Rogers found it present in 8 per cent., while the writer in 317 eyes found it in 10 per cent. (Had all the independent vessels of deep origin been included, Dr. Rogers' percentage would have been 27.3 and the writer's 22.3.) What anatomic proof have we that the so-called "cilio-retinal" vessels originate in the choroidal system? In a somewhat extended search of the literature of the subject I have been able to find but one instance, that of Birnbacher (*Archives of Ophthalmology*, Vol. xvi, p. 32), in which the claim that an anatomic examination has demonstrated the presence of such a vessel is supported by what appears to be strong evidence. A plate which accompanies the description of this case would certainly seem to make clear that in this instance, at least, such a vessel did have its origin in the choroid. This was not, however, a case of embolism.

The ingenuity of the theory by which the occurrence of such an anastomosing, or independent vascular branch from the choroidal system explains the preservation of the papillo-macular area of the retina when an embolism has obstructed the central artery, seems to have had a peculiar charm for all who have written on the subject and to have led many observers to accept it without criticism, and whether or not such an anomalous vessel can be proven in any instance to have coexisted with the preservation of normal vision in this area, it is certain that in many instances writers who are generally careful observers, have fallen into the error of adopting this explanation where the evidence is entirely insufficient.

Professor Laquer (*Arch. of Oph.*, October, 1896, Vol. xxv, p. 525) gives abstracts of sixteen cases of embolism of the central artery with integrity of the temporal region of the retina, which he states are all he could find recorded. In addition to these the editor of the *Archives* mentions three other cases which should be added, and I have found two more mentioned in medical journals which seem to have been omitted. These, with the case described by Laquer and the two which I have described above, make a total of twenty-four. In the literature at my command I have been able to obtain somewhat detailed accounts of sixteen of these twenty-four cases; and it may be pertinent to ask how far do the results of a careful study of these clinical cases warrant us in concluding

that true cilio-retinal vessels were the means of preserving the integrity of the papillo-macular area of the retina? In answer to this question it may seem interesting, and in view of the claims that have been repeatedly made in favor of this theory, it is certainly surprising to note that in not one instance has the existence of what has been classed as a cilio-retinal vessel been demonstrated ophthalmoscopically. In not one was anatomic evidence adduced to prove that such a vessel was present, and while only four writers claimed the existence of a cilio-retinal vessel, three of these in the context made it apparent that they did not distinguish between a "cilio-retinal" vessel and a macular vessel of deep origin.

In conclusion, I would say that beneath the statement of the time-honored theory that in embolism of the central artery a so-called cilio-retinal vessel serves to preserve the papillo-macular area by virtue of its origin in the choroidal system, we must write "not proven."

THE TECHNIQUE OF RETINOSCOPY.

Delivered in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY J. ELLIS JENNINGS, M.D.
ST. LOUIS, MO.

It is only within the past ten years that the value of retinoscopy as an objective test in the estimation of errors of refraction, has been fully recognized. The fact that, after a little practice, the kind and amount of refractive error can be ascertained quickly, accurately and independently of the patient, has made it deservedly popular. This popularity is largely due to the labors of Philadelphia men, particularly of Drs. Jackson and Thorington, and I therefore feel that it is quite appropriate that any additions I may have to offer may receive your friendly criticism.

The mirror which I use is plane, 2.2 cm. in diameter, with a central aperture 3 mm. in diameter cut through the glass. My objection to a mirror with the sight-hole obtained by merely scraping away the silvering, is that vision is obscured by the dust which unavoidably collects on the glass and which it is difficult to remove. The annoying reflections from the margins of the sight-hole are obviated by using a very thin piece of glass well blackened about the aperture. The mirror is set in a piece of metal 5 inches long and $1\frac{1}{4}$ inches wide. Over this is fastened another piece of metal which, when closed, protects the mirror from dust, and when open is used as a handle on the principle of a lorgnette. When not in use the instrument may be folded and conveniently placed in the vest pocket. Either the right or left eye may be placed opposite the central aperture by merely reversing the piece of metal in which the mirror is set. (See Fig. 1.)

The light.—In my experience the most brilliant and satisfactory light is obtained from the Argand burner or the Welsbach. Over this is placed Thorington's asbestos chimney, to exclude all light except that which comes through the largest openings of the revolving discs. The light is placed above the head of the patient and just far enough back to leave the eyes in shadow. My objection to a point of light from 5 to 10 mm. in diameter placed close to the eye of the surgeon, as taught by Jackson, is that the operator's movements are greatly restricted, and there is difficulty in focusing the light on the eye of th patient.

I have made careful tests by both methods and fin one as accurate as the other. I therefore prefer th light placed over the patient's head, as it gives a mo satisfactory reflex and at the same time enables th surgeon to study movements at a distance of fro four to six meters if necessary.

Distance from the patient.—I always work at a di tance of one meter from the patient and add a —1 I sphere to the lens, which neutralizes the refracti error. The method of viewing the reflex at fro four to six meters, as proposed by Randall, whi accurate, is inconvenient, on account of the difficul of focusing the light on the eye.

On the other hand, the determination of ametrop by measuring the variable distance of the surgeo from the patient, as taught by Jackson, is open to th objection that an error of one or two inches in th measurement would seriously affect the accuracy the result.



Retinoscopy Mirror.

Apparatus for placing lenses in front of t patient's eyes.—For this purpose I have had instrument constructed, called a skiascope, whi was described in the November, 1896, issue of t *American Journal of Ophthalmology.* We all kn how difficult it is, especially in children, to get a tr frame which fits properly and keeps the lenses acc rately in front of the eye. We also know h fatiguing it is and how time is consumed in maki the necessary changes in lenses. With the skiasco all these objections are overcome; the chin rest a stand can be so adjusted that the pupil is accurate centered and the patient made comfortable. The su geon, seated one meter distant, uses his right hand hold the mirror, and with the left controls the wh which rotates the lenses in front of the eye. A d close at hand indicates the strength of the lens p senting at the sight-hole. The instrument is ab lutely under the control of the operator and sa fatigue and time, much to the satisfaction of bo surgeon and patient.

DISCUSSION.

Dr. EDWARD JACKSON of Philadelphia—Dr. Jennings' pa and instrument illustrates that there are a great many dif

nt ways of doing the same thing, and that one always finds he way he is accustomed to the most satisfactory. Taking up ome of the points mentioned, first in reference to the sight-ıole of the mirror, the objection that when the glass is left lust collects on it and is difficult to remove, I have recently net by placing back of the sight-hole a thin piece of glass like . cover-slip and cementing it on, so that it is just as easy to vipe and keep dust off the mirror as to keep it off our glasses.

In regard to protecting the unused eye from light, it is some-imes a little help to close the eye that is not back of the open-ng, but more of the time it is a help to keep it open, particu-arly when you are trying to find where the light is and turn it n the proper direction. There are times when I find myself losing one eye, but mostly I work with both open. As to the osition of the light over the patient's head, that is the place or it, or back of the patient, with the concave mirror, and it is lso moderately satisfactory with the plane mirror when you vork at the distance of one meter or over. The whole ques-ion of light depends upon having the light area as definite as ossible, and no matter what the source of it the image will ıot be definite unless it is focused on the retina; and in order o be so focused it must be situated at the distance for which he eye is adjusted. In making the test, when we get to the oint of reversal, we have the focus of the patient's eye at our wn; and in order to have the light source focused on the atient's retina at the same time, it must be near the position f the surgeon's eye.

If you attempt to work closer than one meter, placing the ight over the patient's head is not satisfactory. If you come o one-third of a meter there is one and one-half D. of inaccu-acy, and that greatly lessens the value of the test. For many yes the one-meter distance is fairly satisfactory, and if you ake it as routine method the light above the patient will do. But if you limit your use of the test to this method, you estrict its value. A small point of light, too, is not satisfac-ory if placed over the patient's head, but if brought close to he mirror it gives a more delicate test.

I have used a disc, not one so well arranged and complete as his of Dr. Jennings. But after using it for some months I vent back to the trial set. I prefer a small trial set kept ight at hand. I find it, on the whole, more convenient than ıny form of instrument or disc.

Dr. H. V. Wuerdemann of Milwaukee—The first instrument rought to this country was in 1887 by Donn of Oxford. In 888 Burnett of Washington showed before this Section a disc kiascope, and about a year later I made a modification of it. Wood was the next man to put in an appearance with an instru-nent, which he uses with great satisfaction, based upon the ame principles as those of Dr. Jennings. I would personally bject to the size of this instrument on account of the space it would take up in the dark room, and in the examination more ime is taken than is necessary.

Dr. J. E. Jennings—I think the idea of an extra piece of glass ehind the mirror, suggested by Dr. Jackson, will be a very convenient thing, and we can thus keep the glass perfectly lean without rubbing off the silver. In regard to Dr. Würde-nann's remarks, the hand skiascope is a very convenient and seful instrument, but an objection to it is that the patient controls the movement of the instrument and you are not lways sure which aperture they are looking through, whereas ny instrument records the number of the lens in front of the ight-hole and is under the control of the surgeon.

A METHOD OF EMPLOYING KANGAROO TENDON IN THE OPERATION FOR SHORTENING OCULAR MUSCLES.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1–4, 1897.

BY JOHN O. McREYNOLDS, B.Sc., M.D.
DALLAS, TEXAS.

Without attempting to review the subject of muscle shortening I will briefly present a method which has been quite satisfactory in my experience on account of the short time required for its performance, its free-dom from pain, and the accuracy with which any degree of heterophoria may be corrected. It may also be successfully employed as an auxiliary in those cases of marked strabismus in which complete tenotomies alone will not entirely correct the deviation. The method is as follows: With broad fixation forceps provided with teeth sufficiently long to engage all the ocular tissues down to the sclera, grasp conjunctiva, capsule of Tenon and tendon of ocular muscle in such a way as to produce a loop of tendon. Then fix the loop thus formed by a single suture of kangaroo tendon embracing the ocular tendon. Tie the thread thus employed and leave it to be absorbed. In case there should be a desire to have the kangaroo tendon buried beneath the conjunctiva short incisions through this membrane will allow the thread to sink out of sight beneath the conjunctiva. The operation can be made in less time than one minute, involves no pain or subsequent discomfort and will correct with precision any ordinary degree of heterophoria.

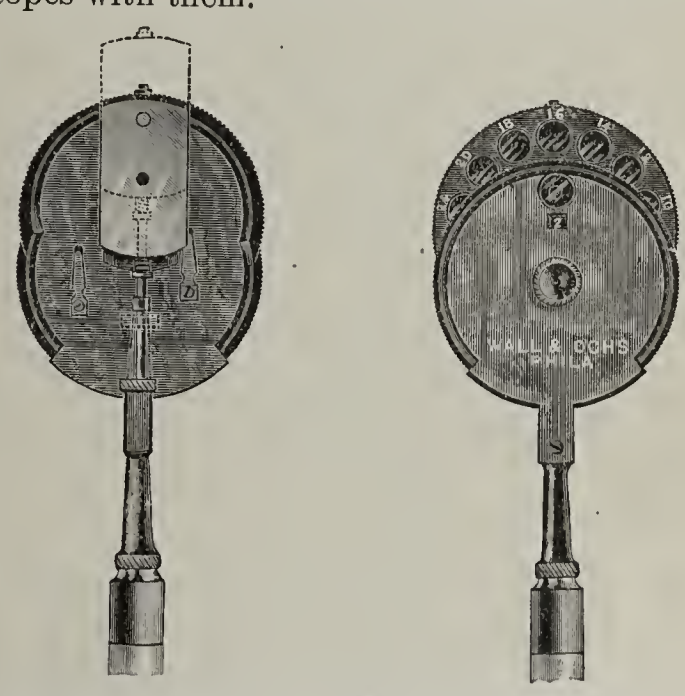
A NEW OPHTHALMOSCOPE.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY JOHN WELSH CROSKEY, M.D.
ATTENDING SURGEON TO THE WILLS HOSPITAL.
PHILADELPHIA, PA.

In the construction of this ophthalmoscope the object desired is to obtain a sufficiently large series of lenses in the most compact form and to permit of all the lenses being used without removing the instrument from the face.

When it is taken into consideration that to use an ophthalmoscope properly the accommodation should be relaxed, these advantages will be appreciated. The size of the instrument can be judged from the illustrations, which are two-thirds actual size, a point which will be valued by oculists who carry their ophthalmoscopes with them.



The ophthalmoscope itself consists of two discs, one for convenience called the lower disc, containing the weaker plus and minus glasses, ranging from + 1 to + 6 by single diopters and from —1 to —8 by single diopters; the upper disk containing the stronger lenses, ranging from + 8 to + 20 by alternate diopters and from — 10 to — 24 by alternate diopters.

It will be noticed that the discs are used independently and should the fundus require a stronger lens to explore it than is contained in the lower disc, it is not necessary to remove the ophthalmoscope from the eye; but, by simply pushing the mirror upward with the forefinger, so as to be opposite the lenses in the upper disk, as shown by the dotted lines in the illustration, the examination may be continued.

The sight-hole in the mirror is two millimeters in diameter, as it is found that a small sight-hole permits of a more satisfactory examination of the fundus through a small pupil.

A NEW OPHTHALMOSCOPE.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY J. L. BORSCH, M.D.

PARIS, FRANCE.

In this instrument the first noticeable feature is the construction and placing of the mirror; this not only tilts but also revolves about its own axis. The second feature is that the body of the instrument is so constructed that it can be revolved around its own axis carrying the mirror with it. This gives the mirror a third motion, first, tilting; second, revolving around its own axis; third, revolving around the axis of the body of the instrument, whereby the user can place the mirror at any desired position while the arrangement of the lenses remain undisturbed.

There are two lens discs effectually covered and protected from dust and handling, one containing the following lenses: 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12 convex, and 0.50 and 13 concave. The other disc contain: 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12 concave and 0.50 and 13 convex.

These combined produce seventy-six numbers as follows: 0.50; 1; 1.50; 2; 2.50; 3; 3.50; 4; 4.50; 5; 5.50; 6; 6.50; 7; 7.50; 8; 8.50; 9; 9.50; 10; 10.50; 11; 11.50; 12; 12.50; 13; 14; 15; 16; 17; 18; 19; 20; 21; 22; 23; 24; 25 both in concave and convex.

The second ophthalmoscope has the same arrangement of the mirror, viz., tilting and two rotary motions, only there is but one disc and a quadrant. The former contain the following lenses: 1; 2; 3; 4; 5; 6; 7; 8 concave and 1; 2; 3; 4; 5; 6; 7 convex, while the latter contains 0.50 and 16 concave, and 0.50 and 16 convex. The disc and quadrant combined produce the following numbers: 0.50; 1; 1.50; 2; 2.50; 3; 3.50; 4; 4.50; 5; 5.50; 6; 6.50; 7; 7.50; 8; 8.50; 9; 10; 11; 12; 13; 14; 15; 16; 17; 18; 19; 20; 21; 22; 23; 24 concave and 0.50, 1; 1.50; 2; 2.50; 3; 3.50; 4; 4.50; 5; 5.50; 6; 6.50; 7; 7.50; 8; 9; 10; 11; 12; 13; 14; 15; 16; 17; 18; 19; 20; 21; 22; 23; producing sixty-four (64) numbers in all, the same as produced by the Loring ophthalmoscope.

55 Rue Cherché Midi.

ANTINOSIN IN THE TREATMENT OF DISEASES OF THE EYE AND EAR.

BY W. FRANKLIN COLEMAN, M.D.

PROFESSOR OF OPHTHALMOLOGY IN THE POST-GRADUATE MEDICAL SCHOOL, CHICAGO, ILL.

For some time I have felt the need of an antiseptic remedy which would be efficient, and non-irritating to the eye. While formalin is one of our best, if not the best of antiseptics, a solution of even 1 to 5,000 causes considerable pain. The action of sublimate is very superficial, and clinically unsatisfactory. Boric acid and iodoform are only very slightly antiseptic. I have also desired to get some of the properties of iodin, the tincture of which is well known to be curative when applied to ulcus corneæ; on account of its irritative effects its usefulness is very limited.

I have recently used antinosin in a considerable number of cases (both in my private and clinical practice) of catarrhal, palpebral and follicular conjunctivitis, phlyctenulæ, ulcus corneæ, blepharitis marginal and also in otitis media purulenta. In a 1 to 2 per cent. solution it does not cause pain in the eye or ear, the patient rarely complaining of any unpleasant sensation. Antinosin is the sodium salt of tetra-iod phenol-phthalein. It is a dark blue amorphous powder readily soluble in water and alcohol, odorless, non-toxic and non-irritant. It makes a purplish solution in water. The stain caused by very strong solutions can be readily removed by washing.

I refer to a few cases taken at random, which were treated by antinosin:

Case 1.—A. G., aged 48 years, had been treated for a long period on account of trachoma. The palbebral conjunctiva was smooth, but the patient complained of great sensibility to light and inability to read. Various applications were used, such as boric acid powder and massage, red oxid of mercury and massage, weak solutions of nitrate of silver, etc. These afforded very slight relief. A 1 per cent. solution of antinosin dropped in the eyes, t.i.d., afforded him in a few weeks, comparative comfort, relieved the photophobia and enabled him to do a moderate amount of reading. It also acted promptly in relieving several attacks of recurring ulcers of the cornea.

Case 2.—Miss G. B., aged 8 years. A case of long standing phlyctenular conjunctivitis, accompanied by intense photophobia. After using several of the classical remedies with very slight improvement, recovery was very much hastened by a collyrium of antinosin, 1 per cent. t.i.d.

Case 3.—J. H. D., aged 24 years. Palpebral conjunctivitis. The conjunctiva presents a velvety surface. There is also blepharitis marginalis. There is a history of inflamed eyes for past five years, during which time medicine had afforded but little relief. A quarter of a diopter of astigmatism in each eye was corrected; the red oxid ointment, and argentum nitrate 1 per cent. were applied for a month with little improvement. Under the use of antinosin, t.i.d., and massage, the case went on to recovery in a few weeks.

Case 4.—J. R., aged 34 years. History: Eyes have always been weak and inflamed. There is follicular conjunctivitis in the reflex folds and palpebral conjunctivitis, the ocular conjunctiva much injected. Glasses were prescribed, nitrate of silver 2 per cent., applied on alternate days for one month, and tincture of iodin 1, to 3 per cent. of glycerin proved to be too painful for application to lids. Antinosin, 2 per cent., was applied t.i.d., and massage to lids once a day. In three weeks the eyes had very much improved and much more satisfactorily than under previous treatment.

Case 5.—Mrs. K., aged 71 years, has chronic palpebral conjunctivitis, for which I had previously treated her with the red oxid of mercury ointment and powdered boric acid and massage alternately, with a satisfactory result. A relapse occurred and antinosin, 2 per cent., and massage, were used daily for 10 days, and the recovery was more rapid and complete than under previous treatment.

Case 6.—W. C., aged 40 years, complains of inflammation of the eyes for the past two years, which has been particularly troublesome for the past three months. There is palpebral conjunctivitis in both eyes and tarsal tumors of the right upper lid. Treatment: Tumors removed and curetted; antinosin 1 per cent. applied. Repeat antinosin, 1 per cent. t.i.d. After two months' treatment the lids were normal.

Case 7.—Miss S., aged 40 years, seamstress. Eyes have been inflamed off and on for six years past. The bulbar conjunctiva is much injected; chronic palpebral conjunctivitis. Palpebral conjunctiva is very red but smooth. Glasses were prescribed and antinosin, 3 per cent. In three weeks the lids and eyes were much improved but still inflamed.

Case 8.—K. T., aged 4 years, when two years of age had left mastoid abscess, for which an operation was performed by a surgeon. During the past week there has been otitis media purulenta of the right ear, and swelling over the left mastoid at the site of the previous operation. The swelling fluctuates on pressure and is exquisitely sensitive. Diagnosis: Mastoid caries and abscess. Incision was made and sequestrum and caries were found in the antrum, which was thoroughly curetted down to the dura. The wound was packed and covered with nosophen gauze, and bandaged. The right ear was treated with hydrogen peroxid and 2 per cent. antinosin and Politzerization daily. In six weeks the discharge had completely ceased in the right ear, and hearing improved from loud voice close ear, to whisper at twenty feet. The left mastoid comple

healed, and the hearing of left ear improved to ordinary conversation at ten feet. The general health is better than it has been during the past year.

Many other eye and ear cases have been treated with good results, but these few suffice for illustration.

SOCIETY PROCEEDINGS.

Chicago Ophthalmological and Otological Society.

Regular meeting held Dec. 14, 1897, in the Stewart Building.

Dr. MONTGOMERY in the chair.

There were thirty visitors and members in attendance.

The minutes of the previous meeting were approved.

The applications of Drs. J. F. Fulton of St. Paul, Minn., Frank Allport and Wm. L. Ballenger of Chicago, were referred to the Committee on Membership.

On motion of Dr. Starkey, a committee consisting of Drs. Gradle, Starkey and Wilder, was appointed to confer with the editors of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the *Ophthalmic Record* as to the publication of the minutes.

Dr. STARKEY opened a discussion on the

USE OF X-RAYS IN OPHTHALMOLOGY,

as follows: We all know that certain substances which are transparent, or nearly so, to ordinary light, are opaque to the X-rays, and *per contra* certain substances opaque to ordinary light are more or less transparent to the X-ray. In general, it may be said that the greater the density of the object, the greater its opacity to the X-ray, and it may also be said that the higher the vacuum tube the more transparent are bodies to the X ray. Starting with this knowledge we can readily see that pieces of metal will cause a denser shade from the X-ray than bones, if a sufficiently high vacuum is used.

As far as I am aware, the case I shall report is the first one ever successfully skiagraphed in Chicago as to the location of a foreign body in the eye. It can be seen that it is necessary in the majority of instances that the skiagraph should be taken from two positions, from the side of the head and from the front, and by means of these two skiagraphs the body can often be definitely located. Dr. Sweet of Philadelphia has invented a plate holder and indicator which I had hoped to show, but am not able to do so. The tube now used is one made by the Queen Company, which overcomes the difficulty of getting a proper vacuum. This tube is arranged with a chemical and a shunt which controls the vacuum.

The first patient is a male 31 years of age, who was struck in the left eye on June 28 with a piece of metal. He was seen the next day, when the lens was found opaque so that nothing could be seen within the eye. The eye quieted down and he was discharged from the hospital, but in August the eye began to soften and it appeared that it was going to be destroyed. On August 20 a skiagraph was taken and it showed definitely that he had a large piece of metal in the eye. An attempt was made to extract the bit of iron with a strong electromagnet, but was unsuccessful, and the eye was removed.

The second case was seen October 28, male, struck in the eye with a piece of metal. A hole in the cornea, and iris and lens opaque. The next morning a skiagraph was taken, which showed the presence of a foreign body in the eye. An unsuccessful attempt was made to remove the steel, although it was only forty eight hours after the accident. The eye was removed and a piece of steel imbedded in the blood clot, so that a magnet could not affect it much.

Dr. Starkey showed many interesting skiagraphs of the bones of the head and of foreign bodies in different parts of the body.

DISCUSSION.

Dr. CASEY A. WOOD—My experience has been very disappointing with the X-ray. Two or three weeks ago a man appeared in my office with, presumably, a foreign body in his eye, but the patient refused to have a skiagraph taken because he feared untoward results. It certainly looks as if with improved methods and short exposures we may expect some benefit from the use of the X-ray in ophthalmology in the future.

Dr. HALE—My experience, which is limited to one case, has been very disappointing, but I am also inclined to think that it was due to imperfect apparatus.

Dr. STARKEY, in closing, said that the exposure is never longer than eight minutes with the proper vacuum tube.

Dr. K. K. WHEELOCK of Fort Wayne, Ind., read a paper entitled

TROPHO-NEUROTIC KERATITIS.

My attention was first called to this class of cases in March, 1887, when A. F. K., aged 55 years, a farmer by occupation and German by birth, consulted me with an attack of herpes zoster ophthalmicus of the right eye. The following I transcribe from my note book: Large ulcer on cornea at upper, inner segment; excavation shallow. Patient complains of a cold sensation in the eyeball as though the eye were a ball of ice. Anterior chamber one-fourth filled with pus, and iris bound down to capsule of lens leaving pupil the size of a pin-head. Patient a strong, healthy man, but pain had reduced him very much. The most complaint was on account of a sensation of continuous cold in eyeball. Ulcerative area had extended at next visit. The entire cornea is anesthetic. Faradization is used, and the cornea subsequently tested, when the sensibility is found to have returned. At next visit corneal sensation diminished. Faradization again employed. After fourth seance with faradization sensation remained in nearly normal state. Current had been applied from five to seven minutes over closed lids. There seemed to be no difference which pole was applied to neck. When sensation began to return to cornea the ulcer began to diminish in extent and depth. Ulcer did not penetrate into anterior chamber, and got well with an eschar. Three points in this case impressed my mind. 1. The diagnostic significance of corneal sensibility. 2. The value of faradization in such cases as presented subnormal corneal sensation. 3. The pathology of herpes zoster ophthalmicus centering in the Gasserian ganglion. After this I gave much attention to testing corneal sensibility.

In January, 1889, Charles F. K., aged 39 years, German, machinist, was referred to me by Dr. M. F. Porter of Fort Wayne, with the statement that patient had gotten some sand in his right eye while engaged in his work. The notable features were slight lachrymation, very slight photophobia, no pain; simply a sense of irritation. Inspection showed a scarcely perceptible injection at sclerocorneal junction, no foreign body on cornea or conjunctival surface. The upper outer segment of the cornea was roughened as though it had been picked in many places with a minute sharp needle. The statement of the physician that the eye looked as if it had received a "sand blast" could be readily credited, only there was no history of such an accident. I tested the cornea with a spill of cotton, twisted hard, and found the cornea practically insensible over the area of roughening, while over the unaffected five-sixths of the cornea the sensibility was noticeable, but very much reduced, the reflex being lost: T. minus, pupil contracted. Treatment continued about one month. On February 19 notes show that the corneal reflex had returned. T. —2, and the roughened area was smaller in extent and less marked in point of apparent roughness. Treatment had been strychnia, quinin and arsenic and electricity systemically, while locally the usual cleansing solutions were applied. On June 23, 1893, Dr. T. J. Dills, then my partner, enucleated this eye, which is here submitted.

Dec. 4, 1895, Henry L., aged 55 years, farmer by occupation, German, consulted me with the following history: Four weeks before while hauling corn fodder from the field the wind carried something into his left eye. He had some pain at the time, and had to rub the eye and, for further relief, used chamomile poultices, which relieved him of the severe pain. He has suffered from occasional attacks of neuralgia of head for years. The last attack of neuralgia was ushered in by a chill, but he had no return of the chill.

He never suffered from digestive disturbance, but has suffered much from head pain, which always began over left eye. Years ago the pain would last for two or three days, but latterly it would pass off after a sleep of half an hour. Examination showed R. E. S. $^{20}/_{20}$; L. E. S. fingers at four feet, slight injection of sclerotic; cornea rough over outer third and center; reflex abolished as shown by touching with cotton spill; T. minus; cornea looked as though fine sand had been dusted over it. Under strychnia, arsenic and quinin, hot fomentations and boracic acid for a period of ten weeks, he recovered with perfect sight and only a fine nebulous eschar.

February 15, 1897, E. F. C., aged 31 years, electric engineer, consulted me for the purpose of having a foreign body removed from right eye. He had already visited an experienced ophthalmologist, in Pittsburg, who informed him that there was a solution of continuity on the cornea, but no foreign body was present. A drop of cocain was employed and patient went about his work of inspecting some mechanical devices in the city. He did not note the irritation again till next morning, when he arrived at Fort Wayne. He then called at my office. Inspection showed no injection at sclerocorneal junction. Very slight photophobia; pupil contracted; a roughening of epithelium at inner upper quadrant; T. clearly minus 1; no sensa-

tion over roughened area and practical abolition of corneal reflex when tested over remaining clear corneal area. With the glasses which he was wearing: R. E. S. $^{20}/_{40}$; L. E. S. $^{20}/_{15}$. Under treatment with strychnia hypodermically, faradization and hot compresses, he recovered in twelve or thirteen weeks. His functional examination showed R. E. S. $^{20}/_{70}$; + 4 D. $^{20}/_{30}$; L. E. S. $^{20}/_{30}$; + 4 D. $^{20}/_{20}$; hyperphoria 2° which had already been corrected by prisms.

Another case is characteristic of these three and I will omit details.

The second case detailed and the first of trophoneurotic keratitis series passed out of my hands because my acquaintance with the prognosis was not sufficient to establish either a maximum or a minimum time during which treatment must be carried on. The enucleation of the eye by my partner, Dr. T. J. Dills, recalled the history of the case. The series presents the following features common to all: Loss of sensation in area of corneal involvement; subnormal sensibility; not total loss of secretion over area of unaffected cornea and abolition of corneal reflex; tension variable, but always minus; contracted pupil; slight pain, if any; slight irritation and then always as though a foreign body were in the eye; little or no circumcorneal injection. The time over which active therapeutic measures should be employed is ten to fourteen weeks. These cases have all gotten well with good vision and a very slight nebulous eschar.

The name trophoneurotic keratitis is distinctive and should be adopted for the class of cases which I have described, because the name is significant of the organs involved and points to the trophic fibres of the Gasserian ganglion as the seat of lesion. The name "neuroparalytic" should be abandoned, except in cases where gross lesion of the brain is present, or the ganglion is involved *en masse*, or when, in the presence of evident involvement of the trophic fibers, there is also a general lesion of the entire ganglion, as shown by loss of sensation throughout the whole distribution of the fifth nerve. Such a case as referred to in the last division I have seen as a result of periostitis of the petrous portion of the temporal bone and due to inherited syphilis. The case was that of a little girl, 10 years old, in which the trouble was symmetric. But only the right cornea had undergone central ulceration with perforation. In this case so profound was the anesthesia that a tooth had been extracted without pain, and the incident was referred to as indicating great heroism on the part of the little patient. Trophoneurotic keratitis differs in its pathology from keratitis e lagophthalmo in that in the latter condition the lesion of the cornea is the result of exposure from an uncovered cornea together with general loss of resistance on part of all the tissues. In trophoneurotic keratitis the lesion is found under the covered cornea. Snellen's theory of exposure and mechanical irritation is not tenable in this class of cases. We must also differentiate from keratitis malacia. We have all seen cases of hemi-anesthesia of the face in which there has been no desiccation or ulceration of the cornea. I am disposed to think that the sympathetic fibers supplying the Gasserian ganglion play a very important rôle in the nutrition of the cornea. The cases which Noyes refers to as "superficial keratitis" of malarial origin have all the earmarks of the cases which I have described, and he, together with all authors, including Von Graefe, has failed to distinguish between the gross involvement of the ganglion and the involvement of the trophic fibers alone. Von Graefe described those cases but did not recognize the influence of the trophic fibers. De Schweinitz in "Diseases of the Eye," last edition, describes the trophic and neuroparalytic form, and causally groups them under "neuroparalytic" disturbances of the cornea. Fuchs, in his admirable work, refers to the probable trophic origin of certain corneal ulcers. Schmidt Rimpler in his third German edition of "Ophthalmology and Ophthalmoscopy," translated by Roosa, comes very nearly to the exact truth in his opening sentence on the subject of keratitis neuroparalytica. He says: "The form of keratitis which develops in paralysis of the trigeminus may correspond entirely to the neurotic form in its appearance and course." Finally, Meisner and Schiff have shown experimentally that the characteristic inflammation known as keratitis trophoneurotica occurs when the central fibers of the Gasserian ganglion are divided.

In case of paralysis of seventh when the cornea is not covered or even swept except by extreme contraction of superior rectus and inferior oblique we yet have no evidence of desiccation.

DISCUSSION.

Dr. WILDER—I have a case just recovering which has been under treatment for fifteen weeks, a case of obstinate superficial ulceration of the cornea, gradually involving the whole surface. Everything I could think of has been tried, cauterization with nitrate of silver, carbolic acid and galvano-cautery, and the only relief given him was by applying absolute alcohol. This case is probably one such as the author speaks of. Possibly all such cases are in a sense dependent upon some lesion of the trophic centers rather than of the trophic nerves in the Gasserian ganglion. The cause may be malarial poisoning, in which case the ulcers would assume the peculiar dendritic form. All such cases resemble and are often associated with herpetic efflorescences in other places, and should be distinguished from true herpes zoster, which is a more serious affection. A point of interest which the Doctor brings out is the diminution of sensation.

Dr. COLEMAN—I rise to mention one method of treatment to relieve the pain. In two recent cases in which the corneal ulceration was a part of an attack of herpes zoster the intense pain was relieved, but only temporarily, by large doses of chloral, morphin and quinin, but it was permanently relieved by sodium salicylate.

Dr. GRADLE—I wish to call attention to the sharp distinction that there really is between ordinary herpes and herpes zoster. The dendritic form, as mentioned by Dr. Wilder, can begin as corneal herpes, and I have seen two such cases this year. In these cases there is no diminution in sensibility. I have seen two instances of corneal involvement in the course of herpes zoster, but in neither case was the ulceration quite as important as the keratitis, which was diffuse. Many of these cases are followed by very serious consequences. One of my cases was followed by paralysis of the rectus muscle. The question of the influence of trophic nerves on the cornea is open to doubt; in fact, the nerves themselves are not proven, and it is still in doubt whether the keratitis arises from a disturbance of nutrition or from the presence of foreign bodies.

Dr. PINCKARD—The paper reminds me of a case I now have under treatment, which while not neuroparalytic, perhaps resembles such cases in some respects. Some four weeks ago I was called to see a lady about 70 years old who had an herpetic eruption on the outer part of the upper lid. There was marked edema of both lids and conjunctiva, accompanied with redness and considerable pain. Later there appeared herpes on the side of the nose and temple. My fears were for the cornea, which I carefully watched. A curious change took place. The whole corneal surface became hazy, the haze being more marked at the periphery, not in the center. At the same time the cornea became anesthetic. There was and is still some circumcorneal injection, but it is not very great. There has been no pain in the eye, nor has a vesicle formed on the eye. It seems to me that this condition is a true neuropathic keratitis, whether paralytic or not it is hard to say. The herpetic spots on the face have healed, but no change has taken place in the cornea.

HOLOCAIN.

Dr. HOTZ—At our meeting in October I read a brief report of my observations with holocain. Dr. Würdemannn wrote me that his experience had been somewhat different, and suggested that we bring up the matter for discussion at this meeting. At the October meeting I stated that holocain was a very prompt, quick-acting anesthetic, but seemed to me not to penetrate deep enough to make it of value for more extensive and deeper operations, especially one involving the opening of the eyeball. Since that time I have used the remedy considerably and the results are about the same.

Dr. WÜRDEMANN followed Dr. Hotz in the discussion and said: "Würdemann and Black have used holocain successfully in the following cases: Six cataract (simple) extractions, three cataract extractions with iridectomies, three cataract discissions, six iridectomies, eleven tenotomies, three tenotomies with advancement, six canaliculotomies, four chalazia, one sarcoma of conjunctival limbus, one pterygium, one curettement of corneal ulcer, two cauterizations of corneal ulcer, a number of foreign bodies in conjunctiva and cornea, as an instillation before the use of irritating medicines such as silver, bluestone, alum, iodin, etc., and direct application of electrode to corneal and conjunctival surfaces. The anesthetic qualities of holocain equal those of cocain, are no more irritant and excel cocain for operations on the bulb in the following: Its action is quicker and more lasting; it more thoroughly anesthetizes the iris and deeper structures. It more thoroughly anesthetizes inflamed surfaces; the anesthesia may be indefinitely prolonged; the cornea does not desiccate under its use; it does not affect the tension; it does not act on the pupil or accommodation; it does not interfere with the nutrition of the tissues but rather increases their blood supply and hastens healing; its solutions are antiseptic; it is already proportionately cheaper. The only disadvantage in the substitution of holocain for cocain for anesthetic purposes is that bleeding is more free under holocain. Although holocain possesses these

distinct advantages over cocain when applied as a pure anesthetic, it has not and probably will not entirely supersede the older medicament.

Dr. Hotz—I can not quite understand on what ground Dr. Würdemann claims that the absorption of holocain is better than that of cocain. If I am correct, the absorption is a sort of osmotic process and has nothing to do with the circulation. We know that cocain combined with atropin is often more readily absorbed than atropin alone, so that cocain seems to increase the absorption. The pain from the application of holocain is most intense in a 1 per cent. solution and the after-effects last for hours. One great advantage of the drug is that it will keep and does not undergo any chemic or bacteriologic change.

On motion the Society adjourned. C. P. Pinckard, Secretary.

Chicago Academy of Medicine.

(*Concluded from page 219.*)

Regular Meeting, Nov. 12, 1897.

A. E. Baldwin, M.D., in the Chair.

CHOICE OF OPERATION IN AMPUTATIONS AT THE KNEE JOINT.

Dr. J. B. Murphy—The technique of the operation is not so difficult and requires very much less consideration than the points brought out by the preceding speaker, namely, the position of the scar after the operation, and the ability of the patient to wear with comfort an artificial limb. These are the important facts. Here amputations for the purpose of using the stump for pressure, can be made only where we retain a portion of the leg and knee joint the same as we retain the posterior aspect of the os calcis in operations on the foot, or where we produce talipes equinus in an exaggerated degree by resecting a portion of the foot and producing osteal union between the portion of the foot preserved and the tibia. These points can all give support when pressure is brought upon the stump. Pirogoff's operation is the ideal amputation of this character, as it so arranges the stump as to carry the weight of the body on the dense tissues of the heel. It is well known that when we produce a talipes equinus of extreme degree, the limb is not capable of carrying the weight of the body so well, and the patient subsequently suffers a great deal of discomfort. As to the line of amputation, I have always felt that amputations through the knee joint was much more serious than one above or below the joint; that is, making a knee-joint amputation, retaining the articular surface with or without patella, is a much more serious matter than amputating the leg above the articulation. When it is made above the knee joint I feel that we should select a position where the bone is about the normal size of the shaft of the femur; that is, we should go two and a half inches above the articular surface, so that we remove at the time of the amputation the flanging enlargement of the lower end of the femur. Then we have a stump to which we can attach an artificial limb without any difficulty; the pressure with an artificial limb does not come on the end of the stump but more on the side, except in the cases above mentioned. Now comes the question, how shall we make the line of incision so as to relieve the cicatrix from pressure and irritation? Furthermore, how shall we make the incision in the skin and superficial muscles? How shall we make the incision in the deeper muscles and periosteum? If we make it in the same line, when we have union we will have a scar direct to the bone and the patient will suffer from periosteal irritation. If we amputate the limb through the condyles we can not make a periosteal flap to cover the end of the bone. It is impossible to preserve periosteum in that position; it therefore can not be brought over the flanging end of the bone. In order to cover the end of the bone with periosteum we must remove it above the expanding portion of the femur; one of the desirable methods in amputations in any position where there will be pressure on the end or side is to cover the bone with periosteum. True, when we make an amputation through the condyles and preserve the patella, taking off its articular surface and placing it in a position to secure osteal union between the patella and shaft of the femur, we compensate to a certain extent for the preservation of the periosteum. Now, then, the line of incision must be such that when the tissues are approximated, the scar will occupy the position where there is the least friction and pressure. If we make the amputation in the thigh I am very much in favor of a circular flap. I have always used it, as there is less likelihood of having a continuous cicatricial mass to the periosteum. If we adopt the plan of suturing the subcutaneous tissues, muscles, sheaths, etc., in layers over the end of the stump, the muscles will eventually be absorbed by pressure, but before absorption takes place they prevent adhesion of the superficial scar with the periosteal scar, and in this way allow movable tissue on the end of the stump which is not fastened to the end of the bone.

The method of taking care of blood vessels on account of danger from secondary hemorrhage is one of considerable importance. The experiments of Dr. Senn showed that when we put on a double ligature we had much less likelihood of secondary hemorrhage than from a single ligature. This, I believe, was due to the fact that the upper ligature was not placed as firmly as the lower, and a clot was formed between them. I found in the practical application of that method that it is difficult to say how much pressure we need upon the ligature. If we will change the method of ligation of vessels we can obviate the necessity of a double ligature entirely. When we ligate an artery, draw it down with forceps. Do not ligate an artery on the proximal side of the forceps, but put the forceps high up on the vessel and ligate on its distal side. By ligating in this way we are sure to injure the intima with the forceps. If we injure the intima in the position where the circulation is intact, that is, where there is a continuous circulation of blood, immediately after the injury we have the formation of a clot which fills that portion of the vessel and becomes firmly adherent to the injured intima. This method was deduced and demonstrated in our recent arterial experiments. I have found that we have the safest guard against secondary hemorrhage in an artery that has its intima injured the most on the proximal side of the definite ligature. If we injure its coat by the application of forceps we produce thrombosis. The nerve should be drawn down and divided so that it will not be involved in the scar. I speak now, of course, of the large nerve in that region. By so doing we lessen the liability to neuroma from involvement of the nerves in the scar. If the sheath of the muscle be split and the nerve be inserted into the muscle there is less tendency to neuroma.

We have therefore in the operation itself, 1, the line of incision; 2, the protection of the end of the bone with periosteum to prevent adhesion at the line of incision of the superficial parts to the end of the bone; 3, care of the artery so as to produce injury to its intima and thereby bring about a primary thrombosis after the completion of the operation; 4, care of the nerve, and 5, drainage.

I believe that we have drifted too far from drainage in recent years. Surgeons take a great deal of pride in saying that they have never found it necessary to drain their cases. It is a very nice thing to say. When members of this class find it necessary to drain secondarily, they generally lose the patient. We must always be on the side of caution, and I believe that forty-eight hours drainage does not in the least retard primary union. Drainage for this length of time removes the primary wound secretion which prevents the accurate apposition of living tissues. Primary wound secretion can be nothing less than a detriment to union. Drainage for this length of time brings about accurate apposition. What else? The karyokinetic changes are taking place within a short distance of the cut surface and are preparing for a definite union.

INDICATIONS FOR AMPUTATION ABOUT THE KNEE JOINT.

Dr. Alex. H. Ferguson—The indications for operations about the knee joint have changed from time to time as science has advanced. The invention of the tourniquet, the ligation of arteries, the discovery of anesthesia, and the introduction of aseptic and antiseptic surgery have each added to or subtracted from the indications of these operations. There is no subject in the whole range of surgery that has been more talked about, more thrashed out and discussed, than amputations in general by the ablest surgeons of all times. And since the days of antisepsis and exploration of new fields, some physicians imagine that no advance has been made in amputations of extremities in the last twenty-five or thirty years. But such is not the case. One would suppose by this time that all the indications would have been really defined, but we are far from having all of them settled, and we can yet speak with propriety upon the various conditions which demand, and which do not demand, amputation. It varies a great deal with personal experience and with the conscientious ability of the surgeon to know what he can do in certain cases. To lay down a number of absolute indications for amputation at the knee joint would be folly. The indications, however, that are brought prominently before us are those produced by injuries. We may classify these injuries into mechanical, chemical, electrical and thermal. Mechanical injuries are the most common. There is no doubt about the necessity for amputation at the knee joint when the limb is torn away and totally destroyed below the joint, in a railroad accident, by machinery, or by a cannon ball sweeping along and taking it away. The indications in such cases are clear for a speedy amputation in the manner

described this evening. Incised wounds, punctured wounds, lacerated wounds implicating the knee joint itself used to be frequent indications for amputation above the knee joint, not so much on account of the injury *per se*, but owing to the inflammatory conditions which followed, causing a septic arthritis. It was noted by the older surgeons that a large tear into the knee joint was much less dangerous than a small puncture. It is quite clear that a puncture would carry infection, and if not counteracted, eventually an amputation might be necessary. When, however, drainage was free, or the infection slight, a number of cases escaped amputation. All minor injuries, if taken hold of early and properly treated, are now excluded as cases for amputation above the knee joint. When the knee joint is involved we render the part aseptic, use antiseptics, and, if necessary, operate and do away, as much as possible, with the probability of septic inflammation following, but still there are some cases that have been neglected either by the patients themselves, or through an oversight on the part of the practitioner; septic arthritis from apparently minor injuries to the knee joint demands amputation. But not all of them. Even in those septic cases, if we freely open the joint, and, if necessary, lay it completely bare from one side to the other, use antiseptics and establish free drainage, a number of them go on to recovery without requiring amputation. It is a notable experience that excisions at the knee joint for acute septic arthritis are very fatal, and they are practically discarded. If we can not save a joint by free drainage, asepsis and antisepsis, we have to amputate it.

The indication for amputation when a wound is poisoned may come before the surgeon occasionally, as, for instance, when the knee joint of a child is torn by a mad dog. The idea of amputating is the first thing that naturally arises in the surgeon's mind. But I do not put this down as positively a justifiable procedure in the light of our knowledge of hydrophobia and its treatment. The surgeon would be governed by the conditions and circumstances of the case.

Other indications for amputation would be those in which the knee joint is crushed, or the bones below it are so injured as to leave no hope of recovery of its tissues. In these cases amputation or disarticulation should be done. In cases of compound fracture implicating the knee joint, and compound dislocations involving it, it would depend more upon the injury done to the soft structures than the fact of these compound conditions existing as to whether we should resort to amputation or not. A knee joint may be saved although there is a compound comminuted fracture, or a compound dislocation of it, provided the structures in the popliteal space are all right, and sufficient of the soft tissues in front are left healthy and intact to cover in the joint.

I will pass over the chemical injuries to the knee joint and consider the thermal—those of heat and cold. When a limb is hopelessly destroyed by heat below the knee joint, I am rather inclined to do a primary amputation. If the injury is so extensive as to char the limb, there is no doubt but a primary amputation is indicated. We know from our experience with crushing injuries that shock will not often subside until after an amputation has been performed. The shock will not subside, sometimes, in thermal destruction of the limb, until the patient is put profoundly under anodynes. I remember amputating the two legs of a little girl whose feet were badly burned, where the shock did not begin to pass away until after she was put under the influence of an anesthetic.

With regard to cold. You all know that I came from a country where it was cold. I have seen the temperature range from 25 to 45 F. below zero for six weeks at a time. I remember of having as many as a dozen or more cases brought into the hospital suffering from the effects of cold, especially frozen extremities. I believe there is an indication for primary amputation in some of these cases where both feet are frozen up to near the knees, and hopelessly gone from the start. Lives can be saved by doing primary amputation within forty-eight hours in such cases. I know that I have saved the lives of one or two patients by so doing. I have in mind at present a man, shipwrecked on Lake Winnipeg, whose two legs were frozen to a little below the knees. We waited for reaction, which never came; we watched for a line of demarkation, which never took place, and the patient succumbed in spite of all our efforts. We kept the limbs as perfectly aseptic as could be, and still the case went on and developed septicemia, and died in a condition not unlike that found in acute traumatic gangrene. In less extensive gangrene from frost bites the rule is to wait for a line of demarkation.

The electric destruction of limbs needs only to be mentioned as an occasional indication for amputations about the knee joint. There are injuries to the popliteal vessels and nerves which call for amputation. Injury to the popliteal artery or vein is occasionally present in separation of the epiphyses. I have met with two such cases. One case was that of a b trying to climb into a wagon when suddenly the horse starte his foot slipped between the spokes causing separation of t epiphyses. When I was called to see him soon after the acc dent the limb was warm, but the artery was completely rup ured and we had to do an amputation the next day. It appea that in nearly all cases of separation of the epiphyses there more or less injury to the vessels of the popliteal space.

Injuries to the nerves that demand amputation would b usually those of gunshot wounds, where a considerable portic of the nerves posterior to the knee joint would be destroye This brings us to the next class of indications, namely, disease The first would be inflammations, such as acute septic arthriti which I have mentioned already. Then comes acute osteom elitis. In a fracture near the knee joint acute osteomyelit may start up, streptococcus infection may occur, and this ma call for an amputation. Chronic osteomyelitis destroys t bones of the leg and suppuration may be so extensive that a amputation may be indicated in order to prevent general pyemi

An important indication for amputations about the kn joint was tuberculosis, and for a long time knee-joint amput tions were performed in almost all well pronounced cases tuberculosis of the knee joint. That practice, however, sul sided and excision of the knee joint was then introduced. No we save many cases even from excision. There are certain co ditions, however, in which amputation is still in vogue, ar will be practiced as long as there is tuberculosis of the kn joint. I refer now to those cases of tuberculosis of the kn joint in which the patient has lung infection as well, where is important to keep the patient in bed as short a time as po sible. If the patient is run down constitutionally we can quicker work by making an amputation, and can get a patie out of the hospital in two or three weeks thereafter. Amput tion at the knee joint is indicated for tuberculosis when t joint is thoroughly destroyed, where the soft structures are a riddled with sinuses, and there is not sufficient bone left b hind to make a suitable excision. In tubercular osteomyelit involving the tibia up to near the knee joint, it is not necessa to amputate up to the line of extension of the disease. Th infected part in the center of the bone can be scraped out ar amputated at a suitable place.

Aneurysm of the popliteal artery sometimes demand amput tion at the knee, those diffuse ones which rapidly spread ar occlude the blood vessels so as to endanger the life of the lim below. In chronic aneurysms that extend into the knee join and in those not curable by other methods of treatment a amputation is advisable.

Sarcoma is a frequent indication for amputation. If we ha sarcoma of the soft parts it may be removed. If it develops c the periosteum itself, and not too extensive, it may be chisele off. I recall a case of sarcoma that I chiseled from the tib over a year ago and followed it up with the antitoxin treatme from the streptococcus erysipelatosus and prodigiosus. The has been no return of the disease. Carcinoma is another ind cation for operation. It arises sometimes in connection wit old chronic ulcers. Gangrene is one of the marked indicatio for amputation at the knee joint, and one of the most prom nent indications demanding the operation is a spreading tra matic gangrene. If infection takes place in a severe injur below the knee joint and gangrene climbs up the limb, the amputation or disarticulation must be done at the knee join depending upon the condition of the soft structures. Ga grene spreads along the cellular tissues so rapidly that althoug the skin may look healthy when we cut it, we find we have t go higher. These cases often call for amputation above th knee joint. A good deal, of course, depends upon the tim when we get the case and the extent of the gangrene. Th symmetrical gangrene of Raynaud demands amputation. Di betic gangrene is that form which surgeons formerly did n care to touch, but now with our aseptic and antiseptic preca tions, in suitable cases we operate, knowing that diabetes *p se* is not the cause of such cases doing badly, but that th wound formerly did not heal on account of infection. We kno now that these wounds do heal when suppuration is prevente The diabetic condition serves as a predisposition for the mult plication of germs in the tissues. We also have senile gangre to contend with in considering amputations at the knee join Amputation may be done at the knee joint in deformities, eith congenital or acquired. We may have a tubercular or tra matic condition of the knee joint, which disables a patient f a long time. The limb becomes contracted, ankylosed an fixed in an abnormal position. Amputation may be a blessin in such cases. Congenital defects below the knee joint, in ra instances, call for amputation. In bad stumps due to disea of the bones, chronic ulcers, painful enlargement of the nerve

tc., an amputation higher up is the only thing to do in order o remove the pathologic conditions and get a good useful limb.

Having spoken of indications, I desire now to say a few words n connection with amputations at the knee joint.

Amputation at the knee joint is a recognized modern surical procedure on sound surgical basis. We make a distinction between disarticulation at the knee joint, and amputation hrough or above the condyles of the femur.

History.—Allow me to mention a few historic facts connected ith this operation. The earliest notice of it is by Fabritius Hilanus, who performed it in 1581. It was revived by Hoin (1764), fter a lapse of 183 years. In spite of strong support by some f the best surgeons of this time it was soon forgotten, and ixty-six years went by until the great surgeon, Velpeau (1830) ook it up and made it popular.

In 1824 Dr. Nathan Smith amputated at the knee, and his peration was the first of the kind in America. In this connecion he may be characterized as the "Velpeau" of America. Iarkoe, Pancoast, Brinton and others, also advocated the peration.

British surgeons have been alive to the benefits of amputaion at the knee joint; among those giving it distinction were Iolmes, Pollock, Cooper, Syme, Carden and still later Fergusson, Lister, Stokes and others. This operation has been praciced more in America than in any other country, and the ilateral method devised by Dr. Stephen Smith will for all ime have a useful and permanent place.

Surgical anatomy.—The anatomy of the knee joint is peculiar. arge size, with ligaments, tendons, synovial pouches, bursæ, arge surface of articular cartilage, fibro-cartilages and tubeous bony extremities, all are encased in a strong fibrous sheath overed by skin. The quadriceps extensor tendon, the patella nd the ligamentum patellæ are in front, each having its surical bearing. On either side the hamstring tendons which emand our consideration, and behind in the popliteal space re situated the heads of the gastrocnemius, plantaris and opliteus muscles, as well as the vessels and nerves.

A brief consideration of the anatomy will show that the anerior 2-3 of the joint is but poorly supplied with blood vessels, nd has no muscular tissue to form a good covering for the arge head of the femur.

The tendons extending beyond the joint, to be attached to he tibia and fibula, retract so far when cut that it is difficult o utilize them in the flaps. If the anterior flap is too long its dge will inevitably necrose.

What shall we do with the patella? Should the condyles be ut off? How should the vessels, nerves and tendons be dealt ith? What flap or flaps will obtain the safest and best results? hese are the questions that surgeons have been trying to solve, nd for which purpose many operative procedures have been arried out and recommended.

Operations.—Disarticulation may be diverse. 1, disarticulaion by a short anterior and a long posterior flap (Hoin); 2, by a ong anterior flap (Pollock); 3, by a long circular incision (Veleau); 4, by an elliptical incision (Bauden); 5, by a modified ircular (Chalot); 6, by lateral flaps (Stephen Smith).

Indeed these are not all the methods devised for disarticulaion at the knee joint. Pancoast successfully made use of three aps from the upper part of the leg. Which of these to select n a given case will depend largely upon the indications for the peration. If the case was one of injury below the knee, deanding disarticulation, the condition of the patient as well as hat of the limb is to be taken into consideration. When shock s profound and continuous, as in a crushing injury, the life of he patient demands our first attention, and to save it rapid ork must be executed. Dr. Stephen Smith's (1870) bilateral mputation can be done as quickly as any of the above six ethods, and the stump is, I think, the best.

The recommendation of Dr. Brinton in 1872, to sever the emilunar fibro-cartilages from the tibia and leave them in the tump is a decided advantage. His own words are: "By thus eaving them in position I have a cap fitted upon the end of he femur which preserves all the fascial relations, eventually revents retraction and guards against the projection of the ondyles." The patella is of course left undisturbed, and it dds strength to the stump by preserving the integrity of the uadriceps extensor. The ligamentum patellæ should be cut lose to its insertion. I am in the habit of cutting the hamtring tendons lower than the joint line and fastening them to he stump with catgut, in order to prevent their retraction and reserve their function. When a new and suitable insertion is iven to these tendons, the strength and all the movements of ne thigh are preserved, the stump can be as forciby adducted, bducted, flexed, extended and circumducted as if no amputaon had been performed. None of the authorities, and I must ay none of the operators as far as I know, pay any attention to the above-mentioned treatment of the tendons of the muscles.

This simple procedure of giving insertions to severed tendons is especially suitable in amputation about the hands and feet. The vessels are ligatured always with catgut. If silk is used, history almost surely repeats itself, and one silk ligature after the other comes away by a process of suppuration. A vast amount of suffering, inconvenience, and more or less damage to the stump (making it tender), are prevented by absolutely discarding the use of silk in all amputations of the extremities.

The nerves must be cut shorter than the structures, and if of considerable size as here, it is possibly better to remove a wedge-shaped piece from the end of each, as recommended by Senn and coapting the two little flaps with fine catgut. The object is to remove the cut nerves away from the scar and end of the stump, thus lessening the tendency to the formation of neuromata and painful stumps.

Disarticulation by Stephen Smith's method has many features to commend it. An excellent covering for the femur; efficient drainage; well nourished flaps; scar between and behind the condyles, and a stump, powerful and serviceable are obtained. I fully agree with Roswell Park in calling it "The method of election." The tissues may be injured in such a manner as to make it impossible to form lateral flaps, then the surgeon will of course make his flap or flaps from healthy tissues. It is gratifying to know that one long posterior flap may be all sufficient, or the circular or modified circular is all right.

Two even, or uneven flaps, from any side of the knee may be chosen in emergency.

In selecting a disarticulation the joint must be healthy, free from infection, disease or extensive injury; the surrounding skin and structures must be healthy to afford ample flaps. In disarticulations as compared with amputations of the femur, shock is much less and the rate of mortality is very much lower. Aseptic and antiseptic surgical precautions have done a great deal for this operation. According to Legouest the mortality of disarticulation at the knee joint was 87 per cent., and of amputation of the thigh 74 per cent. during pre-antiseptic times; while now, according to Erdman (1895), the mortality of disarticulation is only 13 per cent., and of thigh amputation 21.5 per cent.

Septic infection of the synovial membrane, cartilages and bursæ, made the operation of disarticulation at the knee in former times simply a fearful one; hence the recommendation of amputation above the condyles by the older surgeons.

I am well aware that the surgeon who looks mainly to prosthesis would abandon the operation of disarticulation altogether, but he who pays attention to the principles of exæresis will stoutly uphold it.

Amputation through the condyles.—1. Transcondyloid (Carden's, 1846) (*a*) Lister's modification (1883), (Gross, 1866). 2. Gritti's osteoplastic operation (1857). 3. Stokes' supracondyloid modification of Gritti's (1886). 4. Sabanejeff's (of Odessa 1890) osteoplastic flap amputation.

Carden's operation consists of a long anterior skin flap, the length of the diameter, at the point of osseous section, and the dividing of everything else straight down to the bone, which is sawn through slightly above the plane of the muscles. Lister and Gross made a short posterior flap of skin, but otherwise the operation is just the same as Carden's. All the muscular and fibrous structures are sacrificed and the bone simply covered by skin.

I do not perform, as a matter of choice, any amputation which sacrifices all the muscular, tendinous and fibrous structures.

In Carden's amputation, the anterior flap is liable to die, the stump is easily injured and can not bear much weight on its end, and the whole stump is weak, because the muscles are allowed to retract, thus greatly losing their function.

In the light of our present knowledge of amputations and stumps, I can not understand why Carden's operation should be performed at all; it is much better to make the anterior flap a little shorter, and the posterior one longer; to preserve the quadriceps tendon to cover the bone, enucleate the patella if diseased, and if not saw a slice off it and leave the posterior muscular and tendinous structures sufficiently long to enable you to suture them to the deep fibrous structures of the anterior flap, when brought over to the end of the bone. In this manner, an ideal stump is the result. It is beautiful in shape, will bear the weight of the body on its end and is powerful in all its movements. By this means skin is sutured to skin, fascia to fascia, tendons secured in the stump, and all forming one uniform covering for the end of the bone.

When the operation is done for tubercular disease, all the synovial membrane should be dissected out. It is to be remembered that the condyles must be sawn through on a level with their terminations, and not at a right angle with shaft of the

bone. If a child or youth is the subject under treatment, the epiphyseal line should be respected, and not encroached upon, if possible, under 18 or 20 years of age. Efficient drainage is obtained by means of a few strands of silkworm gut. Gritti's operation is a good substitute for Stephen Smith's disarticulation, when the patient is in excellent condition constitutionally and when it is not necessary to make a speedy operation. It takes more time to saw, fit and suture the patella and femur together than to do a disarticulation. This is also true of Stokes' and Sabanejeff's operations. Not infrequently you begin with the intention of performing Gritti's; but the patella can not sometimes be brought over the end of the bone until slice after slice is removed, and the operation is completed as a Stokes' modification. Gritti's and Stokes' operations are especially suited for tuberculosis of the end of the femur, where an excision is not advisable. I have no experience with Sabanejeff's osteoplastic operation; it appears to be an operation that will be suitable in exceptional cases.

When a section of the anterior surface of the tibia, including the tubercle with its attached patellar tendon, is removed, as in this procedure, more healthy tissue is required below the knee than in all the preceding operations, which may be an objection to it.

TREATMENT OF PATELLA.

Dr. CARL BECK—I shall have to make a few remarks only in regard to the treatment of the patella, as so much has been said by Drs. Cuthbertson and Murphy. There is one point to be considered in connection with the treatment of the patella, namely, the pathologic condition for which we operate. If we have a trauma to deal with, conservatism prompts us to leave everything possible. We leave the semilunar cartilages and the patella, if they are not crushed, if possible, in order to give the stump greater mobility and prevent retraction of the muscles. In those cases where the disease has invaded the knee joint and amputation is necessary, usually the patella is diseased also, and is not to be left. In most of the cases of Gritti's or of Stokes' operation the bone itself may be so thin by osteoporosis, that agglutination and further on adherence and callus of the bone is almost impossible. This applies particularly to tuberculosis. When tuberculosis develops near the knee joint, osteal atrophy extends a considerable distance up from the joint, and the healing of such osteoporotic bones is not liable to occur. Therefore, in most cases in which I have seen Gritti's operation performed by Gussenbauer, a secondary amputation has been made later on account of a badly healed tubercular stump.

The Stokes operation is not so important for our discussion, for the reason that support in our time is not on the stump but on the pelvis, and the stump itself rests only in an artificial limb and is not very much pressed upon. So much for the treatment of the patella.

I wish to say a few words now with regard to the treatment of the nerve. In order to prevent neuralgia and the formation of amputation neuroma, it has occurred to me that it would be necessary not only to draw the nerve down, but to make a plastic operation on the nerve; that is, split the nerve, remove half of it, fold it over, etc. I have done this in two cases a short time ago. I am not able to give you the results just now. I intend to make experiments along this line to demonstrate the healing of the nerve, making a plastic operation on the nerve and reflecting it upon itself. It seems to me, this will prevent the formation of amputation neuroma. The neuromata are very painful. I have excised a number of them. I have seen Dr. Ferguson excise these bulb-like growths. I believe drawing down the nerve is of great value, but inasmuch as the nerve ends remain there by their own tendency to grow, they develop often, even if not enclosed in connective tissue, into bulb like growths, and this of itself may cause neuralgia. I have not had a chance to observe the cases for a long time, but I will report my experiments later in a special paper.

FORENSIC RELATIONS OF AMPUTATIONS AT THE KNEE JOINT.

Dr. HAROLD N. MOYER—So far as the consequences of amputations are concerned, litigation might arise on account of bad stumps. These are by no means infrequent, and so far as their application to the knee joint is concerned, I do not think they are any different from amputations made in other parts of the body. There is one special form of disarticulation at the knee joint which calls for some consideration on account of its medico-legal relations, namely, cases of children before the bone has reached its full growth. I have seen a number of such cases, which have been litigated in our courts in various ways, and one of them is so interesting a type, that I will briefly relate it.

A case that has recently come under my observation is instructive as to the possible complications that may arise from a bad stump in children. Bryant in his excellent work says that conical or sugar-loaf stump is a natural consequence in children, that growth continues in the bone with greater rapidity than in the soft parts, and the end of the bone is thrust against the cicatrix in the flap and eventually adherence with painful conical stump is the result.

If this fact be lost sight of, it may lead to a suit for malpractice, as friends and relatives are quick to assume that a defective stump is evidence of the carelessness or incompetence of the surgeon who performed the amputation. A lad, 11 years of age, was brought to me for examination whose leg had been amputated four years before for a crushing injury, made by the wheel of a street car. The stump was in very bad shape, nothing covering the projecting end of the femur for two inches but thin and ill nourished skin; the cicatrix at the end of the bone had ulcerated. The stump was the seat of constant neuralgic pains, spasms, and was exceedingly sensitive to changes in temperature and the slightest mechanical irritation. My opinion was that a reamputation would be necessary, preferably through the shaft of the bone above the epiphyseal cartilage to prevent the recurrence of a bad stump. The injury was the subject of a suit of law, and the attorney for the plaintiff was anxious to show the painful and bad condition of the stump and the risk of reamputation as an additional element in damages. The amputation had been made by the railroad surgeon, and in the opinion of the family was improperly done. I was able to assure them that the bad stump was probably due to natural causes, for which the surgeon was in no way responsible, and that they were as clearly entitled to recover for a bad result from natural causes growing out of the injury as they would be if negligence were alleged.

A subsequent conversation with the surgeon showed that the limb was practically amputated at the knee by the injury, and that he simply severed some of the soft parts, shaped the flaps and dissected out the patella; he was deterred from making a section of the femur because of the collapsed condition of the patient and the fear that additional interference would result fatally.

The case is one of interest because of its bearings in malpractice suits and its general relations to amputions. It also emphasizes the fact that in the thigh amputations of children the section should be made above the epiphyseal cartilage, otherwise a bad stump inevitably results.

This is a type of a number of cases seen in which bad results have followed disarticulation at the knee in children. So far as the forensic aspects are concerned, the section ought always to be made above the epiphyseal cartilage. Another possible relation which has not been referred to, and which may have its forensic importance, is the amputation of legs that are paralyzed. I refer now to those flail-like legs that result from injury to the anterior horns of the spinal cord, in which there is complete motor paralysis of the legs, with atrophy of the muscles and of the bones, and failure of growth. Such limbs dangle about; their nutrition is low; they are exceedingly liable to injury because of inability to control them, and in many instances the patients themselves request amputation, or it is suggested by the physician in charge. I do not think with our present knowledge that these amputations are justifiable, particularly if there is sufficient power in the muscles which unite the pelvis to the thigh, the gluteal and psoas, to balance the leg upon the thigh. In these cases a resection of the joint should be made instead of an amputation, making the leg one piece from the hip to the foot.

SELECTIONS.

A Coroner's Perquisite.—The London *Lancet*, October 2, points out the absurdity of one of the fictions upon which the profits of coroners depend in England. In some parts of our own country a like superstition survives. "A very old and very persistent superstition has again dictated the action, or rather the inaction, displayed by the persons who first discover the body of a recent suicide. A poor fellow, named Henry Scott, recently committed suicide in a Suffolk village by hanging himself to a tree. It was stated at the inquest that an hour before he was cut down a man saw him suspended from a branch, but that instead of ascertaining whether life was extinct he went for the police, being under the impression that a body must not be touched save in the presence of the police. Some children also saw the unfortunate man and ran to tell their elders. But their elders did nothing, being under the

same curious impression. It can not be too widely known that the prejudice against touching a body save in the presence of the police is founded upon nonsense, and nonsense to which before now lives may have been sacrificed. The fault probably lies at the door of the police who, in cases where a body has been moved and a verdict has been subsequently returned against some persons unknown, have been known to hint that if things had not been disturbed they could have obtained a clue, the sort of clue, we suppose, the absence of which accounts for the unsuccessful inquiries into the death of Miss Camp. The duty of a person who finds a body is first to ascertain that it is a body and that of a fellow creature. If life remains a medical man should be sent for and afterward the police. If it is necessary to remove the body to ascertain that it is a body (this would always be the case when dealing with death by hanging) it will be well to take accurate notes of the position in which it was found for the information of justice." We may learn from the above and other observations by our candid medicolegal experts that, barring necessary expense, the normal rate of income of an ordinary or inexpert or political coroner should not exceed $2,000. This rule will properly apply to localities where violent deaths are comparatively rare, namely, in our less populous localities. In more crowded situations a more liberal tariff must have sway. As a general rule, $5,000 per year is believed to be about all that a conscientious coroner may expect to claim after his legitimate expenses have been paid. Some coroners of cities of the larger size are said to be in the receipt of over $15,000 per annum, and yet find that amount insufficient to meet the total expense account, but some of this outgo must be regarded as intercurrent, non-legitimate or possibly political in its nature. One thing is very certain with regard to politicians who get elected to coronorial berths, however large their revenues may be, they find it difficult to "lay up a cent."

Soil Bacteriology and Water-Supplies.—Mr. Hunter, a Scottish analyst, in the *Sanitary Journal*, repudiates the idea that the day of chemistry has passed in the sanitation of our water-supplies. He likewise repudiates the assertion that chemistry and bacteriology tend to produce contradictory and confusing results. He says: "The production of carbonic acid in fertile soils is part of the life work of those important soil organisms with which every fertile soil is teeming, and the removal of this carbonic acid is the principal function of the field drain. In sterilized soil there is practically no solvent action results from dain with its .02 per cent. of carbonic acid in solution. Moreover, we many years ago proved that groups of our soil organisms possessed the power of decomposing stable double silicates, and we are therefore compelled to conclude that the salts dissolved in the river, well and drain water were due purely to the wondrous works of those living micro-bodies in the soil, and certainly not to purely chemic interchanges such as are, with such simplicity and accuracy, painted in books. From what has been said, you will have gathered that the composition of waters is very largely due to life in the soil; and it follows that the composition of waters may be materially altered by: 1, inoculation of soils or gathering ground with advantageous organisms, if necessary; and 2, by altering the compositions of the soil, so that the multiplication and working of those advantageous organisms may be encouraged.

"In recent years some medical officers, who have not yet learned the rudiments of bacteriology, have not hesitated to say that the chemic examination of waters is positively useless, and nothing but a biologic examination will satisfy them. I am quite as alive to the value of a biologic examination of water as any medical officer in Scotland can be, but I can only understand their criticisms by realizing that some of them have got hold of a word they do not understand, *bacteriology*, and that they are ringing the changes upon the public and their employers, the County Councils. It is now many years since, in conjunction with my worthy and able friend, Dr. T. G. Nasmyth, undertaking the bacteriologic part; and it is simply a fact that, we arranged to independently examine waters biologically and chemically, Dr. Nasmyth in every case, there was no single exception, the two methods agreed. More recently, Professor Bowhill of San Francisco, who is probably one of the very best practical bacteriologists of the present day, whose recent contribution to the bacteriology of water is the most masterly piece of work in this department that has ever been done, has had a similar experience. He has exchanged many samples with the State chemist, and in every case, good or bad, the biologic results have absolutely confirmed the chemic. These critics suggest that it is possible for a water to be bacteriologically bad, and that the badness will not be revealed by purely chemic analysis; but what they suggest is most impractical and well-nigh impossible of happening, unless some skilled bacteriologist were to grow pure cultures, say of typhoid bacillus, and introduce those into a water-supply, minus the medium in which they were grown. That, I take, however, to be impossible; but even were it not so, the presence of typhoid bacilli in such a case would be by intention, and the work of a demon. If the chemic examination of waters is worthless, it is more than time we had a new public health act, because at the present moment, as the law stands, if any question arises as to the quality of a water 'it shall be submitted to the official analyst for chemic examination;' not to the analyst or the medical officer of health for bacteriologic examination, but to the chemist for chemic examination. What, then, I maintain is that while we do not, and dare not, overlook the importance of the biologic examination of waters, the wholesale condemnation of the chemic examination is, to say the least of it, rash, and is attempted only by men who, in my opinion, are absolutely incompetent to judge either of the one method or the other."

Innominate Aneurysm Treated by Electrolysis; Recovery, Subsequent Necropsy.—In the *British Medical Journal*, Dr. Stewart of Philadelphia reports an important autopsy made on a recovered case of innominate aneurysm treated by the introduction of gold wire and by electrolysis. The autopsy took place about three and one-half years after a complete cure of a very large aneurysm. Ten feet of snarled, coiled fine gold wire were used in the case. The case was unfortunate in that the man was an alcoholic and syphilitic, and the subject of pronounced aortic and mitral disease, with extensive cardiac enlargement, generalized endarteritis and chronic nephritis. The aneurysm formed a large and prominent swelling at the roof of the neck. It was regarded as springing from and being limited to the innominate artery. The sac wall was of extreme thinness and, at least externally, was unprotected by clot. This, which was apparent to the eye and touch, was further demonstrated by puncture with needles. At the time of operation the sac wall seemed on the point of bursting externally in several situations over which the skin was extremely thin and bluish. The result of electrolysis through the introduced wire was very decided. Clot formation, leading apparently to solidification of the sac, was early manifest. The patient lived for nearly three years and a half after the operation, and finally died as the result of the formation of a large thrombus in the middle cerebral artery, the result of the advanced endarteritis present. Despite the most unfavorable condition of the patient, his bad cardiac and renal disease and generalized arterial sclerosis, his having had syphilis and being a steady drinker of spirits, the result obtained speaks strikingly in favor of this procedure as a method of treating sacculated aneurysm. The sac was found to be of extreme hardness, with complete consolidation and obliteration of its cavity. At the autopsy, which was performed four hours after death, the heart was found to be dilated and hypertrophied, the aortic and mitral valves sclerosed and insufficient, and there was a

distinct fusiform aneurysm at the junction of the transverse and descending portions of the aorta, which throughout was the seat of extensive atheromatous degeneration. The sacculated aneurysm springs directly from the root of the innominate artery. The aneurysmal sac is approximately the size of a fetal head at term, length thirteen centimeters, transverse diameter nine centimeters. The sac is completely consolidated with organized coagula, in which lie the coils of wire. The consolidated sac has at its base a small cul-de-sac, the remains of the innominate artery. This, from the aorta, admits the little finger to a distance of four centimeters through the annular ring, sharply defined, two centimeters in diameter. The cul-de-sac was noted to contain in its interior a small coagulum, presumably of postmortem formation. The sac itself was very firm and wholly solidified, and when cut into was found to be completely occupied by organized material, in the interstices of which lay the coils of fine gold wire. Brain: A large thrombus is evident in the left middle cerebral artery. Softening has occurred in the region of the corpus callosum, caudate and lenticular nucleus and in the internal capsule of the left side. This cerebral thrombosis was evidently the cause of death. He has now treated two cases of sacculated aneurysm by the employment of electrolysis through introduced wire, and has directed the technique in a third successful case. This has naturally led him to give a good deal of attention to the subject. The result in his second successful case, the necropsy of which is here reported, and that obtained in the case treated by Dr. Hershey of Colorado, in which the solidification of the aneurysm resulted by this method, is sufficiently suggestive to engage the attention of the therapeutist. The method of treating aneurysm by the introduction of wire was first introduced by Moore at the Middlesex Hospital, in 1864. His case died of sepsis. Stewart thinks that in this case a great excess of wire was introduced. The cases of Loreta and Moore (both abdominal aneurysms), in which six feet and four to five feet of wire were respectively introduced, both resulted in cure. Stewart employs under strict antiseptic precautions fine silver or gold coiled wire, which, after the introduction of a moderate amount, will assume snarled spiral coils which will reach the whole caliber of the sac. Failures have occurred through the use of wire which was too stiff or too bulky; and steel or iron wire will decompose and fill the sac with a granular detritus which may be the cause of emboli. Galvanism with a rather strong current, 40 to 80 milliamperes, Stewart considers a very important part of the treatment, for, although the presence of the wire itself may be sufficient to obstruct the blood stream sufficiently to cause thrombosis, the passage of the galvanic current through the cells is observed to cause much more rapid and firm solidification.

Perforating Ulcer of the Foot; Operation; Recovery.—Dr. Cazenavette, in the *New Orleans Medical and Surgical Journal*, November, reports a case of the above named affection as follows:

On July 17, 1896, S. W., a negro 29 years old, was admitted to Ward 1, Charity Hospital; formerly brakeman of freight trains, now barber; single; good ancestral and personal histories. In 1888 he received a gunshot wound in the back. A 38-caliber ball entered on a level with the eleventh rib, one and one-half inches from the median line. He fell, and on attempting to rise realized that he had completely lost control of the lower limbs. The next day he was taken to the hospital. Complete paraplegia of the lower extremities was marked; paralysis of the bladder necessitating catheterization soon became apparent. Acute symptoms of cystitis were early manifested. The patient suffered agony for a week and had high fever. The penis became very much inflamed, edematous, the meatus everted and a membranous structure was extruded. This was secured, extracted and found to be a complete membranous cast of the bladder, with the opening that of the urethra. A few months later the patient left the hospital, slight paralysis of the right leg remaining.

In 1892, four years after his spinal injury, while working on a freight train, fearing a collison, he jumped to the ground and pierced his right heel with a spike; according to his statement it entered fully an inch. A few days afterward he applied for treatment at the out-clinic of the Charity Hospital. Irregularity of attendance and neglect resulted in a local ulcer. The inconvenience of this ulcer rather than pain decided him to abandon his occupation and go to the hospital. Just after his admission he was smitten with the smallpox and sent to the pest house, where he finally recovered. As only the history of traumatism was given the ulcer was treated as a simple traumatic one. Thorough antisepsis and asepsis, with rest, were the features of the treatment. The ulcer did not improve. It increased in depth rather than in surface. This argued that the true cause had not been determined, for such an ulcer, due solely to bacterial contamination (no diathesis nor dyscrasia present) treated as it had been with antiseptic care and rest in the recumbent position, would have healed in a short space of time. The ulcer of five years standing was situated on the right plantar surface, its posterior margin being about an inch from the end of the heel. It was irregular, circular and about an inch and a half in diameter. Its surface was sunken beneath its borders which, thickened and indurated, overhung the surface of the ulcer, causing it to appear smaller than it was in reality; callosity was a prominent feature. As previously stated, insensibility was marked all over the plantar surface of the foot. The diagnosis of trophic ulcer was made.

Dr. Matas, surgeon in charge, decided to try total extirpation with the view of reaching healthy tissue, to be immediately covered with Wolfe's grafts. The area of operation was duly prepared.

On January 15, two months after the operation, there remained two uncovered areas of granulations, each scarcely exceeding a quarter of an inch in diameter. On January 27, it was thought advisable to cover these granulating surfaces with grafts like the preceding, after the same preliminaries. On account of the impairment of sensation on the right thigh, the grafts were again taken from the left. The surfaces to be grafted after denudation were triangular in shape, with their apices in the center of the old ulcer, extending to the bone, and measured about five-eighths of an inch at the bases. Six days later the wound was dressed. The epidermis on one graft had begun to peel and both grafts were adherent. At the following dressing the epidermis on the other graft had peeled off and the whole seemed to be doing well.

At my last visit to the patient, on February 20, three weeks after the second operation, the healing process had progressed uninterruptedly, with the exception of the apex of one graft, upon which there appeared a granulating surface not exceeding a quarter of an inch in diameter. As those granulations and the surrounding tissues are healthy we are justified in assuming that this small area will reach the stage of epidermization without obstacle.

Perforating ulcers have been looked upon by the profession at large as almost incurable. When they are due to a progressive trophic lesion of the spinal cord their cure is apparently beyond our reach, but when caused by a non-progressive lesion, as we have in this case, the surgeon should supply general surgical principles which serve in the treatment of other rebellious forms of ulceration, viz., a total and complete extirpation of the diseased area, including the osseous as well as the soft parts; this is a matter of fundamental importance; the substitution of the excised part by large cutaneous grafts involving the whole thickness of the skin, as suggested by Wolfe and amplified by Krausse, by which the denuded surface is immediately protected and the weakened part reinforced by the addition of new and vigorous material, endowed with all the attributes of living and resisting protoplasm.

The Father of English Surgery.—John Ardene, a contemporary of Chaucer, Wycliffe, Froissart, Petrarch and Guy de Chauliac, belongs to a period of extreme interest in the evolution of general and surgical literature, and it will be seen that he within his sphere gave no mean aid toward the advance of a higher culture. Of biographic facts we have but little to record, but it is known that he was born in 1307 and practiced at Newark in Nottingham from 1349, the year of the plague, until 1370, when, at the age of 63 years, he settled in London. Thenceforth he appears to have devoted his days to the publication of his experiences, in the form of treatises upon medicine and surgery. It is surmised that he had been previously attached for a time to the English forces during the French wars in the capacity of field surgeon, for there is no doubt that he was well acquainted with France and its language, and that he had an extensive experience in the treatment of wounds; but although he calls himself *chirurgus inter medicos* there is nothing to show that he had possessed a Master's degree or any formal license for the exercise of his calling. However, this may be, his writings prove that he was a man of clerkly attainments, with a good knowledge of Latin and French, and well-read in the available literature of his profession, quoting freely from the works of the medieval surgeons, the Arabs, and even from the Greeks. That he achieved fame as a surgeon is no less certain. He refers with pardonable pride to a number of distinguished patients whom his ministrations had restored to health, and he is said to have received from the Black Prince, a grant of land in Connaught, and with it the right to prefix the noble particle "de" to his name. It is hard to say whether the position of an Irish landlord was more enviable then than now, but the colossal fees he was able to command from his wealthy clients probably rendered him independent of his Hibernian rentals. In his case, as in that of Guy de Chauliac, the literary labors which have preserved his memory were the outcome, and not the cause of his success, for it was not until he had won an honorable repose that he found leisure to give the world the secrets of his practice. His writings, couched in fair Latin and dealing with nearly the whole of medicine and surgery as they were then known, were noteworthy productions of a reactionary but still illiterate age, and they appear to have been duly valued during the next three centuries, although none received the honors of the press except an abstract translation of an essay on fistula, which was printed in 1588 by John Read, as an appendix to a translation of Franciscus Arceus on wounds. When Ardene was in his prime there was but one scientific center in Europe where any pretense of surgical teaching was maintained. The once famous school of Salerno had already become effete. The Italian revival under William of Saliceto, Theodoric, Lanfrank, Modini and others, had given place to the old stagnation against which Bologna had made a valiant fight before sinking into premature decay. Paris, too, after listening to the teaching of Lanfrank and of Henri de Mondeville, had absolutely turned her face to the wall, and Montpellier alone, thanks in part to its geographic position, which brought it within nearer touch of Arab learning, was liberal enough to sanction the cultivation of anatomic and surgical science, not, indeed, within the walls of its university, but in extramural classes, in which, among others, Guy de Chauliac, the greatest surgical figure of the age, took a leading part. Even this tolerance soon died out, and Montpellier went the way of Salerno, Bologna and Paris, but not until the work of Guy de Chauliac and John Ardene was ended. In England the age of Chaucer and Wycliffe made no provision whatever for medical progress, and there was no school of anatomy or surgery throughout the land, and no English contributors to the literature of the subjects could be said to exist, if we except such theoretic references as may be found in the works of Gilbertus Anglicanus and John of Gaddesden, written, like all medical treatises of the time, in Latin. It is true that the writings of the Arab physicians, which gave an imperfect sketch of Greek surgery, and those of William of Saliceto, Roger, Theodoric, the Four Masters, Lanfrank, de Mondeville and, after 1363, the masterpiece of compilation, the Chirurgia Magna of Guy de Chauliac, were also procurable in Latin guise, but the knowledge to profit by them was rare indeed in the ranks from which the representatives of English surgery were drawn. In the fourteenth century the lot of those of our countrymen who fell in need of our surgical ministrations was a sadly precarious one. The art was regarded by the educated physicians then, and for centuries later, as beneath their dignity. As expressed by our Elizabethan surgeon, John Read, in the doggerel which he and his fellows loved to prefix and append to their professional writings:

"Chirurgery moreover is
Abhorred of the Phisition,
Who doth esteeme it as a thing
To vile for his profession."

His writings convey a vivid picture of the man. It is easy to see him as the leech of courtly and obliging manners, sober in attire, and moderate in speech, and endowed with a self-restraint born of self-respect, with a tact that bore him well through the many difficulties that must have beset the thorny path of the *chirurgeon* in his day, and with a strong common sense that never rose too near the dangerous level of genius; a goodly man and true, kindly and honest, but shrewd withal, with a quick eye to the main chance and a capacity for raising expediency to the dignity of principle. He was through all a surgeon, a scholar and a gentleman, and in the records he bequeathed he stands before us as one whom we, his professional descendants, may accept with pride and veneration as the Father of English Surgery.—London *Lancet*.

First Complete Excision of the Stomach in a Human Being.—Dr. Carl Schlatter, in the *Medical Record* of Dec. 25, 1897, describes the case as follows: The personal observation forming the subject of this paper, relates to a woman 56 years old. In her case I completely excised the stomach, even beyond its cardiac extremity, and then restored the continuity of the alimentary canal by stitching a loop of small intestine into the lower end of the esophagus, *i. e.*, esophago-enterostomy. I first saw the patient at the surgical polyclinic on Aug. 26, 1897. An inspection of the abdomen revealed a marked bulging between the left hypochondriac region and the umbilicus. The abdominal parietes were flabby, and palpation easily revealed an oval mass of hard consistency in the region of the stomach. The tumor was freely movable. Its size was about that of two fists. Very marked emaciation was found. The patient was unable to retain any kind of nourishment. She clamored for relief by surgical interference. She was admitted to my wards for further careful observation. I did not feel confident that gastrectomy, or even gastro-enterostomy, could be successfully performed, on account of the large size of the tumor. The patient continued to reject almost everything, including fluids. The iodid reaction of her saliva (after exhibition of iodid of potassium) required forty-seven minutes for its first appearance. The chemic examination of her gastric secretion showed no trace of free hydrochloric acid. . . .
On Sept. 6, 1897, acting for Professor Krönlein, I performed laparotomy under morphin-ether anesthesia, and with strict antisepsis, incision in the median line, extending from the ensiform process to the umbilicus. As I had anticipated, the entire stomach presented itself in the shape of a hard mass extending from the cardiac to the pyloric extremity. Strangely enough, the tumor was freely movable. It was readily lifted out of the peritoneal cavity. Three rather soft lymph nodes were found at the greater curvature near the pylorus. The stomach being diseased *in toto*, a gastro-enterostomy was impossible. I at once decided to attempt to excise the entire organ, or take recourse in a jejunostomy. I first freed the stomach

from all its attachments at the greater and lesser curvature, having previously shut off the general cavity of the peritoneum by sterilized compresses. The omentum was incised between Péan's forceps. Silk sutures were used. The stomach was then forcibly dragged downward so as to enable me to reach the esophagus. The left lobe of the liver had to be constantly held upward by an assistant, in order to permit me freely to manipulate within the field of operation. In this way I finally succeeded in securing the esophagus rather high up, by means of a Wölfler clamp. A Stillé forceps was next fastened closely to the cardiac end of the tumor. Then the stomach was severed directly beneath the esophageal extremity. As the esophageal incision appeared somewhat oblique, I proceeded to place a small occluding suture at the gastric wound. The same steps were now repeated at the pyloric end of the stomach. I next mobilized the duodenum as far as possible toward the head of the pancreas. Then having applied a duodenal compressor, and likewise a tumor clamp, I removed the entire stomach between the two points of compression. I also dissected out the lymphatic nodes above mentioned. The patent lumen of the duodenum was treated, like the esophageal opening, with iodoform gauze. The broad bridge joining together different divisions of the alimentary canal had now been entirely removed. I next tried to pull the duodenal opening upward toward the esophageal cleft. It was only with considerable difficulty that the two could be made to touch. It was manifestly impossible to join them by direct suture. I therefore invaginated the duodenal rim and closed the opening by a double suture. I then searched for a suitable coil of small intestine. Beginning at the duodeno-jejunal fold, I followed down the intestine for about fifteen inches. The presenting knuckle of intestine I grasped, and pulling it over the transverse colon, I placed it against the esophageal slit. A piece of this intestine, about five inches in length, was secured between two Wölfler clamps. By means of sutures not going deeper than the serous coat, the intestine was then attached to the esophageal stump. A longitudinal slit about one inch in length was then made into the bowel. Then the mucous membrane of the esophageal end was firmly united with the intestinal mucous membrane by a continuous circular suture. The material employed was silk. Above this a second suture, extending through the muscular and serous coats, was introduced. A Lembert suture finally completed the stitching, which now seemed to hold. The esophageal and duodenal clamps were then removed, the former having remained in position for over two hours. On dropping back the organs into the abdominal cavity, the sutured portions showed marked retraction upward toward the esophageal part of the diaphragm. The abdominal wound was closed in the ordinary way by silk ligatures. Less than eight ounces of ether had been employed during the narcosis, which had fortunately been a very quiet one. Pulse after the operation 96 a minute, steady and of fair volume. There had been a very slight loss of blood during the course of the operation, which, however, had lasted nearly two hours and a half. There was a steadily progressive increase in the weight of the patient after removal of the cancerous stomach. . . . There being no food receptacle after ablation of the stomach, it became obligatory to feed my patient at first with minute quantities of food, given at short intervals. The results of this method of procedure were in all respects happy ones. Quantities of food approaching ten ounces seemed to excite vomiting. So, too, cold fluids resulted in diarrheal discharges, and may have been partly responsible for the rise in temperature, observed for some little time after the operation. Keeping in mind the absence of mechanical function, the patient's dietary was at first a strictly fluid one. But as early as the second week after removal of the stomach, semi solid and even solid food was allowed. It was retained and digested without discomfort. The patient having only a single tooth, mastication was of course quite imperfect, otherwise it seems to me possible that an ordinary mixed diet might have succeeded at a still earlier date. Some weeks after the operation the patient's ordinary daily dietary was as follows: At regular intervals of from two to three hours she took milk, eggs, thin gruel or pap, tea, meat, rolls, butter and Malaga wine. The daily quantity amounted to one quart of milk, two eggs, two to three ounces of pap or gruel, seven ounces of meat, seven ounces of oatmeal or barley water (as thick almost as gruel), one cup of tea, two rolls and half an ounce of butter. Personally I felt most concerned about the obliteration of all chemic activity on the part of the absent stomach. I soon perceived that adding pepsin and hydrochloric acid to the food was theoretically as inadmissible as it had been found practically valueless. The alkaline fluids of the intestine at once neutralized the acid and rendered the pepsin inert. Fortunately it soon became apparent that despite the absence of acid pepsin, proteids were readily assimilated in the intestinal tract. . . . Products of abnormal intestinal fermentation or decomposition (skatoxyl and indoxyl) were either not at all found, or else discovered only in traces. . . . The patient objected to swallowing charcoal. Huckleberries were at three different times found in the passages, twenty-four hours after having been swallowed. Apart from a daily recurring diminution in the quantity of excreted chlorids, the urine of this woman has remained normal since ablation of her stomach. The daily excretion of chlorid of sodium has been found to vary between the limits of 0.6 per cent. and 0.95 per cent. It should be stated in this connection however, that, complying with the wish of the patient, her food is prepared with less salt than that of the other ward patients. The stools were well formed, of normal consistency and light yellow in color. The microscope showed large numbers of fat globules and fatty crystals, some undigested vegetable fibers, but no undigested animal fibers or connective tissue. Large quantities of triple phosphates were observed. The number of micro-organisms was normal. Altogether repeated examinations revealed no noteworthy departure from a condition of perfect health. No matter what theoretic physiologic notions we may have imbibed from lectures and text books, the woman under observation had repeated attacks of ordinary nausea, retching and vomiting. We must needs conclude, therefore, that the rôle of the stomach (*i. e.*, its antiperistaltic efficacy) in this direction has been very much overrated. While the vomited substances showed an acid reaction this was not due to the presence of free hydrochloric acid. In view of the fact that the patient ejected as much as thirty ounces at one time, it seems reasonable to suppose that the remaining portion of the duodenum may have already begun to show distention sufficient to produce a sort of compensatory receptacle for food, perhaps nature's attempt in the direction of the new formation of a stomach. In endeavoring to explain vomiting without a stomach, we should remember that the act itself is far from being a simple process. It is due to nervous action on a complex motor apparatus, consisting of pharynx, esophagus, stomach, diaphragm, and abdominal muscles. It is not surprising, therefore, to have witnessed in this woman an ordinary attack of bilious vomiting, superinduced by a mere psychic disturbance.—*Abstract.*

How the Surgeon Lost His Fee.—A famous Vienna surgeon was asked, by telegraph, how much he would charge for a capital operation on Reb Chaim Rosenbaum, a young, promising merchant in darkest Polish-Russia. The reply was that 5,000 gulden ($2,000) would be a fair compensation for the job. After various negotiations it was agreed that the desired amount should be paid after the operation was performed. The surgeon left sunny Vienna at once to emerge, after a thirty-six hours' journey, in the garlicky atmosphere of a small Polish town. There he was met by a congregation of long-bearded and long-coated individuals with long faces, who explained that the life-saving professor was too late this time and that good Reb Chaim Rosenbaum was gathered to his fathers the previous night. The surgeon's disappointment was so much greater as the mourning survivors did not show any willingness to pay his expenses. He concluded, however, to take a day off in the town. The population heard of the presence of the celebrated surgeon and it was not long before he saw himself surrounded by a crowd of surgical cases. He was kept busy operating the whole day, receiving fees of 50 to 100 gulden from each patient, so that, while not getting the stipulated 5,000, his trip was not a dead loss. When on the following day he was entering his train to return to Vienna an old Polish gentleman most politely approached the professor, wishing him a lot of good things, praising his skill and many virtues, and finally saying that the whole town was forever under deep obligation to him, and to show his everlasting gratitude he would confide a secret to him. The professor could do no better than to listen and great was his surprise when he heard the following confession: "Don't you know,

dear professor, that there is some mistake about Reb Chaim Rosenbaum's premature end and that in fact he found it preferable to stay with us instead of being gathered to his fathers. Among the many patients you operated upon yesterday you also operated upon Reb Chaim Rosenbaum, and God bless you, you were satisfied to take 50 gulden instead of 5,000. Thanks to Heaven and to the greatest of the great professors, he is on the road to recovery. Great is your kindness and great is Allah!" The professor made an unsuccessful effort to smile, the locomotive began to puff, and when next he goes to Rosenbaum's town, without a payment in advance, may we be there to see.—*Clinical Recorder.*

PRACTICAL NOTES.

Combination of Iodid and Thyroid Treatment of congestion of the thyroid gland. Halipré advises combining these two treatments as indicated in acute cases of congestion and hypertrophy. He reports a case cured by the combination, rebellious to either alone.—*Semaine Méd.*, December 22.

Can Liquids Injected into the Gums Find Their Way into the Bones?—Dzierzawski replies in the affirmative as he found that a solution of methylen blue injected into the interdental papillæ found its way into the upper jawbone as far as the antrum of Highmore. The lower jaw was only colored by it in the close neighborhood of the injection.—*Cbl. f. Chir.*, November 13.

Purulent Peritonitis in Pregnancy.—Fabricius reports a case operated on, releasing a large quantity of fetid pus, but the uncontrollable vomiting that followed made abortion necessary. The patient recovered rapidly. When laparotomy was performed the diagnosis was still uncertain, but temporizing would have proved certainly fatal.—*Gaz. d. Osp. e d. Clin.*, December 9.

Gelatin Vaginal Tampons.—J. Fischer presented some convenient tampons at a recent meeting of the Vienna Medical Club. The cotton impregnated with the desired substance is inserted in a gelatin shell provided with a cover opening inward. The patient can easily introduce the shell herself. The gelatin melts in twenty minutes, and the cotton wad is removed the next day by means of a string attached to it.—*Therap. Woch.*, December 5.

Revulsion and Infective Processes.—V. Martini reports the results of an extensive series of experiments to determine the effect of revulsive medication on the infective processes beneath. He states that they are absolutely ineffectual; the subjacent infective process and the superficial pursue their respective course without the slightest reciprocal effect. Useless in all, they may prove distinctly injurious in some cases.—*Gaz. d. Osp. e d. Clin.*, December 9.

Decomposition of the Blood by Chloroform.—Desgrès and Nicloux state that chloroform in contact with potassium or any alkaline disengages oxid of carbon. Experimental investigation showed that the alkaline blood affected inhaled chloroform in the same way, one subject having 1 to 1000 of oxid of carbon to 5 kilograms of blood, total weight 65 kilograms. While this proportion is not very large, still it may explain some of the accidents due to chloroform.—*Presse Méd.*, December 11.

Therapeutic Ferments; Beer Yeast in Diabetes.—The diet can be varied in diabetes if two or three tablespoonfuls of beer yeast are taken during the day at meals, disguised in beer or white wine. It promotes assimilation and destroys the sugar derived from the food, while preventing the accidents that follow an exclusive meat diet. It is especially useful in cases in which the sugar is chiefly derived from the food, but is beneficial in all. It should be discontinued for a few days from time to time, or less taken every three or four days.—*Gaz. Méd. de Liège*, December 23.

Treatment of Pott's Disease with Sublimate.—Capparoni has succeeded in gradually improving and curing the paralysis and pain in three cases of Pott's disease, two cervical and one dorsal, by a daily subcutaneous injection of 10 centigrams of sublimate. None were syphilitic. In two months the first case was able to walk. She returned to the hospital two years later with paralysis of the members; a second course soon restored her. She had borne two children in the interval.—*Semaine Méd.*, December 22.

Substitution of Sea Water for Saline Solution in Hypodermic Injections.—Hallion recommends diluted sea water for this purpose, as it is better supported and can be administered in larger amounts and much more rapidly. It is infinitely less toxic than the solutions of sea-salt usually injected. Another point is that sea water lowers the temperature while salt solution raises it. The density of the urine is less with the former, indicating better functions of the kidney.—*Semaine Med.*, December 8.

Prevention of Pitting in Variola.—Satisfactory results are reported by several practitioners with Finsen's method of keeping the patient the entire period of the disease in a room illuminated only with red light, like a photographer's dark chamber (*Presse Méd.*, December 22). Kolbassenko recommends the following salve for dressing the eruptions: Ichthyol, 19 grams; almond oil, 60 grams; lanolin, 20 grams. Apply externally three times a day until the scabs fall.—*Gaz. Méd. de Liège*, December 23.

Orthoform in Hypodermic Injections for Surgical Anesthesia.—Hirschbruch states that orthoform will produce a lasting local anesthesia sufficient for minor surgery, while the non-toxicity is a great advantage. He first injects into the skin a small amount of a 2 per cent. solution of cocain (about 2 milligrams of the salt) and then injects in this spot in several points 1 c.c. of distilled water containing 3 per cent. orthoform in solution, shaking the syringe well at each injection, as the orthoform does not dissolve but is merely held in suspension.—*Semaine Méd.*, December 22.

Anti-Diphtheria Serum in Asthma.—Proceeding from the fact that anti-diphtheria serum causes the pseudomembrane to be thrown off by means of an exomosis from within outward. Professor Revilliod of Geneva, has tried it in several severe cases of asthma, which he has cured after they had resisted all other remedies for years. Improvement was noticeable after the first injection in the first case, increasing with each one until the recovery was complete in five months with ten injections. The second case was cured in ten days with three injections. The third with six injections in two months.—*Therap. Woch.*, December 5.

Fluoroscopy of Pleuritic Effusions.—Bergonié and Carrière report that the fluoroscope shows the displacement of the liquid as the patient assumes various positions, and with the motions of the diaphragm. Purulent effusions seem less opaque than the serous. But its principal value consists in the information derived in regard to the condition of the lungs above the effusion. It completes Grancher's schemas, reveals bacillary lesions and has a great prognostic value. In one case the clinical data were at fault owing to adhesions, which prevented the "sou" sound considered by Pitres pathognomonic.—*Semaine Méd.*, December 15.

Continuous Suture in Two Layers.—Mikhailoff obtains remarkable solidity with his suture described and illustrated in the *Presse Méd.* of December 8. It resembles the sewing machine stitch, which consists of a series of loops over a second thread. The thread is passed through the top of the wound. A loop on one end is drawn through the tissues, forming a double thread in them. Two loop stitches are taken in this way, when the ends are crossed and a second row of two loops applied, or the ends can be crossed between each stitch. The strength of the double thread inside the tissues and crossed threads out-

side, especially adapt this suture to wounds or autoplastic operations in which there is a large loss of substance.

Severe Hemorrhage after Extirpation of Neoplasms Controlled by Cocain.—Grazzi removed a large pediculized papilloma from the larynx of a woman who shortly before passed through an attack of influenza. The patient was seized with violent coughing and blood-spitting, which the usual remedies failed to control. After two hours of vain attempts he finally swabbed the larynx with a 20 per cent. solution of cocain, which stopped both the coughing and the hemorrhage for a while. The cocain had to be applied three times before all hemorrhage ceased. He reports another case of the ablation of a simple polyp of the nose after an attack of influenza, likewise followed by excessive hemorrhage.—*Semaine Méd.*, December 22.

Electricity in Elephantiasis.—The conditions peculiar to early childhood render the action of electricity especially beneficial in lymphangitis, and Moncorvo reports "magnificent" results attained with the faradic and galvanic currents. Treated in the initial period of its development, the formation is arrested and in many instances subsides completely. In more advanced cases the morbid tissue is transformed more or less rapidly. Elastic compression and hydrotherapy were combined with the electricity. *O Brazil Medico* of October 8 and 15, contain his communication in full, accompanied by several illustrations of remarkable manifestations of the disease in early childhood. One infant, well developed otherwise, looks as if his foot had been inserted in an enormous watermelon. In another, congenital, the disease assumed the fibrous and cystic form.

Naphthalan for Skin Therapy.—A series of observations has been made in Professor Finger's out-patient department, by Dr. Pezzoli, on a new preparation named naphthalan which appears to combine the therapeutic properties of tar with those of naphtha. It is a dark-brown unctuous substance with scarcely any smell and a melting point of about 70 degrees C. When used as an ointment it leaves no stain on the patient's linen, after it has been washed. It is very useful in various forms of eczema, sycosis and common psoriasis, as well as in parasitic affections, such as ringworm and scabies. It should be used with a certain degree of caution, as if rubbed in too energetically it is liable to produce some folliculitis of the same nature as tar acne. It was tried in forty-two cases of eczema and appeared to be of value in all stages, which renders it a very convenient preparation for general or out-patient practice. Excellent results were obtained in all the fifteen cases of impetigo contagiosa in which it was prescribed. In scabies three applications were found be sufficient.

Alcohol Vapor Compresses.—E. Heuss has revived the old practice of applying alcohol to wounds, studying the *modus operandi* and finding that the beneficial results are due to the vapors of the alcohol penetrating the tissue. He promotes this by applying the alcohol on a six to eight folded mull compress, dipped in 95 to 96 per cent. alcohol, squeezed till it no longer drips with moderate pressure. Over this a broad layer of dry surgical cotton, one or two fingers thick, is laid, and a soft air-tight covering renders the whole impermeable. The first dressing is renewed in twelve hours; less frequently afterward. A thin layer of dry xeroform gauze is applied under the alcohol, on open ulcerating wounds. His communication to the Moscow Congress is published in the *Therap. Woch.* of November 28, with instances of the remarkably favorable results attained with the vapor compresses, especially in sycosis, furunculosis, carbuncles, gonorrheal epididymitis, etc., and also in aborting phlegmons and mastitis. They were equally successful with infected wounds.

Abortive Treatment of Endometritis with the Vapors of Bromin.—Nitot remarks that the true prophylaxis of parenchymatous metritis and chronic salpingitis consists in curing recent endometritis while the inflammation is still superficial, with some substance that will penetrate to the remotest crevices in the uterus, and even into the tubes, extremely antiseptic, diffusible and endowed with anticatarrhal properties sufficient to modify without injuring the tissues. Bromin, which is soluble in water and disengages dense vapors at the ordinary temperature, is endowed with all these properties. A bottle with double current sound attached is filled with a saturated aqueous solution of bromin; air is forced into the bottle by a bul entering the bottom. The results attained with this simpl treatment have been extremely satisfactory, as the healin vapors reach every point of the surface with sufficient force and none of the disadvantages of a liquid.—*Journ. de Méd. d Paris*, November 28.

The Subcutaneous Injection of Quinin.—As quinin does not dissolve readily in water (1 to 800 aq.), the discovery that antipyrin rendered it much more soluble led to the combination o the two for subcutaneous injections. Laveran's formula is Quinin hydrochlor.; 3.0; antipyrin, 2.0; aq. dest., 6.0. Witl this mixture Blum secured remarkably favorable results in severe epidemic of malaria in Algiers. The strange fact tha a neutral quinin salt in a 50 per cent. solution failed to produc the slightest pain, induced Professor Santesson of Stockholm to investigate whether a new chemic substance had not beer formed out of the combination, which he found to be the case and named the compound quinopyrin. It is much less toxi than quinin, and the pain of an injection is no more than from salt solution. Quinopyrin (quinin 0.5 to antipyrin 0.33) reduced the temperature of a non-febrile rabbit 1.5 to 2 degrees An injection of quinin 1.0 with antipyrin 0.66 produced merely a slight intoxication, temperature and pulse scarcely affected The same quantity administered per os produced marked quinin intoxication and lowered the temperature 1 degree.—*Deut. Med. Woch.*, No. 36.

Crossed Adductor Jerk.—In a recent number of the *Journal of Physiology*, Dr. Purves Stewart has a short paper dealing with this subject. The peculiarity of a crossed jerk is one which is not infrequently observed, and essentially consists in movement of the opposite leg when an attempt is made in the ordinary way to elicit the knee-jerk on one side. In Dr. Stewart's case, if the right patellar tendon was tapped, two jerks occurred, one of the right quadriceps extensor, the other of the left adductor muscles, and conversely of the right adductor muscles and the left quadriceps extensor when the left patellar tendon was tapped. The jerks of the two legs appeared to occur simultaneously, but an apparatus was devised to show: 1. The moment at which the patellar was tapped. 2. The moment at which the knee-jerk occurred. 3. The moment at which the crossed adductor jerk took place. The instrument is described in the paper, and three photographs are also reproduced of successful tracings taken during the experiments. These show clearly that the crossed adductor jerk occurs at an interval distinctly later than the knee jerk, the average delay between the occurrence of the knee jerk and the crossed adductor jerk in the three experiments being 0.057 of a second. This interval is considerably shorter than Dr. Glynn found in a case of crossed vastus internus jerk. Dr. Stewart mentions that different opinions have been held as to the nature of the crossed jerk, some observers considering that it is a true reflex, others that it is a direct muscular jerk produced by a sudden stretching of the adductor muscles resulting from the "jar" to the pelvis caused by the tap on the patellar tendon; others also hold that the adductor jerk is due to a sudden mechanical shock to the spinal cord. Dr. Stewart is induced, by a consideration of the results of his experiments, to conclude that the crossed adductor jerk is not the result of direct stretching of the adductor muscles by a shock communicated from the pelvis or due to a shock transmitted mechanically to the spinal cord, but is a true reflex occurring at a period distinctly later than the ordinary knee-jerk. The considerations which have chiefly led him to reject the two former views are that a tap on any of the bones near the knee, although equally likely to "jar" the pelvis, did not produce the jerk, and that only one adductor jerk was produced, and not one on the same side as well. He finds that the average time necessary for the appearance of the crossed adductor jerk is about 0.126 of a second from the time at which the opposite patellar tendon is tapped.

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SHENCK'S THEORY OF SEX DETERMINATION.

An eminent Vienna embryologist, now somewhat on n years, recently advanced what he considers strong vidence for a theory of sex determination in a com- nunication to a Vienna medical society. This com- nunication has not only been commended by Austrian nd British medical journals, but has been widely and ensationally exploited in the lay press. Practically he position of Dr. SHENCK is that held by some ob- tetricians since the days when mother-right passed o father-right inaugurating the "couvade" by which fter delivery the father must go to bed while the ecently delivered wife arises to

"Serve rich possets to her husband in the straw."

SHENCK's theory of sex determination is essentially hat of SHAKESPEARE'S day advanced by Falstaff HENRY IV, Act IV, Scene III) in answer to the eproaches of Prince John.

"I would you had but the wit; 'twere better than your duke- om. Good faith, this same young sober-blooded boy doth not ve me; nor a man can not make him laugh; but that's no arvel, he drinks no wine. There's never any of these demure oys came to any proof; for thin drink doth so over-cool their lood, and making many fish-meals, that they fall into a kind f male green-sickness; and then when they marry they get enches; they are generally fools and cowards."

This theory, which SHENCK claims to have demon- trated by the scientifically auspicious method of ex- eriments on himself and wife without control experi- ents, is particularly an admixture of three older ypotheses: That paternal superiority determines the uperior male sex. That paternal nutrition aids in etermining this superiority, and finally that while ie mother is of an inferior sex her good nutrition ids in determining the superior male offspring. All iese theories more or less commingled have been ad- vanced, as THOMSON and GEDDES have shown ("Evo- lution of Sex"), for centuries. They had a divine source according to MOYES, the paranoiac leader of the Oneida community. His claim (despite the large number of male hebephreniacs in insane hospitals among children of that community) was later sup- ported by statistics ignoring these lunatics, collected (HOLBROOK'S "Stirpiculture") by a Miss MCGEE of the community.

As most stress has been laid by SHENCK (like many preceding students of sex determination) on nutrition of the parents, the question arises does nutrition in- fluence sex? If (as asserted by obstetricians biased by ante-embryology theories) sex be predetermined from the outset of ovum development, then this influ- ence must at once be rejected. Hypotheses like these, advanced ere the days of VON BAER, must at once be tossed into the lumber-room of disproved theories. The modern position as regards the existence of sex in the ovum is that of LAULANIE, who has shown that in birds and mammals, three stages can be distinguished.

1. Germiparity, which is a return to that phase of lower cell development when reproduction was a func- tion of all cells; a function which persists in the em- bryonic cancer cell to the destruction of the organism. 2. Hermaphrodism, where both sexes are evident. 3. Differentiated unisexuality.

BLAND SUTTON, PLOSS and others are of opinion from careful research that in individual development embryonic hermaphrodism prevails, but that one set of elements predominates over the other in the estab- lishment of the normal unisexual state.

GEDDES and THOMSON point out that ("Evolution of Sex"):

The higher the organism is in evolution the earlier is its sex- ual fate determined. Only in the lower vertebrates (lamprey, lancelet, etc.), semivertebrates (sea-squint) and invertebrates, does prolonged neutrality of sex, or prolonged embryonic herm- aphrodism usually occur.

There are then periods when nutrition may affect sex, strengthening the tendency from germiparity to embryonic hermaphrodism and from this to differenti- ated unisexuality. It is, however, evident that de- termination of the influence of nutrition on sex develop- ment in the higher vertebrates is difficult, since by HERBERT SPENCER'S law of individuation unisexuality has early a preponderance.

As to the lower vertebrates DRUSING has (*Internl. Centralblt. f. die Harn. und Sex., Org.* B. ii.) shown that:

Sex is not inherited, but the result of various factors, acting not only at the time of impregnation, but at various times thereafter. Long after impregnation, when the embryo is already developed, nutrition is still influential, and may change the tendency even after the sexual organs have developed. Poor maternal nutrition may arrest female development and cause reversion to the male type.

The experiments of HENSON (which supplement and extend those of THURY) show that:

A very favorable condition of both ovum and sperm will lead to the formation of a female.

These results are however diametrically opposed to those of SHENCK and his numerous precursors since the days of ARISTOTLE. That both maternal and paternal nutrition have an effect is however demonstrable. Even that embittered doctrinaire opponent of the inheritance of acquired characters, WEISSMANN, admits that:

> The origin of a variation is equally independent of selection and amphimixis, and is due to the constant occurrence of slight inequalities of nutrition in the germ-plasm.

That, however, the influence of maternal nutrition is most potent has been shown by repeated biologic experiments as well as in studies of degeneracy. The unimpregnated queen bee, or the unfed (with queen food) fertile worker bee as a rule, with rare exceptions, produce only drones. Feed the worker bee (which is an undeveloped female) like the queen and she becomes a queen capable of producing queen and worker bees on impregnation. The phthisic mother usually produces males. This fact was pointed out by that eminent American clinician DEWEES, nearly seven decades ago ("Practice of Physic," Vol. ii), and has been before and since observed in connection with tuberculosis and other factors producing degeneracy. If maternal nutrition be thus potent in producing females (a wealth of evidence in this direction is cited by THOMSON, GEDDES, MAUPAS, DRUSING and others), then not only is the Shenckian hypothesis unfounded, but an inferior result (the female) is obtained.. The biologist, unbiased by oriental Semitic tendencies, like those of Dr. SHENCK anent the natural inferiority of woman, is naturally led to enquire whether the female from the standpoint of reproduction be really the inferior sex. SPITZKA, the leading American pupil of SHENCK, to whom the latter admits his indebtedness (SHENCK'S "Embryologie," 1884), points out (*American Journal of Neurology and Psychiatry*, Vol. ii, p. 740) that:

> The development of the female genital organs is a higher grade than that of the male. At the early periods of embryonic life there is but one development regarding sex, and that is male. It is at this period of life that causes operate either to retain the original development or to impress on such a further development into the female.

A casual glance at illustrations of the embryonic development of the reproductive organs in that popular text-book, GRAY'S "Anatomy," sustains SPITZKA'S position. The male organ remains unchanged from a type found in even invertebrates, while the female gains with increased complexity. Zoologists rank animals in evolution by female characteristics. The mammals are an excellent illustration of this principle. The inferior races of man differ less from the higher by their brain than by their pelvis. The female pelvis of the lower races, as HAVELOCK ELLIS has shown ("Man and Woman"), is masculine in type, while the male pelvis of the higher races is feminine. To a lesser degree (excluding hydrocephalic male skulls, like that of CUVIER) this is also true of the skull. The female of mammals has under her care for life, that essential germ of the child, the ovum. The impregnated ovum for months is fed through her blood. She nurses the child for months after birth. Compared with this, the father's part in reproduction is slight. That the ovum is the essential germ of the child is shown by the existence of parthenogenesis (virgin generation). As SPITZKA remarks (*Medicine*, November, 1896):

> The ovum possesses an inherent activity independently of fructification. How far this may extend in the direction of more mature development is shown by what is known as parthenogenesis, or virgin generation. This is the development of living beings without a father. Bees, some butterflies, ants and wasps notoriously multiply their kind without sexual congress. As a rule the parthenogenetic offspring are themselves incapable of further procreating their kind. But to this there are remarkable exceptions. The aphides multiply for many generations without the entervention of a male. Weigenbergh has shown that the silk-moth can be propagated as long as the male element is permitted to act at every fourth generation. The *Artemia salina*, a minute crustacean living in saline springs, reproduces its kind for years without a male being present, males being produced at definite intervals only (von Siebold). Among the vertebrata, parthenogenetic development has also been observed, though rarely reaching maturity. Thus, segmentation occurs in unfertilized ova of the chicken (Oellacher), of the fish (Burnett and Agassiz), and of frogs (Moquia-Tanden). I have seen a blastoderm form in unfertilized ova of the toad fish (*Batrachus tau*). Henson isolated the oviducts of a rabbit, thus rendering the admission of semen impossible, while the ova, discharged at heat, were compelled to remain in these oviducts. Three years later he killed the animal and found that the ova had developed into twisted, club-shaped, hollow sacs. The development in the female ovary of dermoid cysts (containing bones recognizable as maxillaries with teeth, hair, and skin, rudimentary intestinal, glandular, and cerebral traces), even in undoubted virgins, proves that even the human ovum is capable of parthenogenetic development. While such development, so far as known to science, is always abortive, and while, as Washington Irving remarks, the ingenious maiden who today would attribute conception to any other cause than sexual congress would find it difficult to overcome the prejudice of scientists, yet embryology, while declaring immaculate generation improbable, does not pronounce it impossible. A worker bee is a highly organized creature with a well developed brain, wonderful sense organs, intricate muscular apparatus, yet it may be an offspring of an unimpregnated queen bee. What is a regular occurrence in one class of animals is sometimes observed as an exceptional one in another class. If the startling and apparently miraculous nature of a virgin generation of a living child be regarded as the sole objection to receiving such a fact, its defender might urge that the virgin generation of dermoid cyst with all the traces, however aborted, of vertebrate organization, is only a shade less startling and miraculous.

SHENCK has adduced no new evidence in favor of his old Aristotelian hypothesis. So far all the evidence at hand tends to show that while sex can be influenced by maternal nutrition and less directly by paternal, the female sex is most likely to be produced under favorable conditions. This is fortunate for man's future. Upon the perfection of the female, from a reproductive standpoint, turns future advance of the human race, since only through further development of the female pelvic organs and pelvis can the gains of the race be transmitted. Fortunately, enthusiastic oöphorectomists are rendering sterile no small number of female neurotics, thus lending potent assistance to the survival of the fittest pelvic organs. This beneficent result is not fully appreciated by those who decry such philanthropic labors. Discussion of the Shenckian hypothesis casts a decidedly optimistic light upon the labors of these painstaking gentlemen, since

aperfect female organs (the result of deficient aternal nutrition *à la bee*) are relieved from a task or which they were unfitted, to the benefit of the ace, of the public charitable and correctional institutions, of the owner of the organs, and last, but not ast, to the financial benefit of the enthusiastic phorectomist.

THE ABUSE OF SO-CALLED NERVE TONICS.

Many men and women in and out of the medical rofession are resorting more and more to the employment of drugs which have, what has been falsely alled, a tonic influence over the nervous system, nce they find that the employment of such substances lieves them of symptoms arising from nervous exaustion and enabled them to go on with their work or a time, in a manner which would otherwise be impossible. At one period the employment of nervous imulants, other than tea, coffee and alcohol, was onfined almost entirely to those of the medical profession who ignored the fact that drugs used for stimlant purposes produce ruin in the end.

Unfortunately for the laity of today a large number f semi-medical purveyors, finding the demand for heir products not sufficiently great, have resorted to eans by which they call the attention to the fact hat remedies can be obtained which will be capable, n the language of a recent writer, of producing "a ondition of veritable beatitude both mental and phyical, so that the mind expresses itself in incoherent ights of the imagination." As a result of this a large umber of individuals who have no reason to doubt he plausible advertisements which they read, resort preparations of morphin, kola and coca, which they ake to excess and unconsciously drift into a state hich is practically equivalent to the morphin and ocain habit. Even if these drugs are not employed s the stimulant ingredients of such mixtures, unprinipled vendors so fortify innocent and mild nervous timulants with large quantities of alcohol that the atient unwittingly becomes a slave to this intoxiant though under the impression that he is ingesting practically harmless drug.

Some interesting statistics, recently published n *Health*, show that such habits are most prevalnt in Germany, France and the United States, lthough they have victims in Russia, Sweden, Turkey nd the Far East. The medical profession supplies 40 er cent. of the male morphinists, which is the largest roportion; after which follow men of leisure, 15 per ent.; merchants 80 per cent.; while peasants, clergyen and politicians occupy the lowest positions numrically on the list. Among the females addicted to he habit, the largest number, 13 per cent., are women f means, and these are followed in number by the ives of medical men, who make up 10 per cent. of he list.

Very recently our attention has been forcibly called to these facts by an instance which not only emphasizes these dangers but illustrates how careful a physician should be when prescribing stimulant remedies not to give the name of the preparation to the patient, or if he does so, on the prescription blank to direct the druggist not to renew the prescription without his orders. A woman, who by many years of correct living enjoyed the full confidence of her friends, was during a short convalescence directed by her physician to take a preparation of coca wine which had been very largely advertised not only to the medical profession but to the laity under a name which in no way indicates that it contains so powerful a drug as coca. Not feeling fully recovered when the first bottle of it had been consumed, the patient obtained another, and soon finding herself dependent upon it continued to purchase bottle after bottle until at the end of a year she had become a typic coca habitué. Not until she had been using the preparation for nearly nine months was her continuous use of it discovered and, when it was too late, she learned from her friends that the pleasant tasting wine which possessed these extraordinary powers, depended for its chief physiologic effects upon a drug which did not appear in its name.

So, too, at a recent meeting of the British Balneological Society, SNOW drew particular attention to a form of intemperance rising from the too free administration of coca wines to invalids, whereby they obtained a strong alcoholic beverage laden, more or less, with the still more powerful stimulant coca, and it was pointed out that many women who are not above the deliberate use of such stimulants, have not the bravery to ask for alcohol or cocain in the drug store and yet do not hesitate to purchase a coca wine, or preparation of kola, under some name which does not convey, at least to their minds, the possibility of developing a habit.

There is no drug yet discovered, unless it be alcohol, which adds materially to the force of the body, and physicians can do no more goodly service to their patients than by impressing upon them this fact.

At the present time journals devoted to the subject of athletics contain, in their advertising pages, statements in regard to the action of kola and coca which are absolutely unjustifiable, and pictures are published in these advertisements which give the impression that by the use of these drugs puny men and boys may become possessed of Herculean strength. All of these remedies simply call into activity the reserve forces of the human economy and place the reserve fund of the prodigal youth at his disposal to be spent after his ordinary strength is exhausted. In a greater or less time such an individual will find that his reserve fund has disappeared and that he is a bankrupt in physical energy. It is enough that the physician must by every means in his power combat the exces-

sive use of alcohol and morphin. It is little less than a crime that greedy manufacturers should purvey to ignorant persons remedies which are capable not only of doing harm by expending the individual's strength, but which also tend to develop in him habits which sap his mental and moral development and render him a slave to the use of stimulants, and this being the case let us discourage those manufacturers and vendors who advertise such products to the laity.

PREDISPOSING INFLUENCES IN THE DEVELOPMENT OF TYPHOID FEVER.

Although we have very definite information in regard to the micro-organism which produces typhoid fever and of the fact, which has been proved beyond all doubt, that the most common means by which it gains access to the body is in food and drink, and again while we recognize that the disease can be largely prevented by the disinfection of the discharges of the typhoid patient whenever he is met with, we do not know as much as is desirable concerning those influences which predispose individuals to infection by the bacillus of EBERTH. It is also a well-recognized fact among physicians, that out of a given number of persons exposed to infection only a certain proportion will become ill because of natural or acquired immunity, but the point as to whether typhoid infection can occur through sewer gas or the inhalation of bad air from decomposing fecal matter is still a matter of dispute. In all probability the inhalation of such impure air simply decreases the vital resistance of the individual so that he is unable to withstand the attack of the micro-organisms which he has taken into his body by other entrances than that of the respiratory system.

Our attention has been called to this matter by a recent discussion before the Royal Medical and Chirurgical Society of London upon the prevention of enteric fever. In the course of this discussion after the importance of disinfection of the discharges and clothing of the patient had been considered, Dr. PAYNE expressed the belief that the theory of infection by the inhalation of the typhoid organism was worthy of credence and Dr. TIVY, who followed him, endeavored to prove that this view was substantiated by the recent epidemic of typhoid fever at Clifton, England, although Dr. DAVIES, the medical officer of health, had conclusively traced it to a polluted milk supply. Dr. TIVY asserted that this epidemic was due to sewer gas poisoning arising from want of ventilation of drains, the foulness of these drains being increased by the drought which had been present during August, September and October. As a result of this the sewer gas found its way back into the houses, especially those situated at the highest parts of the drain.

It was thought by some of those present that Dr. TIVY's standpoint in this matter was a false one and that he had not advanced any strong reasons for his belief. In this connection, however, it is interesting to recall experiments which were made some years ago (1894) by ALESSI, an abstract of which was published in the *Centralblatt für Bakteriologie*, in 1894. In connection with his researches, made in the Hygienic Institute of the University of Rome, this investigator used rats, guinea pigs and rabbits in an attempt to determine the influence which exposure to a vitiated atmosphere would produce in rendering animals susceptible to infection. The rats were placed in a cage with a perforated bottom, and this was placed over the opening of a privy, while the guinea pigs and rabbits were placed in similar receptacles in which their own excreta was allowed to accumulate. When these animals were inoculated with a small quantity of a culture of typhoid bacillus they died within twelve to thirty-six hours, although the same dose of the same culture injected into control animals produced no injurious effect. In the animals which succumbed to typhoid infection there was found a hemorrhagic enteritis, an increase in the size of Peyer's glands and in the spleen, and typhoid bacilli in the blood, liver and spleen. The time required to produce this predisposition for typhoid infection as quoted by STERNBERG was from five to seventy-two days for the rats, seven to fifty-eight days for the guinea pigs, and from three to eighteen days for the rabbits. ALESSI also determined the fact that this increased susceptibility to infection decreased after a time. This is interesting in view of the fact that human beings also seem to become habituated to breathing an atmosphere containing sewer gas, so that they are less susceptible to infection than those who have recently arrived in the neighborhood. We think, therefore, that TIVY's belief that sewer gas may produce at least a predisposing influence is correct.

Numerous other instances in which human beings have been exposed to a vitiated atmosphere and have been taken ill with typhoid fever might be cited. These have been reported by BUDD, BOUCHARD, MURCHISON, LIEBERMEISTER, LANDOUZY and others. HENRY quotes two of LANDOUZY'S cases which are of considerable interest. In one of these a man of 25 years, living in a family of ten individuals, all of whom used an identical diet and drink, slept in a room the air of which was contaminated by the ventilating pipe of a public water-closet, and suffered from typhoid fever while all the rest of the family escaped. The second case was that of a girl of 15 years who lived in a family of five individuals and was exposed to the air from a similar pipe and became ill with the disease.

Perhaps the most interesting of these cases is another one reported by W. V. KEATING in the "Transactions of the College of Physicians of Philadelphia," for 1879. In this instance four women who returned

to their home, which had been tightly closed for two months, were attacked with typhoid fever. The house was filled with a foul odor and an examination proved that the family had been "actually living in a sewer," there being no traps to the basins and the sewer gas having free entrance to the various apartments of the house.

Neither the experiments of ALESSI nor the cases which we have cited prove, as we have already stated, that typhoid infection takes place by the respiratory tract. They simply indicate that by such means a predisposition to the disease is developed, or to speak more correctly its vital resistance to a filth disease is lost.

PREMATURE BURIAL.

There are probably few persons endowed with lively imaginations who have not at some time in their lives had grewsome fancies about being buried alive, that is if the idea has ever been suggested to them. It forms the theme of many sensational tales of fiction, and is so much a matter of common belief that few would be disposed to question its possibility, or its occasional occurrence. In certain continental European cities this possibility is so fully credited that waiting vaults or guarded and watched mortuaries are kept up at public or private expense in the cemeteries, where all bodies are kept for a certain period before interment, so as to prevent any such occurrence. These are not generally so managed as to insure absolute safety from such accidents, yet they relieve the public apprehension, and may under certain circumstances be occasionally, though it must be very rarely, effective in preventing a premature burial.

In one of our English contemporaries, the *Medical Press and Circular*, there have recently appeared some articles and communications on this subject which indicate the interest the subject excites in the medical profession, as well as the difference of opinion that exists in regard to it. One writer doubts that a single well authenticated case of actual burial of a living person has ever been satisfactorily proven; others consider it not only a possible, but a much more common, occurrence than is generally supposed. From what we know of the possibilities of entrance conditions one is hardly prepared to absolutely deny that burial might occur before death, but that this has often occurred except it may be in times of panic from epidemics is questionable enough, and Dr. WALSH is justified to a certain extent in his doubts as to the evidence in the reported cases. The fact that one writer claims to have received sixty-three letters from persons who had escaped living burial is of less weight inasmuch as no details are given, and the natural love of narrating the marvelous or the unusual is a factor to be calculated with in such testimony.

That premature burial may occur, however, is in its way a presumption that it has occurred and may happen again under circumstances that favor such a dreadful accident. The difficulty in some cases of determining whether the condition is actual death or only a suspension of the vital activities with a possibility of their full reinstatement is very great, and, it is claimed by some, is practically impossible under ordinary conditions and with the usually available means. The possibility of premature burial can therefore be reasonably admitted, and all the more so in cases of epidemics that cause general panic and hurried and unceremonial interments, and also in cases of infectious diseases occurring sporadically but which for reasons of public safety require a hasty burial. The only real universal practical test is commencing decomposition, though others are generally possible and effective, and it is therefore impossible that such an accident as the burial of a living person can often occur. The experience of the waiting or observation mortuaries in some European cities supports this view, though their continuance implies that the belief in their utility maintains itself in spite of the rarity of occasions.

The most elaborate provision against living burial is one recently announced by a Mr. CARNIS of Paris, which he calls "Karnice," and which is to render all burials provisional, as it were, for the person entombed, while still inviolate to all the rest of the world. The apparatus is to be attached to the coffin for a certain period after interment, is set in action by the least movement of the supposed corpse, while impossible to be tampered with by outside parties; it gives an alarm and admits light and air to the buried person; is cheap and easily adapted, and can be used repeatedly, so that its employment would only cost a slight rental, and a few such apparatuses would suffice for a large cemetery. If it is all that its inventor claims, it would appear to be almost an absolute safeguard against death from premature interment. On the other hand, it would seem that it might be liable to give false alarms, if by gaseous decomposition or any other cause a movement of the corpse should take place, though this might perhaps not outweigh or seriously affect its value in the minds of those fearing the accident of being buried alive. It is not improbable that many of the dislocations or derangements of bodies, found on exhumation, are due to the causes alluded to, and the possibility of their occurrence should always be taken into account.

The horror of finding oneself in a living tomb appeals directly to the imagination of every one; it seems the most terrible of all possible deaths. There is, however, another way to look at it when the physical conditions are considered. The air space in a tight coffin under five feet of earth is limited, not over two or three cubic feet at the utmost outside of the space ordinarily occupied by the body. Unless con-

sciousness returned simultaneously with respiration, asphyxia might possibly precede it and annul it—there might be some evidences of convulsion that might be interpreted as voluntary movement, but they are not necessarily indicative of such. The cases where consciousness exists throughout must be rare, though they have been made much of in fiction, and are popularly believed to be almost the rule. It is no comfort to think that any one can be buried alive, but it is better to believe, as the facts warrant us, that the long lingering death in hopeless horror, and the powerless anticipation of the fate are still less probable events.

With the modern methods of preservation of remains which are so often employed, living burial is impossible and we do not hear of any accidental homicides brought about in this way, and with reasonable delay and care the possibilities of premature interment are reduced in all cases to almost nothing, if not absolutely destroyed.

THE CAFFREY BILL.

It is noted with some surprise that the health bill introduced by Senator CAFFREY, and proposed by him in the Senate, is not the result of any medical opinion in New Orleans or in Louisiana.

It seems that the Senator was last summer stopped by some local quarantine in an obscure town in Louisiana, and found it impossible to pass through the local regulations, whereupon the Senator as soon as Congress convened, introduced a bill calculating to prevent these arbitrary actions on the part of local boards.

We are informed by competent authority from New Orleans that no medical man in that State is believed to have recommended the bill.

CORRESPONDENCE.

What is to become of the Physician?

ORAN, MO., Jan. 24, 1898.

To the Editor:—In studying your editorial, "Is the apothecary doomed?" I am confronted with the question: What is to become of the physician? The same processes which seem to be destroying the apothecary are at work to destroy the doctor. The free dispensaries, colleges and hospitals, are gradually absorbing the patronage of physicians. No one will patronize the corner physician so long as he can get medicine and advice free at the dispensary. Some how or other I have not been very uneasy about the druggist or apothecary. I have always patronized him. Some few druggists have not treated me fairly; they have prescribed for my patrons, and I have some times filled my own prescriptions, but I never had any animosity toward druggists as a body. I dislike the substitutor or prescribing druggist, but I have always thought it necessary to have a good drug store in my neighborhood, and in order to do this I have always patronized my home druggist. I had rather make out my own prescription and have it filled by my home druggist, and I do not believe the wholesale men will gobble up all the trade and drive the corner druggist to the wall. There is going to be a reaction one of these days. There are a great many pharmacists in this country who have not studied pharmacy with the intention of being only salesmen for big firms; they have studied with the idea of doing a business of their own and they will not sit idly down and let their avocation be destroyed. The same thing applies to us. We will not sit still and allow the hospital man to absorb our business. We will quit patronizing specialists. We will quit sending our patients to hospitals. We will organize and fight for our rights. We will not submit to monopoly. The bulk of medical knowledge today is the fruit of the country practitioner's labor. He "laid the foundation and another has built thereon." Oh, no, the wholesale manufacturer can not absorb the druggist; nor can the hospitals and free dispensaries obliterate the country practitioner. As long as the "Upper Ten" (so-called) treated us fairly we submitted kindly to his pretense of superiority, but when he assumes the right of absorbing the whole business by the tricks of trade and a cut in prices, or any other underhanded trickery, he will find one of the most vigorous kicks coming imaginable. The druggist and practitioner were once true friends and their interests were the same, and when they see that there is a plan being formed to exterminate them, rest assured they will not submit to it. Nicely prepared tablets, triturates, or what not, can be prepared by one capable of making them at all, one place as well as another, and the corner druggist does not have to give up his business and hire out, neither does the country practitioner have to appeal to his city brother for aid. He can do as the pioneers did before him. He can perform his own surgical operations and leave the specialist to hunt up his cases wherever he can find them. If the wholesalers understand their position and how they obtained it, they had best look a "leedle ouit." Do not shove us too near the wall. We have some rights that must be respected. A word to the wise ought to be sufficient.

Respectfully, W. P. HOWLE, M.D.

"Foreign Medical Training for Recent Graduates."

ELIZABETH, ILL., Jan. 18, 1898.

To the Editor:—In an article written on the above subject by W. S. Caldwell, M.D., from Vienna, the writer would like to take a few exceptions. Quoting from Dr. Caldwell's article in the JOURNAL of Jan. 15, 1898: "Not because the subject is better understood or more skilfully taught than by our best teachers, but because the clinical material is much more abundant here and can be much better utilized for clinical purposes, and the number of those to be taught are much fewer in proportion to material available." Also: "There may be just as good courses as these at home, but I have not been able to avail myself of them *for I have not been able to find them.*" I simply wish to say that I for one *have* found "just as good courses as these at home," and though I have not myself enjoyed the "merits of Vienna" (?) I have enjoyed personally Czerny's clinic of Heidelberg and Schede's clinic of Hamburg, in the "Neuen Allgemeinen Krankenhause." My parents being of German birth, I of course had the German language at my command, so that my observations could not lack for want of this advantage to read and speak German. All the advantages enjoyed at Vienna and Paris, as given by Dr. Caldwell, are enjoyed at the Medical Department of the Tulane University of Louisiana, located at New Orleans; also at the New Orleans Polyclinic like advantages are to be obtained. These places of learning have at their disposal all the clinical material of the Charity Hospital, *as they think best for teaching purposes.* The proportion of medical students (in 1891 number 374) in proportion to the clinical material at hand

pares with any, as the records of the hospital will show t during 1891 a grand total of 23,537 patients were treated. lical students spend half of each day in the hospital for the ical study of disease and to treat the same under the lance of equally as great instructors as those mentioned by Caldwell.

ho that has had the advantages of these instructors at this itution will not remember with pride, the venerable dean, essor Chaillé, who taught us (diagnosed with us) our first on in diagnosis and in pathologic anatomy. In clinical icine who does not think of Professor Elliot and Professor ph Jones. In surgery, how well T. G. Richardson, ond Souchon, Samuel Logan and Albert Miles will com- . True, some of these are gone before us, but in their e we find others equally pure in the faith, as Rudolph as, etc. I have mentioned names because Dr. Caldwell gs forth names to worship, and why not worship our own es. I am convinced that in our medical centers in this try, we are equal in every respect. I specially mention Medical Department of the Tulane University and its l advantages, because I personally know that the clinical ntages at the New Orleans schools are not surpassed any- e, and especially not in clinical or internal medicine. Louisiana State law confers this privilege on the medical ssion, to properly educate doctors. And again, if Dr. well prefers the "French professors," he will find a nch born teacher," who "explains every step of his oper- ," in the personage of Professor Souchon, in the above cal Department of the Tulane University, who is pro- r of surgery and learned to his finger tips. There may her schools in this country equally as well prepared to l equal in any branch of medicine, so that "recent grad- ," undergraduates and old doctors need not cross the sea t superior medical information.

PHILIP ARNOLD, M.D.

Do Adult Squirrels Castrate Each Other.

CHICAGO, ILL., Jan. 25, 1898.

the Editor:—In the article on eunuchs in the previous ber of the JOURNAL I stated that when adult gray squirrels ge in battle one often castrates the other. I had this nation from a distinguished naturalist, who inferred it ise a considerable portion of wild squirrels are found to asculated.

A. S. Allen, an interne of Mercy Hospital, Chicago, fur- s the following facts observed by him which partly con- t the naturalist.

Allen says that although about one-third of the wild rels killed by hunters are found to be castrated, yet he s it is not done in fighting. He says that a number of squirrels lived protected in the trees about his former res- e. A female raised a litter of young in a tree close to the . One day when the young were about one-quarter he observed the male trying repeatedly to enter the out the female, which in that species is the largest of the ought him off and drove him away. This repeated sev- mes, and the male finally desisted. Some time later the went away apparently to gather food. Before she ed the male reappeared, entered the nest and created a disturbance there, so that the Doctor climbed the tree xamined the young. He found four young quarter- males and one or two females. Three of the young had been freshly castrated, the old male squirrel having their scrotum and testes cleanly and smoothly off with arp incisors.

fight between two full grown males it would seem very lt for either to hold the other still enough to admit of off his scrotum, but the young are more helpless; hence it is probable that all the castrated squirrels taken by hunters are mutilated in infancy by the old males. It is a curious instinct and one difficult to account for by natural selection, since it would not seem to result in the escape of the strongest nor the fittest from mutilation, and consequently would hardly tend to benefit or perpetuate the species.

Dr. Allen says in all his hunting he never found a fresh castration wound in an adult, so that he believes the operation is done only on the very young. He is of the impression that the castrated ones grow larger, and are apt to be fatter than the perfect males.

EDMUND ANDREWS, M.D.

Leprosy in Norway.

NEW YORK, Jan. 8, 1898.

To the Editor:—Under "Leprosy in Norway," Dr. W. S. Caldwell writes to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dec. 18, 1897: "Speaking to my host (Hansen's first assistant) in a congratulatory tone of our almost entire exception from the disease in the United States, he answered me warmly and decidedly, saying: 'You have plenty of lepers in your country, but your physicians do not recognize the disease, and allow the patients to run at large, while here in Norway we diagnose the malady in its early stages and isolate the patients.' In a late visit of Dr. Hansen to the United States, he told me that the Doctor found three cases in the hospitals in Chicago, and twice as many in New York, as well as encountered several cases of true leprosy upon the streets of each city, all of whom were being treated for lupus, syphilis or some other form of skin disease."

This direct slap by a Norwegian physician (Hansen's first assistant) at the intelligence of American physicians is in keeping with what we know of the general behavior of the Scandinavian sages toward ordinary medical mortals. I know from the most creditable source, that these flattering opinions were expressed to the whole medical world, as far as it was assembled at Berlin, and produced a general feeling of disgust: "Norway is interested in the leprosy question only as the world's teacher; she has nothing to learn." This truth was continually flaunted in the face of the Conference, whosoever does not recognize and appreciate the superiority, in point of leprosy, of these superior instructors, is stupid, and stupid people, as one of them frankly told me, ought not to be helped, they do not deserve it.

I venture to affirm that not only the ordinary practitioners of those parts of our country where the Norwegian immigrants stop, are the superior of the general practitioners of Norway in every way, but that the medical men of our large cities (New York and Chicago are quoted) *do not* diagnose the leper as lupus, syphilis or some other form of skin disease, as Hansen is reported to have told his first assistant.

Is your correspondent quite sure of his statement that Hansen mentioned such errors of diagnosis in the large hospitals of New York and Chicago? If he visited these hospitals there were American physicians with him, who might now come forward and confirm or deny the accuracy of Hansen's assertions.

ALBERT S. ASHMEAD, M.D.

Department of Public Health.

CHICAGO, ILL., Jan. 11, 1898.

To the Editor:—I have been reading with interest the various notices in the JOURNAL relative to the establishment of a Department of Public Health at the National Capitol and the furtherance of such legislative enactments as will tend toward the preservation of the public health. Early in 1893 I advocated such measures and devoted attention to the question in a treatise on Asiatic cholera written and published by me in that year. There is one pronounced element of danger in connection with the favored change and to this I would respect-

fully call the attention of my professional colleagues. This is the fact that peradventure some "practical politician" would be made the Secretary in charge of the new portfolio instead of a medical hygienist.

The ridiculous and unfortunate state of affairs that would be induced under these circumstances need hardly be dilated upon. The proper person to fill the new position must be a physician, and he must be a physician who is high authority on questions connected with preventive medicine.

JOHN A. BENSON, M.D.

Professor Physiology of the Nervous System in the College of Physicians and Surgeons, Medical Department State University, and Professor of Psychologic Jurisprudence in the Chicago School of Law.

The Antivivisection Bill—Necessity for Action.

BALTIMORE, Jan. 17, 1898.

To the Editor:—I hope that the JOURNAL will keep up its campaign against the antivivisection bill in the Senate (1063). I am writing letters to the physicians in different States urging them to write themselves and induce others to write to their senators urging them to oppose the (Gallinger) bill. Personal letters from those known to have influence with senators will accomplish more at present than protests from societies. Would it not be worth while to call attention in the JOURNAL to the importance of such personal appeals to senators? Very sincerely yours, W.

Indiana State Medical Society.

INDIANAPOLIS, Jan. 24, 1898.

To the Editor:—Owing to a delay in rebuilding the leading hotel of Evansville, the profession of that city have decided that it would be unwise to attempt to hold the annual meeting of the Indiana State Medical Society there this year. At a meeting held today in the office of the president, Dr. W. N. Wishard, attended by the officers and chairmen of the various committees, it was voted unanimously to transfer the meeting to Lafayette. The date remains unchanged, May 5 and 6.

By kindly giving this notice a place in your paper you will confer a great favor upon the profession of Indiana.

Very respectfully, F. C. HEATH, M.D.

Must Join State or Local Society.

GLENWOOD SPRINGS, COLO., Jan. 19, 1898.

To the Editor:—Is it compulsory for me to belong to a medical society, either local or State, before I can join the AMERICAN MEDICAL ASSOCIATION? We have a State but no local medical society. Yours truly,

L. A. ROBINSON, M.D.

ANSWER:—The bylaws require that membership by application can be obtained only by having the application certified by the president and secretary of a local or State society in affiliation with the AMERICAN MEDICAL ASSOCIATION.

Concerning an Alleged Birthmark, "Snake" eye.

MILWAUKEE, WIS., Jan. 18, 1898.

To the Editor:—There are several thousand physicians in this country and no doubt several hundred who may be reached within an hour or so of travel from the office of the gentleman in Waukegan, Ill., who are capable of properly cataloguing his case of "snake" eye within some one of the not uncommon congenital anomalies, probably congenital coloboma or fissure of the iris. If the Doctor would give the lad the benefit of a consultation with an oculist, he would not only learn something but help his "myopic" patient whose "eyes are elongated antero-posteriorly."

Courteously yours, H. V. WÜRDEMANN, M.D.

The Yellow Fever Microbe.

NEW ORLEANS, LA., Jan. 22, 1898.

To the Editor:—*New Orleans Medical and Surgical Journal* for February, 1898, will contain an article upon the "Serum Diagnosis of Yellow Fever," by Archmaid and Woodson of New Orleans, La. These observers, working in the laboratory of the Louisiana State Board of Health, report the occurrence of a characteristic agglutinative reaction of yellow fever blood with the bacillus icteroides in over 70 per cent. of a series of fifty cases with which the experiments were conducted. They consider the reaction of decided value in the diagnosis of early mild and atypic cases. Yours very truly, R. S. W.

ASSOCIATION NEWS.

Prof. Samuel C. Busey, who was elected to deliver the annual oration on State Medicine, has resigned the position. The members will learn this with regret, and also that the ill-health of Professor Busey was the cause of his resignation.

Section on Materia Medica and Therapeutics.—The following papers and discussions have been promised for the meeting at Denver, Colo., June 7–10, 1898:

Yellow Fever; discussion by Surgeon-General Geo. M. Sternberg of Washington, D. C.; Prof. John Guiteras of Philadelphia, Sollace Mitchell of Jacksonville, Fla.; T. Scales of Mobile, Ala.; G. B. Thornton of Memphis, Tenn. and H. M. Bracken of Minneapolis, Minn.

Aims of Modern Treatment of Tuberculosis, by Prof. Edw. Klebs of Chicago.

Serum Therapy of Tuberculosis, by Prof. S. O. L. Potter of San Francisco.

The Use of Remedies in Diseases of the Heart and Blood Vessels, by T. Lauder Brunton, M.D., D.Sc., F.R.S., London, England.

The Mescal Button, by Prof. D. W. Prentiss of Washington, D. C.

The Modern Intestinal Antiseptics and Astringents, by W. Frankhauser, New York.

To What Extent is Typhoid Fever Favorably Modified in Its Course, Duration, Termination or Sequelæ by the Administration of Drugs, by Frank Woodbury of Philadelphia.

Strychnin, by J. N. Upshur of Richmond, Va.

Methods of Teaching Materia Medica and Therapeutics, by Prof. G. H. Rohé of Baltimore, Md.

The Use of Electricity by the General Practitioner, by Ca. Brown of Sac City, Iowa.

J. E. Atkinson, Baltimore; Henry Beates, Philadelphia; M. Balliet, Philadelphia; Geo. F. Butler, Chicago; J. S. Cohen, Philadelphia; N. S. Davis, Jr., Chicago; P. J. Farnsworth, Clinton, Iowa; E. D. McDaniels, Mobile, Ala.; J. Moses, Kansas City, Mo.; Jos. Remington, Philadelphia; E. Sayre, Lawrence, Kas.; H. V. Sweringen, Fort Wayne, Ind.; E. L. Stephens, Fort Worth, Ind.; Leon L. Solomon, Louisville, Ky.

The Chairman will be pleased to receive and place upon the program subjects for discussion and papers.

JOHN V. SHOEMAKER, Chairman,
1519 Walnut Street, Philadelphia, Pa.

SOCIETY NEWS.

The Kalamazoo Academy of Medicine of Kalamazoo, Mich., met in annual session in their rooms Jan. 4, 1898. The Society rooms are in the Public Library Building, a gift to the city of Kalamazoo by Dr. E. H. Van Deusen, a member of the Academy, and as a meeting place for a medical society, will compare favorably with the rooms of any similar organization in any of the metropolitan cities. There were eighty-six members p

nt at the afternoon session. The report of the secretary howed 105 active and 18 corresponding members and 1 honrary member. The treasurer's report showed a good working alance. In the afternoon the following papers were read by he writers: "The Newer Surgery of the Radical Cure of Hernia," by Dr. E. Wyllis Andrews of Chicago; "Toxic Amblyopia," by Dr. Fleming Carrow of Ann Arbor; "The Regular Profession of Medicine," by Dr. W. H. Haughey of Battle Creek. At the evening session Dr. J. M. Elliott, the retiring president, gave an address, which was followed by a banquet at the American Hotel. There were seventy-six members present at the banquet. The following officers were elected for the ensuing year: President, William M. Edwards; first vice-president, J. M. Rankin; second vice-president, Wilbur F. Hoyt; secretary, A. D. Lake; treasurer, O. B. Ranney; librarian, E. H. Van Deusen; censors for three years, F. C. Myers and C. W. Huff.

At the Annual Election of the New York Medical League Jan. 4, 1898, the following officers were chosen. The medical profession shows the greatest and meanest of followers, and unfortunately, the latter have had too much influence, from the simple reason that the bad are always active and the good passive. The League believes that the profession can be restored to its former high position and the names of the officers for the year are sufficient evidence of the earnest and determined opposition which awaits the schemes of the treacherous and the self-seeker. Manhattan Section New York Medical League: President, Joseph E. Janvrin; vice-president, Frederick R. Sturgis; recording secretary, J. C. Schminke; corresponding secretary, Douglas H. Stewart; treasurer, E. Eliot Harris; trustees, Frederick H. Wiggin, E. J. Gallagher, S. Kennedy; finance committee, W. H. Weston; executive committee, J. Smith Peterson, J. E. Messenger, George D. McGauran, Wickes Washburn; delegates, Adolph Rupp, Heinrich Stern, Joseph H. Byrne.

PUBLIC HEALTH.

The results of Sanitation in the German army for the period of the past thirty years show that twenty-three thousand fewer men fall ill every year than formerly and that twenty-two hundred fewer die.

Loomis Sanitarium for Consumptives.—On January 15 a training school for nurses was opened at the Loomis Sanitarium, Liberty, N. Y. The opening class had thirteen members. While these nurses will receive regular training such as is given in other schools, special attention will be paid to instruction in the care of cases of tuberculosis. This departure in the way of nursing is a new one, and is justified by the ever increasing demand for nurses for this class of patients. It is believed that these nurses can be constantly and advantageously employed in health resorts and as traveling companions for young people in incipient stages of the disease. The course will be of two years' duration.

Still the Plague.—The fighting in India has monopolized the attention of the racialists of at least one hemisphere so that plague ravages in Poonah, Bombay and the Deccan have passed unnoticed. Thousands have fled from Poonah and Bombay, in each of which cities the weekly mortality is from five hundred to six hundred. The aid of the military has again been invoked. Poonah City is divided into ten wards, and in each ward an officer has thirty soldiers under his command. Every morning the plague centers are cordoned. No one is allowed to leave them except after having been medically examined. In the mean while each house is searched, and the plague-stricken are taken to the hospitals and their houses are disinfected and whitewashed. This system is working well, and the outlook is improving. A report of the epidemic in Damanu, Portuguese India, with the verification of the London *Lancet*, December 18, gives cheerful accounts of the value of inoculation lymph, chiefly among the Parsee community, who at an early stage acquiesed. Between March 26 and the end of May, the uninoculated furnished a mortality of 24.6 per cent., while the ratio of the inoculated was 1.6 per cent. The demand for lymph necessitated the substitution of the weaker article for the stronger and gave a decided accentuation in favor of the latter. Still even there the case mortality showed a corresponding wavering against the expectant treatment.

The Relations of Medical Societies to the Public Health.—The Presidential address of Dr. Edward Seaton, before the Society of the Medical Officers of Health of Great Britain, considered the subject of the work of the medical societies in its relation to public health. Much of the work of the pathologic, medical and clinical societies, and the unremunerated researches of individuals, whether undertaken in a purely scientific spirit or with an immediate utilitarian motive, had contributed greatly to the promotion of the ends which their society more directly or exclusively had in view. But the Epidemiological Society, which occupied a position intermediate between the strictly medical societies and their own, was above all others engaged, as its objects stated in the charter of incorporation showed, in pursuits identical with theirs. Then there were the British Institute of Preventive Medicine, the Sanitary Institute, the Institute of Public Health, the Jennerian Society, and the British Medical Association, which, though primarily a union of medical men, had a public health section at its annual congresses. The Sanitary Institute and one or two others embraced men of all professions more or less interested in public health, and there was no doubt that much advantage accrued from association with architects, engineers, chemists, geologists, etc., as well as from the museums and exhibitions promoted by some of these societies. Their various transactions and journals were of great value, yet members of their own society who belonged also to the Epidemiological Society and the Sanitary Institute could not but consider that the multiplication of societies involved a loss of power. The Maidstone epidemic had shown how different was the sanitary examination of water-supplies from the merely chemic question of the analysis of adulterated foods and, also, how important was a knowledge of the normal condition of a given water and of the contingent dangers to which it was exposed apart from actual contamination. Chemic analysis, without bacteriologic examination and other considerations to which he had alluded, might tend to a false sense of security, but taken in conjunction with these it should serve as a delicate barometer and an indication of impending danger. But while such catastrophes aroused public attention owing to their suddenness, it ought to be known that there was in some districts a constant prevalence of typhoid fever attributable to other causes than the pollution of a certain public water-supply, and the record and publication of the distribution of any local excessive incidence of this and of other preventable diseases, as was done by the Surrey County Council, by stimulating preventive action contributed in an important degree to the averting of such outbreaks and to the saving of life without the supervention of those terrible lessons. Such a society as he had indicated should include all the leading epidemiologists who, without belonging to the public service, had made the subject of communicable diseases their special study, and its inauguration would, he repeated, be a fitting and worthy commemoration of the jubilee of the institution of medical officers of health.—London *Lancet*.

A Serious Epidemic of Typhoid Fever Due to a Contaminated Water Supply.—All England has been excited and concerned by the epidemic of typhoid fever which is attracting so much attention at Maidstone, Kent. There have been 1,700 cases in that town and its vicinity and fifty deaths have occurred. The epidemic has spread at the rate of 120 cases daily, and the authorities are working energetically in their efforts to crush out the fever. The hospital accommodation is inadequate, temporary hospitals are being erected and the schools are being

converted into sick wards. There have been numerous cases of typhoid fever throughout the country among people who recently visited Maidstone. The town authorities of that place are held responsible for the outbreak, owing to their refusal to renew the appointment of a watchman for the water supply at a salary of $200 yearly. Quite a number of difficult conditions have been surmounted by the authorities. The fitting up of emergency hospitals has been no light task. The houses and schoolrooms utilized had not the necessary sanitary conveniences. The work had to be continued day and night without a moment's respite. Nor was it easy to get together some three hundred beds for the patients and to lodge more than one hundred nurses. Then the patients and nurses had to be fed, and this involved the organization of a commissariat department which was altogether out of the ordinary attributes of local administrative work. But soon another difficulty arose. A large amount of linen accumulated which was dangerouly soiled by the patients. If this linen was scattered over the town and washed anyhow and by anybody the consequences were likely to be very serious. The medical officer of health, Mr. Matthew A. Adams, thereupon conceived the idea of establishing a public laundry for dealing exclusively with the infected linen. With the very efficient aid of Mr. Jackling, the sanitary inspector, a steam laundry with all the most recent and improved machinery was promptly opened. Carts are now sent around the town with numbered canvas bags. The linen from each patient is placed in a separate bag, distinguished by its number. On reaching the laundry the bags without being opened are plunged into a large boiler, where their contents are thoroughly disinfected by prolonged boiling. Then only are the bags opened and each article marked with a number corresponding with that of its bag. The articles can be washed in the ordinary manner. But so great is the amount of work that had to be done that it was necessary to establish four large boilers set in solid brickwork, and to put up huge tents seventy-five feet in length in which the linen is sorted. Another great difficulty soon arose. How was so large a quantity of linen to be dried? Fortunately, in a field opposite there were two roast houses for the drying of hops. These curious looking, cone shaped structures are familiar to all who travel in hop-growing countries. In the lower part there is a furnace where smokeless anthracite coal is burnt. Above the furnace and just under the cone-shaped roof there is not a floor, but horsehair matting resting on rafters. It is on this matting that the hops are placed to dry, as the heat passes through readily. For laundry purposes it was necessary to construct a framework all around the roof above this matting so as to hold ropes or poles on which the linen is hung to dry. The *Lancet* states that an official inquiry has been ordered, so that the blame may be located. No doubt the water company will be incriminated in the first instance and the local authorities will be held blameworthy for the prolonged continuance of the epidemic. The later reports of the medical officer of the Local Government Board record epidemics which prove incontestably that the grossest and most culpable neglect prevails as regards a number of our public water services, whether the supply is derived from springs, deep wells, gathering grounds or streams; and we fear that at times the extent of the negligence and danger bears a definite relation either to the amount of pecuniary profit actually derived from the sale of the water to the public or to efforts made to render the profit greater. This is a state of affairs which has hitherto been all but ignored by parliament in granting powers to water companies, whether municipal or private, and it is to be hoped that the attention which has been drawn to the subject by the Maidstone epidemic will lead to a much more careful watch than has usually been exercised over the powers and liabilities conferred and incurred in bills as to public water supplies. The population of Maidstone Borough is estimated at about 32,000.

NECROLOGY.

EDMUND CARLYLE VERMEULEN, M.D., College of Physicians and Surgeons, New York, 1860, died in Philadelphia, his home, January 21. He was the son of a Dutch Reformed clergyman and was born in New York City in 1833 but lived in Hobok N. J., where he had been an apothecary previous to his gr uation in medicine. After a competitive examination he appointed as Assistant Surgeon, U. S. N., Nov. 16, 1861 rose to the rank of Master Jan. 24, 1862. He was in active vice throughout the war with a record of executive ability served at various naval stations until 1882 when he wa retir It is told that while serving on the *Granite City*, the ve with all the officers and men were captured by the Confe ates. He was a prisoner four months. His health had b poor for some years before his death.

CORNELIUS VAN KEUREN, M.D., died at his residence in N York City, January 21. He was born in old Greenwich villa once a section of the city where the Holland Dutch elem was somewhat prominent. At the out-break of the war joined Duryea's Zouaves and was mustered out at the exp tion of his term of enlistment. In 1874 he received his deg from the College of Physicians and Surgeons, New York, many years ago was appointed a surgeon in the Police Dep ment, retiring with a pension, last October.

CAROLINE M. DODSON, M.D., Woman's Med. College, Ph delphia, 1874, died January 9. She was born in Keosauq Iowa, 1845, and after graduation at once entered the profess in Philadelphia. As a platform speaker on educational temperance topics she soon became conspicuous. In 1891 became president of the Woman's National Health Asso tion, without a surrender of her work in the Woman's Suffr Association or of her interest in the Baptist Sisterhood Sabbath school teaching.

ERNEST RINGER, M.D., a licentiate of the New York Cou Medical Society, 1874, died at his home in New York January 9. A native of Germany, with a university edu tion, he came to this country about fifty years ago, and h continued in practice until within about ten years of his de at the age of 77 years. At one period of his life he a medical writer, holding somewhat peculiar views u therapeutics.

WILLIAM H. ROBB, M.D., Albany, N. Y., 1865, of Ams dam, N. Y., died January 12 in Selma, Ala., aged 54 ye He was a prominent member of the AMERICAN MEDICAL A CIATION and a fellow of the New York State Medical Asso tion, of which he was one of the founders. His illness be at the annual session of the latter association last Octo and with an attack of influenza subsequently superadded, him beyond the possibilities of ultimate recovery. A popu citizen, judicious sanitarian, and valued contributor to m ical literature, his place can not well be filled.

ORANGE W. BRAYMER, M.D., Jefferson, 1888, member of surgical staff of the Cooper Hospital, Camden, N. J., died f blood poisoning January 9. The cause was thought to be to an inoculation of a scratch upon the forehead after an o ation at the hospital performed by him about two days bef

LEWIS W. PENDLETON, M. D., Albany, N. Y., 1864, of P land, Maine, and house physician of the Flagler Hotel, Flori died at the Palm Beach Inn, Jacksonville, Fla., January aged 53 years.

HENRY S. DEAN, M.D., Jefferson, 1852, born in Holla Mass., died January 14, aged 74 years. He began practic South Coventry, Conn., and there resided until his dea He was an active member of the Connecticut State and of Tolland County Medical Society, besides having served in Connecticut General Assembly in 1872-3.

C. E. ULMER, M.D., died in Atlantic City, N. J., of tuber losis, aged about 40 years, on January 15. He was at one t county physician of Atlantic County, N. J.

F. R. v. SCHNEIDER, Vienna, aged 85 years. A laborat accident in 1871 injured both eyes and arrested his brilli scientific career as professor of chemistry, etc., investigator author of works on chemico-legal and hygienic questi

Since then he has occupied a prominent position in sanitary and hygienic councils, his services winning him many honors, among them a title and seat in the legislature.

Samuel P. Harned, M.D., N. Y. University, 1868, for many years Township physician, died at his home in Woodbridge, N. J., January 18.

Henry S. Dean, M.D., South Coventry, Conn., January 15, aged 74 years.——F. K. Hall, M.D., Pittsburg, Pa., January 12, aged 71 years.——W. C. Nixon, M.D., Shannon, Ga., January 13, aged 55 years.——J. H. Otto, M.D., Milwaukee, Wis., January, 15, aged 36 years.——W. H. Robb, M.D., Amsterdam, N. Y., January 12, aged 54 years.——William Henry Sibert, M.D., Kansas City, Mo., January 13, aged 48 years.——J. C. Thompson, M.D., Rollersville, Ohio.—— J. W. Waters, M.D., Lexington, Ill., January 15, aged 70 years.——James F. Barron, M.D., Clinton, Ga., January 18, aged 70 years.——C. E. Ulmer, M.D., Atlantic City, N. J., January 15, aged 40 years.——Lysander T. White, M.D., Cortland, N. Y., January 16, aged 55 years.——Angel Vasquez, professor of organic chemistry and pharmacy at Santiago, Chile. A physician and hygienist of national prominence.——C. B. Day, M.D., Glencoe, Minn., January 13.——J. C. Thompson, M.D., Rollersville, Ohio, January 4, aged 76 years.

Orange W. Braymer, M.D. At a special meeting of the District Medical Society of Camden County, N. J., held January 10, the following was adopted:

We, the Camden District Medical Society assembled, called together by the sudden death of our esteemed associate, Dr. Orange W. Braymer, do hereby acknowledge, with mingled grief and humility, our child-like misapprehensions of such transitions in life.

While yet in the full vigor of his professional manhood, and while attending the surgical needs of a suffering patient the Angel of Death appeared, and very soon carried him to the bourne "Where his weary brain and tired feet, will no longer brave the midnight summons, nor attend the calls of a poor suffering humanity."

Need we recall his manly form and earnest kindly face, or rehearse his many deeds of charity, and devotion to his profession, to remember him. Nay, it is well known by those who knew him best, that his illy-requited devotions to his profession and his patients, his faithful friendships, and conscientious performance of all duties, indicated his true nobility and reflected honor upon us, as well as upon his family, church and State. His life is worthy of emulation, and may its impress be indelibly stamped upon our tablets of memory.

His bereaved family, crushed by the sudden loss of an affectionate husband and father, can obtain consolation alone from that God, who as Divine Ruler of the Universe, "knows best how to give, knows best when to take away."

Therefore, as a slight token of esteem and love for our dead, be it hereby

Resolved, That these sentiments so well engraved upon our hearts, be recorded upon the pages of our Society's history and also transmitted to his grieving family as a memento of our sympathy, and be it further

Resolved, That we attend in a body the last sad rites upon our dead brother, and bow with submission and humility to the will of God our Creator.

O. B. Gross, M.D.
J. M. Ridge, M.D.
D. Benjamin, M.D.
Jos. H. Wills, M.D.
E. E. De Grofft, M.D.
Committee.

BOOK NOTICES.

Transactions of the Medical Society of the State of North Carolina. Paper, pp. 184. Illustrated. Wilmington, N. C. 1897.

This volume is on excellent paper, well edited and of excellent typography, and contains full proceedings of the forty-fourth annual meeting, held at Morehead City, N. C., June 8, and 10, 1897. Among other papers included we note: "When to Operate;" "Surgical Treatment of Hemorrhoids;" "A New Method of Dealing with Inoperable Cases of Cancerous Affections of the Uterus;" "The Ideal Antipyretic;" "The Keystone of the Medical Arch;" "The Microscope in Diagnosis of Malaria;" "An Interesting Case of Appendicitis;" "A New Treatment of Hydrophobia: Report of a Case: Recovery" "Psycho-therapeutics;" etc. An appendix of 48 pages includes the Constitution and By-laws and the Code.

Transactions of the Luzerne County Medical Society, for the year ending Dec. 31, 1897. Paper, pp. 208. Wilkesbarre, Pa. 1897.

The contents of this volume comprise: "The Hygiene of the Jews;" "Progressive Pernicious Anemia;" "Diabetes;" "Intubation and Antitoxin in Membranous Croup;" "The Modern Conception of the Nervous System;" "Operative Interference in Epilepsy;" "Discussion of Measles;" "Fracture of Skull and Treatment;" "Treatment of Phthisis;" "Mastoid Disease Followed by Sinus Thrombosis, Meningitis and Death;" "Traumatic Neurosis;" "Placenta Previa;" "Cerebral Localization;" "Double Consciousness;" "Serum Therapy;" "The Proposed Sanitarium for Tuberculosis at White Haven;" "Hematozoön Malariæ;" "Tetanus;" "Acute Diseases of the Heart;" "Syphilis," and "The Theory of the Extension and Retraction of the Neuron Terminal." The excellent paper and typography make this volume a credit to the Society.

Transactions of the Arizona Medical Association. Paper, pp. 66. Phoenix, Ariz. 1897.

This volume covers the work of the sixth annual session of the Arizona Medical Association, held at Phoenix, Arizona, January 26, 1897. Eleven papers are included.

Transactions of the Mississippi State Medical Association. Paper, pp. 212. Illustrated. Biloxi, Miss. 1897.

Besides the usual reports, etc., found in society transactions, this volume contains the Constitution and By-laws of the Society and the papers read at the twenty-ninth annual session, held at Vicksburg, Miss., April 15, 16 and 17, 1896, twenty-three in number, some with illustrations.

Kalender fuer Frauen- und Kinderaerzte. Von Dr. Med. Eichholz, Bad Kreuznach, und Dr. Med. Sonnenberger, Worms. II Jahrgang. 1898. Kreuznach: Ferd. Harrach. Preis. Mk. 2.50.

This wallet-shaped leather bound volume contains memorandum pages for each day of January, February and March, tables of drugs and doses, pages for filling out with data concerning the patient, numerous short articles descriptive of diseases peculiar to women and children, Prussian rules for physicians, etc., altogether making a handy and valuable compilation for the physician. The matter is printed in German. Three supplements contain memorandum pages for the months April–December, 1898.

MISCELLANY.

Dr. Robert T. Wilson is to succeed his father, Dr. H. P. C. Wilson, as chief surgeon of the Woman's Hospital, Baltimore, Md.

A Change of Name.—The British Institute of Public Health will be styled in future the Royal Institute of Public Health, and Queen Victoria has accepted the office of patron.

Last Year's German Immigration shows a wane. In 1897 it was the lowest since 1874. It aggregated only 23,220 against 32,114 in 1896 and has declined steadily since 1893, when 87,577 left Europe.

Honors After the British Jubilee. The honor of Knighthood has just been conferred by Queen Victoria on Dr. John Struthers, late president of the Royal College of Surgeons of Edinburgh, and Dr. John Batty Tuke, president of the Royal College of Physicians of Edinburgh. Professor Gardiner, dean of the Faculty of Medicine, Glasgow University, has been promoted to be Knight Commander of the Order of the Bath

(K. C. B.), and Profcssor D'Arcy Thompson, British delegate at the recent conference on the Behring Sea Fisheries, has been appointed a Companion of the same order (C. B.).

The Determination of Sex Theory, associated with the name of Professor Shenck, does not find much favor with savants. With the qualifying *ifs* and the usual loopholes of explanation in problems of the 50 cent. variety, not much can be expected. "Guess," said Sambo, "boy or girl?" "Boy?" "No, guess again." "Then a girl." "Yes, but who told you?" It is to be hoped that we are to have no more depopulating agencies, remote or otherwise.

The Hoff Memorial Fund.—Maj. John Van R. Hoff, surgeon U. S. A., now on duty at Vancouver Barracks, offcred to establish a memorial fund for the late Alexander H. Hoff of the medical dcpartment of the army. Thc Secretary of the Treasury has accordingly been authorized to accept from Major Hoff the sum of $1,000 for intercst at 4 per cent. The interest accruing from the fund is to be expended under the direction of the chief medical officer of the army for the purchase of a suitable gold medal each year, to be awarded to the graduate of the Army Medical School who maintains the best average standing in class. In case there is no session of the school in any year, a suitable medal is to be secured and presented to the medical officer of the army who during the year shall have performed the most distinguished medical research.

"In Good Health."—The United States circuit court of appeals says, in the case of the Manhattan Life Insurance Company vs. Carder, Nov. 10, 1897, that the term "in good health" is comparative. It does not mean in perfect health, nor would it depend upon ailments slight and not serious in their natural consequences. In construing this term in a life policy, the court goes on to say that it must regard the character of the risk assumed, and that looking at it from this point of view, it would seem that a person was in good health unless he was affected with a substantial attack of illness, threatening his life, or with a malady which had some bearing on the general health; not a slight illness or a temporary derangement of the functions of some organ.

The Bacillus of Whooping Cough.—Advices from Europe announce that Dr. Czapelewski, the celebrated bactcriologist of Cologne, has confirmed the discovery of bacillus of whooping cough recently made by Dr. Henry Koplik of New York. Dr. Koplik has been experimenting with particular relation to whooping cough for four or five years. A paper on the discovery of the bacillus was read before the British Medical Society in Montreal last summcr. The bacillus is an exceedingly small and delicate one. In fact, with the exccption of that of influenza, it is the smallest yet discovered. Its size is really about the same as that of influcnza. Animal experiments have been tried, but it has been found impossible to reproduce the disease in animals.

Explanation of the Beneficial Effect of Venous Stagnation and inflammation in the struggle of the organism against the invasion of microbes.—Professor H. J. Hamburger announces that it is due to a hitherto unknown factor; the property possessed by CO_2 of causing the red and white corpuscles to swell up, and of liberating a diffusible alkali from the albuminates. It has already been established that serum taken from stagnated venous blood is much more bactericidal than normal blood, and that the lymph is also more bactericidal whcn stagnated. This he proves is due to the accumulation of CO_2. His tests showed that serum treated with CO_2 was far more bactericidal than normal serum, and that the richer in alkali the more pronounced the effect. Inflammation also causes stagnation, and hence the same effects; an accumulation of CO_2 in the parts involved and increased bactericidal power. He also asserts that the bactericidal properties are more pronounced the larger the number of white corpuscles present, which affords a ne explanation of the *pus bonum et laudabile* of the older patho ogists. The cells of the lymph glands also evince the sam disposition to swell up and liberate alkali under the influenc of CO_2.—*Deutsche Med. Woch.*, December 2.

What May be Assumed in Hypothetic Questions.—In the direc cxamination of an expert witness the facts assumed in a hypo thetic question should be only such as are fairly within the scop or range of the testimony. Upon cross-examination, howeve the supreme court of Illinois holds, in West Chicago Stree Railway Company v. Fishman, November, 1897, any fac which, in the sound discretion of the court, is pertinent to th inquiry, whether testified to by anyone or not, may be assume in a hypothetic question with the view of testing the skil learning or accuracy of the expert, or to ascertain the reason bleness or expose the unreasonableness of his opinion. question, though it goes beyond the scope of the evidence, ma be propounded upon cross-examination if its office and purpo are to elicit the reason upon which the expert based an opinic expressed by him in his examination in chief, or to ascerta the extent of his learning and knowlcdge of the particular su ject upon which he assumes to be an expert.

Violent Deaths Among the Employes of Railroads.—On the ave age about six thousand persons are killed on the railways this country every year, and upward of thirty thousand injure Hundreds of employes are killed and thousands injured eve year while engaged in coupling or uncoupling freight cars. Tl law of 1893 demanded that the roads should equip their ca with automatic couplers and air brakes. After all these yea much more than half the freight cars remain without ev automatic couplers and fewer still are fitted with the brak Request has been made by certain railroad magnates of tl Interstate Commerce Commission, that the time within whi the roads must comply with the law be extendcd for five yea This looks likc asking permission to kill or maim a hundr thousand persons in order that derelict roads may wear o their old equipment without the expense of fitting it with t required safety appliances.—*New York Herald.*

Nutrose.—Nutrose is prepared from the casein of milk co bined with sodium, and so converted into a soluble conditic It is a highly concentrated albuminoid food, and is represent to be free from the disadvantagcs of other "meat substitutes Its advantages over meat derivatives are thus tersely summa ized: 1, its high percentage (90 per cent.) of chemically pu albumin; 2, its almost complete lack of odor and taste; 3, complete solubility in water, milk and other menstrua; 4, miscibility with ordinary food stuffs; 5, its neutralizing pow as against gastric hyperacidity; 6, its easy and almost compl absorbability by the digestive organs; 7, its lack of irrita effect upon the intestinal tract; 8, its practically sterile a undecomposable condition; 9, its inexpensiveness. As to t nutrient value of nutrose, the exact assimilation experime of Salkowski, Marcuse, Stuve and Bornstein conclusively sh that the absorption and utilization of this preparation is ve complete and that the albumin of ordinary food may, wh necessary, be wholly or partially replaced therewith witho producing repugnance, gastro-intestinal irritation of putref tive diarrhea.—*American Therapist.*

Liverpool Supplies the Antitoxin for Diphtheria free to the Poor A circular has been sent to the local practitioncrs from t medical officer of health of Liverpool intimating that a supp of antitoxin for the treatment of diphtheria has been provic by the Hospitals Committee at each of the five city hospita which can be obtained on application to the resident medi officer or matron at one or other of the said hospitals. The ject which the hospitals committee has in view is primarily supply antitoxin for use among the poorer class of patien

and under any circumstances the committee will be obliged if a return showing the progress of the case be made upon a form which will be supplied at the respective hospitals. This is a step in the right direction and indicates the desire of the municipal authorities to afford every facility for the reduction of infectious diseases and for placing all classes of the community under the most favorable conditions toward recovery.

Prizes Offered by the Academie de Medecine of Paris.—Over $8,000 were distributed in the prizes of 1897, twenty-seven in all. Only seven were awarded entire to one person; the rest were divided among the two to five who came nearest to fulfilling the terms of the award. No communications were received in competition for the Monbinne prize of 1,500 francs (scientific mission). Two prizes were not awarded, the Audiffred and Pourat (tuberculosis and intra-vascular tension). The list of recipients includes only one foreigner Stadfeldt of Copenhagen, ophthalmology). The prizes offered for 1898 are as follows, omitting three which are only open to French writers. Academie: Infectious myelitis from the clinic and experimental point of view, 1,000 francs, annual. Alvarenga: For best work on any branch of medicine, 800 francs, annual. Aubert: For clinic and experimental research on the question whether there are any human constitutions refractory to tuberculosis, 500 francs. Audiffred: For a sovereign curative or preventive remedy for tuberculosis, discovered in twenty-five years from 1896, title to an annuity of 24,000 francs. Baillarger: For the best work on the therapeutics of mental diseases, accompanied by a study of the organization of public and private asylums; 2,000 francs, biennial. Barbier: For a means of curing the diseases now considered incurable, cancer, epilepsy, scrofula, typhus, cholera morbus, etc. This prize can be distributed among those who come nearest to the aim proposed: 200 francs, annual. Bouillard: For the best work and the best curative results attained in mental affections; 1,200 francs, biennial. Bouveret: Circulation of the blood; 1,200 francs, annual. Buisson: For a cure for the diseases now considered incurable; 10,500 francs, triennial. Capuron: Experimental research in obstetrics; 1,400 francs annual. Chevillon: For best work on the treatment of cancerous affections; 1,500 francs, annual. Civrieux: Obsessions in mental pathology: 1,000 francs, annual. Clarens: Hygiene; 400 francs, annual. Daudet: Sarcoma; 1,000 francs, annual. Desportes: Practical medical therapeutics; 1,300 francs, annual. Falret: Somnambulists; 900 francs, biennial. Godard: Internal pathology; 100 francs, annual. Herpin: Abortive treatment of blennorrhagia; 1,200 francs, quadrennial. T. Herpin: Best work on epilepsy and nervous diseases; 3,000 francs, annual. Laborie: For the work that has advanced most notably the science of surgery; 5,000 francs, annual. Laennec: Infantile capillary bronchitis; 500 francs. Larrey: Medical statistics; 500 francs, annual. Louis: Serotherapeutics, 4,000 francs, triennial. Mège; Hay-fever, 900 francs, triennial. Meyrot: Diseases of the ear; 2,600 francs, annual. Monbinne: Scientific missions, medical, surgical or veterinary; 3,000 francs. Nativelle: Extraction of the active principle of some medicamentous substance, hitherto unisolated; 300 francs, annual. Nivet: Sanitation of barracks, hospitals, schools, crêches, asylums, etc.; 3,000 francs. Orfila: Cocculus indicus and picrotoxina, therapeutics and toxicology; 2,000 francs, biennial. Portal: Lesions of the nerve centers and kidneys caused by the toxins of tetanus and diphtheria; 600 francs, annual. Pourat: Circulation of blood in the lungs; 1,000 francs, annual. Saint Lager: For the production of the thyroid tumor in animals by administering substances taken from the waters or soil of localities where goiter is endemic; 1,500 francs. Saintour. For the best work on any branch of medicine; 4,400 francs, biennial. Stanski: Awarded to the person who has demonstrated the existence or non-existence of miasmatic contagion, by infection or contagion from a distance. If no communications are received conforming to these requirements, the prize will be awarded for the best elucidation of any question relating to contagion in the contagious, inoculable affections; 1,800 francs, biennial. Tremblay: For the best work on the affections of the urinary passages, catarrh of the bladder, prostatic lesions, etc.; 7,200 francs. Quinquennial. Vernois: Hygiene; 700 francs, annual. The prizes offered for 1899, include, besides the unchanging annuals already mentioned—Academie: Physiology and pathology of the thyroid gland; 1,000 francs, annual. Amussat: For the best work of research, both anatomic and experimental, which has realized the most important progress in surgical therapeutics; 1,000 francs, triennial. Argenteuil: For the most important improvement in the curative treatment of strictures of the urethra, or for the best work on any affection of the urinary passages; 6,800 francs, sexennial. Civrieux: Nervousness; 800 francs, annual. Daudet: Lymphadenoma; 1,000 francs, annual. Lefèvre: Melancholia; 1,800 francs, triennial. Portal: Experimental study of the inoculation and contagion of cancer; 600 francs, annual. Pourat: Experimental research to elucidate the question of the immediate and remote destination of the albuminoid aliments; 700 francs, annual. Ricord: For the best work that has appeared in the two years on the venereal diseases; 600 francs, biennial. The prizes for 1900 include: Académie: Medication by organic juices; 1,000 francs, annual. Capuron: Hydromineral treatment of albuminuria; 1,000 francs, annual. Civrieux: Delirium in general paralysis; 800 francs, annual. Daudet: Results of surgical treatment of cancer of the ovaries; 1,000 francs, annual. Falret: Clinic forms of neurasthenia and their treatment; 700 francs, biennial. Itard: For the best book on practical medicine or applied therapeutics, published at least two years; 2,400 francs, triennial. Perron: For the author of the work that has best promoted the progress of medicine; 3,800 francs, quinquennial. Pourat: Intravascular sanguine tension; 700 francs, annual. Articles must all be received by the end of February, and be written in French or Latin, with the name in a sealed envelope unless in pamphlet or book form. The manuscripts, etc., are not returned to the authors.

Hospitals.

The new Lakeside Hospital, Cleveland, Ohio, was dedicated January 12.——The Presbyterian Hospital, Chicago, receives $8,801 from a benefit concert given in the Auditorium January 17.

Yale Medical School is the recipient of $1,000, the gift of Mrs. D. C. Leavenworth of New Haven, Conn., as a memorial to the late Dr. D. C. Leavenworth, a graduate of the school in 1865.

Societies.

The Harlem Medical Association held its annual dinner at the local Casino, January 15. Nearly sixty were present besides Surgeon-General Sternberg, who spoke highly of the American Medical Association and of the Journal. He advocated a greater harmony among the profession at large, of which he was pleased to report many cheerful signs. Dr. Arthur M. Jacobus represented the Medical Society of the State of New York. He referred in response to the toast to many grivances of the profession which legislation might remedy, such as Health Board encroachments upon time-honored privileges and occasional assumptions of superior intelligence. He spoke at length upon the evils of unlicensed and ignorant midwifery. Dr. Joseph E. Janvrin, as President of the New York County Medical Association referred to the character of its work and the value of its contributions to the general stock of medical progress. Dr. Thomas H. Manley, in the course of his remarks upon the entertaining Association, humorously described his early experiences of the suburb and could not but be astounded at its growth. He also hoped that trivial differences might be adjusted in the profession and that harmony would be the rule. Being an optimist he could not be otherwise than cheerful. Owing to the absence of two advertised speakers, since reported as "unavoidably detained," Dr. John Shrady was forced to make an unprepared speech, which consumed several minutes. After this the meeting adjourned with cheers for Dr. Sternberg, who had sacrificed his convenience for this special occasion.

Washington.

Report of the Health Officer.—The report of Health Officer Woodward for the week ended January 15 shows the total number of deaths to have been 96, of which number 57 were white and 39 colored. The principal causes of death: nervous disease 18, respiratory diseases 35, heart disease 6. There are at present 62 cases of diphtheria and 57 cases of scarlet fever under treatment.

COMMITTEE ON PUBLIC HEALTH.—The Committee on Public Health of the Washington Board of Trade, at its recent meeting decided to recommend to Congress the reclamation of the Anacostia Flats. The insanitary condition of these flats is largely responsible for the paludal fevers which prevail in Washington throughout the year and makes the city world-renowned for ill-health. The medical members of the committee are Surgeon-General George M. Sternberg, W. W. Johnston, G. L. Magruder, H. L. E. Johnson, L. W. Ritchie, W. P. C. Hazen, J. B. G. Custis, John E. Jones and George Henderson. Dr. S. C. Busey, who was chairman of the committee for several years, recently tendered his resignation.

MEDICAL AND SURGICAL SOCIETY.—At the meeting of the Society recently held Dr. Elmer Sotheron presented a specimen of ruptured tubal abscess with the history of the case. The subject was discussed by Drs. Joseph Taber Johnson and W. P. Carr. He also read a paper entitled "Hour-glass Contraction of the Uterus," which was discussed by Drs. Moran, Carr, Bowen, Morgan and J. T. Johnson. Dr. Stone read a paper entitled "The Mind Cure," which was discussed by Drs. Chamberlain, Capeheart, French, Kober and W. P. Carr.

MEDICAL SOCIETY.—At the meeting of the Medical Society on January 19 Dr. Stiles read a very instructive paper entitled "The Inspection of Meats for Animal Parasites," and Dr. Hasbrouck reported a case of hypertrophic pulmonary osteo-arthropathy with photographs and specimens.

Louisville.

LEGISLATION.—Public health is being looked after by the present legislature, as several bills have been introduced in the past week which are looking to that end. Bill No. 93, introduced by Mr. Desha of Harrison County, has as its object the keeping of itinerant dentists out of the State by requiring that dentists shall have a license from the Board of Examiners, appointed by the Kentucky State Dental Association. This bill was referred to the Committee on Public Health. Bill No. 113 was introduced by Mr. Chinn of Mercer County. It authorizes the appointment of a pure food commissioner, who shall see that all mixed and adulterated food and liquors, of every character and form, are labeled, showing the ingredients. It prohibits the manufacture of both pure and adulterated goods by the same person. The leading members say that the bill can never pass, as it conflicts with too many interests and would drive many grocers out of business. It will probably not get out of the Committee on Judiciary, to which it was referred. Bill No. 39, introduced in the Senate, is similar to the one just referred to, though not so comprehensive or far-reaching. This bill was introduced by Mr. Smith of Henry County. It requires that all handlers of mixed flour shall label or brand each package of flour with the ingredients contained therein. Bill No. 40, introduced by Senator Edmonson, requires factories to print on each label the year the fruit was put up and, where it is imported in bulk, the importer must stamp on each package the date of its arrival in the State. One bill has been reported favorably by the committee which raises the age of consent of females from 13 to 16 years, and the Committee on Public Health reported favorably on the bill to prevent the sale of meat of animals dying otherwise than by slaughter. It is believed both will pass.

ASYLUM APPOINTMENTS.—The Senate Committee on Charitable Institutions refused to confirm the appointment of the colored physician, Dr. B. F. Porter, who has been appointed by Governor Bradley as third assistant physician at Lakeland Asylum for the Insane. The Senate however refused to concur in the committee's recommendation and confirmed Dr. Porter's appointment, as it was shown that he would have charge of the colored inmates only. Dr. Louise Bergmann of Louisville, who has been serving as a resident physician at the Woman's Hospital at Philadelphia, has been notified by telegram to proceed at once to Lexington to assume her duties as third assistant physician to which position she has just be appointed by the Governor. This position was made vac by the promotion of Dr. John L. Long, to be Superintend of the Feeble Minded Institute, and the advancement of assistants in consequence of his resignation as first assista There is some talk that the appointment of Dr. E. M. Wiley Superintendent of the Lexington Insane Asylum, which made during the interim of the legislature, would fail of c firmation because the Doctor is a "sound money democra and the legislature is largely "free silver." It is to be ho that this will not be done as Dr. Wiley has made a most ex lent superintendent.

PRISON.—The Sinking Fund Commissioners have decide remove the male guards from the female wards of the Fra fort penitentiary, and to appoint in their place two women that purpose.

MILK.—Health Officer Allen has introduced the policy compelling all dairymen, whether residents of the city county, or outside of the State, to take out a license as c pelled by law, as it has been ascertained that the present was sufficiently comprehensive to include out of town dea who send milk to the city. It has already been the cause an improvement in the character of milk supplied. In Senate, Mr. Nazier of Shelby County, introduced Bill No. relating to the sale of dairy products, and imitations ther It provides for the appointment of a milk inspector in e county, and for the stamping on all cans, boxes or packa the fact that any dairy product is adulterated.

Detroit.

AT A REGULAR MEETING of the Wayne County Medical Soc December 23, Dr. Fritz Maass read a paper entitled "T and Serum Treatment of Inoperable Tumors." After gi a history of the use and preparation of the serum as dev by Coley, the author presented statistics of cases treated this method by Coley, Emmerich, Scholl and others, sho somewhat unsatisfactory results except in a small percen of cases. The Doctor then gave a full history of a cas melanotic sarcoma occurring in his own practice treate Coley's method. The treatment proved entirely unsucces Not only that, but the Doctor considered that the treatn favored the development of metastases.

AT A MEETING of the Detroit Medical and Library Ass tion January 10, Dr. C. W. Hitchcock read a paper enti "Hemorrhagic Pancreatitis; a Case Having Unusual Me Legal Relations." The author described the disease as b one of insidious onset, but one which presents a very stri clinical picture, with its sudden, sharp and severe pain, vomiting, collapse and evidence of profound shock. Its co has been as short as one-half hour (that is, after first kn symptoms) and as long as several days. The etiology is obs Alcoholic excesses, previous attacks of gastroduodenitis possibly injury are thought to be factors. Antemortem nosis is infrequent, though a few cases are reported. diagnosis frequently falls on intestinal perforation, app citis, irritant poison or acute intestinal obstruction. Me legal phases are rare. Poison was suspected in one References to injury as a cause are few and not satisfac Fitz reports a case in which injury is assigned as pro cause. In the case here reported the patient told none o physicians of any injury and denied it to one, but afte death a fellow employe alleged a fall and claim was mad insurance, the patient having held an accident policy. Au established clearly the existence of hemorrhagic pancre with all the usual pathologic evidences. Yet in the face this at least two physicians leaned to the theory of death hemorrhage from rupture, although no such rupture cou found. The man died fifty-four hours after the first sympt presenting the typic clinical picture of hemorrhagic pancrea Though the history of injury was doubtful and all the cli

vidence was against its being the cause of death, yet, owing) its allegation by the only eye-witness, the differing opinion f physicians and the additional doubt as to whether or not ıjury might stand in a causal relation to hemorrhagic pancretitis, a compromise of the case was advised and secured.

Harper Hospital Medical Board.—At a meeting of the oard of Trustees of Harper Hospital held on Tuesday evening, anuary 11, the following staff was elected for the year 1898: . H. Carstens, M.D., chief of staff; consulting surgeons, heo. A. McGraw, E. T. Tappey; attending surgeons, Daniel aferte, H. O. Walker, J. K. Gailey; junior attending surgeons, ngus McLean, P. M. Hickey, Benjamin P. Brodie, F. B. ibbals; consulting physicians, Charles Douglass, J. J. Muleron; attending physicians, George Duffield, W. R. Chittick, . G. Jennings, F. W. Mann; Junior attending physicians, F. 7. Robbins, B. R. Shurly; consulting oculists, L. Connor, eorge E. Frothingham; attending oculists, George E. Frothıgham, Jr., Don M. Campbell; consulting neurologist, David ıglis; attending neurologists, J. E. Emerson, C. W. Hitchock; dermatologist, A. E. Carrier; laryngologist, E. L. hurly; consulting gynecologist, Helen F. Warner; attending ynecologists, H. W. Longyear, W. P. Manton, Harriet A. erry, J. H. Carstens; microscopist, E. H. Sargent; assistant ıicroscopist, Thaddeus Walker; pathologist and curator, E. [. Troy.

Denver.

Bureau of Health.—The water-supply of the city has occuied the attention of Health Commissioner Dr. Wm. P. Mun for ıe last three years. The lingering cases of sporadic typhoid ıver stand out in bold relief when examined in the light of ıe general low mortality, 10.48 per 1,000 per annum, and :cording to the investigation of the department, the water ıpply is one, if not the sole, source of the infection. The ınual reports for 1895 and 1896 contain graphic descriptions of ıe contaminated sources whence the water is supplied and :tempts made by the commissioner to induce the Denver nion Water Company to act on the recommendations made y the bureau. But the company turned a deaf ear and went ı disseminating filth and disease. Happily for the city the ayor, the members of the city council and the citizens of enver are in sympathy with their energetic and fearless ealth commissioner. Suit was begun by the city against the ›mpany and the stockholders begin to see that the long sufferg public is alive to the interests and mean business. The ›mpany made haste to introduce some of the suggestions ade by the health department in order to blind the public, ıt the commissioner kept his eyes open and induced the mem›rs of the council to go in a body and see everything there is be seen. The company has requested the privilege of sendg their engineer and secretary along with the expedition, ıich request was granted. After a thorough inspection of e sources of the water supply, their filthy surroundings and adequate filtration, there remained no more doubt in the inds of the city fathers, and to a certain extent in the minds the officials of the company as to the correctness of the ıtement of the last annual report, which reads: 1. That the ississippi Street horizontal wells and the Harrimon Ditch ›re subject to sewage pollution of the most serious nature. That the mixed water supplied to the city furnished evince of that pollution in the presence of bacteria to the numr of as high as 5,000 c.c. during the summer. 3. That creased use of the water was coincident with decreased bac·ial contamination of the mixed supply. 4. That the typhoid ver prevalence followed the period of maximum use of the lluted water and the diminished use of polluted water seems far to have been followed by diminished typhoid prevalence.

The Annual Meeting of the Denver and Arapahoe Medıl Society was held December 11. The event of the even; was a paper read by Dr. Sewall on the "Reduplication of › Heart Sounds and Its Clinical Signification." When he ıounced that the reduplication of the second sound is a pertly normal phenomenon, and can be discerned in every man, sound or sick, the members manifested a great deal of surprise. Dr. Sewall spoke of the causes of heart sounds and the elements which produce them. Each side has three elements and therefore six separate sounds could be heard. The reduplications are: Prolongation, splitting and doubling. The reduplication may be real or simulated. The reduplication of the second sound is heard plainest at the base of the heart, and is most marked at the end of respiration. The explanation of the cause of the normal phenomenon of the reproduction is a very ingenious one. It depends upon the nonsynchronous closure of the sigmoid due to unequal arterial pressure, and as the difference in pressure is greatest at the end of inspiration the reduplication is in consequence most marked at that time. The lessening of reduplication of the second sound, the author avers, is rather a pathologic symptom. Dr. J. N. Hall, in discussing the paper, called attention to the fact that in mitral stenosis the reduplication of the second sound is pathognomonic, notwithstanding Strümpell and others to the contrary. Dr. H. B. Whitney said: "If any one would have told me a week ago that the second sound is as a rule reduplicated, and that I have been during these long years of practice like the wicked 'who hath ears and heareth not,' I would have scorned such an assumption. But thanks to Dr. Sewall, who has given me the opportunity to examine twenty patients under his tutelage, I can say that the reduplication of the second sound was a perfect revelation to me." He has heard the reduplication in fifteen cases out of the twenty. It requires, however, a highly trained ear. The election of officers resulted as follows: E. P. Hershey, president; H. B. Whitney, vice-president; J. M. Blaine, financial secretary; J. E. Rothwell, treasurer, and George Tyler, secretary. From the exhaustive report of the retiring secretary, Dr. Spivak, we glean that fourteen meetings were held during 1897; the average attendance was thirty-six; twenty-seven papers were read and eleven cases reported. The Society has 150 members. The secretary suggested that a historic sketch of the Society, which is now in its twenty-seventh year of its existence, as well as the annual Transactions, be published. The suggestions were referred to the incoming Board of Censors, which is composed of Drs. Fleming, Eskridge, Hopkins, McLauthin and Van Zant.

The Denver Clinical Society.—Notwithstanding the fact that our sister-practitioners avail themselves of all the privileges which the existing medical societies afford, and not only do they grace the meetings with their presence, but also take active part in presenting and discussing papers in a manner by no means less dignified and scholarly than their brother practitioners, yet they have an organization of their own called by the above name. At the suggestion of Dr. Mary B. Bates, the women physicians have organized the society, which is in its third year of existence, and has for its object "the mutual improvement arising from informal discussion of interesting cases and new methods of treatment, as well as to foster greater sociability, closer acquaintance and sympathy among the members." The Society has twenty members and meetings are held bi-monthly. The present officers are: M. Jean Gale, president; Una Roberts, first vice-president; Catherine Hayden, second vice-president, and Josephine L. Peavey, secretary and treasurer. At the last meeting, held January 4, Dr. Lavney read a paper on "Uremia," with reports of a case of uremic convulsions, which necessitated emptying of the uterus. The patient recovered. The paper was discussed by Drs. Gale, Yont and Roberts.

Philadelphia.

Epidemic of Typhoid Fever.—The city authorities have recently had the most convincing kind of an object lesson afforded them regarding the direct relation of cause and effect existing between a sewage-polluted water-supply and the prevalence of typhoid fever in a thickly settled community. Some years ago their attention having been directed to the greater proportionate number of deaths from this disease in Philadelphia than in other large cities, and the cause being indicated and recognized as sewage pollution of the water-supply, provision was made to prevent such contamination by the construction of a large intercepting sewer, which runs nearly parallel with the Schuylkill River and empties its contents below the city

water works. Since its completion there has been observed a decided diminution in the number of cases of typhoid fever until recently. On November 16 last some workmen in flushing this great sewer turned on too great a head of water and the sewage backed up and before it was stopped overflowed for a few hours only into the Schuylkill. The polluted water was pumped principally into the Queen Lane Reservoir, supplying eight wards, which are considered as being among the healthiest wards of the city under ordinary circumstances. The first results were shown in the sudden increase of typhoid in these wards. Later there was a decided rise in the number of cases in other portions of the city. The reports of the health office as published weekly show that for the week ending November 22 there were only 34 cases, November 29, 54; December 6, 117; December 13, 125; December 20, 110; December 27, 107; January 3, 97; January 10, 165; January 17, 201; January 24, 212. The health authorities of the city have done their duty promptly. Dr. Abbott, head of the bacteriologic department, has prepared a report containing a striking array of figures and water analyses, accompanied by a chart or diagram of the affected districts. The County Medical Society has adopted resolutions condemning the water-supply and calling for the construction of a filtering plant as the only remedy. The suggestion was made by a member of Councils to ask the assistance of the United States Marine-Hospital Service, which, however, met with little favor. In view of the fact that by a popular vote on a new loan bill, Councils were authorized to spend more than a million of dollars in the specific purpose of improvement of the water-supply, it would seem that the situation has been well summed up by the mayor of the city, Mr. Warwick, who said in an interview: "There is only one thing that can be done now and that is to pass the loan bill. The betterment of the water-supply is the crying need of the people and this administration will attend to it just as soon as the money is available to accomplish the purpose." Dr. Benjamin Lee, Secretary of the State Board of Health, improves the occasion to point out the fact that for the last ten years the board has been endeavoring to secure the passage of a law to protect the Schuylkill as well as other rivers in Pennsylvania which supply cities with water from being the repositories of drainage, but without success. He ascribes the present outbreak directly to the pumping of polluted water into the Queen Lane Reservoir, and believes that it could have been averted by a proper system of filtration, such as had been advised by the City and State Boards of Health years ago. There can be no question but that the present outbreak has occurred at a most opportune time to strengthen the arguments of our health authorities and to enlist public opinion in favor of a much needed public improvement which Councils will probably be compelled to carry out.

PHYSICIANS' BENEFIT ORGANIZATION.—The Mutual Aid Association of the Philadelphia County Medical Association was the subject of the meeting of the County Society January 26. Addresses were made by Dr. Edward Jackson, president of the Society; Dr. Chas. Herman Thomas, president of the Mutual Aid Association, and John B. Roberts, ex-president. Dr. A. F. Currier of New York read a communication entitled "The Fifty-five Years of the New York Society for the Relief of Widows and Orphans of Medical Men." Dr. Chas. H. Leale, president of the New York Society, was also present and addressed the meeting. The Rev. Dr. Krauskopf, by invitation, spoke on "The Necessities of the Widow and Orphan," and the Rev. Chas. Wood spoke on the subject of "Charity." The meeting was largely attended and a number of visitors interested in philanthropic work were present. A reception and collation at the University Club followed the exercises, Dr. M. O'Hara was chairman of the committee having the entertainment in charge.

THE ANNUAL MEETING of the Faculty of the Philadelphia Polyclinic and College for Graduates in Medicine, was held January 17. The report of the Secretary showed that the number of pupil-physicians in attendance was larger than ever before in the history of the College. The most popular ticket was that for the general course. Of the special tickets taken, those in ophthalmology exceeded those of any other branch. The report of the Treasurer was equally satisfactory. In addition to the payment of all fixed charges of maintenance, the Faculty had contributed $1,800 to the sinking fund. This fund was established for the purpose of gradually wiping out the mortgages on the buildings, freeing the institution from debt and putting it on a sound financial basis that shall be independent of the number of students and of other circumstances. The officers that have served for 1897 were re-elected: Howard F. Hansell, president; Lewis Steinbach, vice-president; Max Stern, Secretary.

AT THE JANUARY MEETING of the Ophthalmic Section of the College of Physicians, held on the 19th inst., after transaction of the scientific business, the election of officers for the year resulted in the choice of Geo. C. Harlan for chairman and Howard F. Hansell for clerk of the Section for the ensuing year.

CHANGE OF ADDRESS.

Bausch & Lomb, from Masonic Temple to Stewart Building, Chicago.
Chancellor, C. G., from 613 Pine to Oriel Building, St. Louis, Mo.; Cunningham, S., from Taylor to Dallas, Texas; Cresswell, G. W., from Kalb St. to 36 Spruce St., Chicago, Ill.
Drake, G. W., from Nashville, Tenn. to Hollins, Va.
Houghton, E. F., from Rochester to Tilton, N. H.; Hawley, E. A., from 477 E. 45th to 663 Congress St., Chicago, Ill.
McLaughlin, from Austin to "Tower House" Galveston, Texas; McBride, M. A., from Yorktown to Sidney, Texas; Marcussen, W. from Harrison and Center Ave to 571 W. Madison St., Chicago, Ill.
Trumbower, M. R., from Denver, Colo. to Monett, Mo.
Uhler, J. R., from 661 W. Fayette St. to 1531 McCulloch, Baltimore, Md.
Whiting, E. D., from Chicago, Ill. to Alma Sanitarium, Alma, Mich.

LETTERS RECEIVED.

Ashby, W. W., (2) Onray, Colo.; Arnold, Philip, (2) Elizabeth, N. J.; Anderson, Winslow, San Francisco, Cal.; Applegate, J. C., Bridgeton, N. J.; Asepta Chemical Co., New York, N. Y.; Atkinson, W. B., Philadelphia, Pa.
Bovinine Co., The, New York, N.Y.; Brown, F. F., Advertising Agent, New York, N. Y.; Busey, S. C., Washington, D. C.; Bleazby, L. F., Detroit, Mich.; Barringer, G. R., Yorktown, Ill.; Black, H. C., Waco, Texas; Brown, J. M., New York, N. Y.
Chas. Roome Parmele Co., New York, N. Y.; Class, W. J., Chicago, Ill; Cokenower, J. W., Des Moines, Iowa; Cronica Medica Mexicana, Mexico City, Mexico; Cutter, F. H., Cedar Falls, Iowa; Case, I. S., Columbus, Ohio; Colorado Sanitarium, Boulder, Colo.; Canton Surgical and Dental Chair Co., Canton, Ohio.
Dial, W. H., Laurens, S. C.; Dunlap, J. L., Columbus, Ohio.
Elliott, H. G., New York, N. Y.; Edson, Carroll E., Denver, Colo.; Ewing, W. G., Nashville, Tenn.
Frissell, Seraph, Springfield, Mass.; Fougera, E. & Co., New York, N. Y.; Fulton, John S., Baltimore, Md.; Fisk, George V., Burlington, Vt.
Golden, I. J. K., Chicago, Ill.; Gibb, Joseph S., (2) Philadelphia, Pa.; Gaston, J. McFadden, Atlanta, Ga.; Goss, F. W., Roxbury, Mass.; Greene, J. H., Dubuque, Iowa.
Hummel, A. L., Advertising Agency, New York, N. Y.; Hall, C. Le, Kansas City, Mo.; Hektoen, L., Chicago, Ill.; Harris, M, L., Chicago, Ill.; Hannah, R. B., Felicity, Ohio; Herrick, A. B, Lisbon, N. D.; Hildenstein, I., New York, N. Y.; Howle, W. P., Oran, Mo.; Hogan, C. Birmingham, Ala. Hay, E. C., Hot Springs, Ark.
Jones, C. D., Malden, Mass.; Jackman, W. S., Chicago, Ill.
King, F. R., Anita, Iowa; Kimball, A. D, National Military Home, Ind.; Kiernan, Jas. G., Chicago, Ill.; King-Jones Co., Limited Toronto, Canada.
Marks, A. A., New York, N. Y.; McDill, J. R., Milwaukee, Wis.; Merken, John T. & Co., St. Louis, Mo.; Mitchell, Henry, Trenton, N. Mitchell, Alfred, Brunswick, Me.; MacCoy, George T., Columbus, Martin, Thos. Chas., Cleveland, Ohio; Middleton, W. D., Davenport, Iowa; Malt Diastase Co., New York, N. Y.
Newberry Library, The, (2) Chicago, Ill.
Oakland Chemical Co, New York, N. Y.
Pratt, W. E., Buckingham, Va.; Pleak, S. Marton, Breese, Ill.; Pe W. R., Unionville, Pa.; Potter, H. N., Burlington, Vt.; Paul Pa Laboratories, St Louis, Mo.: Patch, Wm., (2) Sibley, Ill.
Reasoner, R. W., Morrisonville, Ill.; Rutledge, S. W., Grand F N. D.; Rawlins, C. M., Cleveland, Ohio; Rockwell, A. D., New N. Y.; Rogers, H. S., Red Oak Iowa.
Shoemaker, J. V., Philadelphia, Pa.; Savage, G. C., Nashville, T Strong, T. D., Westfield, N. Y.; Scott & Browne, New York, N. Y.; S pegrell, W., New Orleans, La.; Stuart, J. C., Minneapolis, Minn; S ser, H. B., Minneapolis, Minn.: Shotwell, A. N., Mt. Clemens, Mich
Tedrow, J. B., Williams, Iowa; Treat, E. B. & Co., New York, N.
United States and Canada Mercantile Agency, (2) Chicago, Union Publicity Co., Brooklyn, N. Y.
Welch, Wm. H., Baltimore, Md.; Welch Grape-Juice Co., The, kins, N. Y.; Woodworth, R. G., Pueblo, Colo.; Wingate, U. O. B. waukee, Wis.; Western Pennsylvania Medical College, (2) Pitts
Zimmermann, A., Step, Ala.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and of officers serving in the Medical Department, U. S. Army, January 8 to 14, 1898.

Capt. Charles F. Mason, Asst. Surgeon (U. S. Military Academy, Point, N. Y.), is granted leave of absence for two months, permission to go beyond sea, to take effect April 1, 1898.

Navy Changes. Changes in the Medical Corps of the U. S. Navy the week ending January 22. 1898.

Surgeon A. G. Cabell, ordered home and granted three months' leave.

P. A. Surgeon A. W. Dunbar, order of January 12 modified; detached from the "Nashville" and ordered to the "San Francisco" steamer of January 22.

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ORIGINAL ARTICLES.

OBJECTIONS TO THE ANTIVIVISECTION BILL NOW BEFORE THE SENATE OF THE UNITED STATES.

BY WILLIAM H. WELCH, M.D.
JOHNS HOPKINS UNIVERSITY,
BALTIMORE, MD.

The following statement has been prepared by the writer in order to meet the requests of several Senators of the United States and of physicians for objections to Senate bill 1063, which has been reported unanimously by the Committee on the District of Columbia. It is believed that many have been misled by efforts of advocates of the proposed legislation to make it appear that the bill is intended only to check alleged abuses of animal experimentation and not to interfere with its proper uses. A main purpose of this statement is to show the error of this assumption.[1] Much of the same ground has already been covered by others in various protests and publications.

The provisions of Senate Bill 1063 are so complicated and in several instances doubtful in their interpretation, and the objections to the bill are so numerous and their full presentation would require so much space, that only some of the principal arguments against it can be considered within the compass of this succinct statement.

1. The bill is entitled "A Bill for the further prevention of cruelty to animals in the District of Columbia." This title is misleading, as it does not indicate that the bill is intended solely for the restriction and regulation of experiments upon animals. The recommendation of the Commissioners of the District of Columbia in their report upon a bill of the same title and of similar contents in the 54th Congress (S. 1552) that the title be changed to read "A Bill to regulate vivisection in the District of Columbia" was not adopted. It may well be questioned whether some who have signed petitions in favor of the bill have not been misled by the title as to the real contents of the bill.

2. The authorship of this bill is claimed by the antivivisection committee of the Washington Humane Society (annual report, 1895, p. 24). The attitude of this society toward experimentation upon animals is apparent in the report of its president for the year 1894, where he said: "The subject of vivisection (experiments upon animals) has been frequently before your executive committee during the past year, and but one sentiment has been expressed, viz., that of utter abhorrence and condemnation of the inhuman practice which, according to the oft expressed opinion of the best physicians and surgeons, is of no practical value to science or medicine." It should be borne in mind that this bill emanates wholly from those hostile to animal experimentation and who, as appears from the foregoing quotation, do not hesitate to misstate the opinion of the great body of the medical profession as to the value of animal experiments. No one familiar with the needs of scientific and practical medicine and of biological science and possessing skilled knowledge upon the subjects which the bill proposes to regulate has been consulted or had any hand in the drafting of the bill.

3. Medical and scientific men have never had adequate opportunity to present the arguments against this bill before the Committee on the District of Columbia, which has reported favorably upon it. At the hearing of a similar bill before this Committee on April 17, 1896, Surgeon-General Sternberg said, "We did not know of this hearing until today, and were compelled to come here without any previous preparation." Surely a bill which is of far more than local interest, as appears from the numerous communications regarding it from all parts of the country, and which in its direct and remote bearings, in the opinion of enlightened physicians and scientists, vitally concerns the future progress of medicine and biological science in this country, never should have been reported by the Committee without thorough investigation as to its necessity and its effects and without full opportunity, granted not only to physicians of the District of Columbia but to others, to prepare and submit arguments against it. An hour's time granted to a few hastily summoned physicians and scientific men of the District, who came without preparation, did not afford the requisite opportunity to present adequately the objections to the bill.

4. Any one who is at all familiar with the writings and the propaganda of the antivivisectionists knows that their ultimate aim is to abolish animal experimentation altogether. They demand only such measure of restrictive legislation in the present bill as they think they may be able to secure at the present time. Concession to these demands will not check their agitation of the subject and their efforts to secure more stringent laws, as has been abundantly

[1] As a matter of fact no abuse of vivisection such as would justify any restrictive law whatever has been demonstrated in this country. The experience in England has shown the folly of the belief of some men of science and physicians that any compromise in this matter with antivivisectionists will check in the least their agitation of the subject. Upon this point I will quote, by permission, a few sentences from a private letter written by Michael Foster, who is recognized in this country as well as in Great Britain as the leader in his department of medical science. The letter was written to a prominent physiologist in this country: "I have always said and always shall say that the necessity of a restrictive law has never been shown. The English Commission failed to demonstrate any abuse such as could justify the measures adopted; and from what I know of America and Americans I am confident no such laws are needed with you. Indeed, my objections to the Act as a politician are quite as strong as my objections as a physiologist; the Act is stamped with that mark of bad statesmanship, *meddlesomeness*. . . . . If the time were to come over again, I should fight tooth and nail against any act at all, on the ground that all such *legislative restrictions are unnecessary*, that instances of cruelty, that is of needless causing of pain on the part of physiologists are, to say the least, rare, and that public opinion aided by the ordinary law is quite sufficient to cope with such cases. (I of course assume that vivisection is absolutely necessary for the progress of physiology.) And, much as I hate public agitation, I should throw myself into agitating against such measures, sacrificing my little portion of present science for the sake of science to come. My advice to you is, accept no compromise whatever, refuse to admit for a moment the need of such a law, and fight against it everywhere, in the newspapers and on the platform, and if the situation demands it, even imitate your opponents and refuse a political vote to a candidate who will not pledge himself to vote against it. I do not think I can say anything stronger than this last. To repeal a law is a very different thing from opposing the making of one."

demonstrated in England, where some medical and scientific men unwisely thought that by yielding to relatively moderative demands for legislation, further agitation of the subject would end. On the contrary, bills for the total abolition of experiments upon animals have been introduced into the British parliament since the passage of a bill similar to Senate Bill 1063.

5. Although it is contended by advocates of the bill that it will not interfere with the proper uses of animal experimentation, it is to be noted that the remarks of these advocates at the hearing before the Committee and the favorable report of Senator Gallinger are occupied largely with the presentation of the stock arguments of antivivisectionists against the value and the justification of experimentation upon animals. The most important of these arguments are the following: *a*. That medical and scientific men are divided in opinion upon this subject; *b*, that experiments upon animals have yielded results of little or no value to medicine or science; *c*, that such experiments are conducted with wanton cruelty and are brutalizing to those who witness or practice them. These arguments have been refuted many times. It would require a voluminous treatise to present the evidence relating to them adequately. It must suffice to mention only a few points.

a. It is untrue that there is any material division of opinion among well informed medical or scientific men as to the necessity and value of animal experiments. The names of a very few more or less prominent physicians, in no instance themselves scientific experimenters, are constantly cited, in some cases incorrectly or incompletely, by antivivisectionists in support of their position. Lists of other physicians collected by antivivisectionists as opponents of animal experimentation will not in general bear scrutiny as to the professional standing or scientific attainments of the majority of those whose names are given. The incorrectness of the statement of antivivisectionists here challenged must be apparent from the fact that whereas not a single medical or scientific society is known to have favored this bill, over a hundred such societies, which assuredly represent the great body of physicians and scientists of this country have protested against its passage. These societies represent the rank and file of the medical profession and not exclusively "ultra-scientists," as has been claimed. It is therefore unhesitatingly asserted that the medical profession and scientists, so far as their opinion receives authoritative utterance, are overwhelmingly opposed to this bill.

b. The constantly reiterated statement of antivivisectionists that animal experimentation has been of little or no value to medicine can be the result only of ignorance or of wilful misrepresentation. It would be surprising, indeed, if the experimental method, which is essential to every other science and has been the great instrument of modern scientific progress, should have no value for medical science. Surely this is a matter concerning which the judgment of the great body of enlightened physicians should be decisive. The progress of medicine from the time of the discovery of the circulation of the blood, which was based upon the results of animal experimentation, up to the present time, has rested in very large measure upon discoveries which could have been made only by experiments upon animals. It must suffice here to cite only a few illustrations of the practical value of animal experimentation, such as the establishment of the germ doctrine of disease, the introduction of antiseptic surgery, the prevention of childbed fever, the antitoxin treatment of diphtheria and other diseases, the prevention of rabies by Pasteur's method of inoculation, the successful treatment of myxedema and cretinism by thyroid extracts. Countless thousands of human lives have been saved and will continue to be saved by methods of prevention and treatment of disease, which are derived from the results of animal experimentation. Recent years have been particularly fruitful in discoveries of the highest importance resulting from animal experimentation. Never was there so little justification to hamper in any way the work of those engaged in searching by experiment for means of preventing and curing disease.

c. The claim of antivivisectionists that scientific experimentation on animals brutalizes those who witness and practice it, is an insult, without shadow of foundation, to a class of scientific workers unselfishly devoted to the investigation of problems of the highest importance to the welfare of mankind.

There is no part of the campaign of the antivivisectionists conducted with such gross misrepresentation of the facts as that intended to make the public believe that scientific experiments upon animals are conducted cruelly, that is, with the infliction of needless pain. A large part of antivivisection literature consists of leaflets and broadsides distributed wholesale among the public, containing pictures of animals and descriptions of experiments, which are in general so erroneous or garbled or unintelligible to most of those who read them, that they convey utterly false impressions. It is repugnant to the spirit of medicine and of science to resort to similar methods in order to counteract the deplorable effects of these emotional and misleading appeals of antivivisectionists to the general public. The charge of any considerable abuse of the practice of animal experimentation on the ground of cruelty, especially in this country, has been abundantly refuted by articles in journals and other publications, which unfortunately rarely come to the notice of the great majority of those who receive the gruesome circulars of antivivisectionists. Whenever the conditions of the experiment permit, and this is in the great majority of painful vivisectional experiments, all trained experimenters place the animal during the operation completely under the influence of anesthetics. There is no evidence that there exists today in any properly conducted laboratory in this country any abuse of vivisection on this score.

6. The advocates of this bill have not been able to point to a single authenticated instance of the abuse of animal experimentation in the District of Columbia. The same inability to specify instances of abuse in Massachusetts was demonstrated in the recent hearing before a committee of the legislature of that State relating to a bill to control animal experimentation. Notwithstanding most violent efforts on the part of English antivivisectionists to excite popular feeling by charges of wanton cruelty against scientific experimenters upon animals, the Royal Commission appointed to inquire into the matter "entirely acquitted English physiologists of the charge of cruelty." The Committee recommending Senate Bill 1063 has attempted no similar inquiry for this country, but it can be confidently predicted that similar charges made in the most reckless and wanton manner against American physiologists would be found to be equally unfounded.

It is not true that secrecy is practiced in the conluct of such experiments. In scientific publications hese experiments are described in detail. There is io effort made to prevent properly qualified medical nd scientific men from witnessing these experiments. For manifest reasons it would be as improper and ndesirable to throw open such experiments to the aspection of those without any training or compeence to judge of their character and value, as it would e to give similar publicity to surgical operations. In ie absence of any demonstration of abuse of the ractice of animal experimentation in the District of olumbia, this bill is unnecessary.

7. It is well understood that the organized and renuous efforts of antivivisectionists to secure conressional legislation upon this subject is not so much o check abuses in the District of Columbia, where in ict they do not exist, as to influence legislation in ie various States of the Union. Although they have ade repeated attempts to secure legislation, generally r less stringent than that contemplated in this bill, in fferent States, they have hitherto been unsuccessful. Wherever full and fair opportunity has been given to ysicians and scientific men, they have had no diffilty in demonstrating to the satisfaction of committes of our State legislatures the objections to any such gislation. We would call particular attention to the nvincing arguments urged successfully against a uch milder bill recently introduced in the legislature Massachusetts, a State in which the antivivisecnist agitation has been particularly active.

8. The experience with legislation, similar in charter to this bill but surrounded with more effective feguards against interference with scientific experientation in England, has been most unfortunate in influence upon the advancement of medical science that country. Many scientific workers in England, cluding Lord Lister, one of the greatest benefactors the human race through his introduction of antiptic surgery, have preferred to leave their country d conduct their experiments in continental laboraies, rather than submit to the vexatious restrictions on their work. Earnest appeals have been sent by inent men of science in England to physicians in s country not to repeat their mistake of yielding to demands of antivivisectionists in this matter.

9. The District of Columbia already has an unusuy comprehensive and effective law for the prevenn of cruelty to animals, and there is no need of ther legislation in the direction contemplated in s bill. Only properly conducted scientific experints under proper authority are now allowed. Those o conduct experiments upon animals are no less ject to the provisions of the existing law than ier members of the community. If they can be ivicted of cruelty in the practice of their experints, the present law provides adequately for their nishment. The antivivisectionists complain that y are unable to secure convictions of experimenters n animals under the present law. If so, it is bese they can furnish no evidence of cruelty in the duct of the experiments convincing to a court of tice. Their demand that the doors of laboratories ll be thrown wide open to agents of their societies rder to procure evidence, would lead to a system outrageous espionage utterly foreign to our system government, and degrading and intolerable to the ntific men in charge of the laboratories.

10. This bill is unanimously opposed by the great scientific and medical bodies of this country, National, State and local, who recognize in its provisions a blow to freedom of investigation and to the advancement of medicine and biology. Among the five score and more societies which have protested against this bill may be mentioned The National Academy of Sciences, The American Association for the Advancement of Science, The Society for the Promotion of Agricultural Science, The AMERICAN MEDICAL ASSOCIATION, The Congress of American Physicians and Surgeons, The American Public Health Association, The United States Veterinary Medical Association, The Association of American Physicians, The American Surgical Association, The Association of American Medical Colleges, The New York State Medical Society and Association, and other State Societies, the New York Academy of Medicine, etc. The assumption that the protests of these societies have been made in ignorance of the provisions of the bill is absurd. It would be incomprehensible if Congress should ignore or disregard the united voice of these great organizations in a matter which directly concerns the welfare of medicine and biological science.

11. Although there is abundant evidence in the Report recommending this bill that the real sentiments of its advocates are hostile to scientific experiments upon animals, it is nevertheless asserted by them that the bill, if it should become law, would not in fact interfere with the proper uses of animal experimentation for scientific investigation and study. Such an assertion can be made only by those unfamiliar with the needs of medical and biological science and with the purposes of experimentation upon animals, or else ignorant of the provisions of the bill. To take up in detail all the provisions of the bill and to point out fully the manifold ways in which they would interfere with proper and legitimate uses of animal experimentation, would require more time and space than can here be given. This work has been done in part, but only in relatively small part by others, notably by the Secretary of Agriculture, the Hon. James Wilson, and by the former Acting Secretary of Agriculture, Dr. Charles W. Dabney, Jr., in their published letters addressed respectively to the Hon. Redfield Proctor and the Hon. James McMillan. It must suffice here to indicate only a few of the ways in which this bill would prove injurious to medicine and biology, but enough will be shown to demonstrate its fatally defective character.

A. The bill provides (Sec. 2, *b*,) that "The experiment must be performed by a person holding such license from the Commissioners of the District of Columbia as in this Act mentioned, or, by a duly authorized officer of the Government of the United States, or of the District of Columbia." It further provides (Sec. 3) that the Commissioners of the District may require the place in which any experiment is made by a licensee to be registered in such manner as they may direct and that every place for the performance of experiments for purposes of instruction shall be approved by the said Commissioners and registered in such manner as they may direct. It also provides (Sec. 5) "That the Commissioners of the District may direct any person performing experiments under this Act from time to time to make reports to them of the methods employed and the results of such experiments, in such form and with such details as the said Commissioners may require," and again in Sec. 7 the bill provides that "The Commissioners of the District

may at any time disallow or suspend any certificate given under this section."

It is evident that the bill gives uncontrolled discretion to the Commissioners of the District of Columbia in the granting of all licenses permitting experiments upon animals. They may if they choose, grant all applications for license or they may refuse all such applications and thereby prohibit all animal experimentation in the District, except that conducted by officers of the Government of the United States or of the District of Columbia. Experiments by the latter officers, as well as by licensees, they may hamper so as to make the privilege of experimentation practically useless, by demands for reports upon the methods and results of experiments at any stage of the experimental investigation as often and with as much detail and in such form as they choose. An unfinished experimental research can be interrupted or brought to an end at any time by suspension of the license in the discretion of the Commissioners. No provision is made for any hearing by the applicant or the licensee. There is no appeal from the decision of the Commissioners. They are the sole arbiters in the matter. They are made the dictators of the medical profession by this bill in matters requiring expert knowledge and sympathy with the needs of medical science.

No one can foretell in what manner the District Commissioners would exercise the arbitrary powers conferred upon them by this bill. It is certain that if they exercised them so as to meet the approval of those from whom this bill emanates and the antivivisectionists in general, who are its advocates, they would antagonize the medical profession and scientists and would inflict serious injury upon human and veterinary medical science and upon biology. On the other hand, if they administered the law so as to meet, so far as the bill permits, the wishes of physicians and scientific men, they would as surely antagonize the great majority of the advocates of the bill, who would continue their agitation and endeavor to secure still more prohibitory legislation.

Among the many objections to this bill there is none more fatal in the principle involved or likely to be more so in the practical working of the proposed legislation than that this bill places in the hands of a body of men, who need not be and are not likely to be physicians or men of science, arbitrary powers, requiring skilled knowledge in their use, concerning matters of the highest importance to medicine and biological science and to the welfare of mankind and of animals.

B. The bill provides (Sec. 6) " That the President of the United States shall cause all places where experiments on living vertebrate animals are carried on, in the District of Columbia, to be, from time to time, visited and inspected without previous notice for the purpose of securing compliance with the provisions of this Act; and to that end shall appoint four inspectors, who shall serve without compensation, and who shall have authority to visit and inspect the places aforesaid, and who shall report to the President of the United States from time to time the results of their observations therein, which shall be made public by him."

It will be observed that this section makes no provision that the inspectors called upon to scrutinize and report upon the experimental work of physicians and scientific men shall possess any special qualifications for such remarkable and responsible functions. Can it be assumed that the President will appoi only those who possess the requisite qualificatio and where will he find them? Our Universiti and Medical Colleges and Hospitals and Governme Laboratories search the country over to find m fitted to conduct the experimental investigations whi this bill would regulate and control and they ha difficulty in finding those with requisite trainir scientific knowledge and special skill. And now th bill provides that over such men as these shall placed inspectors to determine whether their expe ments are performed in the proper manner and up proper animals and for proper purposes and to ma reports upon their experiments, which reports shall made public.

The character of the inspection desired by the adv cates of this bill is made sufficiently evident by t provision of the original bill (S. 1552) that the Co missioners of the District "shall appoint and auth ize an agent of the Washington Humane Society make such inspection." The attitude of this socie toward animal experimentation is clear from t extract from one of its reports already cited (p. 28 It certainly may be reasonably assumed that th society and antivivisectionists in general will cla and will secure representation among the inspect provided for in this bill. Nor is it unreasonable suppose that they may even control the majority the inspectors. In larger or smaller part, therefc the inspection will doubtless be by men or possil women, not only without special scientific knowlec but actually opposed to experimental medical or b logical science. It would be entirely in the powe such inspectors to render the conditions for exp mental work such that no one would care to undert it.

It is a libel upon common sense to assert, as is sistently done by the advocates of this bill, that objection of experimenters to any such system inspection as that provided for in this act, is du their fear of exposure of wanton cruelties practi by them in the secrecy of the laboratories. A matter of fact, no secrecy surrounds the practice animal experimentation, and any properly quali person has free access to the laboratories where s experiments are made.

C. The hardship which would be inflicted u those engaged in experimental research by the p visions of the bill that at any stage of their inve gations they may be called upon to furnish deta reports of the methods and results of their work that those, with probably no comprehension of nature and purposes of the experiments, shall m reports thereupon, which shall be published, car fully appreciated only by those who are acquai with the conditions under which scientific inquir prosecuted. There are many important scien investigations which would probably not be un taken at all under any such vexatious condition these. These provisions, as well as others in the can be utilized constantly to harass experimente case the law should be administered, as is not at all probable, by those unfriendly to experimental inq ies in medicine and biology.

D. The bill prohibits important and neces experiments and surrounds the performance of ot with such restrictions as virtually to prohibit th Exactly how far this prohibition extends can no determined without an interpretation by the cour

tain doubtful provisions of the bill, nor can any
e foresee what new kinds of experiment, not now
vided for in the bill, the future progress of medi-
e and biology will require.

The bill provides (Sec. 2, *a*) that "The experiment
ıst be performed with a view to the advancement
new discovery of physiological knowledge, or of
owledge which will be useful for saving or prolong-
life or alleviating suffering." If this provision
interpreted according to the explicit language
ed, and it may be presumed that the courts would
interpret it, no experiment can be made (except
monstrations for lectures provided for elsewhere in
e bill) which is not for the advancement of knowl-
ge *by new discovery*, and this knowledge must be of
e of two kinds, either physiological or such as will
useful for saving or prolonging life or alleviating
ffering.

The term "physiological" is used both in a broad
d a narrow sense, and it can not be confidently pre-
ted how the courts might interpret it. To compel
experimenter to pause before each experiment
ıich he is about to make and consider whether he
n demonstrate to the satisfaction of a court that the
periment, if not for the advancement of physiolog-
ıl knowledge, is for the advancement *by new dis-
very* of knowledge, which can be utilized in saving
prolonging life, or alleviating suffering, would not
conducive to progress in the very kind of knowl-
ge specified. The history of scientific discoveries
medicine, no less than in other fields, demonstrates
at experiments undertaken without any thought of
actical application, and yielding results which
pear at the time to be devoid of all practical utility,
ve often laid the foundations of knowledge of the
ghest importance to mankind.

Two valuable lines of experimentation at once sug-
st themselves as forbidden by the words of this sec-
ın, viz., experiments to confirm results obtained by
hers, and experiments to acquire manual skill in
rforming surgical operations. The first of these
strictions was pointed out by Dr. Chas. W. Dabney,
., former Acting Secretary of Agriculture. Although
e report upon the bill states that "the bill does not
ar this limited construction," it is difficult to see
ıw the plain language can be construed otherwise,
d, if it was not the intention to prohibit confirma-
ry experiments, the question arises why those who
afted Senate Bill 1063, in copying this section from
e British law, omitted the paragraph in the latter
ıich expressly provides for experiments made "for
e purpose of testing a particular former discovery
leged to have been made." Certainly the framers
the British law could not have considered that
periments confirmatory of alleged discoveries were
ready provided for by the section in question or they
ıuld not have added the paragraph omitted from
e Senate bill. There is no other natural inference
an that it was deliberately intended to forbid con-
matory experiments.

Experiments upon animals in order to acquire man-
l skill in performing surgical operations, certainly
e not experiments for the advancement of knowl-
lge *by new discovery*. Whether it was intended to
ohibit such experiments is not clear. In Sec. 2, *c*,
reads "nor in tests of surgical procedure need ani-
ıls be kept completely anesthetized during the pro-
ss of recovery." There is nothing, however, here
elsewhere in the bill to indicate that these tests are
to form any exception to the general requirement that, save demonstrative experiments for lectures, all permissible experiments must be for the advancement of knowledge *by new discovery*. If, as seems to be the natural interpretation of the language of the bill, surgeons are not to be permitted to perfect themselves in methods of operating by experiments upon animals, this prohibition can be characterized as nothing less than inhuman. The only alternative is to make a human being instead of one of the lower animals the subject of experiment. There are many operations which a surgeon may wish first to try upon an animal before attempting them upon a human being. An eminent surgeon has said that a surgeon should not perform the operation for circular suture of the intestine and for intestinal anastomosis upon man without first practicing it on animals.

The bill provides (Sec. 2, *c*,) that "The animal must, during the whole of the experiment, be completely under the influence of ether or chloroform," excepting in inoculation experiments, tests of drugs or medicines, and during recovery from surgical operations. It is absurd to limit the choice of anesthetics to two. There are other anesthetics which produce equal insensibility to pain, and any one at all acquainted with physiological experiments, knows that there are experiments in which it is safer, better, and sometimes for the purposes of the experiment necessary, to produce anesthesia in other ways than in the only two permitted by this bill.

The absurdity of the claim that this bill is simply restrictive and regulative, and not prohibitive of experiments upon animals, can be shown in many of its provisions, and especially by that which forbids the survival of the animal after an operation unless kept continuously under the influence of ether or chloroform. The only exceptions to this provision are inoculation experiments, tests of drugs or medicines and tests of surgical procedure. The experiments which are prohibited by this provision are so many that they can not even be enumerated within the compass of this statement. All physiological and pathological experiments where the ends of the experiment can be attained only by observation of the animal for days or weeks after some operation, or after the administration (save by inoculation) of anything except drugs or medicines which may give pain, are prohibited by this bill, for it is impracticable to keep animals during such periods of time continuously anesthetized. Such important experiments as those which have shed light upon the functions of the stomach by gastric fistula, or of the heart by the experimental production of valvular lesions, or of the central nervous system, kidneys, and indeed most of the organs of the body by observations extending over some length of time after an experiment, are all prohibited by the conditions of experimentation imposed by this bill. All experiments are prohibited in which anything, except drugs or medicines, is simply fed or introduced into the stomach in case the experiment is calculated to give pain to the animal and extends beyond the limited period in which it is practicable to keep the animal under ether or chloroform.

It may well be questioned whether it was intended to forbid the large class of important and necessary experiments of the characters described. If it was not, then the bill is so loosely drawn that it should never pass in its present form. If it was intended to exclude all of these experiments, then the blow which

its enactment would inflict upon biological and medical science is simply brutal.

There are other kinds of valuable experiments which are prohibited by this bill besides those specified, but enough has been said to show the error of the assertion made in the Report recommending it that "the bill is restrictive, not prohibitive," and to demonstrate that among the prohibited experiments are many of the highest scientific and practical value, including many which involve far less suffering to the animal than some which are permitted.

E. The bill provides (Sec. 4) "That a license shall not be granted to any person under the age of twenty-five years, unless he be a graduate from a medical college, duly authorized to practice medicine in the District of Columbia." There are graduates of Zoology and other departments of Biology under 25 years of age eminently qualified by their training for investigations involving experimentation upon animals. Concerning the effect of this provision upon the work of the Bureau of Animal Industry Dr. Dabney, in the letter already cited, says: "It would at once stop some of the experiments now in progress, and if it had been enforced in the past years would have prevented a large proportion of our scientific employes from doing this class of work."

F. The greater part of the investigations requiring animal experimentation in the District of Columbia are conducted in the Bureau of Animal Industry under the Department of Agriculture. This bill takes the scientific work of a Department of the General Government to a considerable extent out of the hands of the Secretary of Agriculture, and places it to a corresponding extent under the control of officials of the District of Columbia, and that too for matters which concern the agricultural interests of the entire country and only in relatively small measure concern the District of Columbia. The bill accomplishes this by providing that the Commissioners of the District may direct any person performing experiments to report to them from time to time the methods and results of their experiments in such form and with such detail as the Commissioner may require. It will be observed that it is not the Secretary of Agriculture who is to be called upon to report, but it is his subordinates. The bill further provides that if any of five kinds of animal (cat, dog, ass, mule, horse), are used for the experiment, a special certificate setting forth certain facts must be procured. The bill is singularly indefinite as to these certificates, especially not stating by whom they are to be given, or to whom application for them is to be made. If, as is not improbable, it was the intention that these certificates should be granted by the Commissioners, then the scientific work of the Bureau of Animal Industry is placed practically under the direction of these District officials, for no provision of the bill exempts officers of the Government from the necessity of procuring these certificates, as is the case with licenses.

No attempt has been made in this statement to present a complete analysis of Senate Bill 1063 and to point out all of its objectionable provisions or even to exhaust the objections to such as have been considered. No such complete analysis is necessary in order to prove the error of statements in the report recommending it that it is "reasonable and wise," "restrictive and not prohibitive," and permissive of all "useful investigations." It may be that the committee recommending the bill believed it to possess the moderat and reasonable character claimed for it. The defect of the bill are evident enough to those who are familia with the requirements of modern medicine, in it scientific and practical aspects, and with the needs c biological science. So evident indeed are they that i has generally seemed unnecessary to medical and scien tific societies and individuals, who have protested i hundreds against the passage of the bill, to do more tha emphasize on the one hand the great benefits derive from animal experimentation and on the other th restrictive and prohibitive features of the bill. Appa ently so convinced have many of the advocates of th bill been of its moderation, that they have assume that these protests have been made in ignorance c the provisions of the bill, a most unwarranted an gratuitous assumption. It is not to be expected tha any considerable number of the committee to whic the bill was referred should possess that technical, ex pert knowledge essential for an intelligent judgmen as to the effects of a complicated bill which prescribe by whom, and for what purposes, and upon what ani mals, and in what manner, scientific experiments sha be performed.

It surely could not have been the intention of th Senate Committee recommending this bill to inflic such serious injury upon medicine and science as, i the opinion of those who by their training, occupatio and special knowledge of the subject are most compe tent to judge of its workings, it certainly would inflic

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THE ANTITOXIN TREATMENT OF TUBERCULOSIS.

OR THE DIRECT (TUBERCULIN PREPARATIONS) VERSU THE INDIRECT (ANIMAL SERUM) METHOD OF IMMU-NIZATION AGAINST TUBERCULOSIS.

Read before the Denver Medical Association and Arapahoe County Me ical Society, Dec. 14, 1897.

BY CHARLES DENISON, A.M., M.D.
DENVER, COLO.

Since Koch's discovery of tuberculin some seve years ago, we no longer wonder that the majority c medical men were turned away from the employmer of this remedy by its ill-advised use, and the resultin gross effects, as shown by Virchow, the great patho ogist.

From the absurd advertisement of a Swiss barbe "tuberculin injections given here," and the equall preposterous belief which at first prevailed that means to destroy tuberculosis had been discovered, a easy of use as a household remedy, we have come t learn that if cure it will, it must be by a concentra tion of skilled effort, and a technique involving a much discrimination in diagnosis and care as does th differentiation of a complicated eye refraction, th microscopic determination of blood changes due t disease, the endoscopic study of internal organs, c any other delicate field of professional work.

The great mistake of the celebrated discoverer c tuberculin (which in a measure is applicable, also t his later discovery tuberculin T. R.) was that ther was no due recognition of the failures of physician in the diagnosis of tuberculosis. In other word medical men failed to recognize the great variation c the disease to be treated by so powerful a remedy We can now see how unfortunate it was for Koch t

llow his tuberculin to be indiscriminately used since
o determination was reached as to what cases should
e excluded, but rather a trap was set to catch the very
lass of cases which should never have had the remedy
n its original crude form. I refer to the precaution
nnounced in the first instructions that preference
hould be given to hospital cases where patients were
o be kept in bed during the "reactions," in apparent
eglect if not ignorance of the necessity of elimination,
nd the ever present need of recognizing other asso-
iated causative agencies, chief of which is that of
limate. The concealed and therefore more serious
ubercular lesions would be brought to light by the
earching specific, and cheesy or tubercular pneumo-
ias which would necessarily have to undergo the
xpected process of "necrosis" would in some way (?)
ave to be taken care of. Indeed the indiscriminate
se of tuberculin was an absurd and indefensible pro-
osition under the conditions specified. I abandoned
Koch's proposed method within a month of its com-
nencement, and thereafter refused to give the treat-
nent unless patients were well enough to come to my
ffice and could take exercise enough to eliminate the
ubercular bacilli or their toxins when thrown off or
et loose by the special agency used.[1]

So tuberculin is said to be a failure and the peren-
ial essayist, in assumed wisdom, which seems almost
udicrous to one who knows the truth, exclaims, "Hic
acit" tuberculin the chief of specifics for consump-
ion! As to the original product, should any profes-
ional brother desire to investigate the proofs, I can
elect for him a dozen or more persons, who were once
ctively tubercular, and who from seven to four years
go were treated hypodermatically with relatively
arge quantities of the crude tuberculin and who are
ow apparently well and free from any sign of
uberculosis.

As a result of these years of investigation of tuber-
ulosis by such eminent men as Klebs, Trudeau, Von
Ruck and Whittaker, there is no doubt in my mind
hat the healing specific, the immunizing agency, lies
omewhere in the bodies of the tubercle bacilli. Koch
ractically acknowledges this when he uses the whole
f the germ to make his new tuberculin T. R., a pro-
luct in reality the clear portion of an *emulsion* of the
odies of the bacilli.

While among veterinarians the crude tuberculin has
een generally used and acknowledged as the best
liagnostic means ever found for the detection of
uberculosis in cattle (a diagnosis that I have thus
ar utilized with satisfactory result in twenty-one hu-
nan beings), yet the successful application of the
emedy in the arrest of human tuberculosis has been
nade but by very few. Those who have had the
ourage, intuition and skill to succeed in this line are
vell represented by Dr. James T. Whittaker of Cin-
innati, who answered the objections to the use of
uberculin in an excellent paper on "General Impres-
ions from Six Years use of the Old Tuberculin," read
efore the British Medical Association at Montreal,
Sept. 2, 1897. He concludes in these words, "aside
rom the objections urged by ignorant and prejudiced
eople, not worthy of notice, four apparently valid
rguments accumulated, in the course of time, against
he use of tuberculin in man.

"1. That the reaction occurred in the absence of tub-
rculosis. This objection has been met by the demon-
tration of concealed deposits.

"2. That the reaction occurs in other diseases, syph-
ilis, lepra, actinomycosis, etc. This objection has
been met by the demonstration of tuberculosis coin-
cident with or complicating these maladies.

"3. That the reaction will occur in the most quiescent
cases even where the bacilli are not only concealed
but encapsulated and deposits are partly calcified.
This is no objection at all, but a most striking con-
firmation.

"4. That the use of it is dangerous; that it not only
awakens the disease from latent sources but dissemi-
nates it over the body and this leads to an infection
and increases the danger of infection of others. This
conclusion rests on a false premise and confounds the
post with the *propter hoc*." I have quoted so much
because this verdict, like everything Dr. Whittaker
writes, is a clearer statement than I could make; but
I can heartily endorse it, for during the same long
period there has been no time during which I have
not had from half a dozen to twenty tubercular pa-
tients undergoing this form of immunization by means
of some form or derivative of tuberculin.

It has been my desire, if possible, to find such a
derivative from or modification of tuberculin, uniform,
standard, and freed from all undesirable qualities, as
will be acknowledged by the medical world to be a
true specific for tuberculosis. I mean just as much
an antitoxin for this chronic and perplexingly variable
infection, as, in its way, is the antitoxin for diphtheria
for that acute and unique disease. You may assert
that, with the necessity for a congenial soil for tuber-
cular infection before the disease can find lodgement,
and with all the varying complications of susceptibil-
ity, of natural resistance, of climate, of age and asso-
ciated conditions—different in every one of a thousand
cases—that the thing is impossible, I believe it *is* pos-
sible and that all these varying conditions are simply
elements to be duly weighed and accounted for in our
battle against this insidious disease.

There are a dozen, more or less, of tuberculin pre-
parations, extracts or serums, which I have to mention.

1. The crude or original tuberculin of Koch, which
is the glycerin extract of the dead bacilli, as I under-
stand, filtered through porcelain.

2 Then comes Klebs' first modification, a purified
article called tuberculocidin, in which the crude tuber-
culin is deprived of much of its toxins and reac-
tionary power.

3. Following this is the name antiphthisin which
Klebs gave to practically the same product manufac-
tured in this country.

4. Tuberculinum purificatum, which name Dr. Karl
von Ruck of Asheville, has given to his manufacture
of practically the same preparation.[2]

5. A purified tuberculin made by Dr. Whitman of
Los Angeles, Cal., from the culture fluid in which the
bacilli have been grown, not yet standard in strength
but which I have found to be moderately efficient.

6. Oxytuberculin,[3] the lately much talked about

Exercise and Foods for Pulmonary Invalids," pp. 13 and 14.

2 We understand this is made as follows:
"Take the entire ripe culture of tubercle bacilli and transfer to vacuum apparatus, and concentrate to 1-10 of the bulk at 55 degrees C. This takes about a month; remove from vacuum and filter through paper for removal of bacilli, and next through porcelain. Now precipitate with acid solution of sodic-iodid of bismuth and filter. Next neutralize the acid solution for reprecipitation of bismuth salts and filter. Next precipitate with absolute alcohol adding enough to bring the entire bulk to 90 per cent. alcohol; let stand and when precipitate has formed, filter. Collect, precipitate and wash it with more alcohol (absolute) dry, weigh and make 1 per cent. watery solution and filter. It (purified tuberculin) differs from antiphthisin in that it is made and concentrated with the tubercle bacilli in the fluid and it is filtered through porcelain as well as paper. It differs from tuberculocidin, in that it is prepared and concentrated at a low temperature (50 degrees C.) instead of at (100 degrees C.) boiling temperature, and filtered through porcelain.

remedy of Dr. Hirschfelder of California, in which a small per cent. (said to be 5) of tuberculin is, under great and protracted heat, saturated with peroxid of hydrogen. The effect of this, if any, besides that of the contained tuberculin, the discoverer claims, is the conversion of the toxin into an antitoxin. This increase of curative effect but slightly shown by my own limited use of the remedy, as I have had only a four-weeks trial of it in a single case. So far, however, the result is not unfavorable. If this creation of an antitoxin outside of an animal body is verified, it is indeed a wonderful discovery; then it is to be hoped that the bulky dose prescribed for injection will be reduced to 1 c.c. or thereabouts. It is not impossible that the excessive oxydation has simply destroyed the toxins, and so left a large amount of a healing property, not yet fully understood but common to so large a bulk of tuberculin.

7. Koch's new tuberculin T.R., descriptions of which you have lately seen in the medical press.

8. Dr. Karl von Ruck's watery extract of the bodies of the dead bacilli, which is a like powerful remedy in immunizing strength to the new tuberculin (T. R.) and I judge will compare favorably, with the same.

This extract is liable to give reactions in susceptible persons, for it is highly charged with immunizing power.[4] I have tried the procedure recommended by von Ruck and found it in the main quite satisfactory, namely to commence with the purified tuberculin and work up from 1-10 c.c. to 2 c.c. and then every second or third day give 1-10 c.c. of this stronger undiluted extract, possibly working up to 3-10 to 5-10 c.c. as a terminating dose, the intervals between treatments being lengthened toward the close of the course.

I will explain why I have not used Koch's new tuberculin (T. R.) While the fact previously cited, that the bodies of the bacilli contain the immunizing or healing principle, may be proven by the claimed improved effect of the new over the old tuberculin, yet the admitted fact remains that it is practically an emulsion which Dr. Fisch says is essential according to Koch's intentions and that its curative power would be lessened by filtering through porcelain. Drs. Trudeau and Baldwin (*Medical News*, Aug. 28, 1897) claim to have found the fragments and the whole bacilli in it by microscopic examination. While this would not deter me from using it in an understood case, where the infection was already so great that thousands of bacilli were known to be thrown off daily in the sputum, yet I do not like the technique of its administration nor the idea of my diagnosis being "hedged" against by such a range of dose, equivalent to 1 to 500,000, as Koch (from his experience with the average medical man) has deemed it best to establish. The finally accepted remedy should, I think, be not so liable to deteriorate; it should be stable, uniform, made entirely safe by careful filtration, and the range of dose need not exceed 1 to 1,000 or less.

I am aware that Trudeau has claimed that antiphthisin is only a very weak tuberculin, but in my considerable experience with it and the tuberculinum purificatum during the past four years, in comparison with the use of crude tuberculin during the previous three years, I have been satisfied that it was safer, that there was less resulting general reaction as well as local reaction in affected areas. The distinctive tuberculosis temperature is apparently more easily controlled by its use.[5]

The tuberculin products thus far considered, with the possible (?) exception of oxytuberculin, are supposed to work by their toxin creating or stimulating the production of an antitoxin in the blood of an affected person. We now mention an additional class where the antitoxin has already been produced in an animal's blood, preferably one already immune, and then through its serum made available in the treatment of tuberculosis. I believe it is possible to do this, as is the case with diphtheria. Whether it is preferable to making the affected system create the antitoxin, I will not attempt here to discuss. It is a difficult and important point to decide. I have seen some persons (previously under the tuberculin treatment) who seemed after some months to be losing their thereby acquired immunity, and whose systems seemed to respond to a renewal of the treatment, as though that particular stimulant to antitoxin activity was just the influence needed. Whether an artificially created antitoxin introduced from without the human body will have an equal or a better effect I have yet to learn.

However, from the many investigations thus far made with serums, we are enabled to assume that an efficient antitoxin to tuberculosis can be produced in the serum of an animal's blood, but it is yet undetermined how much of this effect is purely antitoxic and what proportion of it is transmitted tuberculin. The question of transmission would seem to be relative, the size of the animal treated, and the character and amount of the toxin administered, together with the time before and again after treatment with reference to the taking of serum, all being important considerations. This, too, is a difficult question to decide, for the toxin, if transmitted, may be wholly or only partially neutralized by the antitoxin created in the animal's blood. E. Müller (*Jahrbuch f. Kinderheilkunde*, Vol. xliv) claims, from a study of the blood of children treated with the anitoxin of diphtheria, that the time of the excretion of the antitoxin varies in different individuals, even of the same age and body weight, and that there is no direct connection between the size of the dose of the antitoxin and the duration of the power of immunity, *i. e.*, the time the antitoxin remains in the blood. He shows the protective power of the blood on successive days of a number of individuals, sufficient antitoxin to confer immunity seldom remaining after three weeks. Should we not bear in mind that this study was for diphtheria, comparatively active in its toxicity, and admit for a more chronic disease, as tuberculosis, a similar variability in its antitoxic and immunity laws commensurate with its chronicity?[6]

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3 Transactions California State Medical Society, 1897.

4 In making this extract virulent cultures are used and the proteids (it is claimed 80 to 90 per cent. of them) are extracted with ether from the filtered bacilli. After repeated dryings on porcelain plates, the filtrates (bacilli) are repeatedly powdered and macerated over permanent water baths and the resulting proteids are passed through porcelain in a perfect watery solution which is then made to a standard strength watery extract, which when used, can be still further diluted if desired.

5 For cases in illustration of these favorable effects reference is made to my previous paper on these subjects. "Tuberculin and the Living Cell." Transactions of the Am. Climatological Asso., 1892, and "Antiphthisin," Medical Record, July 20, 1895.

6 Over four years ago, learning from experiments on healthy puppies that they would stand for their size, very large doses of Koch's tuberculin, I conceived the idea that the toxin in this extract might be thus neutralized and a beneficial change in the tuberculin treatment result. I went to the expense of having a healthy pup treated in the course of seventy-two hours, with about 1 c.c. tuberculin to the pound weight. Twenty four hours afterward the pup was killed and all his serum taken. This was nicely done for me by the New York Biologic and Vacinal Institute. Though no harm resulted from the use of this serum, it was not a brilliant success, for I got the rash which serums so often cause, and what I thought was a lack of the

Of late the proper technique of serum production is being gradually determined and we have now several antitubercular serums which have gained for themselves a curative reputation.

In Italy Maragliano's serum, made at first from a goat's blood (as I understand it), is now obtained from the immunized horse. Maragliano's results with the goat's serum speak very well indeed for his product and the proportion of successes were about the same, but no better, so far as I could determine, than ours in this country with antiphthisin or purified tuberculin. Furthermore the absence of definite knowledge of the manufacture, strength and dosage of his serum, precluded my own trial of it. This is the "cure" which has lately been lauded to the skies by the sensational newspaper claims of a New York daily.

10. The antitubercle serum of Paul Paquin, though one of the first made in this country and tried by many physicians, I have no personal knowledge of except from results (mostly favorable) observed in a number of patients coming under my observation after they had been treated with it. These results were not distinguishable from those of crude tuberculin, and I can not say that there was not the transmitted effect previously referred to.

11. Professor Crandall, also of St. Louis, immunized a horse I believe with tuberculin (?) taking some two years for the process before the serum was used. I gave it a faithful trial. The results were not bad, nor were they as good as with the purified tuberculin. I could not determine that there was any "transmitted" effect of tuberculin, but I got the serum rash in two out of five cases treated.

12. The H. K. Mulford Company, of Philadelphia, have been faithfully perfecting a serum. To produce this they chose asses as the animals most immune to tuberculosis. When in Philadelphia last June, I examined these animals at their bacteriologic laboratory and was one of the first to try their perfected serum. Its effect was better than that of any serum previously tried; seemed to raise the patient into an exalted state, hopeful of recovery, with physical signs and ability to do, perceptibly improved. This was strongly shown in two young men of the five cases treated, who were hopelessly advanced in tuberculosis, both of whom had large excavations in the lungs. One of these afterward went home to die, and the other has improved by living among the foot-hills and having an injection of this ass's serum once or twice a week. The objection to this serum is its lack of sustained effect and the serum rash, which occurred in one or two cases.

13. We now come to consider the last and I think the best of the antitubercular serums, the antiphthisic serum (T. R.) made by the John T. Milliken Company of St. Louis, according to the formula of Dr. Carl Fisch. In his address, read before the Mississippi Valley Medical Association, at Louisville last October, Dr. Fisch presented the tabulated results of an elaborate animal experiment, or test of this new serum. The serum is peculiar in that the selected horses from which it is taken have been strongly immunized, charged with Koch's new tuberculin (T. R.), the process usually taking four months and the serum being drawn fourteen to twenty-eight days after the last injection. When it is considered that for a last dose 50 c.c. of tuberculin T. R. was given the horse, which I am informed has now been increased to 100 c.c., we can get some idea of the enormous load of tuberculin these animals are carrying in the blood by remembering that according to Koch, the initial dose of tuberculin T. R. should be 1–500 of a milligram.

Between one and two hundred guinea pigs were used in Dr. Fisch's interesting test.

1. The T. R. serum was shown not to increase but rather to lessen the temperature of a healthy guinea pig for the first three to nine hours.

2. Guinea pigs previously immunized with T. R. serum withstood without harm fatal doses of virulent tubercle bacilli virus, while the control animals died in twenty-one to twenty-four days.

3. The least quantity of T. R. serum needed, previous to the poisoning of the guinea pig, to sufficiently immunize him was determined: $2\frac{1}{2}$ c.c. in five injections during the previous month being sufficient to keep alive and healthy a 600 gram weight guinea pig.

4. The T. R. serum and virus were injected mixed and the proportion of the former sufficient to neutralize a fatal dose of the latter was thus determined *i.e.*, from $\frac{1}{4}$ to 1 c.c. of the serum.

5. Separate injections of the serum proved that (even commencing the tenth day after guinea pigs had received the fatal injections of the poison) they lived while the controls died in from twenty to twenty-eight days, as well as three controls treated with Paquin's serum, after the fatal toxin had been administered to them four days.

6. The serum treatment was shown to have a lowering effect on the abnormal temperature of these poisoned guinea pigs, *i.e.*, from the second to the sixth day a total average decrease each of 2 degrees F.

7. The amount of T. R. serum which would inhibit the poisonous effect of tubercle bacilli and also which would inhibit the reaction to tuberculin was determined; all of which constitutes an experiment calculated to fill us with hope for the trial of this new serum on human beings. Dr. Fisch claims that if there are reactions to T. R. serum which he does not ordinarily find in the affected human being, that they are not the same as from the crude or old tuberculin. To me it does not seem to be so harmful if there are some slight reactions according to the dose given and the susceptibility of the patient, just as we would expect from this remedy; for even if the tuberculin T. R. has not all been neutralized or changed to an antitoxin in the animal's blood, we have a stable, soluble, preservable in standard strength remedy, chiefly in antitoxic form, one which can be relied upon for immunization against tuberculosis, and safe compared with Koch's new tuberculin. How permanent its effect will be has to be left for the lapse of sufficient time to determine. The half dozen cases I have to report on, are not claimed to establish a cure, especially as I have never allowed myself to abandon other and important means of relief simply because I happened to be giving any of these forms of tuberculin. We need all the help that the proper individualizing of a patient will suggest, and we will contentedly bear the charge, sure to be made, that the always admitted essential aids, the preferable climate with good feeding, systemized exercise (including proper inhaling), and hopeful conditions or environments have done it all.

distinctive healing sounds I had expected to find in the affected lung, and so went no further with it.

Case 1.—S. H. F., aged 48; machinist. From Indiana, one month in Colorado when first seen by me July 28 last. His lung disease is said to have commenced with a chill and fever May 1. He is not improving, I think because of tubercular pleurisy at base of right lung, the apex of which is excavated, and top of the other lung slightly affected. A case of laryngeal tuberculosis as well, with nasal complications, bilious temperament and torpid liver. Not a favorable case by any means, when one considers that the daily ounce of purulent expectoration contained fifty-five tubercle bacilli "to the field" on September 15, when the antiphthisic serum T. R. was first administered. The injections were given every alternate day below the shoulder blade commencing with ½ c. c. and gradually increased until a decided reaction limit was found at 1½ c.c. Reaction temperatures inclined to be prolonged of 1½ to 3 degrees F., were found after 1½ up to 1 7-10 c.c. doses, and I learned that I had a more powerful serum to contend with than I had ever used before. A return to 1 c.c. for the dose gave better results with no temperature rise above 99 for quite a while. Meanwhile up to October 30, he had received 25 c.c. in twenty-one injections, the sputum had greatly diminished in quantity and showed "ten to field" in about two weeks and "one to field" in six weeks. The pleurisy had subsided, partly at least, controlled by wearing a restraining bandage devised to specially limit the movement of the affected area. The effect was good and all the physical signs improved. Unfortunately this patient had to go back to his Indiana home, October 30, but he is still having the remedy administered there and reports improvement continued, with a gain in weight of twelve pounds since the commencement of the treatment.

Case 2.—F. J. M., aged 24; draftsman. Came to Colorado in May, 1897, from Massachusetts. Lung trouble probably dated back to pneumonia five years ago, and a severe cold one year ago. Decrease in weight of twenty-four pounds from his average to 108 pounds, both apices show an advanced fibro-tuberculosis, the third stage being more marked on the right than on the left side. By this evidence the diagnosis of a non-active fibro-tuberculosis both sides was made. Serum T. R. has been given for its general effect with the result that we now have a diminution of expectoration and some improvement. The proportion of the very few bacilli in sputum not yet much changed, improvement in physical signs but no gain in weight, though bad environments and confined occupation, leading to frequent colds, are disturbing elements which have to be accounted for in this case.

Case 3.—Sept. 20, 1897. Mrs. H. Age 27. Came from Connecticut. Weight at this date ninety-nine pounds. Had a hacking cough for eleven years, and two years ago sympathetic whooping cough and fever at times. Now some restrained action at base of right lung where once she had pleurisy, but the chief trouble is a chronic catarrhal fibro-tuberculosis, second stage, upper half of left lung, with softening spot threatening under left shoulder blade. Commenced the T. R. serum September 22, and on alternate days gradually reached 1 c.c. for a dose which has not been exceeded. Bacilli to the field, seventeen large with streptococci and staphylococci. November 2 and 18, seven and eight to the field, small and beaded and less "mixed" infection. November 28, the record contains this note—Has taken 27 c.c. antiphthisic serum and has now no reactions and physical signs have all improved. The temperature being below 99 degrees P.M. and weight now is 106 pounds.

Case 4.—J. A. R. Chemist, age 28, came from New Orleans, July 6, 1897. First seen by me September 18. A case of tubercular broncho-fibrosis of six years standing with hemorrhagic tendency, first stage; both upper halves of the lungs, chiefly right. Up to date taken the T. R. serum treatment ten weeks every other day since September 19. The spirometrical record has improved from 170 cubic inches to 200. He has improved in weight and in general as well as local signs. The record of his sputum examinations is as follows: September 18, 25.3 to the field; September 30, 20.3 to the field; October 18, 2.5 to the field. November 2 and 19, one to five and one to ten fields. December 3, 4 to field (been confining himself too closely indoors.)

Case 5.—J. E. L. Age 24. Newspaper reporter. Came from Pennsylvania. July 4. A case of laryngeal tuberculosis with broncho-fibrosis originating some two years ago but aggravated by overwork at night, one year ago. First stage, left side chiefly affected, but evidences of bronchial involvement top of both lungs. Has taken the serum treatment over six weeks (18 c.c.) with exercise, inhaling, etc.; doing well. Had left side pleurisy at one time which has disappeared. Expectoration much lessened in quantity, chest sounds improved, weight increased six pounds. No elevation of temperature now, though there was a little during the first part of the treatment; voice which was quite hoarse has improved and strengthened. Bacilli to field October 13, seven, November 20, one to three fields. December 14 none.

Case 6.—W. S. Book-keeper. Age 31. Arrived from Wisconsin, October 28. A case of tubercular broncho-fibrosis with suspicious laryngeal complication, both lungs affected in first stage, also has fistula in ano. Acclimatization may have something to do with his improvement for it has certainly been remarkable. Before giving the serum injection his temperature each day was from 98.5 degrees to 100.5 degrees and by the time 1 c.c. dose was reached the next day's rise was slightly increased. Since then 99.2 degrees has not been exceeded. December 3, after 12 c.c. had been given, the record showed, weight increased 156 pounds, a gain of six pounds in one month. Fistula nearly stopped discharging, sputum lessened in quantity about five times, and the bacilli in it reduced from 23.2 to 2.8 to the field. The physical signs and general strength are also on the gain. In fact the outlook for this, as well as for the others of this group, is bright for a permanent arrest of the disease. There have been five or six others who have taken the same treatment for shorter periods, but not long enough for any definite results. One of them, however, shows great succeptibility and the diagnostic effect of the T.R. serum which is worthy of notice.

A gentleman aged 26, referred to me by his physician in Pennsylvania, was seen on October 22, having arrived in Denver two days previously. His trouble seemed to have originated ten months previously, and he had visited North Carolina without benefit. A laryngeal and pharyngeal tuberculosis with lung involvement very slight at both apices, with principal centering point in left inter-scapular region, seemed to me at my first examination to be all that there was to explain the case. But the effect of the T. R. serum injections made manifest the incompleteness of my search as well as that of several physicians who had examined him previously, namely, that I could not reach the 1 c.c. dose the general and fever reactions were so great and prolonged. At two times, after 7-10 and 6-10 c.c. injections, he informed me he had stayed in bed all day, he felt so ill and feverish, the grippy signs being similar to occasional reactions I have seen from the the old tuberculin. I felt confident there was a concealed cause somewhere. This the stethoscope finally revealed in the left infra-mammary region, where, over an area, not larger than a silver dollar, pleuritic friction with fine crackles were heard only at the end of forced inspiration, and without any pain. Under proper restraint, to promote adhesion and limit movement, I think this condition is gradually improving and that this case will also be a favorable one.

In closing I will add that this diagnostic power, a valuable evidence of the real efficiency of the new remedy, together with the infrequency of the resulting serum rash (though local reaction, infiltration, etc., at the point of needle puncture will sometimes be seen), is or ought to be a recommendation for this T. R. made serum; especially to those physicians who understand its import. That this preparation can be made standard and safe will also do much toward overcoming the natural prejudice which pertains to the use of either Koch's old or new tuberculin.

HOW WE TREAT CONSUMPTIVES TODAY.

Read before the Tri-State Medical Association of Alabama, Georgia and Tennessee, at Nashville, Tenn., Oct. 13, 1897.

BY PAUL PAQUIN, M.D.
ST. LOUIS, MO.

From the very beginning of the application of antitoxins in diphtheria, tetanus and other infections, it was hoped that it would also be beneficial in tuberculosis, and to that end many investigators have

bored faithfully in all parts of the world. Maraiano, in Italy, first sought a remedy in the natural ood serum of the ass, and in the latter part of 1885 in 1886, he reported the results of his work with e serum of the same animal, previously treated to crease immunization. Prior to this, however, Richet, éricourt and others in Europe had used the natural g blood serum in various forms of the disease. I gan to immunize horses against this affection in 94, and in January, 1895, reported the first clinical sults with the first immunized horse blood serum er obtained or used, so far as I am able to learn. any criticisms, kind and unkind, and unwarranted flections scarcely dignified, followed, and some have ooped to public persecution, but the work has pro-essed. Today, amidst the puerile denunciations sciolists, I have the consolation of finding my mble researches respectfully considered by some of e leading scientific lights of Europe and America d, the results obtained with it, attested by conscienous clinicians of high reputation in many quarters this and other countries.

In spite of the beneficial effects of climate and her forms of treatment in vogue, and the vaunted aims of recoveries said to have been produced by a ndred different processes, there seems to be no ubt that sero-therapy, being nature's own remedy infections, is the most promising. None of the her therapeutic measures used seem to offer so uch hope or confidence. A seventh of the popution die from the effects of consumption in one rm or another, and probably four-fifths of this rcentage succumb to the disease affecting the resratory organs. Such an excessive mortality due to e disease warranted the beginning and continuation my experiments, and investigations by the whole ofession, in any legitimate line, for the discovery of treatment that shall subdue suffering, reduce the ortality and arrest the progress of inherited condions of tuberculosis.

Tuberculosis may affect all the organs of the body, t its seat of preference is in the chest. The respiory organs of this cavity offer, apparently, the best ld for the germs to grow, and more beings succumb pulmonary phthisis than to all the other forms of berculosis together. It is this form I shall conder chiefly in this paper. It is the kind we see ery day.

First, what is the nature of pulmonary phthisis? is, unfortunately, nearly always a complicated affecn, even in the very early stages. Very early in the velopment of the disease, we find associated with e bacilli of tuberculosis a number of other germs, nong which some are as deadly and as destructive the specific microbe. Comparatively speaking, berculosis is essentially a slow malady, even in acute ses. Its primary lesions consist of one or several cal points of inflammation, due to the growth and ultiplication of the bacilli, which occurs at the pense of the cells, their secretions and products, nong which the germs are lodged. During this velopment, toxins are generated. They are poisons, as the name indicates, and they cause the death the cells around them and these, eventually, soften d become liquefied. It is thus that we obtain the st formation of caseous matter of pure tuberculosis ich, in such conditions, is not mixed with the prodts or pus of the ordinary septic or pyogenic germs. uring this first evolution of a case of tuberculosis, at its initial point of infection, a protective envelope is formed by nature's recuperative forces, and it is soon such as to surround the lesion, thus circumscribing it and limiting the pathologic development. Then we have formed a tubercle, which may vary in size from that of a point of a pin to a walnut or larger, the most voluminous nodules being usually the result of the junction of several small tubercles or their coalescence. If a section is made through tubercles at various stages of their development, it will be found that from a hard consistency at the beginning they gradually soften and, so far as germs are concerned, they first contain only the bacilli of tuberculosis. But, when softening of these tubercles takes place to the degree that their envelope ruptures, there is offered to the germs which are inhaled, a means of ingress into diseased tissues which are fit soil for the latter's development. This is the beginning of mixed infection. From that time on, the expectoration of a patient not only demonstrates the existence of consumption germs, but large numbers of other pathogenic microbes, such as the streptococcus, staphylococcus, the tetragenus and numerous other complicating organisms more or less effective in their power to destroy tissues. Such complications seem to be of tremendous power in the causation of softening of large areas of lung tissue and in the production of cavities. Then, we have to deal not only with the associated microbes and the lesions they produce, but also with the toxins which they generate and which, separately or collectively or, perhaps, in chemic combination, produce various forms of toxemia and alter the blood, the nervous system and, as a consequence, affects the whole organization banefully in a more or less pronounced manner.

Tuberculosis in the early stages, before serious microbic complications arise, produces as a rule a comparatively mild fever, the temperature seldom rising above 101 degrees F. When the complications appear, the temperature rises to 102 degrees F., 103 degrees F. and higher, according to the degree of infection, the extent of the lesions produced and the quantity and quality of the toxins. It is not necessary for the purposes of this paper, to go deeply into the pathology of tubercular developments. I merely desire to impress you with the importance of recognizing the nature of the lesions and other pathologic conditions, in a general and special way, before applying any remedy, and also the necessity of considering the peculiarities of each individual case, in order that the disease be not treated only on a general plan supposed to be applicable to all; but rather that each individual case be treated on its merits. It is not enough to treat consumptives as such. One should treat the patient against the general and special diseased conditions existing. The local lesions and the special effects thereof; the direct results of tubercular development upon remote organs or systems; the general depression dependent on such conditions; the individual characteristics and mode of life; the inherited predispositions; all these should be considered before instituting treatment. The disease yields or resists very differently, according to the nature of the infection, its effects and the peculiarities of the patient's individuality. It is needless to say, for instance, that patients who have inherited the elements that predispose to tuberculosis do not offer the same physical resistance to the destructive power of the germ of this disease as do those unfortunates who

have contracted the malady by accident and have more vital energy. In concluding this preface to the discussion of the treatment of tuberculosis, I wish to say a word with reference to the method of producing the antitoxins which are most suitable for the treatment of consumption.

As stated above, my first publication on the subject of serum in tuberculosis was made early in 1895. At that time, I was not ready to publish in detail the *modus operandi* of the laboratory processes. Since then I have repeatedly, at various medical meetings and through the medical press, explained more or less fully the various methods of immunization which I have tested from time to time. In 1894, I realized that the simple use of toxins in the treatment of the horses used for the production of antitoxin was not sufficient to produce complete immunity because it had been demonstrated that not only the liquid toxin (viz., tuberculin) of the germ of consumption was poisonous, but also that the structure of the parasite contained poisonous elements of a deadly character. Thus it was, that very early in my work, I used not only tuberculin for injections of the animals used to produce antitoxic serum, but used besides the structure of dead germs or germs with vitality purposely lowered and then mixed with sterile water. I have used the live germs also, following injection of these solutions. Thus it will be seen, that at the beginning, I used chiefly tuberculin to immunize the horse, gradually adopting methods which insured, more and more, the effects of reaction upon both the liquid poisons and the germ substance. Some tuberculins I used at the outset were produced by recognized authorities; chiefly such as Koch and the Bureau of Animal Industry in Washington. By the mixture of these liquid toxins and the germs, seriously modified or not, all the elements of the tubercle bacillus entered into the immunizing agent. But a question of importance, with respect to the reaction of the animal to these injections arose during that work, and it was this: What proportion of the toxic element of the germs was absorbed by the economy of the horse? It was evident that the greatest quantity of the most virulent quality of all the tubercle toxins, be absorbed in order to produce the greatest reaction and the highest immunity. Koch of Berlin gave help to the production of more perfect immunizing material when he brought forth his new tuberculin, which he specifies under the name of T.R. This, according to the publications which have appeared, is nothing more than the poison in the structure of the germs of tuberculosis extracted by rubbing these germs in a mortar, and by centrifugalization means. For use, this preparation is mixed with sterile water or glycerin, or both, and may be preserved by the addition of a minute proportion of formaldehyde or .3 to .4 per cent. of trikresol (as is the case for the preservation of the serum itself). The object of this pulverization of the germ structure is to liberate the toxin as much as possible and facilitate the absorption and assimilation of every toxic principle they contain. We produced practically the same thing at the laboratories under my control, for at least two years, for the purpose of immunizing horses.

By injecting a mixture of tuberculin and pulverized germ substance into a horse, in doses varying from one cubic centimeter daily or periodically to thirty or more, during from two to four or six months, we get a blood with serum that has resisting powers more or less pronounced, against the develo ment of tuberculosis.

Now, as to the treatment of the disease. Bearir in mind the essential factors that contribute to tl pathology of tuberculosis and the various circun stances that may influence it, how should we treat tl disease today? Is sero-therapy promising enough warrant its use and warrant further experiments ar investigations? Yes. If it arrests one case in a ce tain stage does it, therefore, promise to arrest anoth in a similar stage, irrespective of other influenc favoring destruction? No. There is no one trea ment applicable to all forms of tuberculosis, irr spective of the conditions complicating or influencir the malady, or irrespective of the actual patholog conditions locally. Anti-tubercle serum can be just expected to act only against the purely tuberculo processes, and this, by no other means than the usu physiologic interference which nature herself se forth to neutralize the toxic products of infectio and subdue the microbic invasions. Sero-therapy the treatment of consumption has its reason of exi tence because it is based on natural law. Yet it shou be sustained by such forms of special and gener treatments as the conditions present may deman This assistance is useful to facilitate and hasten tl repair of the damage done to the organization. Tru we have on record apparently complete recoveri from serious conditions, which have occurred aft the exclusive use of anti-tubercle serum or serums f mixed infection; but we have a greater number such recoveries and more numerous improvemen as the result of scientific management of the patien and a properly combined treatment including seru as special medication. A patient may recover by t effect of serum alone, when the result of the disease not such as to affect organs or systems of paramount i portance, such as the lungs, the throat, the circulatio the nerves, the stomach, etc., so severely, as to pr clude the possibility of their restoration by nature own force, after the baneful effects of germs and the toxins have been removed by the antitoxin. If su organs or apparatus are diseased practically beyo repair, particularly when mixed infection exists to serious degree, anti-tubercle serum, if it does arre the progress of the tubercle bacilli, can not direct repair the physical and physiologic loss of the tissu and their vitality, and death may ensue. Here where accessory treatments are needed. If there a mixed infection and serum is tried, a serum prepar specially for this condition is essential, such as t anti-streptococcus serum, which is produced on t same general principle as that for tuberculosis diphtheria, and which is applicable in many of t usual mixed infections of any disease.

The aim of sero-therapy in tuberculosis then first of all, to counteract the effect of the toxin; se ond, to interfere with the progress of germ life; thi to restore or create anew in the organization phy ologic recuperative powers, thus assisting in restori the equilibrium of the faculties and the vitality the organization as a whole. It is plain, therefo that the serum treatment, like all others, promis most in the earliest stages.

From all that precedes in this paper, it would see evident that in the treatment of consumption o should, first of all, pursue a wise course of manag ment, and second, general and special treatments su able to each case. Indeed, it may be stated as

iom, that all the hygienic influences that may be ought to bear on the system to improve its vital)wers, should be directed to play their part.

GENERAL TREATMENT.

Climate is a point which most practitioners justly sist on being properly considered. Dry climate,)e from the sand and dust storms should be chosen, practicable. It may be hot or cold; both are ben- cial in different classes of patients. It should be nembered that some tuberculous patients suffer ıch from heat or cold, according to their condition, d others the reverse. As a rule, emaciated, anemic tients prefer a warm temperature and stand the ef- ts of cold very poorly, while those with more flesh d warmer blood thrive more or less under its influ- ce. Altitude is not of so much consequence. lm Lake, in California, which is below the sea el and yet exceedingly dry, is said to be the most neficial locality for consumptives, while equally od results are claimed for the altitudes from 2,000 10,000 feet as exist in Colorado, New Mexico, xas and some states of Mexico. The beneficial ects of climate are said to depend chiefly on the rmicidal and stimulating properties of ozone and purity of the air; therefore, it may be obtained, a measure, in a room in a damp climate, in which ch air may be to a degree created, by means of elec- city and otherwise.

As a rule, patients are removed to suitable climates ıen it is too late, when they have cavities and are nost unavoidably doomed. On the other hand,)se who do go to such climates usually return home) soon. Indeed, those who migrate to dryer climes · lung diseases should remain there if it agrees th them. They should make it their home. To urn from such places to dampness usually means apse and death.

Hydrotherapy is sometimes useful in consumption, rticularly in the earlier stages, and more especially those who have contracted the disease by contagion, thout there being any inherited field for it. Then, t rubs, all over the body, followed by a cool or cold uche or plunge of from one to five minutes dura- n, and then by a coarse towel friction, assist mate- lly in stimulating the circulation and contribute to) well-being of the sufferer. These should be ad- nistered morning or evening.

Massage properly applied is another treatment of ıch utility, particularly in cases where there is in- lence and a disposition to avoid exercise, even)ugh the strength is sufficient to warrant it.

Dietetics are also of very great importance. Gen- lly speaking the diet of consumptives should con- t largely of animal albuminoids and heat producers the most appetizing and nutritious character, the st easily digested and in the smallest bulk. While getable albumin is good, animal foods seem to be the st suitable, and among these tender beef, broiled, sted or boiled, stands, in the order named, pre- inent. Lamb, chicken and game come next. Fresh ı is also good. Vegetables that are agreeable to patient and do not disturb digestion should be)wed as part of the diet, but not in sufficient quan- to appease hunger or supplant meats. So it is h sugars and fruits, the latter being preferable. lk, cream and butter are advisable, if well tolera- . In case of poor appetite, the whites of two to half a dozen eggs, one to three or four times a day, at meals or between meals, constitute an excellent diet, supplying as it does, a large amount of albumin in a small bulk, usually digestible even by an impaired stomach. These may be given raw or in milk shakes or in the form of punches with a small amount of good sherry wine. Made dishes, fried articles of food, should be avoided. The excessive use of alcoholic stimulants is likewise contra-indicated, and so is tobacco.

SPECIAL TREATMENT.

First in line is the specific treatment; that form of therapeusis which aims to set interference in the way of microbic development. It may consist of prophylactic measures of the vaccinating order, or treatment by the action of immunizing and curative principles, based on the laws underlying immunity and recovery from infections. As vaccinating agents, the various forms of tuberculin may be used. Being poisonous principles of the germ of the disease, their effect is limited to the production of a mild kind of tolerance of the consumption germ, by the system of the being inoculated. Consequently, it is only in the very earliest moment of suspicion of tuberculosis that one may expect a cure by the use of such a preparation. Antitubercle serum, on the contrary, being the product with which nature herself often cures tuberculosis without the guidance of the human hand, may be used in all stages with perfect propriety and safety and with the assurance of at least having done one's duty in the application of medicine. As said before, it is in the earliest stages that the disease can be more readily arrested, but being an antitoxin it is applicable in all stages and under all circumstances, except the very rare exceptions in which heart disease or other idiosyncrasies exist, which preclude the hypodermic injection of albuminoids or salty preparations, and sometimes even of water.

In cases of pure tuberculosis, anti-tubercle serum may be administered hypodermically, in doses ranging from 5 to 6 ms. daily, 30 being the average maximum dose. The place of injection, when they are to be continued for some time, should be a locality where a heavy fold of the skin can be most easily lifted and the hypodermic needle plunged most deeply into the connecting tissue. I find the area in the back, towards the side, most suitable. See Fig. 1.

The untoward effects of serum injections are very uncommon, particularly if one is careful not to push injections too rapidly and in too large doses from the first. Occasionally, a local swelling occurs which may be reduced by the ordinary methods for such conditions. If precaution has been taken to disenfect the skin thoroughly at the point of injection, by washing the locality and then rubbing it with alcohol, or preferably formaldehyde, there is little chance of producing a swelling due to microbes, providing that the syringe and needle be thoroughly clean and free from germs of any kind. The kind of syringe that appears in Fig. 2 is most suitable. It is easily disinfected, is graduated with both systems; its needles are not so large as those of most instruments and therefore cause less pain. The serum itself is absolutely sterile. No one need fear infectious injury from that source, unless by serious carelessness germs are allowed to contaminate it.

Infrequently symptoms of arthritis develop, which

resemble very much the ordinary symptoms of rheumatism and which subside after suspending injections for a few days, and under the treatment for rheumatism. The occurrence of urticaria and other skin eruptions is not uncommon, and usually avoidable by progressive doses.



Figure 1.

The most striking, peculiar and perhaps most alarming of all the untoward symptoms of sero-therapy in any disease, is the strange and sudden interference with the circulation, manifested by dizziness, almost immediate cyanosis, and sometimes, more or less serious pain along the spinal cord, from the point of injection downward, including the nerve courses of the lower limbs, occasionally producing nausea and pain in the stomach. Sometimes these manifestations are followed by rigor. Fortunately, these results are exceedingly rare and never have proved fatal. Over one hundred thousand injections of serum antitubercle (Paquin) are recorded without a serious result. In

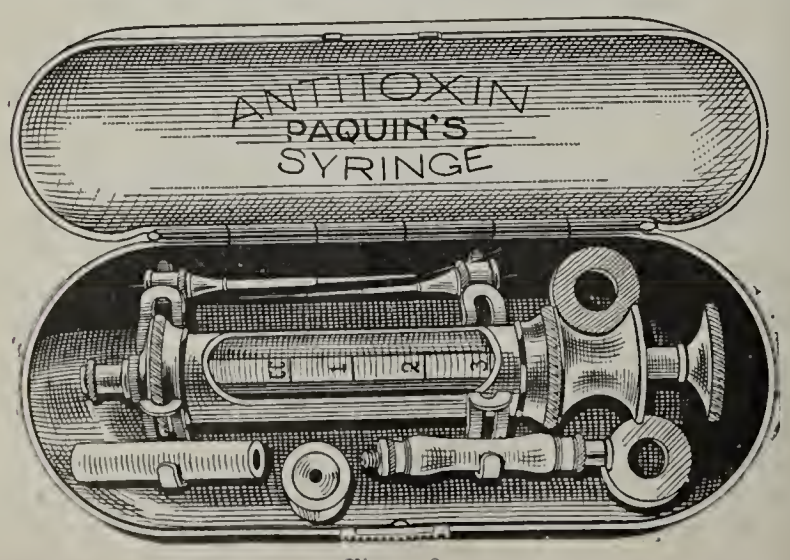


Figure 2.

such cases, I usually discontinue hypodermic medi cation and use instead rectal injections with specia syringe, Fig. 3, which gives as good results in many cases, although it requires usually a larger dose. A treatment of these effects, I prescribe nitrate o strychnia, hypodermically.

In mixed infections, particularly where the germ of pus predominate and where the expectoration i largely made up of pus and broken down tissue, I us the anti-streptococcus serum as accessory treatment I produce this serum under the same principle tha underlies the production of all other antitoxins namely, by the immunization of the horse, by satu rating injections of the toxins and germ substance o the streptococcus. This is done by the method know as Marmorek's, somewhat improved. This serum an the anti-tubercle serum may be mixed or given alter nately on alternate days.

As to internal medication, it must depend wholl on the existing conditions. In anemia and othe conditions suggesting feebleness of the nervous sys tem and circulation, proper reconstructive blood ton ics and nerve stimulants, such as pepto-mangan an nitrate of strychnia, are desirable. As to cough, un less it is very aggravating and prevents sleep to serious degree, I never use opiates. I usually admin ister, when absolutely needed, codein and terpin hydrate.

It has been suggested that alteratives be used t assist in arresting the breaking down of tissue an glandular suppuration, etc., as is done in the treat ment of syphilis. For that purpose, I have found solution of iodin properly mixed with glycerin an some of the halogen salts, very beneficial. Iodi is credited, indeed, with having cured tuberculosi The iodides are not good. They seem to destroy re blood corpuscles.

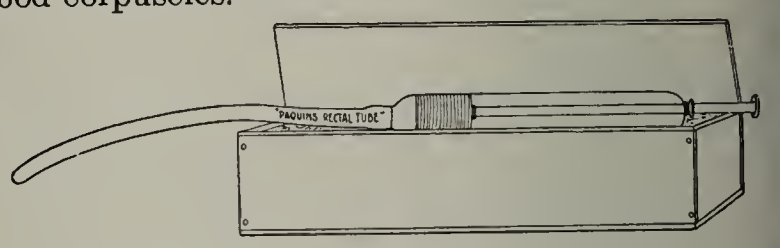


Figure 3.

As to inhalations, they should never be of an irr tant character and, in fact, one should be very carefu in their administration. In the early stages of tube culosis most inhalations produce an irritation of th bronchi which is followed by a secretion that offers good nidus for the development of germs. The inh ling ingredients containing the essence of pine ne dles, benzoin and such essences as are not irritat and are of a balsamic character, are most suitable. I cases with cavities, inhalations containing formald hyde, are useful as disinfectants.

Electricity is also prescribed in tuberculosis. Bot the galvanic and faradic currents have been use The galvanic current is said to act by direct chemi action through the diseased organs, the poles bein so placed as to pass the current through the affecte parts. The benefits of this treatment are problema ical, though sometimes they seem to be favorabl The faradic current is applied in a general way, as stimulant of the general system.

Of recent date, so-called medicated electricity h been used in tuberculosis. It consists of treatin the diseased portions by the application of the ga vanic current with poles dipped in certain drug

Iodin has been chiefly used for this purpose, and it is said that the current carries with it through the diseased organs principles which tend to arrest the progress of tuberculosis.

In closing, I wish to draw your attention to an exceedingly important point. It is, that most every physician expects too much of sero-therapy in tuberculosis. I have never made extravagant claims for it. It can not perform miracles and should be used early. It is neither just to the patient nor to the treatment to apply it as a last resort, when everything else has failed and the condition of the patient is such that doom stares him in the face.

REPORT ON OXYTUBERCULIN IN THE TREATMENT OF TUBERCULOSIS.

BY J. O. HIRSCHFELDER, M.D.
SAN FRANCISCO, CAL.

SAN FRANCISCO, Nov. 20, 1897.

To the Editor:—I send you herewith a report on Dr. Hirschfelder's oxytuberculin, together with his notes upon the cases examined, which we hope you will publish in full in the JOURNAL. We are convinced of its efficacy and value, and urge its extended use. You will observe that it is not in any sense a secret nostrum, but has been placed legitimately before the profession. Yours truly, HENRY GIBBONS, JR., M.D.

Since the address delivered before the California State Medical Society in April, 1897, upon "Oxytuberculin" the investigations described therein have been continued both in the bacteriologic and clinical departments.

The results that had been obtained up to that time have been confirmed by further observations under the scrutiny of many of my medical brethren.

The laboratory experiments proving the inhibitory action of the oxytuberculin upon the bacilli tuberculosis have been repeated a great number of times with different modifications, but all teaching beyond doubt the certainty of the doctrine that oxytuberculin, even when greatly diluted with the culture medium most favorable for the germ, will prevent its growth. In all, forty-one series, of such culture experiments have been made by me and watched by my colleagues.

Continued treatment of many of the patients whose cases were reported at that meeting have shown that some of them have become entirely or nearly well, many have become much improved, while a few have grown worse or have died. A table of all of these cases, as well as of such as have begun treatment since that time, will be herein reported.

Believing it the duty of Cooper Medical College to investigate the value of oxytuberculin, the faculty of that institution appointed a committee for that purpose, consisting of most of the professors of that institution.

October 24, after the committee had carefully inspected the laboratory evidence, the cases whose histories will be reported in detail in this paper were presented in person to this committee together with stained slides of the sputa prepared before, during and after the treatment. The cases were carefully investigated by the committee in every direction, physical examination of the chest and laryngoscopic examination of the throat being made where it was found necessary.

At the conclusion of this investigation at which a number of medical gentlemen not connected with the college were present and who participated in its deliberations, it was decided that the committee fully endorses the value of oxytuberculin, but desires to formulate its verbal approval in a lengthy report which shall be presented at the next faculty meeting, to become a matter of permanent record.

It was stated to the committee that I did not underestimate the value of experiments conducted on animals, but that lack of facilities prevented me from conducting these in such a manner that their evidence, positive or negative, would be indubitable.

I stated that I considered it my duty to present all evidence collected, whether it be favorable or unfavorable, that it would not be proper to make a number of animal experiments and to select from these such only as gave favorable results, omitting others because the conditions under which they might have been performed were not such as to exclude accidents.

It has been my custom not to omit any observations that I have made bearing upon the subject, however unfavorable to my method the conditions may have been.

I stated that under the circumstances I deemed it wise not to enter upon the field of animal experiments, but to leave that department to those scientists who might be more favorably equipped for such researches.

The following are the cases that were presented to the committe:

Case 1.—F. A. A., merchant, aged 44; Jan. 15, 1896. No family history of phthisis. His wife died of tuberculosis last October, at which time he was subject to severe mental strain. For the past year he has been troubled with insomnia. For the past twenty years he has had occasional cough, with morning expectoration. Last October patient expectorated ℥ss of pure blood. During the past six weeks the cough has been worse; he has lost eleven pounds in weight and has had one night sweat. The rectal temperature varies from 99.2 to 100.4 degrees. Examination showed patient to be a fairly well nourished, very pale individual. Head shows no peculiarity. Cervical glands are slightly enlarged; the thorax is long, broad, well arched and deep; the right side is slightly flatter than the left; the right supraclavicular region is slightly sunken; both sides move equally in respiration; there is a slight dulness of the right apex, with faint bronchial respiration and a few râles; the area of cardiac dulness and heart tones is normal; the liver is 10 centimeters and spleen is not enlarged; the urine is normal, the spirometer test shows 3160–3230 c.c., and the hemoglobin 70 per cent. (Gowers' hemoglobinometer); the sputum contains large numbers of bacilli of tuberculosis; his weight is 153½ He was injected with oxytuberculin in doses of 5 c.c daily, and on January 30, that is, two weeks after the treatment had been begun, he had already much improved, his appetite being better and the patient feeling stronger. His cough was much less and the expectoration about one-third of what it had been before. His weight was 155, the hemoglobin 90 per cent.; at one examination no tubercular bacilli were found in the sputum. February 27 his weight had increased to 164 pounds and the spirometer showed 3260–3380 c.c. At four examinations of the sputum during the month no bacilli tuberculosis were found, and on one occasion only a few. For fifteen days previous to February 29 no expectoration had occurred and the patient felt much stronger. In March the evening rectal temperature reached only to 99.6, and on one occasion he coughed, raising a small quantity of phlegm, which contained a few bacilli. March 31 and April 20 no bacilli were found. May 23 he had a chill and the spleen was found to be enlarged. For this he was given quinin for a while, that being the only medicine he had received during the whole course of the treatment. June 4 was discharged cured, there having been neither cough nor expectoration since April 20. The physical examination made by me and by Professor Kerr of the Medical Department of the University of California showed absolutely normal condition of the lung, no dulness whatsoever being present. The patient returned to his work, has gained further in weight and at the present time feels and looks perfectly well, and has remained so continuously since he was discharged from treatment on April 20, 1895. His present weight is 174 pounds.

Case 2.—Mrs. E. G., age 30, student. June 9, 1896. No family history of phthisis. Patient was well until two years ago when she had la grippe with bronchitis; since then she has been

coughing. She went to Phoenix, Ariz., used antiphthisin and gained eighteen pounds. During this time the cough continued and bacilli had always been present in the sputum. Two weeks ago patient had an attack of croup. The temperature rose to 103 and remained there for four days.

Physical examination.—Patient is a well-developed, well-nourished, excessively pale individual; thorax moderately long, broad, well arched and moderately deep; dulness of the right apex posteriorly to the second dorsal vertebra; dulness of the left apex posteriorly to the first dorsal vertebra; dulness of both apices anteriorly to below the clavicle; bronchial inspiration and expiration of both apices loudest upon the right side; few consonant râles; area of cardial dulness normal, tones clear; liver not enlarged; spleen extends to the anterior axillary line; pulse feeble; spirometer 2,000 c.c.; hemoglobin 65 per cent. (Gowers); weight 155 pounds; large number of bacilli in the sputum; temperature normal. Injections of 5 c.c. daily were made until July 27. June 16, appetite decidedly better; 20, able to swim further than she had swam in a year; 27, looks and feels better, cough and expectoration less, weight 156½ pounds; July 3, very few bacilli; 20, no dulness of the lungs, vesicular murmur over the left apex, respiratory murmur is harsh over the right apex; 22, 5 mm. of sputum, very few bacilli; 27, weight 159 pounds, spirometer 2350 c.c.; hemoglobin 70 per cent., began with 10 c.c.; August 2, weight 159½; 8, weight 161½; 11, walked two miles, weight 162; September 17, raised small quantity of mucus, no bacilli; 30, weight, 166; October 7, few bacilli; 9, weight 165½; November 7, no bacilli, weight 167; 21, weight 168½; 26, few bacilli, weight 165; December 9, few bacilli; 23, weight 165, injected 30 c.c.; 29 expectorated for the first time in six weeks (2 minims), few bacilli; January 27, weight 162½, few bacilli; February 5, injected 20 c.c.; 15, no bacilli, 5 m. sputum; March 1, 10 c.c., weight 162½; April 6, no bacilli; 7, no dulness of the lungs, murmur vesicular, weight 163¼; October 20, no expectoration for many months, looks and feels well, both sides of the thorax move equally, no dulness of the lungs, murmur vesicular.

Dr. Rigdon reported at the meeting that he had examined Mrs. G. before treatment had begun and that a large number of bacilli had been present. He now found none. Both he and Dr. Farnum examined the patient before the committee and pronounced her perfectly well.

Case 3.—H. F. M., age 28, reporter; May 28, 1897. Paternal grandparents and two paternal aunts died of phthisis. Father had some lung trouble between 25 and 35. Well as a boy. At 20 weighed 196. Fall of 1890 and spring of 1891 had two attacks of pleurisy. In the fall of 1892 threatened with pneumonia. Was nearly salivated with mercury. Was in bed one week. Falls of 1893 and 1894 had two severe attacks of throat trouble, had cough for a week. In spring of 1896 had what was called pneumonia. In fall of 1896 had a cold, coughed and had pain in chest. Weight 168 pounds. In April 1897 bacilli were found in the sputum by Dr. Riley. Had cough, expectoration and night sweats. Weight 155. Coughed blood one week ago. Patient is a fairly developed, moderately well-nourished, pale individual; cervical glands slighty enlarged; thorax long, moderately broad, fairly arched, deep; flatness of the left apex posteriorly to the first dorsal vertebra of the right to the second dorsal vertebra; both anteriorly to and including the clavicle; bronchial inspiration and expiration of both apices; May 30, temperature, A.M., 98.5; P.M., 98.2. May 31, temperature, A.M., 98.2; P.M., 99.6; injected 1 mg. tuberculin (Koch); bacilli found in specimen made by Dr. Riley on March 27. June 1, temperature, 8 A.M., 98.2; 10, 98; 12 M., 98.4; 1 P.M., 99.2; 8:15, 99.2; 9 A.M., 99.4; injected 3 mg. tuberculin (Koch). June 2, temperature, 1 A.M., 99.4; 8, 98.4; 9, 98.4; 6:45 P.M., 100.6; 7:45, 100.6; 9, 100.4; 11, 100; has headache; June 3, temperature, 8 A.M., 98.6; 10, 98.6 injected 5 mg. tuberculin (Koch); 6 P.M., 101.2; 7, 100.8; 8, 100.6; 9, 100.2; 10, 100. June 4, temperature, 8 A.M., 99.2; 9:45, 99.6; P.M., 99.6; dulness more extensive and more intense; bronchial respiration is more evident; temperature normal; injected 5 c.c. oxytuberculin. June 5, feels better; injected 10 c.c. June 11, temperature 98.8 to 101. June 19, injected 20 c.c. June 22, no cough for a week; injected 10 c.c. July 9, injected 20 c.c. July 19, cough slight; weight 154¾. July 20, took dilute sulphuric acid by mistake. October 11, injected 10 c.c. October 22, no dulness of the lungs, murmur vesicular; weight 156½; feels well.

Case 4.—H. P., age 40, minister; May 6, 1897. Father died of miner's consumption. Well as a boy. For the past few summers patient has had attacks of diarrhea. Patient is a moderately developed, poorly nourished, pale individual; thorax long, broad, flat, shallow; both supra-clavicular fossæ sunken; slight dulness of the uppermost portion of the right apex; bronchial respiration of both apices, more marked upon the right side; heart normal; liver and spleen not enlarged; no bacilli in the sputum.

Injected 1 mg. tuberculin (Koch). May 27, 8 P.M., temperature 97.2; 9 A.M., 97.8; 10, 97.2. May 28, 6 A.M., temperature 97.6; 7, 95.2; 9, 97.8; 10, 96.6; 11, 96.6; 12 M., 98; 1 P.M., 99.2; 2, 98.6; 3, 99.6; 6, 99.8; 8, 101.2. Injected 3 mg. tuberculin (Koch). May 29, 3:30 A.M., temperature 101.4; 6:30, 100; 8, 99.8; 9, 100.2; 3 P.M., 101.4; 8:30, 101.4; 9:30, 100.2. Dulness of the right apex is more pronounced than it was and a dulness is found in the uppermost portion of the left apex, bronchial respiration is louder. May 30, 7 A.M., temperature 100.4; 8 100; 10, 98; 2 P.M., 99; 4, 99.8; 11, 98.8. May 31, 6:30 A.M., 98.2; 10, 97; 12 M., 97.8; 3 P.M., 99; 4, 99.2; 7, 98.6. Injected 6 mg. tuberculin (Koch). June 1, 6 A.M., temperature 99.4; 7, 99.6; 8, 99.6; 9, 101; 10:30, 101.4; 12 M., 102; 1:30 P.M., 102.4; 2:30, 102.2; 3, 102.4. 7, 102.6; 9, 102.2. Flatness of the left apex posteriorly to the first dorsal vertebra; flatness of the right apex posteriorly to the second dorsal vertebra. Loud bronchial respiration of both apices. June 2, 7:30 A.M., temperature 100.8; 8:30, 100.8; 9:30, 100.8; 11, 100.6; 12 M. 100.6; 2:30 P.M., 100.2; 3:30, 100.8; 8:30, 99.6; 10, 98.8. Injected 5 c.c. of oxytuberculin. June 3, 7 A.M., 99; 12 M., 98.4; 2 P.M., 99; 3:30, 98.5. 4:30, 98.9; 9, 99.1; 11, 100.6. Injected 10 c.c. Feels much better. Bacilli found in the sputum. June 4, morning 98.8, afternoon 98. June 5, cough and expectoration much better, feels better. June 7, morning 98.5, afternoon 98.4. Diarrhea better. June 11, morning 101, afternoon 102. Has tonsillitis; gargle ordered. June 13, morning 101.6, afternoon 103. June 14, morning 98, afternoon 98.6. June 19, feels well, no diarrhea. June 21–22, night sweats. July 6, injected 20 c.c. July 20, has diarrhea. August 13, has diarrhea still, ordered creta. August 14, diarrhea is much better. August 23, diarrhea is worse; ordered pulv. opii, plumbi acet. and tannin, each .065 gram three times a day. September 23, no diarrhea, temperature normal. October 1, no cough or expectoration. October 21, patient feels perfectly well. Examination of the chest shows absolutely normal conditions. No bacilli in the very small quantity of sputum raised.

Case 5.—T. O. P., age 25, April 23, 1897. No heredity. Began to cough in June, 1895; several weeks later had a slight hemorrhage. The cough and expectoration increased and were attended by fever, night sweats and loss of strength. He went to Arizona and improved, but since then the old trouble has continued. Bacilli found in 1893 by Dr. Frey of Washington. Patient is fairly developed, moderately well nourished. Thorax moderately long, broad, well arched, deep. Dulness of both to the first dorsal vertebra anteriorly to the clavicle; faint bronchial respiration of both apices; heart normal; liver and spleen not enlarged; weight 142½ pounds; hemoglobin 70 per cent. (Gowers); sputum contains a moderate number of bacilli; temperature, morning 99.1 to 102. Injected 10 c.c. oxytuberculin. May 27, temperature normal. July 6, feels better; 20 c.c. injected. August 11, small amount of mucus, no bacilli. September 23, 10 c.c. October 11, no bacilli, small amount of mucus. October 19, no dulness of the lung, murmur vesicular. October 22, Weight 142½ pounds.

Case 6.—Mrs. C. H., age 31, May 13, 1897. Maternal grandfather and one half-sister died of phthisis. Had the usual diseases of childhood. Eight years ago had a hemorrhage; this was followed by a morning cough which persisted. Four years ago had a second hemorrhage and another three months ago. For the past two months had short breath, even while at rest. the cough and expectoration have been worse and she has had night sweats. Patient is a moderately developed and nourished individual; thorax moderately long, moderately broad, well arched, moderately deep; left side moves decidedly more than the right; dulness of the right apex posteriorly to the second dorsal vertebra, of the left to the first dorsal vertebra; dulness of the right apex anteriorly to the clavicle, of the left to 2 cm. above the clavicle; bronchial respiration of the right apex faint bronchial of the left; râles heard throughout the right lung; area of cardiac dulness normal, tones clear; liver not enlarged; spleen decidedly enlarged; no abdominal tumor; abdomen not distended; urine normal; hemoglobin 60 per cent. (G.); weight in health 145 pounds, at present 129½; moderate number of bacilli; temperature, morning, 99.6, afternoon 100. Injected 5 c.c. oxytuberculin. May 19, injected 10 c.c. May 26, temperature morning 100.8, afternoon 98.8. Expectoration less. June 1, morning 99, afternoon 101. June 2, injected 20 c.c. June 4, morning 98.6, afternoon 101. June 7, weight 128½ pounds. June 16, coughs less and feels better. June 17, weight 125 pounds. June 30, walked two miles. July 7, weight 127 pounds. July 8, hardly coughed. July 19, very few bacil

temperature normal. August 17, trace of sputum, no bacilli. October 20, no dulness of the lung, murmur vesicular (confirmed by Dr. W. M. Thorne).

Case 7.—Miss N. R., aged 22, Oct. 2, 1895. Two cousins on the maternal side died of phthisis, it having been acquired from the father's side. Had the usual diseases of childhood. One year ago caught cold and has been coughing since then. Since April the cough has been worse and been attended by expectoration. The voice was clear formerly, at present it is husky.

Physical examination. Ordinary weight 141 pounds, in July 124, on July 8, 133, September 24 145; large number of bacilli; spirometer 1700 c.c.; hemoglobin 60 per cent. (G.) Patient is a well developed, well nourished girl; cervical glands not enlarged; thorax long, broad, moderately arched, moderately deep; right side moves slightly less than the left, is flatter than the left; flatness of the right apex posteriorly to the second dorsal vertebra, of the left to the vertebral prominence; flatness of the right apex anteriorly to the first interspace, of the left in its uppermost portion; bronchial inspiration and expiration of both apices, few râles of the right; area of cardiac dulness normal, tones clear; liver and spleen not enlarged; weight 139 pounds. Injected 5 c.c. oxytuberculin; temperature normal. October 14, appetite much better, cough less. October 15, injected 10 c.c. October 20, weight 141½ pounds. November 7, weight 143½. November 16, no expectoration for a week. November 21, weight 144½. November 30, no expectoration in three weeks. December 7, no cough in twenty-four hours. December 11, two sides of chest appear the same, no sinking of the supraclavicular fossæ, two sides move equally, no dulness of the lungs, pitch upon the right side is slightly higher, expiration slightly harder. December 12, 20 c.c. injected. January 20, no bacilli. March 17, 10 c.c. injected. March 24, raised sputum for the first time since the last note, contains a few bacilli. June 29, 10 c.c. injected. October 11, both sides move equally, no dulness of the lungs, murmur vesicular.

Case 8.—Miss S. D., age 22, April 2, 1896. Sister died of phthisis. Patient was well until two years ago, when she had a pulmonary hemorrhage. This was followed by a cough which persisted. Last Thanksgiving day had another severe hemorrhage; since then the cough has been worse and has been attended with expectoration, night sweats and dyspnea; Last Monday had another hemorrhage.

Physical examination.—Patient is fairly developed, moderately well nourished, pale, slightly cyanotic; cervical glands slightly enlarged; thorax long, moderately broad, fairly arched, moderately deep, slight scoliosis; left side moves less than the right; flatness of both apices posteriorly to the first dorsal vertebra; flatness of both apices anteriorly to the clavicle; bronchial inspiration and expiration of both apices with consonant râles; area of cardiac dulness normal, tones clear; liver and spleen not enlarged; spirometer 600 c.c.; hemoglobin 75 per cent. (G.); urine normal; bacilli in the sputum; average morning temperature 99.4, evening 100.5. April 13, weight 122 pounds. May, 1896, average morning temperature 98.5, evening 99. May 4, weight 120¾. May 28, cough and expectoration increased. June, 1896, average morning temperature 98.5, evening 99. June 9, no bacilli, feels stronger. June 11, has not expectorated for three days, weight 118¾. June 18, weight 119. June 28, weight 119, no cough or expectoration. July 1, is able to work, little cough, weight 119½. July 13, weight 117¾. July 21, working, feels well; 5 c.c. injected. July 28, weight 118; 10 c.c. injected. August 3, weight 117. August 17, spirometer 1900 c.c., hemoglobin 75 per cent.; slight depression of the left clavicular region, none of the right; two sides move equally on respiration; at the uppermost portion of the right apex the pitch is higher than the left, but no dulness can be detected; respiratory murmur vesicular, expiration harsher than at the left apex; weight 116⅓. August 19, weight 118. August 27, no appetite, ordered strychnia .0027 gram three times a day. September 8, raised 1 c.c. mucus, the first in three days. November 2, no bacilli, has a little cough and expectoration. November 16, weight 113. December 1, 20 c.c. injected. Jan. 12, 1897, has pain in the chest. February 2, no expectoration for a month, weight 112. February 18, 10 c.c. injected. March 25, weight 113¼. April 2, no expectoration in three months. May 15, comes every other day. June 30, comes once a week. October 20, no expectoration for many months, two sides move equally, no dulness of the lung, murmur vesicular.

Case 9.—M. L., age 23, school teacher; Dec. 12, 1896. Mother and paternal uncle died of phthisis. Had the usual diseases of childhood. At 14 caught cold. Since then has coughed at intervals. Has shortness of breath on exertion and has had night sweats lately, period occurs every three weeks.

Usual weight 126 pounds, three months ago 117. Patient is well developed and fairly nourished; cervical glands very slightly enlarged; thorax long, moderately broad, moderately arched, moderately deep; flatness of both apices to the first dorsal vertebra, anteriorly of both to below the clavicle; bronchial respiration and consonant râles of both apices; throughout both lungs râles are heard; area of cardiac dulness to second rib, median line of the sternum to fifth, intercostal space to mammillary line; a murmur is heard at the apex that disappears during inspiration; liver and spleen not enlarged (examination confirmed by Professor Kerr, Professor Clinical Medicine, University of California, Medical Department); spirometer 1250; weight 117½; arytenoid cartilages slightly swollen; no bacilli in the sputum; temperature 99.8. Injected 10 c.c. January 9, injected 20 c.c. January 12, weight 119½. January 13, afternoon temperature 101. February 8, feels well, no cough, no expectoration; stop injection. April 10, has continued to improve, feels better than she has felt in two years, weight 121¼; two sides of chest move equally; no dulness of the lungs, murmur vesicular. October 4, feels well, has had a little inflammation in the throat below the surface of tonsil, scarified it and ordered peroxid, 1 to 6. October 22, weight 123¼. Patient looks and feels perfectly well, no dulness of the lungs, murmur vesicular. Dr. Barkan examined patient during the meeting and reported normal oral cavity. Epiglottis and vocal chords, true and false, healthy in color and texture; arytenoid cartilage and interarytenoid space normal. Patient speaks clearly and attacks the tone well, no secretion.

Case 10.—Mrs. G. F. C., age 19; Aug. 10, 1897. Father had phthisis. Patient was well, as a girl, mature at 14, has not been strong since, coughed at that time and at times since. Coughed up blood several times last summer, the last time since then having been last week. Patient has been getting short of breath for the last three months. Weight last spring 130 pounds, January, 1897, 118, present weight 109. Patient is well developed, moderately nourished, pale; thorax long, moderately broad, fairly arched, moderately deep; both supra- and infra clavicular fossæ sunken; left side moves slightly less than the right; flatness of both apices posteriorly to the second dorsal vertebra, of left anteriorly to the second rib, of right anteriorly to below the clavicle; bronchial respiration of the right apex, amphoric respiration of the left apex with swishing râles; area of cardiac dulness normal, tones clear; liver and spleen not enlarged; moderately large number of bacilli; temperature morning 99.2, afternoon 102. Oxytuberculin was injected daily. August 16, cough less. August 19, feels better. August 21, stronger, cough and expectoration less, temperature normal. August 23, hemoglobin 65 per cent. (G.). August 28, cough very much less, expectoration less and feels stronger. August 30, feels very well. September 16, appetite better, moderate number of bacilli. October 16, appetite very good, weight 108¼. October 18, two sides move equally, dulness of both apices posteriorly to the first dorsal vertebra, right anteriorly to the clavicle, of the left to the two cm. below clavicle, bronchial respiration of the right apex, amphoric of the left, few râles. An examination made by the committee confirmed the very marked improvement that had been made in her case.

Case 11.—T. H. W., age 37; June 16, 1896. No heredity. In 1877 had chancroid; has had gonorrhea; been using cigarettes for thirty years; used alcohol to excess; has been coughing for a long time, this has grown worse during the past year, at times he has raised blood-tinged mucus; two weeks ago had a profuse hemorrhage and has had night sweats for many years. Patient is poorly developed, illy nourished, color moderately good, cervical glands not enlarged; thorax long, moderately broad and well arched, moderately deep; two sides move equally; dulness of both apices posteriorly to the third dorsal vertebra, right anteriorly to the second rib, of the left to and including the clavicle; loud bronchial respiration of both apices with consonant râles, mucus râles over other parts of the lungs; area of cardiac dulness normal, tones clear; liver 15 cm. Spirometer 3800 c.c., hemoglobin 70 per cent., urine contains pus; large number of bacilli in the sputum. June 18, Professor Kerr confirmed the examination; weight 145¼ pounds; temperature morning 98, afternoon 101.6. Injections of oxytuberculin were instituted and very soon improvement occurred. June 26 it was noted that the cough was better than it had been in months, and by July 5 the temperature became normal and has remained so to the present. August 10, a few bacilli were found in the sputum. September 23, the patient expectorated a little blood, but otherwise no increase of unpleasant symptoms, so that by December 17 only 4 c.c. of jelly-like mucus was expectorated in the twenty four hours. December 29, no bacilli could be found in the sputum. January 19, patient complained of rheumatism

in the shoulders, for which salicylate of soda and hot baths were used. By January 30 he was entirely recovered from this slight ailment. March 2, a very small number of bacilli were found in the sputum. March 18 he caught cold but had no rise of temperature, coughed up a very small amount of blood, in which bacilli were found. April 2, no bacilli were found in the sputum, nor have any been found since that time. At the present time the patient is perfectly well and strong, the most careful examination made fails to reveal the slightest sign of the disease of the lung, either to me or any of the six other physicians who have examined him.

Case 12.—Miss G. P., age 18. Has been having cough for one year with profuse expectoration, night sweats and hemorrhages. First presented herself July 3, 1896. Weight 104¼ pounds. Patient is poorly developed, moderately well nourished, very pale; thorax long, moderately broad, flat, shallow; left side decidedly flatter than the right, moves very little on respiration; dulness on right side to first dorsal vertebra, anteriorly to and including the clavicle; dulness of the left apex posteriorly to the sixth dorsal vertebra, anteriorly to the second rib; bronchial respiration of the right apex and amphoric respiration of the left; temperature morning 102.5, afternoon 105. Treatment with injections of oxytuberculin was begun September 30. Weight 122¾ pounds. Temperature after October 1 normal with an occasional rise of temperature to 101. November 4, weight 125¾. November 14, very few bacilli present. November 21, weight 127½. March 4, patient took cold and went to the country, returning on the 25th in a very much worse condition than she had been since she first presented herself, weight being 112¾ and the temperature ranging as high as 102. Treatment of oxytuberculin was again instituted and improvement began. April 9 a moderate number of bacilli tuberculosis were found in the sputum. By April 24 the temperature became normal and has remained so since. When presented to the committee it was found that the left side of the thorax was slightly flatter than the right. The left side moves slightly less than the right in the upper part. No dulness whatsoever of the right lung. Respiration vesicular. In the left lung dulness was found posteriorly to the first dorsal vertebra and anteriorly to the second rib, amphoric respiration was heard in this region, but very few râles. Her weight was 125 pounds, and no bacilli were found in the sputum.

Case 13.—C. H. W. Was sent to me Jan. 22, 1897, from the Throat Clinic of the Cooper Medical College with the diagnosis of acute tuberculosis laryngitis, with the following report:

Left cord does not move. Cartilaginous portion narrow, membranous portion rounded and pearly white. Left arytenoid cartilage somewhat edematous, edema of the arytenoid having much increased in the last few days.

Patient was found to be moderately developed, poorly nourished, somewhat cyanotic, with dulness of the right apex to the third dorsal vertebra, of the left to the second; anteriorly of the right to the second rib, of the left to the first intercostal space. Bronchial respiration and râles of both apices, amphoric respiration below the right clavicular region; large number of bacilli in the sputum. Temperature, afternoon, 101.2; weight 129½ pounds.

Patient had profuse expectorations, was dyspneic and had numerous bacilli in sputum.

Administration of oxytuberculin was instituted January 22, and a few days later he reported that he slept better and felt better; temperature, P.M., 100.4. From that time to the present the temperature has never risen above the normal. February 2, he had a hemorrhage. February 13, the laryngologic clinic reported the larynx better, and from that time on a continued improvement in the condition of the larynx occurred. October 21, a large number of bacilli were found in the sputum. Dulness of the left apex was found to the first dorsal vertebra; bronchial respiration; no dulness of the right was found. There was very little cough, the expectoration being only one-half as much as it had been when he first presented himself. Patient had the rosy appearance of health and had no shortness of breath. His weight, however, was only 128½ pounds.

An examination by Professor Barkan made at the time of the meeting gave the following report: Epiglottis healthy, true and false vocal cords of good color and texture. Left cord does not move as well as right toward the medium line of phonation. Left arytenoid slightly thickened. Voice clear.

Case 14.—J. P. A.; was admitted to the City and County Hospital July 15, with the following history: He had been well with the exception of stomach and bladder trouble until one week ago, when he suddenly became short of breath. His legs began to swell and he passed bloody urine for the same length of time. He was found to be cyanotic and dyspneic, with general anasarca. Dulness of the right apex was to the second dorsal vertebra; bronchial respiration. The sputum contained bacilli of tuberculosis in large numbers. In the bloody urine bacilli tuberculosis and a moderate quantity of albumin were found.

The case was diagnosed as acute miliary tuberculosis, but so little expectation of accomplishing anything in the case was felt that an examination of the blood for bacilli tuberculosis was, unfortunately, not made. Injections of oxytuberculin were begun and the patient rapidly improved, though high fever continued for a long time, but with the last two weeks has entirely disappeared. August 17 the patient was able to walk around the wards, and the urine was no longer bloody, nor has it been so at any time since. August 28, his weight was 133 pounds. September 25, his weight was 135. October 2, his weight was 138. October 6, after much search a few bacilli could be found in the sputum and in the urine only a trace of albumin, but no bacilli. October 19, patient became attacked with sciatica, for which he was blistered and confined to his bed. His weight on October 23 was reduced to 134 pounds.

In this case the gradual improvement had been observed by the class of medical students at Cooper Medical College, who saw him from time to time in the wards.

In the subjoined table sixteen cases that had been treated early in the course of the investigations with oxytuberculin heated only thirty hours and giving less favorable results have been omitted.

FOURTH STAGE.

No.	Name.	Days Treated.	Bacilli.		Cured.	Much Improved.	Slightly Improved.	Unchanged.	Worse.	Dead.
			Before.	After.						
1	D. A. C.	172	Large	Moderate				1		
2	C. F.	200	Large	Moderate			1			
3	T. J.	104	Large	Not examined						1
4	G. A. K.	59	Large	Not examined						1
5	J. M.	407	Large	None	1					
6	J. M.	365	Large	Hardly any		1				
7	B. M.	459	Large	Very few		1				
8	W. R. P.	59	Large	Large						1
9	P. P.	235	Large	Moderate		1				
10	G. P.	295	Large	Moderate		1				
11	D. H.	130	Large	Moderate		1				
12	G. C.	65	Moderate	Moderate		1				
13	H. D.	58	Small	Small		1				
14	C. F.	77	Large	Not examined				1		
15	J. D.	44	Large	Large			1			
16	M. H.	47	Large	Not examined						1
17	Lester L.	96	Large	Not examined					1	
18	R. L.	32	Large	Not examined		1				
19	C. M.	112	Large	Moderate		1				
20	J. R.	168	Large	Large			1			
21	E. W.	63	Large	Not examined						1
22	C. W.	173	Large	Very few		1				
23	J. B. M.	38	Large	Not examined		1				
23					1	11	3	2	1	5

THIRD STAGE.

1	D. B.	26	Moderate	Not examined				1		
2	S. D.	300	Large	None	1					
3	E. E.	37	Large	Not examined		1				
4	A. G.	126	Moderate	Large		1				
5	F. J.	326	Large	None		1				
6	M. L.	113	Large	Large				1		
7	J. M.	141	Large	Hardly any		1				
8	S. M.	461	Large	Moderate		1				
9	A. M.	30	Large	Not examined		1				
10	C. M.	22	Moderate	Not examined			1			
11	R. M.	333	Large	Moderate		1				
12	H. P.	285	Large	None		1				
13	T. P.	33	Large	Not examined				1		
14	L. T.	40	Moderate	Not examined				1		
15	F. A. S.	254	Moderate	Moderate			1			
16	C. H. W.	42	Large	Large		1				
17	M. W.	182	Moderate	Few		1				
18	T. H. W.	350	Large	None	1					
19	T. M.	250	Large	Moderate		1				
20	F. R. D.	300	Large	None		1				
21	W. H.	280	Large	Moderate		1				
22	M. W.	120	Small	Small		1				
23	P. S.	40	Large	Moderate		1				
24	J. D.	30	Large	Large			1			
25	T. T.	80	Large	Moderate		1				
26	H. C.	30	Large	Moderate		1				
27	C. H.	148	Moderate	None	1					
28	J. M.	54	Moderate	Few		1				
29	W. W.	130	Large	Large		1				
29					3	19	3	4		

SECOND STAGE.

1	E. G. . .	288	Large	None	1	. .	. .	. .	. .	. .
2	W. M . .	75	Moderate	Not examined	. .	1	. .	. .	. .	. .
3	N. R. . .	120	Large	None	1	. .	. .	. .	. .	. .
4	E. S.. . .	108	Large	Moderate	. .	1	. .	. .	. .	. .
5	Father S.	99	Moderate	None	1	. .	. .	. .	. .	. .
6	V. C., 1...	100	None	None	1	. .	. .	. .	. .	. .
7	C. V.. . .	90	Moderate	None	1	. .	. .	. .	. .	. .
8	T. L.. . .	180	Large	None	. .	1	. .	. .	. .	. .
9	R.W.R., 2	38	None	None	. .	1	. .	. .	. .	. .
10	O. P. . .	137	Moderate	None	1	. .	. .	. .	. .	. .
11	H. P. . .	111	Moderate	None	1	. .	. .	. .	. .	. .
12	W. D. . .	112	Few	None	. .	1	. .	. .	. .	. .
13	H. M.	101	Few	None	1	. .	. .	. .	. .	. .
14	M. P. . .	36	None	None	. .	1	. .	. .	. .	. .
14					8	6	. .	. .	. .	. .

1 Through an oversight sputum records were not made until one month after treatment had begun.
2 Bacilli tuberculosis had been found previously by Dr. Fraser.

FIRST STAGE.

1	F. A.. . .	134	Moderate	None	1	. .	. .	. .	. .	. .
2	M. L. . .	15	None	None	1	. .	. .	. .	. .	. .
3	W. Z. . .	305	None	None	1	. .	. .	. .	. .	. .
4	R. W. R .	106	None	None	1	. .	. .	. .	. .	. .
4					4	. .	.	. .	. .	. .

GENERAL SUMMARY.

Stage.	Total No. Treated.	Cured.	Much Improved.	Slightly Improved.	Unchanged.	Worse.	Died.
Fourth stage.	23	1	11	3	2	1	5
Third stage.	29	3	19	3	4	. . .	. .
Second stage	14	8	6	. . .	. . .	. . .	. .
First stage	4	4	. . .	. . .	. . .	. . .	. .
Total..	70	16	36	6	6	1	5

When in this table it is stated that a patient has become well I mean that bacilli tuberculosis have been absent at repeated examinations running over a long period of time, that the patient feels well and strong, and above all that physical examination of the chest does not reveal any signs of the disease, Any case not filling all of these requirements has provisionally been classed among those who have improved. It has been my purpose to place the most stringent demands upon the treatment.

In administering the remedy needles not less than one-half inch in length have been used so that the oxytuberculin might be injected well under the skin.

443 Geary Street.

A CLINICAL STUDY OF TUBERCULOUS CASES TREATED WITH THE NEW ANTIPHTHISIC SERUM T. R.

(FORMULA OF FISCH.)

BY A. MANSFIELD HOLMES, A.M., M.D.
DENVER, COLO.

Serum therapy has been so extensively used that scarcely a well informed person can be found who does not entertain an opinion either for or against it.

However, the principles underlying this method of medication, the nature of toxins and antitoxins, their mode of preparation, administration and action are very imperfectly understood.

A great variety of opinions are held both by the profession and the laity concerning the effects of this treatment in tuberculosis. Many of these opinions however are based upon no firmer foundation than that of prejudice.

For some time past I have used with my tuberculous patients, a serum prepared by immunizing the horse with Koch's old tuberculin. I have obtained from this product very satisfactory results in several cases.

Soon after the introduction of Koch's new "tuberculin T. R.," I tested its utility on a few well selected cases of tuberculosis. A short time later I was informed by Dr. Carl Fisch of St. Louis that he was immunizing horses with the new "tuberculin T. R.," hoping to be able to furnish a serum with more potent antitoxic properties than those possessed by the old serum. This at once appealed to me as being the most rational therapeutic agent yet proposed for the treatment of tuberculosis.

As is well known, Koch's old tuberculin contains only the toxins secreted by the bacilli. If the use of the old tuberculin on the horse could produce a serum capable of bringing about the satisfactory results which I had obtained in the cases tested by it, I felt very confident that the new "tuberculin T. R."—being a more complex toxin, containing not only the toxins secreted by the bacilli, but also those contained in the tissues of the bacilli themselves—if used to immunize the horse would produce a more complex antitoxin, which would not only be an antidote for the toxins secreted by the bacilli, but also for those contained within the substance of the germs; in other words, possessing both antitoxic and bactericidal properties.

At this time I was honored by a request from Dr. Fisch to test the new product upon a series of tuberculous cases. I accepted the invitation and commenced the work as soon as the horses were considered immunized and Dr. Fisch had tested the serum upon animals. The following report therefore is the first account giving the results obtained with this serum upon patients.

Before proceeding with the report it will probably be well to clearly define the principles underlying immunization; and, furthermore, to come to a clearer understanding of the rôle played by toxins and antitoxins in bringing about this condition.

It is the nature of toxins when administered to an animal to stimulate the organism to a greater production of antitoxins. This is known as active immunization.

On the other hand, the antitoxins produced by a healthy animal may be administered to an organism possessing a diminished supply of these antitoxins. The result thus obtained is known as passive immunization.

Moreover, since every living organism is endowed with the ability to generate protective substances known as antitoxins; yet this ability is possessed in variable degrees by different individuals, according as they are in a normal or diseased state, or according to the species to which they belong.

Therefore if the antitoxin supply of any organism becomes diminished by disease, either in quantity or quality, it has already been shown that an effort may be made to overcome this deficiency by one or the other of the foregoing methods of bringing about artificial immunization.

By the active method a toxin is used for the purpose of stimulating the organism to a greater production of antitoxins. But it will be readily seen that in weak persons this method would be simply an effort to increase the functional activity of an organism that is already overworked.

While, on the other hand, by administering antitoxins produced by a healthy or immunized animal to one deficient in these products the weaker organism

will be temporarily supplied with that which it is not able to prepare for itself; and during this period instead of being stimulated to a still greater activity it will have an opportunity to rest and recuperate.

This is exactly the result which I have observed by administering the "antiphthisic serum T R." to tuberculous patients.

The following is the report of my first ten cases treated by this new serum:

Case 1.—Mrs. N., age 30, native of Kentucky.

Family history.—Sister died of tuberculosis at 20, sick two years; four months later a brother died of tuberculosis at 32, sick five years; the mother having nursed the son and daughter through their sickness showed evidence of tuberculosis a short time before their death, and died of the disease eighteen months later. Also, one aunt had tuberculosis.

Personal history.—Present trouble began four years ago. Former weight 137, lost gradually until her weight was reduced to 80, slowly improved until she reached 103 pounds. In June, 1897, a cough and expectoration commenced and she came to Colorado.

Physical condition.—Upon examination one month after arriving in Denver, I found a small area of dulness over the upper lobe of left lung with moist râles in the apex on forced inspiration; frequent pains in the lung; cough and morning expectorations; afternoon temperature 99½; weight 110. Slept poorly, appetite moderate; weak, easily exhausted and very susceptible to cold.

Treatment.—I commenced treatment with Koch's new "tuberculin T. R." on August 6, continued for two weeks, increasing the dose from $\frac{1}{500}$ mg. to $\frac{150}{500}$ mg. At the expiration of two weeks weight reduced from 110 to 106½ pounds. A marked reaction developed under an increasing dose in the form of a distinct chill. August 25 treatment was changed to "antiphthisic serum T. R.," commencing with ⅓ c.c. The dose was slowly increased to 1 c.c. At the end of one week under the serum she had gained two and one-half pounds. Felt better and stronger and slept better.

Reaction.—Patient experienced the first reaction on the ninth day in the form of a tired feeling with an inclination to sleep most of the time. During second week cough and expectoration ceased, appetite improved, slept better and gained two pounds. Temperature normal at the end of third week. At the expiration of six weeks of the serum treatment patient felt a constant improvement. The pain had disappeared from the lung, cough and expectoration had ceased, râles had disappeared and there was a gain of seven and one-half pounds. Patient much stronger, riding a bicycle, and was much better than for three years. Patient discharged cured. Treated with Koch's old tuberculin without a reaction. Dose never exceeded 1 c.c. Temperature never more than one degree above, but more frequently subnormal. One month after stopping treatment patient had gained two pounds and continued to improve.

BLOOD STUDY: TABLE I.[1]

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
August 13	20	8	2	68	2
August 21	24	13	3	53	7
September 20	32	7	0	58	3
October 4	34	6	1	56	2
November 5	27	10	0	61	2

August 6–23 gave "tuberculin T.R." August 25 to October 4 gave "antiphthisic serum T.R." Last blood examination made November 5, one month after stopping treatment.

Results.—Small lymphocytes almost double in number, also an increase in the number of eosinopilous cells and decrease in amount of cell disintegration. One month after stopping treatment the relative percentages adjusted themselves to almost normal.

Case 2.—Mr. H., age 22, single, nativity, New York.

Family history.—Father died of tuberculosis.

Personal history.—Has always been delicate. Had typhoid fever two years ago. Has been a close student for several years. Present trouble commenced last spring while in college. Began with a severe cold, pain in left lung, cough and expectoration, loss of weight and strength. Came to Colorado in June through the advice of his physician. Remained in the mountains during the summer, sleeping in a tent, living in the open air, nourished by the best of food, but under no treatment. Gained in weight, appetite improved, and in many ways felt better, but the cough and expectoration continued, and occasionally a pain in the left lung.

Physical condition.—Patient consulted me September 4. A physical examination revealed slight dulness over upper lobe of left lung, with moderate localization infiltration, and a few fine râles on forced inspiration. Temperature 98, pulse 84, weight 143 pounds.

Treatment.—Commenced the "antiphthisic serum T. R." beginning with ½ c.c. On third day increased to ¾ c.c. Continued the latter dose for five days. During the third and fourth days temperature rose to 99, but soon dropped to normal and remained so during the month.

Reaction.—The first evidence of reaction developed at close of first week. The left axillary glands became tender and moderately enlarged, and left shoulder stiff. Patient felt tired and experienced a tendency to sleep much of the time. These effects disappeared after the third day. During the reaction the appetite was not impaired. Immediately after the reaction appeared, the cough and expectoration became less. End of second week cough and expectoration had ceased. At the close of first month patient had gained three pounds and felt stronger each day. Pain disappeared from lung, chest expansion had increased three-fourths of an inch, râles had disappeared and dull spot was clearing. Patient discharged with no evidence of the disease remaining. During the month no treatment used except the serum and lung gymnastics. Maximum dose 1 c.c. A second reaction did not appear.

BLOOD STUDY: TABLE II.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos
September 11	17	5	1	74	3
September 18	24	9	0	60	7
September 25	27	8	0	60	5
October 2	27	9	0	60	4

Case 3.—Miss S., aged 34; nativity, New York.

Family history.—Mother died of tuberculosis at 64, sick six months; one sister at 20 sick six months; five cousins on mother's side between 20 and 30, and one aunt at 60.

Personal history.—Present trouble began four years ago. Had pleurisy in right side. Cough soon developed, accompanied by almost constant pain in right lung. Soon afterward patient came to Colorado. Former weight 114 pounds, weight on arriving in Colorado three years ago 93 pounds. Improved slightly in Colorado, but cough and pain in right lung persistently increased. Continuing very susceptible to climatic changes, and did not gain strength.

Physical condition.—Examination August 15. No râles detected in either lung. Dulness and slight consolidation over upper portion of right lung, with impaired breathing. Temperature 99 ⅕; pulse 92. Weight 103 pounds. In connection with this case there was also well marked acne involving the face and back, which had existed since puberty without yielding to treatment.

Treatment.—Began "antiphthisic serum T. R." September 11, and continued two months. Initial dose ¼ c.c. At the end of second week was giving 1 c.c. Temperature during first week persistently remained one degree above normal, but fell to normal during second week.

Reaction.—The first reaction developed early in the second week. Axillary glands enlarged and tender on both sides. Face flushed in evening after taking the serum. Felt tired and inclined to sleep much of the time. For a few days while the reaction was most marked, shoulders were stiff much the same as after taking a cold. Following the reaction of the second week improvement was marked; slept better; appetite improved, cough and expectoration diminished; looked and felt better and strength increased. Cough ceased entirely at end of second week, and pains in lung disappeared. Appetite greatly improved. Also an unexpected evidence of improvement developed. At close of the second week the acne which had been so persistent on face and back commenced to disappear. By the end of third week the face was entirely clear and there has been no return. Patient continued to feel better and gained in strength to the close of the treatment at the end of two months; feeling better than at any time since commencement of her trouble. Lost three pounds during first month which were regained during second month. No treatment used except serum. One month after stopping treatment patient feeling well with no evidence of the disease to be found.

[1] The following classification of leucocytes is used in this study with the approximate normal percentages for each: Small lymphocytes 26; large lymphocytes 8; transitional 1; phagocytes 64; eosinophilous 1. The percentages in the tables represent an average of 500 leucocytes.

BLOOD STUDY: TABLE III.

Date, 1897.	Differential Percentages. S. L.	L. L.	Trans.	Phag.	Eos.
August 15	25	5	0	68	1
November 6	33	6	0	57	4
November 13..	29	5	0	63	3
November 18..	30	5	0	61	4

Case 4.—Mr. M., age 32, nativity, Ohio.

Family history.—Father died of tuberculosis at 45, sick three ears. Also father's mother at 30, sick six months.

Personal history.—Present trouble commenced one year ago. ad severe pneumonia involving left lung. A cough existed pre- ious to the pneumonia and increased afterward, accompanied y morning expectoration. Very susceptible to climatic hanges. Former weight 145, present weight 133.

Physical condition.—Small dull area over central portion of ft lung. Pain on pressure, also distinct rough breathing on rced inspiration, but no râles detected. No bacilli, tempera- ire 99.4, pulse 98. This case can not be said to be one of ctive tuberculosis. But the family and personal histories ac- mpanied by his physical condition justified the suspicion of strong tuberculous predisposition which was confirmed by a lood study. I advised the patient to try the "antiphthisic erum T. R.," for the purpose of bringing about artificial im- unization before he had advanced to the so-called "active tage" of the disease.

Treatment.—Commenced the serum October 16, beginning ith ¼ c.c. Increased the dose from ¼ c.c. to ½ c.c. dur- ig first week with no reaction. Gained two pounds. Temper- ture reduced to normal. During second week dose increased 1 c. c. Slight reaction experienced. During third and fourth eeks gave a daily dose of 2 c.c. Improvement marked. Tem- erature dropped to normal or subnormal. At the end of one onth patient is in an excellent condition, feeling better, much tronger; cough and expectoration ceased, pain left the lung, ppetite improved, gained five pounds. Patient discharged eling better than for years.

BLOOD STUDY: TABLE IV.

Date, 1897.	Differential Percentages. S. L.	L. L.	Trans.	Phag.	Eos.
October 14..	21	5	0	67	7
November 6	24	4	1	64	7
November 17..	25	4	0	66	5

Case 5.—Miss R.; nativity, Massachusetts.

Family history.—Maternal uncle died of tuberculosis at 30, ck three months. Maternal aunt at 28, sick less than three onths. Paternal grandmother has intestinal tuberculosis. ather has intestinal troubles.

Personal history.—Has always been delicate. Present trou- le commenced two years ago in the form of a severe bowel ouble, which has not yielded to treatment. Very feeble en- urance. Takes cold quickly, which always manifests itself in n increase of the bowel trouble. Patient also has a severe rm of acne.

Physical condition.—Lungs normal. No cough or expector- tion. Tenderness over bowels with more or less tympanitis. emperature 99, pulse 82, weight 116. I suspected intestinal berculosis and advised the "antiphthisic serum T. R."

Treatment.—Commenced October 13, with ¼ c.c., increas- g the dose until 2 c.c. were given at the end of fourth week. t the end of first week temperature was reduced to normal, nd during a further treatment of six weeks it fluctuated be- ween normal and one degree below.

Reaction.—At close of first week reaction was experienced the form of a tenderness and swelling of axillary glands, iffness in shoulders, a tired feeling and a tendency to sleep. he acne also showed improvement at the end of the first week, nd at the close of six weeks had almost disappeared. The eneral condition of patient improved as the treatment pro- ressed. Bowel trouble gradually improving, weight increased ve pounds. Patient stronger and less susceptible to climatic anges, appetite improved, gained in strength and in every ay better than for two years. Treatment continued.

BLOOD STUDY: TABLE V.

Date, 1897.	Differential Percentages. S. L.	L. L.	Trans.	Phag.	Eos.
September 27.	10	13	1	75	1
October 23.	19	6	1	73	1
October 30..	23	9	1	64	3
November 8	24	7	1	65	3
November 13.	19	3	1	71	6
November 20..	21	7	1	61	10

Case 6.—Mrs. F., age 24; nativity, Indiana.

Family history.—Maternal and paternal grandmothers died of tuberculosis, also a nephew at 19, sick one year, and all cousins on both sides at ages ranging between 17 and 21.

Personal history.—Present trouble developed after an attack of grippe. Fever, cough and expectoration followed. Had two slight hemorrhages. Bacilli were present. Has had cardiac weakness, occasional albuminuria, asthma and chronic bronchitis. Has spent most of her time in Colorado for several years with very little improvement.

Physical condition.—No actual lung lesion found, but general state of health feeble. Troublesome cough with very little expectoration. Much pain in lungs. Takes cold very easily, accompanied by an increase in the foregoing symptoms. Bacilli have disappeared from sputum since coming to Colorado.

Treatment.—Patient placed under the "T. R. serum" October 19, commencing with ¼ c.c. A slight reaction developed from the first dose. Dose was slowly increased. At the end of first week was giving ½ c.c. No severe reaction experienced, but several hours after giving the serum, patient felt tired and sleepy accompanied by marked flushing of the face. Invariably felt better after each reaction. End of fourth week appetite improved, slept better, gained in weight, felt better, and cough had ceased. Temperature continued throughout the month at normal or subnormal. Patient gradually improving. Feels better than for six months. Takes 1 c.c. with little reaction. Treatment continued.

BLOOD STUDY: TABLE VI.

Date, 1897.	Differential Percentages. S. L.	L. L.	Trans.	Phag.	Eos.
September 29.	19	12	1	66	2
October 19..	30	9	1	57	3
November 13.	29	11	1	55	4

Case 7.—Mr. C., attorney, aged 28, nativity Nova Scotia.

Family history.—Father died of tuberculosis at 39, sick eleven years. All cousins on the father's side died of the disease between 18 and 26.

Personal history.—Present trouble commenced with grippe in February, 1895. Previous health good but had been overworking. Cough, expectoration and night sweats commenced at this time. Returned to office after five weeks, but cough and expectoration continued. Aphonia developed and continued until the following July. During July had two hemorrhages. Examination of sputum revealed bacilli. Weight reduced from 148 to 136 pounds; came to Colorado in October, 1895. Has gained since coming to Colorado. Aphonia has disappeared, strength increased and gained in weight, but cough and expectoration continued, and often tinged with blood.

Physical condition.—Patient was examined November 1; fine râles detected in upper lobe of right lung, over which was a small area of dulness; cough troublesome, expectoration moderate in amount; bacilli present.

Treatment.—Patient commenced the "antiphthisic serum T.R." November 3. During first week increased the dose from ¼ c.c. to ½ c.c. The first reaction developed on fourth day. Felt sleepy all afternoon after taking the serum. During the remainder of the week slept the greater part of the time. By the end of the first week appetite much better than for years; felt stronger. During second week dose increased from ½ c.c. to 1 c.c. Early in the second week the axillary glands became tender and slightly enlarged; felt tired, weak and sleepy. This reaction soon disappeared and patient felt much better and stronger. During third week dose increased to 1½ c.c., very little reaction experienced; cough no less, but easier, feeling better each day; sleeping better and much stronger. Gained two pounds; pain in lungs diminishing. Treatment continued.

BLOOD STUDY: TABLE VII.

Date, 1897.	Differential Percentages. S. L.	L. L.	Trans.	Phag.	Eos.
November 1	17	8	2	69	4
November 11..	20	14	0	58	8
November 18..	20	2	1	69	8
November 23..	22	12	0	58	8

November 3 commenced the serum. Blood examination revealed the distinct characteristics of incipient tuberculosis. November 11, revealed marked improvement; the small lymphocytes showing an increase and the eosinophilous cells doubling in number.

Case 8.—Mr. H., aged 42, married, nativity Ohio.

Family history.—Two uncles and one cousin on father's side died of tuberculosis.

Personal history.—Engaged in educational work for years. A hard worker, but enjoyed good health until three years

ago. For years had taken cold readily, always followed with a cough, expectoration and soreness in lungs. During spring of 1896 over-worked and health commenced to fail. Came to Colorado and consulted me for a diagnosis. Lungs revealed no evidence of tuberculosis; a blood study, however, revealed much cell disintegration and marked alteration in the relative percentages of the various types of leucocytes. I gave a diagnosis of marked tuberculous predisposition and advised patient to rest for one year and remain in Colorado. The case was reported as No. 34 in my article on "The Diagnosis of Tuberculosis from the Morphology of the Blood" (*Med. Record*, Oct. 5, 1896). Patient declined the advice given and returned East the last of August and commenced his school work. Cough and expectoration commenced the last of December; lost weight and strength and in March, 1897, broke completely down with what physicians called "pleuro-pneumonia." Confined to his room five weeks. Cough, expectoration and high fever continued. Came to Colorado the second time last July.

Physical examination.—Both lungs very seriously involved; bacilli abundant; marked variation in daily temperature varying from from 102½ to 104½, pulse 110. Former weight 138, present weight 111. Cough troublesome, expectoration profuse, night sweats, diarrhea, extreme dyspnea, poor appetite and sleep.

Treatment.—Gave "tuberculin T.R." for one month, increasing dose from $\frac{1}{500}$ mg. to $\frac{350}{500}$ mg., with very little if any improvement during the month. Gave "antiphthisic serum T. R." during the second month. Increasing the dose from ½ c.c. to 3 c.c; slight improvement in all symptoms except temperature and pulse; cough and expectoration less, appetite improved a little and slept better, but these were only for a short duration. During the last week of treatment I used "antistreptococcus serum" (Fisch) in connection with the "antiphthisic serum T. R.," giving each on alternate days. After the first dose of the "antistreptococcus serum" the temperature fell from 101⅗ to 99⅕. For three days the temperature remained between 99 and 100, being the lowest point reached for more than six months. Patient became gradually weaker, pulse more rapid and appetite less. During the two months of careful treatment patient rapidly failed. Treatment stopped. Patient returned East; lived one month.

BLOOD STUDY: TABLE VIII.

Date, 1896.	Differential Percentages. S. L.	L. L.	Trans.	Phag.	Eos.
August 3	15	12	0	71	2
July 22, 1897	7	9	0	84	½
August 2	5	4	0	91	0
August 10	6	9	0	85	⅓
August 18	10	9	0	81	0
September 14	4	8	0	88	⅓

Case 9.—Mrs. D., age 37; nativity, Pennsylvania.

Family history.—Very good. No tuberculosis on either side.

Personal history.—Present trouble began about two years ago. Patient lived in a double house, a tuberculous patient living in the adjoining apartment. Our patient received daily visits from her neighbor who was careless about her sputum. Expectorating profusely on floors and sidewalk. Our patient in sweeping her apartments inhaled the dust, not knowing the danger from the dry sputum.

At this time she was exhausted with other troubles and very susceptible to the germ. The above influences existed for five months before she noticed any trouble. It first developed by a sensation of a foreign substance in her throat. This increased and a cough soon developed, followed by expectoration. Six months ago aphonia developed and one month later she came to Colorado.

Physical condition.—Left lung very seriously involved; cavity and coarse and fine râles throughout the lung. Cough excessive, expectoration profuse, bacilli abundant. Poor appetite, insomnia, aphonia, diarrhea and amenorrhea. Temperature 101.8 degrees, pulse 120, and scarcely able to go to meals. Former weight 139; present weight 114.

Treatment.—Commenced July 29 with Koch's "tuberculin T. R.," from $\frac{1}{500}$ mg. to ½ mg. at the end of three weeks. During this treatment the temperature was reduced to 99 and pulse to 104. Bowel trouble slightly better, voice and appetite improved and slept better, but cough and expectoration had increased and night sweats appeared. August 25 changed to "antiphthisic serum T. R." At the end of three weeks patient felt much better and stronger, appetite improving, slept better, night sweats ceased and gained two pounds. But cough and expectoration had not improved and temperature was fluctuating between 98.4 and 100.6; bacilli abundant. I then resolved to use "antistreptococcus serum" in connection with the "antiphthisic serum T. R.," giving each on alternate days, increasing the dose gradually until at the end of two weeks more, 3 c.c. of each were being administered. Patient felt no bad effects from the increased dose except slight rheumatic pains in joints. Appetite and sleep both increased. Patient felt better and was gaining in strength. Coughed less at night. At this time a despondent mood came over patient and she stopped all treatment. Omitted treatment almost one month. During this time all symptoms increased and upon re-examination I found the left lung involved throughout and the trouble extending to the other lung. Temperature 101, pulse 120, patient weaker and evidently had lost ground. Patient commenced treatment again, taking the "serum," but very irregularly, omitting it almost half of the time. On November 1 there was no evidence of actual improvement. Cough and expectoration no less, temperature and pulse somewhat less, appetite and sleep better. Treatment continued. Subjective symptoms apparently better.

BLOOD STUDY: TABLE IX.

Date, 1897.	Differential Percentages. S. L.	L. L.	Trans.	Phag.	Eos.
July 6	10	9	1	78	2
August 5	13	6	0	79	2
September 22	15	9	0	72	4
November 14	10	10	1	77	2
November 22	14	6	1	75	4

July 29 to August 23 used "tuberculin T. R." August 25 to September 17 used "antiphthisic serum T. R." August 17 to 28 used "antiphthisic serum T. R." and "antistreptococcus serum on alternate days." September 28 to November 14 omitted treatment. November 14 commenced "antiphthisic serum T. R." again.

Case 10.—Mr. C., age 25, single, nativity Pennsylvania.

Family history.—Maternal grandmother died of tuberculosis. All of her sisters died of tuberculosis. Mother died of tuberculosis at 47; sick four years. Confined to her room one year before her death.

Personal history.—Has never been strong. First evidence of present trouble commenced six years ago. Was almost constant attendant of his mother during the last year of her sickness and slept in the same room. His trouble commenced three months after commencing to care for his mother and nine months before her death. Commenced by taking a severe cold, in mid-summer, without any apparent cause. Cough expectoration and night sweats soon followed. Former weight 135. Has had several slight hemorrhages. Came to Colorado three years ago.

Physical condition.—Physical examination revealed distinct râles over all parts of right lung. Left lung not involved. Cough troublesome, expectoration moderate, bacilli abundant, poor sleep, very poor appetite, temperature normal or slightly above, weight 115½.

Treatment.—Commenced "antiphthisic serum T. R.," September 23, with initial dose of 0.5 c.c. Reaction: More tired and stupid than usual. September 24 gave 0.75 c.c. Reaction: Back around puncture became swollen and painful. Axillary glands tender on both sides. Rheumatic pains in both hands. Cough diminishing. Temperature 99. September 26 gave 0.5 c.c. Axillary glands tender and swollen. Tenderness in joints. Slept six hours in the afternoon after taking serum. September 27–28 gave 0.5 c.c. Same reaction continuing with no new developments. September 29 omitted the serum.

Second week.—September 30. Temperature normal. Axillary glands less painful. Appetite improving. Felt better in every way. Gave 0.5 c.c. Reaction well marked. Slight rheumatic pains in joints. Felt chilly in the evening. Axillary glands less sensitive. During the remainder of the second week reduced the dose to 0.25 c.c. and gave it on alternate days. Patient recognized a marked improvement, slept better and appetite improved. Temperature normal. Circulation better. Reaction less, marked improvement, except considerable infiltration around punctures. Lost two pounds.

Third week.—Same dose continued. Respiration deeper, circulation stronger. Appetite slowly improving. Did not tire so easily, slept better, felt stronger, gained two pounds. Temperature normal.

Fourth week.—Same dose continued, followed by a slight improvement.

Fifth week.—Commenced daily treatments of 0.25 c.c. Very little reaction except felt tired, with a tendency to sleep. Cough much improved. In every way felt better.

Sixth week.—Increased the daily dose to 0.5 c.c. A slight instantaneous reaction followed the first injection of 0.5 c.c. The punctures continued to produce distinct infiltration and

derness. Toward the end of sixth week increased the dose .75 c.c. Patient slept all night and awoke hungry. Tem- ature continued normal notwithstanding the injection set marked inflammation around the punctures. Patient look- better and feeling stronger. The results were so satisfac- from the increased dose that on November 2 I increased 1 c.c. This was followed by excellent results, except that roduced marked inflammation. Each injection not only ing up a distinct swelling and tenderness at the seat of cture, but also increasing the inflammation around the vious punctures on the opposite side of the back. The injection of 1 c.c. (November 2) set up such acute inflam- ion that it quickly developed into a small abscess. Conse- ntly during the seventh week the serum was discontinued. November 7 the abscess was opened. Except for the pain sed by the abscess the symptoms were very encouraging. ing this week the cough and expectoration were much less n at any other time during the previous treatment.

ighth week.—Patient much improved and insisted on inning the serum again. Cough almost ceased except in morning on arising, also very little expectoration. Encour- d by the marked improvement I began the serum again vember 11) with 0.25 c.c. Slowly increased the dose each until 1 c.c was reached at the end of the eighth week with npleasant reaction. Symptoms rapidly improving. Patient rating the injection much better than before the abscess ned. Pulse reduced from 108 to 90. Temperature normal. mmenced this case knowing it to be a desperate one. The ent had very little hope of being benefited. It has ired careful study but the results have more than arded me for the care and anxiety devoted to it. The d study has been unusually interesting. Additional treat- t used in Cases 8, 9 and 10: Gude's peptomangan and Fair- d's panopepton. Careful lung gymnastics used in all cases. e continued under observation.

BLOOD STUDY: TABLE X.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
April 30	14	9	1	75	1
September 23	16	9	1	71	3
October 9	17	9	1	66	7
November 3	10	7	1	71	11
November 6	10	6	1	79	4
November 7	17	6	0	75	2
November 13	17	6	0	72	5
November 20	17	7	0	67	9

ptember 23, commenced "antiphthisic serum T. R." Oc- r 9, improvement commencing. November 3, inflamma- leucocytosis. November 6, abscess forming. November fter opening the abscess. November 13, improving. No- ber 20, much better, stronger and coughs less.

Blood Study.—The blood study made in the fore- ng cases has constituted no small part of the labor nected with this research. The interesting blood nges observed during the progress of the treat- at is a strong proof of the curative effect produced the serum. The variation in the differential count given in the tables were by no means the only racteristics observed in the blood. There are also ay grades of cell disintegration, as well as many des of imperfect cell development in such blood. t it is not my purpose at this time to discuss blood earances in tuberculosis, since I have already mpted this in a former paper.[2] I have however d this means of study to aid in forming a more urate conception of the true condition of the ients when beginning the serum and to aid in fol- ing the progress of the cases while under the tment. The blood study in these cases shows clusively that distinct and uniform blood changes gressively develop as the disease advances. While the other hand equally as important changes elop as the cases return to the normal state. I e observed that in those cases in which improve- t was taking place the first evidence was detected he blood. These changes are as follows and are shown in the foregoing tables: *a*, an increase in the percentage of young cells or small lymphocytes; *b*, a decrease in the percentage of phagocytes; *c*, an increase in the percentage of eosinophilous cells; *d*, a decrease in the amount of cell disintegration.

On the other hand, when the disease was advancing the foregoing symptoms were reversed, as seen in Case 8. Therefore, this study demonstrates that the cases treated with the serum show that the deterioration of the blood is diminished and that there is an added stimulus in the direction of increasing cell genesis and constructive cell metabolism. In other words, the two conditions which universally increase with the advance of the disease are observed to diminish; and with beginning convalescence they show a tendency to return to the normal.

Indispensable factors.—The skill required for the proper preparation and administration of serum is scarcely yet appreciated. Serious consequences may result unless the products are prepared according to accurate scientific principles, by those who care more for a reputation of conscientious work than for commercial profit. While on the other hand the improper administration of a pure serum may bring about results which may unjustly be attributed to the serum. The greatest care in the administration of an impure or decomposed serum will not prevent the development of unpleasant results. Hence, for satisfactory results in serum therapy there are two indispensable factors: Pure products and cautious administration.

Physiologic effects.—I have experienced not a little satisfaction in the fact that there have been no unpleasant or dangerous results from the administration of this serum. It, however, produces reactions which are as characteristic of the physiologic effects as are obtained from the use of quinin or any other therapeutic agent, and if carefully and properly administered I have found no occasion for alarm.

Symptoms of slow reaction.—An increase in the dose brings about physiologic effects which are not uniform in all cases. These may briefly be enumerated as follows: A tired sensation; a desire to sleep much of the time; rheumatic pains involving the joints; tenderness and swelling of axillary glands; chilly sensations, which generally appear several hours after receiving the injection; inflammation at seat of puncture which usually is slight and ceases after first or second week; an erythema, which is not severe and soon disappears; a flushing of the face after the injections, sometimes immediately, but more frequently several hours later; occasionally a tingling sensation is experienced over the surface of the body several hours after taking the injection, and when it occurs it is generally early in the treatment or at a time when the dose is being increased. Headache seldom or never occurs.

Instantaneous reaction.—A sudden reaction sometimes occurs after an injection of any serum. It is probably due to a too sudden and forcible injection of the fluid, especially when the point of the needle terminates in dense and non-elastic tissues.

The needle produces more or less injury to capillaries or veins. And since a compressed liquid naturally tends to escape through channels of least resistance, the pressure of the tissues upon the serum directly forces it into the blood current through the rupture made in the blood vessels. When this occurs an instantaneous reaction of more or less intensity may be produced. This varies somewhat in different

lical Record, Sept. 5, 1896, March 13, 1897. Journal of the American edical Association, Oct. 23, 1897.

persons and at first may cause alarm, but soon subsides without leaving any deleterious results. When the serum is thus forced directly into the blood stream the full physiologic effect is suddenly experienced. While on the other hand if the serum is injected slowly into the loose tissues, absorption takes place slowly, and the sudden reaction is avoided.

During the course of my observations I have suspected another cause for these sudden reactions. I have observed that they are not constant. Many patients do not experience them at any time during the treatment, some very slightly, and others to quite a marked degree. I have observed that those who have experienced them have done so both under a gradually increasing dose, and under a continuous uniform one. I have not yet observed them early in the treatment. When they are experienced, it is generally after the patient has been under the treatment for some time, or after rapidly increasing the dose.

These observations therefore have caused me to suspect an accumulative action of the serum. Case No. 10, has been the only one to experience them to a marked degree. And after each reaction patient has invariably felt good results.

Rules for administering the serum.—With a view of obviating the sudden development of the physiologic effect, I have taken the precaution that the point of the needle passes entirely through the skin into the elastic cellular tissues, and am also careful to force the serum very slowly into the tissues. If at any time an unusual pressure should be required to expel the serum we may be certain that the point of the needle is in dense and non-elastic tissue, which should be a guide for the exercise of caution.

The following are a few of the precautions which I have used in the administration of this serum. 1, I usually begin with the minimum dose of $\frac{1}{4}$ c.c.; 2, the dose is slowly but progressively increased until a reaction is produced; 3, when the reaction is well-marked no further injections are given until it has diminished, and then a smaller dose is commenced and again slowly increased; 4, in very succeptible patients, when a marked reaction is produced by a small dose, the treatment should be given on alternate days until a tolerance is established, otherwise it is given daily; 5, in advanced cases or in those who react quickly to the treatment, it is desirable to proceed with caution; 6, with such cases I take the precaution of placing them in the recumbent position while giving the injection, and at the same time give them a moderately strong current of electricity.

Limit of tolerance.—The limit of tolerance varies in different patients. I have observed that those in the last stage of the disease with a high temperature tolerate large doses, and those well advanced in the disease with low temperature, usually respond to very small doses.

Ultimate effects of the serum—These may be summarized as follows: 1, it improves the appetite and sleep; increases the weight and strength, lowers the temperature, lessens the pulse rates, diminishes the cough and expectoration, stops night sweats and lessens the disposition to take cold; 2, it increases the production of young cells in the blood, diminishes cell disintegration, and increases the percentage of eosinophile cells.

Deductions.—From the effects obtained from the new serum, in the foregoing cases, covering all grades of the disease, I make the following deductions: 1, in early incipiency the disease can be cured and con lescence rapidly established; 2, in cases possessi strong family and personal histories pointing t marked tuberculous disposition—the early use of serum T. R., will bring about a rapid improveme diminishing the susceptibilty to the germs, and this means prevent such cases from passing into more active stage of the disease; 3, cases of advanc tuberculosis without mixed infections, show enco aging results; 4, cases in the last stage with mi infections receive temporary benefit, the progress the disease being partially held in check, but it doubtful if a permanent cure can be establisl except, in rare cases; 5, a blood study is not onl reliable means of showing the condition of the patie but also the progress of the treatment.

After making a careful study of the effects of antiphthisic serum T. R., I am frank in stating t thus far it has given most gratifying results.

My results upon patients correspond very closel those obtained by Dr. Carl Fisch, in his excellent l oratory experiments, reported in the JOURNAL OF T AMERICAN MEDICAL ASSOCIATION, Oct. 30, 1897.

The cases which I have had the opportunity to stu demonstrate that if a diagnosis is made early in development of the disease, this serum offers bri hopes of bringing about a recovery; and, furtherm cases known to possess a strong tuberculous predis sition may, if the serum is made use of sufficien early, increase the immunity, and prevent the dise from passing into the stage of active disintegration

If the results continue to be as gratifying as th which I have already obtained, the antitoxic and b tericidal properties of the serum in tuberculosis man can not be questioned.

Having received such excellent results from antiphthisic serum T. R., on all cases commenc the treatment early, I believe they justify the conc sion that, if cases with a known tuberculous predis sition should take the treatment while they exist such, it will check the disease from further devel ment. If this point becomes fully established it bring about a revolution in the treatment in tuber losis; the treatment then being directed with as m energy toward preventing as toward curing disease.

One other point should receive a passing notice. have reference to the advantage of climate in conn tion with the antiphthisic serum T. R.

The climate alone, in nearly all of the foregoi cases, relieved the symptoms after the patients ca to Colorado. The improvement, however, was marl but not complete, many arriving at a certain po then cease to improve.

The climate in such cases exhausts its power they either remained apparently stationary or begi lose ground.

Hence, I believe that the effects produced upon majority of the foregoing cases show conclusively t the best means for bringing about continuous and p manent improvement in tuberculous cases, is to found in the new antiphthisic serum T. R., aided b properly selected climate.

205 Jackson Block.

Pilocarpin in Pneumonia.—Lidmanowski reports eleven case pneumonia arrested by the second or third day, passing once into convalescence, by immediate treatment with l doses of pilocarpin, dose 0.1 gram a day. He ascribes its fa able action to the energetic leucocytosis produced.—*Wrat*

ERSONAL OBSERVATIONS IN PULMONARY PHTHISIS.

Read before the Clinical Society, Dec. 7, 1897.

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ting Physician to the Elizabeth General Hospital and Dispensary, Member of the Clinical Society of the General Hospital and Dispensary, the American Medical Association, and the District Medical Society of the County of Union, N. J.

ELIZABETH, N. J.

After an experience of twenty-five years, I desire present some conclusions, the result of my own rsonal observations in pulmonary phthisis. I use e term advisedly, on account of its comprehensiveess, including as it does all that has been known and ught from Laennec to Koch.

The preparatory or premonitory conditions which nost invariably exist in all cases of phthisis do not ceive the attention they deserve.

Let us apply the principle of early recognition of ese little departures from functional and organic tegrity, to the disease in question.

They deserve to live, who by careful attention to e various functions of the body, keep the various echanisms of their various organs in harmonious ythm.

Ignorance does not pardon in the eye of the law, d the penalty must be paid even though it may cost e life.

Max Nordau says "the degenerate must die." An heritance of conditions which must inevitably end an early death, is the result of ignorance, crime d fatuitous circumstances, many, if not all, of which ight have been avoided.

To educate the public out of this phenomenal darkss, and where they can not be educated, to legislate em out of it, is the duty of the medical profession.

ut of the complex phenomena of a disease which esents such a diversity of symptoms and conditions, has been my aim to determine what is the first apeciable departure from health, the most constant mptom, discernible by patient and physician alike, nich would lead us to suspect that the individual in uestion is in danger of ultimately becoming tuberulous. Many of the disagreements between physians as to the natural history of diseases have arisen om the fact that they have observed from different andpoints and from different starting points; the tter being of much greater importance than the forer, for the standpoint may be changed from day to y but the starting point can only be changed as a nfession that the *fons et origo* had not as yet been scovered.

A few years ago I arrived at the conclusion that the st symptom (aside from general malnutrition), is a ight cough or hack repeated two or three times on average, on reclining, at night. This cough antetes the morning cough by a considerable period, rying in length in different subjects. It is a little ing, but its etiology is important beyond measure. is *the diagnostic symptom*, which having been und and understood by the physician, gives him an normous advantage in the prevention and cure of thisis.

The patient believes himself to be in fair health. e has no pain, no cough at any other time, no disrbance of any other function, is only a little below ar, and will sometimes deny that he has any cough, ntil told by the members of his family that they ave repeatedly heard him cough, when he lies down at night. This same evidence has been repeated to me so many times that I do not doubt its significance, and I consider it the test question "does he cough on reclining?" If there is a symptom prior to this, I have been unable to find it. The etiology of it, I believe to be this, viz: that the mere change of position from the erect to the recumbent, has produced an immediate change in the circulation of the blood and air in the pulmonary structure, disturbing the equilibrium which always exists in healthy chests, controlled by the natural tension through the vaso-motors. A temporary passive congestion or hyperemia is produced thereby, due to an insufficient expansion of the finer tubes and vesicles, the blood pressure being out of proportion to the air pressure, and the coats of the vessels being over-distended or varicosed by want of support, the blood currents come under the influence of an extraneous force, *gravity*, which never occurs in vessels whose coats are normal, except by complete inversion of the body or as in the hypostatic congestions of long illnesses.

The change to the recumbent posture immediately causes an increase in the distending force within the blood vessels, and a decrease in the amount of air in the tubes and cells. As a result of this, a backward flow of blood into the bronchial vessels, and a sensation of fulness or tickling is perceived in the region of the head of the sternum.

The cough that occurs is nature's own effort to remove this fulness, which it accomplishes at first with only a few long breaths and coughs. If this pathologic condition is not relieved early, it continues until it requires stronger and more prolonged effort in the act of coughing to remove it. The objective symptoms of this condition are found in a slightly diminished resonance of a higher pitch, slight depression under the clavicles follows this, and still later the mucous click or catarrh of the apex. Mensuration shows a deficient expansion above normal, often below, except in women, from the effects of corsets and other tight clothing, which they invariably insist is not tight, and can only be convinced by ocular demonstration with the tape line. (The tape line should never be out of the physician's pocket, except when he is using it.)

Ausculation reveals a still more important point; a diminished or absent true respiratory or vesicular murmur. This symptom, I consider of greater importance than all the other objective symptoms, and it is invariably found somewhat before and always associated with the gravitation cough.

In the wondrous mechanism of the lungs we find the ramifications of the pulmonary artery intertwining among the air cells, forming a close and delicate network of capillaries, in the interspaces, supported by the highly elastic structure of the air cells. Elasticity is one of the most distinguishing characteristics of these cells. They are in health never empty, and in death can only be emptied by force. With every inspiration, both air and blood are aspirated into the lungs. When air is in excess we have emphysema; when blood is in excess, we have congestion, which being continued indefinitely brings on in time an endless chain of pathogenic conditions which must end in death, if not relieved by proper systematic treatment. Of emphysema, I need only say that the emphysema which results from spasmodic bronchial asthma, is antagonistic to phthisis.

Now, I believe that all the influences which dimin-

ish nervous and muscular force, and their number is great, such as sedentary pursuits, the dark side of life, residence in low and malarial regions, clothing that prevents a perfect action of the diaphragm and chest walls, dissipation, indoor occupations, worry and many others, these all tend to shorten the respiration and diminish its depth; as a result of this a gradual dilatation of the capillaries takes place, in that part of the lungs where the vesicles are least distended a passive congestion is produced, and thus is furnished a soil that will nourish tubercles.

The force of the heart's action, often increased by excitement, by stimulants of any kind, by muscular effort, by normal tension of vessels altered by chilling the cutaneous surface, and other causes aid in producing a dilatation of the pulmonary capillaries, and thus the blood currents coursing through vessels which have lost their contractility come under the influence of this extraneous force, *gravity*.

It is to this immediate influence that we are to look for the explanation of this cough on reclining, which we may distinguish as the *gravitation cough*. This condition is so important that it seems deserving of a distinctive name in our nomenclature of disease symptoms.

Upon the correct explanation of this cough depends the entire treatment of phthisis whether bacillary or non-bacillary. It is as easily gotten rid of even when the conditions have gone so far as to produce cough in the morning with expectoration and pain in the subclavicular and interscapular regions from congested pleuræ. These last two stated conditions occur in the order in which they are mentioned, the cough in the morning with expectoration as a result of a longer continued gravitation blood pressure during sleep, producing exudation into the bronchi, which is expectorated on arising. This exudation may not come on until weeks or months have elapsed since the gravitation cough began.

The pain in the pleuræ comes on still later as a result of the damming up of the blood currents and vaso-motor paresis, producing congestion in that tissue.

I have associated these three symptoms or conditions, before speaking of treatment, because they are all removed by *mechanical expansion*. The function of respiration, unlike those of other vital organs, is placed under the control of the will, whereby the integrity of the pulmonary apparatus may be preserved, by maintaining a perfect function of these organs. This is indeed an important safeguard. It is impossible to maintain a perfect organ without a perfect function. This principle applies to all of the voluntary organs of the body, and more especially to the breathing apparatus, exposed as it is to the vicissitudes of climate, and dangers of infection by bacteria.

Jacobi has truly said that the "tubercle bacillus never attacks healthy tissue," and I believe it to be equally true, that when they have found a lodgement in the tissues of the lungs, we have as yet no drug that can be administered, by way of the stomach or through the blood by hypodermatic injections of sufficient strength to destroy them. We counteract the effect of their toxins and increase the resisting power of the tissues against their encroachments, and there our drug power ends.

I have used the term *mechanical expansion*, by which I mean a regular systematic *natural* method of increasing the capacity of the lungs, maintaining a normal function and regaining it when lost. It common among physicians to recommend mounta air to their phthisical patients. The benefit of th procedure is beyond question, but of the great mul tude of cases, there are comparatively few, who a able to profit by this advice. The science of clima ology is one of great interest, inasmuch as at the pre ent date it is capable of showing better results in th treatment of phthisis, than the more fashionable sc ence of bacteriology or any other. We know th there are regions almost entirely exempt from phthis others where it is more commonly found, and othe where it prevails in great abundance.

Solly, who is recognized as an authority in the sc ence of climatology, says "consumption is most pre alent in proportion to the temperature and humidi of the climate: 1, in damp cold climates; 2, in dan hot climates; 3, in dry hot climates; 4, in dry co climates; while in curative effects it is true in rever order. This indicates in a general way, that dr ness is a benefit, and humidity obnoxious to phthisis He qualifies the statement by saying that "app rently, humidity apart from other factors, does not itself produce phthisis." It is my opinion that o phthisis cases, here, do better in the winter even wi our sudden changes of temperature and humidit than in the warm, debilitating, moist air of midsu mer.

In regard to barometric pressure, Solly says "th statistics show an almost steady rise in the percen age of improvement, from the ocean to the altitude and from this we learn, that as a rule, the consum tive improves the further he is removed from the se as shown in the contrast of percentage of improv ment in a large series of cases; sea voyages 54 p cent.; low land climates, 57 per cent.; dry desert, per cent.; altitudes, 77 per cent. Therefore, whi the desert of Arizona will cure more cases of co sumption than the sea air of the coast, yet it will n cure as large a proportion, as will the mountain a of the highlands."

Hirsch has shown, "that decreased barometric pre sure tends to confer more or less immunity fro phthisis. The marked decrease which is present all high altitudes has been domonstrated by Egge and others, to have a remarkable effect upon anemi by increasing the amount and quality of the red blo corpuscles and hemoglobin; that the blood chang are brought about, not by the quantities of dryne sunlight, or other climatic factors in high or other c mates, but by the diminished barometric pressu was proved conclusively by the classic experiment Regnard, who, at sea level, kept a rabbit in a be glass under diminished air pressure, equivalent to th atmosphere at 6,000 feet elevation for a month; whe the rabbit was removed, it was found that the san blood changes had taken place, as occured in rabbi transferred from sea level to a climate at 6,000 fe elevation." This experiment, instructive as it i brings up another question, would the same chang in the blood have been produced in an animal breat ing the same rarefied atmosphere of 6,000 feet wit the density of atmosphere pressing upon the extern surface of the body as exists at the sea level. Th is, was the improvement due to the rarefied air alo which the animal breathed, or was it due to this con bination with the diminished air pressure upon th surface, or was it due to the decreased pressure c the external surface alone?

There are those who claim the improvement in the blood is due to breathing rarefied air. I do not know of experiments having been made which prove this conclusively. Certain it is that the decreased barometric pressure upon the external surface compelled a greater expansion of the chest, opening up a larger surface for the interchange of the gases, and consequently a greater oxygenation of the blood, the greatest of all hematinics, with improvement in the digestive system as a result of increased oxygenation.

I believe it is the forced distention of the lungs and bronchi, to those who live at an altitude, that gives immunity against phthisis. Aside from the barrel-shape chest of emphysema, the full round chest is an acknowledged evidence of healthy lungs. A flat contracted chest is a constant invitation to tubercle bacilli and an evidence of so called weak lungs. To imitate the effects of altitude has been my practice for over twenty years, and in the lack of suitable apparatus to assist them, to teach my phthisis cases the art of mechanical expansion. Among the various ingenious methods which have been devised I could find none that were free from objections, as they almost invariably increase the heart's action, which opposes rather than helps the purpose of their use.

I have practiced but two specific exercises, which nature herself teaches. The first is an imitation of the cough, and the second of a person stretching. In practicing the first we take in the air through a space between the lips, about a quarter inch in diameter. Some patients do not grasp the idea readily, or are not accustomed to whistling and require the use of a tube through which to inspire. When the lungs are filled to their utmost capacity the lips are closed and the cheeks bulged to prevent escape from the nose. The air is held until the excess of blood is driven from the lungs, as evidenced by a sensation of fullness in the forehead and slight reddening of the face. By holding the breath after a full expansion, the blood is squeezed out of the lungs into the general circulation, and by frequent practice of it the lost equilibrium is regained.

This action is equivalent to breathing at an altitude, or inhaling compressed air at sea level. The stretching exercise is performed in the same way with the addition of raising the arms, without flexion, directly above the head at the beginning of the inspiration, and lowering them upon the chest as soon as the lips are closed. The purpose of lifting the arms above the head is to lift the chest wall by means of the pectoral muscles. The effect of these exercises is seen in the immediate improvement of percussion note, with lowering of pitch, a rounding out of the depression under the clavicle; the voice changes from a throat to a chest tone, and the removal of the mucous click which has been diagnosed by some pathologists as a sure indication of tubercle. The true respiratory or vesicular murmur, the most significant sign of a normal chest, is restored in its entirety.

A continuation many times a day of these exercises results in a radical cure with no other medicine than that which is directed toward nutrition and the sustaining of the nervous system. All the symptoms heretofore described may return again as the result of neglect. The price of health is vigilance and effort. If the phthisical patient would live and be healthy he must work for it, and in the way I have indicated or by some similar method, or he will miserably perish, notwithstanding he may swallow all the drugs in the dispensatory and be injected with all the serums and specifics, so-called, which are now obtainable. The expansion method of treatment is *nature's method*, and is helpful in every stage of the disease except when there is active hemoptysis from organic changes, at which time they should be stopped until the bleeding ceases, and then begun again with very slight force at first, gradually increasing to the utmost limit after a few days have elapsed.

When pleuritic adhesions have formed, whether bacillary or not, the expansion must be so graded as to avoid fresh exudation, or inflammation, being guided by the sensation of pain. The greatest obstacle to recovery by this method is the ossification of the costal cartilages in a contracted state of the chest; being permanent, it will squeeze the life out. Thus far I have spoken of treatment in the primary stage before organic changes have taken place to any very great extent.

I am often astonished to see what can be done by this method with phthisis cases after they have become tuberculous, with mucopurulent expectoration containing numerous bacilli, with afternoon fever, temperature rising to 101.6 and 102.4, pulse 120, night sweats, anorexia, emaciation and dilated heart. I have seen these cases clear up and remain for years perfectly well, when at the first examination it was impossible to make a diagnosis on account of the foul condition of both lungs, the tubes being filled with râles, the pleuræ sore, respiration only tidal and percussion dull. I defy any one to make an exact diagnosis in some of these cases in detail, as to the extent, kind and location of the diseased processes going on, until he has cleansed the tubes and opened as many of the alveoli as it is possible by expansion.

An easy diagnosis is made by the microscope, but to drop the diagnosis at that and treat the bacilli instead of the patient, is very unscientific, because we have nothing with which we can destroy the bacilli, and even if we could destroy them would it be wise to leave the chest in the same contracted condition, with choked tubes and capillaries, with exudation products in the alveolar walls and their cavities filled with epithelial elements ready for a new infection? More than twenty years ago, before we knew anything about tubercle bacilli, I treated phthisis patients by this method, who had cavities with all the accompanying evidences which we now know as bacillary phthisis. Some of them are living today, well and performing the duties of an active life. Some have married and borne children.

The following case illustrates the effect of expansion upon hemoptysis. This case I saw in his sixteenth hemorrhage. His disease was purely functional, a case of *lazy lungs*. I instructed him as to his breathing, and he has had no return in the last twelve years, being in robust health. As an illustration of the immediate effect of thorough expansion, without medicine which could affect the fever, upon a case which the microscope diagnosed bacillary. The patient had been under treatment about six months before I saw him; male, aged about 40 years; had considerable cough; had lost flesh and strength; some pain in right chest front and back, with diminished expansion.

Oct. 12, 1896, I found him with temperature 101.6, pulse 88; 13, same hour, temperature 100.6, pulse 88; 14, temperature 99.8, pulse 86; 15, temperature 99.4, pulse 88; 16, temperature 99.2, pulse 80; 17, tempera-

ture 98.6, pulse 80. After this the temperature did not rise above 99.4 until an attack of grippe on the 28th, when his temperature rose to 104.4; 29, 104.2; 30, 101.4; 31, 100.8. November 1, normal and so continued, never rising above 99.8 during November. His temperature was taken from three to five times a day. During the first half of December pulse and temperature both remained normal, when my attendance ceased. He continued to attend to his business (which was much in his favor as he was obliged to walk several miles daily) after his recovery from the grippe, and I have not seen him, as a patient, for nearly a year, during which time he has been about as a traveling salesman, enjoying good health. The immediate effect of this treatment is often so astonishing to the friends of patients, that in accordance with the prevailing sentiment among the laity, as to the incurability of consumption, they will refuse to accept the diagnosis, even of the microscope, and after a time become careless and forget the advice to keep the chest well expanded, until the same conditions recur, and the patient returns, again to be told the same thing and to go over the same plan of treatment, or changes his physician for some other kind of treatment. It is easier to take medicines, it is pleasanter to be told they have "only a little bronchitis" and need a little medicine to stop the cough and ease the pleuritic pain.

A quick confidence is gained in the physician who will thus treat them, but it is a deceptive confidence that lulls the patient to a fatal inactivity, and ere long he turns from one to another, until finally he has more need of the undertaker than the physician. These are the saddest cases we see. Their day of grace is passed; organic changes have taken place to such a degree that little can be done but palliate symptoms. There are many cases that progress rapidly toward recovery for a few weeks, and hope is high, when all at once they begin to complain of the labor of expansion on account of weakness of the diaphragm and chest muscles.

This is the point in their disease in which an immediate change to a high altitude becomes (in the absence of suitable apparatus to accomplish the same purpose) an absolute necessity to remove a portion of the incumbent atmospheric pressure upon the chest and abdomen, and thus lighten the labor of breathing, increasing the nutrition of all the tissues through a better oxygenation of the blood. This is the way by which the resisting power spoken of by others is, in great part, sustained, and may be aided by the administration of hematics; the hypophosphites according to the Churchill method, bathing, suitable food, out door life, still remaining under the watchful care of the physician. To those who can not avail themselves of this altitude treatment, this assertion that they are too tired to expand their lungs, is the beginning of the last stage, where there is no reasonable hope for recovery.

To this class of cases, however, the principles of "pneumatic differentiation" may be applied as an equivalent for altitude, and like effects produced in the patient's home at the sea level, as upon the mountains.

The pneumatic cabinet was designed for this purpose twelve years ago, and its action has been proved to be theoretically and practically correct, and is still held by some of the most distinguished men in our country, as second only to altitude, and as "the best therapeutic device ever invented" for the home treatment of pulmonary phthisis.

An insurmountable obstacle to its adoption into general practice has been its great cost. Being a heavy steel cabinet, it can not be moved from place to place to suit the necessities of the patient, but being kept at the physician's office, it may be used for twenty to thirty minutes once or twice a day. Those days on which he needs it the most he is prevented from using it by the conditions of the weather. What we need is a portable apparatus of small cost which the patient can use at his own home under the direction of his physician, using it as often and as long as his case requires. Beneficial as these treatments by the cabinet have proved to be, in many cases bringing about absolute recovery from bacillary phthisis, its success is but a finger board, pointing to something better, yet to be produced, which shall enable the physician to give to his phthisical patients the equivalent of altitude, with the comforts of home and friends superadded thereto, coupled with his careful guidance, in everything that pertains to sustaining the vital forces, improving the quality of the blood by food, exercise, bathing, hygienic clothing and medicine.

Von Ziemssen, at the twelfth international congress at Moscow, last August, says: "Looking back over the history of tuberculosis we see a motley conglomeration of methods of treatment. All these have been discarded, and but two agents remain to be considered, tuberculin and climate.

"Koch's old tuberculin has been forgotten, the value of the new has not been proven, and most people doubt its efficacy.

"The complexity of the lesions makes a cure by means of a specific seemingly impossible. Fresh air has always been one of the requirements, but it is only of late that the advantages of high altitudes has been clearly demonstrated. Fresh air is not all; it is the altitude that brings about an excitation of the blood-making organs, and increases the corpuscular elements in the blood."

Senator "regards altitude second only in importance to fresh air."

Von Leyden says, "So far the only treatment that has given any positive success is the climatic."

The causative relationship of the bacilli to the disease is an important question. Tuberculosis is always produced by the bacilli, but all phthisis is not tubercular in all its stages. I hold that it is an incident in the course of the disease and not the primary cause of pulmonary phthisis. The tubercle bacilli may be found in the air passages of perfectly healthy individuals. It is not commonly found until after considerable organic change has taken place in the pulmonary structure. It can not then be rightly considered as the cause of phthisis."

Jaccoud enumerates a long list of pathogenic conditions and says, "These multiple and variable elements are the true causes of the disease, the microbe is only the instrumental agent."

Barton says, "Back of the bacillus are causes which are operating to produce malnutrition and a lowered vitality."

The evidence of an imperfect lung function as a causative agent is forcibly shown in the effect of the contraction of extensive scars upon the chest resulting from burns and scalds, thus favoring lodgement for the bacilli. Three cases of this sort were reported

ıst year by Dr. Hall of Denver, in which one side of he chest in each case was scalded during infancy, nd pulmonary disease began on the contracted side.

The night sweats of phthisis need to be considered n this connection, because they are a direct result of nsufficient pulmonary aeration and exhalation. The kin with its glands is complementary to the lungs nd supplements their action by elimination of its xhalation, in double the quantity exhaled through he lungs. being a daily average of 30 ounces for the kin and 15 ounces for the lungs.

When for any reason the function of the lungs is mpaired, so that the normal quantity of carbon lioxid is not exhaled, the skin supplements their ction at a time when the auto-intoxication has become so great as to cause a temporary paralysis of the vasomotors, with relaxation of the superficial capillaries. The night sweats are always accompanied with increasing weakness of the entire system, and are generally considered the cause of the great prostration which follows them. I do not believe this. The sweat is the result of a specific poisoning, principally by carbonic oxid and the products of metabolism, and is a conservative process, while the exhaustion which follows is a result, not of the sweating, but of the poisoning. We have seen how quickly the skin responds to the demand put upon it in case of urgent dyspnea from any cause. If all this be true, it certainly is very unscientific to give medicines to check the night sweat, for by so doing the system is still further poisoned, the vitality reduced and the end hastened. I have not for many years used medicines to control this symptom, but have found that an increase of expansion systematically carried out uniformly relieves it.

An instance of this kind was recently seen in a case of phthisis in our own hospital. The action of expansion in relieving and stopping night sweats is the strongest argument I could ask for in substantiating the truth of my statement, that it is the poisoning that exhausts and not the sweating and we conclude that it is wiser to treat the cause than the effect.

For several years past almost the entire medical profession seems to have been captivated by the discovery of the tubercle bacillus, and have experimented with many methods and drugs with the hope of destroying them by medication. All these have failed. As well try to check the resistless current of a mighty river by catching the fish in its stream. There is probably not a single case of advanced phthisis in the country today under the care of a physician but what has been treated with creosote or guaiacol or their carbonates. Creosote and its allies, without affecting the vitality of the bacilli seems to have a beneficial effect, temporarily at least, upon the general conditions. This I believe to be done by its antiseptic power over germ life in the alimentary canal. The discovery of the bacillus, although an important addition to our knowledge of one of the stages of the disease, has resulted in no therapeutic advantage, but has rather diverted the attention of the profession from the clinical aspect and the various lessons to be learned therefrom, to that which is only one of the factors in the disease, one which without doubt may be in some cases primary, but which clinical experience proves to be only a resultant, and not the prime causative factor, in the great mass of pulmonary phthisis.

I believe there remains but one method worthy of the undivided attention of the profession, viz.: Aerotherapy as indicated previously, and although it demands of the physician a greater outlay of time and effort for the benefit of his patient, yet I doubt not that ere long the principles of this science will be understood and practiced by the great majority of our hard working fraternity, because the results which follow are distinct and positive, and because there is nothing else which satisfies the requirements in every case, to such a degree as aerotherapy, the science which is destined to take the highest place in all that pertains to the prevention and cure of pulmonary phthisis.

FIVE YEARS' SUCCESSFUL EXPERIENCE WITH A SPECIAL MODE OF TREATING PULMONARY TUBERCULOSIS.

BY CHARLES WILSON INGRAHAM, M.D.

BINGHAMTON, N. Y.

During the past five years I have given my exclusive attention to the special treatment of pulmonary tuberculosis, and during the latter half of this period I have developed a definite mode of treating this disease which has proved so successful that I shall endeavor to place the system before my readers in an accurate and thorough manner, believing as I do, that if this mode of treating these affections was generally and faithfully practiced, the mortality from tuberculosis could be sensibly reduced in a very short time.

The first thing is to make a careful examination, both physical and microscopic, to determine accurately that the disease is tuberculosis, and this examination should embrace a complete family history of the patient. The securing of an accurate and complete family history of consumptive invalids is too often neglected, and this neglect takes from the physician a powerful aid in treating his patient. It is important to know what diseases have existed in the family, and particularly if the patient has inherited a tendency to tuberculosis. Indeed, without the aid of a thorough family history it is impossible for the attending physician to advance an accurate prognosis. It does not matter how mildly the affection has attacked the individual, the prognosis advanced without first understanding the family history is worse than valueless. It is confusing. It may be the means of allowing the patient to follow a line of treatment far from correct, and totally incapable of successfully combatting the disease. With a careful record of the physical condition, and the records of several successive microscopic examinations of expectorated matter, together with a thorough family history, the physician is prepared to commence treatment.

As concerns exercise, how much shall the patient be allowed to take each day? I determine this question with the aid of the fever thermometer alone, and my rule is this: If the daily average exceeds 100.5 degrees, I recommend that the patient take very little, or better still, no exercise; while if the temperature reaches or exceeds 101 degrees, I recommend the thorough application of the "rest treatment," until the temperature has fallen below a daily average of 100 degrees. The temperature must be below 100 degrees for the reason that once having ranged high, it must reach a low average, else it will quickly return to its former height when the rest treatment is discontinued and the usual exercise again begun.

The rest treatment is one important item, and but

for it many desperate cases which have made permanent recovery must have terminated fatally. This treatment is generally known and requires only a very brief reference. This treatment consists in the patient remaining in bed for several weeks, the time varying according to the condition of the patient, as closely as if suffering from serious acute disease, and the physician should forbid the patient from spending a part of the time lying on the couch or in an easy chair. To secure positive benefit the rules of remaining in bed continuously, arising only to have the bed aired, must be strictly adhered to. It is almost marvelous how rapidly a change for the better will occur with the adoption of the rest treatment, and generally so apparent is the improvement to the patient that he is willing to fulfill his part. There are many patients of this class whose recovery may hinge entirely upon the rest treatment, who will refuse to isolate themselves for a few weeks hoping that recovery will be effected without the necessity of following such stringent rules. Others believe they can not leave their business. Necessity compels others to follow some regular occupation.

I refuse outdoor exercise altogether if the height of the fever warrants, although I insist that the invalid remains out of doors all day in pleasant weather, advising him to sit quietly in some sheltered place. I never allow extensive general exercise when the slightest fatigue elevates the fever to a high point. In general also never allow the patient to become fatigued and never allow him to take his meals when fatigued, or after exercise. Always advise a half-hour rest before meals.

Chest expansion should be practiced; encourage the patient to practice expansion of the chest each day, that he may make a perceptable improvement from week to week. I have seen patients with a chest expansion of but two inches increase to six inches within two months. The permanency of recovery from pulmonary consumption depends much upon the chest capacity of the individual, and there is nothing which ensures disease resistance and vital power of the pulmonary organs better than a good chest capacity, while on the contrary experience shows that it is among those who have but little capacity that we find the consumptive invalids.

One of my favorite modes of encouraging chest exercise is to fill a ten-gallon bag with oxygen gas, which is the average daily amount I use in consumptive cases in whom it is indicated, and encourage them to reduce as rapidly as possible the number of inhalations required to empty the sack. Those who do not use the oxygen may be treated by filling the sack with pure air by the aid of an air pump. I have seen invalids who at first required sixty inhalations to empty the sack reduce the number of inhalations to twenty within six weeks, and cases showing this improvement have been by no means rare.

Having now disposed of the subjects of general exercise, rest treatment and chest exercise, I come to the subject of general therapeutics. The administration of drugs by the stomach in the treatment of pulmonary tuberculosis is attended with great uncertainty. No matter how plainly the drug may be indicated, and in a large percentage of cases more harm than good follows the use of drugs in this way. It is well known that the stomach is very weak in all cases of phthisis, from the very incipiency throughout the course of the disease, and in a large percentage of instances the digestive organs are totally unable to perform their ordinary functions of the digestion and assimilation of nourishment, and when there is added to this task the digestion and assimilation of medicines the result is disastrous; the patient receiving no benefit from the drugs, which the proper organs were incapable of assimilating, and at the same time the assimilation of nourishment is more or less interfered with. Hence if the stomach is scarcely able to perform its normal functions we can not expect to introduce into the general system through this medium, any form of medication with any degree of certainty, and in the treatment of tuberculosis where errors are very serious if not fatal, we must make use of means attended with the greatest certainty, and those means which are at all uncertain must not be adopted. It is better not to attempt any mode of treatment which will not, with a reasonable degree of certainty, accomplish benefit for the invalid. The first object to accomplish in the treatment of phthisis is to gain control of the tubercular processes in the pulmonary organs, and until this is accomplished the disease is not under control, or is progressing. We must prevent the extension of the tubercles already formed, check the activity of the bacilli in the tubercular processes, that the lung tissue already involved may be saved from total destruction. And finally we must prevent the multiplication of tubercles, and particularly the extension into lobes which have thus far escaped disease; for every lobe which can be kept free of tubercles, and in condition not only to perform its normal functions but to perform, as far as possible, the functions of the diseased areas, in addition to the work which falls to the lobe normally, is very necessary to recovery. Once in control of the tubercular formations, we are in position to treat the case successfully, but while they are progressive the patient is in grave danger.

The first things to do are the study of the temperature of the case and decide upon the plan to pursue as regards exercise, rest treatment, chest gymnastics, etc. I next decide upon the use of at least two nutritive preparations, and, thanks to our manufacturing chemists, we can find excellent ones made from nauseous, crude substances reduced to a state of palatableness and easy assimilation. I usually administer a petroleum emulsion and a preparation of cod-liver oil. The effects from the use of both are far superior to that from the use of either alone. By administering these preparations, and occasionally using vegetable bitters, acids and the like, to promote the appetite, administering digestive agents as required, to ensure complete digestion, and also ascertaining that the patient makes liberal use of beefsteak, eggs and milk, I am satisfied with the amount of nutrition which is reaching the system.

Aside from the use of occasional remedies to relieve symptoms as they may arise, I administer no remedies by stomach, other than those already named, but depend upon hypodermic medication for the administration of alteratives and altero-reconstructives.

In the early part of 1892 I depended upon the hypodermic use of gold and iodin to accomplish the necessary alterative and reconstructive action, but after a few months of unsatisfactory clinical use, coupled with the fact that both agents, particularly the iodin solution, were exceedingly painful, I discontinued their use, and took up a line of experiment, both clinical and chemical, which finally resulted in the following formula, as shown by actual chemical

analysis. The formula shows the amount of each agent in each fluid dram of the preparation when ready for administration, the chemical compound being dissolved in sterilized oil.

℞ Iodin . . . . . gr. ½
Bromin . . . . . gr. 1/14
Phosphorus . . . . . gr. 1/100
Thymol . . . . . gr. ⅔
Menthol . . . . . gr. ⅔

The ingredients of the above formula are not prepared in common mixture, but are chemically compounded, with the result that the solution contains no free iodin or bromin, otherwise the pain following its use would be almost unbearable. The chemical solution is of a very bright cherry color, is distinctly transparent, and its hypodermic injection is attended with even less pain than attends the hypodermic injection of a solution of morphia. A common mixture of the ingredients of the formula produces a solution which is of a dark muddy color, is not transparent, and contains both free iodin and bromin. The above formula I perfected only after three years work, and though I was able to use the compound in the latter part of 1892, it was far from being an ideal chemical compound, and its use was both painful and very irritating locally. By careful study and continued experiment, I have succeeded in eliminating, one after another, the disagreeable and imperfect features of the solution, until during the past two years I have made but one change in the formula and that the addition of menthol. In 1895 I contributed an article to the *American Medico-Surgical Bulletin* descriptive of the use of this compound which was my first on the subject, and in this article gave my results from the treatment of fifty cases of pulmonary tuberculosis, which in brief showed nearly 90 per cent. of cures in twenty-one cases treated in the first stage of the disease, nearly 50 per cent. in fourteen cases treated in the second stage, while in the treatment of fifteen cases in the third stage none were cured, though several showed permanent improvement and are alive today. My success since the publication of the article mentioned has been in every respect equal, if not superior to the results here reported, and to this improvement I attribute the action of the menthol, which I thereafter added to the compound. There is one important feature of the action of the menthol in this compound, it is given off chiefly through the respiratory organs, and soon after taking the injection many can detect the odor of peppermint in the breath, which odor is more or less noticeable throughout the day. It has been shown recently that peppermint locally, by inhalation, is a valuable agent in the treatment of tuberculosis, and by this means the lungs are constantly bathed in atmosphere of menthol, with very decided benefit to the invalid.

By the use of this compound I have found it unnecessary to use any other medication, aside from that previously mentioned, and by relieving the stomach of the necessity of assimilating drugs, which can be hypodermically administered, an important point in favor of recovery is gained, and then also, by hypodermic medication, we are positive that a definite amount of remedial agents reach the system each day. The maximum daily dose of this compound, which on account of the contained chemicals I have named "bromin-iodin compound," is one dram. The fact that the patients report daily, with great regularity, for their treatments, and regularity is a factor notoriously abused by this class of invalids in taking medicines per stomach, has much to do with my successful results.

I use a special one dram hypodermic syringe fitted with oil-caliber needles, and usually give the injections in the back of the shoulder. So little local irritation occurs as a result of the injections, that many treatments may be given in a very small area, and I have yet to find the first invalid who can not stand the mode of treatment. The permanency of the recoveries which have occurred under this treatment is another special feature of the remedy. It seems to alter the general system to such an extent, and in such manner that the tissues and fluids of the body are fortified against re-infection. If proper care is taken of the syringe and needles, there is absolutely no danger of inflammation, induration or abscess as a result of the injections, with a properly prepared compound. The compound has proved of especial value in cases of tuberculosis with hemorrhages, and in a number of cases treated no hemorrhages occurred after the first week of treatment. I have every reason to believe that the proper use of bromin-iodin compound (and there is no reason why the general practitioner can not use the compound as successfully as a specialist), coupled with the system of general management and nutritive medication herewith outlined, will, if generally used, effect a decisive decrease in the fatality which attends the ordinary treatment of this disease.

80 Chestnut Street.

A REPORT OF THE TREATMENT OF PULMONARY TUBERCULOSIS BY THE INHALATION OF ANTISEPTIC VAPORS.

Read at the Meeting of the Mississippi Valley Medical Association in Louisville, Ky., October 8, 1897.

BY GEORGE W. JOHNSON, B.S., M.D.

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CHICAGO, ILL.

The antiseptic value of drugs in the treatment of phthisis is well recognized by the profession. But how to administer them in sufficient strength and quantity to control the tubercular and septic processes has been the problem. If administered by the stomach in sufficient strength and quantity to properly saturate the lungs, the stomach and lower alimentary tract is so irritated that the digestive function is greatly deranged. Hence nature's method of controlling the disease by vital resistance is much impaired.

If introduced directly into the lungs by parenchymatous injection, so much irritation is produced that an exudate is thrown out which occludes the finer air passages preventing the introduction of the medicaments.

For two years I have had the medical direction of the Cook County, Illinois, institution. During this period I have treated a great many cases of pulmonary tuberculosis and have always given the patients the benefit of the latest researches of the profession. Each new hope has been inspired only to be soon blighted by some untoward effect. The class of tuber-

cular patients sent to the institution are far advanced in the disease and practically considered beyond human aid. They are simply abandoned by their friends and the physician to die. The inmates of the Cook County Infirmary number from 1,500 to 2,000, and of the Hospital for the Insane 1,400. Since about Feb. 1, 1897, all the tubercular patients have been isolated as much as possible. Since June 1, 1897, 260 patients have been persistently treated by the inhalation of antiseptic vapor, while general and constitutional treatment was followed. The diet for this class is a little better than for the other hospital ward patients. The vapor used consists of eucalyptol, oil of cloves, beechwood, creosote each 10 parts and liquid alboline 100 parts.

These medicaments are vaporized by compressed air of from fifteen to twenty-five pounds hydraulic pressure to the square inch. The vapor is respired from a mask fitting tightly over the nose and mouth and for a period of fifteen minutes each morning. While taking the vapor the patient is required to breathe as deeply as possible and as near the normal number of times per minute as he can. The vapor is not at all irritating and can be easily taken by the feeblest patients. From the 260 patients taking this treatment a clinical record of 40 cases has been kept, with reference to quantity and character of sputa and microscopic examination, temperature, pulse and respiration, cough, night sweats, physical examination and body weight. These cases were selected without any special reference to their condition. A study of the clinical record of these forty cases up to this time shows fairly good results. In every case the sputum is lessened in amount and a weekly examination shows a dimunition in the number of the tubercle bacilli, great benefit is given in the relief of the dyspnea and is the first relief spoken of by the patient.

The respirations become deeper and longer, the temperature less high in the afternoon, in cases where a considerable number of treatments have been taken, the cough and night sweats are much relieved and sleep is undisturbed. Physical examination shows the lungs to be clearing up, the râles disappearing and the respiration approaching nearer to normal and in many cases, an increase in body weight.

An example of which is given in the following four cases:

Case 1.—F. S. Age 41 years. Laborer. Family history negative. Personal history: has been addicted to strong drink. Was admitted December 1896; was coughing almost constantly. Night sweats were profuse. Sputa in great abundance and teeming with tuberculi and pyogenic bacteria. He was much emaciated and very anemic. Had had several hemorrhages and the respirations were short and jerky. He was sent to the tubercular ward and treatment began, which at that time consisted of the administration of beechwood creosote and guaiacol by the stomach—pushed to as much as the patient could stand. He was given a tonic of iron, quinin and strychnin three times daily. A cough mixture of carbonate of ammonia was used. Patient was confined to his bed. The diet was as stimulating as could be provided. Gastro-enteritis developed and all medication was discontinued, except the cough mixture and the tonic. He continued to fail. When the compressed air apparatus was first put in the hospital it was thought best not to give him the vapor, on account of his feeble condition. On June 4 a thorough physical examination was made and the sputa examined for tubercle bacilli, which were found in abundance. His weight was 129 pounds.

Physical examination.—The following physical examination was made September 29 and corresponds with the former save in degree. Inspection: Color normal. No pigmentation. Emaciation but not so extreme. Retraction of left side of chest with impaired motion. Supra- and infra-clavicular retraction. Palpation: No friction fremitus. Vocal fremitus not marked on either side, slightly less on left side. Percussion: Supra clavicular dulness bilaterally; slightly tympanitic note over anterior surface of chest on left side, due to lung retraction. General dulness over posterior aspect of chest. Axillary region, normal resonance. Auscultation: Respiratory murmur universally feeble, especially as heard over posterior aspect of chest. Expiration high pitched. Subcrepitant râles heard everywhere over anterior surface of chest. Vocal resonance increased bilaterally, more especially on left side. Pectoriloquy marked on left side over lower portion of lung. As ominous as this last finding may seem, this man has gradually improved and he now coughs very little, the night sweats are entirely absent, the respiration though still impaired is much improved. He has no hemorrhage. The quantity of sputa is small and the tubercle bacilli very few. In fact seven slides were examined before any were found. He feels much improved and has not spent a day in bed for two months. The P.M. temperature is two degrees less. He has taken 79 vapor treatments and weighs 133, a gain of but 4 pounds.

Case 2.—A. M. 56 years of age, Scotch blond, R. R. fireman. Family history good. Personal history: had syphilis twenty years ago. Has been coughing for two years. Was admitted May 18, 1897. At that time was so feeble that he was taken to the ward on a stretcher. Cough and dyspnea were so troublesome that he had to be bolstered up in bed nearly all the time. Had had hemorrhages and night sweats. Sputa were abundant and muco-purulent, and tubercle bacilli were found in great numbers. Weight 102 pounds.

Physical examination.—Inspection: Expansion very limited. Pigment over chest. Palpation: Vocal fremitus everywhere slight. Percussion: Dulness everywhere in greater or less degree except in axillary region. Slightly tympanitic in these regions. Dulness more marked in supra-clavicular regions anteriorly and posteriorly and over right middle lobe. Auscultation: Respiratory sounds very feeble almost completely absent over right middle lobe, vocal resonance being marked here, as well as lower posterior aspect of chest. Pleuritic friction well marked over apices, bilateral also on forced inspiration over lower extremities of lungs. Marked inspiratory dyspnea. This man has improved in all these conditions. His respirations are free. Has had no hemorrhage. Expectorates only in the morning on rising and then but very little. Four slides were examined on September 29, and bacilli were found. He has taken seventy-eight vapor treatments and has gained twenty-one pounds since the first of June.

Case 3.—C. W. 44 years, German. Family history: Father died of pneumonia. Personal history good. Has been ailing for three years but has had no hemorrhage or night sweats. Cough was bad on admission in January 1897. At that time patient was feeble and anemic and expectorated great quantities of purulent matter, which was teeming with tubercle and pyogenic bacteria. Afternoon temperature ranged from 103 to 104 degrees. He weighed 105 pounds.

Physical examination.—Inspection: Color anemic. No pigmentation. Expansion limited, almost entirely absent on left side. Left side markedly smaller than right. Left shoulder drooping. Palpation: No friction fremitus. Vocal fremitus absent over anterior surface of chest on left side, also over left upper posterior aspect; normal over right side of chest. Percussion: Left supra-clavicular region flat, infra-clavicular region dull; gradually less dull down to third rib; right supra-clavicular region dull, below this resonant to sixth inter-space. Posteriorly: dulness over supra-scapular region on both sides; dullness marked over entire left aspect; normal resonant tone in left axillary region. Auscultation: Tubular breathing over the left infra-clavicular regions with faint moist râles. Suppressed high pitched respirations over remainder of left side and posterior aspect of chest. Normal vesicular murmur over right posterior aspect. Vocal resonance increased over entire lung surface. This man's physical condition has improved wonderfully. His temperature never goes above 99 degrees, coughs but little and expectorates scarcely any. Has had no hemorrhages and sputum is almost entirely free from bacteria. He has taken eighty vapor treatments and gained ten pounds.

Case 4.—S. D. Age 40. English, clerk. Family history: Two brothers and two sisters died of tuberculosis. Personal history: Single, habits good. Was compelled to stop work and was admitted June 8, 1897. Was anemic and emaciated, cough very troublesome; nocturnal perspiration exhausting. Was failing rapidly. Sputa contained abundant tubercle bacilli. He began to take inhalations of the antiseptic vapor at once and has persistently continued. Weight 130 pounds. He is gaining steadily. Sputa and cough almost entirely absent. Dyspnea somewhat relieved. In all the following physical conditions he has improved.

Physical examination.—Has tuberculosis of the larynx. Color normal. Retraction of soft parts on inspiration more

marked in supra-clavicular regions. Left side smaller than right side. Percussion: Supra-clavicular flatness bilateral. Dulness everywhere except small area in axillary region on both sides, where a tone of hyper-resonance is obtained. Dulness more marked on left than on right side. Cardiac dulness extends about one inch to left of mammillary line reaching only to left border of sternum. Auscultation: Subcrepitant râles over apices, bilateral. Mucous râles over left lower lobe. Bronchophony marked over apices, increased elsewhere. Broncho-vesicular respiration over upper lobes bilaterally. Examination of a scanty amount of sputa on September 29 showed but few tubercle bacilli. He has taken 100 vapor treatments and gained 10 pounds since June 8.

While there has been marked improvement in the symptoms in every case, some have improved very much more than others. These were a most unfavorable class of patients to treat, being in the advanced stage of the tubercular process with hemorrhages, emaciation, night sweats, anemia and, in fact, scarcely able to breathe at all. In the absence of a specific for tuberculosis, we believe that with proper apparatus and skilful and continued administration much is to be hoped for in this class of patients by the inhalation of antiseptic vapor.

The respiratory movements so limited in tubercular patients are increased; the catarrhal condition of the upper air passages and especially in laryngeal tuberculosis is removed, thereby aiding better introduction of air into the lungs. The pulmonary air-passages are rendered and kept in a more aseptic condition thus minimizing the danger of new invasion. The alimentary tract is undisturbed by strong and irritating drugs, giving ample opportunity for the increase of vital resistance, by suitable diet and constitutional treatment.

The treatment of this class of patients by the inhalation of antiseptic vapor is both rational and practicable. For when the vapor is properly prepared and administered it is so fine and non-irritating and so intimately mixed with air that it must find its way to every portion of the lung substance that air in any form reaches.

I am fully convinced, from my short experience, that if the proper apparatus is used and the vapor not too strong, and given for from fifteen to twenty minutes twice daily, together with bitter tonics and supportive diet, great relief if not ultimate recovery may be brought to this unfortunate class of sufferers. It has been proved that when the vapor is properly prepared and administered that it reaches the minutest ramifications of the pulmonary air passages in the healthy lung. This fact being established it is no longer the question; how can medicaments be made to reach the alveoli? But rather, how soon will the therapeutists provide us with a specific for the tubercle bacilli? This done the dread malady of tuberculosis will no longer be credited with one-fourth of our mortality. That so large a number of cases have been relieved of their most distressing symptoms together with physical improvement, inspires a new hope and ambition for more thorough and extensive investigation. Any method of treatment that brings relief to the class of patients that I have treated gives bright promise for those in the incipient stage of the disease.

Orthoform in Tuberculous Laryngitis.— Neumayer announces that orthoform will relieve the pain which renders swallowing difficult in turberculous laryngitis, buccal ulcerations, cancer of the tongue, etc. The substance can be insufflated or the surface painted with a 10 per cent. solution of the hydrochlorate, renewing the application as often as necessary, orthoform being non-toxic. (*Vide* JOURNAL, Vol. 29, pages 700 and 1170.)

PULMONARY TUBERCULOSIS WITH SPECIAL REFERENCE TO DIET.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY HUBBARD WINSLOW MITCHELL, M.D.

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The purpose of this paper is to set forth some practical observations acquired by direct clinical experience upon the treatment of pulmonary tuberculosis with special reference to the effect exerted upon it by a due application of certain dietary regulations.

THE NATURE OF PULMONARY TUBERCULOSIS.

Pulmonary tuberculosis is a true inflammatory process set up by a specific morbific influence in the delicate lung tissue and terminating in true ulceration and suppuration of the lung substance. I will briefly recall the anatomy of the lung. The trachea divides into the right and left bronchi. These divide again into secondary and tertiary bronchi, and the subdivision continuing, the bronchial tubes grow more attenuated and more numerous as they subdivide. They also grow more delicate in structure, and when finally they reach a minute size, they are comprised only of a thin membrane lined with pavement epithelium resting upon an elastic fibrous layer. They are then known as the ultimate bronchial tubes. Each one of these terminate in a lozenge shape islet of delicate pulmonary tissue called a pulmonary lobule. Each lobule consists of a vascular membrane in the form of a sac, from the cavity of which are numerous secondary compartments divided by thin partitions projecting from its inner surface. These minute cavities are pulmonary vesicles. Their walls are distensible and elastic, and expand and contract during the respiratory act.

These minute pulmonary vesicles are surrounded by capillary blood vessels which penetrate their partition walls. The abundant elastic tissue in the walls of these pulmonary vesicles gives to the lung its property of resiliency. These pulmonary vesicles are also called air cells or alveoli, and are largest at the apex of the lung and smallest in the interior. The aggregated mass of the pulmonary vesicles form the spongy or parenchymatous tissue of the lung.

The lung tissue is nourished by the bronchial arteries, which ramify upon the walls of the smallest pulmonary vesicles. The blood is returned through the bronchial veins. The pulmonary vesicles are supplied with lymphatics and nerves, the latter being supplied chiefly by branches from the sympathetic and pneumogastric.

The nature of pulmonary tuberculosis is an inflammatory process called into activity in these delicate structures by the introduction of a special microbe. the tubercle bacillus, which can flourish and multiply only when brought in actual contact with these sensitive and extremely attenuated membranes.

ITS CAUSE.

When this microbe has succeeded in gaining a lodgment upon the delicate pavement epithelium of a pulmonary vesicle, its specific action at once springs into activity, and this is first a congestion of the capillary vessels of the part, which is speedily followed by a true inflammation.

Succeeding this is the formation of minute masses which are called tubercle. These tubercle masses are formed in great numbers upon the delicate walls of the vesicles, and in a short time undergo a process called caseation or softening. At the same time they break down the vesicle walls, so that several pulmonary vesicles are thus turned into one.

As this softening process goes on and the matter accumulates in quantity, it is forced into the smaller bronchi, thence passes during the respiratory act into the larger bronchi, and is finally coughed up and expectorated by the patient. The expectorated matters are yellowish or greenish in color, and under a suitable power of the microscope are seen to contain great numbers of pus-cells with bacilli more or less numerous, as well as broken down lung tissue.

It is doubtful if pulmonary tuberculosis is caused in any other way except that mentioned. Heredity plays a very unimportant, if any part at all. Not all persons who inhale bacilli contract this disease. It is only those in whom a special adaptability to harbor the microbe become its victim.

The microbe has a veritable struggle for life. Its journey from the outer world through the air passages to the delicate structure of the vesicle is not without danger to itself, and hence few of them only find a successful lodgment in the pulmonary vesicles, which they must do before they can begin their baleful work. Most of them are arrested and die before they can reach a point favorable for their development. Only the most vigorous life and the fittest are the survivors.

ITS CONTAGIOUS PRINCIPLE.

Pulmonary tuberculosis is contagious when the bacillus is introduced from some source where it has retained its activity and virulence, and when we remember that the sputum from phthisis patients contains great numbers of these bacilli, which are distributed widely through dust and the carelessness with which sputum is voided, it will be seen that the danger from contagion is great, and it is in this way that the bacillus enters the lung by inhalation and the disease is acquired, but contagion by contact with a phthisis patient, and by inhaling his breath is very slight indeed.

ITS SYMPTOMS.

When the bacillus has invaded the lung tissue the symptoms are quickly manifested. The patient develops a cough which seems first to be of a bronchial type and is marked with expectoration of a mucopurulent character. The early physical signs are those of bronchitis, but very soon dyspnea occurs and becomes more or less severe. Respiration rises from twenty to fifty per minute, and the general distress is usually well marked.

ITS HABITAT.

The tubercle bacillus can not exert its specific poisonous action unless it finds a congenial habitat, and this is what may be called an alkaline temperament, and this temperament plays a very important part in the acquirement and behavior of phthisis. Persons who are thin, tall and anemic, and those having red or sandy hair, or light blonde hair with a thin pallid skin, pale mucous membranes and weak sexual organs, are those who are very liable to tuberculosis, very much more so, in fact, than do the darker hued or more athletic persons, or those who have the acid temperament. In these alkaline subjects the disease seems to make rapid progress, and it is in the apices of the lungs, where the pulmonary vesicles are of large size, that the disease seems to locate by preference. In the apex of one or both lungs cavities form more readily, and the disease seems more virulent than when in the middle or lower lobes, and it is these patients who are tall and pale and badly nourished, and whose blood is deficient in red globules who acquire phthisis very readily. The apices are almost always involved, and he resists treatment to a great degree. In these cases also, when the disease has made any progress, the poisonous principle of the disease, whatever it may be (ptomains, or absorbed poison from the tubercle), seems to pervade the entire body, and he has therefore diarrhea, night-sweats, hemorrhages, anorexia, thirst and mal-assimilation of the little food he takes. These patients offer a congenial habitat to the bacilli and fall before their ravages like the morning dew. They are so difficult to treat and so persistent that they seem almost malignant.

When such a weak lung or special temperament, or readiness to receive the disease is found, it becomes a ready prey to the immigrating microbe. In many cases where bacilli are introduced into the lung they are destroyed for some reason, and this reason is either an acid temperament, or an individual power to resist disease, or a failure to gain a favorable lodgment upon the thin and sensitive walls of the air cells.

ITS ECONOMIC VALUE.

It has been held that disease, and particularly tuberculosis, has a certain economic value in checking the over-population of the earth. In former geologic epochs the exuberance and over-production of animal life has been restrained and held in check by the operation of several influences. The lower orders of animal life that have been so prolific in development have been preyed upon by the higher species of animals who used them as food. Every order of animal life has found a destructive enemy in some other order, and this process of animals preying upon others has served in all geologic ages as a complete check upon the over-production of any one species.

With man, however, the case is different. There is no higher order of animal than himself to hold in check the rate of his increase. To control and repress his too great reproduction, other influences quickly sprang into action. They were three in number. 1, his own exterminating wars; 2, the fearful ravages of disease; 3, his individual vices.

Man's early tribal quarrels were very destructive and continued in activity until replaced by more fatal methods of modern warfare. These repressing influences acted with such mournful force as to seriously affect, on several occasions, the welfare of mankind. We see in the reign of the Roman Emperor Justinian, A. D. 527–565, that the influence of his wars, to which must be added the famine and disease that followed, destroyed more than one hundred million of human lives and depopulated some of the fairest provinces of the earth. This destruction caused a visible diminution of the human race.

The ravages of disease have also acted as a potent check upon the increase of mankind. As he aggregated into communities and nations and lived in close contiguity with his fellows, he knew nothing of sanitary laws and hence suffered severely from sporadic and epidemic diseases. Plague and famine so baleful

n their effects were also the result of his ignorance. Tuberculosis played a malignant and destructive part, nd it has been stated, destroyed one-third of all those vho died of disease. Whether this special disease has ny economic value or not we can hardly say, but the uestion is not without force when we observe closely he character and temperament of its many victims.

The individual vices of man truly have an economic alue. Habitual criminals, the cruel and morbidly icious, the drunkard with his insatiable desire for ntoxicants, and the prostitute are all victims of dis-ease, nervous and otherwise, and all lack the mental balance necessary to make them sound and responsi-ble beings. It is from the ranks of these classes that the insane are so largely recruited, and fill our asylums with their mournful presence. When either of these classes are allowed unrestrained action to their vicious or intemperate habits, their career is brought sooner or later to an end, and the prison, the hospital or the grave removes them from the walks of the living world.

ITS OCCURRENCE IN THE LOWER ANIMALS.

In the animal kingdom certain species contract pulmonary tuberculosis more or less readily. The species that acquire this disease are those brought in contact with man, either in the feral or the domestic state. Among the feral group come first the great order of apes, which may be divided into two general classes, as follows: The cynomorpha or dog apes, and the anthropomorpha or man-like apes.

These apes have been called the catarrhine apes, that is, having a nose with narrow nostrils and a thin septum

Some years ago while visiting West Africa I spent some time on the Congo River and saw considerable numbers of baboons. They are very alert and mischieveous, live in groups of twenty or more, and are fond of the dwellings of man, where their thievish ways cause them to be regarded by the natives as a great nuisance.

On several occasions while we were hunting, a group of baboons would be seen hovering over one of their number who appeared to be unable to move. It was easy to approach, as he was too feeble to escape. Inquiring of the natives I found that the baboons were frequently taken ill with some chest trouble which was similar to that from which the natives themselves suffered. This I learned afterward was phthisis, which is not uncommon among the blacks in the lower Congo districts.

The mandril (*cynocephalus mormon*) and the magot (*macacus sylvanus*) are also frequently met with on both banks of the Congo.

In the wild and almost uninhabited country about 150 miles north of Cape Town in South Africa the common baboon is very numerous, and is a most unwelcome visitor to the negroes, who suffer from their thievish and predatory ways. They have little or no fear of man.

An English officer told me the Hottentots and negroes often contracted phthisis on their periodical visits to Cape Town, and it seemed to me that the baboons contracted the disease from the sputum of these natives, which they carelessly voided in their gardens and about their houses. This gentleman had often seen sick baboons presenting the same symptoms as the natives when suffering from phthisis.

One day while hunting in the adjacent hills I saw a baboon lying upon the ground. On my approach he made no attempt to escape, for he was extremely emaciated and had a severe and violent cough. At that time the existence of the tubercle bacillus was not known, but I felt sure that the baboon was suffering from what we now term pulmonary tuberculosis.

THE DOMESTIC GROUP.

The common ox (*bos taurus*) is so frequently affected with tuberculosis as to require the rigid surveillance of our great abbatoirs by inspectors who are appointed for this special purpose. It is no doubt true that these animals contract the disease from their long and close association with man.

The dog (*canis familiaris*), and the cat (*felis domestica*) are both very liable to tuberculosis, and this would seem an almost self-evident fact from their intimate association with man.

The duck (*anas boscas*), the goose (*anser anser*), and the domestic fowl occasionally contract this disease. It is not improbable that other animals are victims to tuberculosis, but they have no especial interest for us here. We are especially interested in those animals whose flesh and milk we consume as necessary articles of our daily diet.

ITS DIAGNOSIS.

The diagnosis of pulmonary tuberculosis is usually very plain. The presence of cough, expectoration, emaciation, diarrhea, night sweats, loss of appetite, thirst, anorexia with hemorrhages more or less severe, are nearly always present and reveal the true nature of the disease. The unfailing test is, however, the presence of the bacillus in the sputum. Without bacilli the disease is not pulmonary tuberculosis *per se*. A very early diagnosis can thus be made. The competent and careful physician has little difficulty in arriving at a true diagnosis even without the immediate examination of the sputum. He may begin treatment at once, but must examine the sputum for bacilli in order to confirm his judgment. These examinations should be made frequently during treatment, that he may know if the bacilli are diminishing and whether his patient is really recovering.

ITS PROGNOSIS.

Pulmonary tuberculosis when not modified by treatment is an extremely fatal disease. No accurate percentage of deaths can be given, because these differ with many writers, but once the disease is allowed to run its course without treatment, and especially in one of an alkaline temperament and a generally anemic condition, it is a rapid and terribly fatal disease.

TREATMENT.

We are called upon to treat a very complex disease. At the very outset we must not forget that pulmonary tuberculosis is an inflammatory disease of the spongy tissue of the lung, due to a special microbe and followed by a true ulcerative and suppurative process in the delicate lung tissue. It may be described briefly as a special ulceration in the pulmonary vesicles with an expectoration of the suppurating matters, and any treatment which is destined to cure or even relieve it, must be addressed to this ulcerating condition of the lung.

To successfully treat a disease so lethal in character and so complex in nature, it would seem that some remedy which can be introduced into the body at short intervals and for a long period of time, something that will act as an antiseptic by saturating the blood and modifying or destroying the bacillus and at

the same time inflict no injury upon the organs of the patient, would appear to be an ideal remedy.

A considerable percentage of cases of phthisis belong to the alkaline temperament, and a remedy having an acid reaction would appear to be especially indicated. From experience, which has been considerable, I believe that a solution of the halogen group of salts, with the hypochlorite of sodium added in due proportion, is the best remedy to modify and perhaps cure pulmonary tuberculosis.

This remedy acidifies the blood when saturated with it, and almost immediately relieves the extreme cachexia, loss of appetite, weakness and night sweats which form such distressing symptoms. The cough which is nearly always present, sometimes distressing and even terrible, can easily be relieved by giving a mixture of iodid of potassium (10 grains) with a little sulphate of morphin ($\frac{1}{5}$ grain) and a syrup as a vehicle, or a capsule of quinin grs. iij. (.2) and pulvis opii gr. ss. (.03) may be given during the day and at bedtime.

For the hectic fever nothing is better than a capsule containing grams .26 quinin, and grams .0014 sulphate of strychnin once or twice daily.

Alcohol in the form of whisky or brandy is nearly always indicated, especially when the disease has made any progress, and when the vital powers are feeble and the pulse weak and rapid, I usually give 30 c.c. of whisky slightly diluted with plain or mineral water twice or thrice daily for perhaps a month at a time, and then omit it for a while according to the progress of the case. It can be resumed at any time subsequently. Wine and malt liquors should never be given, as they are apt to disagree with the stomach.

DIET.

Proper diet forms an essential part of the treatment of phthisis. When we are dealing with a severe and wasting disease the diet should receive especial attention. The physician must always prescribe such articles as are nutritious and easily assimilated. Meats of all kinds, fish, shell-fish and eggs may always be given. Rich soups of beef, mutton or chicken are especially valuable, and are palatable and nutritious. Puddings of the farinaceous kind with good bread and butter are also nutritious and well borne. Coffee with cream, strong tea, chocolate, milk and milk punch, may be given freely as beverages. Cooked fruits may be given cautiously, but never raw fruits, as they are apt to induce a troublesome diarrhea. High seasoning with salt, pepper, mustard and vinegar and other condiments are well borne and act as stimulants and assimilants to the digestive organs, and usually are agreeable to the patient.

I can not speak too strongly upon the inestimable value of cold water as a beverage in phthisis. We must remember that the blood is deprived of its watery parts to a large extent by the wasting action of the disease, and hence the thirst which is sometimes very great, and the hot and burning skin so often present. I always insist upon the patient drinking large quantities of cold water at any time without limit. He may drink ordinary potable water or use one of the many excellent mineral waters now so easily obtainable. Among those I like best are Vichy, Seltzer, Appollonaris, Poland Spring and the Great Bear Spring. All of these are most excellent waters, and when iced are palatable to the patient.

The daily warm bath is of great value in reducing the surface temperature. It can be taken any time during the twenty-four hours. The temperature of the bath can safely vary from 90 to 100 Fahr., or even higher if agreeable to the patient.

REST AND SLEEP.

Perhaps second in importance only to water, is rest and sleep. Phthisis is a wasting disease and the muscular power of the patient is largely lost through atrophy of muscular tissue, and any effort that is not absolutely needed is harmful. Let no restriction be placed upon his hours of rest and sleep.

In conclusion let it be remembered that a drug of an acid reaction is the one specially required, and that a wisely selected and generous diet, together with liberal potations of cold water, the bath and sleep, when prescribed by the wise physician, form the best means at our command to combat, relieve and cure the dreaded disease known as pulmonary tuberculosis.

747 Madison Ave.

ON THE DIET AND GENERAL CARE OF CONSUMPTIVES COMING TO SOUTHERN CALIFORNIA.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY GEORGE L. COLE, M.D.

LOS ANGELES, CAL.

When asked to contribute to this Section I recalled the fact that only a few days previously a patient consulted me who had recently been sent to this region by his physician in one of the Middle Eastern States. His doctor had told him to go to Southern California, find a place suitable to live in, receive the benefit of the climate and not waste his money on either physicians or drugs, to use his own judgment and when he thought best to return to the East. Not this case alone, but the many similar cases, impressed me with the fact that a few words along this line may result in benefit to some who may seek such a change in the future.

Imagine the responsibility thus laid upon the patient. How shall he find the place suitable for himself? How should he know where to find suitable lodgings and table? How shall he learn of the proper clothing to wear in a climate wholly different from that he has left? Most of all, how is he to judge competently of the improvement made at the end of three, six or twelve months, in order that he may know whether best to remain longer or return to his home? Because he finds himself transported from snow and ice to a scene in which sunshine and flowers abound, he immediately dons his summer clothing and succeeds in contracting a cold, if nothing worse. He takes his first day's outing in an orange grove and proceeds to demoralize his digestive apparatus by partaking of the golden fruit, unripe and unfit to eat. He returns to his temporary quarters at his hotel, to awaken the next morning in anything but an amiable mood in which to set out in search of a permanent location. His stomach upset, snuffling with a cord, he finds some pleasant rooms situated on the north side of a building. He does not notice the absence of the sun's rays from morning till night, but rather has his attention called to the "beautiful mountain view" by his would-be landlord, who is quietly reserving his sunny rooms for others more experienced in the requirements of the invalid. The patient does not notice that his room has no

vice for proper artificial heat, or if he does notice e fact he is promptly informed that one of those ominations in which the country abounds, a kero- ne heater, will answer all purposes. In such quar- rs he takes up his abode and succeeds in prolong- g his cold until he has a genuine bronchitis and gmenting his diet with green fruit, serves to con- nue the disorder of his digestive organs, until, at e end of three or six months, he concludes that his n Eastern climate, with home comforts, is about good for him as to live here with a constant yspepsia and bronchitis. And really he has now rived at the proper conclusion. He begins to onder if his lungs are in any better condition than hen he came to such an abominable climate. He eks a physician, who has no data of his condition the time he arrived in California, but who tries to ut him right in matters pertaining to location, cloth- g, diet, suitably heated sunny apartments and other atters pertaining to his general welfare and com- rt; possibly suggesting some remedies which may nd to relieve the bronchitis and dyspepsia which he as contracted. The patient stays a month longer nd returns to his Eastern home in a worse condition an when he left.

What a different picture thus presented from that f the patient who, on first going to a new section which there is such a contrast to that of his former ome, seeks medical advice and is started out cor- ectly at the beginning of his new experience. A areful physical examination is made and recorded, o that at some later time he may be intelligently nformed as to the progress he has made, and some efinite reason given why he should remain longer or eturn to his home. By knowing his history and hysical condition the physician can direct him to a uitable location. And some location well suited to early every individeal can be found within a radius f one hundred miles from Los Angeles. Any alti- ude from sea level to 6,000 feet can easily be secured, vith comfortable quarters, and the patient may at the ame time be guided to sections varying greatly in elative humidity.

Do not misunderstand me as pleading in behalf of ur local physicians for remunerative fees. It is not his. But the manifest injustice done by many East- rn medical gentlemen to their clients in this respect vhen sent from home has caused so much needless uffering among this class that I can not forbear a vord of criticism. At the same time I commend the ost of Eastern physicians who provide their patients vith suitable letters to physicians who, while not nfallible, nevertheless do better in guiding the patient han he can do for himself.

TUBERCULOSIS AND VINEGAR.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN ASHBURTON CUTTER, B.Sc., M.D.

NEW YORK CITY.

The enormous amount of work done in bacterio- ogic lines as to tuberculin has been of such little avail s to treatment and prevention, that I have no hesita- ion in bringing before the Section in a few words, a ecord of work that has been done on other lines and o the glory of medicine in that this work has cured he desperately sick and prevented the pre-tubercular becoming tubercular.

Dr. John Christian read a Latin inaugural thesis at Jena, October, 1729, in which reference is made to the coagulation of living blood by vinegar which he says dissolves silica and poisons like viper's venom. He laid down the law, "*Causa coagulationis sanguinis est acidum.*"

In "The Relation of Alimentation and Disease," Dr. James H. Salisbury recounts his investigations made on 1,028 hogs fed with sour foods in 1858. Salisbury in the preface, page iii, says: "I had been a graduate of Albany Medical College, and in 1850 entered upon the practice of medicine. I was immediately and forcibly struck by the almost entire want of medical knowledge in regard to the true causes of disease, and by the consequent uncertainty that must and did exist as to the means of combating and curing pathologic states." Salisbury's first publication relating to foods that ferment into alcohol and vinegar and are thereby causative of consumption of the bowels and lungs was made in 1864 in the Surgeon-General's report of Ohio; this paper and the matter found in "The Relation of Alimentation and Disease" (published 1888) contain enough to show this investigator's work as to the relations of vinegar and tuberculosis; yet I believe that medicine was not wholly the chaos he considered it when he started to practice in 1850; honor to whom honor is due; honor to Salisbury for his colossal experiments in feeding hogs to death with sour foods. (I would that some of the quid nuncs in bacteriology would enlarge their ken and get away from the bacteria and study yeasts, alcoholic and vinegar.) Honor to the Europeans who recognized the souring properties of certain foods before the time of Salisbury's publications.

In the bibliography appended, much of which is from the publications of this ASSOCIATION, I show what has been done by an American writer:

BIOLOGICAL.

"The morphology of the blood in health is as follows:[28]

"*Color.*—Bright, fresh, clear, ruddy, strong. Clottings, rapid and firm.

"*Red corpuscles.*—Arrange themselves in nummulations, or are scattered evenly over the field; normal in size; non-adhesive; central depression well marked on both sides; periphery well rounded, clean-cut. Hold coloring matter firmly. Pass readily to and fro through the fibrin filaments. Appear fresh and fair.

"*White corpuscles.*—Normal in size, not enlarged by internal collections of foreign bodies. Ameboid movements strong or not. Proportion, 1 to 300 of red corpuscles. Consistence good, not sticky. Color a clean white. Freely moving at will.

"*Serum.*—Clear and free at first sight from any form. After fifteen minutes, most delicate semi-transparent fibrin filaments appear, forming a very light network in the field, which offers no obstacle to the passage of the corpuscles."

The morphology of the blood in tuberculosis is as follows:[28]

"*First or incubative stage.*—Red blood corpuscles are less in number, ropy and sticky more or less, but not much changed otherwise.

"*Second stage of transmission*:—1. Red corpuscles: Color pale, non-lustrous; not clear-cut, not ruddy. Consistence, sticky and adhesive. Coating of neurin removed. Not so numerous as in normal blood. Owing to the increased size and strength of the fibrin

and the stickiness, they form in ridges, rows, but not so marked as in rheumatic blood. They accumulate in aggregations of confused masses, like droves of frightened sheep. They adhere to each other, and are rotten, as it were, in texture. 2. White corpuscles: enlarged and distended by the mycoderma aceti, or spores of vinegar yeast, that are transmitted into the blood stream from the intestines. 3. Serum more or less filled with the spores of mycoderma aceti, or vinegar yeast. These occur either singly or in masses of spores, which is the common form in which they are found, wherever vinegar is produced. The fibrin filaments are larger, stronger, more massive, than in health, and form under the microscope a thick network which is larger, stronger and more marked in direct proportion to the severity of the disease or the amount of accumulation. Besides the serum is apt to be of a dirty ash color. The sticky white corpuscles, the massive fibrin filaments in skeins, and the yeast spores alone or combined, form aggregations, masses, collects, thrombi and emboli which block up the blood vessels of the lungs soonest, because exposed to cold air, the most of any viscus; the blood vessels contract and thus arrest the thrombi and form a heterologus deposit, which is called tubercle.

"*The third stage of tubercular deposit.*—These deposits increase so long as vitality subsists in the tubercle and surroundings. When vitality ceases, the tubercle softens or breaks down. Sometimes if the process is very slow and life slightly inheres in it, the proximate tissue undergoes fatty infiltration which preserves it from readily breaking down. The morphology of the blood is the same for the second and third stages of consumption.

"*Fourth stage, interstitial death.*—The red corpuscles are thinner, paler, much lessened in number, increased in adhesiveness, stickiness and poverty; devoid more or less of neurin. The white corpuscles are fewer in number, more enlarged, often ragged and rough. Distended with spores of mycoderma aceti; more adhesive, and sticky. *The serum.*—Fibrin filaments are thickened, stronger; more massive, and more skeins of them present. The collects of mycoderma aceti are very much larger and more numerous; in moribund cases, I have seen them so large as almost to fill the field of the microscope."

PRE-TUBERCULOSIS.[19]

"The idea that diseases have periods of incubation preceding their full development accords with other facts in animal and plant biology. It is to be expected that tuberculosis of the lungs, for example, has a prestage. In fact, pre-tuberculosis exists and clinically means that the morphology of consumptive blood is present to a lesser extent than in tuberculosis, that the essence of pre-tuberculosis is in these vegetations in the blood, which coming from the fermentations in the alimentary canal, pass the barriers of the intestinal epithelia and float about in the blood stream of consumption any time during one year before the necrosis or sphacelation or breaking down of the lungs, sufficient to be detected by the usual signs, furnished by auscultation and percussion. It is evident that in such spongy bodies as the lungs small deposits may escape physical macroscopic exploration. But the microscope will detect this stage."

VINEGAR AND HOG CHOLERA.[19 38]

"Seven years ago, my son and I independently studied hog cholera, on a large stock farm in Western Massachussets, autopsying animals immediately aft death; 1, by the disease, and 2, by slaughter in ear and late stages of complaint, the proprietor giving every opportunity of macroscopic and microscop examinations of blood and tissues of his animals, he considered his herd doomed. We found, ind pendently: 1, the blood morphology of tuberc and embolism; 2, tuberculosis of lungs, bowels, ski 3, recent fibrin clots in heart; 4, partial paralysis hind extremities; 5, paralysis of nerve centers.

"*Causation of this epidemic.*—1. Steady feeding ensilage which is loaded with vinegar and vineg yeast; 2, swill food brought from outside; 3, col weather; 1 and 2, predisposing causes; 3, excitin cause."

The hog physically is much like man; man is ver much of a hog as to eating food that makes swill, an hence suffers much from tubercle.

WORLD WIDE RELATIONS.

The Esquimau does not die of tuberculosis. H lives on animal food, yet for months of each year h breathes a vitiated atmosphere.

Tuberculosis ravages in the South where little goo beef is eaten and instead very much of vegetable foo Some fifteen years ago a resident of Savannah, Ga came under treatment in New York. He changed h mode of living and became a beef eater. Since tha time all of his family have died of tuberculosis; h lives because of his beef-eating habits. The negr dies of tuberculosis. Causes, poor food, the ment strain of trying to reach the white man's level, an syphilis, with its grandchild scrofula, and tubercle.

Tuberculosis has ravaged in New England, esp cially the rural portion, with its diet of pie three time a day and baked beans, which latter, chemically, a splendid food for cattle, but for man not fit, unles cooked for many hours. Tuberculosis is now dimi ishing in New England because they are eating mo beef and drinking more milk, although there has bee very much of foolish opposition to the use of milk.

Cattle are dying in New England and other place of tuberculosis, and so long as the silo with its alc holic and vinegary products is used, so long will fa mers lose their cattle. A man imported a splendi herd from the Island of Jersey some fourteen yea ago. He had a silo. He was expostulated with as t the dangers of feeding sour foods to his cattle. H persisted and all died of either tuberculosis or hea disease.[36]

The easiest way to exterminate the Indian is to giv him plenty of white flour and rum. Tuberculosi always follows.

There is no "royal road" to the cure of tuberculosi or its prevention. The various tuberculin treatment are based on the principle of injecting an attenuate dose of poison into the human system and—this po son, like strychnia and many other drugs, stimulate nature and in some lines by inflammation to cure th diseased lungs and joints. One that has been afflicte with cough, weakness, emaciation, pain and dread impending death, would only too eagerly accept suc a treatment, yet in its very best it only effects result it does not touch causes, and when one sees men lik Robert Koch wrestling on this line, while lives go ou because they will persist in ignoring the causativ relations of vinegar and vinegar yeast to tuberculosi it makes one wonder at this neglect of general princi ples. So long as the cause is being put in the syste

long will tuberculosis continue, and it is strange
ıt these followers of Koch also ignore the positive
ations of syphilis and scrofula to consumption. As
as I can learn the majority of medical men are
ng, as a basis of their treatment, animal food, but
y should they gravitate to the other side and give
› causes of the disease, to-wit, fermented milk foods,
›h as kumyss, etc., pastry, starches, sugars, vegeta-
› foods of many kinds, that can not digest, because
the weakness of the bowels, salads that soon make
ill, jellies and colloids, to name no more. These
ne ›men also neglect the value of the study of the
›rphologies of the blood, sputum, feces and urine,
laid down by American observers.

At whose door shall be laid the blame of the ignor-
ɜ of the incalculable value of the diagnosis of the
e-tubercular state, which diagnosis can be made be-
:e the lungs are affected, and before there is any
utum to find bacilli in or diseased spots in the lungs
ɾ tuberculin to re-act on? This knowledge of the
e-tubercular state is of the greatest value to human-
ɣ of anything in the practice of medicine.

The Dr. Cyrus Edson treatment was based on so-
lled logical grounds as to certain relations of car-
›lic acid to the human body in tuberculosis, yet he
.ds pilocarpine to his remedy to stimulate white
ood corpuscle activity. He therefore indirectly rec-
ɡnizes the presence of vinegar yeast in the blood and
at anything which helps the action of white blood
›rpuscles will help the patient for a time. Why not
ıt the ax to the root of the tree, and stop the forma-
›n of this vinegar yeast in the blood?

Some Europeans are now using raw beef. Why
ıey do not give their patients broiled beef, I can not
ıderstand. Raw beef is unpalatable, it promotes
pe worm. The use of beef is the bottom principle
the treatment of tuberculosis, but it should be em-
oyed in the form of steaks or roasts, or the first-class
p of the round freed from connective tissues by ma-
ıine or knife and chopping bowl, as the connective
ssues are of a colloid nature, and ferment, and tend
› the production of vinegar yeast. The lean muscle
ulp is then molded into a cake, an inch and a half
›ep, several inches wide, not too tightly pressed to-
›ther, and in all of its preparation care should be
.ken to touch as little as possible the meat direct by
ıe hands as the human animal heat will change the
ıaracter of the muscle pulp; broil this over a bed of
›od live coals, a gas stove, or even kerosene flame,
ırning often, and the resultant should be of a dark
rown color on the outside and of a reddish but not
ıw appearance inside. It is best served on a hot
ater plate and if a little under-done, it will cook on
ıe plate when the meat cake is opened. If a hot
ater plate can not be obtained, one can be extem-
orized by the use of a soup plate filled with hot
ater on which is placed another plate with the meat.
here can not be too much care used in the buying of
ıe beef or its preparation and if proper caution is
ıken, the patient will generally eat it with a relish.
t should be seasoned with pepper, salt, butter, Wor-
›stershire sauce, horse-radish, lemon juice, as the
atient desires.

Lamb, mutton, the dark meat of fowl and game;
roiled cod-fish can be used, as changes; the whites
f eggs dropped in boiling water and slightly cooked
ıay be taken freely if the patient is not eating enough
t solid food. Some patients will take the whites of
›m one dozen to two dozen eggs in a day when weak and not able to take other food. Don't do as one woman did; she gave her husband the whites of eggs dropped in boiling water with plenty of vinegar. The masses of vinegar yeast in the blood were so large and frequent under the microscope that amazement was expressed. The woman protested that she was doing everything absolutely according to order for her husband. As all of his symptoms were worse and because of this blood morphology of the masses of vinegar yeast, it was insisted on that some error was being made and it was ascertained what she had done.

Vegetable food may be added as follows: Some patients can bear one of the following foods at a meal—cracked wheat, rice, hominy, toasted entire wheat flour bread, baked potato. It is a hardship at the best to confine patients to close diet and physicians should give them as much variety as possible, but there is more danger of error on the one side of too broad a diet than one of too narrow. The use of distilled water or some good spring water that has not more than five to ten grains of salt to the gallon should be persisted in, drank (after boiling) at a temperature of from 100 to 120 degrees Fahr. one hour before each meal and on going to bed.

Medicines should be employed in the treatment of tuberculosis on principles and the main one is give no medicine which can ferment into alcohol and vinegar in the alimentary tract. This principle forbids the prescribing of many cough syrups and other preparations now largely used.

The skin in tuberculosis is more or less loaded with the vegetations of vinegar yeast. There should be employed daily sponge baths. The water to be hot or cold according to the patient's desires. Ammonia and water in the proportion of two teaspoonfuls to a pint or the aromatic sulphuric acid one teaspoonsul to a pint or even the nitro-muriatic acid, one-half teaspoonful to a pint, can be used with great advantage; rubbing with a saturated solution of spirits and salicin is a good means of toning up the skin and the whole body.

Bacteria or bacilli are babies of vegetations which have become animalized by contact with the human body and human secretions. Robert Koch demonstrated their presence in the sputum of tubercular cases, for which he should receive due credit, but the work which antedates his in time and importance as showing the real couse of tuberculosis must not be ignored. The vinegar yeast found in the blood is the second stage of the bacteria, and is found there in the spore form and sometimes in tubercular cavities we get the third stage of development in the aerial filaments of the vinegar yeast.

Physicians could learn more as to relation of sour foods to tuberculosis in a few months time by experimenting on hogs (not guinea pigs or rabbits), by feeding a certain number with sour and a certain number with sweet foods, having all in the same building so that they breathe the same air. The beauty of this kind of work is that one can kill the animals any time one pleases and know just what is going on.

The agricultural experiment stations of the different States are fully equipped to make these investigations on hogs. It is necessary, however, that the microscopist who follows the experiments should have a fair working knowledge of the methods of the American observers who have been studying this subject for nearly thirty years on their patients and with animals. If it is right to rush abroad to Berlin to study cured

cases of tuberculosis, some of whom die the day after they are pronounced cured, there can be no harm in studying in America, all the work which made cured cases twenty-five years ago, for such cases are living now.

PROGNOSIS.

Granted a recognition of the relation of vinegar to tuberculosis, the prognosis can be more definitely made out, for if one is stopping a cause then one has some hope to base his belief of cure on. If one is simply treating results according to tuberculin methods and is still putting in the food which will undergo vinegary fermentation, the prognosis must necessarily be doubtful.

What is the experience of those who recognize the relation of vinegar and tuberculosis? Temperament here comes in. Some of the most appalling cases with many hemorrhages, with the evidence of cavities in both lungs unquestioned, as determined by physical examination of the chest and by the detection of the elastic and inelastic lung fibers in the sputum, have progressed most favorably under proper treatment. Others, who apparently had little disease, went down to death. The rule has had to be laid down that all cases except the moribund should have a chance for treatment. It is a most wonderful thing how nature endows these cases with hope. Some patients fight indomitably, and contrary to expectations they get well. It is not pleasant to look back and consider the amount of opposition which was placed in the path of those who twenty-five years ago were endeavoring to help these distressed patients.

But what will you do with cavities? The post-mortem evidences of many morgues and dissecting rooms show unquestionably that cavities do heal over and patients live to die of another complaint. My own wife showed three small cavities healed in the top of the left lung and two in the right. There was some fatty and calcareous degeneration going on in the base of the left lung; liver somewhat enlarged but normal in structure; no tuberculosis of stomach or bowels; heart normal in size and as to structure; yet all her symptoms for three years had been of heart exhaustion, needing the greatest of care and attention. Seven years before her death an eminent medical man stated that she had but three months to live; if her appetite for beef foods, and in fact for practically all other foods, had not failed three years before her death, she would probably have lived to old age. Of great courage, good judgment, she in her weakness for many months traveled close to the verge of the grave. Of strong affections, her love for her dear ones kept her alive a long time; yet something in her nervous system broke down as to appetite and her time eventually came.

It is cruel to take away from the very sick hope. There are many doctors of eminence and influence who literally are executioners because of their brutally taking away all hope. The passionate, anxious, eager holding on to life of the very sick is a matter of divine origin, and I do not propose to stand in the way of that divine gift of the desire for life.

Some patients die from money troubles. Others die from the long-continued opposition of their friends, relatives and medical men to treatment. It can be thankfully said that this opposition is dying out. Others die because they are associated in herds at the various resorts in the mountains of the South and West, and in sanatoria seeing and hearing the consumptives all about them. Such suffer for the privi leges of home. They have many comforts taken fror them and are liable in going South, of getting into blizzard and have to live in a shelter which i improperly made.

I wish to emphasize that the treatment of tubercu losis must depend upon the family physician. I should commence in infancy; the children should b properly fed and taught to avoid sweets and the veg etable foods which do not agree with them, and thos who are so unfortunate as to break down with the dis ease must still be kept at home, or such change o air and climate made as can do good and no harm There is no question that good air is a wonderfu thing, yet we can buy oxygen and force the air ali mentation if necessary in our cities.

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SATURDAY, FEBRUARY 5, 1898.

MEDICAL LEGISLATION.

We wish to call the attention of our readers in the first place to Professor WELCH's article in this issue, which in detail sets forth the reasons why the "Anti-vivisection bill" now pending in the Senate and known as the "Gallinger bill" (Senate 1063), should be strenuously opposed by every physician.

Professor WELCH says truly that medical and scientific men have never had adequate opportunity to present arguments against the bill before the committee. The aim of the bill is to abolish animal experimentation altogether, and that concession now to the antivivisectionists whereby this bill would be allowed to pass, would be a fatal mistake and so handicap physiologic and therapeutic experimentations that further advancement would be almost out of the question.

He denies the statements in the committee report that any considerable number of medical or *bona fide* scientific men have favored the bill, and very easily disproves the claims that animal experimentation has been of no value to medicine. He further says that scientific experiments upon animals have not been conducted with cruelty, and states that no single instance of cruelty on the part of a scientific experimenter has been proved or set forth. He says that in England physicians there at first yielded to the passage of a similar bill and are now confronted with the fact that it is practically impossible to conduct proper experiments in that country, and even such men as Lord LISTER are obliged to go to the Continent to perform ordinary experiments.

We must therefore continue to urge upon the members of the ASSOCIATION and readers of the JOURNAL generally that they send personal protests to their Senator and Representatives, otherwise this most injurious and fanatical measure may pass the Senate.

In the matter of the Public Health Bill, the ASSOCIATION Bill has been introduced by Senator SPOONER of Wisconsin. It has been thought wise to change the title from "Department" to "Commission" of Public Health, which in effect means the same thing. We regret to say, however, that the bill which was introduced on the 27th of January, has (according to press reports) without conference or without consultation with anybody been reported unfavorably with unseemly haste by Senator VEST, who recommends instead a Marine-Hospital bill which was originally introduced by Senator CAFFERY, and to which we referred last week. It seems that Mr. VEST reported this bill favorably on the 19th of January last, but the favorable "report" consisted in striking out all the original CAFFERY bill after the enacting clause and giving the Marine-Hospital Bureau, under the Secretary of Treasury, authority to perform all sanitary matters throughout the United States, in case of epidemic riding rough-shod over every board of health or municipal authority which might possibly stand in the way. Both bills now go to the Senate calendar, the bill prepared by the AMERICAN MEDICAL ASSOCIATION and American Public Health Association with an unfavorable report, and that by the Marine-Hospital chief with a favorable report.

Every effort must be made to defeat this CAFFERY bill, Senate No. 2680, if the medical profession are not to be entirely overrun by this action of the Marine-Hospital bureau. If this arrogant scheme succeeds there is no longer any use for State or municipal boards of health. The Marine-Hospital Service will perform their duties for them, notwithstanding the fact that no medical man outside of this organization, or any medical society or set of medical men whatever, has asked for so sweeping a measure or one so contrary to all previous enactments in relation to the public health. The text of this despotic measure will be found in the public health column of this issue. If there be a State board of health in the Union or a municipal board of any consequence that does not fight it, we shall be very much mistaken.

Work hard and earnestly for the ASSOCIATION Bill as introduced by Senator SPOONER and may success crown our efforts!

THE ANOMALOUS, BRANCHING AND ACTINOMYCOTIC FORMS OF THE BACILLUS OF TUBERCULOSIS.

In the two first editions of "Les Bactéries," 1883 and 1886, by CORNIL and BABES, branching forms of the tubercle bacillus are described and figured. These bacilli were derived from old cultures.

In 1888 NOCARD and ROUX,[1] and METSCHNIKOFF,[2] each described in the cultures of avian turberculosis

kept at high temperature the formation of capsules and curious rarefied and swollen forms. METSCHNIKOFF has also seen that the tubercle bacillus situated in the interior of giant cells can surround themselves with thick capsules, and BABES has described various forms of granules, metachromatic corpuscles, vacuoles, clubs and branching organisms, and their relation to the bacillus of tuberculosis.

FISCHEL[3] and COPPEN JONES[4] maintain that the bacillus of tuberculosis is not a bacterium but a fungus of a higher type, because it may present ramifying threads, clubs and metachromatic corpuscles. They are inclined to urge that it could be placed side by side with the actinomyces, because it may form a mycelium when it is deprived of air.

These ramifications are genuine branches. COPPEN JONES found, in the sputum, anomalous forms of tubercle bacillus that corresponded exactly in structure to the club-shaped masses characteristic of the actinomyces. In this connection it is interesting to recall that the lesions produced by the tubercle bacillus and by the actinomyces are closely related, both being classed as infectious granulomatous processes. Furthermore, that the patients affected with actinomycosis react more than others, except the tuberculous and lepers, to the action of KOCH'S tuberculin, showing, it would seem, an analogous composition of the substances that produce the reaction in the patient's body.

BABES[5] established that the club-shaped masses of actinomyces are formed by a secretion of the terminal extremities of the ramifying filaments. They constitute a sort of capsule and appear to play the rôle of protection for the organs of reproduction. BABES has also shown that the filaments of actinomyces are stained a bluish violet by GRAM'S method, while the club-shaped masses are stained red by a solution of safranin and anilin oil, followed by the action of LUGOL'S solution.

MARPMANN[6] found, in a sputum very rich in normal bacilli, bacilli with club-shaped thickenings with distinct branchings, and also a few rather long threads. He observes that the tubercle bacillus belongs to those fungi which form true cellulose in the cell protoplasm and which give the reaction for cellulose. Such bacteria are, so far as known, all aerobic. Cellulose is not formed in anaerobic cultures.

FRIEDRICH[7] succeeded in finding branching forms of the tubercle bacillus in the midst of the tissues, in cases of rapid experimental miliary tuberculosis. He produced such disease by injecting into the arterial circulation from the carotid artery of rabbits tubercle bacilli in physiologic salt solution. The animals died in from twenty-four to eighty-six hours, and t miliary tubercles were then found in the majority the organs. When the tissues were stained by t usual methods (EHRLICH, ZIEHL, NEELSEN) t bacilli did not present any unusual appearanc either in regard to form or arrangement. In the ca of the animals which died during the first thir days after the injection, the author succeeded demonstrating the bacilli in the tissues arranged in radiating form and provided with clubbed ends su as are characteristic of actinomyces. He succeed in finding all these ends by means of staining wi Victoria blue, differentiating with acid alcohol, ar then staining with a solution of eosin and wate Because these peculiar forms appeared to be chara teristic of the first stages of the disease, FRIEDRIC is inclined to believe that the view that the clul observed on the actinomyces are degenerative forms, erroneous.

BABES and LEVADITI[8] injected into the mening of the brain of rabbits pure cultures of tuberc bacilli of slight virulence. They found that two three days later the bacilli had formed undulatin threads and filamentous masses, surrounded by poly nuclear leucocytes. At the beginning of eight ten days the filamentous masses were found presen ing radiating peripheral terminations. Such masse may have a diameter of from 20 to 80 micromill meters. They are constantly surrounded by a zon of polynuclear leucocytes containing a few typi bacilli. About a month after the inoculation the fila mentous masses were found to have acquired a diam eter of from 40 to 80 micromillimeters and that the were very much like grains of actinomyces, the cen ter being occupied by a substance which staine rose-red by EHRLICH'S method and in which wer again recognized a network of threads of the thick ness of the tubercle bacillus, and from this centra network projected free ends, sometimes a little thick ened, at other times assuming a distinct club shape By GRAM'S method the mycelium could be staine a violet blue, the club-shaped masses red by mean of anilin oil, safranin and LUGOL'S solution (like th actinomycetes). GRAM'S method alone gave an iso lated stain to the mycelium. The various picture obtained are reproduced in the plates that accom pany the article. The authors think it is not impos sible that one may some day find that some of the apparent forms of human or animal actinomycosis are produced by the bacillus of tuberculosis, because they can not understand why such conditions may not at some time or other be produced, as they produced experimentally in their actinomycotic form of tuberculosis. It should not be neglected to examine cases of actinomycosis by the methods which are usually applied to

1 Annales de l'Institut Pasteur.
2 Virchow's Archiv, 1888. p. 63.
3 Morphol. u. Biol. des Tuberkulose-Erzeugers, Wien, 1893.
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he tubercle bacillus. When one takes into consideration the composition and the form of these peculiar growths of the tubercle bacillus it becomes necessary to bear in mind the advisability of placing this bacillus in the same group as the actinomyces, that is to say, in a family intermediate between the bacteria and the *ascomycetes*. HAYO BRUNS[9] proposes to call the bacillus of tuberculosis the myco-bacterium of tuberculosis, because of the occurrence of branching forms.

VITAL STATISTICS OF THE ELEVENTH CENSUS.

"Part I of the Report on Vital and Social Statistics in the United States at the Eleventh Census, 1890" has just been received from the Government Printing Office by the Superintendent of Documents, Department of the Interior. It is a large quarto volume of nearly 1100 pages handsomely illustrated with colored maps showing the distribution of mortality during the census year. The rates are presented and discussed by Dr. J. S. BILLINGS, Deputy Surgeon-General, U. S. Army, retired, as expert special agent on the subject of vital statistics. The data used in this voluminous report differ in completeness and accuracy according to the locality in which they were gathered. In a large part of the country the only record of deaths to be had was that obtained by the census enumerators as the result of inquiries in each family and this is considered to be deficient by from 20 to 50 per cent., but from the States of Massachusetts, Connecticut, New Hampshire, Vermont, Rhode Island, New York, New Jersey, Delaware and the District of Columbia and from a large number of cities outside of these States fairly complete records were obtained from the local health authorities. The death rate for the whole country was 13.94 per 1000 living, but for the States and cities having a good system of registration it was 20.38. In the latter the rate of the urban population was 23.48, of the rural population 15.66. In the non-registration areas the enumerators gave a death rate of 10.86 per 1000 as compared with 13.42 in 1880, whence it is concluded that either the healthfulness of the country has increased or that the enumerators' returns, as regards deaths, were less complete in the eleventh census than in 1880.

The death rate of males was generally higher than that of females, 21.54 as against 19.25 per thousand. The excess of male deaths occurred chiefly at the earlier ages. The death rate for white children under 5 years of age was 64.21; highest in the metropolitan district, 88.48; lowest in the rural districts of the registration States, 36.72. For colored children of the same age the rates were much higher, varying from 56.48 in the rural sections to 151.60 in the metropolitan district; and in all localities the male death rate was higher than the female. The deaths of children under one year of age gave an infantile mortality of 115.65 per 1000, still-births being included in the births and deaths. Were the still-births excluded the infantile mortality would be 97.60. In the registration areas this mortality was 182.25 or higher than in Great Britain and Ireland, Denmark, Sweden, France and Belgium, but lower than in the Netherlands, Italy, Switzerland, Prussia, Saxony and Bavaria.

The death rate of the colored population in the registration area was much higher than that of the whites, 32.40 as compared with 20.22 per 1000, the excess of mortality being most marked in the younger years.

For the married in the registration area the death rate for those 15 years and over, taken as a whole, was higher than for the single in the same age group, and was higher among males, 16.66, than among females, 13.42. If, however, the age group 15 to 45 years be taken, the death rate of the single males, 9.29, was higher than that of the married males, 8.95, while the death rate of the married females, 9.63, exceeded that of the married males and also that of the single women, 6.79. In the age group 45 to 65 years the death rate of the single males, 31.29 was much higher than that of the married men, 19.83, and the death rate of the single females, 22.0, exceeded that of the married women, 16.80. Many statistics in this connection show the relative death rates from various diseases, according to age and conjugal condition. Then follows a section on occupation in relation to death. The highest death rate occurred among the laboring and servant class in cities, 25.15; the lowest among the clerical and official class, 7.69. The rates for certain trades and occupations were higher than the average male rates for the same ages. The persons subject to these high rates were musicians and teachers of music, apothecaries and pharmacists, butchers, bakers, confectioners, barbers, bookbinders, plasterers and whitewashers. For all other occupations the rates were lower than the average. Among males in the professional class of occupations in the registration districts the death rate per 100,000 of their number from diseases of the nervous system, 250.70, was higher than the average rate, 158.96, from these diseases in all selected occupations. The rate for diseases of the respiratory system was also higher, but that for consumption was considerably lower. The death rate from suicide was higher in this than in other classes. There was no death among physicians and surgeons under 25 years of age in the registration States during the census year. The death rate of medical men from 25 to 45 years, 9.52 per 1000, was slightly above the average rate of the professional class at this age, 8.47, as was also the rate at 45 to 65 years (physicians and surgeons 21.15, professional class 19.11), but the death rate at 65 years and over, was much higher than the average of the professional class.

In fact, this census report contains a mass of information under the heading "Occupation in Relation to

[9] Centralb. f. Bakteriologie, xvii.

Death," sufficient to provide trade journals with interesting paragraphs for many a week to come. The influence of season and locality are then discussed, but the greater part of the volume is given up to a study of the causes of death. This report will be valued highly by those interested in sanitary questions concerning deaths and death rates.

PHTHISIS AND INSANITY.

The close relations of tuberculosis to insanity have been matters of observation and comment since the days of ESQUIROL and GEORGET and the other early alienists of the modern period. The fact that the mental symptoms of phthisis were notably characteristic had also been still longer a matter of common observation and naturally assisted in calling attention to these relations and suggested a direct connection between the two. When more recent clinical studies had shown that tuberculosis was not only exceedingly common in the insane, but that a hereditary tendency to the one was often associated or alternated with that to the other disorder the relations of the two became still more striking and suggestive.

In former times, not so very remote, the mortality from tuberculosis among the insane exceeded that for almost any other complication; a distinguished French authority reckoned that at least one-third of the deaths were to be attributed to lung affections and usually to this one. Within very recent times, CLOUSTON, who is certainly a good authority on this subject, estimates that while the mortality from this cause has been greatly reduced, under the best conditions, the proportion of the insane in asylums who die from tubercular lung troubles is still three times as great as that of the average population outside. How much of this discrepancy is due to the general lowering of resistance to the disorder, to trophic debility from the as yet imperfectly understood brain abnormalities of the mental disorder and how much to the enforced sedentary life and to the congregation of the inmates, many of whom must be necessarily infected, is uncertain, but that both of these factors are in play is more than merely probable. Asylums or hospitals for the insane are almost inevitably overcrowded, at least that is true of the public ones; their inmates are notoriously neglectful of sanitary rules and even the utmost care by physicians and attendants can only partially compensate for these unavoidable drawbacks. Under such conditions it is only remarkable that in times past, before the infectious and contagious nature of phthisis was recognized, all our asylums were not perfect hotbeds of the disease, and that any other affections had a chance to figure to any extent in their mortality statistics. It is only within late years that special infirmary wards have been the rule or at least common in asylums; the consumptives are not yet commonly isolated; the prevention of the spread of the infection is seriously embarrassed by the mental conditions and habits of the patients, and yet ordinary attention enlightened by a better knowledge of the nature of the disease, has probably reduced the mortality from this cause by one-third or one-half. That in the former times of our ignorance the tuberculous death rate was no greater than it was and that even remarkable recoveries took place and postmortems revealed in old chronic cases the cicatrices of cured tuberculosis, goes far to make one believe in a general comparative immunity or the non-malignancy of the infection. It has been proposed by some zealous sanitarian alienists to build isolation wards for consumptives apart from the ordinary wards or the infirmaries, and thus to stamp out or absolutely prevent the spread of the disease. Apart, however, from the reluctance of authorities to appropriate funds for what does not appear to them imperatively necessary, there is some question whether such provisions would be as effective as anticipated. Tuberculous disease is not as readily discoverable in the insane as in the sane; many of the characteristic symptoms are apt to be wanting, and the condition may be far advanced before recognition, even by a careful physician. Inasmuch as postmortems show that one person in every four or five has been affected with tuberculosis at some time or other, it seems probable that such isolation wards would only receive the well-marked cases, while less obvious cases would be constantly being received and circulating amongst the other patients. The possibility of infection may thus be still almost as great as ever, and probably even greater, from the false security preventing the watchful care on the part of those in immediate care of the patients not thus isolated. However desirable such accommodations may be, they are not an absolute security, and much can be done without them by the use of the ordinary sanitary precautions especially applicable to this disease.

Whether there is a special form of insanity caused by tuberculosis may be questioned by some, but it appears to be the experience of alienists that a certain type of suspicious melancholia is most frequently associated with this disorder. In paretics also, with whom the delusions are so generally of an expansive nature, they are apt to take on a melancholic type when associated with consumption. The exact relations of the insanity and the tuberculosis are not altogether clear; the mental disorder usually, according to CLOUSTON, antedates the other, but the latter can be often foretold by the character of the insanity. The prognosis of the mental disorder in these cases is not as good as when uncomplicated by phthisis, while the restoration of mental soundness is sometimes apparently facilitated by the lung disorder in cases of the expansive type of insanity. It would appear that this special depressive type of mental disease either par

icularly favored the outbreak of phthisis or that it itself was often an early symptom of latent tuberculosis. Whichever of these views is accepted, the fact of their apparent relations is interesting and suggestive, and the designation of phthisical insanity appears to be warranted in the classifications.

The fact of the so frequent common heredity of phthisis and insanity, already referred to, affords another ground for suspicion of their close relations. CLOUSTON indeed believes that a combined heredity of the two is more perilous as regards the probability of either disease than the same of either one singly. That is, he holds that a person with one parent tuberculous and the other insane is more liable to both insanity and consumption than one who has both parents suffering from one of these two disorders.

As an evidence of the improvement that has taken place of late years in the asylum mortality from pulmonary tuberculosis, the statistics of seven American hospitals taken without special selection for a period of ten years, from 1888 to 1897 inclusive, gave a mortality of 22 per cent. Taking out one of these with the highest mortality from this cause the percentage was 17. Six American hospitals similarly taken, of which only the figures for 1897 were available, gave a percentage of 13.7, while withdrawing one of these with the exceptional percentage of 57.69, the mortality from phthisis of the remaining five was only 9.4 per cent. of the total deaths. It seems entirely beyond question that tuberculosis, even under the comparatively unfavorable conditions afforded by the insane in hospitals as at present managed and equipped, is to a large extent a controllable disease.

CORRESPONDENCE.

The Apothecary.

CHICAGO, Jan. 15, 1898.

To the Editor:—Several of my medical friends have called my attention to an article in your issue dated Dec. 15, 1897, under the heading "Is the Apothecary Shop Doomed?" Whoever wrote said article seemed to be under the impression that such is the case, but being an apothecary shop-keeper myself, I beg to differ with the gentleman. Facts will not bear him out and I hope to be able to explain that the apothecary is still alive and as long as there are physicians there will and must be pharmacists.

Twenty-five years ago, when I entered the pharmaceutic field, matters were widely differently from what they are today. The average druggist, as we called them then, had no education, merely a training. The boy started in some drug store by washing bottles, scrubbing the floor and other manual work. Gradually he worked his way behind the so-called prescription counter and within a few months' time he emerged a full-fledged pharmacist. Education at that time was not compulsory; there were no pharmacy laws, no board of pharmacy, etc.

Matters are widely different today. The law, as faulty as it is, has accomplished a good deal. The boy who enters the pharmaceutic field must show some qualifications or he can not register as an apprentice. When through his apprenticeship he must either attend a respectable college or take up his studies at home, as he must go before the board of pharmacy and pass an examination as registered or assistant registered pharmacist. He can not serve as clerk or manager or proprietor except he has given proof of a thorough knowledge of materia medica, chemistry, botany and all the branches connected with pharmacy. So you find him fully prepared to enter the pharmaceutic field; years of practical and theoretic learning have been spent, but what does he really find? Any number of physicians who are not able to write a prescription, machines who are merely acting as figureheads for the so-called "manufacturing pharmacist or chemist." They write for patent nostrums, articles they do not know themselves, they merely take the manufacturers' word for it. For instance, he specifies pil. rheumatic (Jones), not even knowing the different ingredients, merely knowing Mr. Jones, a large manufacturing chemist, as more able to prescribe than himself. If you ask the doctor why he prescribes such stuff he merely must acknowledge Mr. Jones' agent had talked him into it. This is the advanced age of medical profession and what the apothecary finds when he enters on his duties. Who lowers the pharmaceutic profession? Nobody but the physician, He uses Jones' tablets because they are handy and cheap and principally because the agent has assured the physician they will cure any ill from a headache down to a corn. If the physician would take the trouble and do a little more studying, get acquainted with the U. S. Pharmacopeia and Dispensatory he would not waste his time on such representative but prescribe what his brain will indicate and not Mr. Jones' agent. If such would be his case the public would be greatly benefited and the medical as well as pharmaceutic profession would rank a great deal higher. Your correspondent says, we merely act as agent for the wholesale druggists, but forgets the physician is merely a tool of the manufacturing chemist. We are compelled to load down our shelves with a dozen and more makes of pills, elixirs, tablets, fluid extracts, etc., merely to please the physician and his good ally, the manufacturing chemist. A certain doctor told me a few years ago if I used Squibb's fluid extract of ergot instead of the one he specified he would consider me a substitute, while every apprentice knows this is a standard preparation and can not be excelled. Against such stupidity even a pharmacist is powerless. You say a girl in a factory who does not know the difference between epsom salts and senna leaves is better fitted to make a pill or an elixir than a pharmacist, who has studied for years, who has spent time and money to be efficient in his profession. Is it necessary to answer such a silly question? A first-class pharmacist will not prescribe but will remain within his domain and merely fill prescriptions, but the physician retaliates by taking the bread and butter out of the druggist's mouth by dishing out samples to his patients which have been left at his office by the manufacturing chemist and which the poor patient must swallow merely to give the manufacturing chemist a chance to get rid of his well advertised compounds. Why not carry printed prescriptions to accommodate the manufacturing chemist, or still better, let the mule follow the doctor loaded down with the different packages of the manufacturing chemist; have them labeled by numbers to fit the sickness. Your correspondent ought to know by this time that toilet articles, perfumes, face powders, etc., are taken out of the hands of the retail druggist. The dry goods store, the department store, etc., have complete control of those lines and I hope they will keep it. A first-class pharmacist will not buy any tinctures, elixirs or ointments; he will take pride in making such preparations himself, except his friend, the doctor, compels him to purchase such goods by specifying a certain make. Compare the average druggist's tincture or infusion with the one you recommend and you will find the one is made from carefuully selected herbs or roots, while the large manu-

facturer's make is rarely up to standard. The principal reason why the doctor should not dispense is a plain one. The pharmacist is a safeguard to the physician. No matter what mistake the doctor makes the efficient, educated pharmacist will correct it and many a life has been saved on that account.

The lot of the pharmacist is surely not a happy one. He is the servant of the people. He merely lives for them. He strains every nerve to accommodate the doctor as well as the general public, and what does he get for it? The physician allies himself with the manufacturing chemist to enrich him and to help himself, and the dear public wonders why men make such fools out of themselves.

But in spite of the manufacturing pharmacist, or better called manufacturing patent medicine maker, the apothecary shop-keeper will continue to exist and better days are in sight for him. Yours very respectfully, E. v. HERMANN.

"Poor Carrasquilla."

NEW YORK, January 31, 1897.

To the Editor:—"A discussion of serum treatment followed, in which poor Carrasquilla suffered. Excepting by his own countrymen, no results were reported from the use of his discovery, and the Germans, the English and others came down in full force to deny not only the usefulness but to argue dangers from its employment. . . . Poor Carrasquilla, to have traveled so far and yet found so little at the end of his journey."—*New Orleans Medical and Surgical Journal*, December, 1897, Special Correspondence on "The Berlin Leprosy Conference."

When the lion was sick, every beast whom he had wronged in his life came to have a blow at him; and when the ass had for some time contemplated this spectacle, with growing courage he actually went and tried a kick of his own. Such a thing happens frequently among men; but, whoever plays the donkey in such a case let him make quite *sure that the lion is past revival.*

Poor Carrasquilla! His serum treatment has been cold-shouldered in Berlin; he who had gone, his heart so full of hope, returns crestfallen; Dr. Dyer weeps over him, for when he read his paper on antivenomous treatment of leprosy, it was received with bated breath and was generally considered *startlingly bold*, and Dr. Dyer, thus encouraged (for he is, I suppose, responsible for the utterances of his co-editor) thought that his ideas would *revolutionize* the treatment of leprosy all over the world. This is interesting. Does not Dr. Dyer think that if anybody should have proposed to cure leprosy by roasting one side of a leper's body, such a proposition would also be listened to with bated breath? Such a treatment would probably be considered also as *startlingly bold.* Yet, would this checked breathing of a startled conference entitle Dr. Dyer to hope that the treatment of leprosy would be revolutionized by the views he exposed with such tremendous effect. How does he reconcile this hope, proclamed with such a strange flourish of trumpets, with the conclusions arrived at by his adored conference ("long live the Berlin conference!")? *Has Dr. Dyer any logical fiber at all?*

It seems to me that if Dr. Carrasquilla is to be called poor, he who has at least some intelligible theory to stand upon, Dr. Dyer would deserve the name of a poor beggar, for his pretensions are based upon nothing at all.

ALBERT S. ASHMEAD, M.D.

Rubaiyat—a Persian Quatrain.

CHICAGO, Jan. 15, 1898.

To the Editor:—In your review of the book, the "Rubáiyát of Doc. Sifers," you fail to tell us what Rubáiyát means. Will you kindly supply the defect? Yours very truly, S.

ANSWER—We quote the following from a work in the Public Library on Persian literature: "His poetry is wholly composed of independent stanzas, called Rubáiyát, consisting each of fou lines of equal, though varied, prosody; sometimes all rhyming but oftener the third line a blank. As usual with such Orienta verse, the Rubáiyát follow one another according to alphabeti rhyme—a strange succession of grave and gay. . . At al events each Rubá'iy is a separate poem and, however composed finds its place in the manuscripts in accordance with its alpha betic arrangements and not its content. The late M. J. Darmes teter describes the Rubá'iy as a poem complete in itself, with its own unity of form and idea, and when wielded by a genuin poet unequaled in force by any other kind of Persian verse, th repetition of the rhymes enveloping and accentuating th silence of the third line, which is generally left blank, produc ing harmonies and contrasting sounds calculated to give peculiar relief to the harmonies and contrasts of the idea."

Do Adult Squirrels Castrate Each Other?

CHICAGO, Jan. 25, 1897.

To the Editor:—I have read with much interest Dr. Edmund Andrews' article on "The Oriental Eunuchs," in the JOURNAL, Jan. 22, 1898, wherein speaking of the castration of animals and says anent squirrels: "Naturalists state that the black or gray male squirrels in fighting seek to castrate each othe with their teeth, so that many of those taken by hunters are thus mutilated. As they do it only in adult life it does not materially change their general development." Commenting upon this, later, in a letter to the JOURNAL dated Jan. 25, 1898, he quotes the observations of Dr. A. S. Allen.

Being somewhat of squirrel-hunter myself I wish to confirm the report of Dr. Allen. I should say that fully one-half the male squirrels I have noticed were castrated. This is always done in early life, not merely in the nest as described by Dr. Allen, but also after they begin to run. It is always done by the male parent. The young are chased from limb to limb and tree to tree until exhausted, when the old ones deliberately remove the testes and scrotum clean from the body. The practice is not confined to the gray squirrel. I have noticed it more frequently among the large fox squirrels found in Illinois.

I believe such an operation to be impossible among adult animals engaged in battle. The operation is, in most cases, done so neatly with their sharp teeth that no vestige of tissue remains. At first I took it for granted that they were all females, although I could not account for their large size. The large size of these animals, the perfectly healed wounds and the seeming impossibility of performing such a neat operation in a fit of anger, as suggested by naturalists, would forbid the conclusion that such operations are ever performed in adult life. The castrated are much fatter than the perfect males.

The only cause which I could assign for this methodical operation is that of jealousy, which is shared by the farmer who lives in the vicinity.

The practice may be taken in its mental origin to the sexual mental state underlying the driving forth of young males by the old ones among social animals.

EUGENE S. TALBOT, M.D.

PUBLIC HEALTH.

The "Caffery Bill" as reported to the Senate January 19, by Senator Vest.—That "An Act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," approved February fifteenth, eighteen hundred and ninety-three, be amended by striking out the following words in section one: "And with such rules and regulations of State and municipal health authorities as may be made in pursuance of or consistent with this Act," and striking out section three and inserting the following in the place of said section:

SEC. 3. That immediately after the passage of this Act Secretary of the Treasury shall make such rules and regtions as are necessary to prevent the introduction into the ited States of any infectious or contagious disease from any ɔign port or place, or the spread of such diseases from one te or Territory, or the District of Columbia, into another te or Territory, or the District of Columbia, and such nec- ary rules and regulations as shall be observed by vessels or iicles departing from foreign ports or places for ports or ces in the United States to secure the best sanitary condi- ɔ of such vessels or vehicles, their cargoes, passengers, and ws, which rules and regulations shall be published and com- nicated to and enforced by consular, quarantine, and cus- ɔs officers of the United States and the State and local quar- ine officers of the United States. All rules and regulations de by the Secretary of the Treasury shall operate uniformly, far as climatic conditions will justify in the interest of the urity against the introduction or spread of said infectious d contagious diseases, and shall not discriminate against y port or place. None of the penalties herein imposed shall ach to any vessel from a foreign port, or owner, or officer ɔreof, until a copy of this Act, with the rules and regula- ns made in pursuance thereof, has been posted up in the ce of the consul or other consular officer of the United ɑtes for ten days in the port from which said vessel sailed, d the certificate of such consul or consular officer, over his icial signature, shall be competent evidence of such posting any court in the United States.

"At any port or place in the United States where the Sec- ɔary of the Treasury shall deem it necessary for the preven- ɔn of the introduction of contagious or infectious disease ɔm a foreign port or place that incoming vessels, vehicles, or rsons shall be inspected by a national quarantine officer, ch officer shall be designated or appointed by the Secretary the Treasury on recommendation of the Surgeon-General the Marine-Hospital Service, and at any such port or place vessel, vehicle, or person from any foreign port or place all be admitted to entry or enter without the certificate of id officer that the United States quarantine regulations have ɔen complied with.

"Any vessel sailing from any foreign port without a United ɔates consular bill of health, and arriving within the limits any collection district of the United States, and not enter- g or attempting to enter any port of the United States, shall subject to such quarantine measures as shall be prescribed regulations of the Secretary of the Treasury, and the cost such measures shall be a lien on said vessel, to be recov- ed by proceedings in the proper district court of the United tates and in the manner set forth above as regards vessels om foreign ports without bills of health and entering any ɔrt of the United States.

"National quarantine stations now in operation shall be con- ucted in accordance with the provisions of this Act, and the upervising Surgeon-General, with the approval of the Secre- ɑry of the Treasury, is authorized to designate and mark the oundaries of the quarantine grounds and quarantine anchor- ges for vessels which are reserved for use at each United tates quarantine station; and any vessel, or officer of any essel, or other person trespassing upon such grounds or an- horages, in disregard of the quarantine rules and regulations, nall be deemed guilty of a misdemeanor and subject to arrest, nd, upon conviction thereof, be punished by a fine of not ɔore than three hundred dollars, or imprisonment for not ɔore than one year, or both, in the discretion of the court.

"And any master or owner of any vessel or any person violat- ɑg any provision of this Act or any rule or regulation made in ccordance with this Act, relating to inspection of vessels, or elating to the prevention of the introduction of contagious or ɑfectious diseases, and any master, owner, or agent of any ves- el making a false statement relative to the sanitary condition f said vessel or its contents, or as to the health of any passen- er or person thereon, shall be deemed guilty of a misdemeanor nd subject to arrest, and, upon conviction thereof, be pun- shed by a fine of not more than five hundred dollars, or im- ɔrisonment for not more than one year, or both, in the discre- ion of the court.

"Medical officers of the United States, duly clothed with uthority to act as quarantine officers at any port or place with- n the United States, and when performing such duties, are ɔereby authorized to take declarations and administer oaths in ɑatters pertaining to the administration of the quarantine laws nd regulations of the United States.

"The Secretary of the Treasury shall, whenever in his judg- ɔent it is necessary, make rules and regulations to prevent the ɑtroduction of infectious or contagious diseases into one State r Territory or the District of Columbia from another State, Territory, or the District of Columbia, and when such rules and regulations have been duly made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities when the State or municipal authorities will undertake to execute or enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations, or other rules or regulations made under the provisions of this Act, the President shall execute and enforce the same, and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and may detail or appoint officers for that purpose.

"Whenever yellow fever, cholera, plague, or typhus fever has passed the quarantines of the United States, or in any manner any one of these diseases has gained entrance or has appeared within the limits of any State, Territory, or the District of Columbia, the quarantine regulations of the United States, prepared under the direction of the Secretary of the Treasury, for the purpose of preventing the spread of such diseases from one State, Territory, or the District of Columbia into another State, Territory, or the District of Columbia, shall be supreme and have precedence of State or municipal laws, rules, or regulations, and the President is authorized to enforce the same and to control the movement of vessels, railway trains, vehicles, or persons so as to prevent these diseases from spreading from one State, Territory, or the District of Columbia, to another State, Territory or the District of Columbia, and to prevent unnecessary restrictions upon interstate commerce; and whenever, in accordance with the rules and regulations made as herein authorized to prohibit or permit the movement of vessels, railway trains, and vehicles, or transportation of persons, prohibitions or permits have been made or granted, any person violating said prohibition or permit shall be deemed guilty of a misdemeanor, and shall be subject to a fine of not more than one thousand dollars or imprisonment for not more than twelve months, or both, at the discretion of the court; and any violation of said prohibition or permit shall be reported to the United States district attorney for the district in which the offense has been committed, who shall thereupon institute necessary proceeding for the recovery of the penalty herein imposed."

That section six of said Act shall be amended to read as follows:

"That on the arrival of an infected vessel at any port not provided with the proper facilities for treatment of the same, the Secretary may remand said vessel, at its own expense, to the nearest national or other quarantine station where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers, and cargo; and after treatment of any infected vessel, or inspection of any vessel not infected, at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease or danger of conveying the same, said vessel shall be permitted to enter and admitted to entry at any port of the United States named within the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities, the Secretary of the Treasury shall direct vessels bound for said ports to undergo quarantine at said State or local station."

That section eight of said Act shall be amended to read as follows:

"That whenever the proper authorities of a State shall surrender to the United States the use of the buildings, grounds, and disinfecting apparatus at a State or municipal quarantine station, the Secretary of the Treasury shall be authorized to purchase them at a reasonable compensation, or pay a reasonable rental for their use, if in his opinion they are necessary to the United States; and the expense of said purchase or rental is made payable from the epidemic fund.

"That the Surgeon-General of the Marine-Hospital Service shall, whenever he may deem it necessary, appoint in each port exposed to yellow fever, or where such disease has ever been introduced, a port sanitary inspector, who shall have been a practicing physician for at least five years before his appointment at said port, and who shall be familiar with the symptoms of the disease hereinbefore mentioned, and skilled in its prevention and treatment.

"It shall be the duty of the port sanitary inspectors or quarantine physicians so appointed to make careful examination of the sanitary condition and surroundings of the ports where they reside and for which they are appointed, and to report each month, or oftener, if required so to do, the facts as to the sanitary condition of such ports to the Surgeon-General of the Marine-Hospital Service, with such suggestions and recommendations as they may think necessary and proper. The said

port sanitary inspectors shall perform such other duties in treating yellow fever or other infectious diseases as the Surgeon-General of the Marine-Hospital Service shall direct; and they shall each be paid from the Treasury, upon vouchers signed by the Surgeon-General of the Marine Hospital Service, the sum of one thousand dollars annually, payable, in equal quarterly installments, on the first days of January, April, July, and November.

Osteopathy.—Decision rendered in the Appellate Court of Illinois, Third District, November term, 1896.

Eugene H. Eastman v. the People, etc., Wall, J., Appeal from Jersey County Court.

This is an appeal from a judgment for $100 as a penalty for practicing medicine without license, under Par. 10, Ch. 91, R. S. It appears that the appellant was engaged in the practice of "the profession of osteopathy," as it is termed in the briefs; that he had an office where he received patients. and that he visited patients at their homes; that he advertised his system and his skill therein by publications in the newspapers and that he professed ability to understand and treat human ailments intelligently and successfully.

So far as shown his treatment consisted wholly of rubbing and manipulating the affected parts with his hands and fingers and by flexing and moving the limbs of the patient in various ways.

It is insisted on his behalf that because he used no medicines or instruments he is not amenable to the statute.

Par. 14 of Ch. 91 declares that "Any person shall be regarded as practicing medicine within the meaning of this Act who shall treat, operate on or prescribe for any physical ailment of another."

It is argued on behalf of appellant that this provision must receive reasonable interpretation, and that to "treat" implies the use of medicines or drugs of some sort, and to "operate on" implies the use of instruments of some sort. This is not so necessarily. Many of the minor operations are effected without the use of instruments by mere pressure, extension and flexing.

This of course implies some knowledge of anatomy and some skill. So, many forms of disease are treated by attention to the diet, habits and mode of life without resorting to medical remedies.

It is said by counsel that if the statute reaches this case it must include treatment by Turkish baths, massage and the like. We think not. The evidence shows that appellant held himself out as competent to treat and cure numerous diseases, such as all forms of fevers, cerebrospinal meningitis, catarrh, diphtheria, croup, pneumonia, asthma, indigestion, dysentery, kidney diseases, measles, paralysis and many others, including in fact a large proportion of the ailments common to mankind. He represented himself as a graduate of the new school of "Osteopathy" and held himself out as qualified to examine and treat all who might seek his aid. Herein he differs from those who give Turkish baths, massage and the like.

He professes to be able to diagnose and advise in respect to a long list of diseases and to furnish discriminating and efficient treatment to those who may come to him, and while he may rely wholly upon manipulation, flexing, rubbing, extension, etc., yet he professes to have skill and judgment in these methods, so as properly to adapt the treatment to each case, giving it what is appropriate in amount and with repetition at such times and to such extent as may be dictated by his knowledge and experience. By his skill in the use of his peculiar remedies or methods he claims to be competent to relieve and cure various ailments, and therefore he invites patronage. We are referred to the case, Smith v. Lane, 24 Hun. 632. The statute of New York is unlike ours, and the facts of that case are unlike these in the case at bar. We think the ruling there should not control here.

It is suggested rather than argued that as the title of the act in question is "An Act to regulate the practice of medicine in the State of Illinois," and as the constitution provides that no act shall embrace more than one subject which must be expressed in the title, any construction which would include a matter not within the practice of *medicine* must be avoided or the Act is unconstitutional.

"Medicine is the art of understanding diseases and curing or relieving them when possible."—Bigelow. "It is that branch of physics which relates to the healing of diseases."—Dunglison.

This act is not restricted to any particular methods or remedies. Indeed these are almost innumerable, considering what are used and what have been discarded.

We are of opinion the proofs bring appellant within the act and that he is liable to the penalty imposed thereby for pr ticing medicine without license.

It is urged the court erred in refusing to dismiss the suit want of authority of plaintiff's attorney to institute the acti

It is shown by a recital of the clerk in the order of rec that such a motion was made and overruled and that t defendant excepted.

This entry by the clerk in the orders of the court for t day is not sufficient to save the exception, and if it were th is nothing to show that the motion was supported by anythi requiring the action of the court. Such a motion should supported by affidavit or some matter of which the co should take notice, and must be preserved by a bill of exce tions. The judgment will be affirmed. *Affirmed.*

Filed June 16, 1897. W. C. Hippard, Clerk, Appella Court, Third District.

Defendant paid fine and left the State.

The State Board of Health have won the fight.

Validity of Health Ordinance Prohibiting Sale of Fresh Pork.—T city council of Helena, Ark., passed the following ordinanc "Whereas, the municipal board of health of Helena, Ark., a regular meeting, held on the 30th day of April, 1880, declar the sale of fresh pork detrimental to the health of the citize of Helena; therefore, be it ordained by the mayor and coun of the city of Helena: Section 1. That it shall not be lawf for any person or persons to sell, or offer to sell, within the ci any fresh pork, or sausage made thereof, between the first da of June and October in each year," etc. Was this ordinan valid? The statutes of that State confer upon cities of t first class power "to prevent or regulate the carrying on any trade, business or vocation of a tendency dangerous morals, health or safety, or calculated to promote dishones or crime." Under this statute the city council of Hele undertook to prevent the sale of fresh pork "between the fir day of June and October in each year." It obviously intend to prevent the eating of it in Helena during this time by pr hibiting the sale of it. Again, the question: Was the ord nance passed for that purpose a reasonable or lawful exerci of the powers granted by the statute? The supreme court Arkansas says, in its answer, Nov. 13, 1897, case of City of He ena vs. Dwyer, that fresh pork is an article of food of gener consumption and, when sound and free from disease, is usef and nutritious. Like all other food, it may become unwhol some when eaten to excess. The quantity eaten, under ord nary circumstances, produces the sickness, when it prov unwholesome. Any food is calculated to produce that effe when eaten in the same manner. The mere sale of it is n detrimental to the public health. The fact that individual may be made sick by it when imprudently eaten does n justify a city council in prohibiting the sale of it. For th same reason it could prohibit the sale of any or all other food The most delicious food, that which is most liable to be eate to excess, would be subject to interdiction. If it be concede that the city council may prohibit the sale of any article o food, the wrongful use of which will or may injure the healt of the consumer, then they can prescribe what the citizens o the city shall eat by prohibiting the sale of all other food. Th legislature or any of its creatures has no such power. Th exercise of such power would be a violation of the inalienabl right of man to procure healthy and nutritious food, by whic life may be preserved and enjoyed. It would be an interfer ence with the liberty of the citizen which is not necessary fo the protection of others or the public health; would be a invasion of his personal rights. For the reasons indicated, th supreme court holds that the ordinance in question was un reasonable, invalid and void.

BOOK NOTICES.

Elements of Latin. For Students of Medicine and Pharmacy By GEORGE D. CROTHERS, A.M., M.D., Teacher of Latin and Greek in the St. Joseph (Mo.) High School; formerly Professor of Latin and Greek in the University of Omaha; and HIRAM H. BICE, A.M., Instructor in Latin and Greek in the Boys' High School of New York City. 5¼x7½ inches. Pp. xii-242. Flexible cloth, $1.25 net. The F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia; 117 W. Forty-second Street, New York City; 9 Lakeside Building, 218-220 S. Clark Street, Chicago, Ill.

This is an elementary Latin book for the use of students in

macy and medicine and is well adapted for such use. It ell arranged and the exercises chosen are such as to famili- the student with the work with which he is to engage. only criticism we make is that the authors have seen fit to ot the English system of pronunciation, which we think a ake, inasmuch as no country except England has agreed ive the English vowel sounds to Latin words, and the stu- t who undertakes to use the English pronunciation of med- terms in foreign countries, except England, will find him- not understood and his knowledge unavailable.

e regret extremely that a book in all other respects so wor- of commendation should have this defect. It is impera- ly necessary that medical students, so long as they go oad, should not be additionally burdened or handicapped aaving learned the Latin terms (also used in foreign coun- s) with an insular pronunciation that can only be under- od by the islanders themselves or their descendants.

lfth Annual Report of the State Board of Health and Vital tatistics of the Commonwealth of Pennsylvania. Two vol- mes, cloth, pp. 1194. 1897.

olume I contains reports and minutes; reports of standing mittees; annual reports of county inspectors and of cities l boroughs, and reports on quarantine, disinfection, epi- nics and special sources of disease. Volume II has to do h conferences and conventions and includes many papers of erest read at these various meetings. This volume also con- ns circulars and forms concerning regulation of matters in province of the State Board of Health, etc.

Psychology of Suggestion. A research into the subconscious nature of men and society, by Boris Sidis, M.A., Ph.D., vith an introduction by Professor William James of Harvard Jniversity. New York: D. Appleton & Co. 1898.

Much of the experimental part of the work although planned Dr. Sidis was done in the Harvard Psychologic Laboratory. The volume is divided into three parts. Part 1, Suggesti- ity. Part 2, The self. Part 3, Society.

Those interested in elements and stages of self-conscious- ss, intercommunication between the two selves, will find ry much of interest in this volume. Here we have the men- l processes brought down by easy transitions into formation geometric figures and algebraic equations.

"It is as easy as playing on this pipe." The work is how- er instructive to all interested in this latter day fad, whether ey agree with the conclusions of Dr. Sidis or not.

tes on Micro-organisms Pathogenic to Men. By the Surgeon Captain B. H. S. Leumann, I. M. S., London and Cam- bridge: Longmans, Green & Co., pp. 65. 1897.

This is one of the most instructive and interesting little orks that has fallen under our observation. It contains more fewer pages than any work on the subject in English. Each aragraph in his work has a marginal note index which for ference will be found very convenient.

It is based on lectures delivered at the Army Medical School Netley during the winter session of 1893 and 1894.

Among recent small works on bacteriology this little one ust take a prominent place.

he World's Almanac and Encyclopedia, 1898. Pp. 568, issued monthly by the Press Publishing Company. Pulitzer Building. New York.

This well known Almanac seems to have collected all the acts of the year and condensed them in a way to make them andy and useful. No almanac contains more information an this.

SOCIETY NEWS.

International Health Exposition.—An International Health Ex- osition is to be held in New York City, April 25 to May 31, 898.

American Laryngological, Rhinological and Otological Society.—The Southern Section of the American Laryngological, Rhinological and Otological Society will meet in Atlanta, Ga., Monday March 28, at 10 A.M. in the parlors of the Aragon Hotel. An invitation is extended to the profession, and especially to members of the Society. Dr. A. W. Calhoun is Chairman and Dr. Dunbar Roy of Atlanta, is secretary.

Cumberland County (N. J.) Medical Society.——The January meeting of the Cumberland County Medical Society was held at "Hotel Stephens," Vineland, January 11, with Vice-President, Dr. Judson in the chair. Dr. Ware read an interesting paper on the "Old Time Doctor." A valuable paper on "Puerperal Eclampsia," was also read by Dr. L. F. Day.

The Denver and Arapahoe Medical Society.—At the annual meeting of the Denver and Arapahoe Medical Society held January 11, the following officers were elected for the ensuing year: President, E. P. Hershey; vice-president, H. B. Whitney; secretary, G. E. Tyler; financial secretary, J. M. Blaine; treasurer, E. J. Rothwell. There is great enthusiasm in the Society over the coming of the American Medical Association in June, and preparations are being made for the handsome entertainment of all delegates. Colorado will give them most hearty welcome.

NECROLOGY.

Theophilus Parvin, A.M., M.D., LL.D., ex-President of the American Medical Association, Professor of Obstetrics and Diseases of Women and Children, Jefferson Medical College, died January 29 after a short illness at his home in Philadelphia. About eight years ago, Dr. Parvin, when examining a patient, inoculated his index finger with specific poison and, recognizing the nature of the infection, he called the attention of the class to it on several occasions as a warning to them to be always on their guard. His health subsequently became impaired and he suffered with a severe form of chronic laryngitis which compelled him for a time to suspend his lectures; of recent years however, this affection had been overcome so that he not only resumed his course of lectures, but was able to accept complimentary invitations to address medical societies. He was also a prominent member of the Young Men's Christian Association, being especially interested in the evangelistic work among the colleges; he occasionally presided or delivered addresses on Sunday night religious meetings for students. About a month ago Dr. Parvin experienced attacks of difficulty of breathing and irregular heart action, and showed marked evidence of failing health, but it was not until the day before his death occurred that his attending physicians anticipated any serious result to his sickness. He leaves a widow and two sons.

Dr. Parvin was born in Buenos Ayres, Argentine Republic, Jan. 9, 1829, his father being at that time a missionary there. On the death of his father, when Dr. Parvin was only seven years of age, the son was sent to Philadelphia and prepared for college. He attended the freshman year in class of 1846, at Lafayette College, Easton, Pa., and then went to University of Indiana, where he was graduated in 1847. He then returned to Philadelphia and attended lectures at the Medical Department of the University of Pennsylvania, when he received his diploma in 1852. After spending two years as ship surgeon on a packet sailing between Philadelphia and Liverpool, Dr. Parvin went to Indianapolis, where he found a favorable location to practice his profession. In 1855 he accepted the chair of Materia Medica and Therapeutics in the Ohio Medical College at Cincinnati. Selecting the chosen field of labor in which he afterward became so distinguished as an author and teacher, he devoted especial attention to obstetrics and gynecology and entered the Faculty of the University of Louisville as Professor of Obstetrics, a position which he soon resigned in order to accept the same chair in the Indianapolis Medical College, which he helped to organize and establish. In 1872, Hanover College granted Prof. Parvin the

honorary title of Doctor of Laws. In 1883, Dr. Parvin was called to the chair of Obstetrics and Diseases of Women and Children in the Jefferson Medical College, a position which he most acceptably and successfully filled until his death.

The Obstetrical Society of Berlin made Dr. Parvin an honorary member and this distinguished compliment was also paid him by the Obstetrical and Gynecological Society of Edinburgh. He was a member of the International Medical Congress and attended the sessions at Washington, Berlin and Moscow. He was a Fellow of the College of Physicians and the Philosophical Society of Philadelphia, of the American Academy of Medicine and of the American Gynecological Society. He was elected one of the honorary presidents of the Obstetric Section of the Berlin International Medical Congress and of the International Congress of Gynecology and Obstetrics which met at Brussels. He was also a prominent member of a number of other medical societies both in this country and in Europe.

Dr. Parvin was a facile writer and lecturer, he had a pleasing frank expression of face and a clearness in expressing his thoughts which made him an attractive public speaker. Those members of the ASSOCIATION who were present at the meeting at Atlanta in 1879, when Dr. Parvin delivered his Address as President, will never forget the marked evidences of favor which were accorded him, and the enthusiasm that his words inspired in an audience not accustomed to demonstrations of the kind. Professor Parvin was a valued, though lately not a frequent contributor to medical journalism. He was a member of the Medical Editors Association and had served as its President. In 1886 he finished his work on the "Science and Art of Obstetrics," which has gone through a number of editions and is now used as a text book. He also translated Winckel's "Obstetrics" several years ago. He was one of the associate editors of "Sajous' Annual of the Universal Medical Sciences" and contributed important articles to several systemmatic treatises and encyclopedias of medicines and allied sciences.

The students of Jefferson College and the members of the Theophilus Parvin Medical Society passed resolutions of sympathy and condolence, and the Faculty of Jefferson College entered a minute recording their sense of loss to the community, to the College and to the world of science and letters by his death.

J. Q. A. STEWART, M.D., died January 25 at his home, Farmdale, near Frankfort, Ky., of Bright's disease. Dr. Stewart was born Feb. 13, 1829, near Louisville. At the age of 20 years he had secured a good common school education and had graduated in law. Before he had begun the practice of his profession the "gold fever" had broken out in California and he decided on the journey across the plains. Soon after their arrival in the mining camp he was chosen magistrate, and many were the interesting stories he has been able to tell his friends of his career as "Judge." After some years in California he returned to Kentucky. In 1859 he was graduated from the Kentucky School of Medicine and at once went to Daviess County to practice. As a practitioner he was successful from the start, and after a few years practice in the country he removed to Owensboro, where he lived, meeting with all the recognition, social and professional, offered by Owensboro, until his removal to Frankfort, in March, 1878, to accept the position of medical superintendent of the Kentucky Institution for the Training of Feeble-minded Children, tendered him by Gov. John B. McCreary. It is rare in this day of practical politics that a governor in rewarding party friends, makes so fortunate a selection as was made in this instance by Governor McCreary. That his appointee measured up to the place in every way is evidenced by the prompt reappointment by Governors Blackburn, Knott and Buckner. He honored the position, and the sixteen years he passed in this institution were marked by a fidelity to duty, interest in his work, and an ability to carry it on never excelled in the history of our eleemosynary institutions. To show the esteem in which he was held by the parents of the children intrusted to his care, every one who could afford it removed their afflicted ones to Dr. Stewart's private infirmary, when his term as superintendent of the State Institution was ended. Whilst he would undoubtedly have met with a large measure of success in private practice, it is questionable if he could ever in a large city have done the amount of good that he now has to his account. In the spring of 1893, his only son having gradua in medicine, Dr. Stewart bought the old Kentucky Milit Institute, six miles from Frankfort, and established him business as manager of the "Stewart Home." In the follo ing year, upon the expiration of his term at the State Insti tion, Dr. Stewart resigned to be associated with his son in management of their private infirmary. As an alienist Stewart is well known all over the continent and Europe. has visited every public and private institution in the count and did not, for many years, miss a single meeting of t superintendents. He was an ex-president of their associati and contributed valuable papers at their different meetin In the industrial reforms of feeble-minded institutions, he w the pioneer in inaugurating the teaching of useful trades the brighter patients; gardening, carpentering, shoemakir broom and mattress making to the boys, and sewing, washir cooking and housework to the girls. The highest honor t profession of a State can show a fellow is an election to t presidency of the State Medical Society, and this was gen ously accorded Dr. Stewart at the Frankfort meeting in 18

BENJAMIN CHAMBERS LUDLOW, M.D., University of Pen sylvania, 1854, died at his home in Los Angeles, Cal., Janua 10. He was born in 1831 at Ludlow Station, Ohio, and wh 30 years of age raised a company of cavalry whose servic were offered to Lieut. General Scott at the opening of the ci war. The latter replied: "No cavalry will be required. T four regular regiments will be sufficient." Soon after he w made captain of Fremont's Hussars at St. Louis, Mo.; th an aide of Major General "Joe" Hooker at the battle of Cha cellorsville, and served under Major General Meade as an i spector of artillery at Gettysburg, Williamstown, Wine Ru Rappahannock and in several minor battles. In October, 186 Col. Ludlow was appointed Brigadier General, by brevet, f gallant conduct at Dutch Gap and at Spring Hill, Va., ar was placed in command of the James and York river defence He resigned from the army in 1865.

DEATHS IN THE PROFESSION ABROAD.—Jules Emile Péa Paris, January 30. He was born at Chateau Dun (Eure-E Loire), Nov. 29, 1830, and practiced surgery continuously i Paris for more than forty-five years. He was easily at the hea of modern French surgery, and in the whole surgical world it doubtful if he had a superior as an all-round surgeon. In 186 he was appointed surgeon of the central bureau. Two yea later he joined the staff of the Lourcine, where he remaine five years, going then to Saint-Antoine, and finally to Sain Louis, where he remained until 1892. He became famous fo his success in the delicate operations of ovariotomy. In 188 he was elected a member of the Academy of Medicine. Thre years later he received the decoration of the Legion of Hono and in 1893 he was made a commander. His many admirers i America will greatly regret to learn of his death, and will joi the medical profession of his native country in mourning his loss for Péan belonged not only to France, but to the world.——Dr Stanislaus Danillo, lecturer on Mental Diseases in the St Petersburg Medico-Military Academy, aged 49 years.—— Dr Carl Ritter von Rzehaczek, Emeritus Professor of Surgery i the University of Graz.——Dr. Tiburcio Padilla, founder an till his death editor of the *Samana Medica*, of Buenos Ayres professor in the Colegio Nacional; physician to the Hospital d las Mercedes of that city; author of "*Guia Medical*" and work on medical jurisprudence; co-editor of the "*Farmacope Argentina*," etc.——Dr. T. H Belval of Brussels, editor of th *Mouvement Hygiénique*, and founder of the Belgium Anti alcohol League, aged 65 years.

W. ABRAM LOVE, M.D., Atlanta, Ga., died January 21, aged 74 years. Dr. Love was born in Camden, S. C., was gradua ted from the medical department of the University of Penn sylvania in 1846, and was elected superintendent of the Geor gia Asylum for the Deaf and Dumb in 1850. In 1871 he wa elected to the chair of physiology in Atlanta Medical College, and later president of the faculty, which office he held on his death. He was also a member of the State Medical Associa tion and the AMERICAN MEDICAL ASSOCIATION.

CHARLES L. WELLS, M.D., Professor of Diseases of Children, University of Minnesota, Minneapolis, died January 20, from pneumonia. Dr. Wells was born in Pompeii, N. Y., 56 years ago; was graduated from Geneva Medical College in 1869, and ex-president of the Minnesota Academy of Medicine. SMITH BUTTERMORE, M.D., Connellsville, Pa., Dec. 28, 1897, aged 68 years.——Joseph R. Chaffers, M. D., Worcester, Mass., January 19, aged 40 years——John C. Corley, M.D., Bloomington, Ill., January 27.——Charles Gangloff, M.D., Pittsburg, Pa., January 22, aged 51 years.——W. L. Hallam, M.D., Bloomington, Ill., January 24, aged 45 years.—— Frank A. Mitchell, M.D., Bridgton, Maine, January 23.——R. C. Rice, M.D., Smithland, Iowa, January 25, aged 60 years.——Chas. Slaughter, M.D., Duluth, Minn., January 23.——Shep. A. Rogers, MD., Memphis, Tenn.

MISCELLANY.

Coxitis Tuberculosa.—F. König considers a radiograph an indispensable preliminary to operation, although simple granulating foci cast no specific shadow. But degenerated bones, especially caseous infiltrations, are shown well in the photograph, except in the case of very young children.—*Klin. Therap. Woch.*, January 1.

Tuberculosis of the Tubes.—Jacobs recently operated on a young woman to remove an enormous abscess of the left tube, which proved to be tuberculous, and later the right tube had to be removed for the same cause. There are no other manifestations of tuberculosis, and the patient seems now in the best of health.—*Presse Méd.*, January 1.

Tuberculin R.—The latest reports published continue to be unfavorable to Koch's new tuberculin; the disease seems to continue its course unaffected by the injections (Stempel, 23 cases; Spiegel, 21 cases, *Münch. Med. Woch.*, Nos. 48 and 50, 1897). The greatest benefit has been derived from it in lupus, and here and there are a few who endorse it enthusiastically. In closing the series of articles the *Deutsche Med. Woch.* has been publishing on the subject, it remarks that several years must pass before the value of the Koch treatment is finally established.

Differentiation of Tuberculosis of the Salivary Glands.—Frequently produced experimentally, this localization of tuberculosis in man is extremely rare. O'Zoux describes two cases, distinguished from simple adenitis by the large size of the tumor and its location close beneath the edge of the lower maxillary bone. It is very painful and less solid around the edges than an adenitis. The pus is thin and not very abundant. The sound everywhere meets the same resistant, squeaking tissue. —*Archives Clin. de Bordeaux*, 1897, No. 1.

Pancreatic Diabetes of Tubercular Origin.—Carnot states that specific tubercular lesions are very rarely found in the pancreas, which reacts to tuberculous infection with sclerosis, caused evidently by the products of the bacillus, as the bacillus itself disappears very rapidly. Experimentation with dogs produced a similar sclerosis reaction, with or without glycosuria, according to the progress of the sclerosis in most cases. When there was no trace of glycosuria, the necropsy usually showed part of the organ still intact or regenerated. When the sclerosis in man becomes total diabetes follows.—*Gaz. d. Osp. e d. Clin.*, January 4.

Lupus and Tuberculous Ulcerations of the Ano-rectal Region.—A recent thesis by Dimitroff observes that this affection is not so rare as supposed; one has only to look for it. The infection is sometimes from without; accidental contact with infected clothing, etc.; sometimes from tuberculous sputa, possibly of auto-origin. The development of the bacilli is favored by hemorrhoids, constipation or diarrhea, traumatism, etc. He adds another to the seven observations on record. A comparatively healthy young man, affected for two years with tuberculous erythematous patches and ulcerations, which were excised and the loss of substance substituted by a flap from the surrounding region. The result was excellent, and excision is recommended whenever the lesions are too deep to be removed by scarifying alone.—*Presse Méd.*, January 15.

A New Streptobacillary Tuberculosis.—Courmont and Tixier have succeeded in isolating and cultivating a special streptobacillus from a peculiar form of tuberculosis consisting of a hemorrhagic arthritis of the elbow with typic tuberculous manifestations, nodules, giant cells, etc. It was impossible to find the Koch bacillus, but animals inoculated with the serous fluid from the joint succumbed with extreme rapidity to tuberculosis, resembling in some respects the human lesions. In the tubercles on the liver of one of the guinea pigs that had succumbed, a streptobacillus was discovered which cultivated easily on various media, and was reinoculable, producing the specific infection, distinguished by the rapid invasion of the ganglia, the local suppurations in some cases, and frequent hemorrhagic lesions.—*Gaz. d. Osp. e d. Clin.*, January 6.

The Painful Dysphagia of Tuberculous Laryngitis.—It is important to relieve this condition as it interferes with nutrition, and Courtade has found the insufflation of morphin hydrochlorate, 0.2 to 1 centigram, mixed with sugar of milk, the best analgesic for the purpose. The tip of the tube is placed at the entrance of the larynx, and while the patient makes the sound of a prolonged *ah*, he squeezes the bulb and the powder is evenly distributed. Repeat twice a day. Sprays will sometimes relieve better. He uses a solution of phenic acid, 1 gram; glycerin, 20 grams; water, 300 grams; cocain hydrochlorate, 50 centigrams. The spray is inhaled deeply by the mouth, with expiration through the nose. Local applications are also useful in some cases, of a twentieth solution of resorcin or chlorid of zinc, with or without morphin. He warns against the use of counter-irritants.—*Gaz. d. Osp. e d. Clin.*, January 13.

Tuberculous Pleuritis.—In a recent lecture reported in the *Gaz. d. Osp. e d. Clin.* of January 9, Professor Maragliano remarked that in forming a prognosis of this affection we must banish from our minds the old idea that tuberculous affections were necessarily fatal. Tuberculous pleuritis frequently terminates in spontaneous recovery, especially when the effusion is serofibrinous, but if the effusion does not show a tendency to be absorbed, thoracentesis should be performed, and the ribs resected if necessary. This latter, he adds, is still a problem for the future, as at present surgical intervention is reserved for desperate cases; but, if instead, we strove to prevent the development of an affection by surgical intervention in the initial stages, he believes that this therapeutic conception would demonstrate its utility and be crowned with success in practice, especially in these cases, when the lungs are compressed by the effusion, and fibrous stratification and pseudo-membranous adherences prevent absorbtion.

Transformation of Human Tuberculosis by Passage Through Cold-blooded Animals.—Intraperitoneal inoculation of dead or living human tuberculosis in fishes, snakes, lizards, turtles and frogs, produced violent phagocytosis reaction, ascitic effusion, false membranes, adherences between the viscera and typic tuberculous granulations. The dead bacilli retained their shape and reaction to stains more than four weeks. The living bacilli adapt themselves to their new environment by the twelfth day, becoming club-shaped, ovoid, dichotomous, etc., showing involution. Some spored; others sent out lateral buds. Far from losing their vitality, these bacilli cultivated readily, producing these transitional forms of Velars' bacillus. Injected into guinea pigs, these transformed cultures produced a much-

attenuated tuberculosis or a local lesion or no reaction, according to the number of passages and the degree of transformation. Lizards resisted the inoculations of human tuberculosis and also proved refractory to Velars' bacillus, bac. tuberc. piscium.—Dubard of Dijon, *Bull. de l'Acad. de Méd.*, December 7.

The Audiffred Prize for the Cure of Tuberculosis, Acad. de Méd. Paris, was not awarded this year. Over a hundred communications were received, mostly from non-medical persons, who announce that on receipt of the prize, they will impart the particulars of an infallible remedy. One contained a poem celebrating the golden wedding of the writer, who had married a tuberculous girl fifty years before, and cured her with his remedy. The only two strictly scientific communications were from America. One from Hirschfelder of San Francisco, who described his success with oxytuberculin (*vide* JOURNAL, Vol. XXIX, p. 208), and the other from Vergara Lope and Herrera of Mexico, reporting the successful results of their treatment of tuberculosis with artificially rarefied air (*vide* JOURNAL, Vol. XXVII, p. 656). Both are interesting, but the Académie does not consider them sufficiently established by experimentation with animals to entitle them to the prize.

Mercury in Tuberculosis.—Dr. Dubois reported to the Paris Académie de Médecine a year ago (*Bulletin*, Feb. 2, 1896), that he had secured results surpassing all expectation, in tuberculosis, with a thousandth solution of the bichlorid of mercury, 0.5 c.c. injected every other day in the subspinal or subclavicular region, increasing to 1 c.c. At first he thought he must have stumbled on syphilitics, but he soon became convinced that this was not the case. He has been using this treatment for five years, and has succeeded, even in advanced cases, in attenuating the night sweats, arresting hemoptysis, and curing the digestive disturbances, but his most remarkable successes were obtained in the earlier stages. He described twenty cases in detail. Tentative treatment in this line has already been made by Rush, Watson, McDowell, Ham and others, and more recently by Miquel and Rueff with mercuric iodid sprays and Grande with sublimate and methylene blue.

Waning Popularity of Koch's Tuberculin.—As to Koch's new tuberculin, the editors of the *Deutsche Medicinische Wochenschrift*, after having devoted considerable space to papers upon the subject, have now resolved to close their columns for a time to its further consideration. It will take years to really decide the therapeutic value of the new serum, and discussion at present can only be illusory, the personal feelings of the observer too greatly influencing his judgment as to results. The use of the old tuberculin for diagnostic purposes seems to be thoroughly disapproved of here in the clinics for internal medicine. The reaction which occurs after the injection of tuberculin when tubercle bacilli are present is considered to be due to a necrosis of tissue around the bacilli and the absorption of toxic products therefrom. Such a septic reaction can not be without danger, and necrosis of tissue may cause the further absorption of bacilli into the lymph or blood vessels and so institute an acute process. As the majority of people have encapsulated bacilli in the apices of the lung or somewhere in the bronchial glands without being in the slightest sense tuberculous, the recurrence of the reaction can not be said to be definitely diagnostic of active tuberculosis. In cases where the bacilli have been completely shut off from the possibility of doing any harm by Nature's protective barriers of inflammatory lymph, there is danger that the quiescent condition may become active under the influence of the injected toxins. The injections are practically considered unjustifiable, except in the determination of the etiology of such serious affections as pleurisy or ascites where the patient's dangerous condition makes an experimental diagnosis with tuberculin less risky.—*Medical News*, October 23.

Products of the Tubercle Bacillus and Serum Therapy.—A. E. de Schweinitz and Marion Dorset have succeeded in isolating the special substance contained in or secreted by the Koch bacillus which causes the necrosis apparently necessary for the progress of the tuberculous infection. It is a definite, crystalline, soluble substance with the chemic formula $C_7H_{10}O_4$, which coincides with an incomplete acid of the fatty series, teraconic acid. This substance is found constantly in the culture-fluid, but the bodies of the bacilli only contain traces of it. It produces chills, hypothermia and dyspnea in sound and tuberculous guinea pigs. Injected directly into the liver it produces necrotic foci. After filtering the cultures, the bacilli were washed in cold water, and a hot aqueous extract then made. This extract contained an albuminoid which produced several times in succession the tuberculin reaction experimentally. Koch's first tuberculin ceased to produce any reaction after one or two injections, because it contained the necrosing, hypothermising principle described above, while the albuminoid extracted from the bodies of the bacilli produces the opposite effect. These two principles which seem very active, were both obtained from attenuated cultures. The writers have also succeeded in obtaining experimental immunization (horses) and, by the Brieger Boer method, have secured a grayish powder as a precipitate of the serum of the immunized animals, giving the biuret reaction, which they consider the specific antitoxin, as it produces exactly the same immunizing effects as the serum. Their experiments encourage the belief that as serotherapy becomes perfected we can hope for the day when it will be practicable to apply it to man.—*Presse Méd.*, January 12, from the *Cbl. f. Bact.*, 1897, No. 8.

The Diagnostic Value of Koch's Tuberculin.—Time has elapsed sufficient to allow a quite accurate estimate of the value of Koch's discovery, in its immediate practical bearing upon medical art. No one can deny that, beyond this valuation, there is a reasonable expectancy of great good to be developed later, on the lines laid down by Koch, and especially with regard to other diseases than tuberculosis. In fact, the value of diphtheria antitoxin, which is, in a general sense, to be classed with Koch's products from the activity of tubercle bacilli, is almost beyond dispute. Therapeutically it may be said that the tuberculins from time to time offered, have not justified the claims of their originators, although there is some support for the argument that benefit has occurred in incipient cases. However, it must be remembered that the average patient with incipient tuberculosis, either so-called from clinical observation or well established, has a fair chance of recovery from purely hygienic measures, if he can fight for his life without handicap. Diagnostically, the tuberculin test has been of untold value in veterinary practice, by enabling the early detection of tuberculous sources of milk and beef. The almost unanimous testimony of veterinarians and others who have had experience with this use of tuberculin, is that it is practically infallible. There is a considerable prejudice against the use of tuberculin as a diagnostic measure for human beings. This prejudice is found even among those who had the most glowing hopes of the benefits of tuberculin, though it may, in some degree, represent a reaction due to the disappointment in regard to therapeutic results. Many believe that the use of tuberculin may so depress a patient who is in a weak but not positively tubercular state, that they prefer to leave the decision to the further progress of the case, meanwhile giving the patient the benefit of the doubt by taking all possible precautions against the growth of a tubercular process. Maragliano gives an adverse criticism of Koch's new tuberculin, disputing both the claim that the new product contains active substances not obtainable by the former method of solution with glycerin, and that it is innocuous. Maragliano states that the apparent immunity from bad side-effects is merely due to diminished dosage. How-

ver. Maragliano makes an assertion which may be the germ of n important truth, that it is not necessary to obtain a marked eaction with tuberculin, but that we should use a dose below hat required to produce conspicuous phenomena. This is cer-ainly in line with general experience as to medical agents, that he early doses though producing picturesque effects are dan-gerously large and therapeutically inferior to those which have no obvious immediate result. A recent experimenter has found hat some serums or bacillary extracts are not free from living acteria, and that they are thus a positive source of danger, while others are inert. It is to be deplored that the history of such products is blotted at frequent intervals with the manifes-tations of a mercenary and commercial spirit, which has ex-tended even to members of the medical profession. Meantime we must admit that the chapter is unfinished, that much is to be hoped for from the labors of numerous scientific investiga-tors at home and abroad, and that what has already been accomplished is of a value which seems small only in the light of the hopes of a revolution in medical practice. It seems to us that one item must be considered in weighing the probable results of combatting tuberculosis with artificial products from its bacilli. The corresponding natural products have no action to prevent a second attack, or to limit the existing attack of tubercular disease; in fact, they decidedly favor the develop-ment of further tubercular trouble.—*American Therapist.*

Toxicity of Caseous Patches.—Rosa has been investigating the toxicity of caseous tuberculous patches in man, with which he has inoculated thirty rabbits. The results were negative in every instance. The organism therefore has the dual power of killing the bacilli of tuberculosis and of attenuating or destroying the toxic products originating in the bodies of the dead bacilli.—(Italian Cong. of Surgery. *Gaz. d. Osp. e d. Clin.*, November 14.)

New Publications.—The following new monthly journals are quoted among our exchanges: *Hospital Life*, Chicago, devoted to the interests of hospitals, etc.; *Journal of Applied Micro-scopy*, Rochester, N. Y.; *The North American Journal of Diagnosis and Practice*, St. Louis; *The Wisconsin Medical Recorder*, Janesville, Wis. The subscription price for either of these is $1 per year.

A General Denial.—The *Medical News* has its little story about drug-giving that has the flavor of one of Dr. Oliver Wendell Holmes' sayings. It runs as follows: "Once upon a time when General Sherman was ailing and under the care of a medical friend of ours for quite a long time, he said, 'Doctor, I do not seem to be getting any better for all your medicines.' 'Well, General,' was the reply, 'perhaps you had better take Macbeth's advice and throw physic to the dogs.' 'I would like to do so, Doctor, but there are a number of valuable dogs in this neigh-borhood.'"

Three Thousand Dollars for a Sprained Ankle.—At first thought, the supreme court of Minnesota says, it would seem that $3,000 for what counsel called "a sprained ankle" was much too large. But it believes that "sprains" may often be much more serious than broken bones, and it holds that the evidence in the recent case of Christian v. the City of Minneapolis justi-fied a verdict of $3,000 for the so-called "sprained ankle," and that the damages awarded were not so excessive that it would be warranted in disturbing the verdict.

Effect of the Aldehydes and Ketones on Micro-organisms.—Tschugaew states the following conclusions as the results of extensive tests on sixteen varieties of micro-organisms: The toxicity depends upon the aldehydes and diminishes with their increasing molecular weight, and still more when hydroxyl is combined with the aldehyde molecule. On the other hand, if phenyl is combined with the molecule the toxicity is increased, as is also the case with chlorin and bromin.—*St. Petersb. Med. Woch.*, October 30.

Radiography.—Kelsch found in examination of 124 young per-sons, none with clinical symptoms of pulmonary lesions, that fifty-one were affected with slight abnormalities, decreased transparency of bronchial adenopathy. He suggests fluoro-scopy as a valuable aid in determining the pathologic future of the young. Its importance is evident in eliminating young men with a predisposition to tuberculosis in examining for military service. . . . . Vaillant places a sheet of lead between the sensitive plate and its support in radiography of the plevis, which reduces the time of exposure one-half and renders the negative much more distinct.—*Bull. de l'Acad. des Méd.*, December 21.

Transplantation of Bones from a Dog.—In 1891 Dubar removed five of the small carpal bones from a ten year old girl with tuberculosis of the right wrist, curetting the ends of the bones of the fore arm and metacarpus, and substituting five pieces taken from the lower end of the femur of an eight day-old dog freshly killed. The wound was sutured and drained; it healed rapidly and perfectly. He never expected to see those bones again, but when he met the patient recently he had a radio-graph taken of the wrist, which showed the implanted bones, exactly as first placed, connected by new connective tissue, a third larger in size, and grown into the metacarpal. The joint is movable, painless, and no inconvenience is experienced in sewing or knitting. The favorable results secured should encourage others to follow the same plan.—*Bull. de l'Acad. de Méd.*, *Deu. Med. Woch.*, December 23.

Experimental Immunization with the Cellular Extracts of Bacteria.—Further experimentation is reported with Büchner's process of mechanical trituration of bacteria with granite sand, com-pressing the mixture under high pressure, and obtaining thus the cellular extract, the plasmin of the microbes. Positive results were secured with cholera and typhus plasmin. Guinea pigs injected presented the same lesions as if they had received intraperitoneal injections of the living bacilli, and with re-peated doses were rendered immune to infection from a ten-fold fatal dose. The results were negative with staphylo- and anthrax plasmin. Of the seventeen guinea pigs injected with tuberculosis plasmin, five are still living. The rest succumbed, although not until long after the control animals. It was found innocuous administered to tuberculous individuals, but the doses were necessarily too small to accomplish the results obtained experimentally.—*Presse Méd.*, December 11, from *Muench Med. Woch.* of Nov. 30, 1897.

Special Delusions as Defenses.—If the defendent had certain special delusions which completely possessed him, but was per-fectly sane on all other subjects, as was contended in the case of People vs. Hubert, then he must, the supreme court of Cal-ifornia holds, December, 1897, be judged as though the facts with respect to which the delusions existed were real. Of course, if no partial insanity existed, intimate acquaintances could know nothing of it, and the fact that they did not would be some proof that the defendant had no such delusions, which, the court holds, would render evidence of that character ad-missible. But matters of science, such as the pathology of mental diseases, the court declares, are always to be proven, and are treated as matters of fact, with regard to which the trial court should not instruct the jury. The fact that these matters are discussed in legal treatises or judicial opinions, it adds, does not convert them into propositions of law, though in some other jurisdictions there is not the same objection to such instructions. The supreme court further maintains that it must be held that conceding that the act was the offspring of an irresistible impulse, and the impulse was irresistible be-cause of mental disease, still the defendant must be held responsible if he at the time had the requisite knowledge as to the nature and quality of the act, and of its wrongfulness. It declares it an impracticable rule which would leave it to the

jury to say whether the act was the offspring of insanity; meaning, whether the defendant would have committed the act had he not been insane. It says that there are many degrees in mental unsoundness, and, however slight the defect, only Omniscience can say whether the act would have been committed had the taint not existed.

The Coin Rolls of the Baron's Blood.—Not long ago one of the distinguished clinical professors was summoned to the house of the Austrian member of the famous banking family of Rothschild. He was accompanied by a younger member of the profession who, while his chief was making the general clinical examination, proceeded to examine the baron's blood. The banker was extremely interested in the procedure, and when the examination was concluded asked what he had found. The assistant replied that he had found everything perfectly normal and healthy; that there was the usual number of red blood corpuscles, showing no marked differences in size or shape, and there was a very normal tendency to the formation of rouleaux. The distinguished patient, who is well acquainted with the hereditary failing of his family in the matter of successfully forming money rouleaux, but who did not realize that this tendency was so outspoken that it could be discovered on microscopic examination of his blood, was very much amused. He was at first inclined to consider the expression as not quite serious, and as meant to stave off questions on the part of an inquisitive patient. When assured, however, that the description was eminently scientific, his admiration for the "new medicine" was correspondingly increased. "What is bred in the bone, will out in the blood" I suppose received a striking exemplification for him. When the visit was over and the doctors were leaving, the fee the younger man found in the envelope handed him by the baron's secretary was not smaller for his chance excursion all unwitting into the atavistic peculiarities of the Rothschild family in his perfectly commonplace description of the results of a blood examination.—*Medical News.*

Therapeutic Ferments and "Local Diabetes."—"Animal life is fermentation. Normal fermentation is health; abnormal is disease. . . . It is possible to substitute a healthy fermentation for a morbid." Proceeding from these premises Backer, Charlier and Bruhat have been applying the typic ferment, *saccharomyces cerevisiæ*, to the treatment of tuberculosis and cancer since 1892, and reported at the Moscow Congress that they have obtained many cures or remarkable improvement in both diseases, selecting severe cases for the tests. The ferment is injected subcutaneously in small doses, and during treatment the diet is extremely rich in glycogenic substances and starches. Sixty cancerous tumors thus treated have resulted in eighteen cured for several years. In one case of multiple tumor formation the disease was arrested for ten months. In tuberculosis, 75 per cent. were cured, or notably improved, half of them cases hitherto supposed fatal. Backer stated five years ago that a probable explanation of the sterility of some women was a lack of glycogenic elements in their uterus, which seems to be confirmed by Brault's announcemant that the glycogenesis in a neoplasm is in exact proportion to the rapidity of its development (*vide* JOURNAL, Vol. 28, page 1093). Backer has also noted the fact that the glycogenic organs are the chosen seat of neoplasms and calls cancer "local diabetes." The subcutaneous injection of pure ferments transforms the glycogenic substances into alcohol and its subproducts, which he believes have a neutralizing power in the nascent state.—*Journal d'Hygiène*, October 21.

Suprarenal Extract in Menacing Death from Chloroform.—Dogs were chloroformed until the circulation and respiration ceased, and then in thirty seconds injected with 1 to 2 grams of a 1 per cent. suprarenal extract, in the vena jugularis, restoring them to life. Intravenous injections were found the most effective. The powerful effects obtained even with these small amounts prove that the substance is not innocuous and shou be limited to small doses. Mankowski therefore recommen that freshly prepared, sterilized, suprarenal extract should b at hand at every chloroform narcosis, to use promptly in ca of menacing danger, adding that the best results are attaine by combining the intravenous injection of the extract wit simultaneous massage of the heart and subcutaneous infusio of salt solution.—*St. Petersb. Med. Woch.*, October 30.

Overworked Pharmacists in New York.—A bill in the New Yor legislature has for its object a shortening of the hours of labo of druggists' assistants. The bill provides that no pharmacis drug clerk or other employe in a drug store in the city of Ne York shall work more than ten hours a day on week days excepting Saturdays, when the time shall be twelve hours On Sundays and legal holidays the time shall be six hours All such employes are prohibited from sleeping in any store room or laboratory where drugs are stored or compounded the Board of Health is to enact rules and regulations governin the enforcement of the law. The bill has been prepared at th request of some of the druggists and drug clerks in the boroug of Manhattan. So far as is known there has been no action i other localities among either the druggists or their clerks. Th bill as it was introduced is not so radical as it was at firs intended that it should be. Some of the Manhattan drug clerks wanted a bill presented that would make necessary th closing of drug stores at certain hours of the day as well as o Sundays. This bill was thought to be too drastic, and th measure as introduced is a compromise.

Gleanings.—Dysentery successfully treated with three recta injections of antipyrin a day, 5 grams to 250 grams water, retained fifteen minutes. *Semaine Méd.*, October 27.——Fresh air cure successfully applied to various protracted and sub-acute infections of childhood, hereditary syphilis, whooping cough, chronic gastro-intestinal affections, etc. *Therapeut. Woch.*, November 14.——Bruns' airol paste found extremely beneficial in ophthalmology, substituting linim. exsicc. Pick, for the mucilage. *Vide* JOURNAL, Vol. xxix, page 34.——Examination of the anus facilitated by inserting the finger in the vagina, the patient in the decub. dorsal. with pelvis elevated. ——The blood of diabetics decolorizes methylene blue solution even after all traces of sugar has disappeared from the urine. 20 cm. blood to 1 c.c. methylene blue, 1 to 6,000 solution. *Deutsche Med. Woch.*, November 25.——The lypolisis in mixtures of blood and chyle through which air has been conducted for twenty-four hours, results in the production of a diffusible substance that dissolves in water, the nature of which is still undetermined. *Ibid.*——Systematic alimentation with collagenous substances supplementing a good general diet found effective in promoting healthy growth of hair-covered surfaces. Suggested also as beneficial in arteriosclerosis. *Gaz. Med. Liége*, November 25.——Fourth case on record of diphtheroid syphilis simulating true croup. Cured with specific antisyphilitic treatment. *Journ. des Sc. Méd. de Lille*, November 20. ——Prompt cure of eczematous external otitis with ten-minute baths of warm 0.5 per cent. solution of sodium fluorid.—— Kühnau announces the negative results of the examination of 169 patients to determine the clinical and diagnostic value of bacteriologic investigation of the blood. *Ztschrft. f. Hyg. u. Inf.*, No. 3——Remarkable success of ichthyol in two cases of chyluria; one, hematochyluria filariensis. One-half to two grams a day in pills. *Therap. Woch.*, December 12.

The Library of the Chicago College of Physicians and Surgeons.—This library was begun in a serious way in August, 1895, when a trained librarian was engaged, and the books belonging to the library were classified, accessioned and catalogued. The Dewey decimal classification was used and has proved adequate for this small collection. The library has grown by donations from the friends of the college, and a few small purchases,

l now it numbers 1,752 bound volumes. In addition to e, unbound volumes and reprints bound in pamphlet cases shelf room enough to hold 2,500 bound volumes. The ssions during the year have not been large: 292 bound mes and about 2,000 journals. Twenty-seven medical nals are received regularly. The bound literature is care- y indexed by author and subject, part of it analytically. re are about 4,000 cards in the catalogue. The average ıber of students using the library each day has increased a twenty-six during 1896, to forty a day during 1897. eral classes do library investigation. At present the text- ks and medical journals are the most used. The more nt books are put on reference shelves and are always ssible to the students for comparison and reference. The arian will promptly acknowledge the receipt of any dona- ıs which the friends of the college are willing to give. rints are especially desirable, each one being treated in the logue as a book. The librarian is especially anxious to ıre the following serials: *American Journal of Medical ences*, Vols. 1–22 inclusive, and years 1893 to date; *Annals Surgery*, Vols. 1, 2 and years 1893 to date; *Boston Medical l Surgical Journal; Edinburgh Medical Journal*, 1828 to e; *Lancet* (London) 1835 to date; *New York Medical Jour-*, Vols. 1–47, 56–59, 61–2; *New York Medical Record; The- eutic Gazette*, Vols. 1–3. Although these are needed to p complete one department of the library, any medical lit- ture is acceptable. The library has a large number of val- le duplicates which are for exchange with other libraries private individuals, a list of which can be obtained on lication at the library. The library room has recently been orated with some very fine photographs of medical men. ddress, THE LIBRARIAN, College of Physicians and Sur- ns, 813 W. Harrison St., Chicago.

Louisville.

PHYSICIANS' RIGHT OF WAY.—An ordinance has been passed the Common Council and is now in effect in Louisville, reg- ting the rights of way and permits therefor. Section 1 con- ns the right of way of ambulances over any other convey- e, etc., while engaged in going for or conveying any sick l wounded. Section 2 concerns the wearing of physician's lge and the right of way granted such badge. Section 3 s to do with the issuance of permits to practice medicine. ction 4 requires the health officers to obtain a certified list physicians licensed by the State Board of Health and prac- ing in Louisville, etc. Section 5 prohibits greater delay an five minutes to ambulances, etc., at railroad crossings, . Section 6 provides penalties for offenses against the linance.

STATE MEDICAL COLLEGE.—The Hon. J. H. Lackey of Trigg unty has introduced a bill into the Legislature which pro- les for a free medical college in connection with the State ricultural and Mechanical College at Lexington, Ky. The thor of the bill contends that many young men are deterred m taking a course in medicine because of the fees, that there free schools for nearly all trades, arts, sciences and profes- ns except that of medicine, and that the conditions are favor- le at present, without extra expense in regard to the build- gs, to establish a medical school in connection with the above llege. The bill states that as there is already taught in the llege the following branches, chemistry, anatomy, physiol- y, botany, zoology, histology and microscopy, there would ly be required the addition of surgery, theory and practice medicine, materia medica, obstetrics and demonstrative atomy. It provides for the establishment of the additional anches and that the course of study leading to the degree of D. be provided for as one of the courses of the College, and at a sum of money not to exceed $10,000 be appropriated for e purpose. Under its provisions each county in the State is titled to place and maintain as matriculates in the school, two properly prepared young men or women, free of charge for fees during the time necessary to complete the course of study required. Appointments are to be made upon competitive examination by the board of health of the respective counties. Examinations shall cover the requirements for entering the freshman class of the College. Appointments shall be open to both sexes and the examinations held at a convenient place in each county at a date not later than September 15 of each year. The Faculty of the College shall be elected by the State Board of Health, subject to the approval of the Trustees of the Agricultural and Mechanical College, who shall have control of the management of the medical school. No professor shall be removed without the consent of the State Board of Health. It is provided that the $10,000 shall be paid the Treasurer of the Agricultural and Mechanical College upon the passage of the bill, and used by the Board of Trustees to establish and maintain a high grade medical college. Immediate steps are to be taken to have the medical department ready for the reception of pupils by Oct. 1, 1898. Provision is made for the occupancy of any unused buildings or rooms at the College as at present, and for the building of additional buildings as the growth of the medical department will warrant.

ABORTION.—In the Senate, Mr. Petrie of Todd County introduced a bill to prevent criminal abortion and to punish those guilty of this offense. This bill is introduced as a result of vigorous work on the part of the Kentucky State Medical Society, through a special committee appointed for that purpose, and through the State Board of Health, by its able secretary, Dr. J. N. McCormack. Under the present law it has never been possible to obtain a conviction because of technicalities, and prosecution can only be instituted in case of death of the mother. It is greatly to be hoped that this bill will pass.

MATHEWS.—Dr. Jos. M. Mathews is in Pittsburg this week as the guest of the local medical society, before which he delivered the annual address.

Detroit.

AT A REGULAR MEETING of the Detroit Medical and Library Association, January 17, Dr. Don M. Campbell read a paper entitled "Headaches." In substance he spoke as follows; The subject is far reaching and has a bearing on the two great wings of medicine, viz., surgery and internal medicine, as well as upon all the various specialties. Considered in a broad and general way the most practical division of the subject from an anatomic standpoint is to consider headache as either intra- or extracranial. In the intracranial headache the variations of the intracranial circulation and pressure are the points of pathologic importance, whereas in the extracranial varieties the variations of pressure are not of so much importance, but a consideration of the various causes of reflex irritation together with that class of constitutional maladies of the rheumatic and gouty types has especial significance. There is no absolutely fixed demarcation between these two forms as they run the one into the other along the line of the neuralgias of the trigeminus nerve. On the one hand a reflex irritation may travel along the intracranial recurrent branches of the trigeminus and be intracranial, and likewise an intracranial lesion may manifest itself by pain reflected over the extracranial branches of the same nerve. Clinically headaches are organic or inorganic; by the former being meant those cases originating in an organic extracranial lesion, viz., meningitis, cerebral tumor, cerebral abscess or tubercular infiltration, etc.; by the latter, all the reflex headaches and neuralgias and the diathetic, toxic, febrile, neurasthenic and hysteric varieties. In the latter varieties of headache the most important thing to determine is whether or not the headache be reflex in its character or whether it have its etiologic factor in a disturbance of nutrition.

THE ANNOUNCEMENT that Dr. S. P. Duffield intends to resign as Commissioner of Health for the city of Detroit will be received with deep regret by the profession. Dr. Duffield assumed the duties of his position in agitated times and has exemplified the possession of that admirable gift of carrying in his right hand, gentle peace, and has demonstrated its power to silence envious tongues. During his term of office the sani-

tary affairs of the city have been conscientiously and capably administered. Dr. Duffield will carry with him to whatever field of labor he repairs, the good will and approval of his professional friends.—*Medical Age.*

HEALTH REPORT for week ending January 15: Deaths 79, under 5 years 30. Births, male 30, female 34; contagious diseases diphtheria 17, scarlet fever 49; deaths from diphtheria 3, scarlet fever, none.

Societies.

The following meetings are noted:

California.—San Luis Obispo Medical Society, January 14.

Connecticut.—Windham County Medical Association, Hartford, January 18.

Illinois.—Brainerd District Medical Society, Mason City, January 27; Chicago Medical Society, January 26; Physicians' Club of Chicago, January 31.

Indiana.—Marion County Medical Society, Indianapolis, January 18; Montgomery County Medical Society, Crawfordsville, January 18; Purdue Pre-Medical Society, Lafayette, January 14; St. Joseph County Medical Society, South Bend, January 25; Tippecanoc County Medical Society, Lafayette, January 17.

Iowa.—Blackhawk County Medical Convention, Waterloo, January 14; Council Bluffs Medical Society, Glenwood; Jasper County Medical Association, Newton, January 18; Polk County Medical Society, Des Moines, January 11; Sioux Valley Medical Association's semi-annual convention, Sioux City, January 21.

Kansas.—Golden Belt Medical Association, Solomon City, January 13; Leavenworth County Medical Society, Leavenworth, January 13.

Kentucky.—Kentucky Midland Medical Society, Shelbyville, January 13; Paducah Medical and Surgical Society, January 19.

Maine.—Maine Academy of Medicine, Portland, January 10,

Maryland.—Johns Hopkins Medical Society, Baltimore, January 18.

Massachusetts.—Hampden County Medical Association, Springfield, January 17; Hampshire County Medical Society, Springfield, January 12; Millers River Medical Society, Orange; Worcester District Medical Society, Worcester, January 12.

Minnesota.—Southwestern Minnesota Medical Association, Worthington, January 11.

Missouri.—Kansas City Academy of Medicine, January 11; St. Louis Medical Society of Missouri, St. Louis, January 22.

Nebraska.—Lincoln Medical Society, January 11.

New Hampshire.—Center District Medical Society, Concord, January 11.

New Jersey.—Burlington County Medical Society, Mount Holly, January 18.

New York.—Albany County Medical Society, Albany, January 19; Binghamton Academy of Medicine, January 18; Chenango County Medical Society, Norwich, January 11; Duchess County Medical Society, Poughkeepsie, January 12; Dunkirk and Fredonia Medical Society, Dunkirk, January 19; Elmira Academy of Medicine, January 12; Jefferson County Medical Society, Watertown, January 11; Kings County Medical Society, Brooklyn, January 18; Newburgh Bay Medical Society, Newburgh, January, 11; Oneida County Medical Society, Utica, January 11; Oneonta County Medical Society, Oneonta, January 25: Ontario County Medical Society, Canandaigua, January 11; Practitioners' Society, Rochester, January 13; Ninety-second annual meeting, of the Medical Society of the State of New York, Albany, January 25, 26, and 27; Syracuse Academy of Medicine, January 11; Wayne County Medical Society, Newark, January 18; Westchester County Medical Society, Mount Vernon, January 18.

Ohio.—Clark County Medical Society, Sandusky; Cleveland Medical Society, January 14; Dayton Academy of Medicine, January 24: Eastern Ohio Medical Association, Toronto, January 11; Lorain County Medical Association, Lorain, January 11; Lucas County Medical Society, Toledo, January 7; Mercer County Medical Society, Greenville, January 16; Muskingum County Medical Society, Zanesville, January 13; Toledo Medical Association, January 14.

Oklahoma.—Central Oklahoma Medical Association, Enid.

Pennsylvania,—Allegheny County Medical Society, Pittsburg, January 18; Beaver County Medical Society, Beaver Falls, January 13; Berks County Medical Society, Reading, January 11; Blair County Medical Society, Altoona, January 20; Bradford County Medical Society, Towanda, January 11; Cumberland County Medical Society, Carlisle, January 11; Delaware County Medical Society, Chester, January 12; Lebanon County Medical Society, Myerstown, January 11: Lehigh Valley Medical Association, Easton, January 25; Luzerne County Medical Society, Wilkesbarre, January 12; Branch Medical Society, Sunbury, January 11.

Wisconsin.—Dodge County Medical Association, B Dam, January 10; Fox River Medical Association, Green January 28.

CHANGE OF ADDRESS.

Bradford, H. W., from Boston, Mass., to 120 Paul Gore St., Ja Plain, Mass.
Burchard, T. H., from 53 W. 52d St. to Buckinghan Hotel, New Y
Clausen, J. J., from New Ridge Building to 501 Rialto Building, sas City, Mo.
Cox, G. W., from 2258 Wabash to 2945 Groveland Ave., Chicago, I
Dargatz, D. G. G., from Ridge Bldg. to 4 E. 10th St., Kansas City,
Ewing, W. B., from Canonsburg to 515 Penn Ave., Pittsburg, Pa.
Furay, C. E., from Chadron, Neb., to 2237 Seward St., Omaha, Ne
King, Thomas, from Piqua, Ohio, to West Mansfield, Ohio.
Kay, T. W., from 206 Penn Ave., to Scranton Private Hospital, S ton, Pa.
Louis, I. C., from 354 Tremont St. to 210 Huntington Ave., Boston,
May, L. F., from 191 Fullerton Ave. to 910 Irving Park Boul., Chi
McBride, J. H., from Hartland, Wis. to Pasadena, Cal.
Stockton, Sarah, from 227 to 413 N. Delaware St., Indianapolis, In
Woodward, J. H., from Burlington, Vt. to 58 W. 40th St., New Yor
Woodward, A. P., from 21 Powell St. to 1228 Sutter St., San Franc Cal.

LETTERS RECEIVED.

American Therapeutic Co., New York, N. Y.; Allen, E. N., S McAlester, I. T.; American Sports Publishing Co., New York, N. Y.
Breuer, Chas. H., Hallettsville, Tex.; Bovinine Co., New York, N Bumgarner, A. E., Piketon, Ohio; Baker, J. C., Co., Philadelphia, Brown, Warren, Tacoma, Wash.; Benson, O. O., Keokuk, Iowa; Bul G. L., Greenwood, Wis.; Buck, M., Philadelphia, Pa.; Bond, Abb Syracuse, N. Y.
Cary, R. G., Sargho, Ky.; Cleaves, Margaret A., New York, N. Y.; tis, W. K., Midland, Texas; Cram, C. W., (2) Davenport, Iowa.
Dewey, Richard, Wauwatosa, Wis.; Denison, Charles, Denver, Co
Evans, George, Columbus, Ohio; Elliott, H. G., New York, N. Y.
Frey, C. L., Scranton, Pa.
Gibbons, Henry, Jr., San Francisco, Cal.
Hummel, A. L., (2) Advertising Agency, New York, N. Y.; Humph W. C., Acworth, Ga.; Harrison, R. H., Columbus, Texas; Holmes, ard, Chicago, Ill.; Hare, H. A., Philadelphia, Pa.; Hicks, Wm., York, N. Y.
Jones, Josiah, Evanston, Ill.; Jones, Hamilton P., New Orleans, Justice. J. D., (2) Quincy, Ill.
Kellar, J. M., Hot Springs, Ark.; Keech, J. S., Racine, Wis.; Scheerer Co., The, New York, N. Y.
Lewis, G. Massillon, Vernon, N. Y.
Moore, Wm. M., Metuchen, N. J.; Marks, A. A., New York, N. Y.; Clellan, E. S., Saranac Lake, N. Y.; Mulford, H. K., Co., Philadel Pa.; Maxey, Ed E., Caldwell, Idaho; Maltine, The, Co. Brooklyn, Nice, D. D., Bowen, Ill.
Polk, R. L., & Co., Detroit, Mich.; Prather, D. J., Los Angeles, Preston, C. H., Davenport, Iowa; Pelrce. D. B., Indian Mound, La.
Rohe, George H., Baltimore, Md.; Rogers, W. B., Memphis, Tenn.; nolds, Dudley S., Louisville, Ky.
Saunders, W. B., Philadelphia, Pa.; Smith, R. Walter, Clarkson, Te Sayre, Reginald H., New York, N. Y.; Scheppegrell, W., New Orl La.; Seal, I. N., Hackleman, Ind.; Sternberg, George M., Washin D. C.; Smith, E. B., Detroit, Mich.; Stearns, F, & Co., New York, N Swasey, George B., Portland, Me.; Spaulding, Warren C., New York
Talbot, E. S., Chicago, Ill.
Verbryck, G. G., Cambria, Wyo.
Welch, Wm. H., Baltimore, Md.; Wilson, J. T., Sherman, Texas; W ward, J. H., New York, N. Y.; Whalen, Chas. J., Chicago, Ill.; Whe F. B., Dows, Iowa; Wall, Charles D., Columbus, Ga.

THE PUBLIC SERVICE.

Notice.—An Army Medical Board will be in session at W ington City, D. C., during the month of May. for the examinatio candidates for appointment to the Medical Corps of the United St Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the B will make application to the Secretary of War, before April 15, 189 the necessary Invitation, giving the date and place of birth, the p and State of permanent residence, the fact of American citizenship name of the medical college from which they were graduated, a record of service in hospital, if any, from the authorities thereof. application should be accompanied by certificates based on pers acquaintance, from at least two reputable persons, as to his citizens character and habits. The candidate must be between 22 and 29 y of age, and a graduate from a Regular Medical College, as evidenc which, his Diploma must be submitted to the Board.

Successful candidates at the coming examination will be giv course of instruction at the next session of the Army Medical Sch beginning in November, 1898.

Further information regarding the examinations may be obtaine addressing the Surgeon-General, U. S. Army, Washington, D. C.

GEO. M. STERNBERG,
Surgeon-General, U. S. Arm

Army Changes. Official List of Changes in the Stations and du of officers serving in the Medical Department, U. S. Army, f January 8 to 14, 1898.

First Lieut. Irving W. Band, Asst. Surgeon, is relieved from duty a Huachuca, Ariz., and ordered to Ft. Du Chesne, Utah, for duty.
First Lieut. Charles E. D. Flagg, Asst. Surgeon, is relieved from du Ft. Du Chesne, Utah, and ordered to Columbus Bks. Ohio, for d
Capt. H. C. Fisher, Asst. Surgeon, is granted three months and days' leave, to take effect on or about Feb. 1, 1898.
Capt. Henry A. Shaw, Asst. Surgeon, will report in person at Ft. Cr Neb., for temporary duty at that post, and upon the arrival ther First Lieut. Deane C. Howard, will return to his proper statio Ft. Snelling, Minn.

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ORIGINAL ARTICLES.

THE HISTORY AND DIAGNOSIS OF A CASE OF CARCINOMA OF THE STOMACH AND THE FIRST OPERATION OF EXCISION OF THE STOMACH IN AMERICA.

BY HUGO SUMMA, M.D., AND A. C. BERNAYS, M.D.

HISTORY OF THE CASE AND DIAGNOSIS.

By HUGO SUMMA, A.M., M.D., Professor of Pathology and Clinical Medicine at the Marion-Sims College of Medicine, St. Louis, Mo.

The patient was Mr. Conrad Beck, 42½ years old, a German, machinist, married, and the father of four children. The anamnesis shows a very good family history. The patient's mother is still living, while his father died of senile marasmus. All of his brothers and sisters are in good health and there is no inclination to diseases of the stomach in any member of the family.

The patient has always enjoyed good health, with the exception of an attack of measles when a boy. Does not remember any trauma, either in the region of the stomach or in any other part of his body.

In the early part of June 1897, the patient noticed pain in the region of the stomach, particularly severe soon after eating, and also a somewhat impaired action of the bowels amounting to constipation. Both of these symptoms appeared somewhat abruptly. About three weeks afterward, on June 25, 1897, he had four gastric hemorrhages within a day and a half. The blood was light red without admixture of air. Dr. Louis H. Davis, who attended him at that time, estimated the amount of blood lost at one and one-half gallons. In the early part of July, I was consulted for the first time in the case. The symptoms at that time were chiefly subjective. He complained of pain, which was increased during digestion, in the region of the stomach, and also of pain on pressure near the junction of the cartilages of the eighth and ninth ribs of the left side. There was at no time an impairment of the appetite nor any vomiting, but there was obstinate constipation. No tumor was visible or palpable.

After a thorough deliberation, in which the differential diagnosis between cancer and round ulcer was carefully considered, a decision in favor of round ulcer was made and Leube's treatment was instituted. The severe hemorrhages preceding the first consultation seemed to preclude the investigation of the case by means of test meals. It was a reasonable expectation to clear up the diagnosis *ex juvantibus* by the Leube treatment, but this proved to be the misleading feature and for three months obscured the clinical observation of the case. Leube himself lays great stress upon the value of his method of treatment as a means of confirming a doubtful diagnosis of *ulcus rotundum;* in fact, he says that the favorable result of the treatment justifies a conclusion in favor of the positive existence of an *ulcus rotundum.* Boas considers the same conclusion justifiable when his method of treatment is beneficial in the same kind of a case. His treatment consists in gradually increasing doses of nitrate of silver. This method was applied after the case was turned over to my exclusive supervision, in November, and was followed by even better results than Leube's treatment, which had undoubtedly benefited the patient during the months of July and August.

After a second consultation in September, Fleiner's treatment was tried, because on account of the beneficial results obtained by Leube's treatment we were under the impression that the case was one of round ulcer. The Boas treatment, which was tried in November, was followed by the most encouraging improvement, but December 24 a gradual recurrence of the old symptoms was noticed.

It now seemed justifiable to risk the introduction of the stomach tube and this was done every day for two weeks beginning December 26. Through the tube, Ewald's test-breakfast or Riegel's test-meal was expressed for the purpose of gaining a knowledge of the motor, secretory and digestive functions of the stomach.

The result of these gastranalyses was always the same. The total amount expressed never exceeded 20 c.cm. Free hydrochloric acid was never present, nor was there any lactic acid. The total acidity varied between 10 and 20 per cent. Yeast fungi and sarcinæ were absent and only very few bacteria were found by microscopic examination. Remnants of meat and starch, well advanced in digestion, occurred and red and white blood corpuscles were found in the same relative proportion as in the blood in each specimen of the stomachic contents that were examined microscopically. Toward the end of the expression of the contents, a very slight hemorrhage was noticeable macroscopically but no trace of tissue could ever be detected.

After carefully weighing the symptoms that presented themselves in this peculiar case there were left three points that appeared more in favor of carcinoma than of ulcer. These were permanent absence of hydrochloric acid, no vomiting and the age of the patient, while the remaining symptoms could be explained as well under the assumption of ulcer as of carcinoma.

The patient had lost twenty-seven pounds in weight during seven and one-half months. There was a cachectic appearance gradually becoming apparent, while the anemia seemed to be disappearing when judged by the visible mucous membranes.

Based upon these carefully observed facts a final diagnosis was made of ulcerated cancer of the stomach located between the cardia and the pylorus. The patient was then sent to Prof. Bernays for an explora-

tive section with a view of possibly removing the affected tissues.

THE OPERATION OF EXCISION OF THE STOMACH.

By AUGUSTUS CHARLES BERNAYS, A.M., M.D., Professor of Anatomy and Clinical Surgery at the Marion-Sims College of Medicine, St. Louis, Mo.

It has been known for years that the entire stomach can be successfully removed in dogs, and that these animals remain alive in perfect health for years. The best known case is the Czerny dog who lived over five years without a stomach and was then in perfect health when killed for the sake of a scientific experiment. Portions of the stomach have been successfully excised in cancer cases by over 150 surgeons. The parts removed involved from one-tenth to eight-tenths of the organ. The entire stomach was successfully removed from a female patient aged 53 years, at Zurich, by Dr. Schlatter. Six months after the operation the woman had gained twelve pounds in weight and is now in good general health.

In all cases that have ever been operated upon suffering from cancer of the stomach, the exact portion of the stomach which was to be removed was determined after the abdomen was opened. It is practically impossible to predict in any case the operation which must be performed. I have usually preferred palliative gastro-enterostomy to a partial excision of the stomach and in some cases have been satisfied to merely curette away the masses of neoplasm which were found obstructing the pyloric orifice.

There is no doubt in my mind after an experience of more than seventy palliative operations that these measures have been of benefit to the patients in prolonging life and in alleviating pain. In some cases the results were simply wonderful. I saw a patient upon whom I had done a gastro-enterostomy gain thirty-five pounds in weight in about two months and another from whom I curretted away over a pound of tumor-mass within the stomach, gained twenty pounds in one month. Both patients died within the year from the continuation of the carcinomatous cachexia and the continued growth of the neoplasms. Palliative operations in cancer cases are never indicated when a radical and scientific operation can be performed. For instance in cases of cancer of the breast and in uterine cancers which come to us early enough we no longer remove the tumor alone, but always the whole organ. We are not justified in merely removing the whole of the diseased organ, we must also remove the lymphatics leading away from the organ as completely as possible. I invariably do this radical operation in cancers of the breast and also of the womb. In the latter class of cases I have abandoned the old vaginal hysterectomy in favor of the operation of removing the broad ligaments and the womb through the abdomen. My mortality in the latter operation is less than 10 per cent. and no doubt will continue to decrease with a larger experience and a better technique. The length of time that patients remain free from a return is certainly much increased and there is a chance for a radical cure

No kind of cancer is more certainly fatal than cancer of the stomach, and if the operation of gastrectomy can be successfully performed it must be done early and before the cachexia has brought the patient to the brink of the grave. As in other organs the total removal of the stomach is the proper operation in incipient cases. In fact, there can scarcely be a doubt in the mind of any medical man that if an excision of a cancer of the stomach is to be made at all it ought to be a total excision. Partial excisions must be abandoned, and in fact have been abandoned in favor of gastro-enterostomy, curettement or some other merely palliative measures of treatment. I have not done a pylorectomy for over three years and I find that the Germans have almost abandoned the partial resections of the stomach in favor of palliative measures.

The future treatment of incipient cancer of the stomach will be the total or nearly total excision of the organ. Our plain duty is to work toward a perfection of the technique of this operation. My object in reporting the following fatal operation is to add what I have learned to the very meager stock of information we have about this new operation and to make some suggestions tending toward an improvement of its technique.

The patient, whose clinical history is detailed by Prof. Hugo Summa, entered the Rebekah Hospital Jan. 9, 1898. He was carefully prepared for the operation of celiotomy in the usual way, by baths, a purge and antiseptic pack, and by a properly restricted diet. The operation was begun January 11 at 9 A.M. and primarily consisted in an explorative abdominal

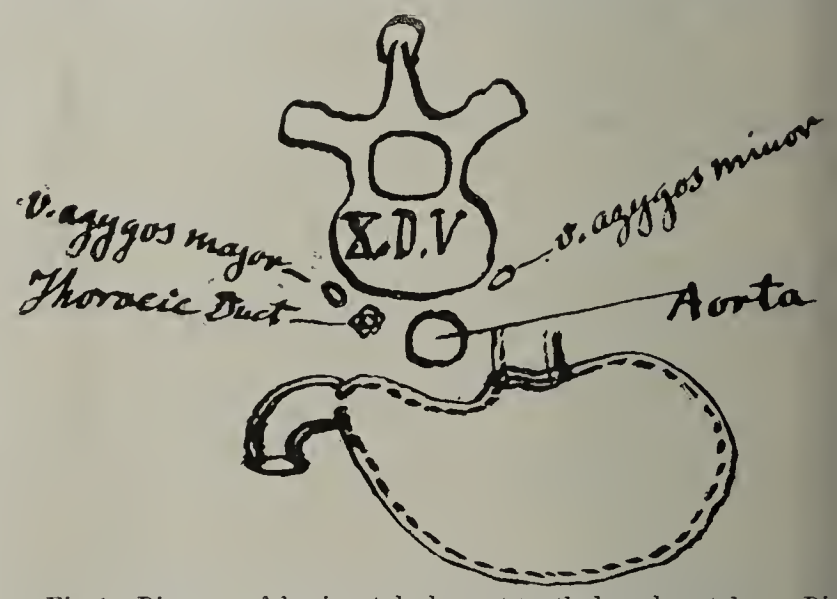
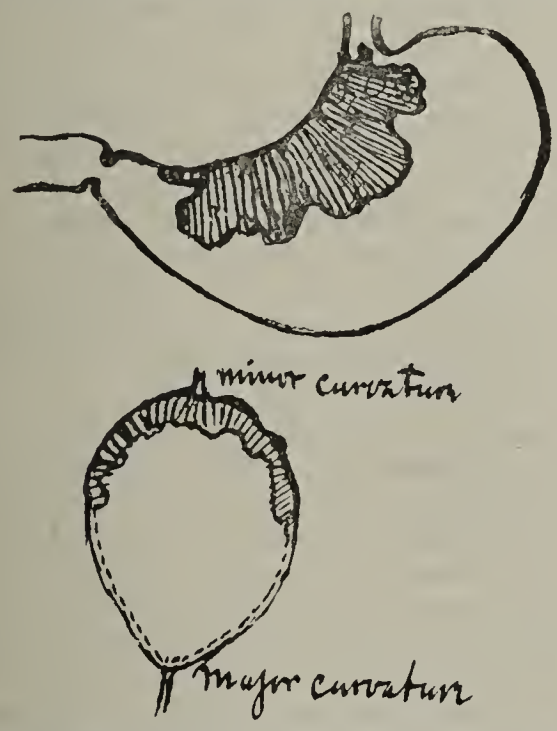


Fig. 1.—Diagram of horizontal plane at tenth dorsal vertebra. Distance from esophagus to pylorus shown in a normal case and is about one-fifth the length of the major curvature, usually not more than five inches.

section in the median line between and extending from the ensiform process to the umbilicus. The hand having been introduced and made to explore the entire surface of the stomach, detected a hard umbilicated irregular tumor involving the entire minor curvature of the stomach excepting about one inch of the pyloric end. There were only three small indurated lymph glands, and they were situated near the major curvature of the stomach in the omentum majus. The whole mass was freely movable, except where it was bound down to the pancreas by adhesions. There were no symptoms of obstruction and, in fact, the pylorus was normal. The operation of gastro-enterostomy was thus plainly contraindicated and the only thing to be done was a removal of the cancerous growth. I hesitated, but the conclusion that the extirpation of the diseased organ was the only rational thing to do was inevitable and I proceeded with the operation. The first step was the transverse section of the pyloric extremity of the stomach, one inch from the duodenum. I next closed the two orifices made by the cut by means of clamps. The duodenal end was drawn out of the abdomen and

placed upon the right side of the abdomen entirely out of the way. A large plug of gauze was inserted into the pyloric stump to prevent the escape of intestinal contents. The freeing of the posterior wall of the stomach from its adhesions to the pancreas was next done and was a piece of difficult dissection. I next ligated and cut off the stomach from its omental connections along the major curvature to the fundus. At this time, while drawing the fundus out of the cavity in order to ligate and cut off the gastrosplenic vessels and ligaments, a small quantity of gastric contents escaped, but was caught to a great extent upon pieces of gauze that were kept in readiness. The stomach was now free from all its connections excepting the minor curvature and the esophagus. There had been no hemorrhage of any account up to this time, as nearly all the vessels were tied before being cut. The entire operation was free from dangerous hemorrhage.

The separation of the minor curvature from the crura of the diaphragm, the aorta and the structures lying in front of the vertebral column was difficult only on account of the depth of the cavity, the necessity of operating in a badly illuminated field, so that



Figs. 2 and 3.—These diagrams show the manner and extent to which the stomach was involved in the neoplasm.

the sense of touch was often a more reliable guide than sight. I succeeded in freeing the minor curvature up to the esophagus by means of short clips with the curved scissors. The cancerous growth had shortened the distance between the cardia and the pylorus to about four inches. It was evidently a cancerous ulcer which had a tendency to become scirrhous. The outer surface of the growth was hard, while the inner or mucous surface was ulcerated.

After the entire stomach was freed from all its connections I caught the esophagus with a pair of forceps and cut it across about one-fourth of an inch above the cardia and found a small tongue-like piece that the cancer had grown into the esophagus but had its pedicle in the stomach. I also left a small strip of stomach attached to the esophagus, which I intended to use as a handle by means of which I could pull down the esophagus. This slip proved to be too weak and was soon afterward cut away.

The next step in the operation was the bringing together of the stump of the pylorus and the esophagus. The pyloric stump was freely movable and easily drawn upward, but the esophagus proved well-nigh unmanageable on account of its elasticity and great tendency to slip away through the foramen ovale of the diaphragm. The toothed forceps with which the assistants pulled the esophagus downward slipped off several times during the suturing which I now began. The method which I adopted of making a direct union between the stump of the pylorus and the esophagus seemed to be easier of accomplishment than the plan which Schlatter adopted of bringing up a loop of the jejunum. There was quite a disparity in the lumina of the esophagus and the pyloric stump, but the esophagus just above the cardia is very lax and dilatable

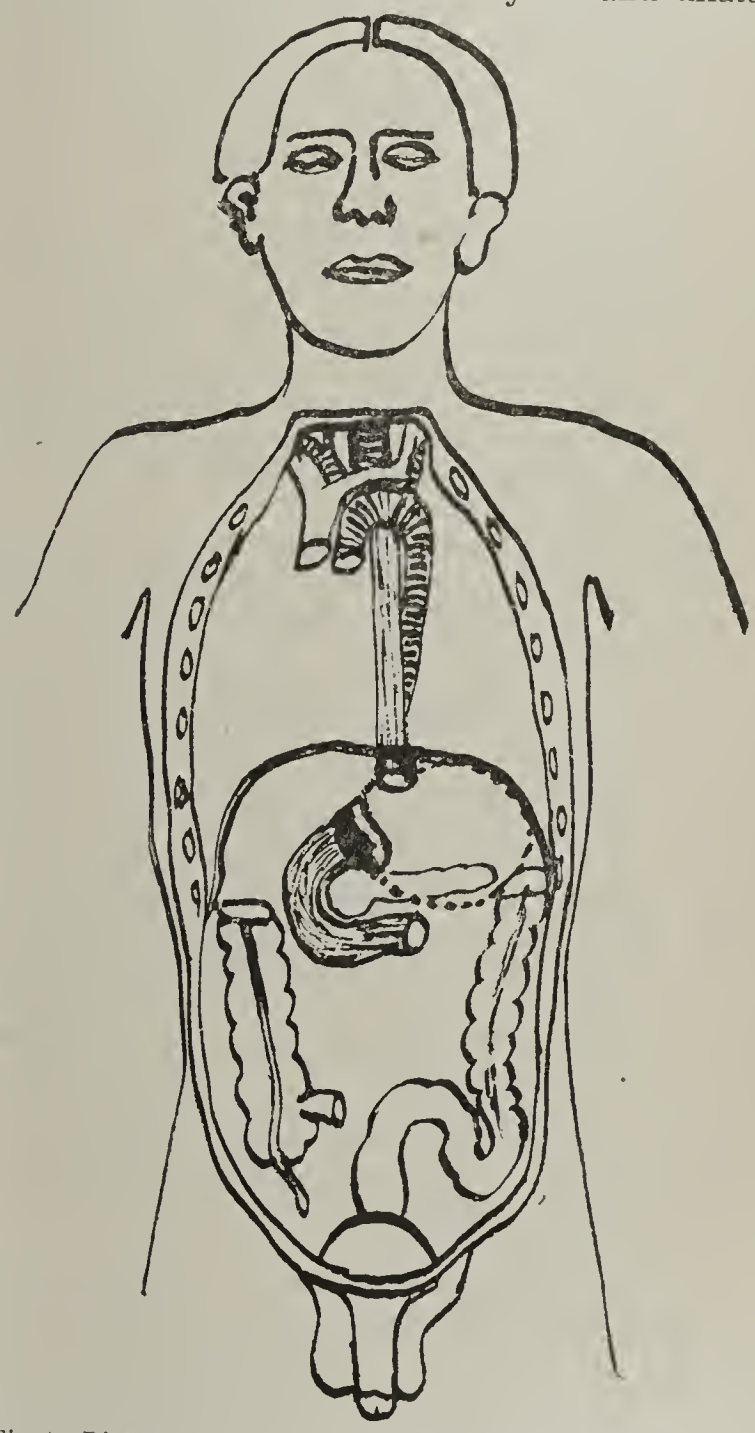


Fig. 4.—Diagram showing the stump of the pylorus pulled up and esophagus drawn out of the foramen ovale of the diaphragm.

I could easily introduce three fingers without stretching it perceptibly. I have successfully united the ascending colon to the ileum, end to end, and found that the closure was entirely satisfactory. The method I used in this case was simply to make the stitches in the pyloric stump a little farther apart than in the esophagus. The stitches included all the layers of the wall excepting the mucosa. I united the posterior wall first by a series of stitches which were tied upon the mucous side. These stitches united more than half the circumference of the orifices. Next, three stitches were inserted on the lateral aspects. The knots were tied upon the outer surface

of the canal. Lastly, three or four stitches were placed and tied externally upon the anterior aspect of the esophagus and the pylorus. The line of sutures was not as neat as I could have wished, but I was compelled to be satisfied with the work and as I will show later on the stitches held perfectly.

The space which was left after the removal of the stomach was filled out to a large extent by the transverse colon, the splenic flexure and the coils of the jejunum, which sank into the excavation of the diaphragm. I found it necessary, however, to fill up a part of the space by means of a gauze pack. The toilet of the peritoneum was made by means of dry gauze sponges. I use bi-sterilized gauze, made by Johnson & Johnson, of New York, which I found to be absolutely reliable. After the toilet had been most carefully completed I inserted two strips of the gauze, one upon each side of the line of union between the pylorus and esophagus. This was a precautionary measure and was intended to protect the general cavity against infection in case of a leak at the line of sutures. The ends of these two gauze strips as well as the ends of the gauze which lay between the transverse colon and the diaphragm were conducted out of the belly at the upper end of the median incision. The first incision was closed in the usual way up to the point of exit of the gauze drains. A large moist gauze dressing, which was held in place by a binder, was applied over all.

The entire operation had taken two hours and six minutes. Chloroform was the anesthetic used. Silk was used for all sutures and ligatures. An intravenous infusion of physiologic salt solution was made by Dr. Spencer Graves, who together with Dr. Robert E. Wilson and Dr. Frank M. Floyd, rendered me all necessary assistance. At the conclusion of the operation the patient was in fairly good condition; pulse was about eighty and of good volume. There was no pronounced shock, and indeed the patient rallied nicely from the immediate effects of the operation.

The patient was sustained by nutrient enemata and for the first twenty-two hours seemed to remain in the same condition, with the exception of an increased pulse rate, which ranged from 114 to 124 per minute. There seemed to be a fair chance for a successful termination. During the day, however, he grew weaker, complained of thirst and the pulse remained above 120 all the time. His temperature never reached 101 degrees and he succumbed about thirty-six and one-half hours after the operation.

We had no permission to perform a regular autopsy, but my assistants removed the gauze pack soon after death and found that there was no sign of peritonitis and that union between the sutured ends of the alimentary canal, which were in good apposition, was excellent. The cause of death is not quite clear, but I think that the long-continued chloroform narcosis and the impossibility of satisfactorily nourishing the patient, as well as the possibility of the absorption of some escaped stomach contents, must be held to be sufficient to explain the unfortunate result.

In future operations I shall use a rubber tube attached to a silk cord long enough to be passed up through the esophagus and out of the mouth. This tube I will leave in the duodenum, extending from about the beginning of the jejunum to near the opening of the larynx. By pulling it up into the pharynx nutrient predigested fluids can then be injected at regular intervals as may be deemed expedient.

In order to facilitate the suturing between th esophagus and the lower gut, be that the pylorus, th duodenum or the jejunum, I would suggest makin the union before the stomach is completely cut of from the esophagus. By this means the esophagu can be pulled down and made accessible. Nearly al of the sutures can thus be inserted before the esoph agus is cut off.

Union Trust Building.

THE PSYCHOLOGY AND PHYSIOLOGY OI THE LAYING ON OF HANDS AND OF HYPNOTISM.

Presented to the Section on Physiology and Dietetics at the Fort Eighth Annual Meeting of the American Medical Association at Philadelphia, June 1-4, 1897.

BY RANDELL HUNT, M.D.

VICE-PRESIDENT OF THE SHREVEPORT MEDICAL SOCIETY AND MEMBE OF THE LOUISIANA STATE MEDICAL ASSOCIATION.

"The smallest hurts sometime increase and rage
More than all art of physic can assuage;
Sometimes the fury of the worst disease
The hand, by gentle stroking will appease."—*Solon.*

Socratic reasoning is being revived, and in the gar of Baconian induction is demonstrating particula truths and predicating general principles that astoun even the learned, relegating to their proper plac among the relics of barbaric times, intolerance, fool ish ridicule, and impotent invective. No longer i the medical profession ready and eager to derid and martyrize a Harvey and a Jenner, nor a Frenc Academy of Science to deny the actuality of meteo ites; for science and wisdom walk hand in hand, giv ing to the world knowledge of universal truths, an power to observe and practice them.

Before man is in a position to take advantage of a these psychic facts that science is in some sort free ing from the mystery that has shrouded them, it i necessary for him to know the attributes and func tions of mind, and so to appreciate his own potenti ality and to cognize the harmony between individua ity and nature. The correlative functioning of uppe and lower brains—whether upper or lower—the inte relations of psychology and of physiology, become th matter for most close and searching investigation o the part of the student of the remarkable phenomen that are daily resultant from scientific experiment i the special fields under present consideration. Onl by assiduous study of this nature can the scientis equip himself for individual attempt towards th solution of the human-enigma that still presents, de pite all that has been achieved, the greatest difficu ties and complexities.

The laying on of hands, hypnotism, normal slee spontaneous and artificial somnambulism, and du consciousness, present such similar phases of min conditions that I will endeavor to describe all a being subject to one general law, that of suggestio

In doing this, first will be given a history of hypn tism; then sleep will be mentioned, dream conscious ness, duality of mind; and finally an attempt will b made to demonstrate that through hypnosis and sug gestion the different phenomena may be understoo

The history of hypnotism is as old as the histor of the world, for the Chaldean priests, Brahmins an Parsi practiced this mode of treatment, while in Chin the curing of disease by the laying on of hands ha prevailed for ages.

In the "Natural Law of Miracles," written in Arabic 400 years before Christ, not only is hypnotism mentioned, but the different methods of producing it described with an attempted physiologic solution of the psychic attitude. In Egypt friction during ablution was one of the great secret means of treatment, after which the patient rested on skins, and having indulged in prayer, prepared for sleep and awaited visions of Isis. Bernard de Claivaux, a French Cistercian monk, in 1146 said to the Alamannic people: "Ye soldiers of the Christ arise, and hurl down the enemies of the Cross!" Laying his hands on the blind and lame, he healed them, and the grateful people with tears and shouts proclaimed that the saints were with them.

Hippocrates, Aristotle, and Galen knew of the existence of somnambulism, but until Van Helmont and other modern authors recognized and studied the phenomena, no minute or accurate description was ever given of this condition.

Asclepiades of Bithynia obtained great renown as a physician in Rome by curing disease with frictions and the laying on of hands, at times producing by his methods sleep, which sleep he considered very salutary. For hundreds of years the kings of England and France cured scrofula (king's evil) by the touch of the hand, and writers of that time unite in attesting its efficiency.

The first authenticated cures by prayer and the laying on of hands in America were those performed by Alvar Nunez Cabaca de la Vaca, Alonzo dell Castillo Maldonado, Andres Dorantes and Estevanico, an Arabian negro, sole survivors of the unfortunate Narvaez expedition to Florida in the year 1535.

Valentine Graterakes, an Irish gentleman, in 1662, claimed to have had a dream, which he interpreted as a divine revelation, to the effect that he could cure disease by the laying on of hands, and many honorable witnesses bear testimony to his great success. The Lord Bishop of Derry in Ireland, in speaking of Greatrakes, says: "I was three weeks together with him at Lord Conway's, and saw him, I think, lay his hands upon a thousand persons; and really there is something in it more than ordinary; I have seen pains strangely fly before his hands, 'till he hath chased them out of the body—But yet I have many reasons to persuade me that nothing of all this is miraculous. He pretends not to give testimony to any doctrine; the manner of his operation speaks it to be natural; the cure seldom succeeds without reiterated touches; his patients often relapse; he fails frequently; he can do nothing where there is any decay in nature, and many distempers are not at all obedient to his touch." Joseph Glanville also speaks highly of Greatrakes.

Gassner, an ex-monk, conceived the idea that all diseases were due to possession by the Devil, and that they could be cured by exorcism, the truth of which he first demonstrated among his own parishoners. His cures caused such a great sensation that he went to Elwangen, but finally settled in Regenburg, where at one time he had ten thousand patients. Mesmer's attention being attracted to Gassner's remarkable cures, he went and observed his methods, and in an article afterward makes the important statement that Gassner's processes were in the main identical with his own.

Other instances could be presented showing the efficacy of the laying on of hands, but as the scope of this paper will not permit, I will at once proceed to analyze sleep and its cognate states, that the psychology and physiology of touch may be made clear.

Since a third of man's life is passed in slumber, it is equally important to physicians to understand thoroughly this condition, that they may the more perfectly appreciate the true relation of man to nature. Sleep is the quiescence of the nerves of sense and of the sensorium. It is more than a mere negation of waking, for it presents a positive side in dream, demonstrating that in this condition certain attributes, functions, and mental activities exist that either do not exist in the waking state, or are below the threshold of sensibility, i. e. of ordinary consciousness. The consciousness of waking is due to the activity of the cerebrum and the nerves of sense, while in sleep there is an inner-waking-dream; and if this inner-waking continues and is exalted, we must look for dream-consciousness in some other part of the brain than the cerebrum.

We have ideas in dreams or we would have no dreams, but as dream-images are confused, they are easily distinguished from the well regulated perceptive images of our waking consciousness, therefore must emanate from some part of the cerebro-spinal system from which we are practically excluded in waking life.

The dreams usually remembered are of a confused character, and ordinarily occur between waking and deep sleep, or between deep sleep and waking; and are insignificant, since they are connected with only a slight displacement of the threshold of sensibility.

A large percentage of dreams are not remembered, and as sense-perceptions seldom if ever pass out of recollection in a few hours, the only physiologic explanation is a different consciousness in the different organs in the dreaming and waking states. Du Prel pertinently says: "Deep dream must at the least depend on the activity of other folds of the brain than those in function while we are awake; possibly of another center altogether. For if we infer the similarity of the organ from that of the consciousness, the dissimilarity of the consciousness would imply the dissimilarity of the organ. And the failure of memory in the case of deep dream can only be ascribed to the want of a common organ with the waking consciousness, the survival of memory between the light dream and waking must result from at least partial community of organ. The withdrawal of the bridge of memory proves physiologically the change of organ, the preservation of the bridge a community of organ; but inasmuch as it is only with the change of an organ of whose nature we know nothing that the significant dream can occur, the logical possibility of the latter must again on this ground be admitted."

We, as physicians, know that this bridge of memory does fail between deep sleep and waking, for sometimes the dreamer will translate his dream into regulated action as in sleep-walking; or into coherent ideas and sound-images as in somnambulism.

In somnambulism difficult problems in mathematics with their intricate complexities are solved, and unless what mind was doing were self-cognized, the perceptions would be as heterogeneous as the confused phantasms of a dream in light sleep. This, however, is not true, for there are numerous authenticated instances in which complicated intellection occurred, Euclidian propositions demonstrated, and even literary works of marked genius composed in slumber. It is well known

that Voltaire wrote poetry in sleep, that Condorcet saw final steps of difficult calculations, and that in this condition Coleridge composed his fragment, "Kubla Kahn."

Whenever a thought, a feeling or a purpose stirs the human mind consciousness is there, whether in a confused dream or in the deepest stages of natural somnambulism; for while the phantasies of a dream may be only imperfectly recollected, the perception, representation, and perfectly constructed ideas of a somnambulist evince true memory directed by purpose.

Helmholtz proved that a definite measure of time was requsite for the transmission of an excitation by the nervous system, and that only a limited number of sensations could be appreciated by the cerebrum in a given period. In narcosis and somnambulism the contrary is easily made apparent, for longer successions of representations occur than the established physiologic limit of time would permit, logically and conclusively proving that the waking consciousness, with its physiologic measure of time is but one form of self-consciousness. Dr. Carl Du Prel assures us, "what is true of the light of the sun is thus true of the light of sense. As the one in its setting and rising neither produces nor destroys the stars, but occasions their optical appearance and disappearance; in like manner the dream consciousness emerges from or retreats into the unconscious, as the sense-consciousness goes down or rises."

To the dual theory of consciousness so beautifully and logically demonstrated by Du Prel, from whose arguments I have largely quoted, I will add in order to make plain and comprehensive one of nature's fundamental laws, Hudson's theory of the duality of the mind.

One phase of mind with its seat in the upper brain, is by Mr. Hudson called objective; the other located in the lower brain, subjective.

The objective mind from its post of observation in the cerebrum takes cognizance of the sense-world through the media of the five physical senses, is the product of man's needs, is under the control of reason and develops what we know as common sense. In man's battle with the material world the objective mind is his prop and staff, and normally is never controlled against reason by another person's suggestion, reasoning as it does analytically, synthetically, deductively and indeductively, and refusing to accept anything in opposition to achieved results.

The subjective mind, that of the lower brain (pons, medulla and chord), perceives by intuition independently of the physical senses; is the seat of the emotions, of imagination and of memory, and performs its highest functions only when objective consciousness is in abeyance, manifesting itself most potentially in spontaneous somnambulism and artificial hypnotic somnambulism. In this condition many of the most wonderful functions of the subjective or transcendental mind become manifest, such as reading the thoughts of others even to the minutest detail, and perceiving objects without respect to distance.

The most important and characteristic difference between the two minds is that the objective is never controlled against reason by the suggestion of another, while the subjective is unqualifiedly amenable to suggestion, provided the suggestion is not contrary to previously conceived ethical emotions. an assertion that hypnotism has made an established fact.

In hypnosis the subjective mind accepts every suggestion, no matter how absurd or contrary to objective experience except those suggestions opposed to instinct. It controls all the functions of the body, and also the circulation and the vasomotor system.

The ascendency of the transcendental or subjective mind over the objective produces the musician, the poet, the artist in any line, and when "exquisitely balanced" with the objective mind, as Mr. Hudson so beautifully shows us, a Shakespeare.

In proof that duality of mind is shown by both anatomy and physiology I may be permitted the same quotation from Surgeon-General Hammond that I made in a former paper on the same general subject.

Dr. Hammond in a paper entitled "The Brain not the Sole Organ of Mind," relates how he removed the brain of a frog and after waiting for the shock to pass put it in water, when it immediately began to swim. He placed his hand so as to stop it and its efforts ceased; taking away his hand it again commenced to swim. Pflüger removed the entire brain of a frog and applied acetic acid to the thigh over the inner condyle. The animal immediately rubbed the spot with the foot of the same side, making a voluntary movement and showing his appreciation of the locality of the irritation. The foot was then amputated and the acid was again applied, when the frog made an ineffectual effort with the amputated member and failing after a few movements rubbed the irritation with the other foot. This experiment with its demonstration of sensation and volition, is certified to by Prof. Austin Flint, who says he has often successfully produced the same phenomenon.

In certain monsters born without a brain, or with important parts of this organ absent, we have interesting examples of the persistence of instinct. "Syme describes one of these beings which lived for six months. Though very feeble it had the faculty of sucking, and the several functions of the body appeared to be well performed. Its eyes clearly perceived the light, and during the night it cried if the candle was allowed to go out. After death the cranium was opened and there was found to be an entire absence of the cerebrum, the place of which was occupied by a quantity of serous fluid contained in the arachnoid." "Ollivier d'Angers describes a monster of the female sex which lived twenty hours. It cried and could suck and swallow. There was no brain, but the spinal cord and medulla oblongata were well developed." "Saviard relates the particulars of a case in which there was no cerebrum, cerebellum, or any other intracranial ganglion. Yet this being opened and shut its eyes, cried, sucked and even ate broth. It lived four days. Some of these movements were reflex, but others were clearly instinctive and adapted to the preservation of life." "But all these instances as well as experiments referred to as having been performed on lower animals, show that instinct does not reside in the brain."

The duality of consciousness and the duality of mind have now been logically proven, but the practical advantages to be enjoyed depend entirely on discovering a psycho-physical method of inducing the transcendental state.

The science of hypnotism aids and furnishes the clue in this investigation by proving experimentally the existence of a stage of hypnosis short of sleep, in which the subjective emergence is sufficiently emphasized for satisfactory therapeutic work. In this specific biologic condition the objective mind is just sufficiently weakened to lose its normal state of con-

trol over the subjective mind; the subject appearing normal, but with an increased susceptibility to impressions through suggestion. All those familiar with hypnotism are aware that by boldly looking a patient in the eyes, and simultaneously suggesting total inability of resistance, he can be made to follow the hypnotist or obediently execute all commands.

A prerequisite factor in successful healing by this psycho-physical process is passivity and faith, a subjective faith, which is only obtainable upon partial or complete cessation of opposition, active and passive, of the waking consciousness. As the transcendental mind is the seat of the cosmic emotions, more than ordinary subjective development on the part of the physician would logically suggest a perfect condition for therapeutic measures, for then the transcendental mind of both would be *en rapport*, and telepathic communication would at once result with relief of pain or the cure of the disease.

Facts in hypnotism demonstrate the complete amenability of the subjective mind to the power of suggestion. making it obvious that any therapeutic suggestion from a physician would prove very efficient if in accord with instinctive auto-suggestion. By analytical reasoning we must infer from this that the subjective condition is essentially restorative, and since normal sleep can be converted into somnambulism, one of the deepest stages of subjectivity, we are again logically forced to admit the similarity of sleep and somnambulism, and that the latter is not due to disease but on the contrary heals directly through deep sleep and suggestion.

Healing the sick in ancient times was supposed to be due to divine aid exerted by means of "prayer, ceremonies, laying on of hands, incantations, amulets, talismans, rings, relics and images, and the knowledge of it was transmitted with the sacred mysteries." Modern science, however, guided by the spirit of truth in the garb of inductive reason, realizes that the lightest or deepest stage of hypnosis is due to a peculiar state of the nervous system induced by certain objective conditions, and like ordinary sleep is dependent upon an absence of sensorial impressions. A knowledge of this lead Brown-Sequard and other neurologists, to show that when one objective or sense-function is used to excess, the others become for the time being inhibited; and that continuous stimulation of one cerebral center would not only result in temporary inhibition of objective cerebration, but would ultimately culminate in a loss of sensorial consciousness and the development of trance or somnambulism.

In sleep the brain is in a state of repose, and as Durham conclusively demonstrates the cerebrum contracts and becomes pale and anemic. This anemia is, however, to be regarded as an accompaniment, and like the vascular state of any active organ, an effect rather than a primary cause.

Paracelsus understood and appreciated the laws of mind, for he said: "Whether the object of your faith be real or false, you will nevertheless obtain the same effects. Thus if I believe in St. Peter's statue as I should have believed in St. Peter himself, I shall obtain the same effects that I should have obtained from St. Peter. But this is superstition. Faith, however, produces miracles, and whether it be true or false faith it will always produce the same wonders." Faith, therefore, is an epitome of the law of suggestion, establishing at once a mono-ideaistic attitude of mind, removing and making impossible auto-suggestion contrary to the result desired. Belief or faith induces passivity through the prevention of antagonistic auto-suggestion, but is not in itself sufficient for the evolvement of the transcendental; for certain psychologic and physiologic processes are involved that necessitate attention with prolonged concentrated effort upon a single point, that inhibitory action may take place through over-stimulation of one sense-function. Thus faith is a potential factor of passivity and mental concentration, indispensable conditions for healing by the laying on of hands, for under these conditions only will the subjective mind rise from below the psycho-physical threshold of consciousness, and stand out boldly in all its manifest power to heal.

Schopenhauer says: "The phenomena under discussion are, at least from the philosophic standpoint, of all facts presented to us by the whole of experience without comparison the most important; it is therefore the duty of every learned man to make himself thoroughly acquainted with them. Then, however, will a time arrive when philosophy, hypnotism and natural science, in the unprecedented progress of all its branches, will throw mutually a light so brilliant upon one another, that truths will be apparent which can only thus be attained."

The great medical association of England and of continental Europe consider the phenomena of hypnotism worthy of close investigation. Every physician should make himself thoroughly familiar with its details, and if after careful and systematic research and experiment he finds it efficient, should employ it in the alleviation of bodily ills.

This can now be done without reproach, for the attitude of the profession is favorable, and the correlative advancement of other sciences precludes the possibility of ascribing supernatural agency to the accomplishment of seemingly miraculous facts.

DISCUSSION.

Dr. JOHN A. CUTTER of New York—Some eleven years ago, my mother was seriously sick with pneumonia. I was called in the night to help my father and in the course of our ministrations; he placed one hand on the small of her back and the other over the heart. He said he was endeavoring to confer force on her. There is such a thing as conferring force from one to another. To go into a room in which a patient is slowly dying, from cancer or some other serious chronic disease, and stay in that room but ten minutes questioning the patient and doing whatever is necessary, with me results in a loss of nerve force or whatever you might call it, which I distinctly realize after leaving the patient. There are people who guide and help one and there are others that irritate and annoy. My father has often said that the secret of success of many physicians of large practice but of very moderate education and scientific knowledge was because of their ability to confer force upon the patient, guide the mind and allow nature a chance to come in and effect a cure.

We might put in as a subdivision of this subject, the conferring of hope on a patient. I know that I have been able to stop pain simply by putting my hand on the place where the pain was. Now, the practical application of this idea is very broad, but I wish especially to call attention to the fact that the professional masseurs do more good by conferring force than by any special method of rubbing, kneeding, rolling or twisting of the muscles on which they lay particular stress. I have questioned patients as to their previous experience with masseurs and have learned from them that if they are manipulated in the morning or when the masseur is not tired, the séance will give the patient relief, but if the manipulation is done at night, after the masseur has had a hard day's work, he will not do the patient any good but is liable to do him harm, taking energy from the patient unto himself, because the patient has said that he has been distinctly tired after the rubbing when before he was fairly rested. Now, as scientific men, we should be willing to investigate all these things. Because we can not weigh or measure nerve force, because we do

not know what life is and because we have not the knowledge of the currents of electricity which are probably passing up and down and in and about the body. We must not neglect to learn all we can to give our patients the very best possible.

Dr. NATHAN S. DAVIS—It is true that the curing or attempting to cure diseases by the laying on of hands, prayers, charms, and much of what is now included under the term hypnotism, is of very ancient date. Indeed the further we go back in the annals of time the more exclusively do we find all human ailments attributed to good or evil spirits, gods or goddesses, and their cure sought by mental or spiritual influences. And through all the ages, apparently remarkable cures have been, and still are effected by the agencies alluded to. But I think the paper admits that all the diseases cured by such means were purely functional and not involving structural changes. That the mind of man, or the nerve centers though which mind is manifested, exerts a strong influence over the bodily functions both in sickness and in health every intelligent and observing physician will admit. Excite in the mind, confidence, hope and cheerful expectation, and you increase the depth and fulness of respiration, thereby imparting more oxygen to the blood and more efficiency to all the vital functions. Continuing these mental conditions with correct hygienic surroundings will result in the cure of many chronic functional disorders; while the reverse mental conditions will cause them to remain invalids indefinitely nothwithstanding the administration of many drugs.

I think all the phenomena of sleep and those conditions connected with sleep, are much better explained on the supposition that they result from incomplete quiescence of either the sensorium or of some of the nerves of sense, than by any theory of duality of brain and mind. When natural sleep is complete there is no evidence of dreams. But when it is incomplete or the degree of quiescence of the sensorium and of the nerves of sense is unequal, or there co-exists disturbance in some of the excito-motory nerve structures, then we have dreams or some of their allied phenomena. The parts of the brain suggested in the paper as the seat or organ of subjective mental activity and consciousness, i.e., the pons, medulla oblongata and cord have been amply demonstrated both clinically and experimentally to be the primary nerve centers of the vasomotor, respiratory, and other involuntary or excito-motory functions. Those centers are connected by commissures with the cerebral sensorium to which the primary impressions must be conducted to be consciously recognized. If stopped at the primary centers they simply return reflex and excito-motory influences capable of producing many of the phenomena mentioned in the paper; and if we include the numerous excito-motory nerve ganglia or cells on the spinal nerves, and in the cardiac and other internal structures, we can more rationally explain all the phenomena discussed without the assumption of duality of mind or duality of mental brain, than with them.

Dr. RANDALL HUNT—Unless a dual consciousness be admitted we can not hope to explain in a logical and intelligent manner the change in the physiologic measure of time necessary for the transmission of an excitation by the nervous system in the dreaming and waking states. Helmholtz and Fechner have proved this experimentally, consequently any assertion to the contrary has no argumentative value unless sufficient evidence is adduced to invalidate it.

The confused and fantastic content of recollected dreams unquestionably demonstrates only partial inhibition of the cerebral cortex and waking consciousness, but in somnambulism, where complete inhibition occurs, there is no recollection, and if the consciousness of both states was identical, recollection would exist because the subject of consciousness would be the same.

If the psycho-physical stage of somnambulism, dream, hypnotism and waking consciousness were the same, hypnotism, dream and somnambulism would be only a continuation of waking consciousness, and the remembrance of the material and figure of these states would be identical. The fact of a loss of recollection and difference in representation in the states of hypnotism, somnambulism and dreaming, argues a change of consciousness in these states and the normal waking state.

Recollection is essentially intellectual and cerebral, therefore somnambulism forces us to look for the center of true memory either in the sensory ganglia or pons, medulla and cord, or both.

If it is physiologically and psychologically true that the pons, medulla and cord are only reflex centers, we would be logically forced to admit that the cerebrum in sleep, dream, somnambulism and hypnotism responds automatically to impressions, exciting reflex action when the will is in abeyance or can not be exerted. If this were true the hypnotee would be unable to withstand immoral or criminal suggestion which is, according to Kingsbury, Hudson and Charcot, absolutely contrary to experience and clinical facts.

The eminent physiologist Heidenhain says, "the cause of the phenomena of hypnotism lies in the inhibition of the ganglion cells of the cerebral cortex," and if inhibited they can not act automatically, or otherwise, logically and physiologically suggesting another consciousness with its seat in a different part of the brain.

Prof. Laycock and Gall assert that emotion and instinct can be excited independently of consciousness and of the brain; in fact Dr. Laycock goes further and says, "there are phenomena, however, in favor of the doctrine that the medulla oblongata is the common sensory of all conscious states, whether they refer to corporeal processes or the purely encephalic changes associated with ideas.

Mind manifests itself through its threefold states of intellect, emotion and will, and it is striking to observe how the consensus of opinion among physiologists is that the sensory ganglia, pons and medulla are the seats of the emotions. Whether Brown-Séquard, Noble of Manchester, Prof. Cleland of Glasgow and other great physiologists are correct in stating that the medulla is necessary to the manifestation of mind, I leave the profession to decide.

RECENT PROGRESS IN MENTAL PHYSIOLOGY.

Presented in the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

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It is unquestionably true that this century has witnessed greater advances in the knowledge of mental physiology than all the ages that have gone before. The nervous system and especially the cerebrum were, prior to this century, almost a *terra incognita*. We may not know more respecting the properties of mind than our forefathers did, but we understand as they could not the conditions of mental action.

PHRENOLOGY.

The movement inaugurated by Gall and Spurzheim early in this century undoubtedly added a powerful stimulus to the study of mind. The doctrine of localizations in the brain then first was given formal statement. Although the body of teaching comprised under the name of phrenology was erroneous, there was some truth which gave the system the success which it for a time attained. Attention was powerfully directed to the physical correlatives of mind and the so-called mental faculties were analyzed and defined with considerable precision. We now know that there is no such relation between faculty and organ as the phrenologists affirmed, but the modern investigator has been aided in the study of the true doctrine of cerebral localization by the hypotheses and mistakes of his predecessors.

THE EARLY PHYSIOLOGISTS AND THEIR SUCCESSORS.

The work of Bichat, in the first part of the century, was highly advantageous to physiologic inquiry. He first defined the elementary tissues (his classification with some modifications being still in current use), and called attention to the vital properties of the tissues. This conception became fruitful in its application to the nervous system. He was the first to predicate sensibility of all the organs, which, he says, "forms their vital character." In 1811 Sir Charles Bell first demonstrated that there are nerves of sensation and nerves of motion, and he roughly sketched motor and sensory localization in the spinal cord. The way was now open for other researches localizing function and

specifying properties in different parts of the nervous system.

The science of biology has sprung into being during his century, and as a result of perfected microscopes, he cellular structure of all organic and vegetable tissues has been revealed. The field of vision has been extended to the domain of the infinitely little. The truly functionating (parenchymatous) elements are groups of cells which, the more we study their marvelous properties, seem the more endowed with the attributes of intelligence. We may fairly compare he behavior of the leucocytes and other living cells of a part invaded by hostile bacteria to the actions of a colony of ants when their citadel is attacked by an enemy; and the true tissue builders of the organism may be likened to the honeycomb fabricators of the hive.

Since the discovery of protoplasm, it has been shown that even the cell is not the fundamental unit, but that the essentially living substance is independent of structure and endowed with the properties of nutrition, growth, reproduction and movements, apparently spontaneous. I shall not discuss the question whether here be any real spontaneity in the movements of the matter of life. Some (as Claude Bernard) insist that he seemingly independent movements of protoplasm re caused by the impact of forces in the environment.[1] On the other hand, Lionel S. Beale in his numerous writings claims the separate existence of a transcendental power, "vitality," as the agency upon which he composition, character, minute structure and action of all tissues and organs in every living organism directly depend. It is not derivable from or correlated with the natural forces, light, heat, electricity, tc. This is dualism pure and simple, a conception rom which the scientific world has been steadily moving. It has hampered science in the past, and has been unfruitful of progress. All admit the mystery f life, and it is as great as the mystery of mind.

MIND, ONE ASPECT OF LIFE.

Prior to about the middle of the last century, the most vague ideas of cerebral physiology were entertained. Although the brain was held to be the organ f mind, the latter was not regarded as the function of hat organ,[2] consequently the study of mind was not onnected with the study of the nervous system.

Hartley, in 1748, made the first attempt to explain sychologic phenomena on physiologic principles. ocke's treatment of the subject is of the vaguest ind, although he had attained to a singularly correct iologic conception of man, whose identity (like that f the plant and animal) consists in "a participation f the same continued life by constantly fleeting parcles of matter in succession vitally united to the ame organized body."[3] Hartley was the first to peak of motions in the substance of the brain (called lso by him "oscillations" and "vibrations") as conomitants of thought. Erasmus Darwin's theory is bstantially the same as Hartley's, though he had a dim idea of psychology as based on the laws of life. On this basis Cabanis early in this century instituted his psychology. He first distinctly connected the operations of intelligence and volition with the origin of all vital movements. Life and mind were treated as correlative. The consequences were immediate. If mind was to be studied as one aspect of life, it must be studied through that inductive and experimental method which has reached the certain truths of positive science.[4]

No author has carried forward this conception as far and established it by such a wealth of fact as Herbert Spencer, whose "System of Psychology" has been an epoch-making book, profoundly affecting all subsequent psychologic writings.[5] In the light of the Spencerian philosophy, human psychology is only a part of animal psychology, both dealing with orders of phenomena to be studied under the head of gensral biology. Mind in the last analysis is resolvable into units of feeling, whose objective counterpart is a nervous shock or series of shocks occurring in the living protoplasm of a nerve center. This conception assimilates human to animal intelligence, and whether best explicable by the monist or dualistic hypothesis, is quite inconsistent with the assumption of any radical difference between the human and the brute mind. If the one needs an immaterial agency to account for its existence, so equally does the other.

In Spencer's system the inorganic comes first, then the lowest forms of vegetable and animal life, then forms of life that have a relatively developed mentality, and finally those that possess it in a high degree, like man.

If the chapter of inorganic evolution could be written, it would trace the development of compounds of matter of the simplest and most stable forms up to those highly complex and unstable compounds containing nitrogen, sulphur and phosphorus constituting the protoplasmic group. The gaps in this study can only partly be filled by a process of reasoning from the law of continuity. There is in the universe a constant redistribution of matter and motion, and these redistributions constitute the changes which we see; nothing new is introduced except what results from the redistributions. There is nothing in the evolved universe which did not exist potentially in the original nebula. The elements and forces which compose an organism existed previously as parts of other compounds. Everything has come into being through one method of evolution from lower forms. How is it with mind—with consciousness? When these first appeared was any new element added?

The consistent evolutionist denies that there has been any supernaturally interjected element. The hypothesis that there is any such element introduces confusion into his system. He may rightly rest in the agnostic position that we can know nothing of the ultimate nature of either mind or matter. He may adopt Spencer's thesis, that the unknowable manifests itself to us subjectively as consciousness and objectively as matter. Doubtless, as Boscovich, Faraday and Jevons believed, matter in the last analysis is simply force, *i. e.*, something immaterial, spiritual. Granting this, monism is the more logical doctrine. Everything has a transcendental side. Mind and matter have a common substratum. In its application to nerve centers, what is nervous shock on one side is

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Claude Bernard, Legons sur les phenomènes de la Vie, states: The movements are spontaneous only in appearance. There are always exterior agents foreign to the living organism which provoke active manifestations in living protoplasm. In the higher animals these stimuli generally act through what Bernard calls "the interior environment," *i. e.*, the circulating blood.

Lannessan, in his remarkable work (little known in this country): "Le Transformisme," defines life as "the sum of movements manifested by matter in that state of chemic composition and molecular aggregation which is the most complex of which we have any knowledge."

The proposition that mind is a function of the brain must be taken with great limitations. See G. H. Lewes, Biographical History of Philosophy, Am. Ed., p. 603.

Essay on the Understanding. New York, 1825, p. 220.

G. H. Lewes: Biographical History of Philosophy, . 604.

Notably Maudsley, Taine, Ribot, Fiske.

feeling on the other. Consciousness is the correlative of the collective life of millions of cortical cells, each having an individuality and mode of feeling of its own. The proposition is incomprehensible, but it is not inherently absurd, as it is in accordance with all biologic fact. In all our mental life, the physical is so inextricably interwoven with the mental that by no analysis can we separate them. The application of this truth to the emotions is familiar to all. "The expression is not merely an external sign of the emotion, it forms an integral part of it. Even in a normal state where an expression is artificially produced, it gives rise to the corresponding emotion."[6] Bain (who was I believe the first to publish a text-book on the mind with an introductory chapter on the brain and nervous system), has shown this with a wealth of detail in his "Emotions and Will." Take, for instance, his description of the physical accompaniments of terror, and conceive, if you can, of this passion existing without those physical expressions.[7]

It is impossible to present here even a summary of that important part of Mr. Spencer's work in which he traces the correspondence of life and mind throughout the animal kingdom. He affirms that if evolution be true, mind can only be understood by observing how mind is evolved. If creatures of the most elevated kinds have reached those highly integrated and extremely heterogeneous organizations they possess through modifications upon modifications accumulated through an immeasurable past—if the developed nervous systems of such creatures have gained their complex structures and functions little by little; then necessarily the involved forms of consciousness which are the correlatives of those complex structures and functions must have arisen by degrees, as it is impossible to comprehend mental (as well as bodily) organization, without tracing its stages.[8] No one at the present day has done this work so well as Mr. Spencer, and to his "Principles of Psychology" I must refer the reader for further details. He shows that the most general definition which can be given of life—the maintenance of inner actions corresponding with outer actions—also applies to mind, that the degree of both varies as the degree of the correspondence, and that we pass from the physical to the psychical the moment we rise above the correspondences that are few, simple and immediate. "Regarded under every variety of aspect, intelligence is found to consist in the establishment of correspondences between relations in the organism and relations in the environment, and the entire development of intelligence may be formulated as the progress of such correspondences in space, in time, in speciality, in generality and complexity."[9]

Lastly, he shows that the classifications current in our philosophies of the mind can not be true. "Instinct, reason, perception, conception, memory, imagination, will, etc., must be either conventional groupings of correspondences, or divisions among the operations which are instrumental in effecting the correspondences."

THE NEW PHRENOLOGY.

There is no doubt that the doctrine of localization of functions in the cortex cerebri, as based on the discoveries of Fritsch and Hitzig, and especially David Ferrier, has forwarded the progress of mental physiology. The former teaching, sanctioned by the authority of Flourens, was that the functions of all parts of the cortex were essentially the same. The gray matter was inexcitable by ordinary irritants. Mind was regarded as a principle residing in all parts alike, and the destruction of limited areas of gray matter might not seriously impair the mental powers; experiments on rabbits and birds on which ablation of portions of the cerebrum had been performed, were alleged in support of Flourens' doctrine, and the celebrated crow-bar case was made to do yeoman service. "A limited part of the cerebral lobes," says Flourens, "suffices for the exercise of all their functions."

It need hardly be said that such views of cerebral psychology have not at the present day a single scientific advocate, and are virtually abandoned, so that they do not merit formal refutation. I may include in this reprobation the traditional belief that the brain is a mere machine played upon by "the mind."[10]

It was a surprise to the world when the doctrine of motor centers in the cortex cerebri was first enunciated—that a considerable area in the parietal lobes which had been assigned by the early phrenologists to certain faculties of the mind, was a part of the motor mechanism of the body. Broca had found the center of articulate speech in the posterior part of

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6 Binet and Féré: Animal Magnetism, p. 54.

7 I can not refrain from citing (though in a note) the illustration given by Prince Kropotkin in the *Nineteenth Century* for July, 1897. The intimate correlation of the psychical and the physical is shown in conformity with the recent discoveries of Ramon y Cajal.

"Suppose that the skin of the right hand is irritated by a burn. The end ramifications of some nerve fibers in the skin at once transmit the irritation inward, to a ganglion cell located near the spinal cord. From it a nerve impulse is sent along another nerve fiber which enters the spinal cord and there envelops with its end branches the dendrons of some neuron. The central nerve system has thus been rendered aware of the irritation of the skin, and in some way or another it will respond to it. The nerve current, after having reached the cell of that spinal cord neuron, immediately issues from it along a nerve fiber; and if that fiber runs toward a striated muscle of, let us say, the other hand, our left hand may touch or scratch the burnt part without consciousness of that action being aroused; it is a simple reflex action. But the nerve fiber of that same cell may divide into two main branches, and while one of them runs to the muscle of the left hand the other branch runs up the spinal cord and reaches one of the big pyramidal cells of the gray cortex of the brain. The ramifications of this branch envelop the dendrons of the brain cell and transmit the impulse to it. Then we become conscious of the sensation in the right hand, and we examine the burn. However, the pyramidal cell in the gray cortex is connected, through its dendrons and fibers, with many other cells of the brain, and all these cells are also started into activity. But the big pyramidal cells, in some way unknown, are the recipients and keepers of formerly received impressions, and as they are stimulated associations of previously impressed images—that is thoughts—are generated. A familiar association between a burn and oil may thus be awakened, and we put some oil on the burn. At the same time the nerve impulse was also imparted to that chain of ganglia (the so-called vasomotor system), which is connected with the heart, the intestines and all other inner organs, as also with the blood vessels, the glands and the roots of the hair. And if the burn was severe, and very painful, the activity of the heart may resent it, as also the blood vessels; we may turn pale, shed tears, and so on.

Now, whatever hypothesis we may adopt to explain how an undoubtedly physical nerve impulse can be transformed into complicated psychic processes, each of which also ends in physical facts, it can now be affirmed that the paths which the nerve impulse follows, and the activity which it starts in a number of cells of the brain, spinal cord and ganglia, are hypotheses no more. The electric effects of the nerve impulse as it is transmitted along such and such nerves, have been measured; its transmission from this or that cell of the cord to these or those cells of the brain has been tracked step by step; nay, the activity of the stimulated nerve cells in the brain and elsewhere has actually been determined, and the effects of fatigue in nerve cells have been studied in detail. And when the anatomist maintains that an irritation of the skin will be transmitted in this way and not in another, to such cells in such cases, and start into activity such cells of the brain, this is speculation no longer. It is a fact of natural science, firmly established, and verified in different ways by a mass of materially controlled observations."

8 Principles of Psychology, Vol. I, p. 292.

9 Loc. cit., p. 385.

10 There is a sense in which these views are correct. Munk, in answer to the question, "Where is the seat of intelligence?" replies (and in this answer we see how far the new psychology has diverged from the old): "Intelligence has its seat everywhere in the cerebral cortex and nowhere in particular. It is, in fact, the sum or resultant of all the images or representations derived from the exercise of the senses. Every lesion of the cortex alters the intelligence more or less profoundly, in the ratio of the extent of the lesion. This it always does by the loss of those groups of images or representations, simple or complex, whose seat is the cortical territory injured. The intellectual trouble will be definite: 1. If the perceptive elements are destroyed; 2. If there remains no more substance which can become the seat of the functions lost. Blindness, deafness, psychical paralysis, complete or incomplete, of one part of the body entail greater or less contraction of the field of intelligence." Soury, Fonctions du Cerveau, page 117.

the third left frontal convolution. Ferrier found this center to be a part of the motor zone, which is formed by the juxtaposition of several centers, each presiding over the motion of a member, or of a muscular group on the opposite side of the body.

The topography of the motor or cortical centers in man is well demonstrated by the anatomo-clinical study of motor paralysis of cortical origin.[11] These paralyses are extensive or circumscribed according as the lesions of the cortex on which they depend are considerable or inconsiderable in extent, and they affect this or that part of the body according to the precise point in the motor zone in which the lesions are situated.

These are the motor centers (*libero-motor*) of actions properly classed as voluntary and conscious; and even *ideo-motor* actions, originating in the cortex through awakened sensory images, find here their mechanism of reflection.

Here is the highest plane of transit of the sensory into the motor. Here are the centers where impressions not disposed of in the lower ganglia are finally reflected. If life and mind are the adaptation of inner relations to outward changes, here is the workshop where the finer, more delicate adjustments are made which bring the individual into most complete harmony with his environment. For these ganglia are in the closest connection with other ganglia (those of visual and auditory perception, etc.,) in which are registered the experiences of a life time and during the psychic life of the individual they are responsive only to mandates from these higher centers. The infinitely numerous and varied neural communications between ganglia make possible the most complete functional solidarity.

The cells of the motor area (Rolandic region) register motor memories; they are *libero-motor* (Herbert Spencer).

The optic lobes in the lower vertebrates and their intra-cerebral expansions have a functional importance commensurate with their preponderant size, and although in man the corpora quadrigemina are relatively small, the cerebral expansions of the visual nerve apparatus occupy the occipital lobes and a part of the parietal (angular gyrus), in other words these parts of the hemispheres are appropriated to sight memories. Their destruction involves the loss of a wide territory of mind, all knowledge acquired by the visual sense. For it is now known that memory is a material record, "we may in fact assimilate the fixation of memories to an iconographic act, if the complexity of structure of the encephalon did not interpose an obstacle to such a schematization."[12] "To say that the cortex cerebri is a sensitive photographing plate on which are fixed the images of the external world is no longer one of those metaphorical formulæ which are employed to express empirically what can not be scientifically demonstrated."

There is a sense in which the term images as applied to the cortical memories is correct, but it should not be forgotten that we have to do here with vital laws, not physical.

If impressions may be "graven" on the cells of the visual centers, they may be weakened by fatigue or anemia or obliterated by disease, and instances are on record where whole groups of visual memories have been blotted out by softening while the memories of other senses are left intact. The condition of the subject is truly deplorable, for he can no longer recognize objects, and all that he has learned by sight has perished. The distinction of partial memories, so much insisted upon by Ribot has been established beyond dispute. Charcot has devoted to this subject an interesting lecture in the third volume of his Lectures on the Diseases of the Nervous System (Leçon xiii). He gives the particulars of a case of loss of the mental vision of objects, forms and colors, coming on suddenly in a subject noted for great intellectual activity, but especially for the strength of his visual memory. After an attack, which seemed to be of the nature of a limited embolism, he lost his visual memory of forms and colors, and was obliged to have recourse to other forms of memory (the auditory, tactual, etc.) which were unimpaired. The "interior vision had completely disappeared." Charcot concludes his observations of this case by saying that, "It can not now be denied that the possible and actual suppression in numerous instances of an entire group of memories, of a whole category of commemorative images without the participation of other groups or categories is a capital fact in pathology as well as in cerebral physiology. It leads necessarily to the admission that these divers groups of memories have their seat in certain determinate regions of the encephalon, and adds another proof to those already existing that the hemispheres of the cerebrum consist of a certain number of differentiated organs of which each possesses its proper function while remaining in the most intimate connection with the others."

The visual word center whose suppression gives rise to word blindness is in the angular gyrus. Lesion of this center is generally accompanied by hemiopia by involvement of the common visual center situated in its vicinity. Dejerine, who locates word blindness in the angular gyrus, thinks that lesion of this center always connects with it agraphia, writing being but the copy of visual word images evoked mentally,[13] (See in opposition to this exclusive view Bastian in London *Lancet*, April 10, 1897, page 1012.)

The auditory word center whose destruction causes psychical word deafness is seated in the middle part of the first left temporal convolution.

Ferrier, Wernicke and Munk agree in localizing the center of audition in the temporal lobe, particularly in its upper portion; the first and second temporal gyri. This is the seat of sound perception, destruction of which entails loss of the memory, and consequently of the comprehension of words. There are now quite a number of cases on record in which the loss of word memories was consequent on softening of this center. Many cases have been recorded in which the patient's speech has been so disordered that he could scarcely say more than three or four connective words, and could perhaps utter no nouns, yet when a book is placed before him, he is capable of reading aloud correctly and with ordinary facility.[14]

Regarding the centers of smell and taste, it seems demonstrated that these are located in the sabiculum cornu ammonis, and in the hippocampus. We, however, lack positive data in this regard. It is also in

[11] Vide Charcot: Centres Moteurs Corticaux, p. 193. Paris, 1875.
[12] Bressaud: Traité de Médecine, Charcot, etc., Paris, 1895, p. 6.

[13] See "Illustrative Cases of Aphasia," by Byrom Bramwell, Case 1, p. 796, in Lancet for March 20, 1897. He reports a case of agraphia with almost complete word blindness due to a gumma in the region of the left angular gyrus. This writer does not, however, admit that all cases of word blindness are accompanied with agraphia.
[14] Bastian, in London Lancet, April 10, 1897, gives notes of three such typical instances.

the hippocampus that Ferrier locates the centers of tactile sensibility, but we require more definite knowledge on this point. There is good reason to believe that in man the motor areas of the cortex contain also the centers of cutaneous sensation.[15] The frontal lobes undoubtedly make part of the sensitive or sensori-motor sphere of the cortex cerebri. They are, according to Ferrier, inhibitory motor. Electric stimulation causes no motor manifestations; their removal produces no motor paralysis, but causes a form of mental degradation which may be reduced in ultimate analysis to loss of the faculty of attention (Ferrier, Functions of the Brain, page 288).

Removal of these lobes also produces a peculiar change of character; animals become morose, irritable and violent, and similar changes of importance have been noted in them after serious injuries of these lobes. Removal of the occipital lobes seems more directly to enfeeble the intelligence, because, as Soury shows, the posterior cerebra have more to do with sensibilty, and in the event of their mutilation, "the impossibility of inhibiting the centripetal irritations and of determining muscular movements co-ordinated in view of a useful end will give to the animal the aspect of a creature becoming demented.[16] The anterior cerebra have a more strict anatomic relation with the motor apparatus; the posterior with the organs of sense. As long as these two cerebral regions are intact, the centrifugal currents of the muscular innervation may undergo an arrest, as well as the centripetal currents coming from the organs of sense. The cerebral reflexes enter in play, and the final reaction positive or negative, always results from the conflict of the psychic forces. But in the animal whose front brain has been removed, there is no longer anything to oppose the liberated currents of motor energy.[17]

"Man," says Ferrier, "is not merely a passive or receptive organism capable of registering impressions in the form of sensory ideas or feelings, but also an active or executive organism, possessing the power of varied and complex forms of motor activity. These motor activities called into play by definite feelings or sensations, actual or revived, constitute volitional movements, and the organic cohesion formed between the sensory and motor centers persistently enduring in these centers is the physical basis of our volitional acquisitions in all their manifold range and complexity."[18]

In accordance with these views, we can only regard intelligence as the resultant of all the images or representations derived from the perception of the senses. Every lesion of the cortex alters the intelligence, the more profoundly the greater the extent of the lesion; this it effects by the loss of these groups of images or representations, simple or complex, which have for their substratum the cortical territory diseased or destroyed.[19]

The familiar truth, *Nihil est in intellectu quod non prius fuerat in sensu* (there is nothing in intellect which was not previously in sense), has received striking confirmation from recent discoveries in mental physiology. What clear notion is it possible to form of mind apart from these stores of images that have come in through the special senses? Reflection, imagination, ideation, discrimination are only possible as these images are awakened and brought into simultaneous intercommunication through that wonderful network of neural connections which exist throughout the cerebrum. But many of these organized acquisitions antedate the experience of the individual, and are a product of ancestral experience.

The human brain may be regarded "as an organized register of infinitely numerous experiences received during the evolution of life, or rather during the evolution of that series of organisms through which the human organism has been reached."[20]

The physiologist of today is perhaps as far as his predecessors from a solution of the problem of consciousness. Consciousness is doubtless a primordial fact of ganglionic nerve activity under certain conditions. These conditions are now tolerably well known. It is not an activity that can long be sustained without interruption. It seems particularly to be associated with the disintegration of nerve element. Some writers, notably Herzen, regard it as the fervid glow of the sensorial centers. The illustration will answer our purpose, the qualification being made that we are regarding only the objective aspect of the subject. In this fervor all the elements of the cortex participate with a greater or less degree of intensity, by reason of that cohesion of neural groupings which constitute a solidarity of the brain functions.[21]

1. "Impressions are resuscitated or brought into consciousness in proportion to the amount of molecular change in the brain" (E. D. Cope). This statement is in conformity with Herzen's investigations (See "Le Cerveau et l'Activité Cérébrale," Part III.)

2. Events are resuscitated in proportion to the intensity with which they are impressed on our consciousness at the moment when they occur. This is a universal experience, and according to Cope is to be traced to the different degrees of molecular changes produced in the brain by the respective impressions. Cope, from whom I quote, gives appropriate illustrations. The facts of inherited memory are; that upon the appropriate stimulus being presented, as the cry of a hawk, a part of the impression made on previous generations of chickens, *fear*, is resuscitated in consequence of inherited peculiarity. The phenomenon is precisely that which occurs in the life of every single animal. Reminiscence is the bringing of mental states into consciousness.

3. Consciousness is dependent on a certain normal waking state of the cerebrum and integrity of the cerebral substance.

4. Consciousness is not coextensive with mind. The contrary was taught as a psychologic dictum by Sir William Hamilton, but it is not correct, nor is it altogether true to speak of mental phenomena gener-

15 See a paper by Dr. Charles L. Dana, in the Journal of Nervous and Mental Diseases, October, 1888, in which this subject is discussed from recent data.

16 Soury: Les Fonctions du Cerveau, Paris, 1892, p. 136.

17 Loeb, cited by Soury.

18 Functions of the Brain, p. 266.

19 Munk (cited by Soury).

20 Herbert Spencer, loc. cit., p. 471. "Les perfectionnements ainsi obtenus dans une suite de générations finissent par devenir héréditaires et par faire partie des qualités de la race. Que de sentiments naturels aujourd'hui chez l'homme civilisé ne sont que des resultats d'une éducation continuée de générations en générations pendant de longs siècles." Vulpian, Physiologie Comp. du Système Nerveux. The French physiologist has here brought out the same truth as is advanced above.

21 The following passage is from Herzen, "Le Cervcau et l'Activité Cérébrale," Paris, 1887:

"We are conscious in the waking state, unconscious when we sleep soundly; this is a first rough indication of the bond which unites consciousness to the disorganization of the active elements. I shall show further on that this intermittence subsists in each central act taken separately. The brain may, in fact, be compared to a room furnished with an immense number of gas-beaks, but lighted only by a number relatively small and relatively constant of illuminated beaks, which are not always the same; on the contrary they change at each instant; as fast as one is extinguished others are lighted up; all are never illuminated at the same time; at times all are extinguished."

ally as "states of consciousness." Mental power, as Maudsley well says, is organized before consciousness appears, and it is subsequently regularly modified as a natural process without the intervention of consciousness.[22] Maudsley elaborated this fact with considerable completeness many years before the valuable contributions of F. W. H. Myers and Dr. Osgood Mason on the "Subliminal Consciousness" were published. Dr. Carpenter forcibly states the same truth in her "Principles of Mental Physiology," published in 1874. The subject has also been well treated by Dr. Laycock and by Dr. Oliver Wendell Holmes.

5. The process of association of ideas goes on in the brain independent of consciousness and the assimilation or blending of similar or different ideas is in no way under the cognizance or control of consciousness.[23]

If consciousness is the highest form of cerebral activity, embodying primarily present impressions of sense, and secondarily the residua of past impressions (the results of individual and even racial experiences) with the feelings and emotions belonging to those experiences, it follows that the character and personality of the individual can not find expression without consciousness; in other words, the individual when under the domination of subconscious or unconscious states is an automaton rather than a rational man. This truth has been recognized in all ages; a man is only responsible for what he does consciously.

Doubtless trains of thought can go on without consciousness; we have evidence of this in our dreams, and in hypnotism. It is possible for subconscious states or groups of ides to become "dislocated" and form a second personality. We find remarkable instances of this kind recorded in "Maladies de la Personnalité" by Ribot, and in Janet's "Automatisme Psychologique," and later works which deserve careful study. Hypnotism artificially arouses in the subject a second personality by paralyzing or inhibiting in some mysterious manner the upper consciousness.

I am aware that extraordinary claims have been made for hypnotism, but really nothing has ever been elicited from hypnotized subjects that was not before in their cerebra as parts of their stored-up acquisitions obtained through the channels of the senses. Again we say: *Nihil in intellectu quod non prius fuerat in sensu.* The most that we can concede is that in some phenomenal cases there may have been a preternatural exaltation of certain senses so that the subject became in some way cognizant of influences at a distance.

As for "mind reading," I have no explanation to offer; I await sure proof that the fact exists. The stores of "memory images" in the cortex cerebri are not legible characters nor even hieroglyphics to be read by experts, but simply cell modifications, with their subjective counterparts.

We should be slow to adopt the conclusions of Myers, who has written profoundly of the "Subliminal Consciousness," in the Proceedings of the Society for Psychical Research. A vast amount of assertion is made on insufficient authority. Myers' conclusions may be in harmony with the old psychology; they can not be reconciled with the new. If the views of some of these men of the Psychical Research Society are true, we must give up doctrines which are the necessary resultant of the inductive study of mind of the past hundred years. If Mr. Myers is right, we have learned nothing from the method of concomitant variations or the clinico-pathologic method based on the modern doctrine of cerebral localizations. This is no reason why we should reject proved facts, but it is important that we should weigh assertions and demand the most complete proof.

Dr. R. Osgood Mason has lately published a book entitled, "Telepathy and the Subliminal Self," which contains much that is simply as incredible as the prodigies which Suetonius describes attending the death of Julius Cæsar, and is not better supported. The order of phenomena of which he writes is quite familiar to us through the claims of spiritualists, who base their beliefs on just such "facts." Modern spiritualism has been very thoroughly investigated and found wanting. I need only refer to the labors of the Seybert Commission and to the English Society for Psychical Research. which has done good work in exposing frauds posing as mediums and clairvoyants. The mediums of this country are almost without exception shallow impostors and charlatans banded together to help one another and to deceive the public. Prof. R. Hodgson virtually affirms this as the result of his labors in the United States in behalf of the Society for Psychical Research.[24]

I am certain that the psychology of the future will not accord as much importance to the "subliminal consciousness" as does Dr. Mason. To him it is an unknown quantity of monstrous proportions, capable of all knowledge, past, present and future. Rather would we take the view of Janet, that it is the weaker self. "How far this splitting up of the mind into separate consciousnesses may exist in each one of us is a problem. M. Janet holds that it is only possible where there is abnormal weakness and consequently a defect of unifying or co-ordinating power. A hysteric woman abandons part of her consciousness because she is too weak nervously to hold it together. The abandoned part meanwhile may solidify into a secondary or subconscious self. In a perfectly sound subject, on the other hand, what is dropped out of mind at one moment keeps coming back at the next. The whole fund of experience and knowledge remains integrated and no split off portions of it can get organized stably enough to form subordinate selves."

This view of the pathogeny of the "second personality" I have given in the exact words of Professor James.[25] It is the view becoming more and more current among physiologists. The individual who is subject to these changing phases of personality, or who can assume them at will for purposes of gain, professing to be under spirit control is, like the hysteric or insane person (there are some forms of insanity in which the mental malady is a simple change of personality), a person of weak and depraved cerebral tone and stamina, a neurasthenic or a degenerate. It is folly to attribute to such weak-minded, depraved or degenerate subjects superior knowledge and insight and consult them on matters of the utmost moment, as is done by many. Science has in the past throttled superstition and will continue its beneficent mission. Spiritualism is based on old and obsolete views and must perish as men learn the new science of mind.

Let us defeat the Antivivisection Bill!

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[22] Maudsley, Phys. and Path. of Mind, Am. ed., pago 15
[23] Maudsley, loc. cit.

[24] See "Vampires of Onset," by John Curtis of Boston, for further proof. Mr. Curtis writes: "Nothing has come from spiritual or psychical societies of the least value to the world and all interest in them is fast dying out.
[25] Psychology, vol. i, p. 210.

A COMPARISON OF THE ANATOMY AND THE FUNCTIONS OF THE CEREBRUM AND THE CEREBELLUM.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1–4, 1897.

BY WILLIAM FULLER, M.D.
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In order to understand the anatomy and the connections of the cerebrum and the cerebellum, it will be necessary to present a cursory view of the general structure of the central nervous system. For the purpose of description it will be advantageous to divide the cerebro-spinal axis into three portions, which may be compared with each other by similarity of parts, though differing in their arrangement. The three divisions of the axis which I shall make are, the spinal cord, the cerebellum and the cerebrum. Each of these parts is divided into lateral halves by a median fissure. The lateral halves are united in the median line by a commissure; each portion encloses a cavity or ventricle which is continuous with that of the others, and each is composed of gray matter, of motor and sensory function, with commissures of white matter extending between the gray masses, or the nerve centers. The gray matter of the spinal cord is invested by the white columns of the cord, while in the cerebellum and cerebrum the gray matter or ganglia are everted, and the white substance enclosed. The crescent-shaped gray columns of the spinal cord are its inverted hemispheric ganglia, and the reticulated column by which these are immediately invested, corresponds to the corona radiata of the cerebellum and the cerebrum. The longitudinal white columns of the spinal cord are seven in number, are continuous with certain tracts of the cerebellum and the cerebrum, and may therefore be traced upward into these parts, and associated into general systems, by which method of study an understanding of the whole structure will be reduced to the greatest simplicity. Disregarding the direction in which the nerve impulses are propagated, we will begin in each instance with a column of the spinal cord and proceed upward, in order to avoid confusion in the anatomic relations. We will make use of the singular number in most cases, since it will be understood that each half of the axis is like the other.

1. The motor tract: The crossed pyramidal tract unites with the direct pyramidal tract of the opposite side of the cord to form the opposite pyramid of the medulla oblongata. The anterior pyramid of the medulla passes into the pons Varolii, is there connected with one side of the ganglion of the pons, which is the external basal ganglion of the lobe of the cerebellum opposite to that half of the pons. The pyramid is continued through the crusta of the crus cerebri and the middle portion of the internal capsule and lenticular body, to the motor area of the hemisphere. The impulses propagated along this tract are downward, and are derived from the hemisphere of the cerebrum, and the opposite hemisphere of the cerebellum.

2. The ocular reflex tract begins below in the fundamental root zone of the spinal cord and, becoming compressed at the upper part of the medulla oblongata between the anterior pyramid, the olive and raphe, escapes in the pons Varolii to form a flat band in front of the fillet and, pursuing an upward and outward direction to the corpora quadrigemina, is continued through the brachia and the geniculate bodies to its connection with the optic tract.

3. The fillet tract or the sensory tract of Gower: This tract commences below in the anterior root zone of the spinal cord, passes upward to the pons Varolii, where it lies behind the olivary fasciculus, and forms the middle layer of the fillet with which it is continued upward internal to the crusta, which it crosses in an oblique direction to reach the frontal convolutions of the cerebrum. This tract is augmented in size as it passes upward by accessions from all the sensory ganglia and, with the large mass of fibers derived from the thalamus, this system forms the anterior portion of the internal capsule of the cerebrum. The probable function of this tract is to form a direct communication between all the sensory ganglia with the seat of consciousness and intellect in the anterior lobes of the brain.

4. The cerebello-spinal tract: The direct cerebellar tract of the spinal cord connects the cerebellum with the vesicular column of Clarke. The function is supposed to be trophic.

5. The organic sensory tract: Beginning in the posterior root zone of the spinal cord, it is interrupted in the medulla oblongata by the restiform ganglion, is continued upward to the cerebellum by the restiform body entering the corpus dentatum, or internal basal ganglion of the cerebellum, and to the cerebrum through the processus, red nucleus and thalamus to the occipital and temporal lobes of the hemisphere, which is the seat of the memories. It is probable that the impressions received by this tract are co-ordinated by the cerebellum, and organized into memories in the cerebrum. The region of the memories in the cerebrum is associated with the fillet system and the frontal lobes by means of the great longitudinal commissures, the import of which is, that the present impressions received through the fillet system of fibers just mentioned are thus associated in the intellect with the organized impressions of the past which, as I have before stated, are located in the posterior and temporal lobes of the brain.

6. The respiratory reflex tract is formed by the posterior median columns of the spinal cord which, terminating above in the clavate nuclei, are through these bodies connected with the centers of the sensory respiratory nerves.

If we add the speech tract to those above described, it will be observed that we have included almost the entire cerebro-spinal axis into four short and into three general groups or tracts. For our present purpose we may omit the former groups, and regard only the latter, viz., the motor tract, the fillet or direct sensory tract and the organic sensory tract. The cerebrum is connected with all three of the latter tracts but the cerebellum is not associated with the fillet being devoid of consciousness and intellect, but with the other two tracts only, viz., the motor and the organic tracts. The parts which enter into the structure of the cerebrum, or into the cerebellum, are the internal capsule and basal ganglia, the transverse commissures, the corona radiata and the hemispheric ganglia, a comparison of which several parts will now engage our attention.

The internal capsule of the cerebrum is composed of three distinct parts: an anterior portion which is distributed along with the longitudinal commissures to the frontal lobes of the hemisphere, and is receptive in function; a middle portion, derived from the

parietal or motor area, and is motor in function; and a posterior and inferior portion, derived from the internal basal ganglia and distributed to the occipital and temporal regions of the hemisphere, the function of which is sensorial and organic, and which therefore contains the memories. The internal capsule of the cerebellum also contains three parts, viz., the restiform body, which connects it with the spinal centers; the processus, which connects it with the opposite cerebral hemisphere; and the deep layer of the transverse fibers of the pons Varolii, which connects it with the ganglion of the opposite side of the pons Varolii and the opposite motor tract of the cerebrum. The latter portion of the cerebellar internal capsule is its motor tract, which therefore decussates with its fellow in the middle line of the pons Varolii, in order to reach the motor tracts of the cerebrum previous to the decussation of the latter in the medulla oblongata, which supposition appears to be amply demonstrated in a hemimicrocephalic specimen in my possession, as well as from the consideration of the physiologic probability.

The restiform body and the processus both belong to the organic sensory tract and are continuations of the same. The internal basal ganglia of the cerebrum are sensory, and the external basal ganglion, or lenticular body, is motor in function, and each is connected respectively with the sensory and the motor tracts before described; their names indicate their relation to the internal capsule. So likewise the basal ganglia of the cerebellum are called internal and external, and are correspondingly sensory and motor in function. Its internal basal ganglion is the corpus dentatum, in which the restiform body terminates and the processus takes its origin. The external basal ganglion of the cerebellum, as before stated, is within the opposite half of the pons Varolii, being thus displaced to be associated with the opposite motor tract of the cerebrum, with which its function is allied. The corpus callosum of the cerebrum is a broad band of transverse fibers which unites its opposite hemispheres, and its analogue in the cerebellum is the superficial layer of the transverse fibers of the pons Varolii. The correspondence between the corona radiata and of the hemispheric ganglia of the cerebrum with the same structures of the cerebellum are sufficiently evident that they only require to be mentioned.

The size of the cerebellum relative to that of the cerebrum in different brains is worthy of note in reference to the effect upon the character of the individual. A large cerebellum is associated with a large development of the nutritive functions, and commonly with the existence of great force of character. Men thus endowed occupy the first place in the public estimation, while those of intellect occupy the subordinate position of advisers. The intense desires originating in a large cerebellum are not obstructed by the contracted foresight of a small cerebrum, and on the other hand a large cerebrum often magnifies the difficulties which lie in the path that leads to success. The man who is well balanced by a due proportion of these masses is happily constructed.

The above observation is supported by a comparison of several brains in my possession of persons with whom I was well acquainted in their lifetime, and I think that common observation will lead any one to the conclusion that a large abdomen is a stronger indication of greatness than a great head.

This leads to a consideration of the relative functions of these portions of the brain. We have observed that the cerebrum is built upon those tracts of sensation one of which furnishes it with material for direct perception, and the other organizes within its cells not only the impressions of past experiences, but perhaps also the inherited tendencies of a former generation. These are associated by means of the longitudinal commissures of the brain and the conscious judgments, ever varying with each successive stimulus, are reflected upon the motor tract in obedience to the mandates of the will. The activities of the cerebrum are those which produce sudden and active change of the organs of motion, in order to accommodate the individual to his environment. The activities manifested as the result of cerebral disease are those of mental disturbance, chorea, athetosis, etc. The lateral masses of the cerebellum are connected wholly with the organic sensory tracts and with the motor tracts of the opposite cerebral hemispheres. Each hemisphere of the cerebellum is directly attached to the same side of the spinal cord and receives impressions from the same side of the body to which it belongs; its motor tract crosses over in the pons Varolii, but is returned to the same side of the cord at the decussation of the pyramids of the medulla, in which the arrangement of the cerebellum differs from that of the cerebrum. It is a mystery which surpasses my capability of solution, why the tracts leading to the cerebrum are crossed. My present impression is that it is the function of the cerebellum to co-ordinate the nutritive functions of the body, and as the mental states of feeling, indicated by desires and passions, depend largely upon conditions of the organic nutrition, it is therefore very probable that the immediate support of the feelings of the mind rests upon conditions within this organ. This is the opinion of Laycock, who thinks that the cerebellum is virtually a great sympathetic center, and thus sustains about the same relation to the sympathetic system as the cerebrum does to the cerebro-spinal system, which I am inclined to accept. The movements produced by the cerebellum, if this theory is true, correspond to changes of organic nutrition and must necessarily be slow, and are manifested externally by attitude and such expression as one can read upon the countenance of an individual in a state of rest. To sum up in a general comparison, I should say that the cerebrum is the brain which represents a knowledge of the world, while the cerebellum represents the physical condition of the man.

It is not to be expected that I should give a complete exposition of the anatomy of the brain in the short time allotted to the reading of a paper, but I have seized upon this opportunity to express what I believe to be the only proper and useful method of studying the central nervous system. The study of the anatomy of the central nervous system should be prior to the investigation of function, for without the aid of anatomy all attempts toward the determination of function, of localization and diagnosis are futile.

Oblique Incision in Sectio Cæsarea.—Fritsch finds that there are many advantages in favor of an oblique incision of the fundus, parallel with the vessels. He recently practiced it and found the entire operation only required twenty-nine minutes; the fetus was extracted with ease; the hemorrhage was very slight and stopped after the removal of the placental sinus, without compression of the cervix. The abdominal incision can be made higher up, thus avoiding danger of hernia later. The operation was remarkably clean. No blood entered the abdominal cavity.—*Cbl. f. Gyn.*, No. 20, 1897.

THE PHYSIOLOGY OF RIGHT- AND LEFT-HANDEDNESS.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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Much as this subject has been discussed, it does not seem to have been approached from the right point of view.

The young infant is in evidence, whose manifestations and peculiarities have been entirely overlooked. First, there is no asymmetry of body or function in early infancy. The child uses its two arms, legs and hands equally well. If there is any heredity of one-sidedness, it does not appear. The first day of life one thing is especially manifest. Beyond all other parts of the body, the hands show greatest development in function. Flexion and extension of fingers, hands and arms are wonderfully perfect and truly bilateral. The first day of infant life the grasping power of the hands is extraordinary. If permitted to clasp a pole with both hands it does so with firmness and will easily sustain its entire weight for a prolonged period. All other parts of the body show comparative weakness and uncertainty of function. This indicates that the hands are developed early, so that the child may become acquainted with its surroundings. The extraordinary clasping power of the hands has amused even the evolution philosophers, who have presumed to declare it a reminiscence of bestial prehensility of claw or tail. However, it is a distinctly human trait. The hands are alert and well developed to feel their way into the world. The sense of touch comes first. Our hands are the first teachers of the properties of things, of roughness and smoothness, of heat and cold, of distances. All these as results of sensation are recorded in the brain through what we call sensory nerves. These nerves or conductors pass up from both sides to the posterior columns of the cord and through the medulla oblongata to each brain.

In the medulla oblongata a peculiarity of organization appears. The nerves from the right side pass, in greatest bulk (about 90 per cent.) to the left cerebrum. From the left side of the body 90 per cent. pass to the right cerebrum, while a small portion (about 10 per cent.) pass straight or uncrossed to the cerebrum of their own side. Thus each half brain is functioned to control both sides of the body, but with great preponderance the left cerebrum controls the right side of the body and the right cerebrum the left. If both sides of the body were used exactly alike the two brains would receive equal or uniform records of sensation. The same is true of the motor or efferent nerves. These also cross in the medulla oblongata from the left to the right side of the body and from the right to the left side in a similar disproportion. If each side of the body, through the hands, was trained exactly alike, the same records or memories of sensation and movement would be printed on the cerebral cortex of each brain. The two brains would become as ambidextrous as are the two eyes, which have an exactly similar crossing of nerve fibers in the optic commissure, whereby the eyes either together or singly carry to the sensorium the same impressions. It needs but little argument to show that were the two eyes separated from each other for the first few years of life, the habit of one-eyedness would become established, and they would never learn to act coincidently.

"Custom alone can overcome nature," says Bacon Have we not reason to suppose that nature, as evidenced in the anatomy of the body and the nervous system, may be defeated by a convention or custom established and persisted in from the infancy of the race? There is no animal, mammal at least, which is not perfectly ambidextrous. At least I can find no evidence of one-sidedness, save in man. This habit seems to have been established in early ages, probably before the historical period. The first occupation and duty among men was to fight and kill each other, for which purpose they desired one stronger hand to wield the club, spear and sword, while the left hand was relegated to carry a shield, and by custom, superstition and fancy it has persisted ever since. It is the exceptional parent, to this day, that neglects to train the child to right-handedness. Perhaps no mother or conventional nurse ever fails to place an object for the infant to clasp save in its right hand. That right-handedness is not natural, however, is evidenced by the oft-repeated left-handedness observed among us.

The left-handed habit is doubtless started in spite of the watchfulness of the parent during the critical period of babyhood, after the seventh month, perhaps on account of a burn, a strain or hurt of the right hand. The child at once brings the left hand into use, and in a few days, weeks or months the left hand habit becomes established with such force as to discourage the parent. All efforts weakly persisted in fail to correct it.

In the most primitive condition of man, before the custom of warring with each other existed, man as a hunter did not use the sword and shield. Perhaps then the two hands were brought equally into play. One or two authors have contended that early man was more ambidextrous than we; however, it seems impossible to confirm this. Among the early Hebrews the soldiers of the tribe of Benjamin were trained to left-handedness and the ancient Jewish script was from right to left. However, right-handedness has been in vogue through all the historic period. Left-handedness was in language equivalent to awkwardness—to the wrong as opposed to right (*droit*). The left was the weak, evil or sinister side. Men spoke of the "bar-sinister" "born on the left side of the blanket." It was the unlucky side, and the superstition of man became an early sponsor of qualities attributed to the left side. The ancient augurs observed as unfavorable the flight of birds to the left.

The importance of ambidexterity may be readily concurred in the increased capacity for labor obtained thereby, to the respite afforded to one hand by the use of the other, and the instant substitution of one hand for the other in case of injury to or loss of its fellow. I have known many cases of partial ambidexterity among mechanics and others, who could use either hand to saw and cut with, or draw a nail. Such were always proud of the accomplishment and realized its great advantage.

I have never seen but one case of complete ambidexterity. This was the late Alexander Mott, M.D., of New York, who used either hand in writing and the most delicate dissecting, in which his skill was marvelous. He told me he was always ambidextrous; that his father (the celebrated Valentine Mott) said, "My boy must succeed me in practice and I shall see

to it that he has two good hands instead of one, like his father." This case shows the practicability of effecting perfect ambidexterity by careful training.

Over a century ago Dr. Franklin wrote a short article for the French encyclopedia in which he personified the left hand as the neglected member and remonstrated against the absurdity of the conventional one-sided body.

Seventeen years ago Brown-Séquard came to this country and delivered his lecture on the "Dual Brain" in Washington, Philadelphia and Boston, in which he warmly urged the training of children to ambidexterity, in view of the reaction of one-sided body training in limiting the development of proper brain functions. Nevertheless his sensible views, presented in the zenith of his fame and influence, fell still-born before the medical world, contrasting sharply with the favor his theory of internal feeding has received from the same public.

The key to the whole question of one-sidedness of body is the establishment of habit. The nervous system converts the whole body into a unit, knitting together the most distant parts.

The nerves are conductors to and from the brain-pathways of the great currents of life. Habit is defined as the tendency of a given act to repeat itself in the realm of animal life. Habits are, from comparison, called ruts, like the channels which water wears in descending from a height. They become deeper and deeper as the current continues and soon become too deep for the possibility of another channel being formed. Certain nerves to and from a group of muscles control them, at first unequally, but after a while the muscles are compelled to act in unison. At last in the effort of adjusting to harmonious action a muscular movement, at first clumsy and slow, becomes almost automatic; each detail of the movement becomes as it were obliterated. We can not say each nerve conductor does not act separately though we do say the action is instantaneous. However, we recognize with very delicate instruments that the time element does enter. A certain moiety of duration occurs in all rapid conjoined movements, yet we know also they are not strictly automatic, for if one or more of the nerves of a group of muscles be cut between the group and the brain, the action is destroyed as surely as though a wire be cut in a complex system of telegraphy. Beginning with the first action habit becomes more confirmed with each successive act, also easier and more rapid. The effect of habit is especially seen in the successive and simultaneous action of voluntary muscles which are united, as in writing. In these muscular associations if an impulse is started it runs, perhaps, through a long list of words without fresh impulse. The adroitness of handling the pen in continued motion is a matter of education and habit. The musician affords a striking example of the development of the finger movement.

The many paired muscles and nerves of vocalization are so much under the control of the association habit, that were it not for this, no one could ever learn to speak. The power of habit is seen in the association of ideas. We speak of habits of drunkenness, swearing, lying and every modification of speech a thought; habits of industry, order, idleness, vanity, cheerfulness, melancholy; we are called bundles of habits. Habits, also, instead of increasing sensation often lessen it. We habitually come to disregard, after a while, our clothes as well as sounds, though at first conscious of them every instant. Thus habitual motions become changed from volitional to so-called secondary automatic actions as in walking and speaking.

The action of the vocal muscles is preceded by sensation, idea and volition, but after a while it becomes purely sensational or ideagenous—easy and as it were automatic. Habit, first the offspring of volition, seems to become its successor The force of habit thus compares with instinct, and education vies with intuition when habit becomes second nature.

Habits once acquired are not easily discontinued. They are grooves in which the mind is accustomed to move. The great importance of habit is perceived to be economy of time. Through rapidity of muscular action a complete unity of our complex animal organization is effected. To form ruts or habits in the nervous system becomes the potent cause of one-sided action of body and brain. This is seen in the great right and left side deftnesses which become permanent and assume an undue importance in our economy. It is sometimes the left side but nearly always the right. It might as well be both sides.

Besides Dr. Mott, it is said that Dr. Pancoast of Philadelphia, was nearly if not quite an ambidexter; also, Prof. Morse the inventor of the electric telegraph machine.

It is difficult to find in history many examples of ambidexterity. Homer's Iliad describes one of his warriors as throwing a spear with either hand, also some of David's men-at-arms could use both hands. Leonardo da Vinci and Michael Angelo are known to have been perfect ambidexters. Leonardo Da Vinci was not only a distinguished sculptor and painter but a great inventor, machinist, architect and engineer. It is said that after his seventy-sixth year, while working on an order of Francis the First, he was struck with right-sided hemiplegia; he however, continued his work with his left hand and right brain, which was doubtless, from training, equal to the other in functions. Michael Angelo was a man of great intellect and physical energy and lived to great age. It is remarkable that these two eminent men are placed by our Italian statistical and science-gossip Lombroso on account of this feature among his "molloids" or degenerates, who happen to share in the manual dexterity of pickpockets. The latter from neglected training or from obvious professional reasons furnish 1 or 2 per cent. more cases of left-handedness or perhaps partial ambidexterity than are found in the normal population.

We believe the crossed fibers to either brain is a real switching-off apparatus intended as in the case of the eyes for a temporary use. But human custom elects one side to permanent control. The result is then inevitable that nearly all our cerebration is thrown upon one cerebrum, whereby it becomes overtaxed, as it furnishes the nervous energy for both sides of the body through the crossed and direct tracts. It is a reasonable supposition that this leads to brain fatigue and failure, and becomes the most prominent cause of insanity and brain softening. The result of electing the right hand to special action reacts to establish the left brain to control. We find the most important function of speech and language as well as the faculty of discriminating sounds or the power of musical expression located around the left Sylvian fissure, which is clearly indicated by pathologic lesions.

The apparatus of nerve decussation becomes of no importance after the habit of one-sidedness has been established. The brain commissures, even the great corpus callosum, become for the same reason of little or no effect. I find twenty-five cases reported of absence and destruction of this important structure, by disease, with but little disturbance of general brain functions. So decidedly is this true that Dr. Bruce, who has made the largest collection of cases, declares his doubt of the usefulness of the corpus callosum in effecting co-ordination of brain action. The one-sided body-habit clearly makes this large anatomic structure as well as decussation of no effect, defeating thereby the clear purposes of nature as exhibited in all mammals, whereby we should possess two well paired brains perfectly responsive each to each.

The assumption, so generally in vogue, that one-sidedness is natural is only based on the evidence of majorities, leaving out of consideration choice, fashion or custom and the known effect of training, which, in the human race, is absurd. Statistics as respects mankind, for this and other reasons, are eminently misleading.

All arguments based on anatomy as forcing right-sidedness are very weak. The weight of organs on the two sides are not very unequal and the points of support are central from the spinal column. The very slight differences in length, size and direction of the two carotids in front and the vertebrals behind, as affording an unequal supply of blood to the brain, are of no effect. By their many peculiar curvatures while entering the cranium, by their abrupt change of direction to the horizontal at the base of the brain, the opposing currents neutralizing each other, and by the remarkable common reservoir-like circle of Willis the circulation in the two brains is almost, if not perfectly, equalized. There is no difference in the infant in the muscular and body tissues, contrasting sharply with the adult.

THE RELATION OF PHYSIOLOGIC PRINCIPLES TO ARTIFICIAL RESPIRATION.

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As matter is known only by its properties, so life is known only through its functions and other manifestations. Its state or condition is judged from these. It often happens that by concussion and other forms of shock, by submersion in water or other fluid, by smothering and other modes of suffocation and strangulation, by extreme debility and exhaustion, by exposure to cold or heat, by starvation, by the influence of various narcotics and anesthetics, by sudden influence of grief, surprise, fear or other passion, and very notably, by the failure of a prompt occurrence of breathing of the fetus when it comes from the mother, a state of apparent death (call it obscured or depressed life if you choose) is presented. This state has been variously called drowning, asphyxia, syncope, apnea, etc. On proper examination it will be found that the functions of life which are in abeyance in this state of apparent death or depressed life are these: Innervation, respiration, circulation, calorification, sensation, reflex action, phonation, consciousness, voluntary motion, involuntary motion and muscular irritability. It will also be found, after sufficiently numerous and careful observations, that by physiologic law these functions and vital manifestations are so related that whenever any one of them is restored all the others have a tendency to reappear, and whenever any one of them is depressed or impaired all the others show a corresponding depression or impairment. They are so connected that their inception is in a manner simultaneous, their course concurrent, their activity proportionate and their disappearance approximately coeval. This important physiologic law is of great value in the treatment of the depressed states of life. It suggests that the practice of resuscitation should include all known means and expedients which tend to develop all essential functions that may be undeveloped, to restore such as may be suspended and to counteract the bad effects that may result from the want of all those that may be either suspended or undeveloped. As a rule, the function which in any given case first became embarrassed or depressed or suspended and which led to the embarrassment, depression or suspension of the other prominent functions, should be made the prime or main object of remedial treatment. If, for example, by exposure to excessive cold the temperature of a patient has been so reduced as to depress notably or suspend sensibility, motion, etc., the first and most urgent indication is to restore the proper temperature by suitable expedients. If innervation is, from any cause, primarily impaired, the leading measure should be its restoration by electricity or other available appropriate nerve excitant. If the breathing has from any cause been arrested and its arrest has superinduced an embarrassment of the many functions dependent thereon, then artificial respiration is plainly the measure to which we must look as the direct means of restoring the patient.

There is another rule that should not be forgotten in the practice of the art of resuscitation. Though the vital functions are co-ordinate and have an intimate connection they do not all, when disturbed or suspended, involve in equal disturbances or dangers the immediate existence of life. Some are more rapidly influential than others and have therefore a leading importance in practice. The greatest of these, or among the greatest, is respiration. It is the herald of all higher life. It is the harbinger of calorification, of voluntary motion, of digestion, of secretion and of excretion. No human form can give forth any of the higher manifestations of a living soul until there is breathed into its nostrils the breath of life. Hence, among the measures for resuscitation, artificial respiration is entitled to prominence such as natural respiration possesses among the functions which it is the object of resuscitation to restore. Indeed, many of the other measures employed for resuscitation, such as exciting reflex action by spanking the newborn, slapping the pit of the stomach of the adult, squeezing, rolling, twisting, compressing, dilating the sphincter ani with the finger, exciting the rectum with injections or suppositories, using dashes of hot and cold water alternately, immersing in a cold or mustard bath, rubbing with rubefacients, tickling the fauces or nares, using volatile excitants, etc., and the usual preparative of clearing the lungs of gases, mucus, water, blood and other obstructions, though occasionally inaccurately mentioned as modes of artificial respiration, are at the very most merely preliminary and adjuvant thereto. Some of them are

useful, some worthless, and all that are harsh or rough or rapid may be harmful by augmenting an existing condition of collapse.

In addition to the intrinsic merit of artificial respiration there have been other causes of late to urge its importance upon the attention of our profession. In the course of the current half century the great battles, campaigns and wars that have occurred, the augmentation and multiplication of industries and pursuits perilous to life and health, the increase and concentration of population, the allurements, comfort and speed of voyage and travel, have multiplied the cases of accidents and injuries. In response to the demand thus increased, the humane and Christian sentiment of the period aroused itself to great activity in the formation and training of life-saving organizations and in the study and teaching of life-saving methods. During this same progressive half century it came to the knowledge of practical obstetricians (an appalling fact) that thousands upon thousands of speechless human lives were being annually lost at the hour of birth from the lack of a well-devised, prompt and appropriate management. It is not surprising that so great a demand for life-saving methods should tend to produce an over-supply, a result that seems to have happened in the matter of artificial respiration. Previous to 1856, *insufflation* in one way or another was the traditional mode of introducing air into the tubes and vesicles of the lungs of the so-called asphyxiated, especially if these were newborn babes. There are now at least twenty methods, more or less widely known. These differ so greatly and in so many respects that it is not supposable that they can all be equally applicable to all cases, or even to any one case. Some of them are based upon one principle, others on a very different and in some respects conflicting or contrary principle. Some of them may be more appropriate in some cases and less so in others. Some may be admissible in certain cases and inadmissible in others. Some are not safe in any case. Some are claimed to be best suited to the cases of infants, some to those of adults and some to be the best for patients of all ages and sizes. Some of the methods originated in accident, some came prematurely as an urgent need after older methods had been tried and had failed; some after too little observation, experiment and study; a few after profound and prolonged consideration.

There are too many methods. Doubtless the fittest will ultimately survive and the less fit will one by one pass out of use and there will result to the physicians of the world a safe, uniform and effective practice in artificial respiration. But this needed result ought not to be left to the slow work of unaided evolution. A firm reliance may be placed in the sure, safe and necessary guidance of science for the settlement of the facts of science. Wherever there is great variety, diversity or contrarity of method, precept or practice, an appeal to scientific principles, experiments and demonstrations is the direct pathway to truth, harmony and unanimity, and through these to wise methods and successful practice.

For brevity and clearness, it is best to say no more now of the collateral measures and aids in resuscitation and to force into close conspectus:

1. The condition to be remedied by artificial respiration and exactly in what this consists.

2. The lesson to be learned, mainly from physiology, but sanctioned also by anatomy, pathology and clinical medicine, as to the proper mode of accomplishing artificial respiration.

3. The leading methods of artificial respiration now in use and how far they conform or fail to conform to physiologic principles.

The condition to be remedied by artificial respiration is apnea, and artificial respiration consists in mechanically and rhythmically introducing air into the proximity of the blood in the pulmonary capillaries and withdrawing it therefrom. If the temperature of the blood be maintained at about 98.4 degrees F. this mechanical part of respiration virtually insures the chemical and therefore the purpose of artificial respiration is practically accomplished by causing air to pass into the lungs and out of them alternately, regularly and rhythmically. In physiologic or natural respiration the ingress and egress of air and its approximation to the blood, and the reactions between air and blood are the same as in artificial respiration, but the chest movements are due to inward and anatomic influences. In artificial respiration the movements are imparted from without. There are, in all, only two ways in which artificial respiration can be practiced, viz., *a*, the air may be forced into the lungs, the chest walls thus forced outward and the air removed by the weight and resiliency of the chest walls, aided by compression; or, *b*, the chest capacity may be increased and diminished alternately and the air thus mechanically caused to pass in and out successively.

Now, in normal or physiologic respiration *the forcing of air into the lungs plays no part whatever*, but on the other hand *the alternate increase and diminution of the chest capacity by movements of its periphery are the sole agency in bringing air into the lungs and then causing it to go out.*

What relative part the different portions of the periphery of the chest cavity have in varying the capacity of this cavity is plain from their anatomic structure as well as from the facts of physiology. Posteriorly and anteriorly the boundary of the chest cavity is bony and virtually fixed, consisting of the thoracic portion of the spinal column behind and of the sternum before. The lateral boundaries consist of the ribs and intercostal and superimposed structures, have very restricted movements and, therefore, little effect in varying the chest capacity. Thus the posterior, the anterior and the lateral poortions of the chest, so firm and so little movable, proclaim that they are mainly for the support and protection of the parts within. But inferiorly the chest cavity has no fixed limit and varies its capacity easily, greatly and rapidly, by the free movements of the diaphragm through a very wide range. Here, then, in this wonderful muscle is certainly found the leading mechanical instrumentality of respiration. With the exception, perhaps, of the heart alone, it is the most active muscle of the animal body. From infancy to old age, it rests not, slumbers not, sleeps not. If its contractions are less frequent than those of the heart, they are much more prolonged. Its allegiance to the will is less unconditional than is that of the heart. Such is its power that through reflex influence it can call to its aid costal respiration or abdominal respiration as the varying exigencies of disease or condition may require. With matchless mathematic accuracy it is attached to the liver at the one single spot that causes the downward traction of this great gland to augment to the utmost the chest capacity in the upright position and

its upward pressure to diminish that capacity when recumbency is approached. The obvious lesson of physiology, therefore, is clearly this, that the diaphragm being the foremost instrumentality in natural respiration should be employed as the leading agency in artificial respiration. But this invaluable lesson has not been left to rest on even this plain and satisfactory evidence, but has, as if in proclamation of its transcendent importance, received a most rigid demonstration from physiologic mathematics. Soon after the invention of the spirometer by Hutchinson, it was proved by actual measurement that the capacity of the chest is greater in the erect than in any reclined or in the recumbent position. Thus was demonstrated in stubborn figures a great fact for physiology, for pathology and for therapeutics. The chest is a cylinder and the diaphragm is a piston whose to-and-fro motion varies the chest capacity and causes an ingress and egress of air. In the recumbent position the liver and other contents of the abdomen press upon the diaphragm and diminish the chest capacity.

In changing from the recumbent to the erect position the pressure is gradually removed and the chest capacity increased. It is obvious that all that is necessary for the air to enter the lungs is to change the patient from a recumbent or any inclined position to the erect one, and all that is necessary to cause air to pass out of the lungs is to move the patient back from the erect to any inclined or to the recumbent position. But I have ascertained that the increase of capacity of the chest is slow and small in moving from the recumbent position to an elevation of forty-five degrees, and rapid in ascending from forty-five degrees to the erect position. It is not, therefore, essential in practicing artificial respiration to move the patient through the whole range from recumbency to erectness, but is sufficient to use only the upper half of this range, merely moving the patient from a forward inclination of forty-five degrees to the erect position and back again. Every upward and backward movement produces an inspiration, and every forward and downward movement an expiration, and the two together a complete respiratory act. By regularly repeating these acts artificial respiration is rhythmically performed and can be prolonged at will. Any one, by experimenting on himself, will find that if he leans forward from a perpendicular to an inclination of about forty-five degrees, he will mechanically and involuntarily make an expiration, and if he then straightens back to the erect line, he will mechanically and involuntarily make an inspiration. *He can not by any effort of volition prevent the result or reverse it.*

The fact of the increased capacity of the chest in the upright position, gives a solution of certain striking clinical facts. It furnishes the rationale of orthopnea and makes clear the reason why the smothering asthmatic instinctively and hurriedly leaves his horizontal posture, assumes a sitting position and, supporting his elbows on his knees, or on a table, breathes by performing in miniature the very movements above described. *He can not breathe without performing the movements, and he can not perform the movements without breathing.*

Many of those who have introduced, or have written upon methods of artificial respiration, have maintained, or at least have admitted, that in any case of collapse, the relaxed tongue and epiglottis have a tendency to fall back, close the glottis and thus prevent the access of air to the lungs. Dr. Fothergill is said to have published an opinion of this kind in 1794. Marshall Hall, Mr. Bowles and Mr. Fox made some experiments, published in the London *Lancet* in 1856, which they thought proved that in the supine position the relaxed tongue must necessarily fall back and exclude the air from the trachea. But the Royal Humane Society and many of the leading medical men of Great Britain, after thorough investigation and careful experimentation, rejected the opinion of Fothergill and Marshall Hall concerning this alleged obstruction of the glottis, and laid aside the use of Hall's "Ready Method," the main merit claimed for which was the avoidance of this supposed obstruction. The whole discussion originated in a great mistake of these great men. The physiology of the closure of the glottis was misunderstood by them, though it had been clearly made out under numerous observations and experiments by Magendie and published by him in his great work on physiology, in the early part of this century. This closure is effected not by the descent of the epiglottis, but by the ascent of the glottis. Any one can satisfy himself of this by placing his finger on the upper margin of the pomum Adami and performing the act or deglutition. He will find that the glottis during the act rises at least an inch in the average person and hides itself beneath the epiglottis, effecting the closure in this way. If there is any danger therefore of this alleged obstruction of the glottis, it is least in the erect position, in which the weight of the lungs and trachea tend to keep the glottis pulled open, and greatest in the recumbent position adopted in Hall's "Ready Method" and Sylvester's method, and in all the inverted or head-down positions in which the lungs and trachea gravitate more or less toward the epiglottis.

It now only remains to note cursorily the leading methods of artificial respiration now in use, and to remark wherein each may be found in accord or not in accord with the physiologic principles presented above.

Insufflation (traditional) is perfomed by placing the patient in the recumbent, supine position, grasping with one hand the nose and with the other compressing the esophagus, applying mouth to mouth and inflating the lungs of the patient with the expired air of the operator, then allowing and aiding the escape of this air by opening the patient's mouth and pressing his chest, and repeating this procedure about fifteen times per minute. Objections: The recumbent position is one of small chest capacity; the air used is vitiated and non-vitalizing; the manipulations complicated, difficult and oppressive to the patient; the stomach is liable to be inflated, the air cells are liable to be damaged by stretching and even fatally ruptured, and uses of air to dilate chest contrary to nature.

LeRoy's method consists in applying a many tailed bandage around the chest of the patient in the recumbent supine position and producing chest movements by alternately tightening and slackening of the bandage. Objections: The recumbent position; the two operators required; the delay and trouble in getting bandage.

Marshall Hall's ready method (1856).—Place the patient in the recumbent position and prone. Turn the body gently but completely on the side and a little beyond and then back on the face alternately, repeat-

ing these movements deliberately, efficiently and perseveringly, fifteen times per minute. When the prone position is restored make equable but efficient pressure along the spine removing this pressure immediately before rotating back on the side. Objections: Recumbent position; small difference of chest capacity commanded by the movements, the harm that may be caused by the pressure.

Sylvester's method (1858).—Place the patient on his back with his shoulder's raised and supported on an article of dress, folded. Raise his arms upward by the sides of his head and then extend them gently and steadily upward and forward for a few moments. Next turn the patient's arms downward and press them gently and firmly against his sides for a few moments. Repeat these movements alternately, deliberately and perseveringly fifteen times a minute. Objections: The small chest capacity of the virtually recumbent position and the small variation of chest capacity produced by the movements.

H. F. Campbell's method.—Place the patient in the erect sitting position with his arms by his sides and his head erect. Raise his arms up by his head to a parallel position and exert upward traction on them. Replace the arms to their first position by the sides and press them against the chest. Repeat these movements *ad libitum*. Objections: The relatively small variation of chest capacity attainable even in the erect position steadily maintained.

Pacini's method.—Place the patient supine with shoulders and head slightly raised. With the thumbs well back on the scapular region and the fingers under the outer end of the clavicle and in the axilla, draw the clavicle and shoulder upward and backward, thus causing the pectoral muscles to elevate the chest walls. Then turn loose and let the chest walls descend, aiding by gentle compression. Repeat regularly as desired or required. Objections: The small chest capacity of the virtually recumbent position and the small variation secured by the movements.

The Michigan method.—Place the patient flat on face and stand astride of him with your face toward his head. Seize his shoulders and elevate his chest while you count slowly "one, two, three;" then allow the chest to return to its first position and press gently but firmly while you count "one, two." Repeat these movements fifteen times per minute. Objections: The horizontal position with its small chest capacity; the small increase obtainable by any elevation of less than 45 degrees, and the interference with ingress of air due to flexure forward of neck and trachea.

Shepard's method.—Place the patient on a plank or door shutter, and place the shutter or plank crosswise at its middle on a log or similar report. Then give to the patient's head and feet an alternate up-and-down movement by a like movement of the plank or shutter. This alternately increases and decreases the chest capacity, thereby promoting ingress and egress of air. Objections: Not available for infants; inconvenient and often impracticable; movements can not be carried to above 45 degrees and, therefore, can not reach the higher measures of chest capacity.

Nélaton's method (so-called).—This is a misnomer, not a method of artificial respiration, but of drainage of narcotic, anesthetic or other heavy vapors or poisonous gases from the air passages. It consists in holding up the lower parts of the body and causing the head to hang down.

Laborde's method consists in seizing the tongue by the tip, drawing it out and allowing it to recede rhythmically. This rhythmic action, by a physiologic law, tends to arouse other rhythmic movements, including the respiratory. It is not properly respiratory, but merely excito-respiratory.

The Alabama method (1860).—Place the patient in sitting position inclined forward about 45 degrees. Move the head and shoulders upward and backward to the perpendicular position or a little beyond, taking care that the trunk is drawn up to perfect straightness and the head, neck and shoulders well up. Lean the patient forward and downward to an inclination of about 45 degrees, making cautious and reasonable compression of the chest. Repeat these movements deliberately, perseveringly and with reasonable frequency until no longer needed, or until all hope of success is lost.

Howard's method (1871).—Place the patient on his back with a roll of clothing under it, so as to raise the pit of his stomach above the level of any other part of his body. Kneel by the side of or astride the patient's hips and, with the balls of the thumbs resting on either side of the pit of the stomach, let the fingers fall into the grooves between the short ribs so as to grasp the waist. Now, using the knees as a pivot, let the operator throw all his weight forward upon his hands and squeeze the waist between them as if he wished to force everything in the chest upward out of the mouth, and deepen the pressure while he counts slowly, "one, two, three;" then suddenly let go with a final push which springs him back to his position on his knees, where he remains so long as to count "one, two." These movements are to be repeated and gradually increased in frequency from four to fifteen times per minute and continued from one to two hours, or until the patient breathes. Objections: The disadvantage of the horizontal position is present and is made worse by the sharp flexure at the waist; the great pressure at the pit of the stomach approaches in effect punches or blows on that most sensitive part, and through the injured function of the solar plexus, greatly depresses and endangers the patient.

Schultze's method.—Stand up, grasp the baby around the shoulders with your fingers posterior and thumbs anterior, meeting in the axilla, thus suspending the baby, feet downward and head upward, in front of you with its face from you, swing it rapidly through a semicircle in front of you, bringing it to rest with its buttock near your face, and after a slight pause reversing the movement. Repeat these movements as required. Objections: Requires great care and gentleness and exposes to rapid reduction of temperature.

Fell's method consists in forcing air into the lungs through the incision in laryngotomy or tracheotomy. For this purpose a bellows with tube is employed. This is designed mainly if not exclusively for surgical cases. Objections: Like insufflation it forces instead of attracting air into the lungs; increases the danger of overstrain and rupture of the air vesicles.

Reynolds' method consists in grasping the babe, with the hands just above the pelvis, the thumb being on one side, the fingers on the other and the palm applied to the sacrum and adjoining part of the spine, and thus causing the babe to hang head downward. The other hand of the operator is then glided along the babe's abdominal surface and used to apply gentle

pressure while anterior flexion is imparted to the trunk of the patient. Objections: Looks to drainage rather than to aeration and chest expansion.

Other methods are: Dyer's method; Dew's method; Forest's method.

These methods consist in varying the chest capacity and the in and out movements of the air, by manipulations and varying positions of the babe. Objections: Do not sufficiently recognize the importance of the upright position and of the agency of the diaphragm.

THE RELATION OF FOOD, AIR AND EXERCISE TO HEALTHY GROWTH AND DEVELOPMENT.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY E. STUVER, M.Sc., M.D., PH.D.

Member Colorado State Medical Society (Vice President 1894); Member American Medical Association; Member International Medical Congress (Berlin); Active Member National Educational Association, etc.

RAWLINS, WYO.

"Man is what he eats," is a truism quite widely appreciated theoretically, but sadly disregarded when put into everyday practical use. Nor is this true only of the unprofessional multitude but applies with almost equal force to the great army of physicians who by their habits say in the most forcible manner, "Do not eat as I eat but eat as I tell you."

This being the case, and as an ounce of good example is worth pounds of precept, unless put into practice, let us see what influence a rational system of dietetics, pure air and plenty of exercise would have on the growth and development of the rising generation. I say rising generation because the time spent in trying to reform confirmed transgressors whose habits have become fixed by years of indulgence, is largely lost and can be spent to much better advantage in preventing the formation of bad habits by the young and helping them to overcome those which have been formed.

I shall use the term food in its comprehensive sense, including beverages of all kinds. The period of growth and development is characterized by rapid metabolism; old tissues are broken down and new ones formed more rapidly than in the mature body. These rapid changes necessitate a larger proportionate quantity of food and require that the digestive and assimilative organs be in a healthy condition so that sufficient pabulum may be furnished to supply the needs of the rapidly growing organism.

A healthy condition of the digestive and assimilative organs being one of the prime requisites to insure proper growth and development, the question naturally arises, How can such a condition be attained? Every child has the right to inherit a sound physical organization, and it should have a mother capable of furnishing it with an abundant supply of nature's true nutrient material which, if normal, far outranks all other foods for the infant, the patent baby-food manufacturers to the contrary notwithstanding. During the early years of childhood the food should consist largely of milk, be plain, nutritious and unstimulating and regular habits of eating should be established. Young children frequently suffer from thirst and should be given cold water regularly. This will often afford relief when soothing syrups fail. In this connection I insist on the importance of protecting the child against stimulants and narcotic poisons of all kinds. To accomplish this the physician must throw sentiment aside and give the officious grandmothers, neighbors, *et id omne genus*, distinctly to understand that the child has some rights which should be respected and that one of these is that it should be allowed to form its own drug and poison habits. If this is not done the infant will scarcely be born before some one will suggest that an abominable decoction of herbs or a fiery dose of liquid poison in the shape of brandy and water be poured down its defenseless throat in order to keep it quiet. The natural protective instincts rebel against all stimulants and narcotic poisons.[1] To the infant or young child the first dose of an alcoholic stimulant is exceedingly distasteful, and it is only after a number of trials have been made and the natural protective instincts have become obtunded that it begins to be at all relished. The system at first surprised and insulted makes a vigorous effort to throw off the poison, but at each repetition the resistance becomes less until it finally adapts itself to the abnormal stimulation and the stimulant becomes an imperatively demanded want.

In this way an abnormal condition of the system with a craving for pungent, highly spiced foods, alcoholic stimulants and narcotics is established. This not only causes a distaste for plain and nutritious foods which are absolutely necessary to the most complete growth and development, but naturally leads to the use of tobacco in its various forms and may eventuate in the use of alcoholic stimulants and other narcotic poisons, and finally we may have before us one of those saddest of all spectacles—a grand physical organization shattered and wrecked, a brilliant mind weakened and dethroned and a moral nature which, under other conditions, might have strengthened and elevated mankind, reduced to the lowest depths of degradation—in short an alcohol maniac, a morphin or cocain fiend or a combination of all in one

If every physician could have these sad tragedies burned into his very soul and would then rise to the true stature of his noble calling and impress upon his friends, his patients and the world, the causes of these terrible examples which are continually falling under his observation and the means by which many of them could have been averted, we would soon see a decided improvement in the habits and health of the young.

While proper food and correct dietetic habits are of the greatest importance to the welfare and happiness of mankind, the quality of the air or gaseous food, of which we take into our lungs about one pint at each inspiration is, if possible, of still greater importance. Man can live on one meal a day and enjoy good, nay, even robust health, he can limit himself to the simplest and plainest kind of a dietary and attain a ripe old age; but let the supply of oxygen be cut off and he succumbs to carbonic acid poisoning in a very short time.

Plenty of pure air and properly regulated outdoor exercise are necessary to give nerve force; to stimulate the respiration and circulation of the blood; to develop the muscular system; to throw off or destroy the poisons constantly accumulating in the body; to strengthen and calm the mind and to produce the best moral development in persons at any age.

During the period of childhood and youth, however, when the metabolic changes are much more active;

[1] Vide Oswald's Physical Education.

hen the poisons from the breaking down cells accumulate much more rapidly; when the muscular system is in an undeveloped condition and needs almost onstant exercise for its proper growth; when the rain is more unstable, more easily irritated and more usceptible of being permanently injured, their importance is still much greater, and should be much more ully appreciated, than they are by the majority of eople. Living and sleeping rooms should be large, ell lighted and thoroughly ventilated. The covers hould be thrown back from the beds, the blinds and indows opened and the pure, life-giving air and sunhine allowed to bathe the living and sleeping rooms. his may tone down the colors of beautiful carpets, ut it will at the same time destroy foul exhalations nd disease germs and put roses of health in the palid cheeks of delicate children, and give a buoyancy nd zest to life which can never be experienced while iving in a foul atmosphere. Then, too, the school ooms in which children spend a large part of the ime during the most critical years of their lives hould conform to the most approved sanitary knowldge of the age. Ample provision should be made or complete drainage, the best methods of heating nd lighting and for thorough ventilation should be mployed. To insure a sufficient amount of oxygen ll school rooms should be aired both morning and vening and at intervals during the daily sessions. his can be best accomplished by having frequent ecesses during which the doors and windows are hrown open and the rooms thoroughly ventilated. resident Eliot of Harvard University, President olbrook of Lebanon, Ohio, President George L. sborne of Warrensburg, Mo., Prof. Joseph Baldwin f Austin, Texas, and many other eminent educators dvocate an open air recess at the end of each hour. heir contention is certainly based on sound physiogic and hygienic principles, and if their suggestions ere carried into effect generally, there would be an mmense improvement in the health, mental attainents and moral character of children all over the nd.

I do not believe any one will question the fact that requent outdoor recesses would have a most beneficent effect on the health of the pupils. Nor do I ink, when the matter is carefully considered, that ne conclusion will be different as to their influence n mental and moral development It is well known nat in order to insure proper development of the uscular system, the motor centers are developed arly and hold a commanding position. In these cenrs nerve force accumulates and is stored until discharged in muscular movements, and if the attempt e made to restrain these movements beyond a certain mited time by means of the will, much nerve force hich should have been used in quiet thought and tudy will be wasted and at the same time the physial organism will be hindered in its development. hen, too, the toxins which have been accumulating n the blood poison, weaken and tire the brain, and s a consequence mental results are unsatisfactory, ecause impressions made on a tired brain do not last, nd the moral nature is depraved because pure and enerous thoughts can not long exist in a foul body.

The Venom of Serpents.—The well known fact that the venom n be sucked out of a wound without inconvenience, is attributed by Fraser to the bile in the alimentary canal. He has emonstrated that even very small quantities of bile will renr snake venom harmless.—*Nouv. Remèdes*, January 8.

THE HAIR-CELLS OF THE ACOUSTIC AND AMPULLAR AREAS OF THE EAR.

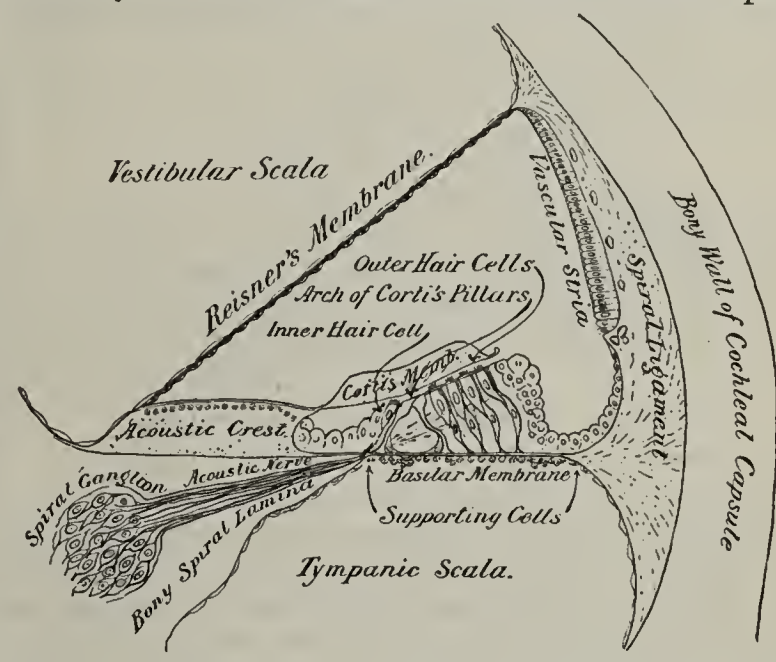
Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY B. ALEX. RANDALL, M.A., M.D.

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There ought to be small difficulty in demonstrating these structures to the satisfaction of the trained microscopist, who is accustomed to piece together fragmentary structures in full realization of the infrequency of ideally complete preparations; but those more engrossed in clinical medicine are less apt to obtain from our usually imperfect specimens a clear and coherent picture. The less direct method, therefore, of tracing the development of these specialized cells and their auxiliary apparatus from the primordial blastoderm, has the advantage of showing with greater ease and certainty the differentiation of these and adjacent cells of like origin; the building up of the complex structures of which they form a part and by a series of demonstrations, confessedly imperfect individually, it forms a sort of composite picture little short of the ideally complete.

Shortly after the formation of the cerebro-spinal

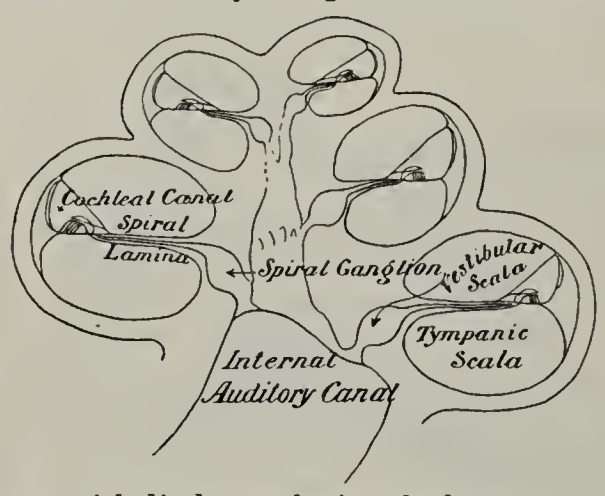


axis by involution of the epiblast, a similar process at each side of the head of the embryo invaginates a new bit of epiblast and forms a closed and independent sac, the otic vesicle. This elongates and throws out hollow buds, forward to form the spirally coiling cochleal tube, inward to constitute the endolymphatic duct and sac, while others starting up, back, out and down, curve to meet and coallesce into three semi-circular canals, each occupying a plane at right angles to that of each of the others. Meanwhile the central sac divides into an anterior saccule and posterior utricle, united only by the forked endolymphatic duct, and the full-formed mammalian labyrinth is complete. Every part of its wall is made up of one or more layers of the cells which have been invaginated from the epiblast; but while it has been developing and the surrounding mesoblastic tissues have been building an elaborate set of supporting structures, the advent of nerve-fibers from the brain has enabled certain of its parts to undergo special differentiation. Such nerve-stimulus is applied to no part of the semicircular canals except the concavity of the flask-shaped ampulla which connects one end of each to the utricle. Here a crest forms upon which the cells become elon-

gated cylinders surmounted by stiff hairs, above which floats a gelatinous film, apparently an early product of their activity. These cells are demonstrably the end-organs of the nerves here distributed, which as ultimate fibrils have been traced to or into the hair-cells. Each has a thick free end, above which extend the hairs, generally agglutinated into one or more marked projections which extends well out into the lumen of the ampulla.

In the vestibular sacs, a like area is marked off, larger, flatter and less pronounced. That of the utricle is on the side nearest to the oval window, and is almost continuous with the crest of the horizontal external semicircular canal, the bases and not the hair-crowned tips of its hair-cells are turned, therefore, toward the entering waves of sound. The "macula" of the saccula, on the contrary, is on the farther mesial wall, with the hairs of its cells directed toward the foot-plate of the stapes. Each of these areas presents cylindrical hair-cells with supporting layers beneath, probably of reserve cells to replace those which become effete. The hairs are short and separate and the gelatinous blanket which floats above these as well as all the others, is loaded with crystals of carbonate of lime, the otoliths. Here too, the nerve connections have been satisfactorily demonstrated.

This much is fairly simple, for sections can put



these parts with little confusion before you. But in the cochlea the complexity of structure and relation is far greater. Here the cylindrical tube which we have seen coiling forward, has become narrowed off from the saccule with only the tiny "canalis reuniens" to unite them. It has become compressed into a form triangular in section, one wall forming the convexity of its turns and being in close relation always to the ensheathing mesoblastic tissues which are building the future bony "snail-shell." Within the coil a conical axis of cartilage, early ossifying, pushes forward with the fibers of the cochlear nerve and throws out about its branches a hollow shelf with spiral winding to meet the inner edge of the triangular cochlear tube. A fibrous extension of this, out beneath the under (lower-mesial) surface, forms the important membrana basilaris, the stiff radiating fibers of which probably act as the strings of a musical instrument to receive and vibrate to tones of various pitch.

Blood-supply and probably trophic nerve-fibers cause the cells of the outer wall to develop into a gland area of cylindrical cells, the stria vascularis, doubtless secreting the endolymph. The cells of the upper wall flatten into a delicate pavement upon Reissner's membrane, inconspicuous and probably functionless. It is upon the basilar membrane, however, that the really important differentiation of the neural cells takes place, for it is here that the cochlear nerve-fibers are distributed. An elaborate supporting structure of arching Corti's pillars forms a tunnel against which lean the hair-cells, in single row to the inner, in three to five rows outward. Beyond them in each direction cylindrical and spherical cells pile up, perhaps in mere support, more probably in reserve; and above them a reticular membrane steadies them while presenting meshes for the protrusion of their ciliated ends. Over all hangs the usual gelatinous blanket. Corti's membrane, here attached at its inner margin to a toothed crest of the periosteum of the spiral lamina. Its function here as elsewhere is somewhat doubtful. It may serve to dampen the vibrations of the underlying structures as soon as cessation of the exciting sound-waves robs them of energy enough to throw it clear of such interference, or it may better be compared to the hammer which strikes upon the hairs to stimulate the nerve-endings in them. As in the pianoforte, it may subserve both purposes.

The hair cells themselves are noteworthy as being twin-structures, consisting of a fusiform Deiter's cell, below having a delicate foot emplanted upon the basilar membrane in strict alignement with its fellows of the same row, and its upper process attached to the reticular membrane above and adherent to the peg-shaped hair-cell which it holds aloft. The hairs are short and stiff, set in crescentic order across the summit of each hearing-cell and protruding through the meshwork which encloses them. The fibers of the cochlear nerve enter the modiolus through a series of minute openings and to pass out between the plates constituting the bony spiral lamina. A spiral canal which they intersect in their entrance to the lamina contains a ganglionic mass with which they are in intimate relation. At the margin of the lamina they pass upward through a regular row of minute foramina, losing their sheaths as do those of the optic nerve at the lamina cribrosa; and breaking up into ultimate fibrils, they can be traced, some to the inner hair-cells, others across the tunnel of Corti's pillars to the outer hair-cells and some along the tunnel to undetected termination. It is a mooted point whether they penetrate the hair cells or only reach their exterior; but it seems relatively unimportant to trace the precise manner of their connection, so long as there is no doubt of the main fact of their direct distribution to these hearing-cells.

In spite of all attacks upon it, the theory of Helmholtz, as to the function of the cochlea in the perception of musical tones stands without reasonable alternative. The stiff radiate fibers of the basilar membrane, increasing manifold in length and tenuity from the basal to the apical turns, are like so many harp-strings (24,000, by some estimates) attuned to vibrate to sounds of every pitch audible to man. Upon them rest the hair-cells, fitted to convey to the sensorium all recognizable variations of pitch; and pathologic research enables us to predict cochlear lesions which are found in the lower or upper parts of the cochlear turns according as there was loss of perception for high or low tones. Noises of mixed or unmusical character are probably perceived in the differentiated portions of the vestibular saccule and utricle.

As to the semicircular canals, most authorities concur in regarding their function as pertaining to equilibrium and not to audition. Clinical and experimental pathology unite to show that severe vertigo is usually the result of irritative lesions here; but that this is relieved by the advance of the condition to the destruc-

tive phase. This is the basis of Charcot's use of heroic doses of quinin for labyrinthine vertigo. As to the physiology of these canals as constituting a space organ, this has an easy explanation and demonstration, usually overlooked. Just as the water in a glass remains nearly unmoved while the glass is rotated rapidly around it, so the movements of the head rotate the semicircular canals upon their contained columns of fluid, making in one or more of the canals virtual currents in reverse of every motion. The hairs of the ampullar hair-cells instantly yield to and record these currents, their strength, direction and duration, and thus convey to the sensorium a report of every such alteration of position. The muscle-sense and the palpable recognition through the skin of the direction of gravitation aid the eyes in furnishing corroborative or corrective data, means which may at need replace the lost space-organ of the aural labyrinth in informing us of our relation to our surroundings; but so long as it is present and unimpaired, it is probably the foremost source of such information.

AIR IS FOOD; NITROGEN.

Presented in the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY EPHRAIM CUTTER, M.D., LL.D.
NEW YORK, N. Y.

Even if unproved nitrogen is in too large proportion in the air to be inactive. When a student I heard Profs. B. Silliman Sr., Josiah P. Cooke and R. E. Rogers teach that nitrogen was negative and useless, a diluent, and that all biologic researchers maintained this position.

I could not, while respecting the dictum of these eminent men, assent to this, because nitrogen was four-fifths the bulk of air. It seemed to me that the chemists were like physicians who could not tell what was the matter, when it was patent to all that there was something wrong, and who must confess their inability in diagnosis.

Since my pupilage I have eagerly watched for evidence to support my position, and have found some that I present hereunder.

AIR IS FOOD.

This idea is over 3,000 years old. Air is indispensable to life. Eaten twenty times a minute during life. If oxygen combines with the tissues, blood for example, it becomes a normal part of the body. But oxygen is only one-fifth of the air. Nitrogen is four-fifths, and yet has nothing to do as food. This is contrary to common sense. What other food is there where only one-fifth is utilized?

Water is food. None deny that hydrogen is not food. To be sure there is more or less waste of food; but four-fifths, can this be? Are 80 per cent. of clothing, tissue, apples, beef, potatoes useless?

Again nitrogen is found in the body in large quantities. Take the proteids, C, H, O, N, S, which are the most important animal and vegetable compounds, and no phenomena of life occurs without their presence.

Subdivided.—1, albumins; 2, globulin; 3, albuminates or derived albumin; 4, proteoses (found in digestion, and in time passing into peptones); 5, soluble proteids formed by digestion by pepsin or trypsin; 6, coagulated proteids. Nitrogen is not useless and negative here certainly.

As ammonia nitrogen is found in the blood, feces, urine, sputum, horny tissue, etc. Indeed in proteids we have nitrogenous foods in abundance.

Nitrogen is active enough in the following substances: *a*, common gunpowder which is made with saltpeter, KO, NO_5; *b*, gun cotton made of cotton and NO_5; *c*, nitro-glycerin; *d*, dynamite. In these substances nitrogen is active enough to satisfy the most exacting critic.

Explosives are positive substances, acting with terrific force and violence. They are the least negative and useless substances. Let us quote from the most admirable "Standard" dictionary the list of explosives containing nitrogen; 1, gunpowder family, 25 varieties; 2, nitrate mixtures with the gunpowder, Na, Ba, NH_4, O, 66 varieties; 3, nitro-glycerin family, 121 varieties; 4, gun cotton and nitro substitution compounds made by substituting NO_5 for H, 89 varieties; 5, picric acid, $C_6H_3N_3O_7$ family, 20 varieties; 6, fulminic acid group = $H_2C_2N_2O_2$, 52 families; 7, Sprengel explosive family, 7 varieties; must have nitrogen, non-nitrogen explosives; KO,ClO_5 family, 78 varieties. Out of 456 explosives 378 are compounds of nitrogen, or about 83 per cent. But when it is considered that the chlorate of potassium group after explosion furnish compounds of nitrogen from the air, it may be asserted that all explosives depend on nitrogen. This is a strong showing. Explosive nitrogen in these compounds is in smaller proportions than in the air we breathe, and yet it is deemed inert in us.

BACTERIAL NITROGEN.

It has been proved that bacteria living on the roots of plants do enable the plants to assimilate nitrogen. To show that the chemists are veering to the writer's position I quote the following paragraphs from W. B. McVey, professor of chemistry, College Physicians and Surgeons, Boston.

IMPORTANT FUNCTIONS OF NITROGEN.

The great strides that have been made in the advancement of physiologic chemistry, have to my mind called for a more thorough study of the so-called indolent element, namely, nitrogen, which is usually regarded as having no particular function except to act as a dilutant or a check, so to speak, on the activity of oxygen.

Let us for a moment consider the growth and development of cell life, its causes and effects. It is a well known fact that a complex form of matter was necessary before life could appear and before the physical agencies of nature could elaborate the substance in the form of what we call protoplasm, which is the same in all animal bodies, to-wit, a viscous jelly-like matter possessing motion, secretion, digestion, excretion and reproduction.

As we ascend from the first cell of protoplasm in the scale of vitality, we reach that degree where the crystallizable matter of the higher species is required, so we find intimately combined in the albuminoid principles, the colloid (gluey) and crystalloid (crystal forming). The colloids of protoplasm are proteids and permeate the crystalline part of the animal body, and in presence of the mineral matter therein continues the chemical change going on.

The crystalloids go to build up the fiber of the body. The colloid institute and continue the power of its reproduction, and carbon and phosphorus being present in the former, life depends upon a certain chemical nucleus in order to associate itself with matter. Every living thing requires this nucleus.

Heat, light, electric and mechanical power and magnetism are the agencies acting upon this nucleus through the agency of nitrogen, causing and bringing by colonization the many kinds of animal bodies into existence.

The spectroscope shows that sulphur and phosphorus are compounds and not elements; and that phosphorus is produced from a differentiation of sulphur by the action of chlorin and hydrogen. It is the potential action of nitrogen upon this that causes the chemical and physical changes, and starts the process of ultimate production of protoplasm and afterward animation. It is brought about by action of sunlight upon the phosphorus contained in the nucleus, attracting the electric energy that is pent up in the so-called useless nitrogen. Then by the aid of magnetic iron, carbon and amorphous matter draws forth the electric energy from the earth through phosphorus as a nucleus, which starts the oxygenating process.

Nature requires motion in animal bodies before locomotion can take place, the force and power of such motion being supplied from the food and air.

If it were not for nitrogen locomotion could not take place. Pent up it is more electric potentiality than any other element in nature. This potentiality institutes the power of locomotion in all animals either by direct or indirect transmission and modification.

It is not the vivifying power of oxygen but the explosive power of nitrogen that originates locomotion, and by its rhythmic explosion the respiratory process originates and continues, which is the cause of that motion in nutrition.

Nitrogen, which is supposed to be the most indolent thing in nature, is indeed the most powerful and essential to the movement of all bodies, since explosion depends upon the constant instantaneous liberation of nitrogen, it also acts as a controlling agent to prevent the too rapid reduction of the tissues. It controls the chemical action of respiration.

Nitrogen enables the body to perform its functions to the end of the organizing process, which culminates in the separation of the vital from the chemical.

Conclusion.—If life is made up of motions and emotions, and if nitrogen is such a kinetic agent actual and potential as has been pointed out, then it appears reasonable that it is not a mere diluent and negative in human food.

THE ACTION OF ODORS, PLEASANT AND UNPLEASANT, UPON BLOOD FLOW.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

BY EPHRAIM CUTTER, M.D., LL.D.
NEW YORK, N. Y.

In 1859, Alvan Clarke made me a laryngoscope. After 1862 I studied auto-laryngoscopy and auto-rhinoscopy. I took the first photographs in this continent of the living larynx in 1866; copies of these are deposited in the United States Army Medical Museum, Washington.

I was and am able to demonstrate to myself, my posterior nares, either Eustachian orifice, turbinated bones, dome of pharynx, vomer, etc.

Among the physiologic studies made in 1866 was the action of cologne, roses, camphor, ammonia, sulphur fumes, etc., upon the erectile tissues of the turbinated bones. They were of a pale ashy white color ordinarily. A few whiffs through the nose of any of these odors increased the blood flow and produced immediately a livid injection and turgescence of the erectile tissues on the turbinated bones, that stood out as clearly and positively as the erection and turgescence of the livid wattles of an excited turkey cock. It was a surprise to find that these pleasant and unpleasant odors acted alike. I found in the case of sulphur fumes, that when I could not inhale them from a match ignited before my face, with open mouth, I could breathe readily through my nose. This proved that the erectile turgescence availed to remove the sulphurous oxid so as to have respirable air and protect the inhaler.

The morphology of nasal excretions excited by the morphologic elements found in the impure air, also proved the value of the irritated turgescent mucous membrane of the nares in arresting foreign bodies borne in on the atmosphere.

ARROW-ROOT, CASSAVA AND KOONTI.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY A. T. CUZNER, M.D.
GILMORE, FLA.

ARROW-ROOT.

Arrow-root (*Maranta Arundinacea*) is the name the Indians of America gave this plant. In German arrow-root is called *pfeilwurz*, *pfeil* meaning arrow, and *wurz* meaning root. It is the English name of the botanical genus *maranta*, the type of the endogenous order *Marantacea*, called by Lindley in his "Natural System of Botany" the arrow-root tribe, but altered in his "Vegetable Kingdom" to maranta.

The flowers of this plant are in long, close spike-like panicles with irregular corollas, each having a single perfect stamen with half another. The veins of the leaves run out obliquely from the midrib to the margin. The root is a fleshy corm which when washed, grated and strained, and again repeatedly washed, furnishes the substance so much prized as food for invalids.

The starch extracted from the rhizomes of different *maranta*, and imported into the United States and England, takes the name of the place from which it comes. Thus we have Bermuda arrow-root, East Indian, St. Vincent, Natal, etc., True arrow-root is without doubt the best of all the starch foods to be obtained in the market; hence it is largely adulterated with other and inferior starches, which adulteration is readily detected under the microscope. In England attempts have been made to call every prepared starch arrow-root bearing the slightest resemblance to the true *maranta*. This has failed there owing to the passage of the "Adulteration Act."

It is now understood by public analysts, magistrates, etc., that arrow-root must consist entirely of the starch extracted from the rhizomes of a *maranta*, and any admixture of potato or other starch is regarded as an adulteration. Arrow-root is much more used in England than in the United States, both as ordinary food and as a preparation for the use of invalids and infants. In the former country they prepare what is called white soup by the addition of arrow-root.

The price of arrow-root in England ranges from 13

to 50 cents per pound. It is not much used in the United States. This may be owing to the difficulty of obtaining a pure article, and therefore the true value of arrow-root is not properly appreciated.

It is an excellent material to mix with cow's milk in order to cut up and dilute the excessive proportion of casein. Human milk contains but 1 per cent. of casein, while that of cow's contains 4 per cent.

As a food for young children (and even infants) I prefer arrow-root to barley. Arrow-root should be more largely used in inflammatory diseases of the alimentary canal. It is by far the most palatable of all the different starch preparations.

Figure 1 represents an arrow-root plant, with A, an enlarged drawing of a rhizome. These drawings were made by the writer from a specimen plant of Bermuda arrow-root grown on his own place in Florida.

The drawing of starch cells (Fig. 2), was made from sample of starch obtained from the roots and viewed under the microscope.



Fig. 1.—Arrow-root.

The plant is easy to cultivate. In fact once planted it is very hard to get rid of, as the smallest piece of root left in the ground multiplies rapidly.

The process of extracting the farina is very simple, and the ordinary housewife finds no difficulty in obtaining the starch from the fresh roots. These are first washed. They are then grated on an ordinary grater into a pan or vessel of water. The pulp is thoroughly stirred in the water in order to separate the starch cells from the fibrous portion. The vessel containing the grated roots is now set aside for a short time to allow the starch cells to settle. These cells being heavier than the fibrous portion, sink to the bottom. The water containing the débris can now be poured off and fresh water added. The starch and fresh water are well mixed together and then set aside for the starch to settle as before. This washing process may be repeated a number of times. The more thoroughly the starch is washed the purer it becomes.

Owing to the limited demand for arrow-root the plant is not cultivated much in Florida. Many of the negroes raise it on their small farms in limited quantities in order to obtain starch for laundry purposes. The supply can, and doubtless will be, always equal to the demand.

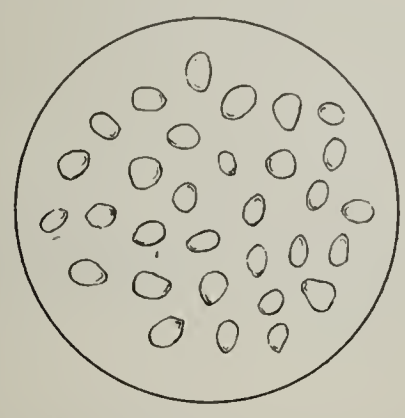


Fig. 2.—Starch cells, Arrow-root.

CASSAVA.

"Cassava" belongs to the family of euphorbiaceæ, and the bitter variety of Brazil (*Manihot utilissima*) is said to contain a large per cent. of hydrocyanic acid.

The sweet variety is indigenous to both Africa and the West Indies. From the last it was introduced into Florida under the name of "cassava" (also aboriginal).

The wild variety was eaten by the South American and Caribbean Indians centuries before this country was discovered by Europeans. In Brazil today mandioca is as much in use as wheat and corn in the United States.

The Indian mode of preparing the roots for food, in vogue nobody knows how many centuries before the first Spaniard or Portuguese came to the country, has not been much improved upon. With a shell or a rude grater made by setting a small sharp stone into a bit of bark, the roots are scraped to a fine pulp. The pulp is then rubbed between stones until all the poisonous juice is squeezed out, and the remaining moisture evaporated by exposure to the fire or hot sun. During the drying it is stirred or broken into coarse grains. This is the farina or mandioca flour, the bread of the rural Brazilians. The Portuguese invented mills for preparing mandioca, not unlike Yankee cider presses. The roots are first washed and then the rind is removed. Then the pieces are held in the hand, in contact with a circular grater.

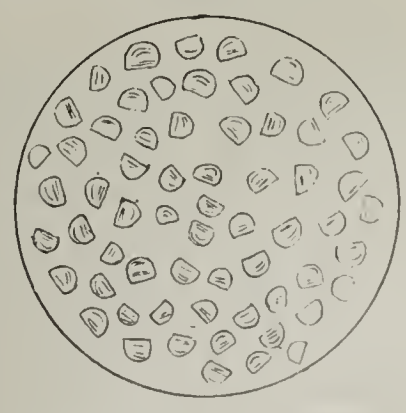


Fig. 3.—Starch cells from Cassava.

The pulverized material is placed in sacks, several of which are subjected to the action of a screw press, or they are suspended from a pole and weights attached to them. These processes cause the expulsion of the poisonous fluid. The mass thus treated is next beaten fine in a mortar. It is now transferred to open ovens

and stirred constantly until thoroughly dry. When properly prepared, the farina is very white and beautiful.

Mandioca is said to have medicinal virtues. A poultice made of the grated pulp and moistened with the juice, is considered a cure for abscess. A drop or two of the poisonous juice is administered for tapeworm. But it is principally with the sweet variety or true cassava grown in Florida that the reader is most interested. It is undoubtedly destined to take high rank as a food plant not only on account of its richness in starch, but also from its enormous yield under proper cultivation. It is said to yield 600 bushels per acre, while sweet potatoes (or yams) yield but 500 under the same conditions.

The following is the United States Department of Agriculture analysis:

Water	70.44 per cent.
Ash	.57
Oil and fat	.38
Glucose	.28
Sugar	5.19
Crude fiber	1.19
Nitrogenous bodies	1.03
Starch	21.24

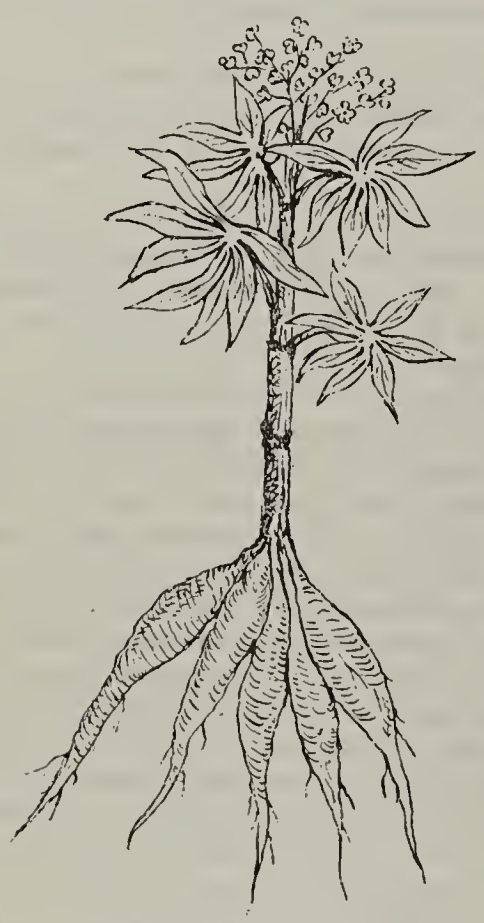


Fig. 4.—Cassava Plant.

Sweet cassava (*Manihot aipi*, Pohl.) abounds in a milky non-poisonous juice. The roots are grated the same as the bitter variety and the juice extracted.

The resulting farina consists largely of broken cell-walls containing a certain quantity of starch. The farina or meal is dried on plates, and is made into cassava cakes. The liquor, which passes away under pressure, contains a large amount of starch. This may be recovered if the liquor is allowed to stand until settled, when the liquid portion can be poured off, and the starch reclaimed. (Fig. 3.)

In the illustration it will be seen that the starch cells are muller-shaped. Tapioca is prepared by heating moistened cassava starch on hot plates.

This process alters the starch cells, causing them to swell up, many of them bursting and agglomerating in small irregular masses. Tapioca is not pure starch. By the process adopted part of the starch is changed into gum; there are also traces of sugar to be found in tapioca.

In the liquor that is poured from the deposited starch much gum and some albumin may be obtained.

The illustration shows the entire plant. It is not propagated either from the root or seed. Pieces of the stalk are planted and from the buds grow the future plants. In this way sugar cane is also propagated.

KOONTI.

This plant (*Zamia intregrifolia*) is a native of South Florida, and is called "Indian Bread-root." In its foliage it bears a resemblance to the palm and tree fern. In affinity it is nearer the latter than the former. Figure 5 represents the appearance of the plant. Its root is the edible portion.

When the poor whites on the east coast are greatly in need of money they go to the woods and dig koonti, finding a ready market for the roots. Indeed, it is the sole occupation of many people. The roots are not cultivated, as they grow wild in great abundance. A very fine quality of starch and tapioca is manufactured from them, which may be found at all times in the Key West market.

Figure 6 shows the appearance of the starch cells of



Figure 5.

koonti. They are muller-shaped, like those of cassava, but smaller. The starch is said to be equal to the best Bermuda arrow-root, and lately its worth as an article of commerce has been fully recognized in Florida. There are a number of factories for its preparation in Southern Florida. A correspondent of the United States Agricultural Department writes: "I ate of a koonti pudding, at Miami, and can say that, as it was there prepared and served, with milk and guava jelly, it was delicious."

The unique industry (in the more limited sense of the word) of the Seminole is the making of the koonti flour. The Indian process is this. The roots are gathered, the earth is washed from them, and they are laid in heaps near the "koonti log." The koonti log, so-called, is the trunk of a lage pine tree, in which a number of holes, about nine inches square at the top, their sides sloping downward to a point, have

been cut side by side. Each of these holes is the property of some one of the squaws or children of the camp. For each of the holes, which serve as mortars, a pestle made of some hard wood is furnished.

The first step in the process is to reduce the washed koonti to a kind of pulp by chopping it into small pieces and filling with it one of the mortars, and pounding it with a pestle. The contents of the mortars are then laid upon a small platform; each worker has one. When a sufficient quantity of the root has been pounded, the whole mass is thoroughly saturated with water, in a vessel made of bark. The pulp is then washed in a straining cloth, the starch of the koonti draining into a deer hide suspended below. When the starch has been thoroughly washed from the mass, the latter is thrown away, and the starchy sediment in the water left to macerate. After some days the sediment is taken from the water and spread upon palmetto leaves to dry. When dried, it is a yellowish white flour, ready for use.

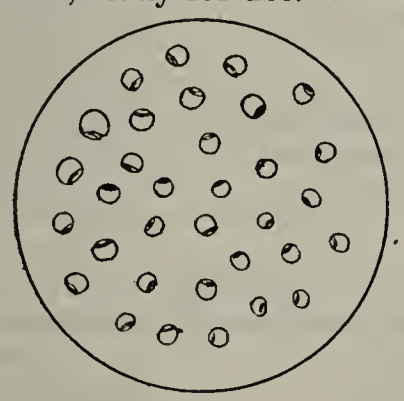


Figure 6.

In the factories this process is substantially followed out with improved appliances. The chief variation being that the koonti starch undergoes several successive macerations, thereby making it purer and whiter than the Indian product.

The koonti bread made by the Indians is of a bright orange color. It is rather insipid, though not unpleasant to the taste. It is made without salt. Its yellow color is due to the fact that the flour has had but one maceration.

A STUDY OF THE DEFORMITIES OF THE JAWS AMONG THE DEGENERATE CLASSES OF EUROPE.

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CHICAGO.

The Twelfth International Medical Congress in Moscow, afforded me a long-sought-for opportunity, not merely to visit Russia, but also to cover nearly all the countries of Europe. In visiting the various cities I made special observations of the degenerates in each of the various institutions for the defective classes. The objective points of interest were the prisons, insane hospitals, schools of idiocy, foundlings' homes, etc. The features of the soldiers, police and cabmen, as well as the citizens themselves, were incidentally noted for the purpose of comparison. These observations, however, were for an entirely different purpose, the object of this paper being to record results as to the deformities of the jaws and teeth of the mature degenerate classes.

In a prison in Athens containing 452 convicts, not a single V or saddle arch was found, although slight irregularities of the teeth due to local causes were observed. Arrest of the lower jaw, however, was the rule, which together with the recession of the forehead gave to the individual an idiotic appearance. Irregularity, in the relation of the upper to the lower jaw due to excessive and arrest of development, was very common. The third molars, upper and lower, were present, but the vault was lower than the average.

In a Greek insane hospital (idiots are here confined with the insane), in Constantinople, of 332 inmates (equally divided as to sex) only one case of V-shaped arch was noted. The vaults were low, upper jaws large and full, but 48 per cent. of the lower jaws arrested, the third molars normally developed.

In an Armenian insane hospital (idiots are here confined with the insane) in Constantinople, of 250 inmates (175 males, 75 females) there was one partial V-shaped arch, the third molars normal, and the lower jaw arrested in 18 per cent. There were many mongoloid faces.

In the Vienna Insane Hospital, among 326 insane and idiots there were 4 partial V and 1 saddle-shaped. The third molars were normally developed in 311 cases.

In a prison in Moscow, with 2,000 convicts (247 of which were in the hospital) there were no contracted jaws nor irregularities of the teeth. The jaws were very large and vaults low. In the Moscow Reform School, 112 boys were ranging from 10 to 18 years. Three had partial V-shaped arches; no saddle-shaped arches. The jaws, as a rule, were large and broad with low vaults.

In a Moscow insane hospital with 400 patients, of which 12 were idiots, no contracted arches were observed. The jaws were large and broad with low vaults.

In the Stockholm Insane Hospital, with 270 patients, 6 V-shaped arches, 12 partial V, 4 semi V, 23 saddle-shaped, 4 partial saddle, 11 excessively developed upper jaws, 3 excessively developed lower jaws, 9 hypertrophy of the alveolar process, 42 missing third molars, 6 missing laterals were noted. Deformities of individual teeth were numerous.

The School of Idiocy of Stockholm with 120 inmates, 80 boys, 40 girls, gave the following results:

BOYS.	GIRLS.
14 normal jaws.	15 normal jaws.
12 V-shaped.	1 V-shaped.
10 partial V-shaped.	5 partial V.
4 semi V-shaped.	5 semi V.
8 saddle-shaped.	8 saddle-shaped.
1 partial saddle.	1 semi-saddle.
2 semi-saddle.	6 macrocephalic.
12 macrocephalic.	4 microcephalic.
5 microcephalic.	

Thirty-two boys and fourteen girls had hypertrophy of the alveolar process on the upper jaw. One boy, aged 13 years, who was able to take care of himself, had a head thirty-two inches in circumference, one of the largest on record. The prison at Hamburg had 1800 convicts. Large, well-developed jaws were the rule. Asymmetry in development, however, was frequently noticed as well as other stigmata.

The School of Idiocy at Hamburg had 600 children, 396 boys, 204 girls, and gave the following results:

BOYS.	GIRLS.
62 normal jaws.	28 normal jaws.
12 V-shaped.	4 V-shaped.
16 partial V.	7 partial V.
8 semi-V.	3 semi-V.
4 saddle.	1 saddle.
3 partial saddle.	1 partial saddle.

2 semi-saddle.	3 semi-saddle.
46 hypertrophy of alveolar process.	25 hypertrophy of alveolar process.
3 macrocephalic.	5 macrocephalic.
4 microcephalic.	2 microcephalic.

One boy of 13 years had an excessive lower jaw, being one and a half inches beyond normal upper, a most remarkable case.

In the Insane Hospital and School of Idiocy at Amsterdam, there were 1330 insane, 255 idiots. In the insane no contracted arches were found. Vaults were low; 67 had hypertrophy of the alveolar process. No third molars were missing.

IDIOTS.

116 males:	139 females:
1 V-shaped.	1 V-shaped.
3 partial V.	2 partial V.
1 semi-V.	
1 saddle.	

There was hypertrophy of the alveolar process in nineteen. The vaults were low and jaws well developed.

The School of Idiots, Paris, 667 inmates, 500 boys, 167 girls, gave the following results:

BOYS.	GIRLS.
1 V-shaped.	1 V-shaped.
40 partial V-shaped.	6 partial V-shaped.
2 semi-V.	1 semi-V.
2 saddle.	8 saddle.
1 partial saddle.	2 partial saddle.
4 semi-saddle.	1 semi-saddle.
7 hypertrophy of alveolar process.	4 hypertrophy of alveolar process.

The vaults were low.

Having permits to visit the following prisons in Paris, Ci-aprie, Le Depot, Grande Roquette, Mazas, La Santé, St. Pélagie and San Lazan, after examining the convicts in the first four, aggregating 2600, I abandoned the task, since no deformities of the jaws of special value were observed.

In England I examined the following public asylums: 1. Earlswood, Red Hill, Surrey. 2. Darenth School for Children. 3. Darenth School for Adults, Hanwell Hospital for the Insane and the following private institutions: 4. Mrs. Langdon Down. 5. Dr. Shuttleworth. 6. Dr. Beach. A day was spent at the Criminal Insane Hospital, Broadmore. Fully one-half the inmates were so violent that the task was given up. Enough, however, was observed to warrant my stating that fully 80 to 85 per cent. had marked deformities of the jaws and teeth.

Hanwell Hospital for the Insane, Southall, has 2080 patients, mostly of the dependent class, who went insane after maturity; hence the class of deformities which are under discussion were not common. Hypertrophy of the alveolar process and excessive and arrested development of the jaws were, however, frequently noticed. Stigmata of degeneracy of head, face, eyes, ears, body, hands and feet were the rule.

Earlswood Idiot Asylum, Red Hill, Surrey, contained 670, of which 400 were boys and 270 girls.

BOYS.	GIRLS.
31 normal jaws.	24 normal jaws.
108 V-shaped.	67 V-shaped.
69 partial V.	86 partial V.
11 semi-V.	24 semi-V.
19 saddle.	
27 partial saddle.	8 partial saddle.
13 semi-saddle.	23 semi-saddle.
	1 cleft palate.
104 Marked arrest of upper jaw.	87 Marked arrest of upper jaw.
64 marked protrusion of upper jaw.	24 marked protrusion of upper jaw.
11 marked protrusion of lower jaw.	1 marked protrusion lower jaw.
306 marked arrest of lower jaw.	237 marked arrest of low jaw.
46 lateral incisors arrested.	30 lateral incisors arreste
28 lateral incisors lost.	16 lateral incisors lost.
180 third molars lost.	85 third molars lost.
160 showed malnutrition of teeth.	78 showed malnutrition teeth.

Darenth School for Idiots, Dartford, Kent, ha 1000 inmates, 640 boys and 360 girls.

BOYS.	GIRLS.
150 normal jaws.	90 normal jaws.
143 V-shaped.	118 V-shaped.
140 partial V.	80 partial V-shaped.
105 semi-V.	65 semi-V.
35 saddle.	
20 partial saddle.	8 partial saddle.
10 semi-saddle.	20 semi-saddle.
450 marked arrest of upper jaw.	310 marked arrest of upp jaw.
150 marked protrusion of upper jaw.	90 marked protrusion upper jaw.
23 marked protrusion of lower jaw.	9 marked protrusion lower jaw.
600 arrest of the lower jaw.	340 arrest of the lower jaw.
68 lateral incisors arrested.	32 lateral incisors arreste
42 lateral incisors lost.	19 lateral incisors lost.
388 third molars lost.	111 third molars lost.
150 hypertrophy of the upper jaw.	90 hypertrophy of the upp jaw.

Darenth School for Adults (idiots), Dartford, Ken contained 1050 inmates, 450 males, and 600 female

MALES.	FEMALES.
60 normal jaws.	40 normal jaws.
105 V-shaped.	177 V-shaped.
93 partial V.	121 partial V.
53 semi-V.	79 semi-V.
31 saddle.	
5 partial saddle.	8 partial saddle.
	10 semi-saddle.
295 marked arrest of upper jaw.	436 marked arrest of upp jaw.
162 marked protrusion of the upper jaw.	209 marked protrusion of th upper jaw.
8 marked protrusion of the lower jaw.	17 marked protrusion of th lower jaw.
409 arrest of lower jaw.	580 arrest of lower jaw.
48 lateral incisors arrested.	72 lateral incisors arreste
37 lateral incisors lost.	62 lateral incisors lost.
442 third molars lost.	597 third molars lost.
58 hypertrophy of upper jaw.	36 hypertrophy of upper ja

Of the children, 576 boys and 282 girls showe malnutrition *in utero*. Of the adults, 396 males ar 578 females showed malnutrition *in utero*.

Mrs. Langdon Downs' School for Idiots, Norman field, Hamptonwick, contained 147 inmates, 97 bo and 50 girls.

BOYS.	GIRLS.
12 normal jaws.	5 normal jaws.
36 V-shaped.	10 V-shaped.
20 partial V.	9 partial V.
15 semi-V.	12 semi-V.
9 saddle.	7 saddle.
13 partial saddle.	1 partial saddle.
28 semi-saddle.	16 semi-saddle.
86 arrest upper jaw.	45 arrest upper jaw.
92 third molar missing.	47 third molar missing.
16 lateral incisors missing.	8 lateral incisors missing.
46 teeth showing arrest and grooves.	21 teeth showing arrest a grooves.
19 hypertrophy of alveolar process.	7 hypertrophy of alveol process.

Of the twelve normal dental arches (males) sev were hypertrophied. Of the five normal dental arch (females) three were hypertrophied.

Dr. Shuttleworth's Private Idiot School, Richmo Hill, had twelve boys and girls. There was one no mal jaw, but no laterals. There were two V-shape

five partial V, one semi-V, two partial saddle, and one semi-saddle shaped jaw. Four had hypertrophy of alveolar process; nine had notched and pitted teeth, and all high vaults. These patients were too young to decide as to the number of third molars, but five had one or both laterals missing.

Dr. Fletcher Beach, Winchester House, Kingston Road, had thirteen patients: Three V-shaped, eight partial V and one semi V-shaped jaw; six hypertrophy of alveolar process; eight had notched and pitted teeth; all high vaults. These patients were also too young to decide as to the number of third molars. Four had one or both laterals missing.

These reports are tabulated in the order in which they were made. They show a gradual increase degeneracy from the examinations made in Greece to those in England. It will also be noticed that the deformities of the jaws and teeth are more numerous among the better classes, such as are shown in the private institutions of Mrs. Langdon Down and Drs. Shuttleworth and Beach, than those of the poorer classes in the public institutions of England.

From examinations previously made in Spain, Italy and Switzerland among the degenerate classes, a very small percentage of deformities of the teeth and jaws were found. As compared with the American born degenerate classes, the percentages are greater than those of the Latin races, and the Slavs, Germans, Austrians, Danes and Dutch, but less from 25 to 30 per cent. than the Swedes and English.

These observations have proven to me what I long ago suspected from my studies of the degenerate classes which have come to America, and which fill our public charitable institutions as well as our prisons, that the higher the intellectuality the greater the degeneracy of the jaws and teeth.

SOCIETY PROCEEDINGS.

The Mitchell District Medical Society of Indiana.

Semi-annual meeting held at West Baden Springs, Dec. 27, 28 and 29, 1897.

The meeting was called to order by Dr. J. Garland Sherrill, the president. After transacting routine business, the first paper, entitled

INJURIES OF THE HEAD,

was read by Dr. John F. Potts of Bloomington, Ind.

After some general observations on the subject of extensive depressed fractures of the skull, Dr. Potts illustrated his point by reciting the case of a man 53 years old, who, Jan. 22, 1897, sustained a fracture of the left parietal and temporal bones, which were crushed in, involving the extremity of the frontal bone and leaving a large opening through which a considerable mass of brain substance protruded. Careful removal of the depressed bone left a very large area of exposed brain substance exuding through the lacerated meninges. The patient recovered consciousness and did fairly well until February 26, when he was seized with a severe chill. On the night of the 27th convulsions came on. March 1 a large mass protruded through the opening. The most prominent part of the swelling was punctured by the exploring needle, without results. The patient's condition was such that incision was deemed necessary to determine the cause of the swelling; a large amount of pus escaped and the convulsions ceased. From this time on the patient advanced in convalescence, finally making good recovery. The left eye was blind and the pupillary reflex presented a yellowish pink color. The patient claimed to have perception of light. Dr. Potts thought injuries of this character, in which the skull was crushed in, although involving one whole side of the head, as this did, and making it necessary to take out an enormous amount of the cranial wall, frequently resulted fatally for the lack of complete removal of depressed bone, regardless of the area involved. He wished to know if any of the members present could account for the loss of sight and the peculiar pupillary reflex in the left eye.

Dr. Pfingst felt satisfied that the injury of the eye was due to embolism in the choroidal vessels, causing inflammation of the vitreous humor.

Dr. Wm. V. Morgan thought septic infection sufficiently explained the condition described. General inflammation of all the structures of the globe, he had no doubt, resulted from infection of the wound in the brain. Dr. Morgan pointed out the difficulty in ordinary cases of severe injuries to the head in determining the presence of fracture of the bone, because of the hard, sharply defined, marginal outline of the site of the injury. In severe contusions of the scalp this sharply defined outline is so abrupt and so hard to the sense of touch as to present all the physical characteristics of depressed fracture. He thinks great danger of confining infectious matter may result from too early suturing of the dura mater. Secondary hemorrhage is another source of danger. He recently had three cases of depressed fracture, with loss of brain substance, in all of whom serious hemorrhage was present, yet recovery was secured by the prompt control of the hemorrhage by packing with iodoform gauze and maintaining ample drainage. In all of these cases small abscesses requiring puncture occurred. He thinks Rolando's fissure the frequent site of hemorrhage. Large clots forming in this fissure require to be turned out and in order that it may be properly exposed it is of the first importance that it should be accurately located externally. His method of locating the fissure of Rolando consists in taking a tape, with which he measures from the most inferior part of the external auditory meatus, in a directly vertical line over the saggital suture, and then placing the lower end of the tape in the nasal notch of the frontal bone, he extends it directly back along the median line, resting the superior end of the tape, which marks the distance from the inferior auditory meatus to the median line, firmly upon the head, the lower end is now swept to the outer border of the malar bone; the upper three-fifths of the tape then lies over Rolando's fissure.

Dr. J. Garland Sherrill considers it the first duty of the surgeon to ascertain the extent and character of the injury, without waiting for symptoms of pressure. Delayed exploration allows time for organic changes to take place in the brain substance, which leads to cicatricial formations, followed by epilepsy, and sometimes even more serious results.

Dr. Charles P. Cook of New Albany reported the case of a man who had been sandbagged and in whom no symptoms of local injury, excepting swelling, existed. The sharp marginal outline of a contused scalp was absent. The nature of the injury was completely masked until symptoms of compression became marked. Operative interference was not permitted and after a tedious and prolonged course of medication the patient made final recovery.

Prof. Wm. V. Morgan cited the rules laid down by Dr. Agnew for determining injuries to the brain when no objective symptoms are present. He then related the important features of a case of laceration of the sigmoid portion of the lateral sinus, in which early operation was done. The patient was a boy who had been kicked in the head by a horse. Foreign matter was carried into the wound. On elevating the depressed bone a frightful hemorrhage occurred, which was controlled by packing with iodoform gauze. On the third day, when the packing was removed the hemorrhage recurred and death seemed imminent. Repacking, however, finally succeeded in arresting it. On the seventh day, when the second packing had been removed, it was found that the lateral sinus had been cut half in two.

Dr. E. P. Easley of New Albany saw a case with Dr. Chas. Cook in which the fracture extended below the ear, involving the base of the occipital bone. The depressed bone was carefully removed, posteriorly below the mastoid and the patient made complete recovery.

Dr. Sherrill thinks shaving the head removes the chief obstacle to the discovery of objective signs of fracture, where the soft parts remain unbroken.

Dr. A. W. Brayton recited Phelps' published list of 300 detailed cases, in nearly all of which symptoms of depression lead to the localization of the site of injury, yet in some cases this is not possible. In a case where no symptoms of external injury existed, the patient died from pressure of a blood clot.

Dr. Sherrill reported an interesting case of death, resulting from cerebral apoplexy, due to atheroma, in which a fall was supposed to have produced concussion with fatal result, when, in fact, loss of consciousness actually preceded the fall.

Dr. Easley of New Albany reported a case where a blow on the head, which produced no external sign of injury, was followed by hemorrhage from the middle meningeal artery, resulting in death.

DECEMBER 28, 9 A.M.

Dr. WM. D. PENNINGTON of West Baden read a paper on "Acute Gastritis." In a majority of such cases the more serious structural changes take place in the pyloric region. Nearly all cases of acute gastritis are due either to microphytic causes, or the presence of insoluble matter or concentrated alcoholic drinks. The differentiation is generally sufficiently easy by the aid of microscopic analysis. Apomorphia and syrup of ipecac are the best emetics in cases of retained insoluble matter. In the treatment of all forms of acute gastritis he esteems saccharated mercury, limiting the patient's diet to skimmed milk as long as any inflammation is present.

Dr. SYMON P. SCHERER of Indianapolis considered the early employment of lavage most important. This should be repeated at least once per day, with sterile water containing a small quantity of bicarbonate of sodium. At first the stomach should be washed two or three times to insure thorough emptying and cleansing. In cases of ectasia he finds ingesta remaining in the stomach for twenty-four hours. He insists upon the value of lavage in all cases of gastritis and in atonic dyspepsia, with or without gastralgia. He would not, in ordinary cases, allow the patient to use the stomach tube without the presence of a trained nurse or the physician himself.

Dr. J. GARLAND SHERRILL insists upon some discrimination as to the cause of the gastritis. He maintains that the same treatment can not be applied in all casses of microphytic inflammation and those arising from caustic alkalies. In the latter class of cases no food should be introduced into the stomach, feeding should be done entirely per rectum. Lavage in such cases must necessarily aggravate the patient's discomfort. He thinks medicinal treatment in such cases should be limited to fluids that have some local anesthetic or anodyne properties.

Dr. E. P. EASLEY would not use the tube in acute cascs, after once emptying the stomach. He does not doubt the value of repeated lavage in chronic catarrhal gastritis. The apparatus, however, and its mode of use are obstacles to the employment of that method in private practice. Poor people can not afford the apparatus and no untrained person can be trusted to use it.

Prof. WM. V. MORGAN of Indianapolis suggests that a perfectly satisfactory apparatus can be constructed of a plain piece of rubber tubing, by first trimming and then sandpapering the end of it so as to round it and make it perfectly smooth. After carefully washing off any adhering foreign matter that may have become attached to the rubber in the process of smoothing it, attach a common funnel to the other end of the tube. The rubber should be three feet in length with an aperature of one fourth of an inch. In many chronic cases the repeated employment of lavage is of the greatest service.

Dr. WM. D. PENNINGTON fully endorsed the device of Professor Morgan.

Dr. ADOLPH PFINGST of Louisville read a paper on "Middle Ear Complications in the Course of Measles." He reported the case of a child in whom sudden high temperature continued for several days, and which had been preceded by very slight discomfort of one ear only. When he was called to the case, both external drumheads were swollen and bulging. Hearing by the watch test = 4/xxx. Hot poultices resulted in the rupture of both membranes and the free dischage of pus. The absence of pain in otitis media, occurring in the course of measles, seems to be as commonly observed as the sudden onset of high temperature. In Bezold's cases many died without having such symptoms as to attract attention to the ear, yet autopsy showed indurated lining of the drum cavity, and in some the ear drum was filled with pus. Dr. Pfingst concurs in the opinion that infection is sometimes carried by the air into the tympanum; at other times tympanic disease is the result of infection by contiguity of structure. He believes that measles rarely runs its course without provoking some form of otitis media, the purulent form being the most frequently observed.

Dr. ULRICH H. HON of Bloomington called attention to the fact that the eruption of measles is present in all the mucous membranes as well as the skin, and he has no doubt it is present in the middle car as well as the fauces, where it is always well marked. He has often observed suppurative otitis appearing simultaneously with the decline of the eruption in the skin.

Dr. JOHN F. BARNHILL of Indianapolis called attention to the unfortunate failure to recognize the ear complication sufficiently early to prevent suppuration, and such deep seated organic changes as to permanently impair the hearing. The narrow Eustachian canal is early closed by accumulating mucus, which will soon be observed to undergo suppurative changes. He thinks shutting out the circulating current of air nearly always leads to suppuration of the retained mucus in cases of measles.

Dr. PFINGST accepts Dr. Barnhill's explanation of the cause of suppuration.

Dr. JOHN F. BARNHILL read a paper on "Extrapulmonary Coughs." Reflex causes are found in impacted cerumen, eczema of the external auditory canal, nasal obstructions, diseases of the pharynx, and a dripping from the vault of the pharynx into the larynx. The ear, nose and pharynx must be explored in all cases, searching for retained matter, inflamed areas, morbid growths, enlargement of the inferior lobes of the tonsils, concretions in the upper lobes of the tonsils, and various conditions of the epiglottis. Sometimes cervical tumors pressing on the vagus excite cough. He related cases due to deformities of the septum narium, with adenoid growths in the posterior nasal spaces; small tumors on the base of the tongue which irritate the crest of the epiglottis; elongated uvula; and some cases of neurotic persons in whom no local morbid conditions could be discovered.

Dr. DUDLEY S. REYNOLDS called attention to the occasional development of horny growths in the tonsils, in the posterior wall of the pharynx and on the base of the tongue. He recited the case of a woman, who for a long time attended his clinic at the Hospital College of Medicine, and in whose throat there were a large number of filiform bodies resembling hair. They were about one sixteenth of an inch in diameter, three-fourths of an inch long, of symmetric growth, cylindric in form, with sharp-pointed extremities. They presented a dark muddy brownish color. They were removed with great difficulty, and when subjected to microscopic examination, turned out to be veritable horns, having all the characteristics of ordinary horny tissue. These growths resisted the action of caustics, the patient having been the rounds of other clinics for several years. She had a harassing cough. Dr. Reynolds found it very difficult to pull out these growths with the forceps. By seizing a number of them with serrated forceps, and cutting out the matrix with scissors, the growths were exterminated in sections, the second operation being delayed until cicatrization had taken place in the area embraced by the first, and so on to the conclusion. While such cases are not very common, they occur sufficiently often in the course of his practice to deserve mention among the causes of extrapulmonary coughs. They are in no sense of the word like either the milk-tinted masses of fungus disease, nor by any possible mistake in diagnosis to be compared with the ordinary concretions found in the little pouches, or dilated sinuses of the tonsils.

Dr. SCHERER reported a case of horny growths occurring in his practice, which he relieved by cutting out the matrix with scissors.

Dr. A. W. BRAYTON complimented Dr. Reynolds on his description of the growths, but insisted that the disease which produced them is nothing more than a mycosis. Such cases he regards as of sufficiently common occurrence to be considered in the list of causes of extrapulmonary coughs. He referred to an able essay on the subject by Dr. Klein of Indianapolis, presented to the Marion County Medical Society. Dr. Brayton remarked that, although the disease is a distinct mycosis, the action of strong acids is not sufficient to dissolve the growths. He does not doubt that many of them are really horny in formation and believes that the actual cautery is often the best agent for removing them.

Dr. PFINGST thought the massing of the pavement epithelium and the hair-like appearance of the growths resulted from the tenacious adherence of the flattened cells.

Dr. CHARLES P. COOK had observed a peculiar cough, and a morbid sensibility of the throats of beer-drinkers, in some of whom milk-white bodies were present in the tonsils.

Dr. BARNHILL thinks the beer-drinker almost always exhibits varicose veins at the base of the tongue. He finds them also in neurotic and anemic women, about the period of the menopause. He has, in some cases, been obliged to puncture the varices to give relief to the distressing cough. Varicose veins in the space between the tongue and the epiglottis are most annoying.

Dr. SIMON P. SCHERER read a paper on

HEART MURMURS.

He thinks the habitual use of digitalis by physicians who do not regard the methods of physical investigation of conditions of the heart, and who divide heart murmurs into two general classes, often leads to grave consequences. The tabular location of normal heart sounds affords the only reliable means of comparison, either in deviation of position with reference to the character of the murmur, or the relations these bear to the systolic and diastolic movement. The comparison of both location and character of murmur in diastole or systole with synchronous pulsations of the carotid, afford in many cases the only means of diagnosis. If weak left ventricle with mitral

nsufficiency, can be made out, digitalis may be used. Where nuscular tonics, however, are required, strophanthus and strychnin are the most reliable agents. In some cases of aortic stenosis, with hypertrophy of the left ventricle and mitral insufficiency, the tincture of aconite, cautiously administered until the apex beat against the chest wall is reduced to a point of relief, great good may be accomplished. In this state of affairs digitalis does harm. In mitral stenosis, digitalis is indicated. In all atonic cases, strophanthus and strychnin; where venous stasis is present, salines and mercury should follow or accompany the use of strophanthus. The prolonged use of strophanthus shows no tendency to cumulative effects. The tincture in five to eight minims doses gives the most uniform results.

Dr. Thomas Eastman of Indianapolis believes that great care and precision of method in diagnosis is essential in the treatment of the various forms of cardiac disease. He would like to emphasize his preference for the tincture of nux vomica or the extract, in all cases where strychnin is indicated. He considers that all other alkaloids of the nux vomica of greater value, are sacrificed by the substitution of strychnin. As a matter of preference he regards the tincture of nux vomica as superior to all other preparations.

Dr. J. Garland Sherrill has seen bad results from the prolonged use of digitalis, which he considers of great power for good or evil. He has known arteritis follow its use.

Dr. Wm. V. Morgan of Indianapolis considers that painstaking care in diagnosis will alone enable the practitioner to exercise sound judgment in the choice of remedial agencies. He reported a case of tuberculous cystitis, with hydronephrosis, which caused hypertrophy of the heart. If the cause can be removed, the compensating dilation of the heart should arouse no anxiety in the search for cardiac remedies.

Dr. G. W. Burton of Mitchell does not think errors of diagnosis easily avoided. In his experience of forty years' practice he has occasionally found it impossible to make an entirely satisfactory diagnosis. He has no confidence in any tincture of digitalis, in fact he questions the value of any preparation, excepting the infusion alone. He has found the tincture of strophanthus an important though powerful and, therefore, dangerous agent. He has known it to do mischief in the hands of inexperienced practitioners. If all the difficulties in diagnosis could be mastered, then he would say cardiac lesions might be treated upon principles entirely satisfactory and rational.

In concluding the discussion, Dr. Scherer called attention to the aggravated dangers of cardiac medication in all forms of hypertrophy complicated with renal disease. As to the question of the best preparation of digitalis, he thinks most practitioners now prefer digitalin. In the choice of preparations of strophanthus he regards the tincture made by Parke, Davis & Co. as the most reliable and, therefore, the best preparation. He does not think the dose should exceed 5 minims to begin with. He thinks the profession in general is inclined to underestimate the value of aconite for diminishing tumultuous and rapid heart action.

Dr. Dudley S. Reynolds of Louisville introduced the subject of

CHOROIDITIS IN CHILDREN.

He maintains that many cases are overlooked in prescribing glasses for the correction of optic defects, and that disastrous results often follow. He contends that choroiditis in children is to be regarded as a manifestation of blood taint, or of that character of defective tissue growth found in mixed races. He is persuaded that very few mulattoes may be found entirely free from choroidal disease. From his limited opportunities of observation, he has reached the conclusion that those persons of mixed blood, of African paternity, with predominating Caucasian blood on the maternal side, never escape choroidal or retinal disease. Dr. Reynolds thinks the axial choroiditis of the aged, like that of infants, may arise from the imprudent exposure of the eyes to prolonged brilliant illumination. The disseminate choroiditis coming on at any period in life, he regards as distinctly characteristic of syphilis. He does not think it is often seen in cases of acquired syphilis, although he does think it sometimes appears late in life in acquired cases. He urges the necessity of having the eyes of every child carefully examined with the ophthalmoscope before permitting it to engage in the duties of school life.

Dr. Ulrich H. Hon of Bloomington expressed great satisfaction with some of the conclusions of the essayist. He recited instances occurring in his own observation where the eyes of school children had been permanently impaired, and in some cases practically lost after the adjustment of glasses by itinerant opticians. He has known many cases where subsequent examination by expert ophthalmic practitioners disclosed irremediable disease of the choroid and retina. He is satisfied that the importance of the matter would justify the expense and trouble incident to a thorough examination of the eyes of all children before going to school.

Dr. J. F. Barnhill of Indianapolis deprecates the too common practice of permitting opticians to adjust glasses, without ever stopping to consider the conditions of the structures within.

Dr. Edmund D. Laughlin of Orleans, feels that something out to be done to prevent the practice of traveling opticians, often armed with certificates from prominent physicians, adjusting glasses to the eyes of every one who has sufficient money to pay for them. It is clearly the duty of the medical profession to aid both in devising adequate laws for the prevention of such criminal practice, and the enforcement of such laws as we already have. Until some united action on the part of the regular profession is taken, we shall be obliged to continuously witness the disastrous results of allowing itinerant opticians to tinker with the eyes of innocent children, and unsuspecting parents.

Dr. U. H. Hon related the case of a modest, upright young man who had spent several months at some kind of school in Chicago, which issued a diploma or certificate of qualification, and which the young man used as an advertising circular to obtain patients. At first he seemed to think himself able to accomplish great good in supplying glasses to people who appeared to need them. Frequent disasters following his efforts finally discouraged him, and acting upon the advice of Dr. Hon, he confessed to have discovered great mischief in some cases where he had at first thought himself justified in supplying glasses, and finally abandoned the practice and engaged in an honorable business occupation.

Dr. A. W. Brayton of Indianapolis felt the question raised by the essayist concerning the hereditary influence down the maternal line, constituted the most important feature of the essay. He hoped Dr. Reynolds would continue to prosecute his observations, as he felt sure much good, and perhaps some new light, would result from a continuation of these studies. Dr. Reynolds is not alone in these opinions.

Dr. Reynolds, in concluding the discussion, referred to a case in the person of one of the servants at the West Baden Hotel. The patient's mother had but a trace of African blood. His grandmother on his father's side was reputed to be a white woman, while his father was quite black. The patient has extensive diffuse central choroiditis, with perception of light only in one eye, and just sufficient sight in the other to enable him to go about alone. He counts fingers at ten inches only.

Prof. Wm. V. Morgan of Indianopolis, read a paper on

INGUINAL HERNIA.

He regards all the injection methods of treatment with great disfavor. He thinks they should be opposed with unrelenting energy, as they serve but to complicate matters and greatly hinder any treatment that may subsequently become necessary. Naturally all operative procedure should be such as are designed to make complete and secure closure of the abdominal rings through which the hernia passes. He thinks in old hernias no attempt at radical operative procedure should be made until after the protruding intestine has been returned to the abdominal cavity, and remained there sufficiently long to establish tolerance of the reduction, after which two methods of dealing with the sac may be considered, with such modifications as good judgment and individual experience may suggest. Kocher's method has, for its chief feature, a small incision through the aponcurosis over the internal ring, using the finger as a guide, then passing a pair of artery forceps through the opening, and bringing out at the external ring the sac, which is drawn upward and twisted, so as to lie in a furrow outside the aponeurosis, in the direction of the inguinal canal, where it is securely sutured through the fibers of the aponeurosis, external oblique muscle, and the underlying fibers of the external oblique and transversalis, through the hernial sac, and into Poupart's ligament. The sutures bring together the anterior pillars of the external ring to which the sac is fastened. If the sac is very long, that portion which extends below the external ring is cut away. The Czerny method, in addition to high ligation of the sac sutured to the anterior pillars of the external ring, may be extended to include an attachment to Poupart's ligament so as to stretch the peritoneum smoothly over the ring through which the hernia protruded. The difficulties in both this, and other methods, notably Halsted's, lies in the fact that all attempts at creating obstructions against the recurrence of the hernia, by producing thickened and elevated surfaces, create at the same time increased liability of a return of the hernia by protrusion through the depressions on each side of the artificial elevation. One of the menacing difficulties lies in the determination of the best disposition to make of the cord.

Whether it is better to transplant the testicle into the abdominal cavity by placing it within the abdominal walls, adopting Halsted's method of reforming the internal ring, bringing the transversalis fascia, and a few fibers of the transversalis muscle along with a strip from the conjoined tendon, to be stitched across the inner ring firmly to Poupart's ligament, or whether it is best to simply raise or lower the cord, are questions difficult to determine. In many cases it would be far better before operating to have the consent of the patient to the removal of the testicle on that side, and then if removal should not become necessary, no harm or delay would result in the procedure. He shares Marcy's preference for the kangaroo tendon. He considers the following points should be kept in mind both before, and at the time of operating: 1. Attention to surrounding the internal ring by an aponeurotic band. 2. Hooding the cord. 3. Suspension of the testicles. 4. Making the site of internal ring smooth by drawing the neck of the sac across it. With Kocher, he concludes the results to be obtained make it the duty of every physician to advise a radical operation in all cases of inguinal hernia, in which extraordinary size, incarceration or inflammation, or complicating disease of vital organs, or the weakness of extreme old age, do not contraindicate a resort to the knife.

Dr. THOS. EASTMAN of Indianapolis has used the shotted suture, and silver wire, besides many other materials, and would decidedly prefer the wire in all cases where it is possible to use it; the silver wire suture he thinks, is not as popular with surgeons as it should be. He thinks its antiseptic properties are not sufficiently appreciated and that its more general employment would tend greatly to allay the frequency of stitch abscess.

Dr. THOMAS EASTMAN of Indianapolis read a paper on

THE TECHNIQUE OF MINOR GYNECOLOGY.

In his opinion many of the graver conditions ultimately demanding abdominal section may be so modified, or entirely controlled by timely interference, and by proper regard for technique in the administration of palliative and preventive measures as to establish complete restoration to health. Small lacerations of the cervix, frequently regarded as utterly insignificant, lead finally to the development of cicatricial masses, imprisoning terminal nerves, and causing a great variety of reflex disturbances, sometimes leading to the development of carcinoma. Generally these lacerations are so small and insignificant as not to require suturing, but where fungoid excrescences or excessive irritability develops, the direct application of the mitigated stick of nitrate of silver may be safely, and very beneficially made. He has no doubt that the timely use of such agencies would prevent a very large proportion of those conditions which ultimately lead to hysterectomy. In recent cases of displacement of the uterus, carefully introduced tampons may be found valuable correctives. In most of the inflamed conditions of the uterus, the vaginal douche, properly employed, is capable of accomplishing great good; improperly employed, it is an instrument of evil. Three points seem necessary in the use of the douche: 1. The water should be heated to 120 or 125 degrees. 2. It should be projected directly against the cervix. 3. The quantity should never be less than one and one-half gallons. The Hildebrand douche is best because it enables one to retain for a long time the hot water of the douche in cantact with the inflamed and irritable cervix. The same may be said of ovaritis. Sometimes, in the latter condition, the tampon and electricity should be used. The faradic current is the best form, although galvanism in some cases may be desired. Many of the diseases of the Fallopian tubes, and ovaries, as well as the uterus, may be arrested in their early stages, which, if neglected, ultimately lead to the necessity of abdominal section.

Dr. SIMON P. SCHERER thinks that it frequently happens that the physician himself does not give sufficiently definite instruction as to the mode of applying the treatment. He recited an instance where he had directed the patient to take an injection for the relief of obstinate constipation. He explained that the fluid to be used should be placed in a bowl, from which it should be conducted into the bowel. Returning he found that the patient had failed in his attempt to take the injection, because he had expected the fluid to flow from the bowl into the bowel through the tube. He reproached himself for not having shown the mechanism of the instrument to be used. It often happens intelligent patients, when ill, exhibit an utter incapacity to reason about such things.

Dr. WM. V. MORGAN entertains no doubt of the value of electricity; the induced current will certainly contract the uterus. Faradic currents with coarse wire will as certainly relieve pain. It should not be forgotten the positive pole of a galvanic battery is the caustic current. As to the value of rest in delaying the development of malignant conditions there can be no question. It has often been observed that cancer of the stomach occurs, by preference, in that portion which secretes hydrochloric acid, and he has no doubt if the acid were present it would prevent the growth of malignant tumor cells.

Dr. JOHN F. BARNHILL does not see how the propping up of the inflamed organ is to be maintained without incurring the risk of adhesions to the contiguous parts and organs, and these may become sources of annoyance equally as great as those which have been pointed out as indicating the necessity for operative surgery.

Dr. EASTMAN concluded the discussion by relating a number of instances of successful palliative and preventive measures employed at the clinic of Professor Gusserow.

The report of the sanitary committee being called for, Dr. Edmund D. Laughlin of Orleans presented the following, which after some discussion was unanimously adopted:

WHEREAS, An effort is now being made to place before Congress a measure known as the Public Health Bill, formulated by a committee of the AMERICAN MEDICAL ASSOCIATION at its last annual meeting, and subsequently unanimously approved and indorsed by the American Public Health Association, at the twenty-fifth anniversary meeting, held at Philadelphia in October last; and, in view of the urgent need of such an act by the Congress of the United States, thereby creating an organic law by which the proper officers therein specified may have power to act; therefore, be it

Resolved by the Mitchell District Medical Society, that we do most heartily concur in the effort to secure the necessary legislation upon this subject, and that we will urge our several representatives in Congress to promote the passage of such an act at the earliest possible period.

Resolved, That the secretary be instructed to forward a copy of these resolutions to the representatives in Congress from the district embraced in the territory from which the Mitchell District Medical Society draws its membership.

(Signed) EDMUND D. LAUGHLIN, Chairman.

The following papers were read by title and referred for publication: "Diphtheria and Antitoxin," Cort F. Askren; "The Cystoscope in the Diagnosis of Vesical and Renal Diseases," Wm. R. Blue of Louisville; "Horse-shoe Fistula," J. Rawson Pennington of Chicago; "Some Recent Observations in the Use of Diphtheria Antitoxin," Hugh A. Cowing of Muncie, Ind.

EVENING SESSION.

The Society met in the banquet hall, President Sherrill in the chair.

An address entitled, "We Do as We Must," by Dr. Elihu P. Easley of New Albany, based on a consideration of the development of the brain, and the influences of education and environment upon the character and habits of the individual, evincing much erudition, was well delivered. It was discussed by Dr. Wm. V. Morgan, Dr. A. W. Brayton and others. At the conclusion of the discussion, Dr. Wm. D. Pennington announced, on behalf of the Committee of Arrangements, the conclusion of the program, and the banquet was inaugurated by calling upon Dr. Dudley S. Reynolds to act as toast-master. Responses were numerous, and of the usually bright and humorous character. The principal speakers were J. Garland Sherrill, Wm. V. Morgan, Simon P. Scherer, A. W. Brayton, G. W. Burton and Chas. P. Cook.

On motion, a vote of thanks was tendered to the West Baden Springs Company for many courtesies, including a magnificent menu for the banquet, and to Dr. Wm. D. Pennington for his efficient services as chairman of the Committee of Arrangements.

The Society adjourned to meet at West Baden Springs, Ind., July 20, 21 and 22, 1898.

Chicago Academy of Medicine.

Regular Meeting, Dec. 10, 1897.

Dr. A. LAGORIO in the Chair.

Dr. C. S. BACON read a paper entitled

VOMITING OF PREGNANCY.

Various theories to explain vomitus gravidarum have been advanced. A large number are theories of reflex vomiting which assume a peripheral source of irritation in some part of the genital tract. One theory assumes a stretching of the uterine fibers and disturbance of the uterus by the growing egg. G. Hewitt believed that vomiting is due to displacement of the uterus. Others assume irritation in or inflammation of the cervix with erosion of the *os externum*. Horowitz believes that inflammation of the parenchyma of the uterus is the cause of vomiting, a

w similar to that held by Veit who finds in endometritis a y important etiologic factor. Tuszkai assumes an irritation the peritoneal coat of the uterus due to trophic disturb-es following the growth of the uterus. No one of these theo-s can account for all cases of vomitus gravidarum and the neficent results of treatment founded on these theories can en be explained in some other way than by admitting that h results prove the theory. The theory of Kaltenbach that peremesis gravidarum is due to hysteria can not explain all es, for there are many cases in non-hysteric subjects, but re is no doubt that a psychopathic condition is a very impor-t element in the causation of the disease. The theory of ect vomiting due solely to immediate irritation of the vom-g center by poisons circulating in the blood, or to nutri-nal changes caused by disturbance in the circulation in the dullary centers, can not be maintained, for reflex action can t be wholly ignored. Hence we must assume at the present e, as the only theory that will explain all the facts and make vomitus gravidarum a single disease, one that takes account the condition of the vomiting center and also of the sources peripheral irritation. We must assume that in two-thirds all cases of pregnancy there exists an increased irritability the medullary center due wholly or in part to one or both of ese two factors: 1. Nutritional changes resulting from circu-ory disturbances. 2. Poisoning from toxic elements circu-ing in the blood. We must further assume that this abnor-lly irritable vomiting center is acted upon by afferent im-lses sent from one or more of a variety of peripheral sources. nong the most important causes of reflex irritation are an carcerated, retroflexed uterus, abnormal adhesions of the erus, pathologic changes in the uterine wall resulting from dometritis, pelvic congestion, constipation, chronic gastritis, c. To these sources of afferent impulses must be added the ychopathic or hysteric condition which is of especial import-ce in the more serious cases.

Much can be done to prevent the vomiting of pregnancy, pecially the more serious forms, by hygienic management, nich consists in caring for eating, bathing, clothing, exercise, ep, etc., preventing constipation and especially securing a althful mental condition of the patient.

The indications for treatment of hyperemesis gravidarum e to allay irritability of the nervous centers, combat the neu-pathic condition, hysteria, and remove the sources of peri-neral irritation. Since the irritability of the medullary cen-rs is due to disturbances of the circulation, and to intoxica-n, the means for treating this condition are pointed out to . For maintaining a normal circulation the horizontal posi-n, stimulation of the cutaneous capillary circulation, use of imulants and vasomotor regulators, and injection of artifi-al blood serum, are the measures which promise the most. r antagonizing the circulating toxins all measures which imulate the renal and intestinal emunctories are indicated. ne most important of these is also the salt solution. If the psy-opathic or hysteric state be a factor in the vomiting it must be mbatted by proper management. As in the treatment of steria so here it may be necessary to isolate the patient nder the care of an experienced nurse and use all mental and oral forces, including suggestion. At the same time all pos-ble sources of peripheral irritation should be discovered and moved. The constipated bowels should be carefully emptied ith enemata and massage; a gastric catarrh may be treated ith lavage, a displaced uterus replaced and pelvic congestion rrected by ice-bags.

Under this plan of treatment most cases can be controlled at have not advanced to the last stages of starvation. In the treme cases the subcutaneous injection of large quantities of rmal saline solution is proposed because of its effect in im-roving the circulation, in the elimination of toxins through e clogged emunctories, and supplying two important elements food, water and chlorids. A case is reported to illustrate e worth of this measure.

Induction of abortion is opposed at all stages. When it is safe measure to employ it is unnecessary, and in extreme ses it adds greatly to the danger, rarely stops the vomiting d can be substituted by the artificial serum. Three fatal ses are reported where abortion was induced without stop-ng the vomiting and where the operation may have been a ctor in the fatal issue.

DISCUSSION.

Dr. CHARLES E. PADDOCK—I believe the cases the Doctor s quoted are instances of hysteria and we can attribute the miting more to this condition than any other. In other ords, I believe it is more a condition of the mind than it is of y pathologic state. My experience has been that at least 90 r cent. of these cases can be cured by a little suggestion. hat I mean by suggestion is the treatment advanced by the Doctor, viz., of putting the patient to bed in the horizontal position, with the assistance of a nurse. The application of nitrate of silver applied to the cervix may do some good; it may at least satisfy the patient. My treatment in these cases has always been along that line, and I find that I can stop the vomiting by such treatment. In some cases I have sent the patient to her mother, or to some relatives in the country, and I have not had a case where the emesis continued after such treatment. Nearly all of the cases I have had of vomiting of pregnancy, unless there was the existence of some pathologic condition, have been cured in a short time, if they were able to go to the places recommended by me. The other cases were pathologic. We may find an erosion of the cervix which can be treated. We may find a malposition of the uterus to be the cause. I have had cases from retroversion and retroflexion, and particularly in incarcerated cases. The treatment of these cases is plain; remove the cause and you remove the trouble. In many instances I believe they are neglected. If they are pathologic we should treat them as such, and remove the cause. I could cite several cases which I have had in my experience.

Dr. J. HOWARD SLAYTER—I have nothing further to add to what Dr. Bacon has said, except a word or two with reference to saline injections. In cases of hyperemesis gravidarum, when saline injections are necessary, we find the vitality is much lowered, and therefore these cases are especially liable to infection. In some of them we find a dropsical condition, or one analogous to it, present, and this further adds liability to infection. Again, by the use of saline injections one may, waterlog the part injected and produce an artificial dropsical condition which will be followed by increased tendency toward infection. There are cases of hyperemesis gravidarum that contra-indicate a hysteric origin, for if they were hysteric it seems to me it would be a strange thing to find a genuine organic neuritis present, although occasionally it does happen that organic disease is associated with or complicates one due to functional origin.

Dr. FENTON B. TURCK—The paper presented may be considered a fair *résumé* of our knowledge of the subject at the present time. But we had expected from Dr. Bacon's wide experience to have gained more information regarding his personal observations of the etiology of vomiting of pregnancy. If vomiting were the chief phenomenon found in so-called vomiting of pregnancy or hyperemesis gravidarum, then the theory of excitation of the vomiting center from the growing ovum may appear satisfactory, but the most prominent factor we have found is the vasomotor disturbance. Associated with the vasomotor disturbance we observe a great amount of congestion of the mesenteric vessels, accompanied with congestion of the vessels of the pelvis. The evidence of pelvic congestion may be noted as one of the early signs of diagnosis of pregnancy, and the symptoms of general vasomotor changes are soon observed. More work is demanded of the heart until an eccentric hypertrophy gradually takes place. We often find great disturbance in circulation, cold hands and feet, surface of the body cold, features drawn and blanched, lowered blood pressure, heart disturbance and sometimes syncope. The universal method of treatment is to place the patient in the prone position and the use of hot water internally, hot coffee, carbonic acid gas, as champagne, etc., subcutaneous injection of normal saline solution; these and all methods which directly or indirectly affect the vasomotor disturbance are most successful. These facts would indicate that the disturbance of the circulation is a most important factor. Where a vasomotor disturbance exists, especially of the abdominal vessels, the motor power of the stomach and intestines is interfered with and a high degree of irritability of the viscera results. If there is retention of material within the stomach and intestines from a lack of motor power, mucus accumulates, especially during the night, together with exfoliated epithelial cells, pharyngeal secretions and other products, such as toxins of bacterial origin, as well as toxins that are excreted into the stomach. These act as irritants sufficient to stimulate the so called vomiting centers.

If there is a marked degree of vasomotor disturbance of the splanchnic area there will result an increased irritability of the stomach whereby the vomiting centers receive more impulses, or are more powerfully stimulated than normally, and we may consider that the vasomotor disturbance also increases the irritability of the nerve centers. Therefore, bromids may sometimes be indicated.

We also find, associated with these cases, a dilatation of the stomach or prolapsus of the organ, due to the fact that the women wearing close-fitting and heavy garments about the waist produce these well-known pathologic conditions, such as a pyloric displacement which permits an accumulation within the stomach and sometimes regurgitation from the duodenum and act as an irritant sufficient to produce vomiting.

The third point that I would call attention to associated with congestion of the pelvic viscera and congestion of the mesenteric vessels, is the hypersecretion of the stomach and the involvement of the intestines and colon. The conditions above enumerated, the vasomotor disturbances and the gastro-intestinal disorders, including the colon, are quite sufficient to account for the vomiting that we find in hyperemesis gravidarum. And while I would not object to the term "hysteric," as applied to some of these cases, yet we find these pathologic conditions either existing or coming on during pregnancy, and I would rather ascribe the symptoms to known conditions than attribute the cause to a "neurotic," "neurasthenic" or "hysteric" condition, as these terms throw no light upon the pathology nor give any rational indication for treatment.

In the treatment it is necessary for us to meet the indications, especially the vasomotor disturbances that are found, and this is accomplished by the various methods described in the paper.

I wish to add that hydrotherapeutic measures applied within the stomach are very beneficial in overcoming congestion. It is necessary to use sufficient heat to produce vasomotor stimulation, as in shock, and in many of these cases I have found hot water at 130 degrees F., with the "intra-gastric resuscitator" or a hot water bag introduced into the stomach, of great benefit. This has acted upon the vasomotor disturbance sufficiently to reduce the symptoms of vomiting. Then treatment should be directed to the stomach itself and the intestines. I would emphasize, more than Dr. Bacon has in his paper, the great importance of vasomotor changes that occur in this disease, recognizing them as one of the elements of great importance and which may be found later to be the fundamental pathologic condition found in vomiting of pregnancy.

Dr. GUSTAV FUETTERER—There are three points I would like to touch upon. The Doctor recommends massage for the constipation of pregnant women. Does he recommend this as a rule, and without any fear of producing early uterine contractions? I would like to know how soon after the first hypodermatic injection of saline solution the tetanic attack appeared. I would also like to state that I have used hypodermatic infusions of normal salt solution quite frequently in different conditions and, particularly in one case, I have been able to explain the demonstrated effect to a certain degree by a postmortem examination. It was a case of dilatation of the bladder with chills and high fever. I made an infusion of two quarts of salt solution. The pulse became of much better quality and the heart's action improved considerably. The fever decreased and the patient improved in the next twenty-four hours very materially. Then the septic symptoms appeared again, and two days thereafter the patient died. A postmortem examination was made, some small miliary abscesses in the kidneys found, and I believe that at the time the salt infusion was made infection of the kidneys and general infection had just commenced. In this case it seemed, to me at least, that the infection had been arrested for at least twenty-four or forty-eight hours and then progressed again. As to the replacing of salts and the benefit of introducing them into the system again, I have had some experience along this line with consumptives. I have used these infusions in quite a number of consumptive patients, with gratifying results. Beneficial results were undoubtedly observable even in extreme cases.

Dr. J. G. KIERNAN—There has been shown a little tendency to criticise Dr. Bacon for his position as to the neuropathic aspect of hyperemesis. Without quibbling about the intermixture of the terms neuropathia, hysteria and neurasthenia, etc., it seems to me, in a strict pathologic sense, not in the sense of gross lesions, neuropathy represents a distinct nosologic condition. If there ever was a condition in which from the standpoint suggested, the subject was illy discussed, so far as hyperemesis is concerned, it is the pregnant condition. It would seem that in popular and general medical opinion a woman must be ill and vomit during pregnancy. There is a psychologic principle underlying suggestion in the treatment of this condition. If the *must* idea was not so much inculcated as it is by popular suggestion in regard to "longings," hyperemesis would be less noted. Furthermore, the therapeutic index is a good one. There is hardly an agent in the materia medica which, when first given by some man of admitted authority, has not produced miraculous effects in pregnancy hyperemesis. As time advances the effects are less. Let any one, for example, read Simpson's use of cerium oxalate of about thirty years ago, and compare his enthusiasm over it with the modified notions there are today, and he will be very much struck with the fact that there is a big difference somewhere between the effects of cerium oxalate then and today, and the most probable explanation of this is along the lines of suggestion. A good many factors of hysteria, pure and simple, enter into hyperemesis. There is many a case, before the complete development of hysteria, in which the patient suffers from hyperemesis. Watson, in his old work on "Practice," mentions fairly typic cases of this kind. In hysteria, in neurasthenia and in neuropathic subjects occurs a condition liable to produce hyperemesis from slight causes of suggestion. Furthermore, it is well known that the mental state of the pregnant woman is peculiarly liable to suggestion.

To discussion of the question whether pregnancy be or be not a physiologic state, a great deal of time might be devoted, but there is not time to discuss that phase of the subject this evening. It does not resemble physiologic states. There are pain and other factors attending it. There are a good many morbid phenomena attending it as well. There is no denying the statement that the hysteric side of the pregnant woman is abnormal. As these women are liable to suggestion, the training should begin early. One person's training would begin with getting rid of the notion that vomiting was a necessary concomitant of the pregnant state.

Dr. Turck spoke of pathologic conditions in these case cases, and his remarks reminded me a good deal of the old pathology of the insane. I can remember the time when physicians used to find lesions in the intestines and elsewhere to account for insanity. Nowadays these are known to be secondary, and not primary conditions. Take the class of women who are given to tying a string around themselves and crowding the viscera down in the pelvis, and abnormal intestinal states that may or may not develop these conditions will result. The fact is that while these abnormal states of displacement among a certain class of women are very common, cases of hyperemesis are rather infrequent.

With regard to the use of saline injections, the fact that under the old theory of their use a number of conditions treated successfully tends to justify their use. There is no doubt that in the conditions of collapse after cholera and allied conditions salines do have an effect.

I agree with Dr. Slayter that in an individual who is waterlogged or run down, there exist certain conditions which predispose to infection.

Dr. WILLIAM CUTHBERTSON—I wish to congratulate Dr. Bacon on the excellent paper he has read tonight, and more especially on the treatment of hyperemesis gravidarum by the hypodermatic use of saline injections. I do not think emesis gravidarum is due to any one cause, and more especially am I inclined to that opinion when I read the numerous remedies that have been suggested for the cure of this affection. Giles of London says he has found that primiparæ who have had dysmenorrhea prior to pregnancy, are more especially liable to emesis gravidarum in the early months of pregnancy, and where emesis gravidarum occurs in the later months of pregnancy it is due to hydrops amni, to twin pregnancy, or to the large size of the child. He also cites cases where retroflexion of the uterus has produced emesis gravidarum, which condition has disappeared on the artificial correction of that state. Also, where emesis gravidarum has occurred in retroflexions of the uterus, that it disappeared when pregnancy has lifted the uterus out of the pelvic cavity. I think E. P. Davis mentions a case of hyperemesis gravidarum that terminated fatally, and at the postmortem examination it was found that a cyst of the cervix had in all probability produced the condition. I must take issue with Dr. Bacon, however, when he condemns unqualifiedly the production of artificial abortion in the treatment of this disease. I think that where it is resorted to sufficiently early it no doubt saves a great many patients. About six years ago I had a case of hyperemesis gravidarum occurring in an extremely neurotic patient. She had also a retroflexion of the uterus, the uterus being bound down in the pelvis by adhesions. Shortly after the occurrence of pregnancy, vomiting began, which soon progressed to such a state as to endanger the life of the patient. After consultation, the induction of abortion was decided on and was accomplished by the introduction of a bougie, and almost immediately after the abortion the vomiting was much less, and finally within a week it ceased altogether.

Another case I would like to relate happened in my practice about twelve years ago. The patient was 35 years of age, became nauseated soon after conception occurred, and vomiting progressed to a dangerous state. After putting the patient to bed and using all the means then in vogue for correction of the trouble, the patient went from bad to worse. After a consultation, the induction of abortion was decided on, and was brought about by the use of a bougie. About forty eight hours after the introduction of the bougie the patient passed a fetus. Pregnancy had then advanced to about the second month. This happened in my practice in the country and I did not get

o the patient until some time after she had passed the fetus, ut after the fetus was expelled the vomiting ceased. I hought, in all probability, the placenta had been expelled lso, but had been lost sight of. The vomiting ceased for two r three days, and then it began again. I was called and found hat she had passed a second fetus, and still no afterbirth. here was no hemorrhage, no elevation of temperature, so I hought the uterus was empty. There was a cessation of vomting for forty-eight hours when it again recurred. At the end f this time the patient passed a third fetus, and on this occaion the afterbirth came. The vomiting ceased after the third etus was expelled, and the patient went on to recovery.

I am a great believer in the hypodermatic injection of normal alt solution. In several cases of septic conditions, one case of nine, due to sepsis after emptying the uterus for eclampsia, he hypodermatic injection of normal salt solution reduced the emperature from 104 to about 100 degrees. The patient ralied considerably; there was a more free excretion of urine rom the kidneys, but convulsions again set in and the patient lied in a state of coma. In a number of cases of surgical hock I have used hypodermatic injections of normal salt soluion with beneficial effects in almost every case.

Dr. G. Frank Lydston—I believe Dr. Paddock was correct n stating that in his opinion hyperemesis gravidarum is not consistent with perfect health in a pregnant woman. Dr. Kiernan raised the question as to whether pregnancy was ever normal condition. Probably not in a civilized woman; rarely t least in the eyes of the obstetric expert. The most salient oint that struck me in the discussion was that psychopathy was supposed to be the explanation of the condition in the majority of cases. The element of suggestion, as applied to he cure of such cases is a little far-fetched. In the first place, I believe the report of every serious case of the kind under consideration should be associated with a very careful study of the urine and is incomplete without it. With our modern knowledge of the effects of toxemia dependent upon various toxins, it is not scientific to discuss a subject of this kind without a careful analysis of all possible sources of toxemia, the kidneys constituting the most probable source in cases of this kind. It is the fashion, however, to regard the kidney as being of little importance, providing the urine does not show a solid deposit on boiling, or on the application of nitric acid, or if it is not filled with all kinds of casts and epithelium. Possibly Sir Andrew Clark builded better than he knew, when he spoke of renal inadequacy, a condition in which the kidney may show no organic disease on chemic or microscopic examination of the urine, and yet does its duty so inefficiently that toxemia results. Operations upon the genito-urinary tract sometimes produce fatal results, through disturbances of the nervous system, and may possibly bring about serious results from organic change in the kidney, without any previous evidence of serious renal change. Reflex irritation of uterine origin may do the same thing. It would seem logical to infer that in some cases toxemia resulting from defective bowel elimination bears an important relation to the etiology of hyperemesis gravidarum. It is certainly worthy of thought, and without having made any experiments or observations on this point, I think it would be more logical than the view that these conditions are always of psychopathic origin.

Going back again to the kidney, the effect of irritations of the genito-urinary tract in both male and female, inhibiting the function of the kidney without necessarily the pre-existence of actual renal disease produced reflexly by the irritation, is a point that must be seriously considered. I believe that the principal obstacle to a proper classification has been the almost universal acceptance of the simple view that in all instances the disturbance is due to reflex irritation of uterine origin. The first thing the practitioner does is to look for some source of irritation in the vicinity of the uterus; the next thing he does is to apply something to the cervix, or go through some performance, psychic in its effect, we have heard tonight ostensibly for the purpose of relieving the source of reflex irritation. Cases of hyperemesis gravidarum are too important to attribute to one cause alone. I have no doubt that psychopathy enters largely into the causation in some instances, involving the question of hysteria, but I do not believe it covers them all. A latent neuropathic condition might reasonably be expected to develop and become active as a consequence of pregnancy in certain women. Another class of cases probably would be assigned to renal insufficiency without actual renal disease; another to actual kidney disease. Very likely the renal condition would be regarded by some practitioners as simply a coincidence and its source attributed to reflex uterine irritation instead of the condition being ascribed to its true source, actual renal disease, or toxemia possibly originating in defective bowel elimination. That pelvic disease is responsible for a certain proportion of cases is evidenced by the cases reported by Dr. Cuthbertson and Dr. Paddock, in which reposition of the retroverted uterus relieved the violent and prolonged vomiting. I agree with Dr. Cuthbertson that abortion is to be considered under certain circumstances. I have seen cases in which it seemed to be indicated.

With regard to the treatment recommended by Dr. Bacon for its suggestive effect: taking it for granted that we have toxemia from renal inadequacy or other sources, or admitting that we have toxemia from actual renal disease, is it not possible that the saline injections relieve the irritation of the nervous system by their diuretic and diluent effect rather by modification of the circulation alone? I will grant that much for his method of treatment, but I will grant very little for the cases cited in substantiation of its claims. He cited two cases in evidence, one not his own recovered; the other died of infection and rendered further observation impossible. This patient was infected in two different ways with sepsis and tetanus.

Dr. Bacon (closing the discussion)—In relation to the remarks of Dr. Lydston, I will say that I have given some attention to the renal functions in obstetric diseases, and I believe that the history of the growth of obstetrics is very intimately connected with the growth of our knowledge of kidney diseases. We have had various theories of eclampsia, and there was a time when it seemed only necessary to discover deficient elimination of urea to know positively the cause of eclampsia. When that theory was overthrown we began injecting animals with the urine of eclamptic women, and found eclamptic urine less poisonous than normal urine, and in that way determined that eclampsia is due to the retention in the blood of poisons which should be excreted in the urine. But these experiments have not led to the determination of the cause of eclampsia. I have made some inquiries of one of the physiologic chemists in this city to determine the possibility of making a series of experiments which might be of some real permanent value in determining the rôle played by the xanthin bodies in the pathologic condition of pregnancy. It is already too late to attempt to make the presence of aceton in the urine the key for the explanation of all pathologic conditions of pregnancy, as was done by obstetricians three or four years ago. Now we wish to find out the xanthin bodies. I was assured that it was absolutely impossible at present to obtain any definite information on that subject, and that any observations of the urine made for that purpose are quite worthless. The errors are too great. We talk about determining the elimination of urea by the Doremus test as if that was an exact method, when the slightest consideration will show that our results must be from 10 to 35 per cent. wrong. The time has not arrived to explain the vomiting of pregnancy by examination of urine. Any classification at present has to be based on the facts that are known. The talk about renal disease being the basis of scientific classification of hyperemesis gravidarum is useless. I expressly stated in the paper that I do not believe that hysteria is the only cause of hyperemesis. There are many cases of hyperemesis gravidarum where it is not the cause. But there are many cases where it is an important element as is shown by the curative effects of suggestion. A case described by Chazan is a good example of the value of suggestion in the treatment of these diseases. He was called to a serious case of hyperemesis. The patient had decreased in weight nearly half. She was in a desperate condition. It was thought necessary to perform an abortion, it being quite generally agreed that nothing else could be done, and he succeeded in controlling the patient simply by stating in a positive manner to her that she could control herself by the exercise of her will if she would only do so. She said to him it was quite impossible for her to do it. Then he mentioned to her the grave dangers of abortion, and finally succeeded, by the use of her will, in preventing the vomiting, so that in a week she had perfect control over her disease.

Such a case as this, and there are hundreds of them scattered through the literature, cured suddenly by the use of suggestion and by treatment along that line, shows the importance of the method of this treatment as well as the influence of hysteria in the causation of the disease.

I had expected considerable opposition to my views in regard to the induction of abortion. We do have severe cases which we are not called to see in time, and these are the ones where abortion is to be considered as one of the means that must be employed. The dangers are great indeed. A person in that condition is in great danger of loss of blood and shock. She is in grave danger of infection, and the results given in the literature of the subject do not show that abortion is entitled to consideration, even in the severe cases, and those who advocate it do not recommend it in severe cases.

Dr. LYDSTON—Do you believe these cases are curable if they are seen early?

Dr. BACON—I believe if these cases were seen early there would be no fatal cases, unless there is disease associated with hyperemesis, such as cancer of the pylorus or some disease of that kind.

A word or two in regard to the induction of abortion in the cases cited by Dr. Cuthbertson. If abortion is performed it should not be done by a bougie, but by rapid dilatation and clearing of the uterus, because it is important that the case should terminate as soon as possible, and secondly, by the rapid method there is much less danger of infection. In regard to Dr. Slayter's suggestion as to the danger of infection from hypodermatic injections of normal salt solution I admit that there is danger from injections in dropsical conditions, but these conditions are not present here; on the contrary water is absorbed rapidly by the dry tissues.

In reply to the questions of Dr. Fütterer I will say that tetanus developed five or six days after injection in the first case. It is probable that the tetanus infection was from the injection, although no bacilli were found in the tissues, but of course that does not prove very much. How the infection occurred I can not say. The injection of fluid was not made by myself. In regard to massage I will add that I believe it to be a valuable measure in treating constipation in pregnancy, and not dangerous if carefully employed.

I am quite in accord with Dr. Turck as to the importance of vascular changes in pregnancy, but we do not know enough about the subject to make them the sole basis of a classification. I was very much interested in Dr. Kiernan's additions to the pathologic signification of hysteria.

SELECTIONS.

The Management or Patients Before and After Laparotomy.—Dr. Frederick Holme Wiggin, in a paper read before the Hartford Medical Society and the New York Medico-Surgical Society, January, 1898, considered the management of patients before and after laparotomy as follows: In the early days of the decade now drawing to a close, it was generally believed that abdominal operations could not be safely performed outside of hospitals especially constructed for such work; but it is now known that although personal effort and responsibility are increased, it is perfectly safe to do such operations in ordinary houses. It is, therefore, not improbable that in the near future many of these patients will prefer to be operated on at home, and this means that the general practitioner will have a more important part to play in the management of these cases than has been customary in the past. Where circumstances will permit, one week should be devoted to preparing the patient for the operation. This time can be profitably spent in accustoming the patient to the new environment, in examining the heart and lungs, and the condition of the secretory and excretory organs and in thoroughly evacuating the bowel. Early in the week several small doses of calomel and soda should be given daily, for three days, and followed each morning by a saline. On each of the three succeeding mornings a large enema should be administered, consisting of three or four quarts of saline solution. In order that these large enemata shall be properly given the physician should superintend this part of the work, taking care to see that a fountain syringe is used, that it is not more than three feet above the patient, that the solution has a temperature of 100 degrees F., and that the flow is checked from time to time as the patient complains of colic or of intestinal distention. Six hours before the operation the rectum should be given a final washing out with the same solution. The diet during this week should be light and easily digestible, and the patient should be encouraged to drink freely of liquids and to rest as much as possible. Every day, a hot bath (110 degrees F.) should be given for ten minutes, and in the daily ablutions special attention should be paid to the navel and pubic region. The nervous system may be quieted by administering, on alternate nights, a mild hypnotic, such as a combination of sulfonal and chloralamid, and arranging its administration so that a dose is given on the last night before the operation. The skin of the abdomen is prepared for the surgeon by applying a soap poultice over the proposed site of the incision for two hours, and then substituting a compress moistened with weak bichlorid solution. If the patient is a woman, the time selected for the operation should, if possible, be a few days after the cessation of the menstrual flow, and the vagina should be thoroughly douched, first with a solution of boric acid, and afterward with a 0.5 per cent. formalin solution, or a 1 to 4000 solution of bichlorid. It is better to operate in the early morning than in the afternoon. If the former has been selected, the patient should be given a peptonized milk punch at eleven o'clock the previous evening. The administration of an ounce of liquid peptonoids about two hours before taking the anesthetic stimulates the heart and diminishes the subsequent nausea and vomiting. If the operation is to be done in the afternoon, the peptonized milk punch may be given in the early morning, and the peptonoids at 11 A. M. The patient's body and limbs should be properly protected with clothing during the operation. The furniture of the room should be removed and the windows left open for two or three hours. Then, the woodwork should be wiped off with bichlorid solution, 1 to 1000, and the floor liberally sprinkled with the same solution. The operating table should be about 20 inches wide and thirty high. The following articles should be provided, and, after cleansing and washing with bichlorid solution, should be placed in the room: Several small tables or stands, a few wooden bottomed chairs, several pitchers and meat platters, four or five basins and a fish-kettle for the instruments. In addition there should be several gallons of both hot and cold water sterilized by boiling, and at least a dozen towels sterilized by steaming. For emergency cases it is safer to cover the floor with a sheet wet with bichlorid solution than to stir up the dust of the room by more elaborate preparations.

The anesthetic should be administered before bringing the patient into the operating-room, and if ether is to be employed, it is better to give, subcutaneously, half an hour before, ⅙ grain morphia and $\frac{1}{100}$ grain of atropia. A closed ether inhaler allows of the easy and rapid induction of anesthesia and the maintenance of this state with a minimum of the anesthetic. The skin is finally prepared for the operation by a scrubbing with hot water and tincture of green soap, followed by irrigation with sterilized water, ether and alcohol. If the patient be a woman, it should be made an invariable rule to irrigate the vagina and swab it out with gauze. The author strongly favors making the incision through the right or left rectus muscle instead of through the linea alba. He also believes that leaving a considerable quantity of hot saline solution in the general peritoneal cavity, after irrigation, acts as a stimulant and at same time tends to prevent the formation of intestinal adhesions. In closing the abdominal wound the deep sutures should be placed at least one inch apart, and loosely tied. The edges of the skin may be accurately adjusted by a buried suture of silkworm gut. If, during the operation, the pulse increases twenty or thirty beats, a subcutaneous injection of $\frac{1}{12}$ grain of strychnia and $\frac{1}{100}$ grain of nitroglycerin should be administered and repeated as required. If in spite of this treatment the pulse exceeds 150, one or two pints of warm saline solution should be at once introduced into the median cephalic vein. The patient should be put to bed with warm blankets and bottles, and soon after consciousness has been restored, should receive *one* dose of $\frac{1}{100}$ grain of atropia and ⅛ grain of morphia. It is not necessary to keep the patient in one position for the first few days. For the first twelve or eighteen hours nothing should be given by mouth but small quantities of warm water. If there is much gastric irritation, it may be relieved by the external application of chloroform to the epigastrium. After this period, a drachm of liquid peptonoids may be given

very twenty minutes for four doses, and then small quantities f peptonized milk may be cautiously added, gradually increasng the quantity, and lengthening the interval. Once in twenty-our hours an interval of six hours should be allowed in order o rest the stomach. If there is much intestinal distention, his can be relieved by the introduction of a rectal tube or the ıozzle of a syringe, or by massage along the course of the colon. Jsually no cathartic need be administered until the third or ourth day, and then small doses of calomel and soda should be ;iven, followed by two or more Seidlitz powders. If, as is usuılly the case, the temperature is normal by the evening of the ourth day, the patient may be allowed to rapidly resume ordiıary diet. The dressings should be changed on the fifth day, ınd if the sutures are cutting through, they should be removed ınd the wound supported with strips of adhesive plaster. The :omplications which may be met with occur in the following ›rder: Concealed hemorrhage, peritonitis, intestinal paresis, ntestinal obstruction and stitch abscesses. As soon as con:ealed hemorrhage is diagnosticated, an intra-venous saline inection should be administered, but it is useless to operate ınless the patient shows a reasonable response to stimulants. The onset of peritonitis is usually announced by a steady ncrease in the frequency of the pulse, and this should be the ;ignal for the prompt evacuation of the bowel by calomel and ;alines, and by enemata of glycerin and water, or of a saturated ;olution of sulphate of magnesia. When there is intestinal ;aresis the stomach should be washed out and salines freely ıdministered. As soon as intestinal obstruction is recognized, the abdomen should be re-opened and the constriction relieved. Stitch abscesses usually announce themselves by the fourth or fifth day. In estimating the patient's condition, the facial expression is of the greatest value.

Keratosis Follicularis (White); "Porcupine Disease."—Dr. J. C. White in the *Boston Medieal and Surgieal Journal*, November 11, has given a clinical demonstration of this new affection. Both Darier of Paris and Dr. White in 1889 recorded a case, the former naming his as being a *psorospermose folliculaire végétante.* Dr. White used the term keratosis follicularis. The disease appears to be a simple hyperkeratosis, a modification of the process of cornification consisting in heaping up of modified cells in the mouths of the follicles. The clinical appearances were very various, consisting in the beginning of small horny papules, closely resembling the keratosis of lichen pilaris of the arm. From these the process extended into larger semiglobular elevations, hard and becoming somewhat discolored. These were all seated at the mouths of the follicles. By confluence there grew large horny concretions here and there, one-third to one-half inch in height and of about the same diameter. The disease at its highest point of development consisted of conical projecting horns resembling miniature cutaneous horns. In that case the whole surface of the body was largely covered and in certain parts the process was enormously developed. "The case in Paris, which I subsequently saw at the International Congress, had not advanced to this degree, but Darier and other French observers asserted that it was a case of psorospermosis and that the peculiar cells found in the tissues were psorosperms, or coccidiæ, and the name psorospermosis has remained from that time to this. Since then other cases have been observed, but only a very few, in other parts of the world. I do not doubt it was in existence a long time before and it is my opinion that so-called 'porcupine men' (ichthyosis hystrix) were cases of this disease. When I returned from Paris the first patient I saw on entering the clinic was this patient and she presented the same affection. By one who had seen the disease it was immediately recognized by this peculiar appearance of the face. The disease has not advanced very greatly since that time. The whole forehead is occupied by a mass of horny papular growths. Behind her ear the process is much more fully developed. On other parts in the pubic region this process is still more highly developed. There is a little on the wrists. It extends down on the chest in front and in the rear about the same distance. There is a little scattered eruption on the arms and legs. The very peculiar bodies which are found in every one of these papules, large round cells, are not, it has now come to be believed, animal parasites, but are peculiarly modified epithelial cells. It is not a coccidial disease and even Darier has given up that opinion. Although the French name remains, keratosis follicularis is the proper name, because it is a descriptive title and not misleading. We have a case here which is of medium grade, and my first case was this young woman's father. That does not indicate that it is a contagious disease, because this girl was less than a year old when separated from her father and never saw him afterward, nor does it show necessarily a hereditary tendency to this affection, because it is only in one or two other instances that it has affected more than one member of a family."

PRAGTIGAL NOTES.

Treatment of Gastro-intestinal Catarrh.—Liebreich recommends for the cases in which the diarrhea can not be treated with opiates: Tincture of calumba and tincture of cascarilla, each 10 grams. Twenty drops four or five times a day.—*Semaine Méd.*, January 12.

Tetanus and Trismus Treated with Behring's Serum.—Two more cases successfully treated with Behring's serum are reported in the *Müneh. Med. Woch.*, No. 46, 1897. Mortality in tetanus usually varies between 50 and 80 per cent. The mortality in the cases treated with Behring's serum, as recorded to date in literature, is 41.8 per cent., which should encourage its further use.

Test for Aceton in the Urine.—Mallat first distils the urine to a quarter of its original volume, and then applies the principle that a solution of iodin will precipitate iodoform in contact with an alkaline solution of aceton. The amount of aceton is determined by the amount of iodoform precipitated.—*Nouv. Remèdes*, January 8.

Alumnol-Iodin Treatment of Metrorrhagia. — Grammatikati's method of treating catarrhal endometritis with intra-uterine injections of equal parts of tincture of iodin and a 5 per cent. alcoholic solution of alumnol, has been applied by Orlov, with great success, to the obstinate metrorrhagia of the critical period. He reports three cases remarkably improved by two or three injections, and practically cured by ten or twelve.—*Semaine Méd.*, January 12.

Air-Tight Drainage.—Ikawitz supplements the ordinary Kocher fenestrated drain tube with another closed tube, with a projecting rim at the junction. The rim fits in with a suture; the drained fluids are collected in the bottle tube; the dressings kept dry, and if the subcutaneous tissue alone is to be drained, the bottle tube with its rim is sufficient without the Kocher part.—*Cbl. f. Chir.*, Dec. 31, 1897.

The Hemostatic Action of Hyposulphite of Lime is announced by Silvestri, who has arrested with it hemorrhage of all kinds, from that accompanying round ulcers to postpartum and endometritic hemorrhage. He administers an average of eight grams a day divided into six powders, and attributes its action to increased coagulability of the blood.—*Semaine Méd.*, January 12.

Treatment of Psoriasis with Arsenious Acid.—Herxheimer confirms his previous announcement in regard to the efficacy of this treatment. He reports ten completely cured; six so improved that they were satisfied with a partial cure, and seven still under treatment. He commences with 0.001 acid. arsen-

icosum, and increases by the same amount each day until the dose reaches 15 mg. which he continues until complete cure, usually requiring forty-eight days. He states that secondary effects were slight, and that if the affection should recur, he believes that a partial course of treatment would promptly abort it.—*Cbl. f. Chir.*, Dec. 31, 1897.

Auscultation of the Mouth.—Professor Galvagni calls attention to the valuable information to be derived by auscultation of the mouth in regard to incipient tuberculosis, etc. The râles are reflected from the bucco pharyngeal cavity as from a sounding-board. He also notes a peculiar jerky glottic sound, not in the inspiration, but commencing in the pause, attaining its height about the middle of expiration, diminishing and vanishing completely at the commencement of the inspiration. It coincides with the rhythm of the pulse, and has been noticed in several tuberculous patients, and in one case of gastralgia of uterine origin—*Gazzetta degli Osp. e delle Clin.*, December 5.

Iodoform Injections in Tuberculous Lymph Glands.—Hammerschlag has been remarkably successful with intraglandular injections even in the large celled hyperplastic lymph glands on tuberculous subjects, which usually are sent to the surgeon. In the case of well-to do patients he precedes the injections with the general anti-tubercular treatment, climate, baths, etc. After local anesthesia he injects one to two centimeters of the 5 to 10 per cent. iodoform-glycerin emulsion, first on one side and a week later on the other. He states that the result in his six cases was remarkably rapid and satisfactory, the tumors subsiding until not a trace could be seen above the skin and no scars left. In another case he found the results equally fine although the injections were made in the periphery of the gland, and he suggests that others with larger material at their command might experiment whether periglandular injections may not be as efficacious as the intraglandular.—*Deutsche Med. Woch.*, December 23.

Prophylaxis of Nephritis in Scarlet Fever.—Professor Alfaro of Buenos Ayres prevents altogether this dangerous complication of scarlet fever by observing the following precautions: 1. Keep the diuresis abundant with a strict milk diet, plenty of drinks, and cold hydrotherapy in severe cases. 2. Avoid the elimination by the kidneys of any irritating substances either from medication or from the food (avoiding phenol, salicylic acid, antipyrin, acetanilid, etc.). 3. Keep the functions of the skin as active as possible by general friction with fatty substances and tepid bath during desquamation. 4. Keep the mouth, nose and pharynx aseptic with frequent mild antiseptic applications to prevent the introduction of the streptococcus into the general circulation. 5. Avoid sudden or continued exposure to cold air. 6. Use no antipyretics or antiseptics that could possibly affect the kidneys injuriously by elimination or absorption.—*Anales del Circ. méd. Argentino*, October 15.

Tuberculosis of the Ganglia of the Neck.—Cervical scrofulous adenitis is no longer considered a morbid entity, but merely that the scrofulous predisposition induces cellular hyperplasia in ordinary infections more readily. This hyperplasia persists and forms a favorable soil for the development of tuberculosis, which may remain localized a long while. The infection occurs almost always by way of the lymphatics, with caries of the teeth, the tonsils, adenoid vegetations, etc., for the entering point. Tuberculous adenitis develops almost inevitably into the fistulous form; absorption or calcification are extremely rare. There is a form of adenitis which presents the characteristics of tuberculosis, but proves to be non-bacillary. In the suppurated form there may be secondary infection, but pus collections are frequently observed, especially in the adult, which develop rapidly and yet only contain the Koch bacillus. This form of tuberculosis very rarely extends toward the mediastinum; owing to the arrangement of the lymphatics the tendency is toward the axilla. The best treatment is thorough extirpation, a simple operation in non-suppurated cases. Interstitial injections should be reserved for the cases in which an operation is rejected, or counterindicated by the general condition.—R. Petit, *Gaz. Méd. de Liège*, December 23.

Tincture of Myrrh in Diphtheria.—Dr. Ströll, writing in the *Allgemeine Medicinische Central-Zeitung*, very strongly recommends tincture of myrrh in diphtheria. The mixture he uses is composed of tincture of myrrh 4 parts, glycerin 8 parts, and distilled water to 200 parts. This is given very frequently, every hour or even every half hour in the daytime and every two hours at night, infants up to the age of two taking a large teaspoonful (75 minims), older children double that quantity and adults three times as much. This is continued until the membrane has nearly disappeared, when the doses are only given every two hours. After all the membrane has gone the treatment is continued for a couple of days, the interval between the doses being increased to three hours. This is with the view of preventing any recurrence. Usually the fever and lassitude disappear in twenty four hours, so that a child may frequently be found within that time sitting up in bed playing. He says that there does not seem to be any need for local treatment; in the case of older children and adults a gargle containing 0.5 per cent. of resorcin may be employed every hour or oftener in the daytime, and where it is desired the tonsils may be painted every hour with the tincture of myrrh undiluted. Where the larynx is involved Dr. Ströll prescribes the myrrh and glycerin mixture, in an inhaler or spray to be used every half hour. By the employment of this method Dr. Ströll states that he has only lost one case out of eighty and he has collected reports from several other practitioners in various parts of the world who have treated altogether 182 cases with 22 deaths. No mention, however, is made in his own or in the other cases of bacteriologic verification of the diagnoses. The *rationale* of the efficacy of myrrh is supposed by Dr. Ströll to be that this drug increases the phagocytic elements in the tonsils.

Protargol, a New Disinfectant.—The prolific factory of the Bayers at Elberfeld presents a new candidate for disinfectant honors, a compound of silver and protein. This substance was discovered by Dr. Eichengrün. the chemist to the above factory, and is termed "protargol." Dr. Benario of Frankfort has now examined its action and publishes his results in the *Deutsche Medicinische Wochenschrift*. He states that it is an energetic bactericide, a 1 per cent. solution destroying the bacteria of anthrax and enteric fever, as well as pneumococcus, bacterium coli, staphylococcus pyogenes aureus, etc. In experiments made with rats it was found that injections of 2 c.c., of a 1 per cent. solution caused necrosis at the place of the injection, but were not fatal to the animal. An injection of 1 c.c. of a 10 per cent. solution produced an infiltration and total necrosis of the skin, the animal dying in a fortnight. A 20 per cent. solution dropped on the conjunctiva of rabbits produced an increased secretion of the lacrymal glands; an application of pure protargol caused abundant swelling of the eye and the surrounding tissue. But within five days the normal state reappeared, the cornea being clear as before. Injection of a 1 per cent. solution into the urethra caused a slight smarting. The purulent secretion nearly disappeared within a week, and in a fortnight gonococci were no longer discoverable. Professor Neisser of Breslau, who also tried the remedy, stated that he had never before had so good, sure and prompt results in gonorrhea. In surgical practice it was used for the dressing of wounds in about 150 cases. In phlegmonous inflammation, dressings moistened with a 5 per cent. solution were applied; in recent wounds the substance was used in the form of powder. In various ulcerations it was employed as an ointment, while in tonsillitis a 5 per cent. solution applied to the inflamed tonsils proved useful.

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SATURDAY, FEBRUARY 12, 1898.

THE TYPHOID FEVER DEATH RATE.

The death rate from typhoid fever in this country during the census year 1890, was 46.27 per 100,000 persons, but as this is recognized as under-stating the facts from the necessarily imperfect character of the returns, a better idea of the prevalence of this fever may be obtained from the death rate, 53.25 of certain urban populations in which the records were considered to be accurate. The death rate from typhoid fever in England was in that year only 17.9 per 100,000, and that this was not an exceptional year is shown by the last published report of the Registrar-General, which shows only 17.5. Moreover in every 100,000 of our population we recorded about 20 deaths from malarial fevers, a considerable proportion of which was certainly due to the infection of typhoid fever, while the English have no analogous additions to their recorded typhoid rate. These statistics are startling when we consider that far from being an unknown and mysterious epidemic influence, the cause of this fever has been recognized and many of its modes of propagation have been discovered. Thousands die annually of typhoid fever in the United States without disturbing the general equanimity, because the disease is indigenous and the people are accustomed to its ravages; but were an exotic disease causing a similar death rate to be introduced, no effort would be considered too great to effect its suppression. Money would be spent freely to stamp out the pestilence; but money spent freely in giving the people of every city, town and village a pure water for domestic use, would free the country in a great measure from this indigenous scourge. In 1872 Massachusetts led the way in an effort to preserve the purity of her rivers and public water supplies. Other States, as Illinois, Minnesota, New York and New Hampshire followed in her lead, but sanitary progress is slow. For several sessions a bill has been before Congress to prevent the contamination of rivers and other natural water sources in which the citizens of more than one State are interested, but no action has been taken.

Now, however, that attention has been directed to the condition of the Potomac supply of Washington, D. C., it is to be hoped that something may be done. On January 10 last, the Secretary of War was requested to furnish the United States Senate any information in the possession of the War Department in relation to the filtration of this water-supply, together with any suggestions on the subject by the Surgeon-General of the army and the officer in charge of the Washington aqueduct. Surgeon-General STERNBERG reports that as compared with other cities in this country and abroad, the sanitary condition of Washington as judged by the typhoid fever mortality is far from being creditable, and that the relatively low death rate of 53 per 100,000 of the past year (the annual average of the past twenty-two years having been 64) was probably due to the replacement of a number of box privies by running closets, improved drainage of premises and a closer supervision of the milk-supply. As to the Potomac water he states that sanitarians in all parts of the world look upon the typhoid fever mortality of a city as the best index of its sanitary condition. It has been repeatedly demonstrated that the introduction of a pure water-supply or the filtration of a sewage polluted water, together with the introduction of a well devised system of sewers, has a notable effect in diminishing the mortality from this disease. Observations made by bacteriologists in Washington show in the Potomac water the almost constant presence of bacteria, indicating contamination by fecal matters of man or the lower animals. Fecal contamination of a stream, the water of which is used for drinking purposes, is always an indication of possible danger. General STERNBERG considers the construction of filter beds to be the most reliable and practical method of improving the quality of the Potomac supply, but suggests that before entering on an undertaking of such importance and cost, it would be judicious for Congress to appoint a commission to investigate the subject, with authority to visit Europe for the purpose of witnessing the practical workings of filtering basins now in use, and to estimate the cost of a basin suitable for the purification of the Washington supply.

An investigation of this character under Congressional auspices would have an influence which would extend beyond the banks of the Potomac to other streams and sources of supply. It would arouse local authorities to an understanding of the conditions

under which typhoid fever prevails, and would suggest the urgency of procuring that which every community should have, a plentiful supply of pure water.

All this shows the need for a Department of Health to act on behalf of the Government in this and other matters pertaining to the public health in the territories and the District of Columbia; to advise the health authorities of the various States and co-ordinate their efforts to reduce the mortality from preventable diseases.

NEW FACTS IN REGARD TO VITALITY.

It is not very long since the current physiologic theories of vitality practically assumed that we knew all about it, or if we did not we soon should, as it was only a special manifestation of physical and chemical laws. Our knowledge of the subject has not contracted any since then, but we have learned facts that cause us to better appreciate its limits, to be a little less presumptuous in our ignorance, and to recognize that in the phenomena of life we have evidence of an agency not correlated with the ordinary forces of nature and not controlled by but controlling or guiding the ordinary recognized laws of matter.

A recently published paper (*Nature*, December 9) by HORACE T. BROWN and F. ESCOMBE, recapitulates a number of facts already made known, but neglected, and adds some striking ones that are new and due to the investigations of these authors. It is well known that seeds retain their vitality and germinative power for long, and according to popular belief almost indefinite, periods. The condition of the protoplasm in seeds in their inert state has been to some extent a matter of dispute, and while some authorities have held to a theory of continued but minimal vital activity, a sort of intramolecular respiration, others have maintained that metabolism is completely suppressed, and that there is for the time an absolute loss of all the power of internal adjustment to internal relations, which according to HERBERT SPENCER is the essential characteristic of living substances. To test this ROMANES made a series of experiments which were in their way remarkable; he subjected seeds to a number of tests, placing them in high vacua, of only one-millionth of an atmosphere for periods of fifteen hours. Others still were subjected to the actions of various gases, oxygen, hydrogen, nitrogen, carbon monoxid, carbon dioxid, hydrogen sulphid, aqueous vapor and the vapors of ether and chloroform. Neither the high vacua nor the subsequent exposures for long periods to the above-named gases had much if any effect upon the germinative power of the seeds, though in some of the above conditions ordinary respiration by gas exchange must have been practically abolished. There remained however a possibility of some chemical interaction; it is therefore impossible to say that all metabolic activity was altogether suspended. These experiments though interesting and suggestive are not quite conclusive.

In 1881 WARTMANN subjected seeds to a temperature of —110 Centigrade (—166 F.) without effect on their vitality, and three years later DECANDOLLE and PICTET reported similar experiments, using temperatures of —78 to —120 C. In 1893 PICTET claimed to have exposed seeds to nearly —200 C. without effect, and concluded that, as all chemical action is annihilated at —100 C. (—148 F.) vitality must be a special law of nature, like gravitation, and not under the other known laws.

These prior investigations rather detract from the originality of Messrs. BROWN and ESCOMBE's experiments, but they are not offered as the first of the kind, and are so detailed and complete as to be of especial value and interest. By the slow evaporation of liquified air they succeeded in submitting a number of seeds of common plants, including among them representatives of the Leguminosæ, the Liliaceæ, the Graminaceæ, etc., air-dried and thus still containing 10 or 12 per cent. of moisture, to a temperature of 183 to 192 C. below zero (—297 to —313 F.) for one hundred and ten consecutive hours. Then they were carefully thawed, the process lasting about fifty hours, and their germinative power was found to be unimpaired; there was no appreciable difference in this respect between the seeds thus treated and the others used in the control experiments.

This result is the more striking since these were all highly organized species of plants, while some of the lower organizations succumb to less extreme temperatures. In 1892, for example, DEWAR and MCKENDRICK found that a temperature of —110 C. for one hour sterilized putrescent substances. This would indicate that certain saprophytic bacteria in their active state were unable to endure low temperatures. What their potential vitality might be in a germinal or non-active condition is perhaps another matter. DECANDOLLE, from his experiments, concluded that protoplasm must be, while still vital, inert in these low temperatures and compared the condition to that of an explosive mixture which is a storage mass of energy though quiescent. BROWN and ESCOMBE also come to the conclusion that there is no conceivable possibility of any metabolic activity existing in the seeds under the conditions in which they placed them, and that we will therefore have to modify our conclusions and definitions of life or vitality. HERBERT SPENCER's definition already alluded to, which has been perhaps as much a favorite as any—that it is a continuous adjustment of external to internal relations—must be given up as insufficient; it is a definition of vital activity rather than one of life itself. We may have to fall back on BICHAT's circular definition, that life is the sum of the influences, whatever they may be, that resist death, as

an expression of our ignorance of the real nature of vitality.

There is still another point raised by the English experimenters. In 1871, Sir WILLIAM THOMSON (now better known as Lord KELVIN) made the suggestion that the origin of life on our planet might be due to germs transported from other worlds by meteoric bodies. This was hardly considered seriously at the time, the conditions in space being considered such as to preclude its probability. These recent experiments show that it can not be the temperature of interstellar space that makes the hypothesis an improbable one and give a sort of plausibility to the suggestion. There are of course other factors to be considered, but these recent developments add a new interest to speculation, while they deepen rather than clear up the mystery of life.

PROTECTION FOR THE RED CROSS.

Senate Bill 1913, "To protect the insignia and the name of the Red Cross" passed the Senate Jan. 6, 1898 and was referred to the Committee on the Judiciary by the House of Representatives on the following day. This seems at first sight like a praiseworthy bill entitled to the support of every humane and patriotic legislator, but when we come to scan it and the arguments in its behalf we find that there are in existence two RED CROSSES, one of which is official and has asked for no protection, while the other in petitioning for protection speaks as if speaking for both and as if authorized to do so. The first is the Red Cross, the hospital flag and the badge of hospital corps neutrality of all the nations that have accepted the articles of the Geneva treaty of 1864. The 7th article of this treaty provides that hospitals and ambulances shall carry in addition to the flag of their nation a distinctive and uniform flag having a red cross on a white ground; and that their staff shall wear an arm badge of the same colors, the delivery of the brassard for the arm to be made by the military authorities. The 8th article provides that the details concerned in carrying the other articles into effect shall be left to the Commanders of armies. This is the only Red Cross which our Government recognized in accepting the treaty of Geneva, as it is the only Red Cross mentioned in the articles.

The sympathies and energies of those who were instrumental in bringing about this treaty led them to suggest the formation in each country of an association to gather supplies for the wounded and even to take the field in aid of the Army Medical Department in case of need, these national associations to be united into an International Association for systematic co-operation in great wars. Accordingly this International Association was formed, and it *assumed* the Red Cross of the treaty as its flag and insignia, although no article of the treaty authorized the assumption, but on the contrary articles 7 and 8 indicate the military authority or War Office as the only power competent to authorize the wearing of the Red Cross neutrality brassard or the hoisting of the official hospital flag. Nevertheless the United States branch of this International Association, incorporated under the laws of the District of Columbia as the American National Red Cross asks Congress to make it unlawful for any person or association of persons to wear or display the sign of the Red Cross without permission from the American National Red Cross, for the purpose of collecting, soliciting or receiving money or material or who shall by the use of said symbol or name of the American National Red Cross do or attempt to do similar work to that of the American National Red Cross, without permission from that organization.

We have four prominent objections to the passage of this bill. 1. As a general principle no restraint should be imposed on the charity or humanity of individuals, states or nations. 2. The bill fails to distinguish between the Red Cross of the treaty and the same cross assumed as the insignia of a local organization. Indeed from the ingenious manner in which both are mixed up in the preamble of the bill, it would require a reference to the highest court to determine whether on its passage the U. S. Army and State troops could continue to wear their badge of neutralization, unless with permission of the American National Red Cross. Moreover as there is officially only one Red Cross, that of the Geneva treaty, can Congress overlook the provisions of the treaty and authorize an Association to distribute its specific and sacred badge at its pleasure? 3. The bill fails to protect the Red Cross as there is nothing in it to prevent anyone from placing Red Cross brands of tobacco or whisky, etc., on the market. 4. The scope of the bill is more extensive than its title. It is a bill to extend and exemplify the powers of an association, incorporated under the laws of the District of Columbia, by recognizing it as a federal institution, the only one through which voluntary aid could reach the sick or wounded of the Army, because the only one by whom or through whom could be worn a red cross indistinguishable in form, color, size and position from the Red Cross of the Geneva treaty. If the citizens of Massachusetts, Louisiana, Illinois, or any other State desired in time of war to come to the aid of the Medical Department of the Army by collecting and forwarding supplies, or by outfitting a volunteer corps for field or hospital service, they could under existing conditions obtain safety for their supplies and neutrality for their personnel from the military authority competent to grant the use of the Red Cross under the articles of the Geneva treaty, but under the terms of this bill they could do nothing without first

touching their cap to the then chief of the American National Red Cross.

If any bill to protect the Red Cross is passed by the Congress of the United States, it should be one to protect the Red Cross of the Geneva treaty and to prevent its use in any way except under the terms of articles 7 and 8 of the said treaty. Miss CLARA BARTON, the President of the American National Red Cross, stands high in the esteem of the U. S. Military Surgeons for her efforts to secure the formal acceptance of the Geneva treaty by the U. S. Government, and in times of calamity her name becomes a household word throughout the country. The aid given under her superintendence at various times, as during the forest fires in Michigan in 1881, the earthquake in South Carolina in 1886, the Johnstown inundation of 1889 and the tidal wave of 1893 shows that the work of the American National Red Cross can be efficiently performed without such legislation as will compell all aid and assistance contributed by U. S. citizens to be registered under its stamp and seal.

THE HUNT MEMORIAL.

The dedication of the Hunt Memorial Society Hall at Hartford, Conn., was the occasion of more than local interest. Dr. HUNT had been a leading physician for nearly half a century, and his family, to commemorate his name, offered the local medical society a building for a library, museum, laboratory and lecture room. The society purchased the ground and a thirty thousand dollar building has been erected for this purpose. The dedication was marked by a notable address from President GILLMAN of Johns Hopkins University of Baltimore. The building is especially adapted for social and scientific work. Large cosy parlors and sitting rooms, with a kitchen and dining room, after the fashion of a modern club are provided. Other rooms are fitted for laboratory and chemic research and the foundation of a large library has already begun. Rooms for research, writing and consultation of books and periodicals are large and well arranged. One large lecture hall and several smaller rooms for society meetings are provided, and altogether this building is most admirably adapted as a home and resort for men. One of the peculiarities which sounds strangely is the provision for a free dispensary. A set of rooms has been fixed up for the work of a dispensary under the care and control of the society. In a city of seventy thousand inhabitants with two hospitals and two dispensaries, to open another for free charity, or to combine those in operation, seems out of harmony with the sentiment of the best medical experience of the present. Fortunately the dispensary is only a project and not yet organized, and probably will never come into practical existence. Outside of great medical centers this is the first building for this special purpose which has been erected. In almost any town of any size, secret and other societies, with clubs of every description have houses and special buildings as permanent homes, while medical societies are practically houseless. There are probably not more than a dozen buildings owned and occupied by medical societies in the country. Physicians often urge the endowment of hospitals and dispensaries, when they should ask for a society home, which would be a greater charity.

One of the great wants of the day is a closer union of medical men in their work and practical every-day life. In large towns and cities a medical club house with library, laboratory and social rooms are indispensable for this purpose. The Hunt Memorial Hall in Hartford is a model of what should be erected in every large town and city of the land. It is understood that further endowments will be made to this memorial building so that the expense of sustaining this house will be nominal to all its members. The time has evidently come for a change in the organization of free dispensaries and hospitals, and the rush of physicians to give free services, both pauperizing themselves and their patrons. If the same energy displayed in this direction was turned to provide society homes and libraries, an immense advance would be noticeable in the practice of medicine. Every society of thirty or forty members should have a medical club house, with every facility for scientific and social recreation. Young men of limited means could find here libraries and opportunities for study invaluable to them. The great number of periodicals could be gathered and kept on file and books from all sources would accumulate, and valuable libraries now lost could be kept together on the death of the owner. The periodicals and books together with everything pertaining to medical progress would accumulate here, making it a center of increasing interest to all medical men. Not the least of these privileges would be the social part, and the lecture room. If men of other vocations can build expensive club and society houses, and receive permanent good from such associations, why should physicians not do the same? It would seem that medical society homes were indispensable for all practitioners, even more so than homes for men in trade or other professions. The example of the Hartford society in their Hunt memorial home, should be followed by every medical society in towns and cities where the profession can gather without much loss of time and effort.

NOTIFICATION OF CONTAGIOUS DISEASES.

"It shall be the duty of every physician called to attend a person sick or suspected to be sick with cholera, yellow fever, smallpox, diphtheria, scarlet fever, measles, whooping cough, typhoid fever, typhus

fever and tuberculosis of respiratory organs, within twelve hours thereafter to report the name and residence of such person to the board of health or its proper officer within whose jurisdiction such person is found." etc.

Such is the substance of a resolution recently passed by the Department of Health of Cincinnati, and it is the expressed intention of the efficient health officer that the resolution shall be carried out as far as possible. This move on the part of the department is no doubt a beneficial one to the general public, but we should stop for a moment and consider what part the doctor in attendance is to play in this extended line of prophylaxis. He must fill out the printed postal cards and send them to the department, or otherwise notify it, under penalty of a fine or imprisonment for failing so to do, and the remuneration he receives is his inward satisfaction and relief in having complied with the rules laid down by the political heads of the municipal government. He receives no compensation whatever and whose fault is it but his own? Does anyone ever see a lawyer doing any of this charity work for the good of the general public? Was a politician ever known to fill any office in a health department and gather these reports and not be paid for doing so? Is not the doctor, if fortunate enough to have property, taxed the same as other people, does he not have to pay rent and in several cities register or procure a license to practice, which in no instance is made a present to him by the State or city, and has it not been decided by some courts that man (even a physician) is entitled to compensation for the work he does or the services he renders, and hence why should he not be compensated for his share of the enforcement of this regulation? This may be regarded by some as a too mercenary or business-like view of the practice of medicine, but in these times when the clientelage of the physician almost invariably pay everyone else before they pay him, when the courts in many instances deny the physician his just dues, when the public expects the doctor to contribute the best years of his life (made short by the many hardships and exposures he is compelled to endure) to the care and treatment of many cases of charity who are unable to compensate him in any degree, or to the army of deadbeats who resort to every means to avoid paying their bills, it is time that the doctor took a little more business-like view of his calling. He should value the years he has spent in the most laborious efforts to perfect himself in his art, the thousands of dollars he has expended in education, library, instruments, etc., and then profit by the examples of thousands of practitioners who have lived long and noble lives in caring for the sick, and at the close of their life of hardship, exposure, anxiety, study and privation, have been unable to save enough to leave their widow or family in circumstances little short of penury.

There can be no valid reason why a moderate fee should not be allowed for such reports when made by a physician. The rich and affluent need not demand or receive it, if they do not so choose, but there are physicians to whom even this stipend would be welcome and it certainly is only just that the worker should receive his wage.

CORRESPONDENCE.

Appendicitis; Rejoinder to Dr. Carstens.

RICHMOND, IND., Jan. 23, 1898.

To the Editor:—If Dr. Carstens will read carefully, he will see that I am not opposing operative methods, as I said in two of these cases I had been called to operate and found one case dying, and a second so much improved that I declined to operate; and in two other cases, not included in the eight reported, they refused operation, and a third not included recovered. Hence it is unfair to represent me as being opposed to operation (I am not). But in a careful study of the disease and from reports of surgeons I am still of opinion that many cases under judicious treatment would recover and avoid the knife. I have, as I reported, made postmortem examinations whenever possible, to study the nature and progress of the disease, and am not wholly a novice in operation. . . . My experience teaches me to conserve human life on both lines, viz., by operation and no operation. Hence it is a question of enlightened judgment and not by the *ipse dixit* of him who may be lacking in the careful study of cases. He says: "The article refutes itself." Now, if the Doctor had read carefully . . that I was called to operate in two of the cases, he would not have said I was opposing operation and advising more conservative treatment. I do not claim that some of these cases were judiciously treated, or treated at all for this trouble, and that is a reason why they died. It does not change the facts in the case. The statement was made that "the ambitious who are inexperienced" operate when a patient is *convalescing* (which was not true in any of these cases), "but the experienced surgeon will postpone an operation and urge an operation in the interval." Then he goes on to say: "However, all experienced surgeons urge immediate operation upon every case, claiming that the mortality will not be more than 2 to 5 per cent." I answer: They do not, and Dr. Carstens is not authorized to represent the surgical profession so dogmatically, as I can show to be so from records coming from attainable sources and by accomplished surgeons who have been in the field perhaps longer than my reviewer. . . . As to recurrent attacks, it is not true in the cases recovered in this list so far; no case has had a recurrent attack and I am as well advised as to this fact as is Dr. Carstens, but I answer, that it is not true that recurrence occurs as often as appears in the statement; and especially when we remember that the troubles which occur in this region of the body have not been accurately diagnosed in the past, or even in the present day, and there is room for careful observation all along this line of diagnosis. Again, Dr. Carstens is at fault when he says: "If the eight cases had been promptly operated upon the (*first day*) seven at least would have recovered, and not been in danger of subsequent attacks." Now, the Doctor assumes that but one might have died, and furthermore he is at variance with all authority when he says operate on the first day of the disease. It will take the first day at least to be sure of your diagnosis. He evidences too great a confidence in his own methods of diagnosis and too vivid a confidence in what the knife can accomplish to justify me in believing he is a careful or methodic student of cases by a careful analysis and classification of symptoms in such cases;

and if I am correct in this conclusion, I am also correct in the conclusion that he is only proving, just what I have hinted at, that a more conservative study and treatment of these cases would save many lives which are not saved by the knife. One of these cases I reported, in which I was called to operate, proved that if he had been operated upon at any period of his recurrent attack, it would have been useless, as the changes produced in the tissues, revealed by postmortem, showed that no operation could have saved him.

Again, I refer Dr. Carstens to a controversy between Dr. Terry of Utica, N. Y. (in the *Medical Times*), and Dr. R. P. Morris of New York, also a warm advocate of the knife and quoted as an authority upon appendicitis.

The case is not settled by Dr. Carstens, nor by any one observer, in favor of the knife, no matter how strongly he states it, yet we believe it will come to be settled, as many other surgical questions are being settled, by a more careful diagnosis and a more careful, conservative treatment, which does not necessarily exclude the operative method, when safely or judiciously applied. My conviction is still, that when a larger number of cases with careful diagnosis and treatment, promptly begun, with a rigid rule of quiet in bed, the statistics will still be largely on the side of recovery by conservative treatment, and I would use this treatment, even with knife in hand, and would operate if I became satisfied I ought. And a man should have the courage of his convictions on either side in harmony with all facts known to exist bearing on the case. I do not here enter into any discussion of the pathology but adhere to my first position, that we are coming to the time when a more enlightened and conservative treatment will yet relegate the surgeon's knife in this and other abdominal troubles to the shelf. I have indubitable proof, in my own experience as compared with other surgeons, that the knife, which was supposed to be the only resort to save life, has failed and patients have recovered without it, and continue to live and enjoy good health.

Comments: *Obiter dicta* in practice are opinions expressed by those who think they know, on points which do not necessarily arise or exist in cases under consideration.

Dicta are to be regarded as of but little authority, on account of the manner or form in which they are presented, and are often given without much or sufficient reflection and without sufficient data. If, says Huston, "general *dicta* in cases turning on special circumstances are to be considered as establishing rule or law, nothing is yet settled, or can long be settled." It has also been said to be a great misfortune that *dicta* are cited (opinions) and then, when gone into print, are taken as absolute propositions. This may be the position our reviewer is in, and yet his *dictum* does not go. It was not supposed that a few cases would settle a rule of statistics, but only as going to make up a large number which guide to the truth.

The facts in the cases reported clearly show that the five cases which recovered were those who received a careful, discriminating treatment, not all by the writer, and those who were lost neither had judicious nor safe treatment, but refused the aid of surgery when offered them, and this puts an entirely different view than the one supplied by Dr. Carstens.

I am not alone among medical men who have grown old in experience who are taking the same view, that the *obiter dicta* of the present generation of younger surgeons does not yet settle questions, but that the statistics which will prove a rule of action to the surgeon are not yet complete and will not be till more cases and more time has been taken to determine them. I only expressed a personal judgment drawn from a large private and hospital experience which a large body of men in the profession now entertain, that the knife has been too handy an instrument, and we want a more careful and methodic study of cases before we rush in "where angels might fear to tread."

Thalamon, one of the younger men in medicine and surgery has given us a masterly résumé of the subject and in it says "and moreover, if we take all the forms of appendicitis as they come, without making any distinction, we know with certainty that in 90 per cent. the disease gets well without the aid of the surgeon, which shows that as far as the life of the patient is concerned the immediate progress is not so grave and that one may safely wait." Again, he says: "No precise time can be fixed for an early operation; the limit may vary from the third to the fifteenth day." Carstens says the first day, and there is but one case reported as being operated on in the first twenty-four hours, or first day. This case recovered and yet how does anybody know that in the progress of the case recovery might not have occurred. I would be glad to know in how many cases which recover the operation was indispensable to save the life of the patient. Can any man answer? "The chances," says Thalamon, "for life offered by laparotomy are not very great and it is probable that the chances are *nil* after the fifth day." Here we must draw a clear distinction between the circumscribed and general peritonitis or hyperacute forms and those not so. The rule of Treves was "not to operate before the fifth day." The question recurs, when is the opportune time and who shall decide but the surgeon who has the case? Evidently Dr. Carstens is one of those who believes in immediate operation or early operation, and thus sets up a standard of his own. One thing now to be noticed is the statement that the operative measure is attended by 2 to 5 per cent. mortality which is much larger than this. When facts are studied on both sides of the question, viz., statistics of operations and those of non-operative cases, they will show from 10 to 15 per cent. of recoveries after operation, while the results of carefully conducted treatment show a better result, which leads Thalamon to say, "that naturally there has been a reaction against this zeal for use of the knife." And to the apparently triumphant statistics of the American surgeons, physicians have replied by statistics more emphatic and decisive (49 to 51). Yet we are still to remember that statistics will not finally *settle* this question, but judgment, skill in diagnosis, effective control of patient and control of pain in each case, judicious use of remedies in control of inflammation, so-called peritoneal.

R. E. HAUGHTON, M.D.

Proportion of Physicians to Population.

SYKESVILLE, MD., Jan. 24, 1898.

To the Editor:—The statistics quoted in the JOURNAL of January 22 (p. 231) from "Hirschwald's Medical Directory" furnish a good refutation of the reckless statements so often made by careless writers in American medical journals concerning the great disproportion in the number of physicians to population in this and other countries. I have thought it might be of interest to give a comparative statement of the number of physicians to the population in a few of the large cities in the United States and in the German Empire. The figures for the former are taken from "Flint's Medical and Surgical Directory" for 1897 and the "New York World Almanac" for 1897 and 1898, and those for Germany from the work mentioned above. The statistics are as follows: United States: New York, 1 physician to 650 of population; Philadelphia, 1 physician to 661 of population; Chicago, 1 physician to 840 of population; Baltimore, 1 physician to 676 of population. German Empire: Berlin, 1 physician to 780 of population; Breslau, 1 physician to 864 of population; Munich, 1 physician to 798 of population; Frankfort, 1 physician to 795 of population. For the entire German Empire, 1 physician to 2143 of population. For the Kingdom of Prussia, 1 physician to 218 of population. The population of New York is as estimated on Jan. 1, 1897; that of the other American cities as estimated

an. 1, 1898. The German statistics of population are said to e from the latest official census.

It is well known that in American registers of physicians here are many entries of persons who may have the degree of M.D., but who do not practice medicine. Others have the egree of Ph.D., and still others are called Doctor or "Doc" y courtesy. I have gone over the list purporting to give the ames of physicians in Baltimore, and find that 4 per cent. ave no right there. They are either Ph.D.'s or M.D.'s who ave devoted themselves to other pursuits than the practice of edicine. By excluding this 4 per cent. of non-practicing octors, I find that in Baltimore the proportion of physicians o population is 1 to 704, not very much in excess of the proortion in Berlin. The 4 per cent. eliminated does not include omeopaths, herb doctors, and all other quacks, nor those who ave died within the year. I imagine the German statistics nly give those who are legally entitled to practice.

There is another point to which I want to call attention. 'he belief is general in this country that in Germany, and specially in Prussia, no one is allowed to practice medicine vithout having passed the so-called "Staats-examen." Now, have good reasons for doubting this, but it may be true. If rue, there ought to be some way of finding out beyond ques-ion that it is so. Have all the 14,582 physicians practicing in Prussia, or the 2148 practicing in Berlin, passed the Staats-xamen? Or, are there persons practicing medicine in Prussia r in Berlin, who have not passed this Staats-examen, which s constantly held up to us for our admiration and imitation? nd if the answer to the last question is affirmative, as I believe t will be, where does the great superiority of the Prussian ystem come in? Very truly yours,

GEORGE H. ROHE, M.D.

A Genuine Department of Health versus Psychic Sanitary Measures; Which?

CHICAGO, Feb. 7, 1898.

To the Editor:—I was curious to learn the purport and neaning of the "Caffery Bill," pertaining to legislation for the ygienic welfare of the people of this county and, after read-ng the same as published in the JOURNAL (February 5, pages 330-331), I can say that I am utterly opposed to this substi-ute bill.

To my mind this substitute bill is not what the medical pro-ession nor the great majority of the people of this country lesire. It has very little semblance looking toward the estab-ishment of a genuine department of health as a separate branch of our government, and I will venture the prophecy hat the views of 90 per cent. of the members of the medical profession throughout the United States are not in accord with this proposed substitute bill which has been suggested to take the place of the bill that has been carefully prepared by the special committee of the AMERICAN MEDICAL ASSOCIATION and which was introduced into the Senate by Senator Spooner of Wisconsin on January 27 last, and is known as Senate Bill 3433.

There may be mugwump bacilli or psychic bacilli that science and sanitarians will have to contend with in the far distant future, but for the present generation at least, we are entitled to, and should be afforded the most ideal and thorough scientific department of health that it is possible to contem-plate, exactly on the theory that when any person or any of our national legislators of either house of Congress, or within their domestic fireside are stricken with disease, they desire the best medical skill obtainable.

We are admonished that, presumably within a week or two, this substitute bill known as the Caffery bill will be intro-duced into the House, and our influence and work must neces-sarily, for some time at least, now be exerted with representa-tives in Congress. Shall this be done?

Before closing, I might with propriety propound this query also (which is not intended so much for the aggrandizement of our profession as some might be led to believe).

Would it not be well for the President's cabinet to be digni-fied by the acquisition of a scholarly and thoroughly scientific medical secretary exactly on the same principle as the presi-dential family is composed of gentlemen versed in diplomacy in matters of state, finance, the judiciary, the science and art of war, etc.

Let us have a department of health, therefore, as has fre-quently been outlined in the JOURNAL, on the same theory that if we want a spade, a spade will be provided for us and not a spatula, or if we ask for a stick of wood that a wooden tooth-pick will not be substituted. Very sincerely yours,

LISTON H. MONTGOMERY, M.D.

Method of Examination of Urine.

OMAHA, NEB., Feb. 3, 1898.

To the Editor:—Apropos of the ingenious method for the detection of casts described by Drs. Haines and Skinner in the JOURNAL of January 29, it may be of interest to describe the method which has been in use in my laboratory for the past few months. I depend entirely on the centrifugal method and use only tubes containing at least 15 c.c. Both tubes are filled to the 15 c.c. mark with the freshest possible specimen of urine and centrifugalized at from 1800 to 2500 revolutions per minute for three minutes; then at least 10 c.c. are withdrawn from the tubes with a pipette, being careful not to shake; the tubes are again carefully filled with the pipette and again centrifugal-ized; this process is repeated ten or twelve times, so that in about half an hour we have the sediment in each tube from at least 115 c.c. urine, 230 c.c. in all. Then the bottom 3-5 c.c. of both tubes are placed in one tube and again centrifugalized. This method has been especially useful in the examination of urine for tubercle bacilli, where by spending a little more time we often use the sediment from 500 c.c. This method is rapid, thorough and avoids a tedious delay, as well as the necessity for any preserving agent. As a proof of this efficiency I may add that in over 200 examinations of which records are kept, a few casts have been noted in every instance, even in apparently healthy individuals. Respectfully,

AUGUSTUS DETWILER, M.D.

X-Ray Dermatitis; Suit for Damages.

PADUCAH, KY., Feb. 2, 1898.

To the Editor:—In October, 1897, the undersigned was sued for malpractice in the sum of $10,000 for subjecting a patient to the X-rays which produced a severe dermatitis, the plaintiff setting up the claim that the apparatus was carelessly used, and further that the means used was not yet sufficiently well understood as to warrant its use for the purpose of locating foreign bodies, etc. The suit was ably contested and fortun-ately was decided in my favor, the court holding that in this as in other cases the physician was bound to use ordinary skill and judgment, and placed the case upon the same footing as chloroform anesthesia.

Knowing that there were several suits of this character in the courts I thought perhaps it would be of some interest to report it, since I have as yet been unable to find that the subject has been previously passed upon by the courts.

Respectfully, FRANK BOYD, M.D.

PUBLIC HEALTH.

Louisiana State Board of Health.—The *New Orleans Medical and Surgical Journal*, January, alludes to the fact that that Board of Health is temporarily dismantled, all the members who were in office during the recent outbreak of fever having

resigned. This step was taken on account of the demand of the daily press and various commercial bodies, representing the *vox populi*.

Direct Contagion of Typhoid Fever.—A striking instance is reported from Bucharest, where ninety-six cases of typhoid fever occurred in a crowded military school of 300 inmates, spreading directly from bed to bed. No local cause for the epidemic could be discovered; and it was traced to two pupils who had returned from an infected locality.—*Bull. de l'Acad. de Méd.*, December 21.

Malarial Fatalities on the Southeastern Coast of Africa, in Railroad Building.—Dr. Emil Holub, a South African scientist and explorer, speaking of the new Gazaland railway that traverses a part of the intensely malarial coast line, belonging to the "sphere of influence" of Portugal, says that that railway has earned a sad notoriety by reason of the great loss of life that has marked the course of its construction. During the past five years the contractors have contended with almost insuperable difficulties in procuring sufficient labor. More than seven hundred workmen have died from malarial fevers. Some of these were from Europe, but the majority were Asiatic natives. Out of 500 Afghans imported for this work, by way of India, 350 died in a short time. The divide between the shore line and the inner lofty tableland has been passed and the death-toll has been greatly reduced.

Death Rates of the Past and Present.—One of the events of the British Jubilee was the presentation of an address by the Lord Mayor and Sheriffs of London to the Queen on the subject of the sanitary improvements during her reign. The summary as ably condensed in an issue of the *New York Sun*, brings forth some startling facts. In Macaulay's comparison between the London mortality of 1844 and that of 1684, it appears that the death rate of 1685, not a sickly year, was between 43 and 44 per thousand, or one in every twenty-three. At the present moment the London death rate is 14.9 per thousand despite the enormous increase in the population. During the ten years from 1838 to 1847 the mean annual death rate for England and Wales was 22.16 per thousand while the ten years from 1881 to 1890 was 19.1 per thousand. This implies that 77,000 out of an estimated population of 29,000,000 were kept alive in each year of the latter period who would have died in each year of the former. All of which proves the value of mathematical precision in the calculation of life-values as affected by surroundings and the diffusion of intelligence.

New York State Board of Health.—Before the above named board Dr. George B. Fowler, on behalf of the Antitoxin Committee, has reported that the committee has notified the various manufacturers of antitoxin as to State supervision of its manufacture and sale in New York State. The manufacturers he said were in hearty sympathy with the board, and promised to aid it in the carrying out of the plan to have antitoxin tested before it was offered for sale. In the absence of reports on the subject from local bacteriologists the matter was adjourned for one month. The State Board will probably determine to have all the bacteriologic work done in the laboratory of the Health Department of New York City before the serums can be placed on sale as officially approved remedies. This is the plan pursued in Europe where every ounce of serum is inspected by duly authorized officials in the state laboratories. Dr. Herman M. Biggs, bacteriologist of that department is reported as saying that as a result of investigations he found several of the samples of serum submitted to him unfit for use owing to the occurrence of decomposition. Some of it was considerably below the standard strength.

The Latest in Regard to Beriberi.—A committee was sent from Holland to study the three epidemics of the diseases supposed to be beriberi at the Richmond Insane Asylum at Dublin, and their report has just appeared in the *Nederlandsch Tidjschrij voor Geneeskunde* for December 11. While they are not to positive, as a disease may assume different characteristics i different countries, yet they do not consider the epidemic poly neuritis at Dublin identical with the beriberi of the Nethe lands colonies. The localizations are different; the extrem relaxation of the articulations observed at Dublin, "droppe wrists and feet," is unknown in the East Indies, and othe symptoms are quite different. *Janus* (Vol. ii, No. 1) contain the results of an investigation of the hundred indigenou prisons in Java (280,000 inmates), with a view to determinin the influence of the food on the appearance of the disease. Th results are striking. The principal article of food is rice; i some prisons it is used with the pericarp, in others completel shelled. Where it is completely shelled the proportion of case of beriberi to the number of prisoners is 1 to 39; where th pericarp is eaten with it the proportion is 1 to 10,000; wher a mixture of the two kinds is used the proportion is 1 to 41€ Further statistics show the disappearance of the disease i institutions in which the unshelled rice has been substitute for the shelled. In Japan, he states that the rations for th army and navy now include a certain proportion of barley an bread instead of the previous exclusive rice rations and beri beri has almost entirely disappeared.

Experiments in Disinfection at the New York Harbor Quarantine—Experiments with formaldehyde gas are in progress at th quarantine station at New York, the principal tests having been made with the micro-organisms of cholera, diphtheri and the plague, on board the new steamboat belonging to tha office. Other tests were made in a room in the laborator which had been especially supplied for the purpose with a apparatus for spraying liquefied ammonia all about the room in order that the gas might be neutralized whenever it wa necessary. In the account of his experiments, the Health offi cer, Dr. A. H. Doty, describes twenty-five separate tests, i each of which three or more varieties of germs were used. Som of the experiments were made in a room of moderate size, con taining about 1,000 cubic feet of air space. Others were in a air-tight steel box containing about 115 cubic feet of air space In the series of experiments made with the steel chamber, th disinfecting solution in amounts ranging from eight to ter ounces, was exposed for different periods of time. Into a woolen blanket, cultures of different germs were rubbed, and in fifteen tests in which the quantities as well as the periods o time were varied, only one culture of the germs showed any signs of growth subsequent to the exposure to the solution. That was the diphtheria germ. Tests were next tried *in vacuo* as that method offered less resistance to the penetration of the gas. For twelve hours he exposed a quart of the solution. He used the germs of the Indian plague, of diphtheria and of anthrax. Some were exposed on linen, some were wrapped in a blanket, and others wrapped in a newspaper. These lived under the exposure to the gas, while others inside an envelope between a single sheet of paper, and inside a towel, were killed by the gas in nearly every case. A greater degree of success was met in subsequent experiments, in which it was learned that the gas was given off more satisfactorily by the use of a solution of some neutral salt. The apparatus was set up in the disinfecting steamer, and after four hours' exposure, every germ of cholera, plague and diphtheria was killed. These results were obtained when the germs were inside as many as three sheets of paper and envelopes, and were closed as tightly as possible. Fully four hours were needed, however, to make the tests successful. The value of the new disinfectant will be appreciated most at our harbors as a means of disinfection against southern ports. Already the mail tests with formaldehyde have been highly successful, and it is efficacious, too, in the case of blankets, towels and newspapers. It is said to have no bad effect on animal life and can be used without detriment.

The Department of Public Health.—The State Board of Health, Indiana, has issued the following special circular:

The following resolution was passed by the Indiana State ɔard of Health at its regular meeting December 17, 1897:

WHEREAS, An urgent necessity exists for a more extended pervision and control of contagious and infectious diseases, prevent the introduction of said diseases into the United ates and the spread from one State to another of the same; id

WHEREAS, A bill to establish a National Department of Pub- Health and define its duties has for the past ten years been ıder serious consideration by the AMERICAN MEDICAL ASSOATION, also by the Public Health Association; and

WHEREAS, At the last meeting of the AMERICAN MEDICAL SSOCIATION a report presenting a bill was adopted, and at a eeting of the Public Health Association held in Philadelphia, ct. 29, 1897, said bill to establish a department was also lopted; therefore be it

Resolved, by the State Board of Health of Indiana, that we ɔartily concur in the action of the Associations herein named ıd earnestly request the co-operation of all who favor sanitary form to urge upon Congress the necessity of passing the easure, thus insuring a more efficient and uniform control of fectious diseases.

Ordered: That the Secretary shall have this resolution refer- ng to a bill to establish a National Department of Public ealth and to define its duties, printed. And that he shall send ıe same to every State Health Officer in Indiana, requesting ıid officer to use his influence to promote the bill, and he shall ırther send a copy of the resolution to each member of all tate Boards of Health. J. N. HURTY, Secretary.

The Vaccine Laboratories of Germany; A "Germ-free" Lymph not t Attained.—Dr. Huddleston of the New York City Depart- ıent of Health, states that the best European laboratories of ıis kind are to be found in Germany. While calf lymph is most universally used upon the Continent, in England very ttle progress has been made; the latter country has not as yet utgrown the experimental state. The laboratories of Ger- ıany are under government control. The percentage of suc- ɔssful vaccination in Berlin is 96.84; in Hamburg 94.85. The est laboratory in buildings and equipments is that of Cologne, hich the author described at length. At Hamburg vaccina- on of 1700 primaries with "germ-free" lymph gave eight cases f skin eruptions. The Imperial Berlin Commission recently ɔported, that in its judgment, inflammatory appearances are ue: 1, to the condition of the person vaccinated; 2, to the reater or less amount of effective lymph in the material ap- lied, and 3, to the technic employed in the inoculation. The ɔmmission stated that inflammatory complications are especi- lly frequent if the incisions made in the inoculations are numer- us, long, deep and close together. It is a familiar fact that ıflammation is more frequent in secondary than in primary accination. It is also unfortunately the case that a number f German reports state that quite enough disinfection of the rm by means of sublimate solution and ether before vaccina- ion does not prevent all inflammatory complications, but in ome cases has actually seemed to increase them. Neverthe- ɔss it has been a great advantage to vaccine production that ractically "germ-free" lymph may be obtained; because the erms present, while as a rule non-poisonous, are it is thought njurious to the vaccine organism, and it is a fact that by em- loying "germ-free" lymph the so-called "purulence" in the roducing animals, one of the former bugbears of the vaccine aboratory, has practically disappeared. Laboratory workers ıave about come to the conclusion that it is at present imprac- icable to produce a sterile vaccine, but two different and par- ially effective methods of bringing down the number of germs ıave been discovered. One method consists of centrifugaliza- ion of virus which has been diluted with water, and the second, f mixing the virus with varying proportions of glycerin. The ormer method reduces the number of bacteria present but does ot entirely remove them; the latter is much more effective, and y means of it the number of germs in lymph as tested by mak- ng cultures on agar, can always be materially reduced within a period which varies from a few days to a few weeks. Sometimes this does not secure sterility, but when old glycerinated virus is not sterile the inference simply is that the germs present are such as resist the action of glycerin; the bacillus subtilis, for instance, which is non-pathogenic is unaffected by glycerin. It may then be fairly stated that lymph practically, although not absolutely "germ-free," can be secured with considerable certainty. The results from the use of this so-called "germ-free" lymph, whether absolutely sterile, have not, however, secured freedom from the inflammatory complications of vaccine. On the contrary it is the general testimony given by those who have experimented at length with such lymph that inflammatory reactions occur in about the same proportion of cases as before this lymph was introduced, and also that not merely inflammatory complications are present, but occasionally vaccinal eruptions as well, as has already been stated above regarding the Hamburg experiments. Finally, it should be added that while every brand of vaccine has its own bacterial flora, the few germs which are common to almost all are very clearly non-pathogenic to men or animals. Repeated inoculations of germ-bearing lymph have been made in guinea-pigs, rabbits and other test-animals, and almost invariably without any pathogenic results.—*Medical News*, January 1.

ASSOCIATION NEWS.

Denver Accommodations.—The following is a partial list of hotels and rooming houses with rates agreed to for the Denver meeting of the AMERICAN MEDICAL ASSOCIATION, June 7 to 10, 1898.

Brown Palace Hotel, 17th Street and Broadway. Take 17th Street car, to Hotel. European plan, $1.50 per day; American plan, $3.50 to $5 per day.

The Albany, 17th and Stout Streets. Take 17th Street car to Stout Street. American plan, $2 to $3.50 per day.

L'Imperial Hotel, 14th Street and Court Place. Take Colfax Avenue car to Court Place, American plan $2 to $3 per day.

Windsor Hotel, 18th and Larimer Streets. Take 17th Street car to Larimer. American plan, $2 to $3.50 per day.

The New St. James Hotel, Curtis Street, near 16th Street. Take 16th Street car to Curtis Street. American plan, $2 to $3 per day.

The Oxford Hotel, 17th and Wazee Streets. Two blocks above depot. European plan, $1 to $3 per day.

American Hotel, 16th and Blake Streets. Take 16th Street car to Blake Street. American plan, $2 per day.

New Markham Hotel, 17th and Lawrence Streets. Take 17th Street car to Lawrence Street. European plan, $1 per day and upward.

Metropole Hotel, Broadway near 17th Street. Take 17th Street car to Broadway. European plan $1 to $2, single room, per day.

Hotel Broadway, Cheyenne Street and Broadway. Take Colfax Avenue car to Cheyenne Street. American plan $1.25 to $1.50 per day.

The Vallejo, 1420 Logan Avenue. Take Colfax Avenue car to Logan Avenue. American plan, $2 per day and upward.

The Devonshire, 14th and Logan Avenues. Take Colfax Avenue car, to Logan Avenue. American plan, $1.50 per day and upward.

The Albert, 17th and Welton Streets. Take 17th Street car to Welton Street. European plan $1 to $1.50 per day.

The Aldine, 1013 17th Avenue. Take 17th Street car to Ogden Street. American plan $1.25 per day.

The Richelieu, 1727 Tremont Street. Take 17th Street car to Tremont Street. European plan, $0.50 to $1.00 per day.

The Earl, 1430 Tremont Street. Take Colfax Avenue car to Tremont Street. American plan, $1.50 to $2 per day.

Glenarm Hotel, Glenarm and 15th Streets. Take Colfax Avenue car to Glenarm Street. European plan, $1 per day and up.

The Bonaventure, 18th and Glenarm Streets. Take 17th

Street car to Glenarm Street. European plan, $0.50 to $1.50 per day.

The Drexel, 17th and Glenarm Streets. Take 17th Street car to Glenarm Street. European plan, $0.75 to $1.50 per day.

For reservation of rooms please apply to hotel direct. For especial information address, ROBERT LEVY, M.D., California Building, Chairman Committee on Hotels.

SOCIETY NEWS.

The American Medico-Psychological Association. — The fifty-fourth annual meeting of the American Medico-Psychological Association will be held in St. Louis, Mo., May 10–13, inclusive. C. B. Burr, secretary.

The Fifth District Branch of the New York State Medical Association will hold its fourteenth annual meeting at 315 Washington Street, Brooklyn, on Tuesday, May 24, 1898. Gonorrhea will be the subject for papers, discussions, and reports of cases. Robert W. Taylor will open the subject by giving the pathology and treatment in males. J. W. S. Gouley will treat of urethral strictures, William E. Beardsley of gonorrheal rheumatism and Lawrence Coffin of gonorrheal ophthalmia in adults. William McCollom will discuss the "Moral Prophylaxis and the Ethical Duty of Physicians to the Public;" J. C. Bierwirth the "Medico-legal Responsibility of Physicians to Their Patients and Patients' Friends." L. Grant Baldwin will give the symptoms and diagnosis of gonorrhea in females and will be followed by Walter B. Chase and Frederick H. Wiggin on the palliative and operative treatment. N. L. North, Jr., will present the subject of "Gonorrheal Ophthalmia of Infants" and will be followed by R. Mathewson and L. A. W. Alleman on the same subject. N. W. Leighton, president; E. H. Squibb, secretary.

BOOK NOTICES.

An Epitome of the History of Medicine. By ROSWELL PARK, A.M., M.D,, Professor of Surgery in the Medical Department of the University of Buffalo, etc. Illustrated with Portraits and other Engravings. One Volume, Royal Octavo, pages xiv, 348. Extra Cloth, Beveled Edges, $2.00 net. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street, Philadelphia; 117 W. Forty-second Street, New York; 9 Lakeside Building, Chicago.

This is an excellent work and should be in every physician's library, as up to a recent time the history of medicine has been greatly neglected, but within a few years numerous works have appeared on the subject.

The work is well illustrated, portraits being given of many of the noted medical men. It is not only of interest to physicians and medical students, but to laymen as well. And this brief work, while it does not aim to be anything but an epitome, gives a fair understanding of the subject.

It is open to criticism in some respects. Hardly enough credit has been given to surgeons of the Arabic period, but in the main there is little from which to dissent and as a whole we have nothing but commendation.

A System of Practical Medicine. By American Authors. Edited by ALFRED LEE LOOMIS, M.D., late Professor of Pathology and Practical Medicine in the New York University, and WILLIAM GILMAN THOMPSON, M.D., Professor of Medicine in the New York University. To be completed in four imperial octavo volumes, containing from 900 to 1000 pages each, fully illustrated in colors and in black. Volume III.—Diseases of the Alimentary Canal, Peritoneum, Liver and Gall Bladder, Spleen, Pancreas and Thyroid Gland, Chronic Metal Poisoning, Alcoholism Morphinism, Infectious Diseases Common to Man and Animals, Miscellaneous Subjects. For sale by Subscription. Per volume, Cloth, $5.00; Leather, $6.00; Half Morocco, $7.00. Lea Brothers & Co., Publishers, Philadelphia and New York, 1898.

The contributors to this third volume are: Richard Cabot, M.D.; Warren Coleman, M.D.; George Dock, M.D.; Frederick Finley, M.D.,; J. E. Graham, M.D.; H. A. Hare, M.D. Walter James, M.D.; William W. Johnston, M.D.; Allen Jones, M.D.; Francis Kinnicutt, M.D.; Alexander Lambe M.D.: J. Law, F.R.C.V.S.; George Roe Lockwood, M.D Henry Lyman, M.D.; W. T. McNutt, M.D., M.R.C.S. Edi etc.; Allen M. Starr, M.D.; James Stewart, M.D.; Charl Stockton, M.D.; Victor C. Vaughan, Ph.D., M.D.

The topics include: Diseases of the alimentary canal; di eases of the peritoneum; diseases of the liver and gall bladde diseases of the spleen; diseases of the pancreas; diseases thyroid glands; chronic metal poisoning; alcoholism; morphi ism; infectious diseases and miscellaneous subjects. The hig standard set by the predecessor of this volume has been mai tained in the present and we have no hesitancy in recommen ing the book as conservative, judicious and instructive. The is a copious index at the conclusion of the volume which well printed on excellent paper with clear type.

Outlines of Rural Hygiene. For physicians, students, and san tarians. By HARVEY B. BASHORE, M.D., Inspector for th State Board of Health of Pennsylvania. With an Append on The Normal Distribution of Chlorine by Prof HERBERT I SMITH, of Yale University. Illustrated with Twenty (20) E gravings. 5½ x 8 inches. Pages vi–84. Extra Cloth, cents net. The F. A. Davis Co., Publishers, 1914-16 Cher Street, Philadelphia; 117 W. Forty-second Street, New Yor City; 9 Lakeside Building, 218-220 S. Clark Street, Chicag

This little work is intended to throw light in dark places an to call attention to the neglect of sanitary rules in districts ou side of the great cities. The scope of the work is as follow Water-supply, waste disposal, the soil, habitations, disposal the dead and normal distribution of chlorin.

The work is well illustrated and is undoubtedly very usef for the classes for whom it is intended.

There is certainly room for missionary work in the directio indicated.

A Manual of Obstetrics. By A. F. A. KING, A.M., M.D. Sevent Edition, with 223 illustrations; pp. 574. Lea Bros. & Co. Philadelphia and New York, 1898.

When a work has passed its seventh edition it requires bu little additional notice except to say that it has been brough up to date and has in no wise degenerated; and the autho says in his preface that in the present revision some errors an omissions have been rectified, and additions introduced; th chapter on "puerperal septicemia" has been rewritten, an throughout the work an effort has been made to accentuat the importance of antiseptic midwifery with more emphasi than formerly. This work, which has grown from the date c its first appearance, has now become a volume containing mat ter enough to make a book twice the size if printed in large type, and indeed it may be said that the amount of materia contained in this compacted form is more than equal to som more pretentious books.

The teachings of the writer are sound and judicious an that careful condensation which made the first volume a favor ite with the profession is continued in this.

A Living Substance as Such, and as Organism. By GWENDOLE FOULKE ANDREWS. Supplement to Journal of Morpho logy. pp. 176. Ginn & Co.: Boston. The Athenaeu Press, 1897.

This work is a philosophic study, from a biologic standpoint of the living substance. The work was carried on partly a the Marine Laboratory at Wood's Holl, Mass., and partly a the University of Pennsylvania.

The rapidly changing protoplasm is an evanescent structur to fix and classify, and camera drawing of the finest structure phenomena the author finds impossible. "Of the living sub stance-phenomena," says the author, "it is about as practica ble to reproduce it as it would be to trace upon a wall reflection thrown from disturbed water. Some camera drawings of th filose phenomena in starfish and ecchinus eggs were made, bu such can show by direct tracing larger masses only of the sub

ance and are in point of time and relation true but to a limi-
d extent. It follows from the very nature of these phenomena,
will be seen, that they can not be traced; for while the
ınd follows the minutest portion the relations of the whole
ill have undergone a change with important transpositions
ıd transmutations of both structure and substance. In
ɔint of minuteness also many of the facts which can be optic-
ly noted defy camera tracing since the finest steel point is
ill too coarse for the work."

Notwithstanding these defects, the existence of the visible
otoplasm structure has given good definite results which the
ıthor sets forth at some length in the volume under consid-
ation.

ıe Aphasias and their Medico-Legal Relations. By F. W. Lang-
DON, M.D., Cincinnati, pp. 42. Norwalk, Ohio, 1898.

This monograph is a paper read before the Ohio State Medi-
l Society at its Fifty-second Annual Meeting at Cleveland,
ıio, May, 1897.

It is of great interest and well illustrated. The author con-
ıdes that in the case of aphasia, if the sanity of the individ-
ıl is established any legal document should be recognized,
ıen he can understand fully its nature by any receptive
ıannel, viz., hearing, visionary or muscular senses, and can
addition express assent or dissent, whether this expression
by spoken speech or pantomime, or written speech: Opin-
ıs which must be regarded as sound.

oceedings of the Kansas Medical Society. Paper. 104 pages.
Topeka, 1897.

This volume contains the proceedings of the Thirtieth an-
ıal meeting held at Topeka, May 13, 14 and 15, 1896; also of
e thirty-first annual meeting. The report, however, does
ɔt include the papers and discussions.

NECROLOGY.

Charles R. Taber, M.D., Fort Motte, S. C., January 27,
ed 60 years. He was a delegate to Cuba, by the State, for
e purpose of investigating yellow fever and its causes, and
e best means of preventing its introduction into the State.
1888 he was a delegate to the International Medical Congress
Berlin, and was for years president of the State Medical
ısociation and at the time of his death president of the State
ɔard of Health.

Gerard C. Paoli, M.D., Chicago, January 29. He was born
Triondheim, Norway, June 23, 1815. In 1832 he went to
ıristiania and there pursued literary and scientific studies for
o years, after having previously graduated from a university.
the middle of his post-graduate course he was appointed an
ɜistant to the district physician. After six years' study in
ıristiania he went to Stockholm. One of the acquaintances
then made was Ole Bull, whom he afterward knew inti-
ıtely in this country. Dr. Paoli resided in London for a
ıile, making diligent observations in the hospitals, then came
this country. Twice he was president of the Chicago Med-
ıl Society, twice its vice-president, and he assisted materially
establishing the Woman's Medical College and the Scandi-
vian Medical Society.

Isaac Massey, M.D., West Chester, Pa., January 31. He
s born in 1838. His grandfather, Israel Massey, was a life-
ıg resident of Valley Forge, where he owned the land upon
ıich Washington's headquarters were situated. Dr. Massey
s a member of the Board of Trustees of the House of Ref-
ɜ at Glen Mills, one of the staff of physicians at the Chester
unty Hospital, a member of the College of Physicians and
rgeons of Philadelphia, and a member of the Pennsylvania
ıte Medical Society and the Chester County Medical Society.
Samuel T. Spees, M.D., Tuscola, Ill., January 29.——Ed-
rd W. Riley, M.D., Kansas City, Mo., January 27, aged 47 years.——John Sarms, M.D., Gallipolis, Ohio, January 29, aged 73 years.——Louis Pagin, M.D., South Bend, Ind., January 20, aged 80 years.——Michael Talbot, M.D., Niagara Falls, N. Y., January 26, aged 52 years.——E. C. Johnson, M.D., Hammond, Ind., February 5.

MISCELLANY.

Antistreptococcus Serum.—Belfanti and Carbone have established that this serum protects only against infection by the same variety of streptococcus. The question of the variety of the streptococcus is therefore of supreme importance in treatment.—*Cbl. f. Chir.*, Dec. 31, 1897.

A Nurse Honored.—The decoration of the Legion of Honor has just been conferred upon Miss Bottard who for fifty-six years has served in the nervous disease service of the great Paris hospital of la Salpetrière, under Charcot for many years, who ascribed much of his success to her unparalleled devotion. Several times, three years have passed without her leaving the premises.

A Double Current Urethral Sound.—A groove along one side of the canula, which is a glass tube about seven centimeters long and twelve millimeters in diameter, allows the fluid to flow back into the receptacle provided without soiling the clothing. A projecting rim on the outer end prevents the canula from entering farther than the anterior urethra.—*Bull de l'Acad. de Méd.*, December 21.

Change of Name and Location.—The British Institute of Public Health will be styled in future the Royal Institute of Public Health, and Her Majesty the Queen has been graciously pleased to accept the office of patron. The council of the Institute has conferred the Harben Gold Medal for 1898 upon Lord Playfair, and has appointed Dr. W. R. Smith the Harben Lecturer for 1899. The offices of the Institute have been removed to 197, High Holborn, London.

Improved Lodging Homes.—The new Mills House No. 1, in New York City, is a great success as a poor man's hotel, and is likely to pay a good dividend. In London the same field is being covered by the Rowton House, and another was opened three weeks ago which will provide good clean beds for 800 men, at sixpence a night, or for ten shillings a week, with board. They are always full, and they pay, for 800 sixpence a day means £7300 a year.

The Hoagland Laboratory, Brooklyn, N. Y.—Dr. C. N. Hoagland has again made a donation to the above named institution, by way of a New Year's gift, by the conveyance of a security valued at $24,000. Dr. Hoagland's benefactions to the cause of scientific research are said to have reached a figure considerably in excess of a quarter of a million of dollars during the last ten years. Dr. Ezra H. Wilson, who has for four years been the bacteriologist in chief to the local department of health, has resigned from his sanitary position to devote his time fully to the conduct of this Laboratory.

Improved Appliances for the Sick.—A new lifting appliance fits directly on the four posts of the bed, which are extended upward for the purpose. The patient lies permanently on the broad linen support, parts of which can be unbuttoned as required to allow access to any part of the body. It adds very little to the weight of the bed. P. Jacobsohn has also devised a simple wheeled frame that can be applied to any bed to enable it to be wheeled lightly about. It consists of two light horizontal iron frames, forming two superposed hollow squares. The lower is fitted with rubber wheels. A stout jack-screw at each end turned by a single crank, pushes the two frames apart and raises the bed off the floor. Another appliance of his invention is a light iron frame with a jack-screw, which can be applied under the foot or head of the bed and raise

that end to any level desired without danger of jarring the patient. Iron hooks grasp the bed and the frame rests solidly on the floor.—*Deutsche Med, Woch.*, January 6.

Statistics of Anesthetics at the Italian Congress of Surgery.—Three deaths were reported, but two are dubious, and only one was a typic case of chloroform intoxication, out of 3760 cases of general anesthesia; chloroform was used in all but eight. Six hundred and thirty-seven operations without anesthesia were reported; 292 with local anesthesia. A case of icterus consecutive to chloroform was reported, with serious nervous phenomena, which grew worse with the administration of chloral, but gradually passed away (*Gaz. d. Osp. e d. Clin.*, November 14). Combining the Italian statistics for the last two years, there were thirteen deaths in 53,992 chloroform anesthesia, and one death in 2802 with cocain.

Coincidence of Epilepsy and Diabetes.—W. Ebstein reports several observations of epilepsy coinciding with diabetes mellitus decipiens, and urges investigation of the urine of epileptics, especially in the Jacksonian form, as the glycosuria frequently escapes notice.—*Deu. Med. Woch.*, January 6-13. We note also a communication by Orlandi in the *Gaz. de Osp. e d. Clin.* of December 26, reporting a case of Jacksonian epilepsy accompanied by an enormous amount of aceton in the urine and blood. He established experimentally that the intoxication could not be attributed to the aceton, but that the latter was simply a symptom of another intoxication.

Physicians in Public Life.—The present French Senate numbers thirty-nine physicians and three veterinarians among its 300 members, while in the Lower House there are fifty-eight physicians, two veterinarians and four druggists to the 581 deputies, a proportion of one to nine. In Germany the proportion is very much less—one to sixty-six (1893). In the last ten years France has had physicians in the cabinet; ministers of the navy, interior and of agriculture. Among the better known members of the legislature are Professors Cornil and Lannelongue, and the popular surgeon Labbé. Trelat, Trousseau and Malgaigne were also senators in their day. The French legislator is usually first the mayor of his town or occupies some other public office (in Paris, member of the city council), thus showing the remarkable interest taken by the medical men of France in public affairs and politics and the esteem in which they are held. (From Paris letter in the *Deu. Med. Woch.*, December 23.) Italy has twenty-three physicians in the legislature, including six professors.

The Passage of Solid Particles and Air from the Bladder into the Kidneys, etc.—Professor L. Lewin announces in the *Deutsche Med. Woch.* of December 23, that he has established by experimental tests that air and solid bodies (ultramarine blue or green rubbed into a gum arabic solution, etc.) introduced into the bladder, find their way by mechanical or peristaltic action, or both, through the ureters into the kidneys, and from there through the uriniferous tubules, the lymph spaces and the blood vessels into the circulation, the heart, pulmonary vessels and even the liver. If the renal vein is severed after being ligated toward the center, and ultramarine green is injected into the bladder under high pressure, it soon appears in the fluid issuing from the vein. He proves thus that there is natural communication between the bladder and the heart, which allows the passage of air and solid particles, much more of living micro-organisms, and explains many sudden deaths from embolism and certain general infections.

Spontaneous Sediment Formation in the Blood.—Biernacki adds to his previous communication in regard to this means of clinic investigation (*vide* JOURNAL, Dec. 25, 1897), that he has never known a case of functional neurosis to fail to present an abnormal sediment formation. In the neurosis in which neurasthenic symptoms predominate, with or without nervous dyspepsia, the sediment forms exceptionally slowly, and the assumption that this phenomenon depends upon abnormal processes of oxidation, is confirmed by the fact that the venous blood in these cases is much brighter colored than usual. On the other hand, functional neurosis in which the hysteric symptoms predominate, shows exactly the opposite; the sediment forms with extreme rapidity and the amount of sediment is small. These results have been constant in the thirty cases examined, and cast a new light upon functional neuroses, and possibly upon their etiology. They also furnish a new means to detect simulation. He asserts that abnormal sediment formation is the most delicate of all tests, as even one organ affected will disturb the sedimentation, although the individual is otherwise in normal conditions. In hyperglobular blood the sediment forms slower than in normal, while the process is abnormally rapid in blood poor in corpuscles and hydremic.—*Deutsche Med. Woch.*, December 30.

The Jewish Population of the United States.—The American Jewish Historical Society has published a note on the above subject, in which some interesting statistics are presented. Twenty years ago the first systematic attempt to obtain definite statistic information was made by the Board of Delegates of the American Israelites, with the assistance of the Union of American Hebrew congregations. Incomplete reports secured showed a Jewish population of 189,756. By 1880 these figures had increased to 230,257. The total population of the country in that year was 50,155,783. It is calculated that since 1880 something over 485,000 Jews have immigrated to the United States. This addition, together with the increase through births, gives at a conservative estimate a present Jewish population of 938,000. The total population of the country is now estimated to be 75,000,000. In other words, it is one-half larger than it was seventeen years ago, while the Jewish population is more than four times larger. The Jews are not numerous in agricultural States. Their greatest numbers are in States having large cities, as, for instance, New York, 350,000; Pennsylvania, 85,000; Illinois, 85,000; Ohio, 50,000; California, 85,000; Maryland, 35,000; Missouri, 25,000; New Jersey, 25,000; Louisiana, 20,000; Massachusetts, 20,000.

Importance of Chromatolysis.—The complexity of the nerve-cell and the dissolution and disappearance of the chromatophilous elements, to which the term chromatolysis has been applied, were among the most interesting subjects treated at the last International Congress (*vide* JOURNAL, Vol. 29, pages 695 and 745). Recently, Van Gehuchten has demonstrated that this chromatolysis is observed whenever a sensory or motor fiber is severed, ligated or compressed. The motor fiber gradually returns to its normal condition, but the sensory fiber degenerates and disappears. He ascribes this difference to the fact that the lesion of the peripheric prolongation of the sensory cell deprives the latter of all external excitation. External excitation is therefore evidently indispensable to the anatomic integrity of the cell, and it perishes without it. As excitation from the external world is thus indispensable to the preservation of the neuron, upon which all the tissues and organs depend, it follows therefore that the life of the nerve-cell, and hence the life of all the elements that constitute our organism, is impossible without excitation from without.—*Gaz. d. Osp. e d. Clin.*, January 11.

Condemnation of the Office of Coroner.—The following is a part of a recent presentment of grand jury of the County of Kings, New York: "We have also investigated the methods in vogue in the office of the coroners. It is proper, however, to say that we have not taken up the methods in vogue under the present coroners, but only for the time prior to their taking office. We recommend to the legislature of the State that the office of coroner be abolished. We believe, from our investigation, that the office is useless, that it has no practical

ffect in the ferreting out of crime; that the methods in vogue n that office during the time of our investigation are open to he most severe censure; the manner of conducting the busi- ness was inefficient, and the powers of the coroners were lelegated to subordinates whose chief functions seem to be to get rid of the business and collect the fees incident to the office, for their chiefs. We believe that the continuance of the coroner's office in its present shape, as the law now stands, will ead to further abuses; that the law governing the rights, du- ties and obligations of coroners is not clear nor specific; that the very fact that various interpretations as to the rights and duties of the coroners may be put upon the law by those who should be familiar with it, will lead to abuses which only the entire abolition of the office can wipe out."

Suture of the Tendons.—Delamare reports a case of secondary suture of the extensor tendons of the three last fingers to the extensor tendons of the index, it being impossible to find the central ends of the severed tendons. The functional result was excellent.—*Gaz. Méd. de Paris*, January 1.

"Virchow's Archiv" completed the fiftieth year of its existence December 29, with the one hundred and fiftieth volume. A banquet on this date in honor of Virchow and the jubilee of the *Archiv*, was arranged by a committee presided over by Professor v. Bergmann, to which the members of all the medical faculties and of all the medico-scientific societies in Germany were invited.

Unna's Prize.—There was no competition for this prize in 1897, consequently the amount offered, 300 marks, is doubled, and 600 marks are now to be awarded for the best contribution on the subject announced: "An investigation whether and to what extent all the stains considered specific for elastin will also stain elacin." Send communications to the care of Leopold Voss, Hohe Bleichen 34, Hamburg, before December, 1898.

Our Aryan Origin.—According to a recent communication to the Paris Société d'Anthropologie, based on the latest ethnic and philologic research, and archeologic data, including much personal work, Zaborowski locates the Aryan country in the plains of the north of Europe extending to the limits of Asia, and ascribes to the blonde Cymri the principal rôle in the founding of the Aryan race.—*Progrés Méd.*, December 25.

Potassium Permanganate and Argonin in Gonorrhea.—By combining these two remedies, Stark reports that a much more prompt and effective action is secured. The daily rinsing with the permanganate softens the tissues of the urethra and favors the penetration of the argonin, which is injected three times a day in a 2 per cent. solution.—*Semaine Méd.*, December 29.

Length of Life of Anthrax Spores.—It has been demonstrated at Professor Petrone's Institute of Path. Anat. at Catania, that anthrax spores retain their vitality twelve years, and not until after thirteen years were guinea pigs safe from infection by inoculation. But their virulence is not as great during the latter years, so that the larger animals and man could scarcely be infected by anthrax spores eight or ten years old.—*Gaz. d. Osp. e d. Clin.*, January 6.

Concentration of Therapeutic Sera by Freezing.—Dr. Buywid has been engaged in experiments with diphtheria and tetanus antitoxin preparations in order to obtain concentrated solutions. The dried preparations are, in the minds of many, unreliable and under certain circumstances may be dangerous. A partial evaporation of sera at a low temperature gives a cloudy product. A better method consists in freezing the remedy. The ice is clear and there remains only a small amount of a brownish fluid in the bottom of the glass. If the glass of serum is allowed to freeze slowly the upper layer is without color and contains little beside pure water. The lower layer is a clear, bright yellow and contains almost all of the antitoxin. The two are readily separable.—*Centralblatt für Bacteriologie.*

Birth in Coffin.—A woman was found drowned, six months pregnant. After burial a murder was suspected and the coffin reopened, when the inverted uterus was found between the thighs of the corpse with the body of a fetus 36 cm. in length. The two theories proposed: that the accumulation of gases in the abdomen forced out the contents of the uterus, or that this was accomplished by post-mortal contractions of the uterus, are both considered improbable by Bleich who reports the case.—*N. Y. Med. Woch.*, December 1, from *Vierteljahrsschrift f. Ger. Med.*

The Two-hundred Guinea Fee.—When railroads had become general throughout the country it was felt by some of the leading physician and surgeons of the metropolis that an easier, less tedious and less expensive mode of traveling ought in fairness to the public to be met by some reduction in the rate of remuneration, and after a full consideration of all the circumstances it was concluded in sequel to a conference between Dr. Paris and Sir Benjamin Brodie, on the part respectively of the College of Physicians and of the College of Surgeons, that a reduction of one-third would be fair to all parties and meet all the requirements of the case, and thus that a physician's journey of 300 miles would imply a fee of 200 guineas in the place of 300, as it had previously done.—The "Life of Sir Henry Halford."

Riot over a Missionary Hospital.—At Jerusalem the Jews have been the causers of no little turmoil, and a missionary hospital of British extraction has been the storm center of trouble for this reason mainly, because the meat served to the patients was not known to be *kosher*. If the inferior rabbis could have induced or compelled the hospital authorities to employ Jewish slaughterers there would, it is stated, have been no riot, bloodshed nor arrests. A few pence difference one way or the other would have made the difference between peace or riot. The *kosher* argument, as it is called, is used as a convenient cloak for very trivial financial enterprises; a fraction of a cent per creature slain by the religious butcher, is sometimes all that comes into the coffers of the rabbi, and yet this picayune profit may become the source of much contention, confusion and sometimes of crime from the Gentile standpoint of view.

The Diazo-Reaction in the Urine of Infants.—As the result of numerous and painstaking investigations, Umikow announces in *Wratsch* (Nos. 39 and 40), that the diazo-reaction never appears in the urine of healthy infants. Fever has no influence upon its appearance. It never appears in pneumonia, diphtheria, intestinal catarrh, chickenpox, otitis media, eczema of the face, inflammation of the lymphatics, congenital syphilis, bronchitis, laryngitis, pleuritis or rhinitis. On the other hand, it is invariably present in erysipelas and measles and the more pronounced as the disease is severe. As the disease subsides, the diazo-reaction diminishes. It was sometimes observed in the prodromal stage of measles, and it persists until the end in the fatal cases, having thus great prognostic value. —*St. Petersb. Med. Woch.*, December 25.

Percussion of the Skull.—It was announced at the Italian Congress of Surgery, which concluded its sessions at Rome, October 30, that percussion of the skull is perfectly practicable and will be found a valuable aid in diagnosing. E. De Paoli and A. Mori have made an extensive study of the subject, and state that the sound obtained by percussion with the fingers is produced by the vibrations of the bone walls, the contents of the skull and the air in the buccal cavity. Any modification in the sonority indicates an intracranial lesion and also its exact location. The sound obtained by percussion of symmetric points is identical if both are normal. They introduced the yolk of an egg, blood and other substances, into the skulls of cadavers, and the variations in the percussion were instructive. Applying the results of these experiments to patients with circum-

scribed lesions, they diagnosed positively by percussion, the exact location of cerebral abscesses, hematoma under the dura mater, localized meningitis, etc., and the diagnosis was confirmed in every point by the operation or necropsy later. When percussion is painful they use the stethoscope placed on the bregma.

Memorial to Billroth.—The portrait memorial erected to Billroth under the arcades of the Vienna University was unveiled November 7, in the presence of a brilliant assemblage which included numbers of his former pupils who had traveled far to do honor to his memory. He is represented standing at the desk with the scalpel in his hand. We notice in the address of Professor Gussenbauer, his successor, the following tribute to an American; speaking of Billroth's famous motto, *Durch Klarheit zur Wahrheit*, which inspired all his scientific work, he added: "When the famous surgeon Samuel D. Gross of Philadelphia, was present at a lecture by Billroth, on 'Neoplasms,' he remarked to him, 'I congratulate myself on having heard your lecture; you talked to your students with such truth, such rare truth.' This testimony is sufficient, as it came from no less a one than Samuel Gross."

Can Order Surgical Examination in Divorce Case.—Judge Russell holds, at a special term of the supreme court, New York County, in the case of Cahn vs. Cahn, October, 1897, that, in an action for the annulment of marriage on the ground of physical disability of the defendant at the time of the marriage, and since continued, the court can direct a surgical examination of the person of the defendant, in aid of the charge which is the foundation of the action. The judge admits that the New York Civil Code does not provide for such an examination, Section 873 thereof referring only to examinations of the kind in cases of demands for personal injuries; nor does he find any decision of the courts of that State since the adoption of the Code of Procedure in 1848 which provides for such an emergency. On the other hand, the inherent power of the court has been held not to extend to an examination of the person by surgeons in an action for personal injuries. Nevertheless, he pronounces in favor of this extreme exercise of the directing power of the court, to be enforced, if necessary, by contempt proceedings. Without the exercise of such a power, he says, the court would be impotent to decree annulment of marriages obtained by fraud of this nature. The defendant could simply resist the sufficient proof, obtainable alone by an examination of his person, relying upon the well-known rule of the courts to refuse annulment of the sacred tie of marriage unless upon satisfactory proof, and thus hold the innocent consort to the perpetual burden of a marriage with a sexless husband.

Identifications of Organs for Analysis.—The evidence in a murder case fully identified and accounted for the whereabouts of certain organs from the time they were taken from the body of the deceased until they reached a Chicago toxicologist, except for the space of an hour or so when they were left sealed in the office of a physician, while he went to dinner, and while they were in transit, by the express company, to Chicago. If they were properly delivered to the express company for shipment to the toxicologist, in Chicago, as the evidence showed they were, this, the supreme court of Iowa holds, State vs. Van Tassel, October 1897, was sufficient to cover the period of time necessary to their shipment. When the physician referred to went to dinner, he left the jars, containing the organs he had removed from the body of the deceased, in his office, but he testified that they were locked up in a commode, and that he also locked the office door when he was away, and that no one was in the room while he was gone. The city marshal assisted the physician in packing the jars containing the organs taken from the body of the deceased, and, as soon as they were packed, the marshal took the box, and delivered it to the assistant express agent, who held it in his possession and had it und his immediate supervision, until it was shipped to Chicag The toxicologist received the box in the apparent condition which it was when shipped, and analyzed the contents of th jars. Surely, holds the court, this was a sufficient identific tion to justify the admission of the toxicologist's evidenc That there was some little conflict as to the number of jars sei and received, the court does not consider of itself sufficien reason for rejecting the evidence.

The Antivivisection Bill.—The following has been mailed t each senator and congressman from Illinois:

JERSEYVILLE, ILL., Jan. 23, 1898.

To the Hon. ———. *Dear Sir:* —We, the physicians of Jer seyville, Ill., earnestly urge you to oppose the passage of Sen ate Bill 1063; Calendar 138; entitled, "A Bill for the Furthe Prevention of Cruelty to Animals, in the District of Colum bia." Our reasons for opposition are these:

1. Its enactment would serve as a precedent for the passag of similar bills by the legislatures of the various States.

2. Such legislation would do irreparable harm to countless men, women and children.

3. The knowledge gained by experiment upon living animal enables us to save thousands of people that otherwise woul have died.

4. The knowledge thus gained in regard to diphtheria alone is enough to convince any one that the suffering inflicted upo the lower animals, to gain such a knowledge, has been amply repaid.

5. The aim of such experiments, is not to inflict suffering, but to ameliorate the suffering of mankind.

6. Legislation, such as Bill 1063, is directly opposed to the progress of science, the healing of wounds, and the saving of life. Therefore, we oppose it and sincerely hope that you will use your vote and influence toward its defeat.

Yours very truly,

Drs. C. DuHadway, J. S. Williams, Edward L. H. Barry, A. A. Shobe, Thomas A. Kingston, W. W. Estabrooke, C. R. Enos, A. K. VanHorne, A. A. Barnett, H. R. Gledhill, A. G. Porter, Albro B. Allen, J. W. Enos.

Doctors not the only Ones who Cannot Remove the Buried.—A North Carolina statute provides "That any person who shall without due process of law, or the consent of the surviving husband or wife, or the next of kin of the deceased, and of the person having the control of such grave, open any grave for the purpose of taking therefrom any such dead body, or any part thereof buried therein, or anything interred therewith, shall be deemed guilty of a felony." It was suggested by the defendants, in the case of State vs. McLean, they being the mayor and commissioners of the town of Burlington, with the keeper of the town cemetery, that the mischief intended to be suppressed by the statute was the desecration and robbery of the graves of the dead, and that the spirit of the statute did not, if its letter did, make it an offense for them to command, counsel, and procure the opening of a grave in an unpaid-for lot and the removal therefrom of the dead body to the free part of the cemetery. But the supreme court of the State declares, Nov. 9, 1897, that the statute is directed against all who disturb the last resting place of the dead, except those who act under the due process of law, or who procure the permission to open the graves and remove the body, from the surviving husband or wife, or the next of kin of the deceased, and of the person having control of such grave. Why, the court asks, should it be thought that the law should apply to those only who open a grave, or procure it to be done, and have removed dead bodies, for purposes of medical or surgical knowledge, or for purposes of larceny of anything buried with the body? If a surgeon can be convicted for employing a person to open a grave and remove therefrom a dead body, his purpose being to advance medical and surgical science, again it asks what reason can be urged

ainst the conviction of persons who command a grave to be ened and the body to be removed because the lot of land on ıich the deceased has been buried is not paid for by his next kin? It is hardly necessary to add, the court affirms a con-ction of the defendants in this case.

New York as a Business Community and Dispenser of Charities.—ıe Controller of the State of New York in a recent report ints out that the per capita cost of government in New rsey is $1.60; in Pennsylvania $2.42; in Massachusetts .48; while in New York it is $4.49. To this statement objec-ons have been made regarding the basis of comparison and e unreliable factor in governmental figuring in general, but hen the Controller indicates that in seventeen years the num-er of State commissions and departments has been increased thirty-six, and that the State expenditures, which in 1881 ere $9,378,214, amounted in 1897 to $26,962,705, he inevitably ises the question whether there has been a corresponding turn to the people in security and happiness. "The average tizen," says a secular contemporary, "is little, if any, better f, so far as the State government is concerned, than he was 1881, and there has been no such increase in population as warrant a trebling of expenses." "So long as it is practi-il," continues this authority, "the people will not object to ıe cost. What they do object to is the building of palaces or public institutions. The governor himself has spoken of ıis abuse, and spoken wisely. We want our dependents to ave good care, and even some luxuries, but we do not want ıoney wasted on great piles of architecture for the glory of me small town and to flatter the vanity of managers." Thus appears that neither the public nor even its meek element, ıe medical community, are receiving the benefits to which ıey are entitled, while the objects of their care and indirect ıarities are not proportionately grateful.

Fruit as a Food for the Aged.—Sir Isaac Holden, who recently ied in his ninety-first year, was neither a teetotaler nor a on-smoker. Sir Isaac was a man with theories. According) him the two great essentials for those who would live long nd be healthy, are plenty of fresh air and plenty of fruit. [is rule was never, if he could help it, to spend less than two ours a day in the open air. When he entered his first situa-on he said to his employer that he would be glad to have an our daily in the afternoon for a walk. If granted he would ot ask for any holiday, or would make up otherwise for the me so spent. This was agreed to. Sir Isaac took his walk aily, and to this, he used to say, he owed both health and ortune. In addition to fresh air he believed in plenty of fruit. ir Isaac was not a vegetarian. It was not meat but bread om which he abstained. Like Wesley, whose "Natural Phi-osophy" he studied when a boy, he saw in farinaceous food a hing to be avoided by the elderly. "I take for my breakfast," e said a few years ago, "one baked apple, one orange, twenty rapes, and a biscuit made from bananas. My midday meal onsists of about three ounces of beef or mutton, with now nd again a half-cupful of soup. If I take a little fish, I take o much less meat. For supper I practically repeat my break-ast menu." The orange was his favorite fruit. Wine he es-hewed; but on returning from the House of Commons to Queen Anne's mansions he had a tumbler of whisky and hot vater before going to bed. He took no drink with his food, ınd this obliged him to masticate well. He smoked two or hree cigars a day, from which he used to say that he derived oth comfort and benefit.—*The Life Bulletin.*

The Ohio Colony for Epileptics.—The colony for epileptics at Gallipolis, Ohio, was instituted in 1893, and Dr. H. C. Rutter ıas, in a late number of the *Charities Review*, given an inter-sting account of the methods pursued there and the beneficent esults achieved. He calls attention to the improvement in ersonal appearance and manners, produced by the mere fact of association in which a patient who has been allowed in his isolated home to pay no attention to the desires or feelings of others finds that he must exercise self-restraint; "the social influences of the institutions are manifest even in the most degraded, and especially in the younger patients." Those who have had an epileptic in the family know what a burden of care is imposed by the constant necessity of watchfulness lest the patient fall in some spot where there are hidden dangers, or from high flights of stairs, etc. Dr. Rutter calls attention to the safety that comes from many of them being together. The onset of a paroxysm is marked by a peculiar cry, and in the colony the instant that cry is heard all else is dropped and the other patients rush to the aid of the one attacked and the result is that there is seldom a serious accident. In Gallipolis no serious accident has occurred for more than two years among the more than eight hundred persons treated; and to show the value of this brotherly care, it is stated that among the 200 patients who have made temporary visits to their homes during that time no less than fourteen have met with fatal accidents and several others with serious ones. Taking all the patients in any one of these colonies together there is a great increase of happiness, and the weary unoccupied hours are lightened for them by employment, of which there are many kinds. The number of attacks have been reduced more than 300 per cent. among Dr. Rutter's patients, and at the close of the last fiscal year fifteen patients were discharged cured, *i. e.*, more than two years have passed since the last attack.

College of Physicians and Surgeons, New York.—The following changes in the faculty are noted in the *Columbia University Bulletin* for December: James Ewing, M.D., has been made instructor in clinical microscopy; Charles Norris, M.D., tutor in pathology; Frederick S. Ward, M.D., William R. Williams, M.D., and Frederick H. Floy, M.D., assistants in normal histology; William T. Neuman, M.D., assistant in bacteriology; Francis C. Wood, assistant in clinical microscopy; George P. Biggs, M.D., demonstrator of pathology. The new course in clinical microscopy, for fourth year students, has been inaugurated under the direction of Dr. Ewing. This is the first year in which hospital clinical instruction to small sections of students has been given, and the fourth year students express great satisfaction at the courses now under way. The chief feature of this instruction is the bedside study of disease, each student watching the progress of a number of patients in the hospital wards at Bellevue, getting full records of the cases from day to day, and having all the advantages of observation which are obtained by the resident staff in the hospitals. The increased facilities for instruction at the Sloane Maternity Hospital are also highly appreciated by the students. In the department of diseases of children, Professor Jacobi has added to his regular weekly clinic a new weekly hour, Fridays at 3 P. M., in the St. John's Guild Hospital, 155 West 61st street, to which he has been invited by the Board of Governors, to take classes of students for bedside instruction. The alumni and friends of the University are, however, well aware that systematic and thorough bedside instruction can not be attained before the college has its own hospital with daily attendance. The attention of alumni and friends is called to this fact in the same spirit in which the subject was empha sized by President Low in two of his annual reports. In addition to the regular clinic in orthopedic surgery, held by Professor Gibney, a special course to students, in sections of ten men each, is given by him this year for the practical demonstration of the fitting of surgical apparatus to deformities. Dr. Watson L. Savage was appointed advisor in physical training in June, 1897. During his college course at Amherst, Dr. Savage was very prominent in athletics. For several years he has been engaged in the work of physical training. Dr. Savage served three years on the Amherst Athletic Advisory Committee, and was medical director of the Columbia College

Crew for two years. The new director brings to Columbia the results of a long and varied experience in physical training. The medical school had 729 names upon its student's registry on Nov. 1, 1897.

A Missionary Hospital in the North.—The Dynevor Hospital has been established on the St. Peter's Indian Reservation in Winnipeg, chiefly for the benefit of a community of about 1200 families of red men. The sickness-rate having of late years been very heavy the missionaries of the Church of England opened a small hospital in March, 1896. This charity now consists in a dispensary, a surgery, two wards capable of holding a dozen patients, also a small emergency ward and several rooms that can be utilized for patients, when the other wards are overcrowded. The medical superintendent is Dr. Rolston, a retired fleet-surgeon, who served twenty years in the British Navy in the Baltic during the Russian war, on the North American, West Indian, Australian, and the New Zealand stations. In Canada, he volunteered as surgeon to Major Boulton's scouts, and at Fish Creek and Batoche, etc., he was conspicuous for his bravery on the field. During the first year of the hospital's existence over 1300 patients have been under treatment, thirty-two of these actually inside patients, although this latter gives a very imperfect idea, as many who ought really to be in the ward prefer to sleep away, and many during summer months come from long distances and camp (with their families) close to the hospital, all of whom require feeding, washing and nursing, more or less.

Camphor Intoxication.—The absolute fatal dose of camphor is said to be seven grams, states Barkholz in the *St. Petersburg Med. Woch.* of January 1, and then reports a case in which a young married woman took fifteen grams at once, in water, and experienced no ill effects for a couple of hours, when suddenly convulsions and acute mania developed. He was hastily summoned and applied the stomach-pump, giving later three grams of chloral and the same amount of potassium bromid. The patient rallied and recovered completely in two or three days. He explains the non-fatality of the dose by the probability that a large part of the camphor must have passed into the intestines during the two hours before its effects were felt. Here it was chemically changed into camphorol, and this was then oxidized into camphor-glycoron acid, which no longer possesses the intoxicating properties of camphor. Glycoron acid is a product of dextrin and other carbohydrates, and he mentions that in this case the patient had eaten a large amount of carbohydrates at supper, after taking the camphor. He therefore suggests that sugar administered in large quantities in camphor intoxication would be an efficient antidote. The symptoms of the present cases corresponded typically to he experimental tests with camphor described, only the convu.sions were less prominent than the psychic disturbances.

Disturbed Innervation the Cause of Lack of Compensation in Valvular Insufficiency.—A series of experiments at Budapesth, producing artificial valvular insufficiency and dividing the vagi, seem to demonstrate that alterations in the nervous system play an important part in preventing compensation in cases of valvular insufficiency. The vagus is the intermediary between the heart and the extracardiac nerve centers. After both vagi were severed in these experiments, the special nerve mechanism of the heart was sufficient to carry on the work of the organ unaided for a certain length of time, but this period was much shortened if, in addition to the severed vagi, there was also valvular insufficiency. Likewise, the heart carried on its work in spite of valvular insufficiency, when the innervation was undisturbed and even one vagus was left. The same results were obtained alike with cats, rabbits and dogs, leading to the inference that the cause of lack of compensation in a person with valvular insufficiency is some functional or anatomic disturbance in the cardiac innervation, rather than in the cardiac musculature. Numerous clinic symptoms confirm this assum tion: arhythmia, etc., and Ott's statement that he found t nerve-cells degenerated in cases of "incompensation."—*Der Med. Woch.*, January 6-13.

Tissue Changes Effected by Tuberculin.—Kasparek records t results of an important series of investigations into the acti of tuberculin on healthy and tuberculous animals. His fi object was to determine in some measure the relation betwe the reactions produced by different varieties of tuberculi Preparations were made from human and avian tuberculo by concentrating six to eight weeks' cultures to .125 or .1 p cent. of their bulk. It was found that eight times the quantity bird tuberculin was required to produce the same effect in t experimental animals (guinea pigs) as a given dose of t human product; a good deal depended on the body-weight the animal, and guinea pigs of as nearly as possible the sam weight were selected in consequence. These precautions ha ing been taken, the author was able to demonstrate that t tuberculin reaction was constant in diseased as distinguish from non-tuberculous animals. He next investigated t length of time which elapsed after infection with tuberc bacilli before the reaction was obtainable. When infecti was accomplished by the injection of bacilli into the abdo inal muscles the reaction appeared in thirty-six to forty-eig hours, at a time when no macroscopic lesion could be detecte though the bacilli were multiplying at the seat of injectio The fact that no reaction takes place at first shows that it an actual tissue change in the animal and not the mere pre ence of bacilli which renders it so susceptible to the influen of tuberculin. This is confirmed by the fact that the substit tion of an equal amount of living tubercle bacilli for the tube culin gives no reaction whatsoever. When the tuberculo infection was effected by means of inhalation no reaction w obtained until after six daily exposures of an hour each; whe ever it was obtained the animal eventually succumbed to tube culosis. This shows the extraordinary diagnostic value tuberculin. The last series of experiments consisted in t injection of tuberculin into the animals which had bee weakened previously by diphtheria toxin. Fever resulted i these cases but was not of the same type as that constitutin the tubercle reaction, than which it lasted at least five or si hours longer. Kasparek's conclusions are as follows: 1. Th tuberculin reaction occurs very early (thirty-six to thirty-eigh hours) in animals infected with tubercle, as soon, in fact, a the slightest amount of tissue change has taken place. 2. Th activity of a tuberculin preparation varies with the source fro which it is obtained. 3. The fever evoked by tuberculin i animals weakened, for example, by diphtheria toxin is distin guishable from the typical reaction by its greater duration.—*British Medical Journal.*

The Prospectus of the International Bibliographic Bureau has bee received. Its aim is no less than to supply subscribers with comprehensive card catalogue on the decimal system of a scientific publications, past, present and future on zoology anatomy and physiology. It is not a commercial undertaking the cost of subscription will merely cover the necessary ex penses, never over two francs per hundred cards, and probabl one franc or less, depending upon the number of subscribers They will be supplied with the card catalogue on white cards Brown duplicates are furnished on demand, which are substi tuted for the white cards as you acquire possession of th article or book designated on them. The white cards thus re moved serve as a separate catalogue of your private collection The bureau is associated with the "Bibliographia Anatomica" and the "Bibliographia Physiologica" edited by Prof. C. Riche of Paris. The price of the various parts of these are from si to ten francs each in book or card form. All anatomists physiologists and zoologists are urgently requested to co-operat

th the bureau, and notify them of their publications as soon they appear. This appeal is endorsed by many scientific vestigators "especially Professor Bowditch." The decimal rd catalogue system is too well known to describe, but we d an example to show its usefulness. If investigating various thods of counting the blood corpuscles we turn to Physio- gia 612; under this we find sanguis, circulatio 612.1; proprie- tes generales sanguinis 612.11; globuli 612.111, and numeratio bulorum 612.111.2, under which head we find the full titles all the articles that have appeared on the subject, including ose by Bleibtreu, Eykman, Marschner, Oliver and others th exact data where they are to be found, and mention of ose among them which are replies to others.—Concilium bliographium, Zürich, Oberstrass.

The New Formalin Test for Bile Pigments.—Prof. A. Gluzinski ites to the *Wien. klin. Woch.*, December 30, that if a little rmalin is added to human or animal bile it turns green in enty-four hours, but if boiled for a few minutes, the emer- d green appears at once. This can be changed into an ame- yst violet by adding a few drops of any mineral acid, espe- ally hydrochloric. Testing to see to which of the bile pig- ents this coloration could be ascribed, he found that if mixed ith chloroform, the green changed to violet only when biliver- in was present. He also found that biliverdin, unlike the other ile pigments, showed two absorption bands in the spectrum fter the addition of the formalin and hydrochloric acid. Alka- ne solutions of bile pigments show a still more decided green contact with formalin, changing to blue as the hydrochloric cid is added. To test urine for bile pigments, he has an equal uantity of urine in two test tubes, and boils one, after add- ng one-third formalin, when it turns green. Pouring this nto a third test tube he adds a few drops of hydrochloric acid, hen the color changes to violet. This test is extremely deli- ate, showing even in a 1 to 100–140 solution. This experience as convinced him that the bile pigment in icteric urine is lmost exclusively biliverdin.

The Intracranial Circulation in some of its Aspects.—As the result f an experimental inquiry Elder (*British Medical Journal*, Nov. 13, 1897, p. 1414) has arrived at the following conclusions: . In the unenclosed skull there are two very evident forms of ulsation of the brain: *a*, the arterial; *b*, the respiratory; the ormer produced in the arteries, the latter in the veins. 2. In he closed skull the venous side of the circulation is of the reatest importance, and respiration acting through the veins akes an important role in the intracranial circulation. 3. During inspiration in the open skull the aspiration of blood rom the cranial veins is accompanied by compression of the essels and retraction of the brain. 4. In the closed skull a imilar withdrawal of blood from the veins occurs, accompanied y decrease in the intracranial pressure. 5. There is no flow f cerebrospinal fluid from the spinal cavity to the intracranial avity, either with respiratory movement or with arterial pul- ation, as has usually been supposed. 6. In all probability, ccompanying the emptying of the large veins during inspira- ion, there is dilatation of the arteries. (This may be accom- panied by an increased rate of flow in the carotid artery as ompared with the other arteries in the body above the level f the diaphragm, which are otherwise under somewhat simi- lar conditions.) So during expiration the dilatation of the intra- ranial veins will be accompanied by narrowing of the arteries. The flow of blood through the capillaries will remain constant. 7. With arterial pulsation lateral pressure is exerted on the intracranial veins, leading to an increased flow of blood from the skull. 8. These movements of the veins, with respiratory movements and with arterial pulsation, will occur in the large veins leading into the intracranial venous sinuses, the walls of which are themselves incompressible. 9. Similar movements of alternating compression and dilatation of the arteries and veins probably occur also in the spinal column, the cavity of which is to be looked on as being practically closed, just as the cranial cavity is. 10. In all cases of sudden increase of pressure affecting both cranial and spinal cavities there will practically be no variation in the quantity of blood present in the cavities. There will only be either: *a*, a variation in the amount of blood in one side of the circulation as compared with the other, arterial at the expense of the venous, or vice versa; or *b*, an alteration in the rate of flow through the capillaries. In rises of pressure lasting some time there may be alteration of the quantity of blood inside the cavities, resulting from alteration in the rate of secretion or of absorption of cerebrospinal fluid. 11. The point of importance in alterations of pressure inside the skull is the rate of flow through the capillaries. Steady flow through the capillaries, "adiæmorrhysis," as it has been called by Geigel, may go on under very low intracranial pressure or under comparatively high (Hill). 12. Increased intracranial pressure from an effusion into the cranium; *e. g.*, a hemorrhage, leads first of all to a flow of cerebrospinal fluid from the cranial to the spinal cavity, so giving a respite for a certain length of time to the intracranial circulation. If the effusion goes on, there is first, compression of the larger veins, which leads, after it has taken place to a certain extent, to interference with the flow of blood through the capillaries, and if the pressure continues to rise, to actual compression of the capillaries and true anemia of the brain. 13. When tracings are taken of the pulsations of the brain, with rise of pressure two forms of pulse wave may be seen, 1, when wave is less ample and still anacrotic, as it is under normal conditions; 2, where wave is higher and tends to become catacrotic. The former occurs much more frequently than the latter, and seems to be present in what may be termed "passive" increase of intracranial pressure, that is, when the intracranial pressure is increased from alteration in the circulation in the rest of the body. 14. In some conditions the intracranial circulation seems to vary independently of the circulation elsewhere. This would tend to show that although the blood vessels of the brain are not generally controlled from the general vasomotor center there must be some local mechanism for altering their caliber.

Strangulated Hernia in Infancy.—Strangulated hernia in infancy is of rather uncommon occurrence. Among 139,000 children treated in various hospitals, Stern (*Centralblat für Chirurgie*, 1894) found no record of any case of herniotomy for strangulation; and of 1,900 cases operated upon for strangulated hernia in various hospitals, but thirteen occurred in children. Nussbaum operated upon two cases among a total number of 54,000 children under his care. A study of the statistics that have been collected shows that operations are more frequently called for during the earlier months of childhood than during the later, and that the symptom most commonly observed in children, or perhaps what should be called an associated condition rather than a symptom proper, is retention of urine. Reports of two cases of strangulated hernia in infants have recently appeared. The first is made by Moynihan (*Lancet*, Sept. 25, 1897, p. 788), who relates the history of a male child, twenty-two days old, in whom right-sided inguinal hernia had been noted from birth. Following an attack of crying the swelling increased in size, and attempts at reduction were unsuccessful. Within an hour the child had begun to vomit and had continued to do so at intervals that were growing gradually shorter. For about twelve hours no urine had been passed. Examination disclosed the presence of a tense inguinal hernia on the right side of approximately the size of a billiard ball. Attempts at reduction with and without chloroform anesthesia were unsuccessful, and operation was at once undertaken. The sac of what proved to be a congenital hernia, contained a little fluid and about ten or twelve inches of distended and discolored small intestine, with a point of strangulation at the neck of the sac. The inguinal rings were stretched with the finger and the gut returned, the operation being complete by performing a radical cure by Ball's method and by fashioning a tunica vaginalis from the lower part of the sac. A dressing of collodion and gauze was applied. The child passed urine during the operation. The after-history was uneventful and

recovery was speedy. The second case is reported by Cuff (*British Medical Journal*, Sept. 25, 1897, p. 811). The patient was a badly nourished and weakly child, 5 months old, that had been vomiting continually for thirty-six hours. There was complete constipation and a large hernia was present on the left side. The latter had been present from birth and was gradually increasing in size. The more recent enlargement was attributed to cough from which the little patient suffered. Examination disclosed the presence of a large, tense mass, which filled the left side of the scrotum and could not be reduced. The child looked extremely ill, kept up a continual cry, had a small, rapid pulse and vomited intermittently. The legs were kept drawn up on the abdomen. The vomit was a thin, yellowish fluid, free from fecal odor. The temperature was subnormal. Taxis failing, herniotomy was resorted to. An incision was made above and parallel to Poupart's ligament, the sac being opened and found to contain clear fluid and seven or eight inches of congested gut, which was tightly held at the neck of the sac at the internal ring. After incision of the ring and inspection of the gut, the latter was returned, with some difficulty, to the abdomen. The upper part of the sac was then dissected off the elements of the cord, a small portion left attached to the testicle and the upper part twisted up to the internal ring, its end being then brought through the internal pillar and attached there with a catgut suture. The wound was closed with a continuous silk suture and sealed with collodion and powdered iodoform. Small quantities of warm diluted milk were given at short intervals, and the child was dismissed on the twenty-second day.

The "Baldeo" Treatment of Yellow Fever.—Pena y Buelta of Trinidad, Cuba, announces that he has cured thirty-three in thirty-four severe cases by the following method: A pail (balde) of tepid water is placed at the bedside, with a kilogram of sodium sulphate, a tablespoon and a tumbler. Three tablespoonfuls of the sulphate dissolved in a tumblerful of the tepid water are administered to the patient; then, at an interval of one or two minutes he drinks other tumblerfuls, each alternate one containing a tablespoonful of the sulphate, until he has taken ten tumblerfuls and copious vomiting has been produced, with mechanical compression of the liver and gall bladder by the efforts at retching. A quarter of an hour after the vomiting has ceased repeat the process again; then half an hour after the last vomiting give the patient half a glass of water, not tepid, containing a spoonful of the sulphate; and fifteen minutes afterward another similar glass. If vomiting is produced, repeat at the same intervals until vomiting has ceased. This causes purging which cleanses the intestines. Six hours after the first attempt repeat from the beginning. Continue in this manner until the fever has vanished, using no other medication and allowing no food nor drink except water. "It will cure if commenced in the first four days of the disease, and it will cure many even at a later period. Three or four repetitions are sufficient; the eyes lose their excessive brilliancy and the skin feels cool to the hand; the patient is cured."—*El Monitor Médico*, No. 245.

Infant-Feeding.—From a survey of the attitude of the medical profession upon the question of infant-feeding, Holt (*Archives of Pediatrics*, Vol. XIV, No. 11, p. 816) summarizes as follows the points that may be considered as well established: 1. Good breast milk is the best infant food. 2. No substitute for breast milk can be trusted that does not furnish essentially the same elements, fats, sugar, proteids, etc., as breast milk. 3. These elements are found only in the milk of other animals, cow's milk being the only one that is available for general use. 4. Cow's milk requires some modification before it is fed to infants, because the proportions of the different elements, fat, sugar, etc., are not the same as in breast milk; and because some of these elements, notably the proteids, are not identical with those of breast milk. Among the important questions in infant-feeding that are still under discussion are: 1. Whether all milk should be heated and, if so, to what temperature and for what time; whether the purpose shall be mainly to destroy pathogenic germs, or to improve the keeping properties of the milk; also whether heating improves its digestibility or the contrary. 2. What the standard of a "clean milk," bacteri logically speaking, shall be; also whether the exclusion pathogenic germs by care and intelligence and a reduction the number of saprophytic forms by scrupulous cleanliness milk-production may not furnish what is needed; clean milk few hours old, which will have all the advantages of Pasteurize milk without any of its possible disadvantages. 3. Wheth such accurate modification as is measured by variations of small fraction per cent. is really essential or whether le accurate modifications may not give equally good results, pr vided the original milk is the best possible. Much is still be learned regarding precise indications for varying the propo tions of the different elements in milk-modification.

Louisville.

WATER.—Louisville is in a fair way to soon enjoy the luxur of a filtered city water-supply. The water during the recer high stage of the river has been of a chocolate color, and wa about the consistency of thin molasses, so heavily loaded wa it with mud. This is the city's experience with every hig water and the assurance that we will have filtered water befor many months is most welcome news. The investigations whic the water company have been conducting at the pumping sta tion have proven the sand filter to be the most efficacious, tak ing into consideration the rapidity of work, and the state of th water at such seasons as this. The plan is to utilize the tw big basins now used as reservoirs, as subsiding basins, wher the water will be allowed to settle sufficiently to relieve it much mud and other impurities. These basins are high enoug to allow the water to pass mechanically into the sand filters which will be above the clear water basins. From the clea water basins, into which the water runs from the sand filters the water will be pumped into an immense stand-pipe, of suf ficient height to throw the water over the highest buildings i the city. There will be from eighty to one hundred sand fil ters, each from eighteen to twenty feet in diameter, and witl three feet of sand in the bottom of each to catch the impuritie before the water reaches the clear water reservoir, which wil have a capacity of 25,000,000 gallons. The water will be treate chemically as it passes to the subsiding basins, this coagulan causing the mud to sink to the bottom and assist the filters o relieving the water of both impurities and bacteria, it being estimated that less than 50 per cent of bacteria will remain after the water reaches the mains. The entire cost of the im provements will be in the neighborhood of $300,000.

Philadelphia.

THE COLLEGE OF PHYSICIANS.—The subject of the utility of placarding houses in which cases of scarlet fever and other infectious diseases occur has recently attracted considerable attention, and it was brought up on the second instant before the college by a resolution which had been referred from the December meeting, viz., "That a committee of three be appointed by the president of the college to wait upon the board of health and represent to it the sense of this college upon the subject, and to ask that the board cease its present practice of placarding all houses in which there occur such cases of contagious disease." The question was fully discussed, the subject being opened by a paper by Dr. Arthur V. Meigs entitled "Reasons why the Placarding of Houses in which are Persons Suffering with Scarlet Fever and some other Contagious Diseases should not be continued." The discussion was opened by Dr. James Tyson. At the same meeting Dr. George Enly Shoemaker read a paper entitled "Some Results of a Series of One Hundred Abdominal Operations;" and Dr. James Hendrie Lloyd reported a "Case of Cysticercus Cellulosæ of the Brain." Dr. Henry W. Stelwagon exhibited two cases of alopecia areata.

YELLOW FEVER IN THE DELAWARE.—A slight clashing of the national and local health authorities has arisen from the fact that the U. S. Quarantine Station at Reedy Island being tem-

porarily out of service, an infected vessel proceeded up the river until boarded by the State quarantine officials at Marcus Hook, and the latter immediately took charge and proceeded to enforce the full regulations. The schooner *John H. Tingue*, after unloading a cargo of coal at Kingston, Jamaica, had gone to Black River and taken on a load of logwood for Chester. Three of the crew were found to be ill with symptoms of mild yellow fever and they were removed to the hospital. The rest of the crew and ship were cleansed and disinfected, small fumigators generating formaldehyde being used. The government quarantine station at Reedy Island was at once reopened, January 21, and the officials sent a formal request that the ship be sent down the river and placed in their charge, which the State authorities politely declined to do. It was explained that the ship had passed the Marcus Hook government station during very stormy weather and had passed the Reedy Island quarantine because it was out of service.

Diphtheria.—The yellow placard indicating the gruesome fact that "Diphtheria" is the unwelcome guest in the household, seems conspicuously out of place upon a physician's door post, and yet during the past week the friends of Dr. S. Weir Mitchell have been pained by seeing the formal notice of the Board of Health standing guard at his front door, unfortunately soon to be attended by the black flag which announced the death of his only daughter, a young lady just entering society. It is reported that Mrs. Mitchell has also been suffering with a mild attack of diphtheria. The sympathies of the entire profession and community are with the distinguished author and teacher in his great affliction.

Detroit.

At the Regular Meeting of the Detroit Medical and Library Association January 31, Dr. H. O. Walker read a paper on "Gastrectomy." After referring to Schlatter's unique case, which the Doctor denominated a "surgical freak," and reviewing the meager literature on this subject and commenting upon the use of the term gastrectomy as a misnomer for pylorectomy, the essential points in the surgical anatomy were set forth. Stress was laid upon the abundant arterial and venous supply, the numerous anastomoses of these vessels, the omental attachments on every side and the difficulty to be experienced in manipulating the duodenum or pulling down the esophagus without injuring adjacent organs. A series of twelve experiments upon dogs was reported in detail with results thereof. In two cases the Murphy button was used in joining the esophagus and the duodenum. In another case it was tried, but experiencing difficulty in this and the remaining cases the duodenum was closed either by a purse-string suture or by two rows of continuous sutures and an anastomosis with catgut sutures, made of the lower end of the esophagus at right angles with the lower end surface of the duodenum or upper end of the jejunum. The operations were performed under ether anesthesia. Strict asepsis was insisted upon, extreme care used in preventing and checking hemorrhage, but the wounds all closed without drainage. The subjects all died at intervals of from three to forty-eight hours after the operations. Fluid from two to thirty ounces was found in the cavity postmortem. In two cases the wounds were observably septic. In all the others that lived a sufficient length of time the rectal temperature and pulse were found to increase above the normal, indicating sepsis. After describing in detail the technique used, the Doctor concluded that in his experience hemorrhage was more easily controlled in the human subject than in dogs; that the operation is too dangerous for general application; that cases are rare in which it will be adopted, and that, judging from the history given, Schlatter's case was peculiarly adaptable. Success in the removal of cancerous growths of the stomach will depend upon early diagnosis. Dr. Walker presented a specimen of malignant growth of the cecum which he had that day removed from a man aged 38 years, with the following history: Patient observed in January, 1897, that his health was impaired from some cause unknown to himself or attending physician. In February a diarrhea set in and continued more or less until operated upon. In May a small tumor was felt through the abdominal wall above McBurney's point, when his physician diagnosed appendicitis. Jan. 27, 1898, the date when the Doctor first saw him, he presented a suspicious malignant cachexia with emaciation and persistent diarrhea. Tumor could be felt beneath abdominal wall without difficulty. At no time was the tumor painful. The method of operation was as follows: Straight incision six inches in length made on right border of rectus muscle. Digital exploration revealed tumor involving posterior wall of colon, extending to within an inch of ileocecal valve and upward about seven inches. The adjacent mesentery was also involved. Enucleation was tedious though hemorrhage was slight. Fourteen inches of the colon was extirpated and about two and one-half inches of the ileum. The end of the colon was closed and a right-angled implantation of the ileum into the side of the colon was made with catgut sutures. The Doctor stated that the fatality in this operation was great, about 40 per cent., largely due to shock; in fact, in several instances collapse of patient during operation was so great that it became necessary to desist from further interference. The growth had not as yet been examined microscopically, but clinically there could be no question but that it was carcinomatous.

At the Regular Meeting of the Wayne County Medical Society February 3, Dr. R. Bishop read a paper on "Special Treatment of Rectal Diseases." The Doctor believes that diseases of the rectum are too much neglected by the medical profession and so errors in diagnosis are quite frequent. He would have more thorough examination of the rectum in all cases where symptoms point to disease of the lower bowel.

At a Recent Meeting of the Faculty of the Medical Department of the Michigan University the Board of Regents was asked to instruct the superintendent of the University hospital to exclude from free hospital treatment those who are abundantly able to pay for medical service. To get an expression from the physicians of the State on this subject the different medical societies were asked to bring the matter up in regular session. This question came up before the Detroit Medical and Library Association on January 31 and before the Wayne County Medical Society on February 3, each society being unanimous in its condemnation of the methods now in vogue in the University Hospital and passed resolutions asking the Board of Regents of the University to comply with the request made by the faculty.

Hospitals.

Opening of the Maitland Hospital at New York City.—The opening of the New York Hospital for scarlet fever and diphtheria, at the foot of East Sixteenth Street, took place December 30. The hospital consists of two pavilions, forming the letter "U," each two stories in height, and built of pressed brick. The laundry and fumigating apparatus are in the center. A special feature is the solarium for the use of convalescent patients. It is situated on the south side of the building and has a wall of heavy plate glass. There is also a roof-garden. The beds are of iron, the chairs and table of agate, and the shelves of glass. The hospital was open for patients on the first of January. There are no free beds.

Evanston, Ill., has just completed her new hospital, a three-story structure, at a cost of $35,000.——The Cambridge (Mass.) Hospital is the recipient of $1,000 in memory of a former patient.——The clinic room of the Notre Dame Hospital, Montreal, Quebec, was destroyed by fire January 29. The loss, $5,000, was covered by insurance.——The will of the late Mrs. Josephine Mellen Ayer, widow of the J. C. Ayer, of patent medicine fame, leaves $50,000 to the Pennsylvania Hospital, Philadelphia.——According to the will of the late Judge

John M. Scott of Bloomington, Ill., his estate of $250,000 is eventually to found and establish a hospital in that city.—— Under the will of the late Charles H. Contoit, a wealthy New York bachelor, a large estate valued at more than $1,000,000 will fall to the benefit of nineteen hospitals and other institutions of relief and religion. Among the hospitals are St. Luke's Hospital, Tremont Home for Consumptives and St. Mary's Hospital for Children. These various beneficiaries are to receive share and share alike of the large residuary estate.

Societies.

The following meetings are noted:

Illinois.—Chicago Medical Society, February 2; McLean County Medical Society, Bloomington, January 28.

Massachusetts.—Norfolk District Medical Society, Brookline, January 25.

Michigan.—Grand Rapids Medical and Surgical Society, January 31; Northeastern District Medical Society of Michigan, Flint, February 4; Washtenaw County Medical Society, Ann Arbor.

Missouri.—City Hospital Medical Society, St. Louis, February 3; Jackson County Medical Society, Kansas City, January 27; St. Louis Medical Society of Missouri, February 5.

New York.—American Laryngological Association, Eastern Section, Albany, January 24; Otsego County Medical Society, Oneonta, January 18.

Ohio.—Northern Tri-State Medical Association, Toledo, January 27.

Pennsylvania.—Clarion County Medical Society, East Brady, January 25; Lycoming County Medical Society, Williamsport, February 1; McKean County Medical Association, Kane, February 2; Philadelphia County Medical Society, Philadelphia, January 26; Susquehanna County Medical Society, Halstead, February 1.

Texas.—Corsicana Medical Association, January 25.

Virginia.—Richmond Academy of Medicine and Surgery, January 25; Seaboard Medical Association, Norfolk, January 18.

Wisconsin.—Rock County Medical Society, Janesville, February 4.

CHANGE OF ADDRESS.

Archer, J. A., from Freeport, Ill., to De Lamar, Nev.
Ade, S. G., from 577 Fulton to 612 W. Madison St., Chicago.
Converse, E. D., from 100 to 126 State St., Chicago.
Dubs, R. S., from 100 to 92 State St., Chicago.
Foskett, W. A., from 1556 Milwaukee Av. to 298 Maxwell St., Chicago.
Jones, L. J., from 100 to 92 State St., Chicago.
Krotoszyner, M., from 41 6th St. to 700 Sutter St., San Francisco, Cal.
Looze, from Lincoln to Seymonr, Wis.
Le Fevre, E., from Sidney, Ohio, to 323 Washington St., Boston, Mass.
Miner, S. G., from Jefferson Av. to 58 Cadillac Sq., Detroit, Mich.
Reynolds, G. B., from 711 Calvert to 809 N. Charles St., Baltimore, Md.
Spaulding, H., from 3141 Rhodes to 3351 Indiana Av., Chicago.
Schaefer, C. R., from 430 to 1202 Madison Av., Indianapolis, Ind.
Toron, M., from 637 Larabee St. to Palace Hotel, Chicago.
West, M., from Atlantic City to 722 Market St., Camden, N. J.

LETTERS RECEIVED.

Boroughs, I. H., Casstown, Ohio; Bennett, Arthur G., Buffalo, N. Y.; Brown, Mark A., Cincinnati, Ohio; Bradley, C. H., Minneapolis, Minn.; Brown, F. F., New York; Bowman, F. C., Duluth, Minn.; Berry, J. T. B., Brandon, Miss.

Collier, J. M., Plymouth, Mich.; Crothers, T. D., Hartford, Conn.; Craze, J. C., Lebanon, Pa.; Chase, Arthur H., Concord, N. H.; Cleaves, Margaret A., New York; Caldwell & Co., Jno., New York.

Douglas, Richard (2), Nashville, Tenn.; De Pew, H. H., Chicago.

Ehrhardt, H., St. Louis, Mo.; Elliott, H. G., New York.

Ford, Charles, New York; Frazier, W. C. & Co., Aurora, Ill.; Fischer, L., New York.

Gregory, C. L., Yreka, Cal.

Haven, O. D., Ravena, Ohio; Hunt, C. C., Dixon, Ill.; Hudson, R. D., St. Louis, Mo.,; Hays. B. W., Gordonville, Mo.; Humphrey, Daniel, Lawrence, Mass.; Holmes, A. M., Denver, Colo.; Hummel, A. L. Adv. Agency, New York.

Jewett, R. D., Wilmington, N. C.

Knipp, H. E., Baltimore, Md.; Knapp, A. A., Brimfield, Ill.

Lucas, V. C., Cleveland, Ohio; Lerch, Otto (2), New Orleans, La.

Morrill, Chas. E., Nauvoo, Ill.; Marks, A. A., New York; McVey, W. E., Topeka, Kas.; Mills, H. R. Port Huron, Mich.; McKenzie, H. M., Elwood, Iowa; Merck & Co., New York.

Pantagraph Printing and Stationery Co., Bloomington, Ill.; Page, C. E., Boston, Mass.

Roop, H. B., Columbus, Pa.; Rio Grande Western Railroad, Salt Lake City, Utah.

Smok, C. W., Clarksville, Ohio; Sternberg, Geo. M., Washington, D. C.; Stokes, W. R., Baltimore, Md.; Squibb, E. H., Brooklyn, N. Y.; Stone, R. M., Omaha. Neb.; Sherwood, F. R., Chicago.

Taylor, R. H., Griffin, Ga.; Trade Advertising Co., The, New York.

Van Horne, A. K., Jerseyville, Ill.; Vedder, W. D., Mansfield, Pa.

Westcott, C. D., Chicago; Wingate, U. O. B., Milwaukee, Wis.; Walker, F. E., Iowa City, Iowa; Woodbury, Frank, Philadelphia, Pa.; Walker, H. T., Keokuk, Iowa.

PAMPHLETS RECEIVED.

Abuse of Medical Charity; Report to the Medical Society of the County of New York on Abuses of Medical Charity; Abstract of Proceedings of New York State Medical Association. By F. H. Wiggin of New York. Reprints from Medical News.

Angina Pectoris. By W. S. Conuery of Saginaw, Mich. Reprinted from Medical Record.

Ano-rectal Imperforation, Surgical Treatment of. By Rudolph Matas of New Orleans. Pp. 100. Reprinted from Transactions of Am. Surg. Asso.

Cerebral Syphilis; Lues Venerea; Syphilis; Syphilis of the Innocent; Treatment of Syphilis; Non-venereal Syphilis. By Henry Alfred Robbins of Washington, D. C. Reprints.

Chloroform and Ether. By D. E. Keefe of Springfield, Mass. Reprinted from Boston Med. and Surg. Jour.

Clinical Studies of the Blood in Chorea. By Charles Howard Lodor of Chicago. Reprinted from Chicago Medical Recorder.

Congenital Phimosis. By Alex. C. Wiener of Chicago.

Deficient Excretion from Kidneys not Organically Diseased and Some of the Diseases Peculiar to Women, and Diseases of the Skin. By L. D. Bulkley of New York. Reprinted from Jour. Am. Med. Assoc.

Duties of Physicians to the Profession and their Relation to the Medical Charities of the District of Columbia. By Samuel C. Busey of Washington, D. C. Reprinted from Transactions Med. Soc. of D.C.

Electric Treatment in Gout and the Uric Acid Diathesis. By Robert Newman of New York. Reprinted from Medical Record.

Examination of the Urine as a Means of Diagnosis. By Theodore W. Schaeffer of Kansas City. Reprinted from Kansas City Medical Index.

Excessive Urobilinuria Following and Apparently Dependent on the Administration of Trional, by H. D. Rolleston; Intracardiac Thrombus Rising from the Fossa Ovalis, Projecting Through the Mitral Orifice and Giving Rise to Signs of Mitral Stenosis, by H. D. Rolleston and W. Ewart; Excision of the Cecum, by H. D. Rolleston and A. Marmaduke Sheild. Reprints from Clinical Society's Transaction, England.

Hematozoon Infections of Birds. By W. G. MacCallum of Baltimore. Reprinted from Johns Hopkins Hospital Bulletin.

Laporotomy for Diseases of Women from 1879 to 1889; Personal Experiences in Laparotomy; Diseased Ova. By Mary A. Dixon Jones. Reprints.

National Health Organization and Other Sanitary Needs of New Orleans. By Stanford E. Chaillé of New Orleans. Reprinted from New Orleans Med. and Surg. Jour.

Neurosis of Gout. By L. Harrison Mettler of Chicago. Reprinted from Medical Fortnightly.

Primary Sarcoma of the Pleura, Diagnosis of, from the Cells Found in the Pleuritic Exudate; Some Experimental Investigations as to Effects of Administration of Yeast Nucleiu upon Leucocytes. By Aldred Scott Warthin of Ann Arbor, Mich. Reprints.

Pulmonary Tuberculosis; Fifty Cases Illustrating Successful Treatment. By W. H. Riley of Boulder, Colo. Reprinted from Modern Med. and Bac. Review.

Screw Worms in the Nose; Report of a Case of 207 Taken From. By Hal Foster of Kansas City. Reprinted from Kansas City Medical Index.

Strabismus in a Pure-blooded Negro. By Charles W. Kollock of Charleston, S. C. Reprinted from Ophthalmic Record.

Trade Pamphlets.

The Colorado Sanitarium. Illustrated. Boulder, Colo.

Treatise on Water Purification for Cities and Towns. New York Filter Mfg. Co., 120 Liberty St., N. Y.

Calendar. The Welch Grape Juice Co., Westfield, N. Y.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from January 29 to February 4, 1898.

Major Charles K. Winne, Surgeon, leave of absence granted on surgeon's certificate of disability is extended two months on surgeon's certificate of disability.

First Lieut. John S. Kulp, Asst. Surgeon, will report in person on Feb. 22, 1898, to the president of the examining board appointed to meet at Vancouver Bks., Washington, for examination as to his fitness for promotion.

Major Egon A. Koerper, Surgeon, is relieved from duty at Ft. Crook, Neb., to take effect upon the expiration of his present leave of absence, and will then report in person to the commanding General, Dept. of the Platte, for duty as chief surgeon of that Department.

First Lieut. Benjamin Brooke, Asst. Surgeon, is relieved from temporary duty at the Army and Navy General Hospital, Hot Springs, Ark., to take effect April 6, 1898, and will then repair to Washington, D. C., and report in person on April 12, 1898, to the president of the examining board, for examination as to his fitness for promotion, and upon the completion of his examination will report in person to the Adjutant General of the Army for orders.

A board of officers to consist of: Lieut.-Col. William D. Wolverton, Deputy Surgeon-General; Major John Van R. Hoff, Surgeon; Capt. Frank K. Keefer, Asst. Surgeon, is appointed to meet at Vancouver Bks., Washington, on Tuesday, Feb. 22, 1898, at 10 o'clock A.M. or at such time thereafter as practicable, for the examination of such officers of the Medical Department as may be ordered before it, to determine their fitness for promotion.

A board of officers to consist of: Col. Charles H. Alden, Asst. Surgeon-General; Major James C. Merrill, Surgeon; Capt. George D. DeShon Asst. Surgeon, is appointed to meet at the Army Medical Museum Building in Washington, D. C., on Tuesday, April 12, 1898, at 10 o'clock A.M. or at such time thereafter as practicable, for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion.

The following named officers will report in person to the president of the examining board appointed to meet at the Army Medical Museum Building in Washington, D. C., for examination as to their fitness for promotion, and upon completion of their examinations will return to their proper stations: First Lieut. Alexander N. Stark. Asst. Surgeon; First Lieut. Charles Lynch, Asst. Surgeon; First Lieut. Edward L. Munson, Asst. Surgeon; First Lieut. Charles E. B. Flagg, Asst. Surgeon; First Lieut. James M. Kennedy, Asst. Surgeon; First Lieut. Guy C. M. Godfrey, Asst. Surgeon; First Lieut. William F. Lewis, Asst. Surgeon.

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ADDRESS.

THE OBLIGATION OF SECTION MEMBERS TO THE AMERICAN MEDICAL ASSOCIATION.

TOGETHER WITH A HISTORY OF THE SECTION ON LARYNGOLOGY AND OTOLOGY.

Chairman's Address delivered in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY W. E. CASSELBERRY, M.D.

CHICAGO, ILL.

The honored custom of an address from the chair affords opportunities for suggestion looking to the welfare of our organization which would not find expression in any set paper or general discussion. I might with propriety and no little pride point to the expansion in recent years of the department of laryngology and otology and the influence wielded by this Section of the AMERICAN MEDICAL ASSOCIATION in the development of these sciences. I might dwell on the advantage of the fellowship and acquaintance which is engendered by our annual assemblies, the opportunities afforded to associate the personality of the author with the subject matter of his essay and to hear his defense if criticised in debate. But our present gathering is in the nature of a semi-centennial reunion and it is fitting, in fact it has been suggested by the Committee of Arrangements, that in each Section a brief historic sketch should be presented in recognition of the past and as a guide for the future. In the case of our own Section, one of the youngest, this history need not detain us long, and before proceeding therewith I would refer briefly to another topic: "The obligation of Section members to the ASSOCIATION as a whole," which seems equally appropriate at this fiftieth anniversary, as it particularly concerns the future welfare of the ASSOCIATION.

I have noticed on the part of Section members, a wide-spread disposition to refrain from participation in the proceedings of the general meetings. A few are overcome by modesty in the presence of men better versed in parliamentary tactics and perhaps, in years, their seniors; many are so engrossed in the strictly scientific aspects of medicine as to be more than willing to leave in other hands its material prosperity, while still others affect a disdain of what they are pleased to term "association politics." These sentiments are neither fair to the ASSOCIATION nor to yourselves, for as members of the general body you are not only responsible for, but bound by its action. The program reserves time for attendance and I would urge upon Section members the forethought to qualify in advance as voting delegates, to interest themselves in these meetings and to exercise the franchise. There, are discussed those larger and wider subjects relating to general medicine, surgery and sanitation, continued familiarity with which serves to broaden the mental trend, and there also are enacted resolutions pertaining to professional policy and ethical principles.

Some have decried the necessity for any "Code of Ethics" such as is formulated by the AMERICAN MEDICAL ASSOCIATION, but its observance in the past has maintained individuals in closer touch with the great professional body and facilitated on the whole the affiliation of State and county societies. But its purpose is unification, not discord, and while exemplary, in every article save possibly one, the unhappy fact remains that this single clause has served to estrange the members and sympathizers of a prominent New York medical organization, who honestly differ in opinion. I am not presuming to pass upon the propriety or impropriety of this clause, the point I urge being that in order to secure adjudication of this and other important questions by an actual or representative majority of the ASSOCIATION, the Section members should participate to the fullest extent in the proceedings of the general meetings. The very men who find their highest interests in the Sections, those most potent in promoting the satisfactory numerical and scientific status, which on this occasion we celebrate, are best qualified to judge of modern professional needs. On all important questions let them express a majority verdict and then let every member loyally acquiese.

Historical Sketch of the Section.—For several years prior to the formation of the present Section of Laryngology and Otology at Cincinnati in 1888, the upper respiratory tract had been represented in the Section of Ophthalmology, Otology and Laryngology, but under this composite arrangement the subject languished, for at the Chicago meeting in 1887, where your present chairman first acquired membership, only three papers pertaining to it were read. Meanwhile an agitation headed by Dr. W. H. Daly of Pittsburg, was in progress for the separation, not only of laryngology, but also of otology, from ophthalmology, and the coupling of the former together in accordance with natural affinities. There would have been no objection to the independence of laryngology, but one is curious to discover by what *finesse* the ophthalmologists were finally induced to part with otology in their organization, for at that time every ophthalmologist was also an otologist. I am indebted to Dr. Daly for the explanation. He says: "For some years I had labored to this end finding it quite impossible of accomplishment, but at Cincinnati, with the efficient aid of Dr. X. C. Scott of Cleveland, an ophthalmologist, or rather from his personal friendship for me, I got him to withdraw his opposition. Dr. Seiler was there and helped us much. At the election of officers there were fifteen or sixteen present. They thought I (Dr. Daly) should be the first president and I being very desirous of giving the new child a

good start in the world, was anxious to have Dr. Ingals for secretary, and I made no mistake."

In the official record of the fourth day of the general meeting at Cincinnati in 1888, is found this entry: "Dr. Wm. Porter of Missouri and others called up the amendment to the constitution offered by Dr. Carl Seiler in 1884 and now asked for by the Section of Ophthalmology. The action was agreed to and a new Section of Laryngology and Otology was created."

The first meeting under the new organization was held at Newport in 1889, where the auspiciousness of the occasion was noted in an excellent address from the Chair entitled, "Marking an Era in Laryngology." At that meeting Dr. J. H. Bryan of Washington gave promise of the fame he has since acquired in the treatment of affections of the collateral sinuses of the nose in a paper on "Abscess of the Antrum." Dr. J. O. Roe of Rochester was one of the first to note the importance of the lingual tonsil under the title "Glandular Hypertrophy at the Base of the Tongue," while Dr. Jonathan Wright indicated the pathologic trend of thought, which has since distinguished him, in a study of "Nasal Bacteria in Health." Drs. Lawrence Turnbull, J. N. Mackenzie, C. W. Richardson, W. Freudenthal and others were represented, altogether ten excellent papers being contributed at the initial meeting eight years ago. A glance at our present program shows growth; this number of ten has been multiplied by eight, certainly a satisfactory development.

In the following year, 1890, at Nashville, Dr. J. O. Roe presided as chairman and the late Dr. F. H. Potter as secretary. The meeting is memorable chiefly by reason of "positively the last appearance of the ancient controversy over the identity or duality of croup and diphtheria. Fortunately Klebs and Löffler, by bacteriologic studies have made it unnecessary to longer discuss that point. In 1891, at Washington, Dr. Chas. H. Burnett made an early report on the progress of aural surgery in an important direction entitled, "Excision of the Membrana Tympani, the Malleus and Incus as a means of Treatment in Otitis Media Catarrhalis Chronica and in Otitis Media Purulenta Chronica." Dr. Carl Seiler served as chairman and Dr. A. B. Thrasher as secretary. In the following year, 1892, at Detroit, Dr. Burnett presided and terminated his address with this excellent injunction: "Let us assemble here, impart to one another what we know and aid one another in the search for more truth, for in the words of Lessing, 'Not by the possession of truth, but by the search after it are the faculties of man enlarged, and in this alone consists his ever growing perfection.'"

The meeting at Milwaukee, in the year of the Columbian Exposition, under the leadership of Dr. E. L. Shurly as chairman and Dr. J. E. Boylan as secretary, is memorable for a faithful adherence to a lengthy scientific program, notwithstanding the distractions of the World's Fair in a neighboring city. Dr. Herman Knapp's paper on "Cases of Empyema of the Ethmoid Cells and Sphenoid Sinuses" was one of the earliest and most convincing contributions to the study of ethmoiditis, a phase of rhinology since recognized as of transcendent importance.

The assemblies at San Francisco in 1894, Baltimore in 1895, and Atlanta in 1896, over which Drs. E. F. Ingals, J. F. Fulton and G. V. Woolen, respectively presided as chairman, and J. F. Fulton, T. J. Gallagher and M. R. Ward as secretary, are all of such recent memory as to render special mention unnecessary, except to testify to the enthusiasm, earnestness and equally high standard of their contributions to the great fund of medical lore.

Gentlemen of the Section of Laryngology and Otology now assembled in ninth annual session, may I trust that this brief record of our past may serve as an inspiration for the future. I see before me many familiar faces, men to whom I extend sincere assurances of appreciation for the high honor which they have conferred upon me, but I see also others, men who are identifying themselves for the first time with our Section, and to them I extend the right hand of fellowship with our warmest welcome. In the search for more truth, let us profit liberally by each other's experience and endeavor to realize Emerson's conception of power: "A cultivated man, wise to know and bold to perform is the end to which nature works."

ORIGINAL ARTICLES.

THE SO-CALLED BLEEDING POLYP OF THE SEPTUM.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY NORVAL H. PIERCE, M.D.
CHICAGO, ILL.

I have been constrained to select this subject for my paper because in looking over the literature I have found but few instances of American writers having recorded cases of this pathologic condition. That the subject is important is proven by the circumstances surrounding my first case, the history of which is given below.

The patient was a male child, 6 years old, living in the southern part of Illinois. Six months before I saw him he had been operated on for a tumor of the septum, which had bled at frequent intervals for two months previously. The neoplasm was diagnosed sarcoma, was removed with a snare, and the toxins used. There had been the usual reactions and after two months the child was pronounced cured. But the bleeding having returned, the child was brought to me. On examination I found a tumor the size of a large pea projecting from the septum on the left side two mm. from the floor of the nose and about at the point where the triangular cartilage joins the vomer. The attachment was pedunculate. The color of the tumor was dark bluish, intermingled with red. It bled freely when touched with a probe. The tumor was removed with the cautery snare. The bleeding was unusually profuse, but was easily controlled by pressure. As I suspected the nature of the case I did not cauterize the base any further. The subsequent microscopic examination confirmed my diagnosis. It was what is known as a bleeding polyp of the septum or *fibroma polyposum fungoides teleangiectodes* (*septi narium*).

The second patient was a maiden 15 years old, healthy and well nourished. She complained of discharge from the nose and recurrent hemorrhages which showed a tendency to correspond with her menstrual periods. On examination I found a tumor projecting into the left chamber from the septum a few millimeters above and a little anterior to the attachment of the former. It was the size of a French pea, markedly pedunculated and bled easily when touched with a probe. The tumor was removed, but not cauterized.

'he patient disappeared from observation for a year. he then returned, with a history of frequent attacks f copious epistaxis. Indeed, in appearance she was uite anemic, and microscopic examination of the lood proved this to be a fact. Examination showed recurrence of the tumor at the same place. It was gain removed with a knife, and the base cauterized ıoroughly with chromic acid. It did not recur, the ɔistaxis ceased and the patient immediately recovered om her anemia.

I present herewith microscopic slides from both of ıese cases. From the second I have a microphotoraph.

We have then a subject that, viewed either from a ıeoretic or practical standpoint, is of especial rhinogic moment. We have not here a myxoma. This ay be detected by its external appearance *in situ.* gain, we do not have the epistaxis from the myxoma. believe Mackenzie's dictum to be right that "only very rare cases is the septum the site of the affecon." He evidently referred here to the myxomatous



hyperplastic variety. In short, we have a pathoic manifestation. It always develops on the tissue ering the triangular cartilage, the same region ich is the site of that strange process, the idiothic perforating ulcer, the nature of which I believe be still unrevealed.

Victor Lange in 1892 drew attention to the disease a contribution to the *Wiener Med. Presse* (No.), and reported six cases.

n 1893, Otto Schadewaldt (Laryngologische gesellaft zu Berlin) reported three cases.

n the same year Arthur Alexander reported three es occurring in the practice of B. Fraenkel.

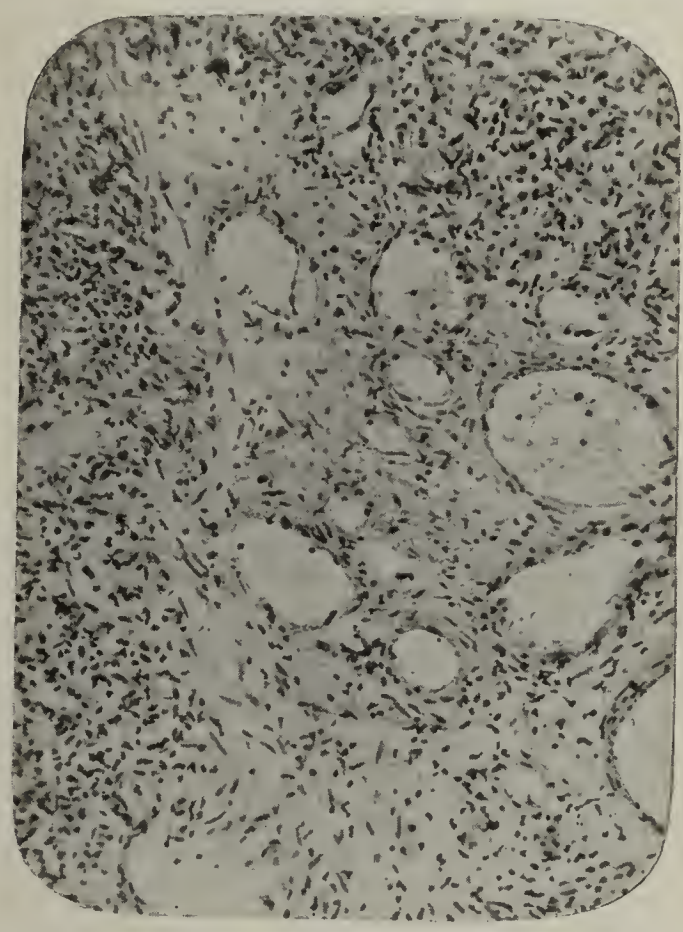
At the same meeting Max Scheier reported two cases l P. Heyman reported five cases.

With my two the total is twenty-one cases.

The great frequency with which these tumors were tated on the left side of the septum was remarked by Lange; out of the six cases reported by him were on the left side. And this peculiarity is borne out by further experience. Out of the twenty-one cases, among which I include my own, in fourteen the growth occurred on the left side, in seven on the right side.

As to sex, we see that Schadewaldt tends to ascribe great importance to the influence of sex. Out of fifteen cases in which the sex was ascertained eleven were females and four males. So that it would appear that the growth occurs with much greater frequency in females than in males. That it occurs more frequently about puberty there can be no doubt. The second decade of life seems to be especially prone to it, eight cases occurring between the ages of 20 and 25. One of my cases, the 6 year old boy, is the youngest patient reported that I am aware of; 51 is the oldest.

The shape, surface, color and mode of attachment of the tumor are constant within narrow limits. It is round, is finely or coarsely granular, according to the age of the tumor, a dark bluish, purplish or reddish color, and is attached by means of a very short and, in comparison to the bulk of the tumor, slender



pedicle. To the unaided eye the large tumors may appear to have a broad base of attachment, so short is the pedicle, but the probe gives more accurate information. In size it may vary from that of a small lentil to a hazel nut.

The most constant symptom is recurrent hemorrhage. Whatever the size or age of the tumor, this is always present. The epistaxis may be great or slight. When the tumor reaches dimensions sufficient to block up the nasal chambers, symptoms of nasal dyspnea may arise.

The microscopic pathology is emphasized by the accompanying cuts.

Dr. G. Fuetterer examined the specimens for me and gives the following description:

Specimen 1. The surface is covered with polymorphous epithelium arranged in a single layer for the most part; in places, however, the epithelium is increased to several layers. Beneath this the ground substance commences, which viewed with a low power appears to be homogeneous throughout the whole tumor. Under a higher power, however, the fibrillary character is discerned. Equally distributed through this ground substance are large spindle-shaped cells, having large deeply stained nuclei, which have been cut in all directions, showing their

interwoven arrangement. The tumor is highly vascularized, and in the center are numerous cavernous spaces, lined with flat endothelial cells.

Specimen 2 shows nearly the same morphology, except that the blood in the cavernous spaces may be much more readily demonstrated.

Treatment: The tumor should always be removed. Victor Lange recommends the sharp spoon, but this method is liable to spoil your specimen. The snare, hot or cold, will serve very well; if the wire be thin and flexible hardly any difficulty may be experienced in extirpating it *in toto* with one attempt. Then too,



the hemorrhage is liable to be profuse, and before trying extirpation we should be prepared for this. A small quantity of ferripyrin in powder on a piece of cotton, held against the bleeding point, will cause the hemorrhage to cease instanter. The base should be well cauterized with chromic acid.

DISCUSSION.

DR. FREUDENTHAL—Dr. Pierce did not find any mention of similar cases in American literature. Dr. Roe and Dr. Cobb have published cases, and I also published two cases, two years ago. One of my cases was an angioma. Regarding treatment, I apply my nasal bag filled with ice, thus preventing severe hemorrhage. This I did with much success in one case, a few months ago.

Dr. COBB—I think bleeding polyp of the septum is known under the head of angioma, and about eighteen cases are reported. At the Pan-American Congress I reported a case with the literature as far as I could learn it. In this case there was no recurrence, but I believe that angioma does sometimes degenerate into sarcoma.

Dr. ROE—As a case of angioma of the nose which I reported three or four years ago has been mentioned in the discussion, I will simply say that the growth was exceedingly vascular and occupied the greater portion of the left nostril, extending about two-thirds toward the posterior portion. I first tried to remove the growth with a galvanic cautery snare, but the attempt was followed by such profuse hemorrhage as to necessitate the packing of the nose. I then tried the cold wire Jarvis snare and succeeded in removing the growth without hemorrhage. The patient was a man about 60 years old. After encircling the growth with the snare I instructed him how to turn the nut on the snare so as to cut through very slowly, and to stop the instant that any bleeding occurred, and when this ceased to turn the nut again. In this manner we consumed I think about two hours in the removal of the growth. After the removal I cauterized the base with chromic acid. After about six months there was a slight recurrence of the growth, which I removed in the same manner. I then lost sight of the patient, but about six months afterward learned that he died somewhat suddenly of anemia, characteristic of malignant growths. In this case the tumor started as a purely benign growth, as a microscopic examination of the portion first removed showed it to be a true angioma; while that which reappeared six months later showed sarcomatous elements, indicating that the growth had developed from a benign to a malignant one. We can not, however, positively say that the malignant elements may not have been in the deeper structures or in the base of the first growth, although at that time they were not apparent.

Dr. PIERCE—My case was neither an angioma nor a sarcoma but a telangiectoma. I am opposed to the idea of a benign tumor degenerating into a malignant tumor.

SOME NOTES CONCERNING THE INFLU ENCE OF SEXUAL EXCITEMENT UPON INTRA-NASAL DISEASE.

Presented to the Section on Laryngology and Otology, at the For eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY CHARLES PREVOST GRAYSON, M.D.

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PHILADELPHIA, PA.

When some certain offense against personal hygie is generally recognized as one of several possible co tributing causes of a disease, it would seem but re sonable that inquiry concerning it should become matter of routine, and that in the event of its co plicity, it should receive in the plan of treatment t degree of prominence it merits. It is a matter common knowledge that sexual excitement, frequent repeated and prolonged, can occasion a great deal vascular disturbance within the nose. With the pr duction of such excitement through the olfacto sense, I am not now concerned. It is with the rever of this phenomenon that this paper is to deal. fugitive coryza quickly following upon the heels of venereal debauch, is an instance of this, though it i more than usually pronounced illustration of the effe of erotic excitement upon the nasal vasomotor mecha ism. Lesser degrees of the same effect, however, a of much more frequent occurrence, I suspect, th many of us believe, and it is because of their f quency and the influence they exert in aggravati existing nasal disease and in hampering the action local or general treatment directed to its cure, th that they become worthy of some special study.

Among the whole of our patients, it is in but comparatively small number that we find sex excitement an active cause of trouble. For the sa of convenience, they may be grouped within t fairly well defined classes. First we have a numb of young people whose exposure to it is largely in cent—one might almost say legitimate. I mean th who are on the brink of wedlock, those who are ava ing themselves of the privileges which custom acco to the preliminary betrothal. Thackeray, in "Shabby Genteel" story, refers to them as "those w are legally engaged in sighing, gazing into another's eyes, hand-squeezing, kissing, and so fo (for with such outward signs I believe the passion love is expressed)." This transition stage betwe celibacy and marriage is one of acknowledged ri Long engagements have, for many excellent reaso been denounced time and again, and the intima the excess of tenderness which too commonly acco pany them, are accountable for much suffering b immediate and remote. As long as "the flesh and Devil" are mixed up with human love affairs, so lo as the average man's love is so strongly sensual a so feebly spiritual, so long will protracted enga ments be baneful.

It will be my endeavor to show by a single exam how the nose and its diseases may be affected by emotional turbulence of this pre-nuptial period. is that of a young woman whom I first saw in O ber, 1893. She had had attacks of hay fever in e of the three preceding years and following the on 1893 she had developed symptoms of asthma. nasal examinations disclosed a pair of turgesc inferior turbinates, while those immediately ab them were found greatly hypertrophied and along

wer margin of the left a fringe of budding polyps. hese latter were thoroughly eradicated with the ırette and the bodies themselves reduced by a few ›petitions of chromic acid cauterization. The erec- le tissue of the lower turbinates regained its full ›ntractile power under simple astringent medication, ıe asthmatic paroxysms ceased, and the next two ›ars passed with no recurrence of the hay fever. he early months of last year, 1896, were spent in lorida, and when my patient returned to Philadel- hia she was wearing an engagement ring. The man ı the case was barely twenty-five, a veritable Romeo ı the ardor of his passion, and blessed with enough ealth and virility for two ordinary men. The ıgagement had been of but slightly more than two ıonths duration when the young woman reappeared ı my office with a complaint of renewed nasal dis- ›mfort. The middle turbinates were again mark- lly hyperemic and the lower greatly engorged and rominent. Two or three weeks of the local treat- ıent that had previously been successful in reducing ıese latter, made very little impression upon them ow, and a threatened return in the early summer of ıe hay fever symptoms induced me to send for the oung man and persuade him to assist me in my ffort to relieve the sufferer, by becoming considera- ly less demonstrative of his affection for her. Par- nthetically, it may be hinted that sexual intercourse ven though carried to considerable excess, is less rovocative of damage to the nasal erectile structures, ıan frequent and prolonged sexual excitement which ›mains ungratified. For so young a man this one ›ceived my remonstrance very sensibly, exercised ıore self-restraint than I had expected, and with the ›sult that within a couple of weeks the engorged urbinates had shrunken almost to normal, the hyper- mia of the middle ones was scarcely noticeable, and here was an entire subsidence of nasal symptoms. 'he inference is unmistakable. Nothing would be ained by the addition of other examples more or less eiterative of this one, but I may be pardoned for lluding to the tact that is essential in securing the o-operation of one or both of the young people with- ut hurting their feelings or giving any offense. A achelor is by no means necessarily a misogynist, and would not be suspected of wishing to dim the rightness of "love's young dream," but if one of the reamers chances to have any catarrhal condition of he upper air tract, a few judicious words counseling atience before and moderation after marriage may, f heeded, be preventive of a decided aggravation of uch condition. I pass to the consideration of a econd, the members of which, however, are far from eing as innocent as those of whom I have just spoken. t is composed of the man-about-town, single or mar- ied, youthful or mature, the sybarite, the voluptuary, he libertine. Whatever we may choose to call him, .e is a very numerous personage and though he may scape those specific diseases which so frequently oughen the way of this variety of transgressor, yet, ooner or later, his nose may become the humble gent of retributive justice. The man who enters a hysician's office with a venereal disease anticipates he kind of questions he will be asked and is gener- lly willing to answer them unreservedly, but he who omes to the rhinologist with merely a complaint of asal respiration, of more or less rhinorrhea, and of, erhaps, some dull frontal headache, is apt to be stonished and, not unlikely, resentful, if he be closely questioned concerning his sexual morals. I do not know whether it is dread of the patient's displeasure or simply a want of appreciation of the frequency and potency of this genetic factor in the history of func- tional nasal disturbance, that leads to the omission of such inquiries, but will it be denied that they are the exception rather than the rule? The exercise of a little discrimination, of, perhaps, a little common sense, will protect a large proportion of our male patients from being subjected to an investigation of this nature, but in many others there will be fair rea- son to suspect moral laxity, and in these, there should be no hesitation in either confirming the suspicion or in taking the fault for granted and dealing with it frankly and vigorously.

Without having treated any great number of such cases, I have met with sufficient of them during the past few years to open my eyes to the fact that some early failures to effect in them decided and permanent improvement, were due to my failure to recognize and remove the principal cause of their annoying symp- toms. A brief reference to the patient who first enlightened me on this point may be of interest.

He was a widower just turned 40, handsome, well- read, widely traveled; a man of most versatile clever- ness, an excellent musician, something of an artist, and an occasional writer of very fair verse. All these merely personal details are distinctly relevant, because they are the very things which make a man *persona grata* to the other sex and which consequently expose him to greater temptations than his less attractive fellow. In such men, therefore, we may look much more confidently for easy virtue as an exciting cause of nasal trouble, than in those to whom nature has been less kind. This man recited a list of symptoms that was suggestive of enfeebled vasomotor control over the circulation of the pituitary membrane. There were brief intervals during which he was com- paratively comfortable, but the greater part of the time he was seriously annoyed by nasal obstruction, by marked hypersecretion, by occasional paroxysms of sneezing, and by some dull frontal headache. An accompanying marginal blepharitis also testified to the intra-nasal irritation. His statement that he had already endured considerable treatment was amply confirmed by my rhinoscopic examination. His tur- binates, both inferior and middle, presented an array of galvano-cautery cicatrices that reminded one of the scarred faces of the German duelists. This seemed to have been the favorite local treatment, but in addi- tion, a fancied neurotic temperament had been assailed with many pills, a suspicion of gout had been threatened with drowning by gallons of lithia water, and, finally, some one had tapped both his antra through the inferior meati as a sort of forlorn hope. It was only a happy accident that saved me from the fate of my predecessors. A review of the treatment he had received yielded me little hope of finding any- thing of promise that had not already been tried. The end of a month of tentative local treatment, of regula- tion of diet, exercise, and some other matters of per- sonal hygiene, found us but little beyond the point from which we had started. But just at this critical juncture when I could detect some slight signs of dis- appointment and failing confidence on the part of my patient, a bit of scandal came to my aid. It was the whisper of an intrigue in which my patient was play- ing the rôle of Juan. At our next interview this Lovelace admitted without any reluctance the habit-

ual looseness of his conduct with women. He made no attempt to conceal his amused incredulity when I charged this vice with being largely responsible for his nasal discomfort, but he agreed nevertheless to give virtue a month's trial. Not to rob this remedy of any possible credit, all other treatment was for the time suspended. Brief as it was, the period of probation proved more than sufficient to vindicate my faith in the prescription, and I was able to dismiss my patient with the assurance that his best safeguard against future return of this trouble, would be a rigid observance of the spirit as well as the letter of the Seventh Commandment. It is always my endeavor to be as sparing as possible in the use of drugs, but in cases such as this, where from long disuse, self-control has undergone a shameful enfeeblement, the bromids or any of the other anaphrodisiacs may be utilized to dull the vicious appetite, until sufficient will power is regained to completely conquer it.

DISCUSSION.

Dr. MACKENZIE—The relationship between over-indulgence of the sexual powers and morbid conditions of the throat, eye and ear has been recognized from a very early period. The fact is about as old as literature itself, but the pathologic relation between the nose and the reproductive apparatus is a matter of recent recognition. The first attempt to reduce the subject to a scientific basis was made by me some fifteen or sixteen years ago, and I subsequently published the result of my observations in the *American Journal of Medical Sciences* for April, 1884. Subsequent observations made, among others, by Arviset, Ischwell and Joal in France and by Peyer, Endries and Fliess in Germany have only served to sustain the positions taken in my original essay. Fliess has written a very elaborate monograph on the subject. The phenomena observed furnishes food for reflection not only for the physiologist and pathologist, but also for the biologist. In contemplating them, we are brought face to face with a most interesting enigma—a problem of life whose biologic significance it must be the task of the future to divine. Dr. Grayson's cases furnish additional corroborative evidence of a most important physiologic relationship.

DIFFICULT DEFECATION IN INFANTS.

Presented in the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY THOS. CHAS. MARTIN, M.D.

Lecturer on Diseases of the Rectum in the Cleveland College of Physicians and Surgeons (Medical Department of the Ohio Wesleyan University), Surgeon for Diseases of the Rectum in the Cleveland General Hospital, Member of the American Medical Association, Member Ohio State Medical Society, Member Cleveland Medical Society, Member Cuyahoga County Medical Society, etc.

CLEVELAND, OHIO.

I should be unmindful of the history of human experience should I harbor the hope that the several affirmations set forth in this paper would be accepted without disagreement by a body of medical men. Remembering, however, that there is very little progress in knowledge except along lines where soundest casuists doubt, I propose for discussion the problem of difficult defecation in infants.

It is generally recognized that infants strain at stool.

The infant strains at stool because of the imperfect development of the anatomic features concerned in the mechanism of expulsion. These are as follows:

1. The infant's lower gut is muscularly deficient.
2. Its mobility within the abdomen is obstructive to defecation.
3. The rectal valves are obstructive.
4. The infant's anus not being sufficiently expansible is also obstructive.

The specimens of infant recta and sigmoid here shown are the first taken in my research on this subject, and are fairly illustrative of the facts upon which the foregoing declarations are based. The large specimens examined are those of adults and are typical.

The dried specimens shown in plates 3, 5, 7, 9 and 20, were prepared by flushing the intestine and then fixing the subject in the genu-acromial posture; the anus was then fixed open and melted paraffin was injected under about twelve ounces pressure. When hardened that portion of the gut occupied by the cast was removed[1]. Specimens shown in plates 11 and 12 were prepared by placing the subject in the dorsal decubitus and by opening the descending colon; the intestine below was then washed out and the colon perforation fixed at the abdominal wound, which save for this point was sewed up, the anus was tied up and as much melted peraffin as would enter under two pounds' pressure was forced into the gut; subsequently the sigmoid and rectum were removed as in the other cases. After immersion in alcohol the specimens were varnished.

The following are the memoranda of the autopsies made in this study:

Case 1.—Female, still-born; height 16 inches (40.64 cm.); circumference at anterior superior spinous process 7½ inches (19.05 cm.); anterior superior spinous process diameter 3 inches (7.62 cm.); ensiform to pubes 4 inches (10.16 cm.); transverse diameter pelvic outlet ¾ inch (1.90 cm.); peritoneum at last vertebra of coccyx. (Plate 3.)

Case 2.—Female, age 1 hour, height 17 inches (43.18 cm.); circumference at anterior superior spinous process 7½ inches (19.05 cm.); anterior superior spinous process diameter 2½ inches (6.35 cm.); ensiform to pubes 4 inches (10.16 cm.); transverse diameter pelvic outlet ½ inch (1.27 cm.); peritoneum at last vertebra of coccyx. (Plate 5.)

Case 3.—Male, age 1 month, height 23 inches (58.42 cm.); circumference at anterior superior spinous process 9 inches (22.86 cm.); anterior superior spinous process diameter 3½ inches (8.89 cm.); ensiform to pubes 4 inches (10.16 cm.); transverse diameter pelvic outlet ⅝ inch (1.59 cm.); peritoneum at last vertebra of coccyx.

Case 4.—Female, age 6 weeks, height 24 inches (60.96 cm.); circumference at anterior superior spinous process 10½ inches (26.67 cm.); anterior superior spinous process diameter 3 inches (7.62 cm.); ensiform to pubes 5½ inches (13.97 cm.); transverse diameter pelvic outlet ⅝ inch (1.59 cm.); peritoneum at last vertebra of coccyx. (Plate 9.)

Case 5.—Female, age 2 months, height 20 inches (50.80 cm.); circumference at anterior superior spinous process 8 inches (20.32 cm.); anterior superior spinous process diameter 3 inches (7.62 cm.); ensiform to pubes 3½ inches (8.89 cm.); transverse diameter pelvic outlet ¾ inch (1.90 cm.); peritoneum at last vertebra of coccyx. (Plate 20.)

Case 6.—Male, age 6 months, height 24 inches (60.96 cm.); circumference at anterior superior spinous process 10 inches (25.40 cm.); anterior superior spinous process diameter 4 inches (10.16 cm.); ensiform to pubes 5 inches (12.70 cm.); transverse diameter pelvic outlet ¾ inch (1.90 cm.); peritoneum at last sacral vertebra. (Plate 11.)

Case 7.– Male, age 6 months, height 24 inches (60.96 cm.); circumference at anterior superior spinous process 12 inches (30.48 cm.); anterior superior spinous process diameter 4 inches (10.16 cm.); ensiform to pubes 5 inches (12.70 cm.); transverse diameter pelvic outlet ¾ inch (1.90 cm.); peritoneum at first bone of coccyx. (Plate 12.)

Case 8.—Male, age 17 months, height 25 inches (63.50 cm.); circumference at anterior superior spinous process 12 inches (30.48 cm.); anterior superior spinous process diameter 4 inches (10.16 cm.); ensiform to pubes 6 inches (15.24 cm.); transverse diameter pelvic outlet 1 inch (2.54 cm.); peritoneum at last sacral vertebra. (Plate 7.)

Examination of the pictures of the dried specimens reveals that the wall of the infant rectum and sigmoid flexure is thin compared to that of the adult. (See plates 3, 5, 7, 9 and 20.) It is impossible to distin-

[1] For more particular description of the method of preparation see paper by the writer in Mathew's Quarterly Journal of Rectal and Gastro-intestinal Diseases, July, 1896.



FIG. 1.—The rectum of an adult; muscular bands are seen to be well developed. Filled in the procto-colonoscopic posture.



FIG. 2.—The rectum of an adult; muscular bands are seen to be well developed. Filled in procto-colonoscopy.



FIG. 3.—The rectum of an infant, stillborn; muscular coat undeveloped. Filled from below.

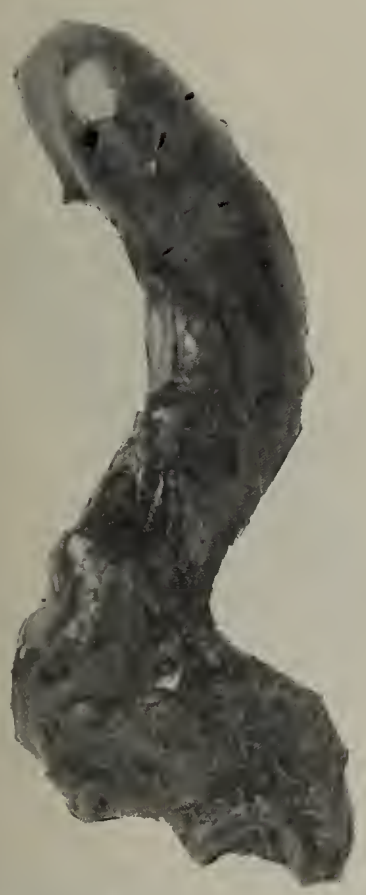


FIG. 4.—Side view of the specimen shown Fig. 3. Antero-posterior angulation at ird sacral vertebra.



FIG. 5.—Front view of the rectum of an infant aged one hour, autopsy while in a state of rigor mortis. The rectum being nearly perpendicular and the sigmoid almost tied in a knot. Filled from below.



FIG. 6.—Side view of the specimen shown in Fig. 5.

uish the longitudinal muscular bands which are so pparent in the gut of the adult. (See plates 1, 2, 7.) In the fresh state the mucous membrane conitutes a great part of the thickness of the gut wall the infant, and the mucous membrane and muslar coats are more intimately adherent than in the adult. The infant gut is very deficient in muscular elements, therefore the intrinsic power of peristalsis can not be present in that degree necessary to it as a component factor of defecation.

The relations of the peritoneum to the rectum of the infant, also contribute to the difficulties of defeca-



FIG. 7.—Front view of the rectum of an infant aged one month; autopsy while in a state of rigor mortis. Filled from below. Two-thirds life size.

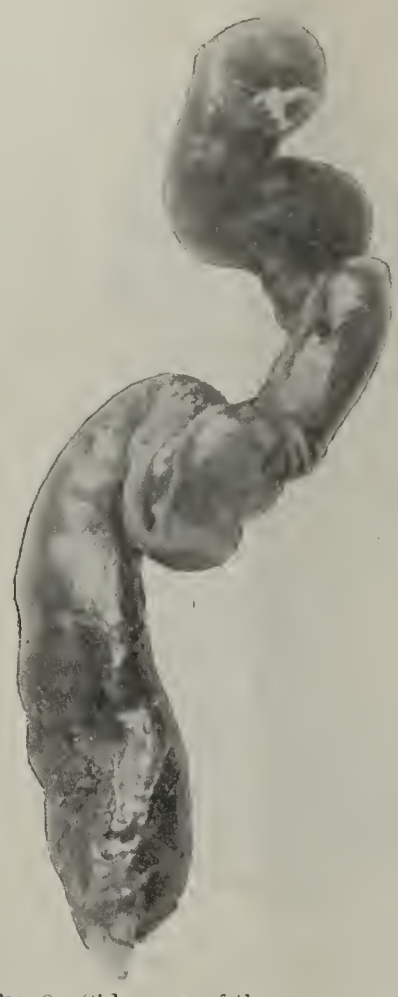


FIG. 8.—Side view of the specimen shown in FIG. 7.



FIG. 9.—Front view of the rectum of an infant aged six weeks. Filled from below.

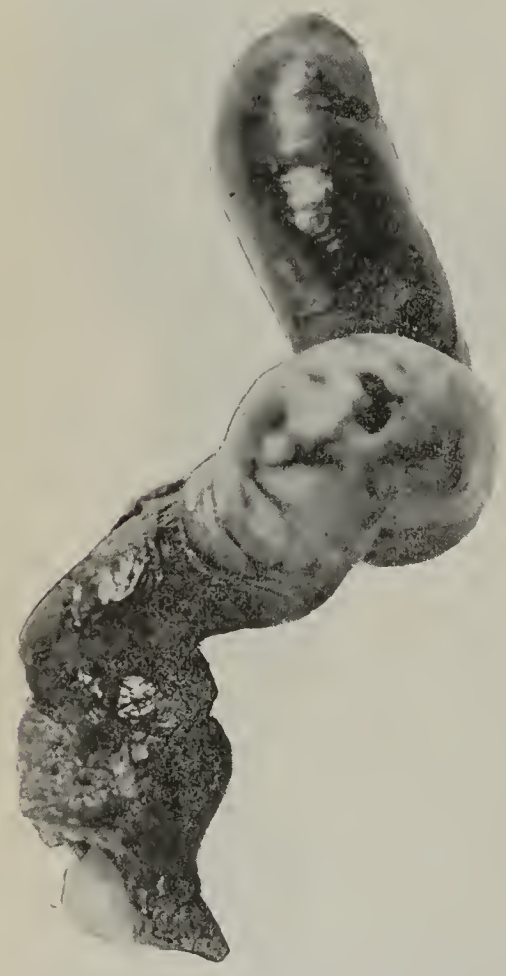


FIG. 10.—Side view of the specimen shown in Fig. 9.

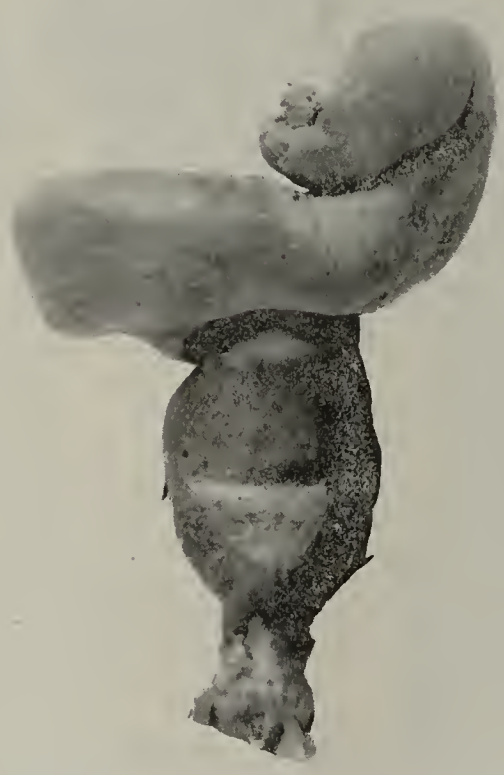


FIG. 11.—Front view of the rectum of an infant aged six months. Filled from above after disappearance of rigor mortis. Two-thirds life size.



FIG. 12.—Front view of the rectum of an infant aged six months. Filled from above after disappearance of rigor mortis.

tion, as also does the relatively great length of the descending colon and sigmoid flexure.

In the child the mesentery of the sigmoid flexure and rectum is disadvantageously long. In young children the length of the sigmoidal mesentery from its attachment to the parietes to its invagination of the lower loop of the sigmoid is often greater than the distance from the promontory of the sacrum to the distal bone of the coccyx. (See plates 13, 14.) From the sigmoido-rectal juncture to the beginning of the middle third of the rectum the mesentery rapidly shortens but apparently completely invests the upper third of the rectum. The middle and lower thirds are not so completely invested and present upon their

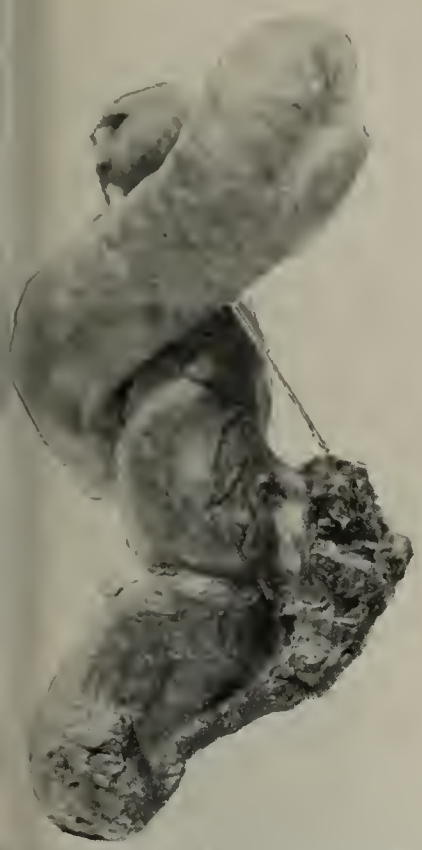


FIG. 13.—Side view of specimen shown in Fig. 12. The mesentery from sacrum and coccyx to the rectum is fairly well shown, but is shown shorter than in the fresh state, alcohol immersion, varnishing and drying having shrunken it. Observe also how nearly the peritoneum approaches to the anus.



FIG. 14.—The reverse of the view shown in Fig. 13.

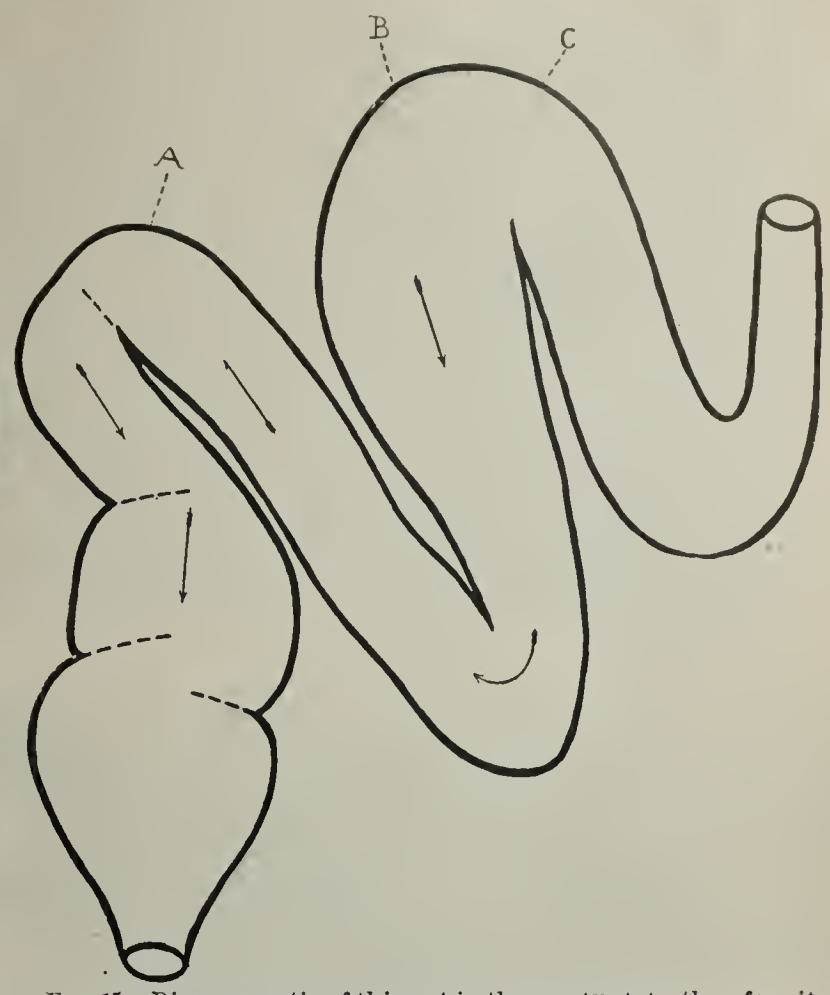


FIG. 15.—Diagrammatic of this gut in the empty state, therefore its flexions are not the same as those shown in the photographs. In the partly filled state, which is the condition about the time of defecation, the flexions and positions of these parts would be intermediate to those of the filled and empty conditions. (The dotted lines indicate positions of valves.)

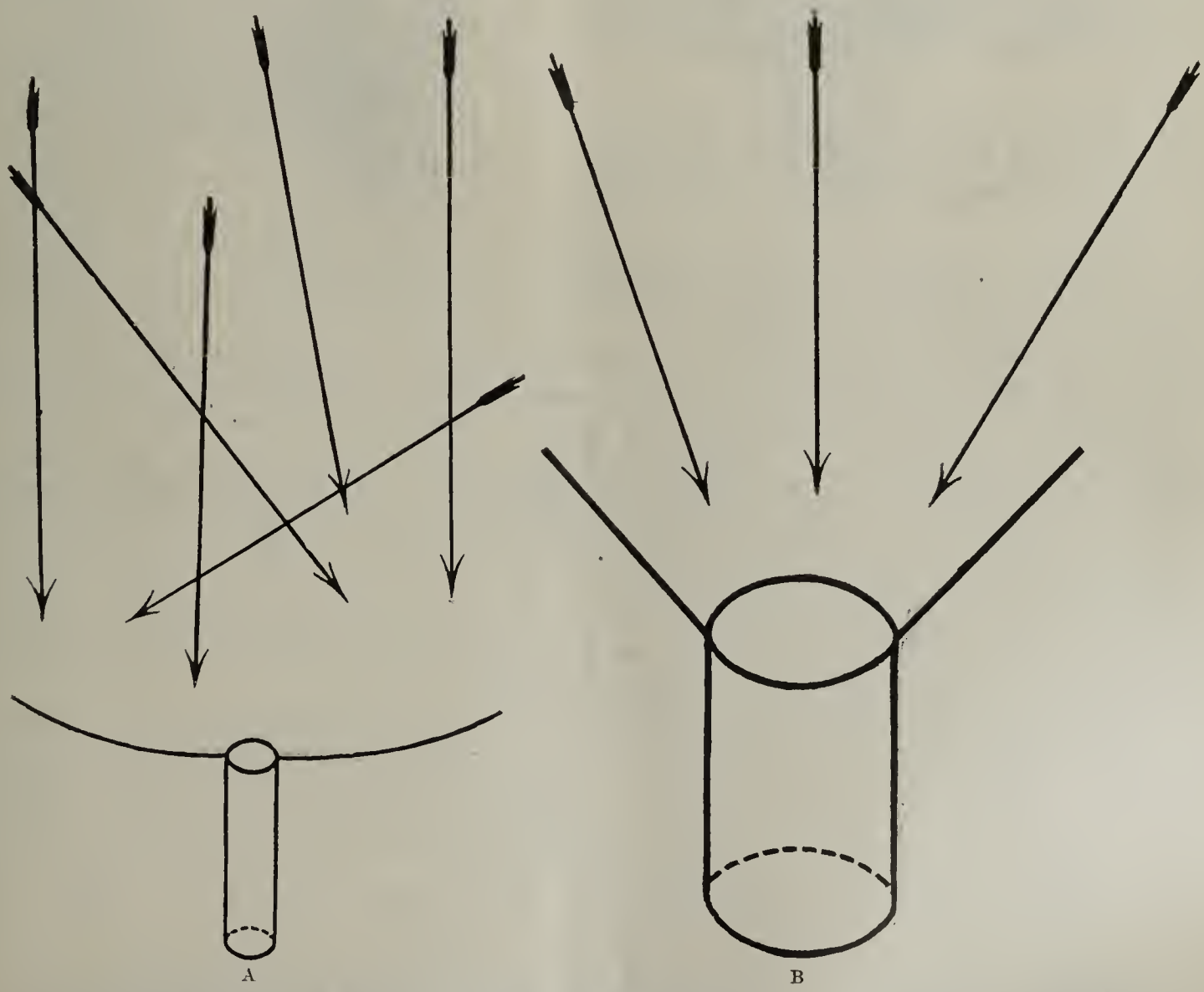


FIG. 16.—Diagrammatic, showing direction of forces and resistance in infant (A) and adult (B) and in defecation.

posterior parts a vertical lane bare of peritoneum, from the borders of which the peritoneum is reflected in lateral directions. This uncovered part of the gut is not applied directly to the sacrum and coccyx, and there is a space between which is occupied by loose connective tissue. The distance from the dorsal parietes to the gut is variable here, being from one-half to one-fourth of an inch (1.27 to .63 cm.) At the beginning of the middle third there is usually a gradual decrease in the length of the peritoneal band as it descends till it is one-eighth or possibly but one-sixteenth of an inch (.32 or .16 cm.) in length at the last bone of the coccyx; it rapidly shortens from this point to its termination. The parietal peritoneum descends over the ischial tuberosities and approaches nearly to the ental sphincter muscle. In the newly born the peritoneum is situated within one-fourth inch (.63 cm.) of the anal skin. (Observe plate 13.)

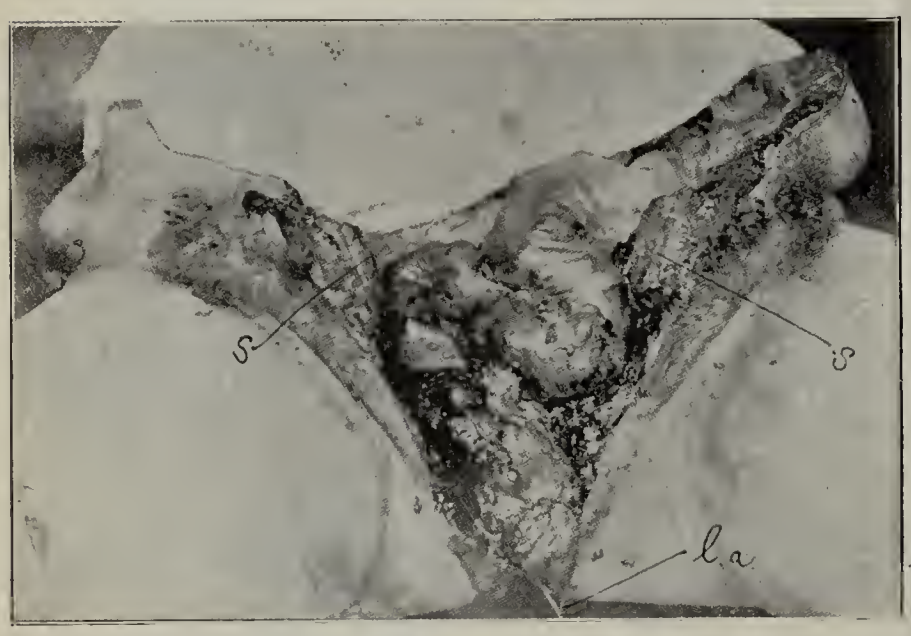


FIG. 17.—Photograph of a female cadaver showing, after laparo-symphyseotomy and removal of bladder, uterus and adnexa, the upper rectum and sigmoid packed with scybala; ss, symphysis pubis; l a, ligature at anus. The shorter mesentery of the adult, perhaps, keeps the greater portion of the sigmoid flexure above the ileo-pectineal line that it may not escape the auxiliary forces of defecation. It is noticed that the sigmoid is more than normally distended. Quarter life size.

The disproportionate great length of descending colon and mesentery of the infant obviously contributes to the possibility of angulation of the gut.

We see in the presence in the child of lax and long, or relatively long, peritoneal ligaments, and in the great length of the descending colon and the consequent probability of numerous acute angulations in the infant sigmoid and rectum, and in the mobility of these parts within the abdomen, the possibility of development of a perfect adult mechanism for defecation. The essential features of this development are two; first, the growth of prostate or uterus and their supports which fix the lower rectum; and second, the down-growth and out-growth of the pelvic bones and the consequent conversion of mesenteric peritoneum to parietal peritoneum, which shortens the adult mesentery and in great measure fixes the upper rectum; thus the entire rectum is steadied to facilitate discharge when the mechanism of defecation is set in operation.

The diagrammatic plate 15 does not exaggerate these obstructive elements. The collateral muscles which assist in the performance of the act of defecation force the feces in the direction of the lower angle in each flexion, and in that flexion whose onward, or to be paradoxical, whose downward direction for the time points upward (plate 15), the auxiliary pressure is in the direction opposite to that of peristalsis.

Inspection of the pictures of the dried specimen reveals the angulations referred to, which may be expected to be more numerous the more segmentary the gut's contents.

The third feature obstructive to defecation in infanti is the rectal valve. It is a feature and factor which not only is not recognized, but is one whose very anatomic existence has been most ingeniously and persistently disputed. It was imperfectly described as an anatomic feature of the rectum by Mr. Houston in the Dublin Hospital Reports in 1830, and many years later Dr. Walter A. Otis (1887) more practically demonstrated its presence; neither of these gentlemen, however, attributed to it the characteristic element of an anatomic valve, although bestowing upon it its proper name. A number of investigators have discovered



FIG. 18.—Interior view of the left half of the rectum of an adul Filled in the procto-colonoscopic posture, and distended only to th degree of normal atmospheric inflation. The anus is at the left of th picture. The valves are respectively two and one-half and seven inche (6.35 and 17.78 cm.) from the anus. One-half life size.

this normal contracture of the ampulla and have mis called it by various names and given it widely varying descriptions; but a greater number still deny it existence and critically strive to dissolve away th imperfect evidence recorded in medical literature[2].

The pictures here shown of the dried specimen prove that in the infant the valve is such a matter o fact that its existence is no longer a matter fo debate.

In each and every instance of more than three hun dred persons examined by me these valves have bee present, though in varying number and position i different subjects[3]. In most cases there are presen three valves, in some there are four and in others ther are but two.

I have marked that by some law of compensatio

[2] See Monograph by the writer on New Evidence that the Rectal Valv is an Anatomical Fact, John P. Morton and Company. Louisville.
[3] See paper by the writer, Procto-colonoscopy, etc., Mathew's Quarter Journal of Rectal and Gastro-intestinal Diseases, July, 1896.

the fewer the number of valves in a given subject the better are they developed.

The infant specimens shown indicate that the valves are particularly well developed at birth. The specimen shown in plate 20 is marked by two valves in the so-called ampullar region, situated so close together that the middle portion of the rectum presents its longest diameter at right angles to the main direction of the gut. Another valve may be seen at the juncture of the upper portion and the sigmoid flexure.

The specimen shown in plate 18 is that of an adult, and presents two valves on the left and one on the right which is not exhibited. As these valves usually span more than half the circumference of the rectum it will be understood that in specifying their situation I refer to their central part. In many cases they are situated on the anterior and posterior walls, and their free borders are always directed a little obliquely, contributing a spiral direction to the channel of the rectum. The depth of the valve from free border to the



FIG. 19.—The rectum the same as is shown in Fig. 17, divided into anterior and posterior halves. Amp., anal end of ampulla; ss, sigmoido-rectal communication; xx, x'x', a semilunar valve dividing the middle and upper portions of the rectum; m, the beginning of a semilunar valve on the right of the posterior wall, and m'm', the same valve continued over the anterior wall; h h, a small valve not prominent because of the empty state of the gut at this point; b b', sigmoido rectal valve; n, a portion of mesentery. One-half life size.

border attached, is usually about one-third the transverse diameter of the inflated rectum, and the valve is about one inch (2.54 cm.) in depth at its deepest point. Inspection of the photograph of the adult specimen (shown in plate 19) which was taken from the subject without disturbing its scybalous contents, shows that the valve may be found in systole (*vide* xx, x'x) or diastole (*vide* m, m'm').

The microscopic section which is here shown was taken from the middle of the lower valve of the adult specimen. (Plate 18.) In the illustration (plate 18) it is shown magnified fifteen diameters. The thickened state of the mucous membrane over the free border of the valve fortifies that point against the increased friction which that part must necessarily bear. Beneath it is noticeable the heavy layer of fibrous tissue which gradually diminishes till it is lost at the valve base. Bundles of circular muscular fibers are seen in the middle of the valve. At its base are seen arteries and veins for its special nutrition. This structural arrangement makes this organ the typical anatomic valve.

Speaking with anatomic accuracy the rectum is divided into as many portions, plus one, as there are valves in the rectal ampulla; for example, the rectal ampulla may be said to begin just below the angle which marks the termination of the sigmoid flexure. If there be two valves below this point, that part of the rectum above the higher one of these two valves must be considered the upper or first portion of the rectum, that part below the higher valve and extending to the lower, the middle or second portion, and that part of the rectum below the lower valve and terminating at the levator ani may be called the lower or third portion. Should a rectum have three valves, or perhaps but one, not counting the one at the sigmoido-rectal juncture, that subject's rectum accordingly should be considered to have four or two portions. Therefore if we recognize the existence of these valves in the rectum the conventional division into upper, middle and lower thirds, which is employed by the anatomists should be abandoned.

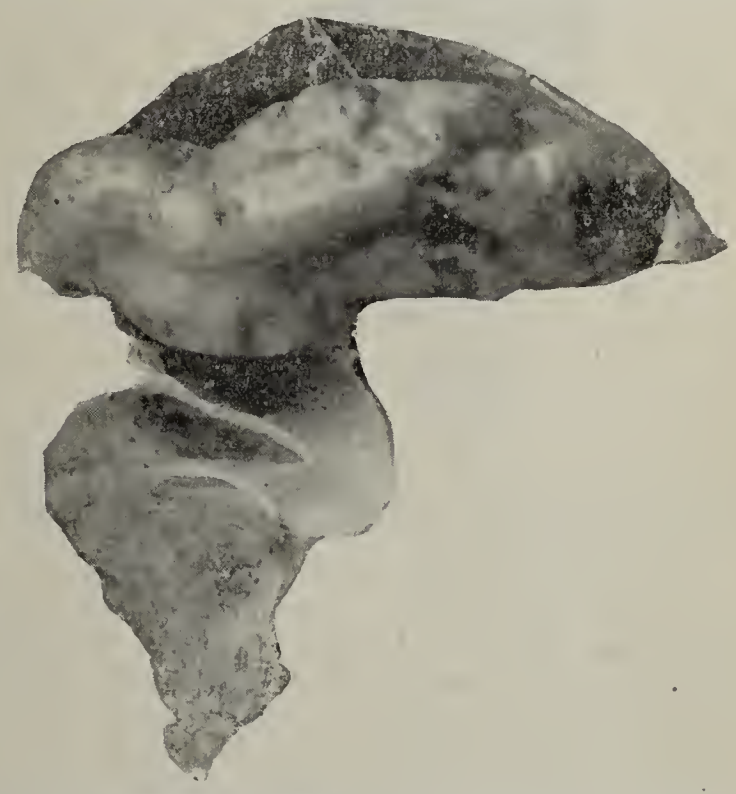


FIG. 20.—The rectum and sigmoid of an infant aged two months. The photograph shows the interior of the anterior half. Portions of two valves are noticed at the middle part.

It must be readily seen that the presence in the rectum of such a structure as an anatomic valve would be essentially obstructive to the passage of feces.

In studying the physics of the rectum it is important that we recognize that the posterior wall from which the mesentery is reflected is less movable than other parts in the circumference, hence distention of the rectum not only tends to carry a given point of its wall away from a point opposite to it, but also carries it away from a given point cephalad or caudad. So it may be assumed that if the two valves situated at the ampullar middle of the cast-distended dried specimen (plate 20) are three-eighths of an inch (.95 cm.) separated, and that the two opposite walls of the rectum in the portion bounded by these valves are one inch (2.54 cm.) apart, that in a state of the gut's collapse or systole, the valves would be in contact, and thus afford a very definite obstruction to the descent of semi-solid feces.

The bony pelvic outlet in the infant is so contracted that the limits of anal expansion are such as to almost defeat the passage through it of other than fluid feces. It should be remembered that the normal average measurement from ischial tuberosity to ischial tuber-

osity in the adult is about four inches (10.16 cm.), and it is a fact proven by our observation that the average transverse diameter of the newly-born infant's pelvic outlet is but a little more than one-half inch (1.27 cm.), the pubo-coccygeal measurement is even less. Those who are familiar with instrumental divulsion of the adult anus have observed that two and a quarter inches (6.35 cm.) is the average limit of lateral separation of the anus, the remaining portion of



FIG. 21.—The interior view of the opposite posterior half of the rectum shown in Fig. 20, the two valves shown in Fig. 20 being continued toward each extremity of the ampulla. The sigmoid is out of focus.

the bony outlet being filled with the compressed soft tissues of the ischio rectal space. Therefore it may be estimated that nine-sixteenths at most, of the diameter of the pelvic outlet is the reasonable limit of expansibility of the anus for the passage of feces. Applying this calculation to the infant we find that if the ischial tuberosities are one-half inch (1.27 cm.) separated, that the anal expansibility is but five-six-

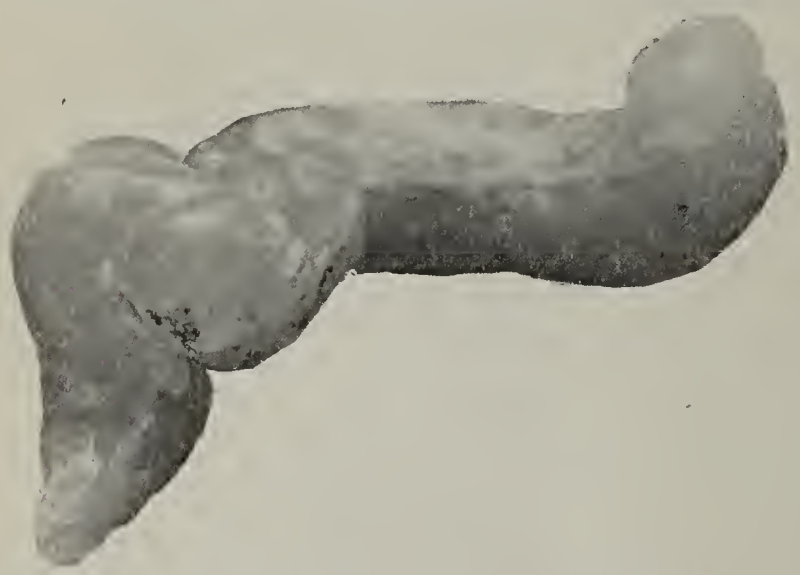


FIG. 22.—The paraffin cast removed from the gut pictured in Figs. 20 and 21.

teenths of an inch (.79 cm.), which is, as we know, the diameter of a No. twenty-two sound (French scale). Reference to the paraffin cast of the infant gut (plate 22) indicates that the average distensibility of the sigmoid flexure and rectal ampulla, in which the feces when firm are formed, is four or five times that of the anal expansibility; thus it is readily perceived that compared to the adult the juxtaposition of the ischial tuberosities in the infant supplies a most obstinate obstructive factor in defecation.

To collate in brief:

1. The muscular development of the adult rectum and lower sigmoid is plainly apparent in the plates here exhibited of the fresh specimens. A deficient muscularity is observed in the infant specimens.

2. The peritoneum of these parts in the adult is observed to be relatively, very considerably shorter than that in the infant[4].

3. The rectal valves appear to bear the same proportion to the gut in both adult and infant, but when we remember the difference in muscular development in the two the disproportionate resistence of the valve in the infant rectum is obvious.

4. The anal expansibility is remembered as adequate in the adult, and is seen to be deficient in the infant.

Co-relative to the facts just stated we must recognize that the adult rectum has resident within its own wall a powerful expulsive muscular mechanism; that the shortening of the mesentery holds the upper rectum



FIG. 23.—A semilunar valve taken from the specimen shown in Fig. 18, drawn as seen under a glass magnifying fifteen diameters. A, mucous membrane; B, fibrous tissue; C, bundles of circular muscular fibres; D, vein; E, artery; F, vein; G, artery; H, areolar and adipose tissue.

steady under the applied auxiliary forces; that the angulations of the sigmoid are not necessarily obstructive, though in a desirable measure retardative; that the forward incline of the lower sacrum and coccyx behind, and the development of the uterus and prostate and their inherent supports in front, provide the lower adult rectum with a firm funnel-like arrangement which guides the feces directly upon the os internum of the anus; that the valves divide the feces into portions to facilitate their separate successive discharge, and finally in sequence, that the physiologic descent[5] of the structures of the ischio-rectal space reduces this last resistence to the minimum in adult defecation.

Straining, the ruptures and prolapses, constipation,

[4] See Andrews' Surgery of the Rectum, table of peritoneal relations to adult rectum.

[5] Chadwick, Transactions American Gynecological Society, 1877.

retention of feces and the multitudinous consequent ills have demanded our patient inquisitive consideration: and this study forces the conclusion, I believe, that the individual's escape is ultimately assured by process of development, but that for the normally formed infant, the physician will find the solution of the problem of difficult defecation in the solution of the stool.

1077 Prospect Street.

MEDICINE AND THE STATE.

From a paper read before the Contemporary Club, Davenport, Iowa, Nov. 18, 1897.

BY C. H. PRESTON, A.M., M.D.
DAVENPORT, IOWA.

Just half a century has passed since, in 1847, Liverpool, and soon after, London—fearing a cholera invasion—appointed the first medical officers of health in Great Britain.[1] The next year, the dread scourge having made its appearance, a central board was established, and today, to quote Palmberg's *Public Health*: "Of all the countries of the civilized world none has a sanitary code so complete and so precise as England." That its provisions are respected by all and, as a rule, religiously observed, he rightly ascribes to the fact that they are the work of the people themselves and not mere administrative orders but little understood.

The sanitary administration of England is placed, in accordance with the public health act of 1875, in the hands of a government board acting together with boards locally established. The former consists of a president appointed by the crown, a parliamentary and a permanent secretary, together with various secretaries and high officials of state acting as advisory members. Its work is divided among the general departments of poor-law administration, the sanitary regulation of buildings, of factories, of sewers and streets, water supply, vaccination and other matters pertaining to public health,

Complete as is its present organization however, there is a movement now on foot to place it on a yet higher plane.[2] A motion will soon be made in Parliament, it is said, that "in the opinion of the House of Commons it is desirable that a department of public health be constituted and that the same be under the charge of a responsible minister having a seat in Parliament."

In this country the first step in state medicine was taken in 1849, when a commission was appointed by the governor of Massachusetts to prepare for a sanitary survey of that State.[3] But the Massachusetts State Board of Health, the first active State board to be formed in the Union, was not established until 1869. Meanwhile, in 1865, the State of Louisiana, in order the better to cope with an invasion of yellow fever, had appointed what was actually the first State board, though it possessed but very limited powers. At the present time all but ten of our fifty-one Federal divisions, including the District of Columbia, have each its more or less active board of health, all working together for the general welfare, while local boards under them, everywhere co-operate for the sanitation of cities and towns.[4] The ten exceptions are Alaska, Arizona and the Indian Territory, Georgia, Idaho, Montana, Oregon, Texas, Utah and Wyoming. Georgia formerly possessed a State Board, but allowed it to lapse for lack of an appropriation. Texas, though without a State Board, maintains a State Officer of Health.

But the United States has today no national board or department of health. The first step was indeed taken toward the nationalization of health in this country March 3, 1879, when an act of Congress to prevent the introduction of contagious or infectious diseases and to establish a national board of health was approved.[5] The board thus authorized, however, had but four years of active existence. It consisted of eleven members, seven appointed by the President and one each detailed from the Medical Department of the Army, the Medical Department of the Navy, the Marine-Hospital Service and the Department of Justice. It had no definite term of office and its duties, beyond gathering and disseminating information, were advisory merely. An act approved June 2 of the same year somewhat extended its powers but was limited to the four years succeeding, at the end of which period—Congress refusing to re-enact—the board ceased practically to exist and the act establishing it was at length formally repealed Feb. 15, 1893.

The place of a national board is now filled in part by the Marine-Hospital Service, a bureau of the Treasury Department, aided by the Bureau of Animal Industry of the Agricultural Department.

The Marine-Hospital Service was established in 1798, but placed on its present basis in 1871.[6] Its purpose was to care for the sick and disabled seamen of the merchant marine. In default of a national department of health, however, other duties and responsibilities have from time to time devolved upon it, giving it an anomalous position in the government, without definite scope or determinate power. The Revenue and Life-Saving Services depend upon it for the physical examination of their officers and men; it assists the Steamvessels Inspection Service by examining pilots for color-blindness; it is entrusted with the execution of the national quarantine laws, the management of the eleven national and the inspection of all local quarantine stations and with power to enforce inter-state quarantine regulations; it investigates reported cases of epidemic disease, collects and disseminates mortality statistics and sanitary information and makes investigations (bacteriologic, etc.) into the causes of disease; it examines immigrants for the existence of contagious diseases and has service in consul's offices at foreign ports to secure accuracy of bills of health given.[7]

The Bureau of Animal Industry investigates as to the existence of communicable diseases of stock, superintends measures for their extirpation and pursues investigations as to their nature and means of prevention. It has charge of the inspection of import and export cattle, vessels of export and stock quarantine stations, and supervises the inter-state movements of live stock and their slaughtered products.[8]

But when all is said, both bureaus remain and must remain subordinate organizations, subservient in part to other interests than those of health.

Another organization which has done and is doing much to promote and harmonize sanitary work in and between the States is the American Public Health Association, a body composed of the leading sanitarians of the United States, Canada and Mexico. But it is wholly without government authority or support.

The need for a sanitary head with which other nations could confer and co-operate authoritatively and promptly, which should co-ordinate, supplement and assist, but in no way supplant the several State boards, has long been felt; and various bills for estab-

lishing such a head, mostly crude and imperfect, have from time to time been introduced in Congress. In the closing hour of the last meeting of the AMERICAN MEDICAL ASSOCIATION a committee, appointed in 1891 to consider and report on this subject, brought in and recommended the most complete bill yet offered.[9] It was approved and they were instructed to present it before Congress at their discretion and to urge its adoption. The bill, as formulated, provides at much length for the establishment of a department of health which shall succeed to the present sanitary duties and powers of the Marine-Hospital Service, and of which the latter shall constitute a subordinate bureau, continuing its appropriate work. But by this bill the head of the new department is made a commissioner merely and not, as was the original intent of the ASSOCIATION, a secretary and one of the President's cabinet advisers.

Such is the existing status. Let us turn now to a consideration of some of the work waiting to be done by a department of health when it shall be established.

Our yellow fever epidemic of the past season, with its needless sacrifice of life and its prolonged interference with business interests—the latter costing the city of New Orleans alone, as estimated by the *New York Herald*, over $25,000,000[10]—forcibly illustrates the importance of greater national quarantine powers in dealing with incipient epidemics, which may well develop into national calamity.

Quarantine measures had their beginning in the twelfth century, when the Republic of Venice, after suffering repeated devastations by cholera, sought thus to protect itself against infected Asiatic ports,[11] and from that time they have held a first place in national sanitation. But to be effective, quarantine must be prompt and inclusive, must be broadly national in its scope. No local interest must have power to prevent or delay.

Another most important field, but partially occupied at present, is that of biologic research. Carried on to some extent, as we have seen, in and for the Bureau of Animal Industry and the Marine Hospital Service, it should be greatly extended for the investigation of human bacterial diseases.

Vital statistics, too, if collected under organized medical control, could be extended to cover much more fully than at present questions of disease distribution, with regional influence, etc., and above all be given a degree of accuracy and uniformity which, though essential to their working value, it is not now possible to attain. By present census methods the apparent death rate of the United States in 1890 was but 13.98 per 1000 of living population, whereas the actual rate, as estimated by the census commissioner himself, is about 18 per 1000, showing how unreliable are the data from which it was attained.

The registration States, in which alone there is any approach to accuracy of enumeration of births, marriages and deaths, comprise only about 4 per cent of the area, with one-fifth of the population, of the Union. Registration should be provided for in every State; there should be a trained census service permanently established, and the present too long decennial period should be cut in two. Commissioner Wright is seeking to effect these reforms; with a department of health they would be naturally attained.

In the care of the defective classes, and in measures to eventually reduce their numbers, the department could greatly aid—at least through co-ordinating—State and municipal effort.

There were in the United States, June 1, 1890, according to the eleventh census, 106,254 insane, 95,571 feeble-minded, 121,178 deaf and deaf mutes, 144,399 blind and 194,027 sick and disabled (in the registration States); in all 661,429, or over 1 per cent. of the entire population. This means a vast loss, both in productive power and in cost of care, a loss which ought to be greatly reduced. It must be allowed that from a purely economic standpoint, the care of defectives is a very pertinent affair of State.

We may not be prepared to agree with the Colorado philanthropist who advocates "the judicial taking-off" of the incurable insane, though such a procedure would seem to accord both with justice to the taxed producer and with the spirit of the golden rule; but it may surely be questioned if favoring the defective, to the ultimate lowering of racial vitality, is wise. Rather let us seek to increase productive strength and the expectancy of life through concerted measures to prevent disease and remove the causes of defect.

"The state of the future," says Jacobi (Therapeutics of Infancy and Childhood), "will have to see to it that epileptics are not placed in a position to raise progeny equally accursed. . . . The daughters of hemophilic families ought not to be allowed to marry. . . . Society and the state, with its organization of ignorance and disorder, are responsible for so much of deaf-mutism as is not pathologic. . . . The individual should be controlled by the community in the interest of the public health."[12]

Dr. Toulouse, a French writer on mental diseases, would have the existence of either epilepsy, cancer, syphilis, tuberculosis, or alcoholism bar legal marriage.[13] The Connecticut legislature has, I believe, passed an act prohibiting the marriage of epileptics, and a progressive member of the Texas legislature has formulated a bill requiring of each party to a proposed marriage contract, a certificate of physical soundness from some competent physician, together with the applicant's sworn statement of his freedom from any transmissible disease.

I quote these propositions, not as practicable of direct application, but as indications of a trend of earnest thought. Education in this direction is to be desired and furthered, but prohibitive marriage regulations, beyond those already in force as to consanguinity and incompetency (from whatever cause) to contract, would doubtless result in more harm than good by increasing the number of illegitimate births.

Another work of importance to the Nation, as well as to the several States, is the regulation of medical practice, fixing the qualifications of those to be entrusted with the citizen's life and health.

Under the Justinian code or civil law, and under the common law no barriers whatever were raised. Any one might practice either medicine or law, regardless of fitness or qualification (but subject always for injuries inflicted on others), the right of choosing an occupation being held to be inherent. But the tendency of legislation is to prescribe qualifications for practice, an exercise of the public power justified by regard for the welfare of the people, which is the supreme law. The right to practice (subject to reasonable qualifications) is neither a property right nor a vested right, but is a right, nevertheless, which can not be arbitrarily taken away. Such in substance is the opinion of Judge Pugh of Ohio, given in support of

ıe constitutionality of the Medical Practice Act of ıat State.[14]

All the States and Territories today, with the sin- e exception of Alaska,[15] recognizing the need for strictive legislation, have medical practice acts, ore or less stringent in force, but they are far from ıiform in requirement or in enforcement. Of them l none, I believe, is more efficient than the revised ›wa law as enacted last spring. Its just require- ents now apply, virtually without exception, to all ho profess to heal or cure in any way whatever, by edicine, appliance or method, and if enforced must :ove effective against ignorance and pretense. The tate in its requirements can, of course, take no :count of school or belief, but of knowledge and fit- ›ss only. These, however, it must require of all ike, with neither exception nor favor.

The so-called osteopaths, in their recent concerted id for exemption, were happily, in this State, unsuc- ›ssful; but Michigan acceded to their ridiculous ›mand, Missouri had already done so, and Illinois as only saved from a like disgrace by the veto of her ›vernor. A National department co-operating with l the States would strengthen each against legislative ›rruption such as was undoubtedly brought to bear this case.

A field of work closely related to regulation of prac- :e, and one in which the influence of a department ight be exerted to advantage, is the supervision of edical schools. The report of the commissioner of lucation for 1894–5 shows the existence of 151 med- al schools in theUnion, or an average of more than ree for each State, and more than twice the whole ımber of law schools existing, while the number of edical students (22,887) exceeds that of all law, the- ogical and dental students combined.

There is, I believe, no legitimate demand for more an one-third this number of schools—doubtless a ore, well equipped, would be all sufficient—and half e crowd of graduates annually set adrift would ore than suffice for all actual needs.

There is reason to hope that the near future will ıtness a much to be desired reform in this direction, ıether or not it shall be hastened by the establish- ent of a department of health. Increasing State quirements and cost of medical education, says the mmissioner in effect, seem to indicate the approach a time when medical schools, outside the great ›pulation centers, will be rare; also increasing en- ›wments point toward the establishment of more ›rthy foundations, which will eventually do away th the horde of joint-stock, medical advertising stitutions, whose only reason for being is to advance e selfish interests of their professors.

But the State, it would seem, might well interfere ›re directly to this end. Its right to determine the ness of the physician is unquestioned. Should not e qualifications of the professor be equally guarded? ıe public interest suffers much by our present laxity this regard. Harm results not alone through the aduation of innumerable incompetents, but also by ə induced life-failure of many youths of good parts ıo, with little natural adaptation for the physician's e, are lured to a fatal expenditure of time and ›ney, drawn into the clamorous portals of a profes- ›n from which they should rather have been kindly :ned aside. In medicine especially is it true, as sely expressed by an eminent scholar, that "we are ıstantly making the mistake of training men out of their capacities." The student should be met at the outset with careful tests, supplemented by kind and disinterested advice as to the choosing of his life career.

Another matter calling urgently for supervision is the manufacture of the various potent animal products to which the rapid growth of so-called serum-therapy is constantly giving rise. The many tuberculins, antitoxins, etc., in the market have each its dangerous as well as its beneficent possibilities. As an immunizing agent, representing the entire class, we may take vaccine production alone. If it is ever the duty of the State to require vaccination—and its protective power is overwhelmingly proven—it is at the same time unquestionably her duty to see to it that the virus employed is pure. At present this is not done. "In most States," says Dr. Lindsley, secretary of the Connecticut State Board of Health, "there is no legalized supervision."[16] Dr. Pittfield, reporting to the Pennsylvania State Board, after a careful examination of a large number of vaccine-producing establishments finds "great carelessness and negligence as to the purity of the product," with "no official supervision" existing.[17] And Dr. Abbott of the Massachusetts State Board, replying to an inquiry from the president of the Medico-Legal Congress of last year, meeting in New York, says: "Very little supervision is exercised in this country over the production of vaccine lymph," and expresses the opinion that its production "should be under the supervision of either State or National authorities."[18] This and other like products of incalculable sanitary importance, are widely distributed without regard to State lines, and the need for their National control, it would seem, must be plainly apparent; as also for control of the flood of patent and proprietary medicines, whose least evil is their immense money cost.

Of all sanitary measures requiring powers more extended than those of the several State boards, none is more important, perhaps, than the prevention of the pollution of streams. But here it may be objected, in the words of Dr. Billings, that: "The general Government can do little in the way of compulsory legislation which might interfere with the action of the several States to control their own sanitary affairs."[19] If this be true then greater power must be obtained through constitutional amendment, awaiting which the exercise of the right of eminent domain would find in so important a public need its most complete justification.

A subject to which I can but allude is that of National interest in endemic affections. In dealing with diseases so threatening to racial vitality as are leprosy, syphilis, and above all tuberculosis, there is need for the active aid of a department having National jurisdiction and powers. Consumption, according to Koch, is responsible for one death in seven the world over; one in eight and one-sixteenth by our own census of 1890; and owing to its principal methods of transmission, linked as they are with food-supply and means of transit, local measures are inadequate to its effective control. The danger from tuberculous meat and milk, and from the dissemination of tuberculous sputa, is now generally admitted, but in not more than one-third of the States, and in about the same proportion of the larger cities of the Union, are any practical measures being taken to meet it.[20] The movements of tuberculous cattle and their food products need Federal power for their prevention;

and Federal power must likewise be invoked for the general sanitation of sleeping cars and other interstate means of conveyance, perhaps also for the establishment of sanitaria especially equipped.

But enough. I have tried, first, to make clear the vital importance of sanitation to the State, and having glanced at its beginnings and growth, to point out some of the more urgent State needs in this direction. First of these is a sanitary head represented in the Nation's chief council, a governmental department analogous to the German "Reichsgesundheitsamt," or National Health Service, to the French "Directory of Public Hygiene," and to the English "Government Health Board," as it is to be. If, in presenting this need, I have assumed the role of advocate perhaps somewhat warmly, I must plead in extenuation my strong conviction of the importance of the end sought. But while advocating an increase of central power in the health interests of the people, I trust I shall not be misunderstood as favoring interference with individual State sanitation, or as sanctioning, even in the remotest degree, the dangerous policy of so-called paternalism, which would favor the interests of any *class* under the specious pretense of an ultimate benefit to all.

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ALCOHOLIC BEVERAGES.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1–4, 1897.

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In this article I shall not touch upon the uses of alcoholic liquors as remedial agents in disease, but consider them solely in their effects upon alimentation. In so doing free use will be made of the researches and opinions of various writers, whose views differ widely, and an effort will be made to sustain a position removed from either extreme, in the belief that in this, as in most disputed matters, the charge of Apollo to his son Phaethon, on his undertaking to drive the chariot of the Sun, was wise, "*In medio tutissimus ibis.*"

Liebig, on chemical grounds, regarded alcohol as a respiratory constituent of food, contributing to the production of animal heat by oxydation. Tallemand, Perrin and Duroy, having detected alcohol in the urine, sweat and exhaled breath, concluded that it passes out of the body mostly without chemical change. But Parkes and Count Wollowicz, by means of the chromic-acid test, obtained the characteristic green reaction twenty-six days after the last ingestion of claret; and Dr. Dupré, after total abstinence of six weeks, found responses to the same test in the urine and breath, and also a substance yielding acetic acid on oxydation. The last, together with Anstie, Thudicum, Schulinus, Baudot and Pavy, agree in the conclusion that most of the alcohol taken into the system is oxydized and generates force. Were this not so, it could be largely recovered from the fluids excreted and exhaled from the body by distillation.

But there is evidence that mammals at least are not dependent upon art for a supply of alcohol, and that every one distills a certain quantity within his own body, which is mostly consumed; and this was the source of the alcohol found by Parkes, Count Wollowicz and Dupré in the breath and urine.

Prof. W. Hutson Ford, M.D., contributed to the *New York Medical Journal* of June, 1872, an article entitled "Normal Presence of Alcohol in the Blood," and based upon his researches in 1858 and 1859. The following table shows the results of thirty-two experiments by distillation of substances derived from oxen and dogs, some putrescent, in intervals varying from seventeen to ninety-six hours after death, others fresh, in intervals, from seven to seventy-seven minutes after death:

Yield of alcohol in 10,000 parts by weight from

1.	Capillary blood of the lungs; Calculation based on *carbon ingested*	0.5403
	" " " *carbon exhaled*	0.5794
2.	Putrescent lung-tissue (mean of three experiments)	0.3819
3.	Fresh " " " " "	0.3076
4.	Putrescent thoracic blood (mean of five)	0.7625
5.	Fresh " " (mean)	0.0841
6.	Putrescent liver-tissue	4.3138
7.	Fresh " " (mean of three)	0.0190

Dr. Ford obtained alcohol also from fresh pancreatic tissue of the ox sixty minutes after it was struck down, and from the blood of a dog ten minutes after it was drawn from the cephalic end of the jugular vein. The amount was too small for quantitative estimate, but it gave the characteristic reaction with chromic acid.

As observed, by far the largest yield of alcohol was from the putrescent liver, and much the smallest from fresh liver. This organ contains more sugar than any other tissue, but the change into alcohol begins here and is nearly or quite completed in the lungs, where oxydation is quickly performed, as shown by the small difference in yield between fresh and putrescent lung-tissue. It is presumed that about one-half of the lung-tissue consists of blood, and putrescent lung-tissue yielded about half as much alcohol as putrescent thoracic acid blood. Most of the thoracic blood had not yet reached the pulmonary capillaries, and was therefore little oxydized, and yielded much less alcohol than the capillary blood of the lungs. The yield corresponded to the time elapsed for the fermentative process.

It is probable that the sugar which is not converted into fat in the liver undergoes vinous fermentation, chiefly in the lungs, and as alcohol is consumed in the blood, generating heat and vital motion. The large yield of alcohol by putrescent liver-tissue represents the stored glycogen in the liver and the residual sugar carried forward by the hepatic vein during life. In diabetes mellitus we may suppose that there is some interference with this process of fermentation.

In a recent private letter to the writer, Prof. Ford assumes the constant presence in the animal economy of an enzyme, which transforms hepatic sugar into alcohol and CO_2. This action generates heat, just as it does in the fermenting tub of the beer and wine-maker, and heat and vital action are later produced

in the oxydation of the alcohol. Claude Bernard failed to take up Prof. Ford's line of study, from the supposition that the vinous fermentation is the work of the torula cervisiæ solely and from knowledge that this ferment does not exist in the animal economy. Prof. Ford's experiments show that liver-tissue will induce alcoholic fermentation in diabetic urine, and that decoction of liver-substance undergoes this process within a few hours at 100 degrees to 106 degrees F., but not at 60 degrees; hence he concludes that the liver furnishes the ferment. So far as I know, this line of investigation has not been pursued by others, but the work was done with utmost care by a competent expert, and the conclusions are entirely reasonable.

Pavy, in common with most observers, found that alcohol, moderately taken, increases both rapidity and fulness of the pulse. Very little effect is produced upon the temperature of a healthy person, or upon the elimination of nitrogen, by a small amount, according to Dr. Parkes; and he thinks it unlikely that a person can thereby peform more work on less food, though, by stimulating a failing heart, it might enable one to put forth an effort otherwise impossible.

Authorities differ about the comparative exhalation of CO_2, with and without ingestion of alcohol, and it is evident that there is no material difference. Competent and unprejudiced observers generally agree that a small quantity of fermented liquor or diluted spirit promotes the digestion of substantial food, especially of a fatty nature. Sweet wines and malt liquors promote nutrition, through the sugar and extractive matters which they contain, but are apt to be followed by indigestion, headache and gout, from the plethora induced.

The experiments of Dujardin-Baumetz on pigs showed that no pathologic changes follow the daily ingestion of ethylic alcohol at the rate of one grain to 1 kilogram of body-weight, when taken diluted at intervals. He and B. W. Richardson set the same limit to daily assimilation of alcohol by a healthy human adult, without disturbance to digestion or other injurious consequence. This, for a person weighing 150 pounds, would amount to 71. c. c. of absolute alcohol, or about 148 c. c. of brandy, whisky or rum, or 710 c. c. of claret—much more than a careful and intelligent person would choose to take. Even Anstie's limit of 59 c. c. daily of absolute alcohol would, in my judgment, be better divided by four, and then be taken largely diluted along with the two principal meals.

The effect of alcohol in large quantities is first excessive stimulation of the gastric capillaries and secreting follicles, followed soon by corresponding sedation, and by gastric catarrh, if often repeated. Strong spirits cause constriction by robbing the capillaries of water, diminish the flow of gastric juice, render the albuminoids less soluble, and seriously impair digestion. Taken in excess, alcohol can only be partially oxydized before reaching the liver, and in this organ the secreting cells are contracted by withdrawal of water from the capillaries, while the connective tissue is hypertrophied through stimulation. The eventual result is general contraction of the gland at expense of the secreting structure, and abdominal dropsy by pressure on the hepatic veins. Similar effects are produced upon the kidneys, but more slowly, as they are more distant from the stomach.

On the nervons system the effect of a small quantity of dilute alcohol is stimulation, with little or no reactive sedation. As the quantity is increased, especially if concentrated and taken on an empty stomach, the primary stimulation is shortened and the sedation magnified and prolonged. Intoxication may vary from maniacal delirium to profound stupor, and in either case the proper nutritive functions are proportionally disordered. Repeated excesses of this kind result in fatty degeneration of the nervous centers and softening of the arterial tunics.

There is no want of agreement among physiologists about the effects of excess in the use of alcoholic beverages, and no need of dilating upon this branch of the subject. It is now in order to notice the opinions of those who advocate total abstinence as the rule for all mankind.

Prof. N. S. Davis holds that both the carbonaceous and the nitrogenous elements of food contribute to tissue-growth and repair, and that animal heat results from molecular changes constantly taking place; while alcohol rather retards than promotes these processes, as shown by diminished body-temperature and elimination of CO_2. He asserts that alcohol has a greater affinity for the hemoglobin and serum of the blood than for oxygen, and consequently is not oxydized, so as to generate force in the forms of animal heat and muscular action. Undoubtedly the first demand of alcohol is for water, but this is not all. When taken in any reasonable quantity, it does not remain alcohol, nor in any case is it all eliminated from the body as such. Most of it is oxydized, and thereby its potential energy is developed into sensible force.

Dr. H. D. Didama of Syracuse, N. Y., asserts[1]: 1, Alcohol is not food; 2, does not promote digestion; 3, does cause gastric disturbances; 4, does not increase muscular strength nor promote physical or mental endurance. Like other teetotalers, he does not distinguish between moderation and excess. The above assertions are true in excess, but not in moderation suitable to the individual case. Excess in any instance is more than suffices for gentle stimulation of of the digestive and nutritive functions. Any degree of nervous derangement, whether mental excitement or torpor or muscular incoördination, means excess, from circulation of unchanged alcohol in the blood. He adduces the testimony of army and railway officers, Arctic explorers and trainers for athletic contests, that total abstainers bear extremes of heat and cold, sharp conflicts, long marches, exposure to storms and malarial infections better, and recover from fatigue and illness more speedily and thoroughly, than those who bounteously or sparingly partake of the flowing bowl. It is to be observed that he speaks of persons of full bodily vigor, amply supplied with good food, who do not need stimulation at all, and who could not be trusted to keep within the bounds of strict moderation. It is true that the rule of total abstinence is usually enforced in such cases, and the prudence of this course is admitted. On the other hand, there is evidence that a small amount of diluted alcohol will enable one to put forth increased mental and physical exertion for an emergency, to withstand cold with less suffering and recover from fatigue or prostration more quickly. Testimony to this effect is adduced and credited by the late Dr. W. B. Carpenter, in his excellent monograph on Alcoholic

1. Jour. Am. Med. Asso., Sept. 14, 1895.

Liquors. The difficulty is to keep within suitable limits. Most persons consider themselves qualified to judge for themselves in the use of alcohol, while they take medicines by the advice of physicians; and physicians themselves are no more prudent than the laity in their use of liquors. The explanation is, the appetite, rather than sound reason, is allowed to govern.

Dr. Charles H. Shepard[2] holds that the sense of well-being after taking alcohol is due to its benumbing influence; that its supposed building-up action is only an irritation from an effort of the system to get rid of the drug; that it exhausts vitality thereby more quickly, and therefore ought to be regarded as a poison. In support of the last conclusion he quotes Dr. Forel of the University of Zurich: "Alcohol, even when diluted, as in wine, beer and cider, is a poison which changes pathologically the tissues of the body and leads to fatty degeneration." Dr. Shepards adds: "Tea and coffee also belong to the same category of irritant drugs, which, by rousing the vital forces to get rid of the poison, provoke the action which is mistakenly supposed to be an added force, whereas the action is only one of self-preservation. Quinin is essentially nerve-poison and capable of producing a profound disturbance of the nervous centers." Dr. Shepard's consistency in adding tea, coffee and quinin to his list of poisons is incomplete without including the numerous condiments used in the preparation of food, with the exception of common salt, which alone can be regarded as a reconstructive constituent. They promote alimentation by rendering food more palatable and digestible; but they are injurious, when used to excess, as well as tea, coffee and alcohol. Shall they all be classed as poisons and be banished from our dietary?

Dr. I. N. Quimby thus discourses[3]: "What physician would be so bold or hazardous at this time, as to assert that the use of alcohol, even in a moderate way, did not have a tendency to produce various affections, such as congestion, ulceration and thickening of the gastric mucous membrane of the stomach, which did not in its turn produce indigestion, mal-nutrition and mal-assimilation, the result of which would have a tendency to produce disease of the kidneys, pernicious anemia, cirrhosis of the liver, fatty dengeneration of the heart, tubercular disease of the lungs, cerebro-spinal irritation, with softening and lessening of the resisting power of the red corpuscles of the blood, producing various affections of the respiratory, digestive and nervous systems? It is stated by Dr. Nordau, the famous writer and philosopher, who combines scientific knowledge and literary power and originality of thought, that there is going on a general degeneration of the race. And who is bold enough at this period of the world's history, to successfully deny or refute it?"

This alleged degeneracy of the race has been going on since Noah planted the vine and got drunk on its product, on coming out of the ark; yet, within the period of profane history, the span of human life has doubled and is increasing. France, Spain and Italy are producing annually, according to different estimates, fifteen to forty gallons of wine *per capita*, most of which is consumed at home, and this has continued for centuries; while the output of wine and beer in Austro-Hungary is about fifteen gallons annually *per capita*, and double this amount in the German empire. On an alcoholic basis, degeneracy in the latter progresses twice as fast as in the former. In these European countries children drink fermented liquors from the time they are weaned and follow the habit all their lives. Inasmuch as human life is steadily lengthening, popular education extending and military power growing, the present writer fails to see proofs of degeneracy.

Let us now view the alcohol question in the light of the doctrine of evolution. The most efficient factor in the elevation of all forms of life is survival of the fittest, from gradually acquired conformity with environment, whereby they grow to maturity and leave progeny endowed with increased faculty. At present the most destructive enemies of human life are the zymotic diseases, alcohol and narcotics. Proof abounds that the longer races have been subjected to these agencies, the less disastrous are the results. On the other hand, races newly exposed to them are immensely depopulated. Examples are found in the destruction of our aborigines by small-pox and alcohol. But the native population of Old and New Mexico, having been subjected to small-pox, with little or no modification by vaccination, for three and a half centuries, has acquired great tolerance and now suffers a low mortality. The races of tropical America have become so tolerant of yellow fever that total immunity is claimed for them by some writers, though on insufficient grounds. Syphilis has become much milder among the white populations of Europe and America during the last four centuries. The same is true of leprosy in India and China during unknown ages, in contrast with its recent invasion of the Hawaiian islands. The growing abuse of narcotics by the white races of Europe and America is contrasted by their moderate and almost harmless use in Hindostan, gained by centuries of habit. The general and intense craving for alcohol, so marked among the dark races of America, has mainly died out among those which have cultivated the vine for many centuries along the northern shores of the Mediterranean, by survival of progenitors who were temperate but not abstinent.

Even teetotalers allow that the worst effects of alcohol are produced by strong liquors, especially when taken on an empty stomach. Within the last twenty years the per capita consumption of malt liquors in our country has increased, while that of spirits has declined, and gross drunkenness has diminished. On the other hand, the consumption of spirits has greatly increased in France and that of wine diminished, since the ravages of vine-pests have seriously diminished the production of wine. Reasonable persons must agree that the changes are favorable to our country and the reverse to France. Another notable observation is the increasing use of such anesthetics as chloral, cocain, opium and its derivatives and the various coal-tar derivatives, especially where the traffic in alcoholic liquors has been most opposed by public opinion and legislation. There is a natural, and for many an irresistible, craving for some form of anesthetic, and it is reasonable to allow use of the least injurious, under suitable and practicable restrictions. Evidence abounds that the use of light red wines at the table is least injurious to average persons, and positively beneficial to most of the aged and debilitated, when taken in such moderation as to produce no appreciable effect upon the nervous system by excitement or stupor. Such use of alcohol would forestall

2. Id., Sept. 28, 1895. 3. Id.

resort to anesthetic drugs, which seriously impair nutrition and ability for industrial pursuits.

For such persons as can not restrict themselves to moderate limits, who habitually use enough to effect perceptibly the nervous system, or who indulge in debaucheries which unfit them for business, there is no safety but in total abstinence. Likewise there are individuals who can not use tobacco, tea or coffee in moderation, and others who are extremely susceptible to their poisonous effects; and these too must abstain. It would be wrong to condemn all to deprivation because a few indulge to their detriment, and so far legislation has not been invoked to repress their use. It is proper to distinguish between excess in these and excess in alcoholic beverages, because the latter is more prevalent and harmful.

In the writer's judgment, it would be wise for government to put upon the manufacture of spirits used as a beverage the heaviest excise compatible with successful collection, a moderate excise on fermented liquors derived from grain and hops, and to encourage the production of light table wines by leaving them free. Moreover, it is desirable to diminish the number of tippling houses, and this is most effectually accomplished by imposing so high a license-tax as to suppress nearly all. Licensed dealers then, instead of combining to resist the law, would unite in its support, in order to prevent encroachment on their dearly bought privilege. In order to discriminate between bar-room and home consumption, it would be advisable to impose a lower license for sale of fermented liquors than that of spirits, and lowest on sales of one gallon and upward of all liquors. This could be effected by separate licenses for fermented liquors, and for liquors in bulk and by the glass for consumption on the spot.

It is undeniable that the liquor traffic is responsible for much of the crime and poverty which afflict society and much of the disease which shortens human life. The question of its control is one of the most serious and difficult problems which confront moralists and legislators. In the opinion of the writer, it should be dealt with by practicable methods, in the spirit of truth. It is untrue that alcohol is, on all occasions, under all circumstances, at all times, in all quantities, a poison, and therefore harmful. It is no more true of alcohol than it is of all the condiments used in our daily food, of tobacco, of most of the medicines that physicians prescribe. They all have their uses, and the harm comes from their abuse. Except as a medicine, alcohol should only be taken largely diluted, along with food or soon after eating, when it aids digestion and forms an addition to ordinary food. Most of our people in their usual health do not need it and are better off without it. Undue plethora is the least harmful of its effects on those who have plenty of wholesome food and stomachs suited thereto. Many who do not need alcoholic beverages, but are content to use them in moderation, readily become tolerant, as they do of tobacco, tea and coffee. Such are many millions of consumers of light wines and beer in Europe, and there is the strongest probability that, if deprived of their customary beverages, they would resort to substitutes more energetic and positively harmful, as is actually the case recently in France. Witness also the increased use of narcotic and anesthetic drugs in this country, under stringent repression of the liquor traffic.

The subject has been clouded by fallacies to such degree that most people fail to distinguish between temperance and total abstinence, moderation and intemperance. The utterances of those engaged in the crusade against alcohol are of the most intemperate character, abounding in loose statements and bad reasoning. The preaching of brimstone and hell-fire is rapidly dying out in our pulpits, because intelligent persons discredit the doctrine and are disgusted by it; and now, in the clear sunset of the nineteenth century, it is an anachronism to invent false alarms, which do not frighten people of average sense.

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HUMAN FOOD LAWS.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

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"The comfort, energy, usefulness and moral character of a man depend largely upon his digestion, and this in turn depends largely upon what it has to act upon, viz., food." (Wm. Pepper.)

In view of this it is strange how little interest man has taken in the regulation of the quality of that food. First and last, in one place or another, mankind has eaten nearly everything which by mastication could be made small enough to pass down his throat. But the great mass of humanity always has and does still subsist upon a few abundant, nutritious and easily obtainable foods. Such are found in fruits, grains and vegetables. Different peoples and races have made use of quite different kinds of foods. But with the more intimate knowledge of others' tastes, each of the so-called civilized nations has adopted certain of the customs and habits of others, and among them the foods. Thus our dietary has rapidly increased. Not until recent years has there been any careful scientific study of man's needs, and still more recent have been the attempts to really satisfy those needs. There can be no doubt that too much food does fully as much harm in the world as too little, and too much of any one kind far more than either. Good evidence of the advantage derived from a regular ration of food arranged on a scientific basis is seen in the uniform good health of well managed modern armies and large institutions. Careful analyses of physiologists and chemists show just how many grams of proteids, fats, carbohydrates, salts and water are needed to maintain the average human life in its best equilibrium. We are becoming more and more interested in these questions, and are quietly making practical application of the lessons learned in the laboratories of the scientists.

But it may well be questioned whether mankind as a whole, and particularly that portion of it dwelling in these United States, are by any means ready to accept rules as to what and when they shall eat. Like animals or plants they insist on eating and drinking whatever they like or is most convenient.

With regard to the quality, however, there is really appearing considerable interest. No man likes to be cheated. Prove to him that he is being defrauded in the food he buys and he will make some attempt to check the fraud. If you can further prove that he is being injured by that food, another and stronger motive for interest is aroused.

The adulteration of food is of very ancient origin, and has from time to time been sharply checked. But

such action has until recently always been spasmodic. The object of adulteration is to make money. The dilution must, therefore, be made with some material cheaper than the food itself, not readily detected by sight, taste, smell or touch, and if practicable not sufficiently harmful to cause rapid poisoning and consequent detection. The mere fact that the food furnishes insufficient nutrition or is slowly or indirectly harmful, does not at all trouble the rascally manufacturer or dealer.

In the matter of systematically stopping these frauds some European countries have been much in advance of the United States. Thus England, France and Germany had good laws before any serious agitation had begun on this side of the Atlantic. It would be interesting to compare these European methods with the best American methods, but time forbids. As matters of history, however, we may note that England passed extensive food laws in 1860, 1874 and 1879.

France has had quite definite laws for many years, gradually, without any great movement, reaching their present form.

Germany, too, has long had good laws in this matter, which were put in their present form in 1879.

At that time 231,478 analyses were made and only 3508 or 1.5 per cent. were found adulterated. In view of the fact that over 150,000 of these samples were milk, this is remarkable.

About twenty years ago Americans began to seriously think on the matter. A great many books and magazine articles were published and the public interest gradually aroused. Of course the medical profession led in the matter. Investigation showed that very many articles of food were adulterated to some extent. The United States Commissioner estimated this adulteration at nearer 15 than 5 per cent. When we consider that the value of the food consumed was $4,500,000,000, the enormity of the crime is apparent.

Most of the States have laws prohibiting adulteration in general, but the laws are not enforced and are not comprehensive enough. In 1879 careful study was begun on the subject by a committee consisting of the Vice-President of the National Board of Health and one representative each from New York, New Jersey and Massachusetts. These three States later adopted the recommendations of this committee. Ohio and Connecticut have since passed comprehensive laws in the matter and the results have been most satisfactory.

Since the United States' Special Agent, Alexander J. Wedderburn, says that "Massachusetts has very carefully investigated the question of food adulterations, and has probably the fullest and most complete laws upon the subject in this country," it will be helpful to consider the progress of the movement in that State.

When in 1870 the State board of health was established there were in existence a few special laws in regard to certain adulterations. There was no general law and no specially deputed persons for the enforcement of the special laws.

The first duty was the examination of the supply of fresh beef furnished to the city of Boston. Their report led to the enactment of laws which have served as models to other States. Then they found that 85 per cent. of the milk sold in Boston was adulterated—a great contrast to Germany. Other foods were almost as bad.

As a result of their continued reports to the legislature the general food law was enacted in 1882. A large number of examinations were made and numerous prosecutions instituted. What was more to the point many convictions were secured. Still in 1886 60 per cent. of the foods examined showed adulteration. Two years later, however, these were reduced to 36 per cent. and there has been steady improvement ever since. The report for 1894 showed 6874 samples examined by the State analysts of which 2190 were not up to the standard, a percentage of 31.91 of adulterations. This does not really show the amount of adulteration but only the per cent. in selected articles. The greater the care taken in the selection, the higher will be the per cent. found. The same improvement could be shown in New York, New Jersey, Ohio and Connecticut. But it will be more profitable perhaps to consider briefly these laws and how they have been and may be applied.

According to the Massachusetts law a food is deemed adulterated: "1, if any substance or substances have been mixed with it so as to reduce or lower or injuriously affect its quality or strength; 2, if any inferior or cheaper substance or substances have been substituted wholly or in part for it; 3, if any valuable constituent has been wholly or in part abstracted from it; 4, if it is an imitation of, or is sold under the name of another article; 5, if it consists wholly or in part of a decomposed, putrid, or rotten animal or vegetable substance, whether manufactured or not, or in the case of milk if it is the product of a diseased animal; 6, if it is colored, coated, polished or powdered whereby damage is concealed, or if it is made to appear better or of greater value than it really is; 7, if it contains any added poisonous ingredient or any ingredient which may render it injurious to the health of a person consuming it."

The members of the State Board of Health were made the agents of the Commonwealth to secure enforcement of this law and were given at first $3000, then $5000, next $10,000 and finally $11,500 to expend in so doing. Inspectors and analysts were appointed. Vigorous action has characterized the board from the outset. From 1883 to 1895 there were 1131 complaints made in court; and among these 626 were for adulterating milk. One thousand and twenty-eight convictions have been secured and fines amounting to over $25,000 imposed.

By provision in the statute three-fifths of the appropriation must be expended "for the enforcement of the laws against the adulteration of milk and milk products." It was found that the milk was occasionally colored by annatto, caramel or flour, but that the chief adulteration came by the addition of water or the removal of cream. It is stated on good authority that to the 120,000,000 gallons of milk brought into New York City in 1883 40,000,000 gallons of water were added.

In English cities the percentage of milk samples found to be adulterated is almost the same as in the United States. Thus 1633 out of 12,151 were found to be adulterated. France, however, does much better, there being only 279 frauds detected in 4315 samples. Doubtless this is due in part to the low standard.

This suggests a difficulty which has confronted the authorities from the first, viz., the need of a fair standard. After much study of averages it was fixed in Massachusetts at 13 per cent. of solids. New York and New Jersey require 12 per cent. of solids, of which 3 per cent. must be fats. England and France and

Holland only require 11.5 per cent. of solids, of which 2.5 per cent. must be fat. Ohio's requirement is the same as New York's. Apparently it is a little more fair than the 13 per cent. of Massachusetts. Evidence of this is seen in the fact that in the latter State of 3549 samples examined in 1894, 1597 did not contain 13 but did contain 12 per cent. The enforcement of the law in Ohio is entrusted to the Dairy and Food Commissioner, and last year he was allowed over $50,000 to expend. As a result he is able to report: "greater attention paid by dealers to the quality of of goods sold by them than has ever been done before. Immense amounts of bad goods have been shipped out of the State and manufacturers from all parts of the country are anxious to ascertain the requirements of law previous to sending goods into the State. In many cases manufacturers have informed me that they find it is necessary to put up one class of goods for Ohio and cheaper goods to be sent into States where laws were not enforced." He further declares "more work has been done in the prevention of fraud in the sale of food and drug products, and in the preservation of the public health thereby in the State of Ohio during the past ten years than in all the other States of the Union combined." All honor to Ohio! But shame on the other States!

But there are food laws which are manifestly unfair. Like many portions of our tariff laws they benefit only a few or a class.

About twenty years ago a French scientist named Mége-Mouriéz noticed that cows continued to give milk which contained cream, even though they were cut off from all fat-producing foods. Manifestly some of their reserve supply of fat must be transferred to the milk. He began to experiment with these fats and found that by proper chemic and mechanical means he could produce a compound closely resembling chemically and macroscopically the familiar butter. Physiologists tested it and found that for all practical purposes oleomargarine was as useful a food as butter. As it could be made for about one quarter the cost of butter, the discovery was hailed as a great boon for the poor. Suddenly the farmer awoke to the sitation. He was losing the market for his butter. Legislatures were appealed to. A very large proportion of the legislators were farmers themselves. Countless stories, most of them false, were concocted telling of the foul constituents and dreadful methods used in its manufacture. The result is a series of laws which are practically prohibitory and the loss to mankind of a valuable food. As physicians we should do our utmost to promote a reasonable regulation of the manufacture of such foods; for we know how sadly they are missed in the dietary of the poor.

Another article of food which was found to be frequently adulterated was cheese. The milk fats were left out by skimming the milk, and other fats, lard most commonly, worked in. In the detection of these frauds the microscope has been very valuable. Numerous laws for the protection of the public have been passed in the differeut States, which in some respects resemble the oleomargarine laws. The fight has not been as bitter, however, nor the laws as unfair. Thus in New York, Wisconsin and Minnesota, makers of "full cream cheese" are allowed to use an official stamp. To use this stamp on any cheese not "full cream" is to render one self liable to severe penalties. Ohio and Colorado go a step further and require the "skimmed" and "imitation" or "filled" cheeses to be so stamped with an official stamp several inches square. The other States have not troubled themselves very much in this matter.

Flour is only rarely adulterated, for as we noted at the outset, adulteration is practiced only to make money. Sugar is another great staple food which is now only rarely adulterated. Owing to the ease with which the taste and color could be imitated, vinegar has been much manufactured. Some States, Massachusetts for instance, have therefore established by law the percentage of apple substance which vinegar must contain as well as the per cent. of acetic acid, viz., 4½ per cent. Honey and maple syrup are two common articles of food which need constant inspection; and there are a multitude of others. Let me quote a few of those frauds detected by the Ohio inspectors in 1896 and punished by Ohio's laws; candy containing the poison anilin black; tomato catsup containing salicylic acid; canned peas colored by oxid of copper, oxid of lead and oxid of tin; black pepper containing buckwheat, roasted cocoanut shells and cayenne pepper; molasses adulterated with commercial glucose; buckwheat flour adulterated with wheat flour; cloves deprived of oil; green peas colored with the salts of copper; cider containing salicylic acid; raspberry jelly made of ether, alcohol and anilin red; current jelly composed of glucose syrup and salicylic acid; coffee adulterated with chicory, peas, corn and wheat bran. Truly the American is ingenious!

These facts are not secrets. Why, then, are there not more States with comprehensive laws? Why do not the States with good laws allow sufficient money to its agents to enable them to do good work?

More than seven billions of our money are invested annually in our food and drug product. Millions on millions of this finds its way to the dealer in adulterated products. And in these days it is the money power which secures legislation. Not always, however, and not necessarily. As physicians with a wide influence, let us agitate the matter, stir up and instruct public opinion, and it may not be many years before great results shall be attained both for the health and wealth of our people.

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DIET IN THE CHRONIC CATARRHS OF THE GASTRO-INTESTINAL TRACT.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

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In treating of diet in the chronic catarrhal inflammations of the stomach and intestines it is not intended to limit the discussion to those cases only which are usually classed as such. Our present exact methods show that chronic gastric catarrh in its earlier stages is rarely accompanied by nausea or vomiting and not always by pain in the stomach itself; also that cases of gastritis grave enough to have seriously impaired the health may be characterized by an increase rather than by a diminution of the appetite.

Again the same methods prove the frequent coex-

istence of catarrhal disease in the small intestines and persistent constipation or constipation alternating with diarrhea when the disease has become more advanced. Obstinate chronic diarrhea points usually to an aggravated catarrhal inflammation of the intestinal mucous membrane complicated in many cases with ulceration.

A proper regulation of the diet is important in most derangements of health—perhaps in all. In those involving the digestive system it is peculiarly important. The science of dietetics presupposes that the appetite is not a safe guide in all cases and experience abundantly confirms this view. In the matter of quantity alone there are numerous patients who habitually eat too much and many more who, in consequence usually of a faulty secretion of the digestive glands, eat too little. It can not be too strongly emphasized, however, that patients suffering with chronic catarrhal inflammation of the digestive tube require a strongly nourishing diet. Their nutrition is apt to be low and commonly shows a strong tendency to sink lower. A portion of their food fails of its intended purpose by undergoing fermentation or putrefaction instead of digestion and assimilation. In this way there occurs not only a positive loss to the organism of much needed pabulum, but a still greater injury through the absorption of toxic substances resulting from these morbid processes.

To offset the depressing effects of this two-fold injury there is often a craving for food in abnormally large quantities, which when taken in the three usual meals daily, embarrass the system and aggravate the existing disease by overburdening the viscera, producing stagnation and retarding digestion with dilatation as an ultimate consequence. One remedy in such cases is to prescribe more highly concentrated and nourishing kinds of aliment in the most easily digestible forms possible, and when this does not suffice to fulfil the needs of nutrition without overtaxing the organs, then to prescribe smaller meals and more of them.

Numerous theories are current as to the particular forms of diet best adapted to these catarrhal affections and much diversity of practice has resulted. A reliance chiefly upon the cereals, vegetables and fruits has been urged, especially in France, by Dujardin-Beaumetz and others, and still has earnest and honest champions in some of our American sanitariums. This vegetarian system, in addition to its cheapness, has a number of manifest advantages in its comparative asepsis, its laxative tendency, its palatability for most patients and its valuable nutritive qualities, maintaining the strength well and when it agrees often putting on flesh rapidly. Yet the observations of many physicians and my own experience in its use indicate that it is not a safe diet in the diseases now under consideration, except possibly in the mildest forms of intestinal catarrh associated with constipation. These foods disagree because they are highly fermentable and often irritating to the chronically inflamed mucous membranes.

A nearly exclusive milk diet has its votaries and in certain cases proves curative, especially when the milk can be obtained pure and comparatively fresh from the cow. The ordinary commercial milk of cities is always from one to three days old when served to the customer, and is often handled in such a careless manner as to become dirty and infected with all manner of germs, even when it escapes the grosser impurities resulting from its admixture with contaminated water and adulteration of drugs to counteract the effects of too long keeping. Happily, however, this difficulty has recently been well overcome in many of the larger cities and it is now possible, for the well-to-do classes at least, to obtain, in sealed jars, milk which when furnished by honest dealers, is comparatively pure and aseptic, and usually not more than twelve to twenty-four hours old.[1] Such a milk properly modified or diluted may be given very largely in many catarrhal cases with the utmost advantage, especially when a little good bread or toast or sometimes a few eggs are added to the daily allowance. But this method employed in a merely routine or empirical way without any exact knowledge as to either the motor power of the stomach or the faults in its secretory function is capable of doing harm. When there is much gastric dilatation or even marked atony, milk or any liquid taken in large quantities is liable to aggravate; and when the stomach is badly infected the same food is apt to ferment rapidly. It suits particularly well as a rule, in those forms of chronic diarrhea where the pancreatic secretion has been well preserved. However, as Ewald so well says: "It must also not be forgotten that an exclusive milk diet is a kind of slow starvation, and that to live on milk alone would require much larger quantities than the capacity of the stomach would allow."[2] Hence such a diet can not be long persevered in without unduly lowering the strength.

In chronic gastric catarrh Ewald and most of the German authorities advise a mixed diet without any very severe restrictions. They allow meats, eggs, milk and many of the carbohydrates, proscribing, however, freshly baked breads, etc., as well as the coarser vegetables, strong acids, sharp condiments and the stronger liquors. They recommend that the starches shall have been changed so far as possible into dextrin before their ingestion and object to dishes cooked with much fat. Ewald particularly objects also to fat meats and the oilier kinds of fish, hard boiled eggs and the tendinous parts of meat. Boas[3] takes very similar ground, but like various other German writers, prescribes diet tables with definitely weighed proportions of the proteids, fats and carbohydrates for each meal. Both Ewald and Boas very properly caution against too sweeping and arbitrary prohibitions of whole classes of foods in the diet of dyspeptics generally, since every patient has idiosyncrasies which need to be studied individually.

The American method of limiting these patients for a time mainly to lean meat and hot water, though on *a priori* grounds irrational and unsafe, has borne well the crucial test of experience in a large number of cases in the hands of several able physicians. In the bad cases the patients are put at once on the pulp of broiled lean beef or beef which having been finely chopped and deprived of all the fat and tendinous parts is afterward broiled in small cakes. With these is given usually a very small portion of stale bread or toast without butter and a very little raw celery or lettuce—sometimes also asparagus tips or stewed celery with occasionally one orange or baked apple

[1] Dr. Samuel G. Dixon, president of the Academy of Natural Sciences, Philadelphia, has called my attention to the fact that sometimes the men who deliver these jars refill them without cleansing, which would be highly dangerous when they have stood for hours in infected sick rooms. B. R.

[2] The Diseases of the Stomach, by Dr. C. A. Ewald, New York, D. Appleton & Co., 1894.

[3] Diagnostik u. Therapie d. Magenkrankheiten, von Dr. I. Boas. Part ii, Leipzig, George Thieme, 1895.

daily or a few white grapes, the skins and seeds being rejected. Coffee and tea may or not be allowed, but the patient is required by most advocates of the method to drink from one to two quarts, and sometimes three quarts, of hot water every day. As improvement sets in and fermentation lessens, the number of articles permitted is gradually enlarged, but upon the first sign of a relapse the strict meat diet is resumed.

In other cases where the digestion is somewhat better, lean meats are allowed from the start in the usual forms of tender beefsteak and lamb chops, the fat and gristle being rejected.

Carried out with extreme rigorousness in cases adapted to it, this system of diet will in the course of four or six weeks, even without the aid of stomach washing, often greatly lessen fermentation. It will ameliorate markedly many stubborn cases of gastric or intestinal catarrh and according to the testimony of some of its most zealous champions, may even, when followed up later in a modified form, effect a radical cure, though not usually before the end of two or three years.

The more enthusiastic advocates of this exclusive diet recommend it as a rule in all cases of gastro-intestinal catarrh, and it can not be denied that in a considerable proportion of such cases when intelligently directed and faithfully carried out, it does well. It supplies an abundance of highly nourishing albuminoid material in a form which is comparatively easy of digestion, and at the same time is very much less fermentable than most other foods. It is also of small bulk, except when inordinately large quantities of water are taken, thus aiding in overcoming dilatation of the stomach and bowels. The chief objection to it is that the proportion of carbohydrates and fats is far too low to support nutrition well for any great length of time. Then, too. the large quantities of hot water often required to be taken with the meat in order to keep up a sufficiently active elimination, have important contraindications. When the heart is very weak, a serious embarrassment may result from throwing into the circulation such unusual amounts of fluid, and when there is much dilatation or even marked atony of the stomach walls, these conditions are almost sure to be aggravated by taking in so much fluid.

Another objection to the routine employment of such an almost exclusive meat diet is that it is excessively stimulating to the gastric glands in cases where hyperchlorhydria complicates chronic gastric catarrh.

Until recently the possibility of the coexistence of these two conditions was not recognized, but various observers have shown of late that we may have an acid gastritis that is a true catarrhal inflammation, along with a highly excessive secretion of hydrochloric acid. My own clinical work has confirmed this view. Experiments conducted in my laboratory have demonstrated, as mentioned in a previous paper,[4] that a meat diet powerfully excites the secretion of hydrochloric acid, thus tending to exaggerate the condition of hyperchlorhydria.

Numerous patients were put on a diet of meat mainly and the stomach contents analyzed every one to two weeks after the usual Ewald test breakfast. Some of these patients had in the beginning a normal proportion and others an excess of hydrochloric acid. The result was almost without exception a decided increase of the acid while on the diet. This was especially true in all the cases of the hyperchlorhydrics, except where the stimulating effect of the diet was counteracted by large doses of an alkali and sometimes even in spite of this. Evidently, therefore, this diet however useful in suitable cases, would be unsafe as a routine method in all, without thorough analysis and tests in every case.

Personally, I have found more difficulty in getting patients to carry out the meat-and-hot-water method, with the necessary strictness, for many months together, than in inducing them to submit to lavage with a diet somewhat more liberal though on similar lines. My results, too, in chronic gastric catarrh have been better since I have been employing lavage along with a diet in which lean meat, eggs and milk predominate, excluding sugar, shellfish, hot or fresh breads, fried foods, all the less digestible vegetables as well as the coarse cereals and restricting starch foods to a few of the blandest in small amount. Stimulants and the stronger condiments are cut off as a rule, to which there are some exceptions. All the more acid fruits, especially those with small seeds, and all hard and gritty articles incapable of perfect solution, are strictly forbidden. In the worst cases I frequently, at first, prescribe either the pulp of lean beef or juice expressed from the same as almost the only food for a few days. When perfectly fresh eggs can be had they are usually added, being eaten either raw, soft boiled or poached. The whites beaten up and taken raw agree well even when the stomach is very irritable and make an ideal food. Then gradually the dietary is enlarged, watching the effects upon the urine, mucous secretion, body weight and condition generally.

In the pronounced cases of gastric catarrh with an excess of hydrochloric acid (acid gastritis) I often find it necessary to restrict the dark meats especially, ordering eggs and milk instead, with the gluten preparations and a small amount of white wheaten bread, preferably in the dryer forms so as to obtain a larger admixture of the saliva. The farinaceous food in these cases should be predigested so far as possible by heat. It is sometimes well to let the patient take daily one lunch or light meal consisting mainly of bread or other preparations from grains, changed so far as it is practicable by heat into dextrin, as in the form of toast or zwieback or the various malted foods. Good fresh milk is a good accompaniment of such a meal. Otherwise he should be advised to take whatever carbohydrates there may be allowed, in the early part of one or more meals, following these later with meat or eggs. In this way the salivary digestion is given an opportunity of proceeding well on toward its completion before the time—usually about twenty to thirty minutes from the beginning of the meal—when the secretion of hydrochloric acid has become large enough to arrest the process.

In the cases of gastric atrophy in which there is practically no longer any secretion in the stomach, I have not found a meat diet to suit well as a rule, even when full doses of hydrochloric acid and pepsin are given. Sometimes eggs raw or lightly boiled agree better. Here, however, the best grades of the cereal preparations made of finely ground and bolted flours or meals with milk peptonized or not, according to the condition of the pancreatic and intestinal secre-

[4] "The Excessive Secretion of Hydrochloric Acid by the Stomach and its possible serious Consequences." By Boardman Reed, M.D., International Clinics, vol. i, seventh series, 1897.

tions and with the addition usually of a certain amount of eggs, has seemed to succeed best.

But in the cases of chronic gastric catarrh in which the secretion of the hydrochloric acid is merely diminished, the results from a diet of meat and eggs chiefly are often excellent. To supplement the work of the stomach glands hydrochloric acid can then be administered in quite small doses with usually the happiest results.

Observations in my laboratory have shown beyond question that 0.3 to 0.6 c.c. of the dilute hydrochloric acid given during the period of digestion in such cases tend strongly to promote the secretion of the gastric glands, so that it is not uncommon to find after a few weeks of such treatment, even when not conjoined with other roborant measures, a largely increased percentage of the acid as shown by analysis after the usual test meal.

In intestinal catarrh the selection of the diet must turn largely upon the condition of the stomach digestion. When the case is complicated by hyperchlorhydria the diet above recommended for that condition will generally be the most suitable. These are cases in which a milk diet frequently gives the best result. The same with the cautious addition of meat juice and eggs will usually agree well in cases of intestinal catarrh with very small or absent digestive power in the gastric glands, provided any deficiency in the secretion of the pancreatic juice shall be made up by the administration of a good active extract of pancreas.

When the intestinal catarrh is conjoined with good stomach digestion—a not very frequent combination however—there may be a full allowance of meat along with the blandest vegetables and farinaceous foods, though even here milk and eggs will often agree better.

PHYSIOLOGY OF THE COLON, SIGMOID AND RECTUM.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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In obscure cases of disease of the rectum and sigmoid flexure, inversion of the trunk seventy to eighty degrees, dilatation of the anus with Sims' speculum, inflation of the bowels and electric or reflected light (the former is preferable), are indispensable to a thorough ocular examination and diagnosis. In such cases I have used a rubber tube, eighteen inches long, with good results. By inversion of the trunk seventy or eighty degrees the pelvic and abdominal contents gravitate toward the diaphragm; a vacuum is formed in the rectum and sigmoid which become inflated with air under forced expiration and anus patulous and retracted with a Sims' speculum; the mucous folds are effaced, and the bowel has almost the appearance of a straight tube; on inspiration the bowel collapses and presents a curved tube, the mucous folds resuming their normal position.

The upper end of the rectum is much smaller than any other part of it, and presents a cavity closed from the sigmoid flexure, because the circular muscular fibers of the latter act as a sphincter, except during forced expiration and defecation; at such time the rectal cavity and lower part of the cavity of the sigmoid flexure seem one. Gray's "Anatomy," page 806, states that the sigmoid flexure is the narrowest part of the colon.

The rectum is cylindric, not sacculated like the rest of the large intestine. It is narrower at its upper part than the sigmoid flexure, gradually increasing in size as it descends and immediately above the anus presents considerable dilatation. It is capable of acquiring enormous size; when distended it is funnel-shaped and naturally is a closed cavity caused by approximation of Houston's folds and action of the circular muscular fibers. "The sigmoid flexure has great mobility, with the hand introduced into the bowel a point above the umbilicus has been reached."

Ocular examination of the cavities of the rectum and sigmoid flexures, though one is expert in handling instruments and focusing reflecting light on the parts to be seen, is no easy feat to accomplish except by practice. The subject to be examined should be slender and emaciated and willing to bear some slight pain and discomfort in the accomplishment of inspection; the sphincter ani should be previously dilated or relaxed and dilatable. If sunlight is reflected into the rectum the head of the patient should be toward the sun, if other light be employed it should be to one side—the left is preferable. The trunk must be inclined to the left side and inverted to an angle of seventy or eighty degrees and the thighs flexed; both should be supported on hard pillows. The speculum (Sims') is introduced into the anus and rectum, retracting the former, the lower and about half of the middle third of the latter with the coccyx. The nates must also be retracted. The anterior rectal wall, or recto-vesical wall, and anterior wall of sigmoid flexure are to be pressed forward out of the way by the blunt-pointed sound or applicator, or by inflation of air, the retraction of the anus and rectum pressing the anterior rectal wall and the anterior wall of the sigmoid flexure forward. The reflection of light or use of the electric lamp introduced within the bowel must be done simultaneously with forced and prolonged expiration.

The function of the sigmoid flexure is a receptacle for the feces as they pass from the descending colon, it being closed at its lower end by circular muscular fibers separating the sigmoid flexure from the rectum. The shape of the sigmoid flexure lessens or breaks the force of gravity of the feces; if the bowel at this point was a straight tube the intestinal contents would descend at once to the anus and cause continual inclination to defecate in the sitting or erect position. When the sigmoid flexure becomes filled normal reflex action by the spinal nerves is produced, causing contraction of the circular and retraction of the longitudinal muscular fibers, by which the length and lumen of the bowel are made less above; the circular muscular fibers of the lower end of the sigmoid flexure and those of the rectum, the sphincters ani included, relax and with the volition of the patient defecation is accomplished, the lungs being inflated, and the diaphragm and abdominal muscles contracted, thus lengthening the contents of the abdominal cavity.

Another function of the sigmoid and rectum and colon is to absorb nutritive enemata and sustain life in gastro-intestinal diseases. Physiologically the rectum is a closed and empty cavity (except during forced expi-

[1] At Winchester, Ky., June, 1886, the author read a paper before the Kentucky State Medical Society on ulceration of the sigmoid cavity, "Inversion of Trunk, Electric and Reflected Light in Diagnosis and Treatment," which was published in the American Practitioner and News, Vol. 2, New Series, No. 17, August 21, 1886, at Louisville, Ky. On Nov. 30, 1885, the writer was the first to do sigmoidoscopy.

ration and defecation), and separated from the sigmoid cavity above by contraction of the circular muscular fibers of the latter at its lower end. The rectum has the following mucous folds, viz., the longitudinal fold at the lower part of the bowel and Houston's folds, each being half an inch wide and semilunar in shape, these are sometimes three or four, but sometimes only two. One is situated on the right side of the rectum near its upper end, one on the left side lower down; the largest one on the anterior rectal wall opposite the bladder and the posterior fold on the rear wall of the rectum an inch from the anus. These folds with the circular muscular fibers of the rectum and of which the sphincter ani is composed, together with the levator ani and coccygeus muscles, act as a support to the sigmoid flexure when it is filled with fecal matter. When defecation is postponed, though the desire is present and urgent and feces have passed into the rectum, the latter by contraction of its circular and longitudinal muscular fibers (the mucous folds acting as valves or elevators) returns the feces to the sigmoid cavity. After the desire to defecate has passed the rectum is found to be empty. But, should defecation be habitually postponed from day to day or two or three times a week, though demand is urgent, the bowel becomes habitually distended, fails to contract or retract, and the rectum instead of being physiologically empty, becomes pathologically distended and relaxed. Constipation or diarrhea would then cause the same relaxation of the involuntary muscular fibers.

The glands or crypts of Lieberkühn are simple tubular depressions of the intestinal mucous membrane, thickly distributed over the whole surface both of the large and small intestine. In the small intestines they are visible only with the aid of a lens, and their orifices appear as minute dots scattered between the villi. They are larger in the large intestine and increase in size the nearer they approach the anal end of the intestinal tube; in the rectum their orifices may be visible to the naked eye. In length they vary from 1/180 to 1/160 of an inch. Each tubule is essentially similar in construction to the intestinal mucous membrane, viz., a fine basement membrane, a layer of columnar epithelium, many of which cells are goblet cells lining it and capillary blood vessels covering its exterior, the free surface of the columnar cells presenting a striated appearance.

The mucous membrane of the large, like that of the small, intestine is lined throughout by columnar epithelium, but unlike it is quite destitute of villi, and is not projected in the form of valvulæ conniventes. Its general microscopic structure resembles that of the small intestine, and it is bounded below by the muscularis mucosæ. The general arrangement of ganglia and nerve fibers in the large intestine resembles that in the small.

Glands.—The glands with which the large intestine is provided are of two kinds, the tubular and the lymphoid. The tubular glands, or glands of Lieberkühn, resemble those of the small intestine, but are somewhat larger and more numerous. They are also more uniformly distributed. They increase in size the nearer they approach the anal end of the intestinal tube. In the rectum their orifices may be visible to the naked eye.

Nutritive liquid material in the rectum, sigmoid and colon enters the circulation through osmosis and filtration. Crystalloid substances as alcohol, sugar, ordinary saline substances should be combined with the liquid nourishment to hasten absorption.

The diffusibility of the substance to be absorbed is one of the chief conditions. It should be a liquid or gaseous one, as the less dense the fluid the more speedy, as a general rule, is its absorption by the lymphatics and blood vessels. The more anemic the patient and the less congested the blood and lymphatic vessels the more rapid is the absorption process. The more tense the vessels the less rapid is absorption; absorption may be entirely suspended from arrested function, by congestion and inflammation of rectum, sigmoid and colon with full and tense vessels, therefore a healthy rectum, sigmoid and colon are highly essential to feeding by this route. The more rapid the circulation, without inflammation, in rectum, sigmoid and colon the quicker is absorption accomplished. A colitis, sigmoiditis or proctitis with or without anal fissures, ulcer in lower third of rectum, acute or subacute inflammation of hemorrhoids or malignant disease will interfere seriously with feeding per anum. At least once a day the colon should be washed out with a warm antiseptic solution of from one to four pints; the patient in Carpenter's posture, viz., on left side, left shoulder and side of head with hips raised to an angle of 40 to 80 degrees. Through gravitation and retrograde action of the longitudinal and circular muscular fibers of the rectum, sigmoid and colon the enema will reach the caput coli. Weak crystalloid solutions are more readily absorbed than strong ones. The chlorid and the carbonate of lithium are most easily absorbed by an empty stomach and doubtless the same is true of an empty colon. The epithelium as well as the glands and blood vessels is a prominent factor in colonic absorption and alimentation. Strychnin in solution and some other drugs are more quickly absorbed by the rectum than by the stomach.

Dr. J. Peyton of Stanford, states that he nourished a lady for three weeks by rectal alimentation with peptonized beef, white of egg and sweet milk given every four to six hours. Patient had gastro-enteritis; recovery followed.

A physician of Louisville nourished for more than a year a patient who had ulceration of the stomach, with sweet milk and whisky only, per rectum.

Another physician nourished a patient three weeks with enemata of bovinine. Patient was weighed before and after this method of feeding and had not lost any flesh.

Mrs. ——, age about 43 years, had mental aberration and would not eat or swallow her food. Family would not consent to feeding by stomach tube, hence rectal alimentation was used. Four to eight ounces of warm milk and a tablespoonful of whisky were given every four to six hours, with hips elevated high during and for half an hour after the use of the nutrient enema. Rectal treatment continued three weeks. Recovery of patient complete.

Mrs. A. T., age 44 years, had mental aberration; would not eat or swallow. She was nourished for six weeks with enemeta of sweet milk, whisky, quinin and sodium chlorid administered high up in the rectum by elevating the hip from 40 to 60 degrees. With elevation of the hip on the left side the pelvic contents gravitate to the diaphragm, the rectum and sigmoid retrograde and the nutrient enemata are forced into the descending and transverse colon. Inunctions and massage with olive oil every four hours were also used. At the end of six weeks the patient was stronger

and had gained some flesh. Unfortunately she was not weighed before and after the course of treatment. The patient recovered.

Miss ——, age 28 years, had typhoid fever. Deafness, amblyopia and semi-unconsciousness occurred in the third week of the disease, with inability to swallow. There were no signs of hemorrhage of the bowels at any time; pulse was exceedingly feeble and dicrotic, often imperceptible. Hot or warm milk, c.c. 118 to 237; sodium chlorid, grams 2, and whisky, c.c. 30 were given, per rectum, every four to eight hours night and day for three months or more. At times the whites of one or two eggs were added to the milk, or a warm eggnogg was given per rectum.

L. T., age 2 years, a negro child, first had scarlet fever, then diphtheria. In three weeks from date of contracting diphtheria the palatal and pharyngeal muscles were in a state of paresis, and patient could not swallow. Rectal feeding was resorted to with satisfactory results. Milk, c.c. 118; whisky, c.c. 7.4; quinin, grams 13, and salt, gram .65 were mixed and injected warm into the bowel every four to eight hours. Rectal feeding was continued over a period of two months.

The writer has repeatedly passed enema to caput coli by elevating the hips.

A patient now at the Joseph Price Hospital, Stanford, Ky., who had chronic gastro-enteritis for years had a subacute attack and for three weeks or more has been fed with nourishing and stimulating enemata and is improving nicely.

The last four cases, in addition to the stimulating and nutritive enemata, were given the tincture of nux vomica.

Aphorisms.—The rectum, sigmoid and colon must be washed out once or twice a day with hot sterilized water to which has been added carbolic or boric acid.

Hot or warm soothing, non-irritant, nourishing, stimulating or sedative and tonic aseptic enemata can be used in rectum with impunity. Whisky, brandy, alcohol, salt, sugar or sodium carbonate are crystalloids and hasten absorption. By bringing to the boiling point, then adding pancreatin, sodium carbonate or sodium chlorid prepares milk for colonic and sigmoid absorption. Elevate the hips of the patient to 40 or 60 degrees, secure the advantage of gravity and the retrograde action of the rectum and sigmoid from anus to caput coli. When the hips are thus elevated the anus and lower rectum lose their irritability and reflex excitability, the anus and lower rectum if in a physiologic condition are made patulous and, with the coccyx, are easily retracted. The so-called "passing the rectal tube beyond the sigmoid into colon," as is taught by our college professors can not be done. The author has repeatedly proven that unless you place the patient in the "Carpenter posture" the tube is bent upon itself, one or several times, or the tip descends back toward the anus and the enema is found in the rectum. The safest, surest and best way to intubate the sigmoid is in the Carpenter posture, and best by Carpenter's sigmoidoscopy. Where there are hemorrhoids, anal fissures or ulcers in lower rectum, anal divulsion should be done as a palliative prophylactic measure, under anesthesia.

Rectal divulsions of the sphincters, besides its paretic and therapeutic effects on the lower end of the rectum and anus, causing rest, making the anus patulous and allaying irritability and curing pathologic lesions, has another function, that of nerve-stretching of the fourth sacral and inferior hemorrhoidal nerves, thereby cutting off connection between the spinal cord, the levator and sphincters, and placing at rest the bladder, rectum, vagina and perineum.

In the Carpenter posture the colon advances toward diaphragm, the sigmoid becomes elongated, loses some of its curves and becomes more like a straight tube—the longer the mesosigmoid the more elongated and less curved the sigmoid, and *vice versa.*

In rectal feeding the enema should always be as warm as can be borne. Beef peptonoids combined with warm milk, bovinine and water, with or without whisky or brandy, or hot milk with salt or sugar make nutritive enemata that can be alternated as required. If a tonic is needed, quinin, strychnia or tincture of nux vomica can be added to the nourishing enemata; if an anodyne, morphin, papin or laudanum can be given in the same manner.

IMPORTANCE OF PHYSIOLOGICAL KNOWLEDGE TO THE GENERAL PRACTITIONER.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY ALBERT E. MILLER, M.D.
BOSTON, MASS.

The lowest form of life is a cell, which is defined as a minute mass of protoplasm. Each individual cell is of sufficient importance to have a life history of its own. It has its origin from some pre-existing parent cell, grows, fulfils its mission, produces other cells, wastes away and dies. All action is attended with waste. There must be food supplied in proportion to this waste or existence would cease. If the supply is less than the waste existence may be prolonged but must finally terminate. If the food supply equals the waste, there will be no apparent change. If it exceed the waste, there will be increase in growth. To keep an animal in a perfect condition the quality and quantity of food should be such as will best supply the place of that which is worn out. In the development of the infant after birth nature furnishes food which is typically perfect. In milk we find all of the various elements necessary for sustaining life and all that is necessary for the nourishing and building up of the tissues. In it we find albuminous material in the form of casein and serum or lac albumin, fats in the cream, carbohydrates in the form of lactose or milk sugar, salts in the form of calcium phosphate. All that is necessary for the development of every part of the system, bone, muscle, nerve, etc., in the right proportions. If from any cause we are obliged to substitute cow's milk. which is too rich in casein and fat, and deficient in sugar, we dilute with water and add sugar so as to bring it more nearly to the composition of human milk. Other foods may be successfully substituted if we keep in mind the exact composition of the typical food which nature furnishes. We should always imitate nature's food as nearly as possible unless from some diseased or deranged condition it is desirable to make a change to meet some morbid demand.

In its mother's milk the infant finds all that it needs for the growth of its body. The casein is used in the development of its muscles and gelatinous tissues. The cream is changed and deposited in the adipose cells or consumed at once to produce the animal heat.

he phosphate of lime is used to develop the osseous stem which is now increasing rapidly. If there is change or necessity to meet, nature modifies the food cordingly. In the case of the calf, colt and animals hich commence locomotion very soon after birth, here exercise is often very great, the nitrogenous inciple of the milk is increased. This excess of sein is necessary on account of the excessive waste sulting from the extra exercise. Judging from these cts we would naturally, as the child grows older and ercises more, change the food, increasing the nitro-nous principle in proportion, to meet the resultant aste. A knowledge of physiology will enable us to lect that kind of food which is demanded by the age, ndition and temperature. Foods are usually divided to organic and inorganic. A very convenient subdi-sion is to divide the organic into first, nitrogenous; is embraces substances consisting of proteid, exam-es of which are albumin, casein, myosin, gluten, fibrin, gumen, etc.; second, non-nitrogenous, these are: amyloid or saccharin bodies, sometimes called car-ohydrates; examples of these are starches and sugars; oils and fats, substances which contain carbon, ydrogen and oxygen, the oxygen being less than in ie amyloids and saccharin bodies.

Inorganic: first, foods which furnish to the system ie required salts; second, liquid food, this is chiefly ater. After we thoroughly understand the best diet r perfect health, it is comparatively easy to select a iet for different temperatures and conditions. In ery cold seasons and climates we require more heat-roducing material. This is furnished by the carbo-ydrates and the oils and fats. In warm seasons of ie year, or if our employment is in a warm room we ould diminish the use of these articles in proportion the change. If our employment requires great uscular exertion we should increase the tissue-mak-ig material; the proteids, foods which contain a large mount of nitrogen, such as albumin, casein, fibrin, luten, legumen. These are to be found in eggs, beef, ilk, bread, beans, etc. In diseased conditions we hould select the food with still greater care. If, as fevers and inflammations, there is an excess of heat e should diminish the amount or abstain from the se of heat-producing foods, such as starches, sugars, ts and oils. If there is a lack of exercise and a con-equent lack of waste of tissue, we should lessen the issue-making material. If there is an excessive waste f nerve tissue we should give our patients the kind f food that will compensate for this excessive waste. Experience has taught me that in the treatment of hthisis, neurasthenia and in fact all wasting diseases ore may be done with food than with medicine. Medicine may be an aid but the great reliance should e placed upon the food. If in health we are made irectly of the food we eat and our condition is influ-nced by that food, how much more important is this nowledge when our patient is wasting away from isease. Since putting these principles into practice have not lost a case of typhoid fever and my suc-ess in the treatment of other diseases (most notably hronic) has been much increased.

The Initial Manifestations of Leprosy.—Prof. O. Peterson con-udes from a study of 1200 cases of leprosy, that the mucous embrane is first affected by the bacillus, especially the nasal ucosa. The first manifestation on the skin is in the form of ots, usually red, sometimes symmetric, either on the face or tremities. The nodules develop later.—*Wratsch*, No. 43.

THE REGULAR PROFESSION OF MEDICINE.

Read before the Kalamazoo Academy of Medicine at its Annual Meeting, Jan. 4, 1898.

BY W. H. HAUGHEY, M.D.
BATTLE CREEK, MICH.

The average medical writer is so deeply interested in scientific investigation as to rarely, if ever, think of writing on the subject of the regular profession of medicine. This probably accounts for the scarcity of articles seen on that important subject, but never was the scriptural injunction, "physician, heal thyself," more applicable than at the present time.

The term "regular" is but little understood by the the laity, most thinking that any one who assumes to be a doctor, and who obtains his living by the practice of medicine, is a regular doctor because he is nothing else, and while I would fain think otherwise, still I am forced to believe that there are some bearing that proud title that are not clear enough in their understanding of the definition of the word to be ready at all times and at all places, to give a full and clear explanation of its meaning.

I am frequently asked, "Doctor, are you an allopath or a homeopath?" My reply invariably is, "I am neither; I am a regular." That detestable sand-bur, allopath, that was thrown at the regular profession by Hahnemann and still continues to attach itself to our clothing, has done more to befuddle the minds of the laity than anything else, except the apathy displayed by the profession itself regarding it. If every member of the regular profession would immediately and positively repudiate the word as soon as, and on every occasion when it is, applied to us, the laity would soon discard it and we would hear it no more.

The members of the regular profession can no more justly be termed allopaths than they can be homeopaths. Accepting either implies that we rule out some things from our armamentarium, and thereby lessen our usefulness just that much. As the homeopathist uses "similars" to the exclusion of all other drugs, and the allopathist uses "dissimilars" to the exclusion of all others, it is plain that each by curtailing his source of supplies and depending upon those belonging to the creed of his adoption, has lessened his usefulness in exact measure to the therapeutic value of the remedies discarded.

The word "pathy" signifies narrowness, and if a sick man trusts himself to the care of one who follows a pathy, he must simply conform his sickness to the path or pathy. In other words, the practitioner, confident in the infallibility of his pathy, requires nature to conform herself to it, and if she does not, then the patient must die. Fortunately a large per cent. of sick people get well anyway, and nature unaided would effect about 90 per cent. of cures of some kind.

The regular profession rises superior to pathies, and uses anything under heaven that will relieve suffering humanity no matter from whom or what source it comes. Neither must you use large doses, for there is nothing to prevent a "regular" from using infinitesimal doses if he believes it best for his patient.

The regular profession rationally pursued requires a thorough knowledge of physiology, pathology and therapeutics. Then, given a pathologic condition, simply apply the rational therapeutic remedies to quickest and best aid nature to restore a physiologic condition.

There is but one science of medicine, and as science is broad as the universe, it follows that the science of

medicine must be equally broad and embrace every agent under heaven, known or unknown, and is therefore forever at variance with a path or pathy. To the scientific mind there is something so supremely ridiculous in endeavoring to apply a pathy to science or science to a pathy, that were it not for the credence given those who proclaim themselves pathists, the subject would be considered too absurd for notice, but as these pathists are constantly advertising themselves as such, and then covertly using "regular" principles so far as they know, they are therefore practicing the most contemptible deceit on the laity and working a great injustice to the "regular" profession, for by using its principles to obtain results in their work, and then applying the credit of these results to their pathies, the "regular" profession is robbed of the credit due it, which being applied to the pathy makes a double injustice.

To illustrate: Some of the pathists depend so entirely on symptoms as to expose themselves to the charge of being symptomatologists. Now, what does that mean? It means that the remedy is to be decided by the symptoms present, therefore the symptoms must be developed before the remedy can be determined. In fact symptomatology pure and simple, teaches that it makes no difference what you name the disease if you closely watch the symptoms; for certain conditions will cause certain symptoms, so watch the symptoms, treat them and never mind the disease, thus placing entire reliance on symptoms.

Now, note the difference. The regular science of medicine teaches the all-important subject of pathology, built on a thorough ground-work of anatomy and physiology. Pathology, teaching as it does the nature of disease, enables us by our knowledge of it to know in a given disease what symptoms to expect from day to day. To illustrate more plainly:

Patient No. 1 treated by a "regular." Patient No. 2 treated by a symptomatologist.

The "regular" sees his patient and the first thing he does is to make the diagnosis, which he decides to be lobar pneumonia of one day's standing. Knowing the pathologic history of pneumonia he expects a crisis about the fourth or fifth day, and he immediately prepares as best he can for it by applying the known principles of therapeutics applicable to the case, and hopes with good reason to guide his patient safely past the danger point to a good recovery.

The symptomatologist sees his patient and notes fever, quick pulse, rapid respiration, pain in chest or stomach, cough. For each he leaves an appropriate remedy. Next day symptoms, fever, rapid pulse and respiration, more pain, nervousness, cough, which requires a slight change in remedies left. Third day, more pain, cough, very nervous, wakeful, perspiration, another set of remedies required. Fourth day delirium, different remedies. Fifth day patient is dead and no remedies required.

I am aware that I have painted this picture black, but I have seen just this happen, and I wish to ask in all candor which patient has the best chance for his life, the one who has his disease correctly diagnosed from the start, and is under the care of a physician who bends every effort to forestall those fatal symptoms that he knows do occur in the history of the disease, or the one whose disease is not diagnosed and the medical attendant follows along behind treating the symptoms after they arise? Should he do otherwise he will be applying "regular" principles, and the results obtained should be credited to the regular profession.

Let me exhort all who proclaim themselves pathists to follow each his own respective pathy or creed vigorously like a man, or if you deem your pathy insufficient, then drop it altogether and come into the regular profession body and soul. The profession is broad enough to furnish you ample scope for your faculties, and will receive you with open arms when you come with an honest purpose, but be honest. Be one or be the other, but do not practice one and give the credit to the other.

Let "regulars" employ every opportunity to proclaim themselves such. Never allow the word "pathy" to sully your garments or tarnish your fair name. Repudiate it whenever, wherever and by whomsoever applied. Do it with kindness and dignity, and neither you nor the profession will suffer thereby.

While there are many good, ample and sufficient reasons why a regular should not call an irregular to consult with him; still if the patient has been employing an irregular and needs your counsel, it seems to me your duty is plain, for as the regular profession embraces everything under the sun that can help the patient, it certainly embraces all the pathist is doing and whatever is to be done besides, and if the pathist will give you due credit for your advice and you can agree pathologically, you may do the patient good and still preserve your professional dignity.

SOCIETY PROCEEDINGS.

The Quarantine Convention of the South Atlantic and Gulf States.

The Program outlined was Changed.

The Convention Decided to Discuss the Questions of State and National Quarantine Before Anything Else.

The quarantine convention of the South Atlantic and Gulf States convened in the Princess Theater, Mobile, Ala., at 10:40 A.M., Wednesday, February 9.

At that hour Dr. W. H. SANDERS, State Health Officer, requested all the members of the executive committee to take seats upon the stage.

This request was acceded to by those present, and when Governor Johnston ascended the stage he was greeted with applause.

Dr. Sanders then, as chairman of the executive committee, nominated Governor Joseph F. Johnston for temporary chairman. This nomination was greeted with applause, and was adopted.

Governor Johnston took the chair and announced that the convention would be opened with prayer by Rev. J. R. Burgett, D.D., pastor of the Government Street Presbyterian Church.

At the conclusion of Dr. Burgett's prayer Governor JOHNSTON said in substance:

"It is hardly necessary for me to say that the people of this State feel gratified to have you here, whether you come from our own State or from other States of this grand Union; and so long as this fair city stands here by the sea, so long will Alabama welcome the representatives of other States within her borders. We are glad to have you here—representatives of Texas, Louisiana, Florida, Georgia, the Carolinas and other States. If an armed enemy threatened our shores, it is to those States adjoining us that we would turn for aid. When we come to consider the entrance of an enemy worse than an armed foe, it is to these States that we look for aid. This insidious enemy threatens our lives, our commerce and business interests, and we are here to devise the best means of keeping out this disease. I am not going to lengthen these proceedings by making a speech, but will turn the business over to the convention believing that methods can be devised

whereby the States and National government, each in its own proper sphere, can control these matters of quarantine."

On motion of Dr. Sanders, Dr. H. A. Moody, was elected temporary secretary.

Dr. Sanders moved the appointment of a committee on credentials to consist of one from each State; adopted.

Mr. John B. Knox of Anniston moved that the list of States be called and the delegates send up their names to the secretary; adopted.

The secretary then called the roll of States, and the delegates sent up their names to the secretary.

Governor Johnston then appointed the following committee on credentials:

Hon. P. W. Meldrim of Georgia, Dr. S. R. Olliphant of Louisiana, Dr. H. A. Moody of Alabama, Dr. J. H. Purnell of Mississippi, Dr. R. P. Daniel of Florida, Dr. H. B. Horlbeck of South Carolina.

Dr. Sanders moved the appointment of a committee on permanent organization, to consist of one member from each State; adopted.

Governor Johnston appointed the following committee:

Dr. W. H. Sanders of Alabama, Mayor C. A. Collier of Atlanta, Dr. N. L. Clarke of Mississippi, Dr. Bat Smith of Texas, Dr. Edmond Souchon of Louisiana, Dr. H. B. Horlbeck of South Carolina, Hon. J. E. Grady, J. L. Ludlow of North Carolina.

On motion a recess of fifteen minutes was taken to allow the committees to formulate their reports.

Dr. Edmond Souchon of New Orleans, read the following majority report of the committee on permanent organizations:

Dr. C. P. Wilkinson of Louisiana, president; Dr. R. P. Daniels of Florida, J. L. Ludlow of North Carolina, Dr. H. B. Horlbeck of South Carolina, Dr. Bat Smith of Texas, Dr. O. B. Quinn of Mississippi, Hon. Leslie E. Brooks of Alabama, Charles Chassaignac of Louisiana, Clarence Knowles of Georgia, vice-presidents; Dr. H. A. Moody, secretary.

The committee also recommended a change in the program so that the first matters of discussion be the subjects of State and National quarantine, and that all questions relating to these matters outlined in the program proposed by the executive committee be considered together.

Dr. Sanders submitted a minority report urging that the program remain as outlined. He said it had been drawn up carefully after a good deal of correspondence and those matters placed first were the bedrock upon which the whole subject of quarantine is based. He urged that the program be adhered to.

Dr. Horlbeck of South Carolina, held that the matters of State and National quarantine were the bedrock of the matters for the discussion of which the convention has been called.

The majority report was adopted as to permanent officers, and Dr. Wilkinson was called to the stage. As he took his seat he was applauded.

He thanked the convention for the honor conferred upon him.

He then called for the report of the committee on credentials, and Dr. Moody, chairman of that committee, reported that it would be several hours before a roster could be completed, and that those present be recognized as prima facie delegates until the roll is complete.

There being no objection, it was so ordered.

It was moved the majority report be adopted.

Dr. Sanders moved a substitution of the minority report for the majority report.

Mayor Collier of Atlanta said that this convention met for business and we want to get to business at once. The whole country recognizes that the great practical question to be considered by this convention is the question of National and State quarantine. The program has been lengthened out over a number of topics that will take up an entire week or more. Why, the Senate of the United States has been asked to stop its deliberation till this question can be passed on by this convention. One of the subjects is "What constitutes an original package?" Why, the supreme court of the United States has not been able to settle that question. Let us get down to the discussion of practical questions and leave such topics for experts.

The vote was then taken on the substitution of the minority for the majority report, and the motion to substitute was lost.

The majority report was adopted by a large majority.

Dr. Souchon, chairman of the committee on permanent organization, then read the order of business as to consideration of the program: Nos. 1, 2, 3, 4, 12, 29 and 36, then to follow the program as outlined.

It was moved and adopted that papers be limited to twenty minutes and discussion to five minutes to each speaker, and this rule be inviolable.

Hon. HANNIS TAYLOR then read the following paper:

QUARANTINE WITH REFERENCE TO INTERNATIONAL RIGHTS AND INTERESTS.

To me has been assigned the duty of opening the deliberations of this convention by a brief dissertation upon "Quarantine with reference to international rights and interests." I find from investigation that the plague, yellow fever, and Asiatic cholera have been the two great spreading diseases, which have been the main causes of the precautions which modern nations have been forced to take to protect themselves against epidemic invasions.

If we seek the beginnings of the history of quarantine we find them in the precautions taken by Venice, Genoa and Marseilles, in the fourteenth and fifteenth centuries, to prevent the introduction and spread within their bounds of the plague, a disease coming from the East. When we turn our eyes to the new world, we find, apart from occasional visitations of cholera, the chief object of quarantine on the American continent and adjacent islands has been to prevent the importation of yellow fever from Brazilian, West Indian and Peruvian ports, where it exists in an epidemic form. We of the South have special reasons to know quarantine for us means something to protect us from the invasion marching mainly but not exclusively from the harbors of Havana and Rio de Janeiro. I remember that the late Dr. Cochran, who in his day, was looked upon as a master of the subject of public hygiene, told me many years ago that the place for us to fight yellow fever was in the harbor of Havana. He said that if he only had the power so to purge that cesspool of filth and corruption as to put it in a sanitary condition, he believed that yellow fever could be strangled in its most dangerous lair. With that accomplished, as he thought it could be, by efficient government in Cuba, he said that the protection of our Southern ports against the invasions of yellow fever would become comparatively easy. In the light of these plain facts, it is not hard to demonstrate that every nation has a direct and urgent interest in the quarantine regulations of a neighboring State, especially when that neighboring State is the hot bed of a malignant and contagious endemic disease that is liable at any moment to cross the national boundaries. In our own case the harbor of Havana is the object lesson to which we naturally turn for illustration. I have been informed by an eminent member of our consular service, who resided there for nearly twenty years, that as an engineering problem, nothing is easier than the cutting of a canal a few miles long that would afford such an outlet to the pent-up waters at Havana as would render that harbor one of the purest in the new world. Considering that that focus of infection is only a hundred miles from our coast, as the crow flies, certainly the people of the Southern country have a direct and urgent interest that should enable us to demand that that port be put in a sanitary condition at an early day. But, when we come to consider the right, under the laws of nations, of one nation to demand of another the doing of such thing, we find nothing but a vacuum. In that particular, international law is necessarily defective by reason of the fact that each nation's system of quarantine is one of those matters of internal concern over which each sovereign state has supreme and exclusive jurisdiction. If you have a neighbor in your own town who keeps on the premises adjoining your own, some offensive or other thing that imperils the health and life of your family, you can so deal with him under the provisions of municipal law that he will be compelled to remove it. But, if a nation has a neighbor that keeps up a nuisance that imperils the lives, not only of its own people, but of all neighboring peoples, international law provides no remedy whatever. You can not invade the territory of the offending state, in order to force it to discharge its duty to itself and to humanity.

You can not send even a sanitary inspector within the limits of the infected state to study the disease in its lair, without its consent. In all such matters you can only fall back upon what is called the comity of nations. Only through international courtesy can we examine through officials the sanitary conditions of foreign ports that menace us most. Only through such courtesy are we able to take such precautions as we are now taking with the aid of our consular service in foreign lands. Because, as you all know, every consul's power to act in any foreign country depends upon his exequatur that may be withdrawn at any time. So when viewed from an international standpoint every nation has a direct interest in the quarantine system of every other nation; but no nation has any right whatever as a matter of international law, to interfere with, regulate or control, or even to pry into the quarantine system of another state.

Of course it would be perfectly proper and in order for all

nations to unite in a Congress with the view of dealing with the entire subject of quarantine from an international point of view. There is no reason why there should not be quarantine union between the nations just as there is a postal union. If there could only be a general agreement in this matter, that each state owes a direct obligation to every other state that must be discharged under a uniform system of rules to be rigidly enforced by all, a wonderful advance could no doubt be made in the right direction. But as I have been called upon only to preface this discussion, I do not feel at liberty to trespass longer upon you.

DISCUSSION.

Hon. LESLIE E. BROOKS said that the progress in ocean traffic had made an intelligent and rigid system of quarantine necessary. He said that this was due to the fact that steamships could leave the shores of an infected country and reach our shores before the known period of incubation had passed. Quarantine was necessary as carrying out the law of self-defence. Quarantine is a conservative means to conserve the self-preservation. This country has a right, if other nations fail, to fall back on the right of self-preservation and quarantine against any other nation where infection exists.

Hon. LESLIE B. SHELDON moved that such as desired be allowed to speak from their seats on the floor; adopted.

Mr. P. J. HAMILTON said there are three things about yellow fever. What is it, how to treat it, and how to prevent it.

A DELEGATE—Are you speaking to the subject, which is international quarantine?

Mr. HAMILTON—Yes, sir; we can prevent it by international quarantine. The nations of Europe are endeavoring to meet the question by some agreement between them, something in the nature of a treaty. Mobile and New Orleans have inaugurated the proper method. They have placed medical agents at infected ports, who report any danger at once. That is the way the United States can further the international quarantine. Let the United States take the lead in some convention with those countries south of us and let this matter of medical agents be perfected. There is one thing about yellow fever, and that is that prevention is better than cure.

Dr. H. M. CARTER also spoke on the subject. He said that in most of the ports of Cuba the United States had sanitary medical inspectors, and that international law is no bar to United States officials serving in foreign ports.

Hon. R. H. CLARKE said this convention ought to take some action looking to an application to the Government for the maintenance of a corps of medical experts in those foreign yellow fever ports. He moved the appointment of a committee of five medical gentlemen to name the yellow fever ports at which medical agents should be stationed, and to call the attention of Congress to the matter, as well as the holding of an international quarantine convention.

Dr. HAMILTON of Chicago, spoke of what had been done in Europe by the nations in relation to quarantine, and of the Pan-American Medical Congress at Washington.

The committee on permanent organization reported the hours of business as follows: From 9 A. M. to 1 P. M.; 2:30 P. M. to 5 P. M.; 7 P. M. to adjournment.

The convention then recessed till 2:30 P. M.

AFTERNOON SESSION.

The chair called the convention to order after recess and announced the following committee to recommend appointment of medical inspectors at various foreign ports: Dr. John B. Hamilton of Illinois, Dr. S. R. Olliphant of Louisiana, Dr. H. R. Carter of the Marine Hospital Service, Dr. R. P. Daniel of Florida, and Mr. P. J. Hamilton of Mobile.

FEDERAL AND STATE POWERS AS TO QUARANTINE.

Hon. EDWARD H. FARRAR then read a paper on "Federal and State Powers as to Quarantine." He said the line of demarcation between the two had been the battle ground of lawyers, judges and politicians for years past. He then discussed at length the legal aspect of the question, and cited the creation of the general government, which he said could have no power, except expressed in the instrument showing the grant of powers to it by the States, and referred to the adoption of the tenth amendment. The speaker discussed the relations of the States to the general government, and said that matters of quarantine were reserved to the States unless they had been expressly relegated to the general government. He spoke of the different factions in construing the constitution of the United States, and cited a large number of legal authorities and opinions of Chief Justices Marshall and Story and other justices of the United States supreme court.

Quarantine laws are health laws and belong to the police power, which have never been taken from the State, and in which rest the protection of the health, life, well-being an prosperity of the people. He held that if the State did not pa laws to prohibit nuisances, the spread of disinfection, the pu ishment of incendiarism, murder, assaults, etc., congress ca not pass such laws. He cited a number of authorities to sho that the police powers of the States had never been delegate to the general government.

He held that as quarantine laws had been classed as part the police powers of the State, and that such police power ha never been delegated to the Congress, therefore there was n power implied or expressed in Congress to pass quarantine law

If quarantine laws control commerce between states and na tions, Congress can deal with them; but if they simply affe commerce, then the Congress has nothing to do with them especially if they are bona fide health laws; I do not mea shotgun quarantine, nor those which prevent a train from pas ing from one locality through another. I believe that the en actment of quarantine laws is therefore reserved to the State

He cited a number of legal opinions and authority on th subject.

He held that Congress had no power to pass an exclusiv quarantine act, regulating both maritime and internal quarar tine, and the movements of persons and goods within the limit of a State. From 1799 down, the rights of the States to pas quarantine laws had been recognized, and if this power ha been specially reserved to Congress, why was it that Congres had continually recognized the right of the States to pass suc laws? He declared the State sovereign and deprecated th drift toward centralization and paternalism.

The paper was a very exhaustive legal argument in favor State quarantine. The reader was called down by the tim limit.

Unanimous consent was asked for the reader to continue, bu objection was made.

Hon. R. H. CLARKE then moved reconsideration of the pro vision limiting readers of papers to twenty minutes, which wa adopted.

On motion, Mr. Farrar was then invited to continue his pape

He thanked the convention for the courtesy and was roundl applauded.

During the continuance of his argument he was frequentl interrupted by applause.

Hon. R. H. CLARKE then spoke on the paper. This is a con vention gathered for suggesting the best means of keepin yellow fever out of this country. No sooner does an epidemi of yellow fever break out than we begin to call on the goverr ment for aid. We want money, camps, rations and other things but still we say to it "hands off." Such a state of things ca scarcely exist. There are two divisions of quarantine. One is boundary quarantine, and the question is, has the general gov ernment the right to say to a vessel that it shall not enter an port or proceed up any river or harbor. The government ha the power to turn back from any harbor of this country me and merchandise. He argued that the general government ha the power to do these things. Before the completion of th argument the time limit expired.

There was a motion to extend the limit, but Mr. Clarke aske that such motion be not put.

DISCUSSION.

Mr. HARRY PILLANS of Mobile said the paper did not rais the mooted question as to whether the State or federal autho ity was best to settle the matter of quarantine. He said tha what is police power is yet to be determined. I have failed t discover an epidemic of disease this summer, but we did hav an epidemic of fear and cowardice. The police power is on that can be reposed in a safe government when it is reasonabl exercised. The enthusiasm of our boards of health has carrie them far beyond their power. The Governor of the State ha had the hardihood to say that no citizen should come out o Atlanta, a place not infected, and enter the State of Alabama I have never heard of a more despotic ruling. There was abso lutely no law in right or reason for such action. He spoke o the habit of cities or towns to quarantine towns between then and infected cities unless those towns did quarantine the in fected city or town.

Dr. W. H. SANDERS interrupted to say that no quarantin was declared until there was a case of yellow fever declared i Atlanta.

Mr. PILLANS said it remained a fact, however, that man towns did threaten to quarantine Atlanta unless she did a many other inhuman cities did, shut her doors against fleein women and children.

Captain J. M. FALKNER said the Louisville and Nashvill had lost thousands of dollars and he wanted to acquit th boards of health of wrong-doing. These medical gentleme

tell us that yellow fever does not originate in this country, then why stand here and shout about States' rights? The disease comes from without and Congress having the power to regulate the foreign commerce, she should have the power to keep this foreign enemy out. The announcement of a case of yellow fever in Mobile to-night would cause a greater stampede than the invasion of the entire Spanish army. Continuing, the speaker contended that the disease being a foreign importation, the general government should be charged with the power to resist such an invasion. It is the duty of Congress to resist the invasion of this disease as it would resist the invasion of a foreign army.

So long as Havana is infected with yellow fever all vessels coming from Havana, whether they have sickness on board or not, should be treated as infected and held in quarantine a sufficient time to preclude the possibility of infection. Congress should furnish all the money necessary and the men and plants necessary to keep out this disease. With the ports bidding for commerce and no uniformity of quarantine, it is not unlikely that we shall have a recurrence of the experiences of the past summer.

Health Commissioner Reynolds of Chicago, said it was the hope of Mayor Carter H. Harrison of Chicago, that some action would be taken at this convention to perfect the quarantine laws. He said that Chicago was interested in the commercial side of the question and that the producers all over the country were interested in the deliberations of this convention.

W. F. Vandiver of Montgomery, said he did not think the question of States' rights was pertinent. That was a political question and this is not a political convention. You can not expect reason from a lot of terror-stricken people any more than you can from a mob. We had an epidemic in 1873 that was frought with death, and plenty of it, and in 1897 the death rate was not so great, but there was more excitement and more loss. He related several experiences of the past summer and said that this convention should say to the United States that we charge you with keeping out the disease and if you let it get in we want you to hunt it out.

In answer to a question, he said he would place the matter in the hands of the National Government.

T. G. Bush of Anniston, then spoke. He said he was the fourth speaker in that immediate circle, which is proof of the spirit that moves us. He told two anecdotes and said that he believed the question had been settled. Once he was a member of the legislature, and whenever some members did not want to vote for a question they would say it was unconstitutional, but he told them the supreme court would settle that. He favored relegating the matter to the general government. He did not come as a mendicant, but he asked it as a right, as a child of the Government. We want uniformity. My railroad experience is that for two weeks we could not turn a wheel. We left Anniston, went through Atlanta and then came to New York; but on our return we came around Atlanta, but the quarantine officer refused to let me in. We want no repetition of this. We want common sense. We want uniformity.

Dr. Bat Smith of Texas, stated that Dr. Warren Stone said yellow fever was indigenous to New Orleans. You are hunting the focus of the disease in foreign ports, but if you will go around and make the people clean their city and then you will destroy the fever. A scavenger in Mobile or New Orleans is worth more than a health officer.

Dr. Charles Chassaignac called the gentleman to order and said the sanitary condition of New Orleans is not under discussion, and she is abundantly able to take care of herself.

The chair then read the Committee on rights of suffrage of delegates as follows:

Collier of Georgia, Clarke of Alabama, Grady of Florida, Corrie of Louisiana, Taylor of Mississippi, Ludlow of North Carolina, Horlbeck of South Carolina, Smith of Texas, McShane of Maryland, Hamilton of Illinois, Wingate of Wisconsin, Holloway of Kentucky, Robinson of New York.

Dr. Robbins of Mississippi, disclaimed any reflection on the Mississippi State Board of Health in his remarks at the morning session.

Dr. Robinson's paper.

Dr. S. A. Robinson of New York, then spoke on the subject. He said quarantine was a common cause against a common foe, and alluded to a private opinion submitted by him, which is as follows:

Influenced by the effects of cholera upon the business and social life of New York in 1892, the New York Board of Trade and Transportation then made a pretty thorough investigation of quarantine, and recommended the immediate establishment of a national quarantine system. Congress passed an act, entitled "An act granting additional quarantine powers and imposing additional duties upon the marine-hospital service," which was approved Feb. 15, 1893. Believing the proper administration of this act would exclude diseases quarantined against, or confine them to where they first appeared and promptly eradicate them, we felt secure. Now, influenced by what Southern commerce and society suffered from yellow fever in 1897, we are collecting information regarding quarantine and the prevention of disease in general.

Being a member of the committee selected by the board for that purpose, and thinking I could learn more from the gentlemen composing this convention than from any other source I am, thanks to your courtesy, here for that purpose. We are receiving a great deal of valuable information, all of which will be at your service as soon as it can be compiled and published, but we are especially desirous for your advice and assistance, and will in return do what we can to aid you in securing legislation that will best protect the people and the business of our entire country.

I think that quarantine, or disease limiting and preventing authority, must be uniform in order to be most effective. Not uniform in methods, for conditions vary and methods must meet conditions, but uniform in spirit and power. The idea that forty-five systems of quarantine (one for each State) could best protect the people of the United States seems preposterous. To thoroughly protect our entire population such authority and regulations must be National.

To ascertain the validity of the contention that the federal government can not constitutionally establish and maintain a national quarantine system, the New York Board of Trade and Transportation decided to consult one of the best authorities on constitutional law, and selecting W. B. Hornblower, obtained the following opinion:

Hornblower, Byrne, Taylor & Miller, No. 30 Broad Street.
New York, Jan. 24. 1898.

Frank S. Gardner, Esq., Secretary New York Board of Trade and Transportation:

Dear Sir:—In accordance with your request made some time ago, for my views on the subject of national quarantine, I beg to say that I have been so occupied during the past few weeks in court work, that I have had no opportunity until recently to examine the papers you have sent me and to give the matter consideration.

As to the constitutional power of Congress to establish a department of public health and to assume control of a general system of quarantine throughout the country, I have no doubt. I do not base this power, however, upon the "general welfare" clause of the constitution. To construe that clause of the constitution so as to cover this subject would authorize the assumption by Congress of any powers which at any time it deemed for the general welfare of the public at large and would absolutely abrogate the constitutional amendment which provides that:

"The powers not delegated to the United States by the constitution, nor prohibited by it to the States, are reserved to the States respectively or to the people." (Tenth amendment to the Constitution.)

I am of opinion, however, that under the clause of the constitution authorizing Congress "to regulate commerce with foreign nations, and among the several States, and with the Indian tribes" (Section 8, Article 1), a national system of quarantine can be established and maintained.

So far as concerns quarantine regulations affecting our international commerce, there can be no doubt that the present State regulations are lawful merely because Congress chooses to allow them to remain in force and are lawful only so long as Congress chooses. I so understand the decisions of the United States supreme court. These quarantine regulations operate as restrictions upon foreign commerce and as such can be at any time set aside by federal legislation. and Congress can itself assume jurisdiction over this subject.

The right to regulate commerce "among the several States" is as broad as the right to regulate commerce "with foreign nations." It follows, therefore, that Congress has the same right to establish and enforce quarantine regulations, as affecting interstate commerce, that it has to make and enforce quarantine regulations as to foreign commerce. With regard to vessels in the coasting trade, arriving at one port from another port of the United States, the same regulations can, of course, be easily applied that are applied to vessels arriving from foreign ports. The practical difficulty arises in the case of interstate communication by land. I have no doubt of the right of Congress to establish quarantine regulations which shall affect all railroads carrying passengers or freight from one State to another, just as by the interstate commerce acts Congress has assumed jurisdiction over the railroads with regard to rates,

etc. As practically all railroads do an interstate business, directly or indirectly, by carrying passengers and freight in transit from one State to another, quarantine regulations could, therefore, be established over practically all railroads in the United States. Such a system of railroad quarantine would necessitate and would authorize the establishment of a United States quarantine station in the principal commercial city of every State in the Union, and this quarantine station could, it seems to me, effectively control the quarantine regulations of the entire State, co-operating, of course, with the local authorities as far as practicable. I do not see why a system could not be worked out on this line which would be efficient and satisfactory.

As to the desirability of a national quarantine, it seems to me there can be no serious room for discussion. Conceding the right of the government to interfere with the liberty of the citizen and with his rights of property, so far as may be necessary for the protection of the public health, the only question is, whether it is more expedient that this right should be exercised by the local government or by the State government, than by the general government? It seems to me that a uniform system administered by national officers is the only safe and rational method of administering this branch of government. Of course, the tremendous powers imposed upon quarantine officers are open to abuse, but such abuse by national officers would have a wider publicity and be subject to more direct remedial legislation than would the petty tyranny of local officers, especially where the sufferers from such tyranny would usually be non-residents of the locality where the officers exercise their authority. As quarantine is of necessity an interference with commerce, it seems to me that it is peculiarly a matter within the province of federal legislation.

Trusting that I have sufficiently answered your inquiries, I remain yours very truly, W. B. HORNBLOWER.

Perhaps nothing marks the progress of modern civilization with more precision than the improvements in preventive medicine and hygiene. If we teach our people the value of these improvements they will demand that their legislators give them the benefit of them, and every true citizen of our country will welcome and promote the best possible system of quarantine.

Thomas Jefferson, then President, in a communication to Congress on the state of the Union in 1804, protested against the adoption of a code of laws to prevent the introduction of yellow fever. Our people have learned a great deal since 1804, and the response which they would make to such a protest by their President today would clearly indicate it. When they know what science can do to exclude and prevent disease they will be wise enough to unite in a determined and persistent effort—each for all and all for each—to secure every advantage it can confer, and will demand that safety and not sentiment shall decide and govern all that pertains to quarantine.

Dr. BAT SMITH of Texas said that Texas wanted to place herself on record as desiring to police her own borders. She has the men and she has the means. She is willing to meet the Marine-Hospital Service half way, but she does not want federal interference and is not going to stand it.

A DELEGATE—Did not the Governor of Texas ask the aid of the federal government to stamp out smallpox at Eagle Pass?

Dr. SMITH—Who was Governor?

THE DELEGATE—Governor Hogg.

Dr. SMITH—Oh, he was not responsible.

Hon. W. A. KAY of Georgia also spoke on the subject. He said the legislature of Georgia called on the federal government because they recognized it was a condition that Georgia and her sister States could not meet. You may pooh-pooh shotgun quarantine, but you must have a stronger power to put it down. He favored going to the general government to get the assistance so badly needed.

Mr. JOHN B. KNOX of Anniston spoke as follows:

Mr. Chairman: I had not intended to take any part in the discussion of the topic now before the convention, but since hearing the elaborate written argument against the constitutionality of the proposed legislation by the federal government on this subject, I feel impelled to say something upon the legal question involved.

I was surprised to hear it asserted by the honorable gentleman (Mr. Farrar) that the federal government as now administered is not a government by the people, and that the only government where the voice of the people is recognized is the government by the States.

Mr. Chairman, I do not sympathize with this effort to excite the prejudice of this convention against the national government. I have always been taught to believe that the system of government under which we live is the best ever conceived. It was the product to a large extent of Southern intellect and Southern statesmanship. In its conception and development the country had the benefit of the wisdom, experience and intellect of Madison, Jefferson, Washington, Henry and a host of others, who labored together to perfect the finest system of popular government that the world ever saw, and I think that no prejudice against our form of government can be aroused before a Southern audience by any attack upon the wisdom of the fathers in its formation.

Mr. Chairman, the constitution of the United States invests the national government with the absolute power to regulate commerce between the States and with foreign nations. This power is granted to the general government by the States. It is not granted with any proviso that it shall not be so exercised as to conflict with the police regulations of the States, and to become inoperative when it does; but it is absolute and imperative, and when properly exercised the powers of the States so far as their police regulations are concerned, must give way.

I will not discuss the proposition that the State quarantines not to say the shotgun quarantines in force in several of the Southern states during the year 1897, interfered with interstate commerce. To a large extent everybody knows that it not only interfered with interstate commerce, but absolutely destroyed it.

The honorable gentleman from Louisiana (Mr. Farrar) refers to two decisions of the supreme court of the United States which he condemns in the most intemperate terms. I listened with great interest to the reading of his paper and I failed to hear any opinion, or, if you please, any dictum, from the supreme court of the United States or any other court to the effect that the federal government had not the power to enact a general quarantine law.

On the contrary, I beg to call your attention to two decisions of that court, which seem to hold directly to the opposite.

The honorable gentleman contended before us with great earnestness that the federal government could only act in aid of the State government. My understanding of the law is just the reverse. Where the federal government has jurisdiction and it has been actually exercised, it is supreme and not subservient to the State regulations.

In the leading case of Peete vs. Morgan (19 U. S., 581) the supreme court of the United States, in passing upon the validity of State quarantine regulations, says: "They are enacted for the sole purpose of preserving the public health and if they injuriously affect commerce Congress, under the power to regulate it, may control them."

And again in a still later case, Morgan Steamship Company vs., Louisiana (118 U. S., 465), Mr. Justice Miller speaking for the court says: "Whenever Congress shall undertake to provide a general system of quarantine, all the State laws inconsistent with said enactment will be abrogated, but until this is done the laws of the State on the subject are valid."

The honorable gentleman from Louisiana (Mr. Farrar) does not attempt to answer these decisions. He says of the first that it is mere "judicial slop," and of the other, that it is mere "judicial gush." Mr. Chairman, both of these cases are announced as the opinion of the court, and the second opinion was delivered by (Mr. Justice Miller) one of the ablest judges who has sat upon that bench. And I submit, therefore, that the effect of these decisions is not to be destroyed, either by abuse of the court, or by the contempt expressed by the learned gentleman for the justices who wrote the opinions. And I may say, in conclusion, Mr. Chairman, that the question of the constitutionality of a federal quarantine law has recently received very careful consideration from a committee of the United States Senate, upon which were some of the best lawyers in the Senate, and a report was made, practically unanimous, sustaining the constitutionality of the proposed legislation.

Mr. NORMAN WALKER of New Orleans, cited the report of the committee referred to by Mr. Knox.

Dr. ROBBINS of Vicksburg, Miss., said that the sentiments expressed against the General Government found no lodgment in the hearts of the people of Mississippi. They had seen the States utterly powerless to protect their citizens, and he for one had come here to appeal to the General Government to do that which the States are powerless to do.

Mayor COLLIER of Atlanta, protested against the sentiments expressed against the General Government, which he said is "my country." He said that he read of one board of health in Alabama which by a vote of four to three refused to admit ice, and another a carboy of carbolic acid. He said the system of quarantine in vogue last summer was a disgrace to civilization.

Mr. FARRAR replied and said he never denied the right of the Federal Government to pass quarantine laws such as Mr. Clarke cited. He replied briefly and pointedly to the arguments put forward by the other speakers and showed his familiarity of the legal aspect of the State and Federal Government.

Hon. HANNIS TAYLOR spoke upon the subject and said that the State quarantines had been broken down and routed and in Louisiana the Board of Health run out of office by an indignant people. He argued that the power to enact quarantine laws was reposed in Congress and said that the question was how best to formulate a law that would meet the desired end and at the same time reserve to both the State and Federal Governments their legitimate powers.

Dr. SANDERS protested against Mr. Taylor's statement that State quarantines had been a failure.

Mr. TAYLOR said he did not mean the remark in that light. He meant that the boards of health as a whole had been routed.

Dr. SANDERS, continuing, defended the boards of health.

Dr. ROBBINS, of Mississippi, asked if the people did not set at defiance the State boards of health. He said that such was the case in his State.

Mr. KNOWLES, of Atlanta, offered a resolution as follows:

WHEREAS, The experience of last year during the prevalence of yellow fever was sufficient to demonstrate the inefficiency of State, county and municipal quarantine regulations, as well as the resultant disastrous effect on commerce, travel, and the public comfort and safety; therefore, it is the sense of the convention that congress should enact such legislation as will result in the establishment of a national uniform system of quarantine with due regard to the rights of the various States.

It is not the purpose of this convention to endorse any plan, system or legislation now proposed, but simply to place on record its belief in the necessity for uniformity and such enforcement as is only possible under national supervision, leaving the plan and its details to our representatives in congress.

Dr. HORLBECK, of South Carolina, protested against the criticism against State boards, and said that the Board of his State had kept the disease out of that State through several epidemics. He thought they ought to find out all about the disease. There are plenty of laws about quarantine, and all they need is to be enforced.

Mr. E. L. RUSSELL cited the practical experience in the management of the Mobile & Ohio railroad during the recent yellow fever, stating that the receipts for the three months exceeded any similar period in the history of the road; that no case of fever was carried beyond Whistler, showing that, with harmony, the States could manage affairs themselves.

Ex-Lieutenant Governor SHAND, of Mississippi, defended the State Board of Health of Mississippi.

Dr. ROBBINS asked if members of the board had not continued to proclaim to the world that the fever at Ocean Springs was dengue.

Dr. HARALSON replied and stated what took place at Ocean Springs relative to the disease there.

The chair called the speakers to order time and again, saying this was no debating society for the adjustment of personal questions.

President T. G. BUSH, of the Mobile & Birmingham railroad, gave his experience in the running of that road. He said he had to deal with the board of health of Dallas. The first thing they did was to cut off thirty-two miles of his road, declaring that everything that passed over the line into Clarke county was infected and could not come back. Fumigation was no good.

Hon. R. H. CLARKE said that if the State of Alabama would appropriate money enough to run the quarantine plant at Fort Morgan he would be satisfied to have the present board conduct that quarantine.

A telegram of greeting from the Tennessee Board of Health and promising co-operation was read.

(To be continued.)

New Jersey State Sanitary Association.

The meeting of this Association was held at Lakewood, Dec. 10, 1897. The President, Mr. JAMES OWEN, C.E., of Montclair, called the members to order at 3 P.M.

Dr. JOSEPH W. STICKLER of Orange, Chairman of the Committee on Inspection of Factories, read his report.

He inspected the factories of Orange, Newark and Paterson and, as a result, suggested these points to be borne in mind in such work: Site, drainage, condition of cellars; are rooms occupied day and night; are rooms overcrowded; ventilation; plumbing; condition of cesspools and water-closets; cisterns, size and condition; condition of drinking water; temperature of working rooms; condition of the atmosphere in rooms; clothing worn by operatives; environments; subsoil; wells, their condition; height of ceilings; sanitary defects around the factory; food and drink of operatives; amount of rest allowed employes; personal habits of operatives; the state of the nutrition and general health of the operatives. Dr. Benjamin of Jersey City, and Dr. Braymer of Camden and Dr. Baldwin of Newark inspected the factories of their respective cities and concur with me as to the importance of paying special attention to the above points, and also that many of the buildings are in good sanitary condition, others are in an insanitary state.

A careful consideration of the factory laws, etc., can not fail to convince one of the fact that ample provision has been made for the safety and health of those who work there. If clause x of supplement to an act entitled "A general act relating to factories and work shops, and the employment, safety, health and work hours of operatives, approved April 7, 1885, were the only legal enactment appearing on the pages of the statute book and were faithfully and conscientiously carried into effect in every instance by the inspectors appointed by the State, no factory within the borders would be likely to be justly criticised. It is fair to say that we found many of the factories in the best condition, but some indicated that the inspectors must have failed to carry out their instructions. In either case there is good ground for adverse criticism. Dr. Torrop of England says: "Factory work is not so excessively laborious; it is the heat, impurity, and dust-laden atmosphere that injures health. The promising child of ten degenerates into the lean and sallow person of thirteen and this process is continued until a whole population has been stunted, and thus factory life becomes a source of danger to the future of England. In addition to the loss of physique, it is instructive to note the deterioration of personal appearance. Out of 2000 children under notice, only sixteen could be described as handsome, and of those the larger proportion were girls from Ireland." It seems to me that what is true of England must be equally true of America. For this reason inspectors should be careful to enforce the laws for the protection of factory employes. Inspectors should be men who understand the effects of any given employment upon the health of those engaged in it, and to this end it is essential to understand the conditions and circumstances connected with it, and these are found to be almost as numerous as the occupations themselves (Arlidge). Again, it should be known that hereditary influence as an accidental condition, coupled with the social status of an employment, has a tendency to perpetuate physical defects and disorders engendered by the occupation (Arlidge). "Another fact is that large wages have to be given in various offensive, unhealthy and dangerous trades; and as may be supposed the workmen attracted to them belong chiefly to the reckless class, broken-down characters in the lower stratum of society who are willing to lead a short and merry life."

Experience has shown to this grade of laborers that the obnoxious work they carry on, plus the possession of means for self-indulgence, operates as an inducement to intemperance, vicious habits, neglect of home cleanliness, comfort and health. Again, season trades are fluctuating; periods of active operation are followed by stagnation. It is manifest that this must affect, deleteriously, the health of the employed. It should also be understood that an insistence upon sanitation in factories means the protection of the workman; and that means one way of removing the antagonism between capital and labor. Dr. Guy, in making an analysis of the official monthly tables to discover the "influence of employments upon health," made the following statements: "The ratio of cases of pulmonary consumption to other diseases is highest where the amount of exertion is least, and lowest where it is highest; and the intermediate degree of exertion presents an intermediate ratio. The age at which consumption makes its attack is earlier in employments requiring little exertion than in those requiring more, and in those requiring moderate exertion than in those demanding a great effort. The average of deaths is lowest where there is least exertion, but highest where the exertion is intermediate between the extremes. The class of outdoor occupations requiring moderate exertion presents a higher percentage proportion of deaths under 40, and a corresponding loss of young men. Sedentary employments and those requiring little exertion are more unfavorable to adult and middle life, but more favorable to old age; on the other hand employments requiring great exertion are unfavorable to youth and longevity, but favorable to middle age. Employments with little exertion prove fatal by inducing an excess of consumption early in life; those requiring great exertion by occasioning other diseases of the air-passages and lungs, toward the commencement of old age."

Dr. Greenhow sums up: In proportion as the male and female population are severally attracted to indoor branches of industry, in such proportion, other things being equal, their respective death rates by phthisis are increased. Racial peculiarities have much to do with the effect of labor on health. Attention has been called to the fact that an occupation or a manufactory recruited with Celtic Irish workers may be expected to have a higher rate of mortality than would obtain if

Anglo-Saxon workers are employed. These matters should engage the attention of the men whose duty it is to inspect the factories of our State. When we are reminded that in the factories of New Jersey today, 50,848 persons are working, and that the health of this large army actually depends upon the well-directed efforts of our State factory inspectors, and upon wise and comprehensive legislation, I think you all will agree that our time has been well spent. No man who is unfaithful or limited in his knowledge in this line of work has any right to be found therein. Any man who seeks the position of factory inspector simply because it pays a fair annual salary is little less than criminal in spirit; and any owner of a factory who, after being instructed as to what he ought to do to make his particular trade, buildings and premises as healthful as possible, fails to do so, is guilty of culpable negligence. It should be remembered that operatives form an important part, social and political, of the population of this great country. They are important citizens with all the rights which belong to men and women who live under the protection of the grand old ensign of this glorious republic. Let us, therefore, consider their preservation from disease and injury while contributing to the industrial pre-eminence of our Nation, honored in every clime under the sun, because of the security afforded its children, not only their inherited rights because of citizenship, but a endorsed by the law of God, and the generous spirit of a just and common humanity.

Dr. J. R. LEAL of Paterson, said the report virtually admitted that we are compelled to have sanitation by the labor organizations. If the law was enforced the factories would be perfect. If the inspectors did their duty, there would be nothing for this society to do. It would appear that the sanitary condition as a whole was better than that of the homes.

Dr. HENRY MITCHELL, Secretary of the State Board of Health, said the inspector has powers and can demand changes that he may deem proper. The local boards should attend to the execution of the laws.

Dr. JAMES A. EXTON of Arlington read the report on "Improvement of Sanitary Administration in Townships." The object of appointing the committee was to secure legislation. To this end they secured the introduction of a supplement to the Act to establish Boards of Health, asking for sanitary inspection, the appointment of a State Board of Examiners whose certificates should be an assurance of eligibility of the applicant to appointment as sanitary inspector. This was known as the Wildman Bill; it passed both houses of the legislature, but was vetoed by the Governor. All believed this to be a proper bill, and with the changes recommended by the Governor in his veto will be carried through the coming year, and hence the committee asked to be continued in order to push it. This was granted.

Mr. M. O. LEIGHTON of Montclair read a paper on

VICISSITUDES OF HEALTH INSPECTORS.

He said that trouble begins at once after the accession of the inspector to office, and multiplies. He is well abused. In the milk inspection he worked personally; supervised the analysis of the milk, the bacteriologic department and the inspection of the dairies. In cases of contagious disease he studied the source of infection, superintended the disposal of ashes and garbage, as also the plumbing. To these duties he added the examination of nuisances and a number of other matters. Complaints give a ludicrous series of pictures from noisy cows to vicious dogs, troublesome geese, leaky roofs and neighborhood quarrels. He is sure to make enemies unless he is extremely fortunate. A gentleman brings a bottle of water, shall we drink this? One must labor with him, pacify him; make him know that it is not necessarily baneful, even if it is muddy. He departs and talks learnedly of bacteria and albuminoid ammonia for a week. The next knows all about disease germs from the newspapers; boils his water and milk; suspects an epidemic in every dust cloud; diphtheria has broken out in his block, wants to know if it will be better to move away to his summer home till the case is well. Nothing but intelligent reasoning will do with him. He is shown the fact that there is no danger to his family, that the case is well isolated, can not extend, and to move may be a change for the worse. The next has no complaint nor quarrel with her neighbors, but wishes to inform the health board that so and so exists in such a place, but does not wish her name to be mentioned. Now, in nine out of ten such cases there is no cause for complaint. The next desires information as to the general health of the place, what contagious diseases exist. Such a visit is pleasant, and the inspector wants more of such. In the eyes of the citizen the health inspector occupies a peculiar position. The laws have invested him with powers so extensive and so useful that it is well to know him. In order to be of service in the most efficient manner, he is confronted with many ideas as to what is best to do in each case. He must not believe in a weakened policy, nor advocate a two-faced principle. He must reach the same end by paths which conform to the idiosyncrasies of those with whom he has to deal. Tact, honest old-fashioned tact is needed, if the health officer wishes to obtain the best results. An old friend at the outset of the speaker's career said "Remember one catches more flies with molasses than with vinegar." Again, he must fancy the feelings of those who believe their house is their castle and have him come in and tell that man his property is a nuisance. If he becomes offensive to the neighbors, a change must be made. Probably this man has had all this for twenty-five years, and all thrived with it, hence he is not willing to recognize any demand for a change. There is contagious disease in his family, his house is placarded, the family quarantined, and they can not mingle with the rest freely as formerly; all this provokes opposition, and needs the greatest care in its doing. All must be done in accordance with the most approved principles as to modern science, thus to produce the greatest amount of good, and must be carefully fitted to each case. In regard to the milk supply, he visits the dairy, inquires as to the cleaning of the cows, the stables, the hands of the milkers and the other hygienic needs, then as to the cooling of the milk, the cleansing of the bottles and multitudinous points. Think of the difficulties met with. This is nothing beside the problem of teaching the ordinary dairyman a few facts about biology of milk. He listens to the discussion of the bacterial action in souring milk, cooling quickly to stop the growth of the bacteria, cleanliness to prevent bacteria getting into the milk; a few call it bosh, or stare in open-mouthed wonder. One accepted all and fixed his place as required; one day he came in and said he should add a cream separator to his dairy, it was a bad plan to set pans of milk in the open air, lest a lot of bacteria should get in and do harm with their dirty feet. After the inspector had recovered he determined not to discuss the bacterial problem with a dairyman. The municipal government has trouble with the health officer. The police station is often offensive, the lavatories are unwashed for a long time; the garbage is not collected properly, even decently. In the report of the State Board of Health, you will find town after town show the same thing. You generally find swine feeding on offensive filth thrown out from a town, the garbage being disposed of just outside the town. These hogs are then brought to market as food for the citizens, and the inspector has to view this prospect and see his progressive people feeding on the unpurified product of their own garbage. It seems that the board of health stands idly by and sees the reeking offal of its municipality going to produce pork for human consumption. Thus it falls far short of the ideal for which it was created, and fails to be worthy of the principles by which it is governed.

Another point full of anxiety is his relations with his brother doctors. What is worse in any department of life than a careless inconsiderate person who is supposed to know the value of certain systems, and yet goes always as far as he dares in the wrong direction? I of course do not intend to include all doctors in this class, yet there are a few in each district. I have seen a doctor attend a patient in the desquamative stage of scarlet fever, and go to the bedside of a little sufferer weak and emaciated from fermental diarrhea. There will come a time when the general public will be sufficiently educated in public sanitation and the whole function of the board of health will be to keep in line those doctors who need to be looked after.

Finally, he mentioned the vicissitudes arising from his relations to women. To his mind this presents the widest variety of situations. It is the hardest kind of a problem, yet withal some of the most pleasant and profitable of that official's experiences. The "peculiar odor woman" sends a note desiring him to call at once. He puts off other and more important matters, hurries to the house when she tells him of a mysterious odor, and every one has the same tone and words. He spends hours in searching out the odor, she follows, rejoicing at every insanitary discovery. Should the sanitary condition happen to be perfect, no source of odor be found, he leaves that house having lost his reputation as an expert. In nearly every case, there is no cause apparent. Happily, few houses approximate the ideal, so he generally finds a few changes to recommend. So, he goes from disease to sewers, from sewers to milk, from milk to nuisances, till at the close of the day he leaves work unfinished and goes hoping he will be a long time dead.

In the discussion that followed, the speakers endorsed and enlarged upon the matters mentioned, and it was advocated that a plan be adopted, of adding a class to the colleges similar

) that at the Massachusetts Institute of Technology, from 'hich Mr. Leighton graduated.

In the evening, the president, JAMES OWEN, C.E., delivered he Annual Address. His subject was

THE STATE OF NEW JERSEY AS A HEALTH RESORT.

n reviewing the conditions that make such a claim tena-le, certain interesting facts and figures present themselves. 'o thoroughly appreciate the question, the axioms of the rela-ion of man to his environments must be accepted and, in the ffect of climate on humanity, it must be conceded that in ertain regions of the earth's surface, human life is an impos-ibility save for limited period and confined to the individual; hat in more favorable regions certain selected specimens can e developed but with little power of increase; that in still nore favorable localities a large population can live, reproduce hemselves, but of an adapted type; that with favorable envi-onments men will increase faster than the capacity of such nvironment to furnish a living, the resultant is the tendency o migrate which is only restricted by physical obstacles or epressive customs; that the migration of the individual from he region to which he and his kind are especially adapted, as rule acts detrimentally on his physique unless the climatic onditions of the new location are almost exactly similar to the riginal. This deterioration of the physique may not be devel-ped in the individual but will in his progeny, till acclimatiza-ion perfectly ensues; that there is an inherent tendency in the hysical organization of man to adapt itself to new conditions. It is a slow process, and may take three or four generations o arrive at a perfect organism. It must also be remembered hat the so-called salubrious climate does not develop the high-st type of physical manhood; such type is generally achieved nder harsh conditions. All these assertions are based upon he inherent physical tendencies and growth which are universal n every part of the earth's surface. In addition to that is the effect of mental effort on environments, and here a line of demarcation is found to physical development on climatic lines, which is hazy and indistinct, but that certain races make no attempt to improve their physical surroundings, and that other races are continuously bettering them by intellectual effort and actual manual work, is patent to all. The North American Indian from prehistoric time made no effort to change the phys-ical condition of this country; yet within a century, the mental and corporal activity of the white race has practically changed the face of this whole continent and an appreciable portion of this activity has been on lines of what may be called sanitary improvement, showing that the effect of the intellect is to adapt the surroundings to man instead of man to his surround-ings. This alternative gives the immense scope for sanitary work in all its ramifications; but one prominent factor must always be considered, and it is that the basis of all sanitary effort on the individual and his environments is the natural climate of the district in which he lives, and the climatic conditions must be distinguished as general or specific.

The general character of a climate in any locality is a nat-ural condition that no particular effort of man can modify. Specific conditions can be changed by human effort, according to his mental acumen and physical energy. Adapting the fore-going principles to our State what do we find? 1. The aborig-inal with a physical development adapted to the surroundings, with small power of increase and an utter inability to improve his conditions. This continued till within about 250 years, when the migration began and this has been kept up continu-ously. During that period, it has been proved that the general climatic condition of the State is positively favorable to both in the development of physique and in power of increase. As the earlier settlements were made on selected territory, the necessity for modifying specific climatic conditions was not apparent, but as population increased, the insalubrious local-ities were improved and changed till today a very small por-tion of the State can be considered uninhabitable from nat-ural causes. The growth of the population of the State may be divided into three periods: That from the early settlement to the construction of steam railroads; this growth was mainly agricultural and with a very small urban population. From 1840 the growth of railroads stimulated the business activity of the State and then began the large increase of urban popu-lation till about 1865 the suburban or residential accretion be-gan, and which now forms such an important section of the Commonwealth. It must be noted that the governing impulse of all migration up to 1865 was that of gaining a livelihood in the locality and in the State; since then, the motive has been largely for residential purposes and the paramount influence for a migration is the sanitary character of the locality. In 1737 the population was 47,369; 1840, 373,206; 1865, 773,700; 1895, 1,673,106. An analysis of this growth must be consid-ered in the broad distinction as urban, suburban, rural, and, taking from the whole State the counties of Hudson, Bergen, Essex, Passaic, Mercer, Camden and Union, as those that are urban or suburban, the rest as rural, the division of the popu-lation on those lines would show: 1737, urban, 11,164; rural, 36,265; percentage of urban to rural, 23.4; 1840, urban, 125,-563; rural, 247,743; per cent., 33.6; 1865, urban, 387,104; rural, 386,596; per cent., 50; 1895, urban, 1,109,768; rural, 563,438; per cent., 66. In the year 1737 the proportion is vague; on the other hand, in 1895, there are counties like Morris, Middlesex and Monmouth that have acquired a large urban and suburban population, so probably the percentage would be nearer the truth as 70, than 66 as above. Assuming this, it is desirable to ascertain what proportion of the population is, in using this State for residential purposes alone, with no business ties, gov-erned solely in their selection of a home by convenience and sanitary surrounding and are generally known as the commut-ers. In this class we must collate all dependent upon the com-muter and his family, located merely to supply his wants, and who leaves if he leaves. It is safe to say that every man who comes to New Jersey to settle in a suburban home with his family, has another who has come to supply his wants. There are many towns and villages in the northeastern part of the State, and also in the southwestern part, that have no other cause of existence than the suburban resident, and on the sanitary condition of these towns, cities, etc., depends their vitality and existence. In addition, there is the temporary accretion during the summer months, and this is due entirely to sanitary and climatic conditions, namely, those who crowd the seaside resorts and who are also scattered over the rural and mountainous section of the State. To determine accurately the proportion of the population that is purely residential in proportion to the whole number is a matter of difficulty, as intermingled with it in some places are industrial pursuits that make it difficult to segregate one from the other, and many of the cities, as Newark, Jersey City, Hoboken, Paterson, Cam-den, have a large number who do business in other places, but prefer this State as a residence, and their number is greater than is usually expected. Information gathered from the rail-roads as to the commuters is only partial. The Erie R. R. has 20,000 a day; the D. L. & W., 15,000. Passengers crossing the North River in 1886 were 58,894,000; in 1890, 72,260,000; in 1900 it is estimated at 100,000,000, of which 50,000,000 will be from Hoboken, Jersey City and Newark, 38,000,000 from other towns, and 12,000,000 from a distance of thirty miles. Assum-ing at present 90,000,000 a year, deduct for Sundays, etc., would give a daily average of 128,000 to and from. Allow half as regular commuters and we have 65,000. Taking the basis of commuters on the D. L. & W. to population, the proportion of immediate dependent inhabitants to commuters as 6 to 1, we have a population in northern New Jersey of 400,000 as purely resident; in addition, 50,000 more can be counted in the southern part adjacent to Philadelphia. Assuming, as approximately correct, 250,000 the visiting population in the summer, we have 700,000 people who have no stronger tie than sanitary condition and therefore the greater *onus* on the vary-ing State and local authorities to preserve the good reputation for climatic and topographic excellencies. Curiously enough, the State has been a byword in the country at large for bad climate and unsatisfactory conditions. Malaria and mosqui-toes have been synonymous with New Jersey, and to have lived such a reputation down, and to be the State *par excel-ence* for location on pure sanitary lines, show that mental effort has been joined with natural conditions to achieve such a result, and that brings us to the culminating axiom of sanitary laws, that the tendency of congestive humanity is to destroy itself, unless intelligence and energy are combined to offset such disasters. This combination of intelligence with energy is classified as sanitation. In no State in the Union is this more strictly demanded than with us, and to have proper sani-tation, intelligent supervision is demanded and a conscientious obedience to such a supervision by the committee at large is absolutely essential. No more intelligent understanding of the sanitary condition of any locality can be arrived at than by studying the death rate, and I have worked out the rate for the different towns, etc., for the last five years. A synopsis will probably be interesting. A criticism may be raised that five years is too short for a proper conception of death rate, but two facts may be submitted: In the last five years the returns have been more accurate, and the death rate is decreas-ing so rapidly, that averages for ten years would give a wrong impression.

He gave the rate for nine agricultural counties as 14.6 per thousand of population; of eight surburban counties as 17.8; of seven urban counties as 20.1; of four seaside counties as 16.3; the death rate in the seaside counties conveys a false

impression, as all the deaths are given, including non-residents, while the ratio is on the actual population. Sussex, in the mountains, has the lowest, as might be expected. Salem next, is on the borders of the river with no high land but a loamy sandy soil. Hudson is the highest, due to a congested population and lack of sanitation. Curiously, the rate of the suburban sections is not much greater than the rural rate. Ten years ago it was much higher. The improved rate is due to better conditions. The suburban sections with cities eliminated show the effect of specific conditions and how important to neutralize congestion by care and watchfulness. Essex county is 21.2; without the city of Newark, it is 15. In basing an estimate of the sanitary condition it is proper to assume an ideal rate and criticize any departure, so we find three towns in Hunterdon County with a rate of 10; so with several other counties. Yet it would not be safe to assume 10 as the ideal, for in most counties with low rates the population is decreasing and children are few. Hence complete sanitation and proper climatic conditions will concede a rate of 13, and that is about the average of the purely rural section where there is no congestion, pure air and water are available with little care and with the practice of the ordinary ideas of cleanliness.

In the urban and suburban sections different conditions prevail, and here sanitation comes into play. Proper drainage, pure water, complete sewerage, removal of garbage and of ground water are essentials of a low rate, and in Essex County we find East Orange with a population 18,000, death rate of 12; Montclair 14; Bloomfield 13.6; West Orange and South Orange, pure water, no sewerage 13.5 and 12.9. This rate of 13 can be achieved and should be the desideratum, and all in authority in the State should examine their locality and find the cause, if more than that. The science of sanitation is now crystallized into a practical profession. In all works of this character there are two factors, the individual and the community; thus if a town puts in a system of sewerage and the individual adjusts his property to it they are in accord. These factors have both to be educated but in different lines. Sometimes the individual is willing and the community not; and *vice versa*. We need here education and legislation, and I think the State has done its duty in that line. The State Board of Health, under its former secretary, Dr. Ezra M. Hunt, and its present efficient one, Dr. Henry Mitchell, laid down lines of procedure in sanitation for this State, first to educate the people to the necessities for more care for their health, and then to pass laws to enable them to take that care. Probably with the exception of the State of Massachusetts our State has the most complete sanitary legislation extant, and its full adoption would bring the death rate well toward the ideal of 13, and only the neglect of individuals and communities allow it to stand at 20 and 23 as it does some places. Provision is made for health boards of all kinds. Every municipality has power to get good water and sewerage, collect garbage, regulate plumbing and insure unadulterated food. Forty-eight towns and cities have systems of sewerage accommodating a population of over 1,200,000; probably the dwellings of 750,000 are sewered, fifty have waterworks supplying good water. In many places drainage systems are perfect, and in all the large cities supervision is exercised over the house construction and plumbing. The effect of this Association is not confined to this room, hence my detailing these matters at the risk of being tedious. Twenty-five years ago I had the privilege of being associated with Dr. Sandford B. Hunt, the father of the Commissioner of Passaic Valley Sewerage, who is with us tonight, in sending out notices for the first meeting of this Association held in Newark. The meeting was large and enthusiastic and thence originated all the sanitary work of the State. Then the State Board was organized and both organizations have forwarded the great work; coupled with this is the great progress in medical science, and as an engineer I am not able to outline the details of this growth; yet I will allude to the desideratum in sanitation, that the doctor and the engineer should travel in the path of progress hand in hand, one to exercise his power to prevent disease the other to eliminate it.

DISPOSAL OF GARBAGE.

Mr. RUDOLPH HERRING, C. E., of New York, then spoke upon the "Disposal of Garbage." In Europe cremation is generally the plan by which to get rid of the garbage. In this country we have a variety of ways. Garbage is kitchen slop, ashes, dust of the streets, in fact all refuse save that in the cesspools. In some places cremation gives good results. Some report this plan as more valuable and less expensive. Some separate the slops from the rest and feed it to animals. The special objection is that it is apt to ferment and become most offensive and also prove injurious to the animals. Economy is demanded in the disposal of the garbage. Cremation is objected to because it generally proves a nuisance by the odor given forth in the process. Hamburg uses cremation and finds it very satisfactory. They show that it need not be conducted so as to be a nuisance. The products are regarded as an excellent fertilizer. At present the question is as to the cost before any plan is adopted. Usually the cheapest plan is adopted. Boston is now about to adopt cremation. In case of an epidemic cremation is the safest plan. Brooklyn and New York now use the reduction plan. This disposes of the refuse of the house only, while cremation must follow for the rest. Too often these matters are decided by political influence, not according to what is proper or best. In conclusion he said cremation is always the best for sanitary purposes and from an economic point of view.

Mr. M. N. BAKER, C. E., of the Upper Montclair, agreed most heartily with all the speaker had said, unless it might be that one or two points of minor importance were open to discussion. In his own household he had found no difficulty in disposing of all the garbage by burning it in the kitchen range. This he considered preferable to having an odorous receptacle standing about. The plan is not practical, however, unless given personal attention by some one other than the ordinary servant. It never will become the universal method of disposing of garbage. Plants for the disposal of garbage have proved failures, which is largely due to the fact that the garbage-disposal problem is not approached by most citizens in a scientific manner. If a sewage or water purification plant is to be built, an engineer of good standing is called in to aid in the undertaking. But when a city finds it necessary to make some change in its method of garbage disposal, instead of employing an engineer to outline a plan best suited to the needs of a city, a committee of the city council sets forth on a visiting trip to garbage plants and is very likely to come back most impressed with that system of disposal the commercial agent of which talked the smoothest or made the best impression by whatever means. The questions involved in garbage disposal are scientific ones and should be studied in a scientific manner. If cremation is to be employed it is a question of how many heat units will be required and how they can be generated and applied to the best advantage. If a reduction process is to be installed, machinery will be needed to secure the grease and fertilizing material. In either process the questions arising are best answered by the engineer rather than the layman; in fact the layman can not answer them. One reason for the high prices for garbage disposal prevailing in most cities where the work is done by private parties is the short term of the contract. Contractors are forced to provide expensive plants and are then limited to one-year contracts. They know the job may go to some one else at the end of the period, and hence must bid enough to cover the risk. The lesson from this is either to make the contract longer or have the work done by the municipality. In the collection of garbage he said, experience shows that but a small proportion of the population is served when the work is entrusted to private scavengers instead of having a general public service, either by the city or by contractors paid by the city.

(To be continued.)

SELECTIONS.

Perforation of a Gastric Ulcer into the Pericardium. Mr. Collingwood Fenwick has reported in the London *Lancet* for August 14 a case of the above rare accident, as follows: On July 30 I was summoned to attend a man who had been taken suddenly ill. Arriving at his house three minutes after receiving the summons, I found him lying dead on a garden chair. The history I obtained from the widow was as follows: Her husband's age was 55 years, and until recent years he had been a builder. On the day of his decease he returned home from a walk, but made no complaint and appeared to be in his usual health. He had never complained of pain after food, or suffered from vomiting or any other symptom of gastric disease. Immediately on finishing his meal, which consisted of tea, fish, and bread and butter, he rose from the table complaining of pain and palpitation. After walking a few yards he sat down, and his wife, noticing that he looked very pale, administered some whisky and water, but he expired in about a minute.

Necropsy. The results of the postmortem examination, made twelve hours after death, were as follows: The body was that of a stout elderly man. The lungs were emphysema-

ous, the right lung being bound to the chest wall by strong pleuritic adhesions. The pericardium was found to contain several ounces of tea, which smelled of whisky, and some particles of fish. On the lower surface of the pericardium a small aperture was discovered, admitting a stout probe, which was passed downward through the diaphragm into the abdominal cavity. The heart itself weighed thirteen ounces and was extensively infiltrated with fat; the valves were normal. The anterior surface of the stomach was found to be firmly adherent to the under surface of the diaphragm, and on opening the viscus a chronic ulcer the size of a shilling, with indurated edges, was seen to be situated about the center of the lesser curvature. From the base of the ulcer a sinuous track led upward, and to the right, through the substance of the pericardium. The stomach contained fourteen ounces of undigested material, composed of tea, fish and sodden bread. All the other organs were apparently healthy.

In a later issue of the *Lancet*, an editorial writer offers the following instructive comments upon the case. The probability of a gastric ulcer perforating the wall of the stomach depends chiefly on its situation. An ulcer on the anterior surface of the stomach will almost certainly lead to perforation if the ulcerative process continues; but should the ulcer be situated on the posterior wall adhesions form very readily, so that the stomach becomes adherent to the diaphragm or to the left lobe of the liver, but the diaphragm itself may become perforated by an extension of the ulceration, and then the ulcer may open in the left pleural cavity or into the pericardium. Perforation of the diaphragm by gastric ulcer is decidedly a rare occurrence, and even when it does occur the pleura is much more frequently affected than the pericardium. Of twenty-eight cases of perforation of the diaphragm by gastric ulcers, collected by Ludwig Pick, only ten were cases in which the ulceration had perforated the pericardium. In an earlier issue is recorded a very interesting case which occurred in the practice of Mr. Fenwick, in which a gastric ulcer had perforated the pericardium with an immediately fatal result, and yet no previous symptoms had occurred to point to the presence of the gastric ulcer. In four of the ten cases collected by Pick the two surfaces of the pericardium had become adherent before the ulceration had perforated, so that the ulcerative process involved the substance of the heart itself.

The Period at Which Old Age Begins.—Dr. Leake, in the *Medical Examiner*, argues that age sets in indefinitely when the forces of life begin to flag. Some men are twenty years younger physically and mentally than other men of the same age. It is self-evident then, that old age does not begin at any set time, so far as the divisions of time divide the periods of life, but that it has to do with that subtle agent known as the vital force, an acquaintance with which enables the analytical mind to become proficient in prognosis by weighing in the balance the vitality on the one side with the pathology on the other. Insurance companies say that a man over 60 years of age is not incurable. The truth is, many men under that age are insured and prove less profitable risks than many men would be over that age for reasons stated above. A more equable and profitable rule could be adopted if the companies could receive conscientious and competent work from the medical examiners, which an extensive observation prompts us to say is not done as a rule.

The indications of old age may be noticed by ocular inspection. The weight of years is manifested by the stoop figure, the walk is less elastic, the rounded figure gives place to the spare habit of body, the wrinkle of time mounts the cheek, while the frost of many winters mantles the brow. The typical healthy person who attains to old age is spare of body, and old age emphasizes this fact by causing a paucity of adipose tissue. So the wrinkle of time after all is kindly in its nature. Physiologically we notice that a diminution of the physical energy is accompanied by a corresponding diminution of the power to eliminate waste material from the body. Elasticity and strength give place to hardness and brittleness of nearly all of the tissues of the body. The general health may be good, because there is a harmonious balance between the action of the nervous system and the circulatory system. However, the former is less responsive to external stimulation, and the latter is less vigorous in old age. The vital processes conducted by the circulation, respiration and metabolic changes in the tissues are less active. There is diminished adaptability of the whole system to changes in the environment, and less ability to meet the requirements of emergencies, such as sudden demands of muscular and mental strain.

The senile conditions and diseases that render old age uninsurable are numerous and obvious. In the first place, weakened digestion and assimilation; the weakened vigor of the circulation and glandular system necessarily weakens the power of eliminating the excrementitious substances, which gives rise to pernicious nutrition, and that in turn is the cause of the tendency to develop malignant or benign growths in different parts of the body in old age. The strong tendency to over-eat and under-drink, together with the natural decline of functional power, gives rise to a condition of lithemia, which is the prime cause of the majority of deaths in old age. In the healthy state that great glandular furnace and chemical laboratory, the liver, is capable of transforming an excess of nitrogenous matter, which may result from metabolism of tissue or exist in the food consumed, into the highly soluble excrementitious substance known as urea. This excrement is eliminated from the blood mainly by the kidneys and to a much less extent by the skin. Now in old age, with the functional power and natural vitality on the wane, together with the strong tendency to overtax this function of the liver, we find this waste is not converted into urea, but into uric or lithic acid, a comparatively insoluble excrementitious and toxic substance, which if it appear in the blood in sufficient quantity, and is long enough continued in circulation through the urinary tubules, sets up irritation and inflammation, which inevitably impairs the function of the renal epithelium, and we find this poisonous substance is not eliminated from the system, but accumulates in the blood. This explains why old people are almost universally troubled with disease of the liver, kidneys, bladder and prostate gland. The unstable circulation, atheromatous changes and brittleness of the walls of the blood vessels, with the tendency to over-tax the digestive apparatus, is the cause of many old people going to "that bourne from which no traveler returns," by the apoplectic route. Hereditary diseases naturally manifest themselves when the vitality is upon a low plane, when the general health is below a certain level; so we are not surprised to find certain dyscrasic and latent tendencies manifesting themselves at this period of life, when the natural vitality is waning. The diseases most frequently found to be the cause of dissolution among the aged are pneumonia, diseases of the liver and urinary organs, consumption, cancer, apoplexy, gangrene.

Old age is not insurable, because the expectancy of continued life is too uncertain. The question of time obviously enters largely into the fact that makes a risk profitable or unprofitable to the company writing the contract. Experience has taught that mankind over 60 years of age are not profitable risks, because the life tenure is too short. The agencies of dress reform, physical culture and self-knowledge, which are beginning to unfold themselves by an educational process at the present time, will tend to increase the longevity of the human race. The writer expects that two generations hence the time limit can safely be extended to seventy years. The enemy to longevity is self-indulgence. People who have reached an advanced age may prolong their lives and greatly add to the comfort of their declining years by diminishing the quantity of food ingested; by taking food more frequently and in smaller amounts; by taking only easily digested food; thereby avoiding too large a residue of waste matter, either in the intestinal canal, or in the form of excrementitious matter in the blood.

PRACTICAL NOTES.

Sodium Salicylate and Caffein in Uterine Atony.—Katzenellenbogen states that he has found this combination effective in securing energetic contractions of the uterus intra partum. Twenty to thirty centigrams were injected subcutaneously.—*Semaine Méd.*, December 29.

Electric Apparatus for Migraine.—At the meeting of the Berlin Medical Association, December 8, L. Ewer exhibited an apparatus consisting of an accumulator and dynamo with a rubber knob attached, which imparts slight impulses as it rotates, which, he states, cure in a few minutes all cases of migraine, except the angioparalytic form.—*Deu. M. Woch.*, December 23.

Bremer's Macroscopic Test of Diabetic Blood.—Object glasses are smeared with normal and the suspected blood and placed ten minutes in the oven at a temperature of 135 degrees C. A 1 per cent. aqueous solution of Congo red or methylene blue, stains the normal blood the corresponding tint, while the diabetic blood is only slightly or not at all affected by it. The stain should be applied from one and one-half to two minutes; if left longer the difference becomes less marked.—*Deu. Med. Woch.*, January 6.

Serum Treatment of Ozena.—At the Italian Congress of Otorhino-laryngology held at Rome in October, Della Vedova and Belfanti proclaimed the efficacy of serotherapy in ozena, which they have established by much experimental work. Masini also conceded its value, but considers cataphoresis with slow electrolysis the chief reliance. Others recognized the benefits to be derived from serotherapy in certain cases. . . . *Wratsch* No. 40, reports another case of the complete recovery of a child of 5 years after a single injection of 10 cm. of Roux's antidiphtheria serum.

Therapeutics of Whooping Cough.—According to Busdraghi's experience a treatment that disinfects, soothes the nervous system and keeps up the strength is much better than any of the so called specifics. For the first he advises spraying for ten minutes a day with a 2 per cent. solution of carbolic. For the second he prefers trional, which ensures a calm, lasting and strengthening sleep, 0.1 to 0.5 gram according to age. He adds a teaspoon of a 1 per cent. solution of chloral in very obstinate cases. To keep up the strength he gives one-fourth to one-half teaspoon somatose in milk three or four times a day.—*Klin. Therap. Woch.*, January 9.

Atropin in Delirium Tremens.—The remedies employed in delirium tremens are only relatively effective, but cold baths affect the syndrome favorably. Reasoning from the assumption that they stimulate the inhibited cerebral centers. Tuwim of St. Petersburg, has been trying atropin, which also stimulates the centers, and announces that it is extremely successful. In ten out of eleven cases a single injection of one milligram of atropin threw the patient into a calm and deep sleep in fifteen to twenty minutes. In the one case in which delirium persisted it was complicated with erysipelas, and yielded finally to a cold bath. He recommends, therefore, subcutaneous injections of atropin, supplemented if necessary by cold baths in the treatment of delirium tremens.—*Semaine Méd.*, December 29.

Ambulant Treatment of Fractures of the Limbs.—Lambret of Lille recently osteotomized the femur of a patient for a genu valgum. The next day the patient walked with crutches, the day after with a cane, and "after that with his hands in his pockets." The apparatus used has a plaster cast around the pelvis in which is mounted a sheet metal crescent, which rests on the ischium. A piece of sheet metal also encircles the knee, below which is the stirrup. The entire apparatus weighs four kilos. The patient walks with the pelvis, the knee rectilinear. He urges the more general adoption of the ambulant treatment.—*Nord. Méd.*, January 1.

Length of Time a Lying-in Patient Should Remain in Bed.—An extensive series of tests at the Breslau Clinic, is reported by Brutzer in the *Ztf. f. Geb. u. Gyn.* (Vol. 37, No. 3), which establishes the fact that in certain cases discriminated by the physician, the patient can leave her bed on the second or third day, and that it is injurious rather than beneficial for normal women to stay in bed more than five days at most. Danger of laceration is much more imminent from defecation or urination than simple moving around. Embolisms do not occur after the second day in normal women if we accept the published statistics. The patients who had quitted their bed early were much stronger when finally dismissed at the tenth day, than those who had kept the reclining position longer.—*D. M. Woch.* January 6.

The Value of Euquinin as a Tasteless Substitute for Quinin mentioned in the JOURNAL (January 1, page 38), is confirmed by the experience of the Milan hospitals where it has been tested on a large scale. Pangrossi also reports fourteen cases treated with it. The conclusions are as announced, that euquinin possesses the same specific and general properties as quinin, in the same intensity, and should be administered in the same doses. The disturbances caused by quinin intoxication do not accompany the use of euquinin, and it has also been found a stimulant to the appetite. A bitter taste develops if held a long while in the mouth, which justifies the assumption that in the stomach it has the tonic property of a bitter substance. —*Gazz. degli Osp. e delle Clin.*, No. 136, 1897.

Treatment of Chronic Cervical Gonorrhea.—F. Lehmann reports several tedious chronic cases cured in three weeks. After cleansing the parts with a soda solution, he introduced into the cervix a conic metal dilator fitted into a small metal tube speculum, the whole introduced through a vaginal speculum. The dilator is withdrawn in the course of five to ten minutes, and through the small tube speculum a tampon dipped in the desired caustic is applied to the entire surface of the cervical mucosa, as it is exposed by the gradual withdrawal of the small speculum. He prefers 5 per cent. argentum nitricum, but chlorid of zinc or argonin can be used. The best results were attained with nulliparæ. Where there is much infiltration, the massage by the dilator is an important factor.—*Deutsche Med. Woch.*, January 6.

Sulpho ricinate of Phenol in Tuberculous Laryngitis and Rhinitis.—Ruault's solution of pure phenic acid in acid sulfo-ricinum has been recently used by Magenau in forty-five cases of tuberculous laryngitis with such benefit that he recommends it to others. In nearly every case the sputa became more fluid, expectoration easier, the voice clearer, swallowing less painful. None were cured completely, but in twenty-seven cases followed to date, twelve were remarkably improved; nine slightly and six not at all. It was applied locally in a 20 to 30 per cent. solution two or three times a week, preceded by cocain in some cases. Two cases of tuberculous rhinitis were also much improved, and nearly all cases of "dry" and simple and pachydermic laryngitis.—*Münch. Med. Woch.*, 1897, No. 37.

Value of Electricity in Sciatica.—In a communication to the *Deutsche Med. Woch.* of January 6, Stanowski protests against Möbius's recent assertion that ischias is not benefited by electrotherapy, and describes several extremely severe cases of long standing cured completely by it. He states that he has secured the best results with: 1. The application of the galvanic current, avoiding much variation in the strength of the current; 2, the application of an electrode large enough to cover the entire region from the sacrum to the great trochanter on the affected side (30x20 cm.); 3, applying the other electrode to the sole of the foot, to which it must correspond in size; 4, the current passing down the leg, the positive pole on the sacral region and the negative pole on the foot; 5, half hour treatments at least, and better still, three quarters to an hour each time; 6, the current so graduated that the patient feels no unpleasant sensation from it, especially no tendency to cramps in the leg. He commences with 30 milliamperes in the first sittings, afterward 8 to 10. The electrodes must fit close to the surface, which is protected by a sponge on the sole and four folded towels on the sacral region. The plates are held in place with a leather band. In three and one-half months he transforms helpless, pain-racked invalids into vigorous bicycle riders; his success has been constant.

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SATURDAY, FEBRUARY 19, 1898.

THE MOBILE CONVENTION.

The most important sanitary Convention of recent years was held in Mobile on the 9th, 10th and 11th of February. The Convention was composed principally of representatives from the Gulf and South-Atlantic States, a few invited members being present. The Committee on Resolutions were divided ten to two, ten favoring the Spooner Bill as it stands, and two favoring the modified Caffery Bill. These two were from Georgia.

On these reports reaching the Convention they were debated at length; the Hon. W. H. CLARKE of Mobile made a substitute resolution, and the following action was taken (we quote from the minutes of the meeting):

Mr. CLARKE asked leave to withdraw his substitute and offer another in its place. Granted.

Col. KAY, of the minority report, withdrew the report.

Dr. HORLBECK withdrew the majority report and moved that CLARKE'S substitute be adopted. Carried unanimously and amid great applause. The substitute reads as follows:

Resolved, That it is the sense of this Convention:

1. That Congress be requested to provide for a department of public health as soon as practicable.

2. That it is the sense of this Convention that Congress should enact laws to provide for an efficient maritime quarantine to be uniform and impartial in its application to the different commercial ports of this country, so as to give to no one or more of them undue commercial advantage over the others, and to be enforced by the several State and municipal quarantine or health boards, if they will undertake so to do, leaving also to the States the power to prescribe and enforce additional reasonable safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.

3. That Congress should aid the several States in establishing and maintaining uniform, reasonable and efficient quarantine laws for affecting but not regulating interstate commerce, leaving to each State adequate power to protect as it shall deem best the lives and health of its people.

4. That Congress should leave exclusively to the States the regulation of their purely internal commerce and the providing of such quarantine and sanitary law regulations as they may deem advisable to that end.

5. That in the framing of quarantine laws and regulations, and in their enforcement, Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible, and especially by way of an advisory council.

It will be seen that the essential features of the bill recommended by the Committee of the AMERICAN MEDICAL ASSOCIATION and the American Public Health Association are thus endorsed by a great convention vitally interested in this question, recommending first the establishment of a department of public health, and that quarantine regulations be adopted with the aid and advice of a sanitary council. The pretentions of one man representing a single bureau were thus overturned. We shall give this week and next a full text of the proceedings of this convention.

It now remains for each member of the ASSOCIATION to immediately write his member of Congress and Senators, urging the passage of the bill on the lines of the Spooner Bill, establishing a commission of public health, with an advisory council.

The Convention was orderly and harmonious throughout, and while the discussions were earnest and carried on by men who felt deeply the responsibilities devolving upon them and upon the convention, were never characterized by anything but courtesy and kindly feeling.

The opinions of eminent lawyers of the South in regard to constitutional questions, seem to be conclusive with regard to the enforcement of municipal health regulations by acts of Congress, that those favoring such action by Congress will have to suggest a constitutional amendment to be passed upon by the several States in their legislatures, before such action can be taken, and even then it is doubtful if there is any widespread demand for it at this time.

The State of Mississippi last week made an appropriation of $50,000 to be placed at the disposal of its State Board of Health (which had been previously almost without funds, and hence was crippled during the last epidemic). The legislature also provided that the regulations of the State Board should be supreme throughout the municipalities in the State, and that whenever attempted to be overrun, the governor was authorized to call out the militia to sustain the board. This is a long step in advance and will probably solve the problem so far as interstate commerce and interference with common carriers is concerned. It will also have a very healthy effect in preventing a panic, which is more disastrous in most cases to commercial interests than the epidemic itself. It will be recalled that at this time the National Government is engaged in running a quarantine camp, and vaccinating citizens of Alabama at an estimated expense of three or four hundred dollars a day.

It is understood that the House Committee on

Interstate Commerce (of which Mr. HEPBURN of Iowa is chairman) have resolved to have hearings this week. By the time this reaches our readers the hearings will have been concluded. It is to be hoped that the members will see the importance, if they wish a department or a commission of public health, of moving in this matter instantly and without delay.

Let us have a commission of public health with an advisory council!

THE CAUSE OF DEATH FROM ELECTRIC SHOCK.

The constantly widening employment of electricity, the common use of powerful currents under conditions and in places where some slight derangement may give rise to serious accidents, and the too frequent occurrence of these, make the subject of their cause and manner of occurrence one of unusual interest. It is not necessary to speak of the dangers from fire, which are perhaps really the most serious ones we have to guard against, as the ones most likely to be encountered; the less frequent, but still sufficiently common, perils to human life directly from the current fall more properly into the scope of medical investigation. It is an important question just how death occurs from a powerful electric shock, whether it is instantaneous or not and just what organs and centers are particularly involved. By knowing this we can best estimate the value of any therapeutic resources in these cases and act intelligently in the presence of these accidents.

It has been the opinion of some physiologists that the postmortem findings have indicated that death occurred in these cases from arrest of the respiration, while others have conjectured that cardiac arrest was rather the cause. To settle this question as far as possible, two English physiologists, Drs. THOMAS OLIVER and ROBERT A. BOLAM, undertook a series of experimental investigations, the results of which they have published in the *British Medical Journal* of January 15. These experiments utilized dogs and rabbits, which were subjected, under ether, to high potential currents, the blood pressure and the respiration being instrumentally recorded the while. The alternating current, usually considered the most deadly, was alone employed.

The results of these experiments seem to support the view that death from electric currents of high potential is chiefly, if not solely, due to cardiac arrest. The experimenters found that when a sufficient current was used, the dogs or rabbits succumbed instantaneously with stoppage of the heart; if one of somewhat less potential is employed there may be suspended respiration with the pulse first quickened and then arrested. Usually the heart was first arrested, while rhythmic respiration continued for some appreciable time. Only with very high currents were both arrested together simultaneously. In no case did they observe primary permanent arrest of respiration with continuance of the heart's action. The indications of the recording instruments were supported by those from direct auscultation. After death the left ventricle was found in some of the animals nearly empty, while the right ventricle and large veins were distended with dark fluid blood.

So far as these experiments go the evidence of death by cardiac arrest was conclusive. They did not, however, give any absolute data as to the relation between the strength of the current and the fatal effect; the voltage was not necessarily in proportion to the size of the animal. It appeared possible that younger and less highly organized animals required stronger currents for the fully lethal effect than older and more highly organized ones, but this is stated merely as a suggestion. It is a practically well known fact that it takes more voltage apparently to kill a man than it does some larger animals, which is in part, if not altogether, in accordance with the above statement. It would be a very fortunate thing if we could obtain sufficient data as to every fatal or non-fatal accident from electricity as it occurs from competent observers on the spot, but the conditions are seldom such as to permit this, therefore generalizations as to the exact behavior of the human organism under all the varying circumstances are hardly possible. Much, however, might be learned by careful investigation of each case, and OLIVER and BOLAM quote the testimony of workmen who have observed victims of electric shock make a few respirations after its reception. The currents and methods used in the legal electrocutions in New York are not such as to be altogether comparable to most of the accidents that occur, and of course they do not allow the graphic records of blood pressure and respiration that can be secured in physiologic experimentation. The investigations of the English authors have therefore a special value, as bearing upon the sometimes questioned efficiency of that method of capital punishment. There can be little doubt but that death must be instantaneous in the electric chair, and the continued application of the current would certainly insure it were there any question of the possibility of resuscitation.

As regards the methods to be used for restoration of the victims of electric shock, OLIVER and BOLAM think artificial respiration is after all the most hopeful one, notwithstanding the fact that cardiac arrest is to be considered the chief feature in causing death. It would appear that restoration of the respiration was the best cardiac tonic; many others were tried as well as direct cardiac stimulation and relief of the loaded cavities, but generally if not universally without effect. By artificial respiration they succeeded twice in reviving animals, once after twenty minutes efforts, but they consider this, or at least half an hour, as

ut the limit of time in which there can be any
)e from its employment.

As regards the question of the relative deadliness
:he continuous and the alternating currents, there
)vidently in their minds some room for difference
opinion, and they propose to give the results of
ir investigations on this point in a future commu-
ation. D'ARSONVAL, as is well known, has main-
ıed that the continuous current is the more danger-
owing to its greater chemical action, and it may
that there is reason in this opinion. His other
im, that death from simple electric shock is more
)arent than genuine, would seem to be overthrown
the experiments of the British investigators. If it
only very exceptionally that resuscitation can be
ected in the dog, there is no reason why with
)nger currents the same is not true with the human
:cies. The conditions of experiments by skilled
ysiologists are much more satisfactory than those
the occasional accidents and the conclusions de-
ed from them much more convincing. In the
)orted cases where a current of several thousand
lts has been passed through the human organism
thout causing death, there are too many unnoted
ssibilities to make the conditions comparable to
)se of careful physiologic experimentation by skilled
servers. We do not know the minimum limit of
ltage required to kill a man under all circumstances,
.t there can be little question, none the less, of the
ngers of high potential electric currents.

SEASES ASSOCIATED WITH PERSISTENCE AND ENLARGEMENT OF THE THYMUS GLAND AND GENERAL LYMPHATIC HYPERPLASIA.

In the recent Bulletin of the Ohio Hospital for
pileptics, at Gallipolis, Ohio, Dr. A. P. OHLMACHER,
e Director of the Pathological Laboratory, describes
)stmortem examinations in certain cases of epilepsy.
three of the five cases examined there was found a
)rsistent, enlarged thymus, and in four of the cases
ere was a more or less general lymphadenoid hyper-
asia. On this account he calls attention to the other
nditions that frequently occur in connection with
ymic enlargements, namely: 1, so-called thymic
thma; 2, sudden death in adults with persistent
ymus; and 3, exophthalmic goiter.

Thymic asthma is the laryngismus stridulus of the
nglish and American clinicians. Its anatomic basis
is given rise to much discussion in German litera-
ıre; the strife has concerned especially the relation-
ıip of the enlarged thymus usually present to the
fection, and the controversy is still unended. Thymic
:thma or laryngismus stridulus is usually a benign
fection, and yet very many cases of sudden death in
ıfants are ascribed to this disease. The paroxysm of
ryngismus stridulus ending in sudden death does
)t require any description at this time. Suffice it to say, that some children in apparently full health have expired suddenly, in the presence of witnesses or in the arms of parents; others have been found dead in bed, and in at least one case criminal proceedings were brought against the nurse on suspicion of foul play. At other times infants have been found dead in bed beside the mother, and it has been thought that death was caused by mechanical suffocation, until the autopsy brought out the gross pathologic findings about to be referred to. Undoubtedly very many of the death certificates in which children are said to have died from convulsions include cases of thymic asthma.

KOPP[1] gave the name of thymic asthma to laryngismus stridulus on account of the enlargement of the thymus gland so often observed. The majority of the writers who have studied the anatomic changes in thymic asthma have noted the enlargement of the thymus, and while all do not agree as to its causal bearing yet the trend of opinion is to look upon it as the most important factor. In addition to the enlarged thymus the evidences of rickets are often observed in the bones. GRAWITZ[2] was the one to lay the greatest stress upon the importance of enlarged thymus in these cases.

In his second case, which concerns a six-month baby who died suddenly in its father's arms, GRAWITZ found a hyperplastic thymus, rickety changes in the ribs, enlarged intestinal follices, enlarged spleen and enlarged mesenteric glands.

PALTAUF[3] made an extended study of the other lymphatic changes in thymic asthma, and he found that many of the infants dying from this affection presented a pale skin, well developed fat layer, enlarged spleen, and the epiphyseal changes of rickets, with enlarged lymphatic glands in various parts of the body. Now, these accessory changes which are usually present may be looked upon as indicating that thymic asthma is in some way related to some constitutional disorder, to rickets, or to the so-called "lymphatic constitution." The question as to the exact causation of the clinical symptoms of laryngismus stridulus still remains open. The pressure theory is hardly sufficient to explain all the cases of sudden death, and yet there can hardly be any doubt that hyperplasia of the thymus may cause dangerous and fatal dyspnea by producing tracheo- or broncho-stenosis, because SIEGEL[4] has reported the recovery of such a case in a $2\frac{1}{2}$ year-old child after placing the enlarged thymus outside the chest cavity. The question has, however, assumed a broader form, since it has been pointed out that the thymic enlargement is only a part of the general hyperplastic condition of the lymphadenoid tissues of the body.

1 Ohlmacher, loc. cit.
2 Deutsch. Med. Wochenschr., 1888.
3 Wien. kl. Wochenschr., li. iii.
4 Centralbl. für innere medicin, 1896.

Sudden death in adults with persistent thymus has also been described in German literature. Most of the cases have occurred in young and apparently healthy adults, the victim suddenly falling dead. The unexpected death often takes place under conditions that give it a not only marked pathologic but also medico-legal interest. The persons may be found dead, they may die suddenly in the presence of spectators, while bathing, by falling into the water and drowning, during surgical narcosis and surgical operations. Cases coming under these various categories have been described by NORDMANN,[5] VON RECKLINGHAUSEN,[6] PALTAUF and others. Now, in these cases there has been found, first, a real enlargement or a persistent thymus, and secondly, hyperplasia of the lymphadenoid tissue in various parts of the body. The general tendency is to look to the whole picture of lymphatic hyperplasia for an explanation of the disease, rather than to confine the attention solely to the thymus.

It seems that after exhausting all possibilities, as cardiac muscular or ganglionic affections, capillary bronchitis, etc., a number of cases of sudden infantile death, with the symptoms of thymic asthma, and of sudden death in adults, both showing hyperplasia as well as persistence of the thymus and general lymphadenoid hyperplasia remain, which can not be explained on any other grounds than by assuming some connection between the changes in the lymphatic tissues and the fatal ending.

VON RECKLINGHAUSEN[7] also calls attention to the fact that the arteries are usually narrowed in the "lymphatic constitution."

The thymus gland is frequently persistent and enlarged in exophthalmic goiter. The frequency of persistent thymus in this disease is entirely too great to be accounted for on the score of accidental coincidence. This has been emphasized by HEKTOEN[8] in an article on hyperplastic persistent thymus in exophthalmic goiter. HALE WHITE[9] and others have shown that in some of these cases there are also other lymphatic hyperplasias, and it is very interesting to note that two of WHITE'S patients died suddenly in much the same mysterious manner as those succumbing who present the signs of the "lymphatic constitution.

Our knowledge concerning the thymus and its function is practically *nil*, and yet the enlargement and the persistence of this organ in so many conditions, known by different clinical names and appearing as separate entities, can not very well be construed as without significance. It will be remembered that normally the thymus attains its full size at about the second year, and that it remains stationary until puberty, when it rapidly retrogrades, the lymphadenoid elements becoming displaced by fat and connective tissue, and finally only rests of the original structure remain. The mass of fat and connective tissue that results from this displacement of the thymus, which resembles the shape and the size of the organ, has been called the thymus fat body by WALDEYER.[10]

Now, it is singularly significant to observe that OHLMACHER, in four consecutive fatal cases of epilepsy, should come across an uniformly characteristic condition, namely, enlarged, persistent thymus, and a more or less well-marked general lymphadenoid hyperplasia. One of the four cases was found "dead in bed;" the anatomic condition coincides accurately with that found in several other enigmatic diseases that we have mentioned, some of which possess certain clinical analogies. One thing must be quite clear, and that is that somewhere and somehow the peculiar morphologic anomalies found in these cases of epilepsy and noted in thymic asthma, thymic sudden death and exophthalmic goiter, will in the end be found to have something more than a mere accidental bearing upon these diseases. Undoubtedly such observations as those that OHLMACHER has so carefully recorded and analyzed, especially if they are to be duplicated by others in the future, will serve to direct renewed attention to the part played in physiology by that rather anomalous organ, the thymus. One problem that invites continued investigation is the pathologic importance and relation of the thymic and lymphadenoid hyperplasia—the "*constitutio lymphatica*"—encountered in connection with the diseases that have been mentioned.

5 Correspondenzblatt der Schweizer Aerzte, 1889.
6 Ohlmacher, loc. cit.
7 Loc. cit.
8 International Medical Magazine, 1895.
9 British Medical Journal, 1886.
10 Centralbl. für med. Wissenschaften, 1890.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

The annual meeting of this society at Albany on the 25th, 26th and 27th of January, was of more than passing interest in some respects.

Of the forty-five papers read thirty-three were surgical. One evening was devoted to X-rays in medicine and surgery, and four long descriptive papers were read on the progress and technique of this subject. Of the subjects presented medico-legal testimony created some interest; the treatment of insane in the State brought out some comments by evident opponents. The dispensary abuse in New York was avoided, although two parties were present with maps and charts to prove its enormity and the value of dispensaries. Some New York men were trying to promote a scheme to organize a National society of delegates from the State societies alone to meet in Washington yearly to influence legislation. The other topics seemed to call out a great deal of mutual admiration, and were evidently restatements of facts conceded to be correct.

The usual attempts to exhaust the subject, which usually begins with the introduction of the paper, were noticeable. The encyclopediac writer and the writers who are sure of the physiology, and who describe with startling minuteness most complex operations of nature, and the surgeons whose results are as certain as the repairs of a wagon, were all present. The president's address was an appeal to the profession for higher standards of practice, and a closer relation of social and professional work. It was interesting to note how thoroughly surgery absorbs the present interest of the profession. The great surgeons of New York City are gradually declining, and the inland city and village physician whose post-graduate courses have fitted him for surgical and diagnostic work, are coming into prominence. The writers of text-books and teachers in schools find consultation declining and their income falling off. The rush of specialists to the large medical societies to regain their losing prestige by papers and discussions before the country and general practitioner is increasing. The treatment and practice in large pauper hospitals is misleading, and often very impractical in private work. The results of such treatment when embodied in text-books and elaborate papers, can not be confirmed in private experience and hence confusion follows. Text works by men who never had experience except in hospitals and among paupers are not always good authority.

Physicians who relegate all science to their circles of work and who doubt everything beyond this, are happily growing less every year. State societies fail to be of much use when they confine their subjects to a few topics. When societies become large they should divide into sections where each subject can be treated at some length. The practitioners from the hill countries of New York have diminished interest in the State gatherings of medical men where only certain topics are discussed.

CORRESPONDENCE.

Foreign Correspondence—Vienna Therapeutics.

PARIS, Jan. 29, 1898.

To the Editor:—While Germany is the acknowledged seat of expectancy in therapeutics, the Vienna school, in her attitude toward the effect of drugs in the treatment of disease, is inclined to go a little farther in her unbelief, and approach even the border line of nihilism itself. Nothnagel says: "When called to treat a patient, study the case well, and make the best diagnosis you can. When this is done, never ask yourself this question first: What shall I give this man or woman, but always ask, shall I give him anything?" In a late clinical lecture on a case of chronic atrophic Bright's disease, after describing in a graphic manner the history, symptoms and pathology of the case, he asked: "What shall we give this patient?" His answer was, "Absolutely nothing;" not even the milk diet that he had advised in an acute inflammatory case of the same affection. The next case was one of pleurisy with serous effusion, and in this, excepting advising opiates to relieve pain, and mild counter-irritants to the side, he was equally outspoken in his lack of faith in all medication of whatsoever kind.

Surgically, he would only advise interference if the quantity of the fluid was such as to materially interfere with respiration or the functions of the heart.

"Why is it," he asks, "that after more than a century of existence homeopathy with all its absurdities, still lives, and like Hamlet's ghost will not down. There is but one explanation, that is, that the regular school of medicine injure their patients by the drugs they give them. Is it any wonder that a man with the gonorrhea will seek the advice of a follower of Hahnemann, who will give him a little infinitesimal nonsense which will do him no harm, if no good, instead of consulting a regular practitioner, who would probably put him on the balsam of copaiba, a remedy that will disgust his palate, nauseate his stomach, derange his bowels and irritate his kidneys, but can have no curative effect upon the disease from which he is suffering. If the regular profession had followed the teachings of the Vienna school, homeopathy would have long since died a natural death."

Prof. Störk, in a late lecture on tuberculosis, said: "The treatment of this disease consist in nutrition and hygiene; medicines of all kinds are worthless, unless it be such as may aid digestion and assimilation. Creosote is now the rage, and the poor phthisic victim clings to this dernier hope with all the faith and tenacity with which the crusader followed his flag upon which was painted the sign of the cross. Every now and then you read of cases who have recovered from this disease after taking huge doses of this drug. What is the explanation? It is this; any stomach that can tolerate these doses, can digest food enough to cure the patient, who recovers, not because they took the drug, but in spite of it."

I have visited Vienna at intervals of ten years, and this is my third visit. I find with the lapse of each decade, the treatment of the sick is more and more expectant in character. Twenty years ago, in the treatment of typhoid fever nearly every patient was submerged into a tub of cold water, several times in the twenty-four hours. Now, such a treatment is only carried out in a minority of cases. Though cold sponging is still a general practice, patients are now only regularly tubbed whose temperature is very high, and where such temperature profoundly affects the nervous system.

I saw carried out in one service a plan of tubbing that struck me as rational. It was to put the patient in a bath 2 degrees C. below the temperature of his body, add cold water to this so as to reduce the temperature, 1 degree every five minutes, until 30 degrees is reached, and then allow the patient to remain in the tub ten minutes at this last temperature. No medicines are given with a view of affecting the general course of the disease. If the patient at the outset be constipated a calomel purgative is given, followed by a saline if necessary. After the alimentary tract is thus once thoroughly evacuated all purgatives are thereafter eschewed, the bowels being moved once in twenty-four or forty-eight hours by an enema of cold or tepid water.

The reason assigned for this mode of treatment is that cases do better where the bowels are inclined to constipation, than in those in which there is a diarrhea. Light wines are given during the entire course of the disease and the patient is nourished with raw eggs, milk and animal soups. Great stress is laid on the diet that the patient takes, and he is never allowed an unrestricted one until four weeks after all febrile symptoms have disappeared.

I have tried in a modest way to do a little missionary work in one of the medical services here in Vienna for Dr. Woodbridge's treatment of typhoid fever. I find, however, that my efforts have been an utter failure. I am met with the argument that the disease from earliest manifestation is a constitutional one, the local lesions only playing a secondary role. That while the specific germ that produces the disease first gains access to the blood through the alimentary tract, later on we find this germ

abundantly in the spleen and other internal organs, but only in small numbers, comparatively, in the intestinal tract, so that it was only after the introduction of the Widal method that a diagnosis of the disease through bacteriologic investigation was rendered at all practical, though much labor had been exhausted in the examination of the stools for this germ.

I am surprised, however, to find that in spite of the extensive discussion that this subject has attained in the medical journals in America, not a physician in any of the half dozen hospitals here in Europe to whom I have spoken of the matter, had ever heard of it before.

The treatment of pneumonia is as expectant as possible. The cold applications to the chest, so much vaunted by some of the good men with us, is only used in one of the services here as a regular rule of practice. Expectorants, and especially those of a nauseating character are not used, but if the cough be dry and troublesome, in their stead, tar and eucalyptus is dropped into hot water, and the patient is allowed to inhale the hot vapor from these substances. To relieve the pleuritic pains, Dover's powder is given, and chloral is administered, generally per rectum, to quiet the nervous system and procure sleep. When symptoms of heart failure manifest themselves digitalis, caffein and brandy are given. In the management of heart lesions Nothnagel eschews all medication as long as circulatory compensation still exists, and is especially emphatic in his opinion that digitalis is of no service and often harmful, until this condition of things appear in the course of valvular lesions of this organ. When, however, edema of the extremities, dyspnea and the like symptoms show themselves, he puts his patient to bed and puts him on large doses of an infusion of digitalis. He uses the remedy for three days, and then discontinues it for two days, and so on. The Oertel treatment of heart lesion by exercise, he only thinks applicable to such cases, where the muscular substance of the heart is involved and not the valves. He does not think that the tinctures and fluid extracts of digitalis are reliable at all.

Speaking of digitalis, I would like to ask the men who read this letter, whether or not they have settled down on a form of this drug that is satisfactory to them, and on which they can rely. If they have, they have been more fortunate than I have been. I have tried them all and have found nearly all equally disappointing.

Some years ago I listened to a series of lectures by the late Germain Sée on the action of this drug in health and disease. They were masterpieces both in a scientific and literary point of view. He discarded all the crude preparations of the plant and relied entirely on the alkaloid digitalin. I followed his teachings for a few years, but often being dissatisfied with the action of the remedy, I abandoned it except for hypodermic use, and have since then tried a variety of its crude preparations.

I was younger then than I am now and I must with some humility and shame acknowledge that I was first induced to drift away from old friend digitalin by one of those long, parrot-tongued agents of one of the thousand and one manufacturing drug houses that infest our country, and are such incorrigible bores to a busy practitioner. Some man who has more brains than they have, write them a little speech; they commit it and deliver it with an unerring accuracy to every unfortunate doctor that they pour down upon. An agent from Cincinnati first struck me. His house produced a tincture from a German grown plant that nothing on earth could equal. After that a babbling agent from Philadelphia, one from Detroit, a horde from St. Louis invaded my sanctum one after another, and like Eve I lost my head and was tempted and led astray by the sweet voices and charming manners of these unscrupulous commercial agents. Seriously, I believe that the stuff that these men are selling to a large number of our physicians, especially the younger ones, including as it does ready-made and compounded remedies for all imaginary diseases, is one of the worst stumbling-blocks in the way of a true advancement in the line of therapeutics.

Huchard, in a late number of *Le Journal des Practiciens* treating of this subject, discards all crude preparations of digitalis on account of their variation in strength, and uses digitalin alone. He claims that all cultivated specimens of the herb are next to worthless.

I have spent twenty months in Vienna, and have been a pretty constant attendant at one or the other of the two surgical clinics here. I believe that approximately I have seen 800 patients anesthetized during that time, and of these four have died on the table from the effects of the anesthetic. The agent used was always either pure chloroform, or that even more dangerous compound in my opinion, the A. C. E mixture.

Among the early axioms that I learned as a medical student was one that said statistics *never lie.* I believe now, however, that that proverb has been revised, and it is now safe to assert that statistics *always lie.* I am sure they lie and lie awfully in regard to the mortality following the use of chloroform as a general anesthetic; for those given by Dr. Andrews show such a mortality to be only one in 5000, while my observation shows a mortality of one in 200. In spite of the facts in the case which I believe will show, as Dr. Da Costa of Philadelphia wrote me, that chloroform is ten times as fatal in its effects as ether, in answer to the question as to whether the surgeon used chloroform or ether, sent out by me to a large number of surgeons in the United States, shows that three-fourths of those living west of the Mississippi River use the more dangerous agent.

What strikes me as strange, and may account for the terrible mortality of chloroform here in Vienna, is the fact that no attention is paid as to the position the patient occupies while under the anesthetic. Both the patients I saw die this winter were in a semi-erect position when the first fatal symptoms were manifested. Briefly the history of the last case was this: A healthy looking man, aged 51 years, was brought into Professor Gussenbauer's amphitheater to be operated on for a recurring sarcoma in the right maxillary region, and in which it was necessary to remove a large portion of the superior maxilla, and the outer third of the inferior maxillary bone. The patient was placed in a semi-erect position, the A. C. E. mixture was given, and when the operation had continued about thirty minutes and was about half finished, he ceased to breathe. The patient was now hurriedly placed in a horizontal position. a brisk stream of cold water was thrown from a height on his bowels and chest, artificial respiration was resorted to and kept up for two or three minutes. As no amelioration in the patient's symptoms seemed apparent at the end of this time, a tracheotomy was rapidly done, a tube introduced and Professor Gussenbauer sucked out about a drachm of blood from the trachea. A rubber tube was now introduced into the tracheal tube, and through this was thrown a gentle stream of oxygen gas. During all this time artificial respiration was kept up, and the stream of cold water kept playing on the bowels and stomach. Only at the end of thirty minutes were these futile efforts at the resuscitation of the patient abandoned. No hypodermic of either nitroglycerin, strychnin or brandy were tried.

Of all the surgeons I have ever seen operate Gussenbauer is the most painstaking in his efforts to save his patients from the loss of blood. Even in an ordinary laparotomy he ties from six to twelve blood vessels before he opens the peritoneal cavity. On the other hand, Pozzi, whose work I am now following, never ligates a vessel in the abdominal wound in doing the same operation.

In the case of the removal of the breast and axillary glands I saw Gussenbauer tie 107 blood vessels, in which case most surgeons would have tied only one-fourth of that number.

Fraternally yours,

W. S. CALDWELL, M.D.

The Appendicitis Question.

DETROIT, MICH., Feb. 14, 1898.

To the Editor:—It has been a rule in my life never to go into a controversy with people, although I have sometimes sent communications to the JOURNAL, giving my views when I disagreed with others. My friend from Richmond, Ind., has sent a long reply to my last communication, and, after carefully reading it, I have come to the conclusion that he is a nice, good fellow and a progressive physician at heart, and if we bring our views together I am sure we will perfectly agree, excepting on some minor details.

He quotes Treves and Thalamon, both of whom had limited experience with the operation of appendicitis, and whose opinions should not count alongside of such men as Robert Morris, J. B. Murphy, Joseph Price, Fowler and Deaver, men who have had hundreds of operations and seen the terrible results of procrastination. When a man who has operated ten, twenty or thirty times and who has had bad results, because he has not learned the *minute detail* of the operation, says you should not operate before the tenth day, except on those cases where a large abscess has formed, which is well walled in and which simply needs to be opened (which any tyro in surgery can do), but who, at the same time, allows a dozen other patients to die on the second, fourth, sixth or eighth day, when such men give their views *they do more harm than we do* who are obliged to take the other extreme.

It depends upon who operates. Often the surgeon, himself, infects the parts that are clean and the patient dies as a result of the operation, but a good abdominal surgeon, with perfect asepsis, will seldom have a patient die before rupture and general peritonitis, except as the result of some unforeseen accident. Ideas are charged to me which I never held nor expressed. There are any number of cases where I refused to operate because I saw the patient was convalescent, but said that if they had recurrence they should have an operation performed the first day. It is easy to say you will operate at the interval, but patients, if they feel perfectly well, will not submit to an operation at the interval, for which I do not blame them, as, they say, "perhaps I will never have another attack."

The other point is diagnosis. Some men can never diagnose a case of appendicitis, or only in rare cases. My views are not expressed on cases where a diagnosis had not been made. I do not operate by guesswork. I assume, in my communication, that diagnosis is made and that, with a rare exception, it can be made in the first twenty-four hours, before rupture has taken place. I am sure the Doctor will agree with me that it is better to operate the first day, or, for that matter, the second, any time before rupture has taken place. That is all I claim. I will admit if you have a fortunate case, where the rupture and the resulting abscess is well walled in and gradually works its way outward, and in the course of ten or fourteen days points at some place near the crest of the ilium, that it is easy and not dangerous to open that and let out the pus. At the same time, before this takes place, in many cases it ruptures into the peritoneal cavity, we have general septic peritonitis, or, the absorption of septic material is so great that your patient dies (in either case) on the fifth or sixth day. So that the controversy stands really here:

My friend will accept the dictum of a general surgeon with a very limited experience in abdominal surgery, like Treves, or some young man, also with a limited experience, like Thalamon, while I prefer the views of men who have operated on a couple of hundred cases each, like Price, Deaver, Murphy, Fowler, Morris and others.

1. He and I agree that a diagnosis should first be made.

2. He and I agree that a convalescent patient should not be operated upon.

3. He and I agree that patients absolutely recover without recurrence and without an operation.

4. He and I also agree that some patients need an operation, and if there is any difference in our views it is simply as to when is the best time.

I believe, with my limited experience, as I see only about fifty cases a year, that the greatest number of patients will be saved if they would all be promptly operated upon as soon as the diagnosis is made. So that, after all, we get so near together that there is no use splitting hairs about it, and I am perfectly convinced that Dr. Haughton is a nice, good fellow, that he means well, and what is more, I am sure he is progressive and wants to arrive at the truth, otherwise, we would never have heard from him. Yours truly,

J. H. CARSTENS, M.D.

The Australian Eunuchs.

CHICAGO, Feb. 10, 1898.

To the Editor:—In an article on "The Oriental Eunuchs," by Dr. Edmund Andrews, in the issue of January 22, in the paragraph on "Australia" the author refers to the natives limiting "the increase of families by crushing the testicles of the father after his first child is born." Referring to this point the facts below are not entirely relevant, but may prove of interest in this connection.

My brother, Mr. Fred Hessert, who has for over a year been sojourning in West Australia, has in his letters to me described some of the customs of the barbaric natives. Owing to the barren desert condition of the country, the natives prevent a too great increase in their number by certain surgical operations performed on the penis. When a boy reaches the age of puberty he is taken in hand by a number of old "bucks," who lead him into the "bush" and there perform on him an external urethrotomy. The opening is made with crude instruments, sharp stones, pieces of tin or old knives and the like obtained from the whites. The opening is made at the beginning of the *pars pendulosa* and is kept open so that eventually a fistula is produced. The object of this procedure is evident; in copulation the semen is ejected through the fistula and the possibility of impregnation reduced to a minimum. When the black desires to impregnate, he plugs up his fistula with a gum or resin obtained from a certain tree. The plug he keeps in place with a few turns of dried grass or vegetable fiber and he again becomes a potent factor.

Another operation that is practiced is to slit up the entire urethra from the perineum anteriorly. This is more radical, and permanently prevents the possibility of impregnation.

These operations are commonly practiced in West Australia at least, and inasmuch as the letters from my brother are exhaustive and in detail, and no mention is made of castration, I would infer that the latter procedure is practiced but very rarely in that region.

As the natives, even in the cold season, are very scantily dressed observation at this point is easy.

Repectfully yours, WILLIAM HESSERT, M.D.

How Squirrels Become Eunuchs.

HAYNEVILLE, ALA., Feb. 10, 1898.

To the Editor:—In the JOURNAL (Feb. 5, 1898) I read a communication from Dr. Eugene S. Talbot on the subject "Do Adult Squirrels Castrate Each Other?"

Castrated Squirrels are frequently killed in this country, and the supposition is almost universal that the operation is done through motives of jealousy in desperate combats.

This is one of the zoölogical fictions belonging in the same category with the horsehair snake.

The missing testicles have been destroyed by a parasitic worm peculiar to those organs of the *sciuri* family.

Yours, C. E. MARLETTE, M.D.

Oxytuberculin.

SANTA CLARA, CAL., Feb. 9, 1898.

To the Editor:—In regard to the "Oxytuberculin" treatment for consumption it is but just to the medical profession at large to comment on the other side. Any treatment which will not bear inspection can not be of much value.

It is a very noticeable fact that all of the cases seem to be diagnosed by one individual, viz., Dr. Hirschfelder. These cases are not presented to the unbiased medical profession for diagnosis before treatment. It is only after an alleged cure or "great benefit" that they seem to be exhibited. Nothing is said about the diet during treatment, which is a matter of very great importance. A patient suffering from tuberculosis, if placed upon a generous diet together with good hygienic conditions and a promise of complete cure, will frequently improve very rapidly. During such improvement, the bacilli become scarce or absent from the sputum. Such a patient may remain well or may succumb to the disease years later. No individual is justified in claiming a cure until at least two years have elapsed without any symptoms of tuberculosis whatsoever.

Living within a few miles of the producer of "Oxytuberculin," I have had opportunity to witness its use in a number of cases. In but one case has there been any apparent benefit. That was a case of asthma and no positive evidence of tuberculosis at all. The case has been reported "cured." No such results are obtained outside of the clinical department of Dr. Hirschfelder and his immediate professional friends as he reports from the inside.

It would appear that the "investigation" by a committee from the faculty of Cooper Medical College was a sort of star-chamber performance at which all medical men liable to be incredulous, inqusitive or over particular about details were excluded. Apparently it was a sort of love-feast participated in by the Faithful. Taken, all in all, there seems to be much assertion and but little evidence that any one has been cured by oxytuberculin rather than by natural forces inherent in the human body, aided by good food and nursing.

Yours respectfully, E. H. SMITH, M.D.

A Correction of Dr. Charles Denison's Article: "The Antitoxic Treatment of Tuberculosis."

CHICAGO, Feb. 14, 1898.

To the Editor:—Dr. Charles Denison enumerates in the above mentioned article the different therapeutic products obtained from cultures of tubercle bacilli: the tuberculin Koch, the tuberculocidin and antiphthisin (Klebs). As No. 4 he gives "tuberculinum purificatum, which name Dr. Karl v. Ruck of Asheville has given to his manufacture of practically the same preparation." In a foot note the manner of preparation of the last is given, absolutely identical with the method published by me in 1894 for the preparation of tuberculocidin.

As Dr. von Ruck, so far as I know, has never published the formula of his "tuberculinum purificatum," I can not say if Dr. Denison is in error or if Dr. von Ruck has brought on the market a preparation the same as tuberculocidin, simply using another name. Probably the first suggestion is the correct one, but the profession should be enlightened on this point by Dr. Charles Denison, Denver, or Dr. Carl von Ruck, Asheville, N. C.

EDWIN KLEBS, M.D.

The Idaho Medical Practice Act.

BOISE BARRACKS, IDAHO, Feb. 8, 1898.

To the Editor:—The item in the JOURNAL for January 29, announcing that the supreme court of this State had declared the medical law unconstitutional because it had passed the senate irregularly, is calculated to create a wrong impression among those who should know the facts.

The bill was passed regularly, but the journal of the senate, which should have stated "the bill was then read a third time in full by sections and passed," simply stated, "the bill was then read a third time and passed." The constitution of the State was complied with but the journal was incomplete. On this technicality the bill was pronounced unconstitutional. Verily, on what a slight thread hangs the fate of medical legislation, even after as long and stubbornly fought contest as that by which our "dead" law was procured! Very truly yours,

M. W. WOOD,
Chairman Committee on Legislation Idaho State Medical Society.

Tubercle Bacillus.

WARREN, PA., Feb. 12, 1898.

To the Profession:—Any physician knowing of cases in which tubercle bacilli were found in the sputum, without any other physical evidence of disease in the lungs, and having seen such cases for a period of several years, noticed no further progress of the disease, will confer a great favor on the undersigned by reporting the same to him. I desire to obtain evidence on the import of bacillus tuberculosus in the sputum.

M. V. BALL, M.D.

PUBLIC HEALTH.

Progress in Formaldehyd Disinfection.—For two years the Chicago Health Department has been investigating the claims made for formaldehyd as a disinfectant with especial reference to the practicability and value of its use for household or domestic disinfection. For this latter purpose the following requirements must be met: 1. A light portable apparatus of simple construction and easy manipulation. 2. The evolution of a quantity of the gas in from one hour to an hour and a half sufficient for the area to be disinfected. 3. The killing of a majority of all non-spore-bearing bacteria, both in a moist and in a dry state, in a six-hour exposure, and some degree of penetration in this time. 4. Reasonable cost of disinfection per 1000 cubic feet. These requirements are made necessary by the conditions under which most of the department disinfections are made. The greater number are in the poorer districts of the city, where the dwellings and apartments are of loose construction and not uniformly warmed in cold weather. As a rule, the tenants continuously occupy the entire space at their command and on this account they are not infrequently obliged to walk the streets until the disinfection is completed. The time most available is during the middle of the day, and the rooms must be opened in time for the preparation of the evening meal. The great extent of the city, requiring the disinfectors to travel long distances, precludes any heavy or cumbersome apparatus, and the operators are not sufficiently skilled as mechanics to operate valves, thermometers and gauges with which many of the appliances tested are furnished. As all manner of articles are to be disinfected, including clothing, bedding and even kitchen utensils, the disinfecting agent must show reasonably destructive properties toward all kinds of bacteria cultures exposed and especially toward the pathogenic varieties. Every known form of formaldehyd disinfector has been tested during this period, including four using methyl alcohol, two using formochloral, one for the combustion of paraform pastils, and a number using formalin and special compounds. Without going into details at this time the statement may be made unqualifiedly that no apparatus or method thus far tested has fully or even fairly met the requirements deemed essential for municipal disinfection, as above enumerated. Quite recently, however, a device for the vaporization of formalin, in an open vessel containing asbestos chips

fiber, was brought to the notice of the Commissioner, and
e tests of this device, ordered by Dr. Reynolds and conduc-
l under Dr. Gehrmann's supervision, have led to a still
rther simplification of the apparatus and more recently to
e use of formalin diluted by the addition of three times
volume of water. The simplified apparatus consists of a
allow granite-ware vessel, of half-gallon capacity, supported
er a methyl-alcohol lamp, capable of holding twelve to six-
en ounces of the wood spirits. The asbestos has been found
necessary, since it does not prevent the conversion of a
ger percentage of the formic aldehyd into inert paraform
an when it is not used. Tollens and Mayer had already
monstrated that the polymerization of formic aldehyd does
t take place with water at 100 C. when in dilute solution,
d the results of Dr. Gehrmann's experiments on this line
ow that whatever amount of polymerized aldehyd may be
rmed during the concentration resulting from vaporization
n be re-converted into the simple form by a further addition
boiling water. One pound of the formalin solution of 40
r cent strength contains, approximately, 200 grams of formic
dehyd and, as from 30 to 50 grams are sufficient for the dis-
fection of 1000 cubic feet of space, one pound of the solu-
on should be sufficient for the treatment of 4000 cubic feet,
ovided all the formaldehyd can be vaporized. In practice
e experiments thus far conducted show that by diluting the
dinary solution with three times its volume of hot water
d then boiling for half an hour, from 40 to 50 grams of the
s will be disengaged, quite sufficient to disinfect 1000 cubic
et. Whatever paraform is produced may be utilized for the
xt disinfection by the addition of boiling water; thus there
no waste. A six hours' exposure under these conditions
s given better results in the sterilization of cultures than
s been obtained by any other method, and the other require-
ents, simplicity and portability of apparatus, rapid evolu-
on of the disinfecting agent and brief duration of exposure,
gether with reasonable cost of disinfection, are also more
arly met. The results have, indeed, been so satisfactory
d the remarkable bactericidal properties of formic aldehyd
ve received confirmation in such a practical manner through
ese experiments that, at the suggestion of the Assistant
ommissioner, Dr. Reilly, an inexpensive vaporizer has been
vised by Dr. Jaques, chief of the diphtheria corps, for
e in the room occupied by a diphtheria patient during the
se. This vaporizer consists of a shallow cup supported over
ordinary cheap lamp, such as is made for coal-oil or kero-
ne. Methyl alcohol is used for the flame. The cup is nearly
led with a solution consisting of about one part of 40 per
nt. formalin and five parts of boiling water. The flame is
adjusted as to keep the solution just at the boiling point.
he device in use costs less than twenty cents. This is furn-
hed and used in all charity cases of diphtheria treated exclu-
vely by the department, and is believed to be useful in limi-
ng the danger of spread of the contagion to attendants and
hers, and to effect some degree of continuous disinfection
the room and its contents during the progress of the case.

The Caffery Bill.—The Senate Committee on Public Health
d Quarantine at Washington has submitted to that body,
rough Senator Vest of the committee, a report upon the
rious plans which have been referred to it for the creation of
Department of Public Health. As might have been antici-
ated from the constitution of that committee, the report is
holly in the interests of the Marine-Hospital Service, which,
ith the powerful support of the Treasury Department, has
tter facilities for persuading Congressmen than can be
joyed by any interest or interests distant from Washington.
he Marine-Hospital Service was established in the Treasury
epartment for the sole purpose of caring for the sick sailors
the merchant marine. Such hospitals were once necessary because the general hospitals were few and hardly sufficient for the needs of the permanent population in their vicinity; but the seaport cities have now hospital accommodations large enough to receive the ordinary sailors, while those attached to the navy would naturally be still cared for in the hospitals of that service. Under a succession of energetic chiefs the Marine Hospital has acquired functions foreign to its organization, and now demands the oversight of the public health work of the nation, a function not justified by anything in its constitution or experience. If any existing department in Washington could be properly placed in charge of our quarantine work, the navy would seem to be the proper body, for its medical officers have visited all quarters of the globe and are more familiar than any other public servants with the foreign diseases which produce so much disturbance when introduced into this country. The great sanitary need of the country, however, is something of far greater importance than a quarantine against yellow fever or cholera. The disgraceful deficiency of the government at Washington in this regard lies largely in the fact that a few cities and less than five States have done the only creditable public health work of the country in later years. It has been the hope of many that the growing belief in really scientific methods for the prevention of disease might find some encouragement in the halls of Congress; but it now seems probable that the same Senate is willing to hamper the methods of investigation which have given us a means for controlling diphtheria and to enlarge the powers of the Marine-Hospital Service for the sole purpose of creating a quarantine against yellow fever and cholera alone. The larger part of Senator Vest's report, which accompanies Senate Bill No. 2680, is devoted to the discussion of the constitutional right of the United States to protect its inhabitants against a contagious disease introduced into this country from abroad; and, fortunately, the conclusion is reached that the general government has that right, but it hardly seems necessary at this late day to spend much time upon the question of a right to save human life when Congress has more than once authorized more drastic measures for the suppression of diseases among the domestic animals than any now demanded for man's protection. So long as the Senate regards its associate from New Hampshire, Dr. Gallinger as a sufficient representative of the present views on preventive medicine, we are not likely to get any better plan for a public health service than this presented by Senator Vest; but if any of our readers are in a position to do missionary work in instructing any Senator in the beneficent functions of the great sanitary boards of other countries, let such hasten to the task.—Editorial in *Boston Med. and Surg. Journal*, February 10.

Origin of the Fever of 1897.—The committee of the legislature of Mississippi, which went to Ocean Springs, in that State, recently for the purpose of investigating the origin of the yellow fever, with which the Southwest was afflicted last summer and fall, reports that the epidemic did have its origin in that place, but that it was not brought there from the Marine-Hospital Service quarantine, as has been charged, or by Cuban filibusters who fitted out a filibustering expedition there in the early part of last summer, but that it was introduced there from Guatemala by a Mississippi family that had been temporarily staying in that country. The family came to this country on the steamer *Breakwater*, and reached Ocean Springs early in April. None of their baggage was disinfected. Soon after their arrival at Ocean Springs one of their number became ill with fever. Within a few days other cases of fever made their appearance in the vicinity of the first case, and fever of some character prevailed at Ocean Springs all summer, though it was not until September that it was diagnosed as yellow fever. In all the Southern ports strict quarantine goes into effect on May 1. It is apparent, if this report of the committee of the

Mississippi legislature is to be relied upon, that strict quarantine against yellow fever countries ought to go into effect much sooner, because it was in April that the disease was introduced into Ocean Springs. In this connection it is recalled that it was in March that the *Emily B. Souder* is said to have introduced the yellow fever into New Orleans March, 1878, the year of the great epidemic of yellow fever in the Mississippi Valley. If what is said in respect to the origin of the fever last year and 1878 is correct, it is evident that the disease can be introduced into a port in comparatively cool weather, that it may linger there months and finally develop into an epidemic under favorable conditions when the hot weather comes. The conclusion is that all the South Atlantic and Gulf quarantine officers ought to be on the lookout for the fever all the year around, and that the quarantine regulations at all these ports ought to be uniform, and strictly enforced by competent men. —*News*, Savannah, Ga., February 5.

ASSOCIATION NEWS.

Chicago Gynecological Society.—The Chicago Gynecological Society entertained the Trustees of the AMERICAN MEDICAL ASSOCIATION, the evening of February 18, in the Stewart Building. The following program was presented: Exhibition of specimens; exhibition of instruments; report of cases; "The Removal of Fibroid Tumors of the Uterus without Hysterectomy," by Dr. E. E. Montgomery of Philadelphia; "Vaginal Hysterectomy and Igni-Extirpation," by Dr. Joseph Eastman of Indianapolis; "The Rectal Reflexes in relation to Gynecologic Work," by Dr. J. M. Mathews of Louisville; "Uretero-vaginal and Uretero-abdominal Fistulæ," by Dr. A. H. Ferguson.

Collation. The guests of honor were Alonzo Garcelon, M.D.; G. C. Savage, M.D.; I. N. Love, M.D.; E. E. Montgomery, M.D.; J. M. Mathews. M.D.; C. A. L. Reed, M.D.; Joseph Eastman, M.D.; J. T. Priestley, M.D.; Truman W. Miller, M.D.; John B. Hamilton, M.D.

SOCIETY NEWS.

New York State Medical Society.—The Society convened in annual session at Albany January 25. Among the papers of general interest was one by Dr. William Warren Potter of Buffalo, President of the State Medical Examining Board, entitled "Medical Education; the State License to Practice Medicine." Dr. John H. Pryor, also of Buffalo, presented a paper on the duty of the State and county in reference to the treatment and care of consumptives. He advocated the establishment of a colony for consumptives upon State lands in the Adirondack region. "The Hygienic Management of Dairies," and "The Municipal Control of Milk Supply in Cities and Villages, with Report of Health Regulation," were read by Dr. E. F. Brush of Mt. Vernon and Dr. W. H. Heath of Buffalo, respectively. Dr. Heath's paper recommended quarantine in the dairies from without, carefulness in issuing dairy licenses and legislation requiring sanitary conditions in transportation. He also advocated the plan of not allowing small grocers to handle milk, as much disease undoubtedly lodged in the fluid while in those places, since these people neither know how nor are able to properly store the milk. Other papers were read pertaining to the diseases of women by R. J. Wilding of Malone, Herman A. Hayd of Buffalo, Edwin B. Cragin of New York, W. E. Ford of Utica, J. Riddle Goffe of New York. Papers were also read by George M. Edebohls of New York, M. D. Mann of Buffalo and J. E. Walker of Hornellsville, and Dr. P. M. Wise had a paper on "The Past, Present and Prospective Methods of Treatment of Insanity in the State of New York." Other papers were: "A Year's Work in Appendicitis," Herman Mynter of Buffalo; "Lessons from Six Ca of Appendicitis," William B. Jones of Rochester; "Congen Dislocation of the Shoulders Backward, with a Report Seven Cases and an Operation for its Relief," A. M. Phelps New York; "The Treatment of Rachitic Deformities," R nald H. Sayre of New York; "The Management of Ur scended Testicle in Hernia Operations," William B. DeGa of New York. The following officers were elected: Preside John O. Roe of Rochester; vice-president, E. F. Brush of Vernon; secretary, F. C. Curtis of Albany; treasurer, Cha H. Porter of Albany. Drs. Frank Van Fleet of New Yo Arthur G. Root of Albany and Ernest Wende of Buffalo w appointed a legislative committee.

Salt Lake County Medical Society.—At the last annual meet of the Salt Lake County Medical Society the following offic were elected for the ensuing year: Philo E. Jones, preside George H. Penrose, vice-president; E. I. Thorne, treasur H. S. Scott, secretary. This is the oldest medical society the intermountain region and has a membership of sever The Society's meetings are held the second and fourth Mon evenings of every month.

NECROLOGY.

JOHN CROMYER, M.D., University of Toronto, Canada, 18 died at his home in Buffalo, N. Y., February 11. He was b December 22, 1825 in Black Rock, a suburb of Cork, Irela and in 1837 came to this country. In 1859 he removed to B falo, where he became widely known as a medical scholar, debater and the possessor of many attractive qualities. was a member of the AMERICAN MEDICAL ASSOCIATION founder and ex-president of the New York State Medical As ciation, to the reputation of whose series of Transactions annually contributed in various ways, and he was besides many years an honorary member of the Ontario Medi Association.

GEORGE C. BRIGGS, M.D., University of Michigan, A Arbor, 1853, died from cardiac disease while driving to home in Burlington, Vt., late on February 11. His ho brought his body to his door. In 1876–77 he was professor materia medica in the University of Vermont and in 1873 representative for the town of Franklin in the Legislatu Besides he was a leading member of the Vermont State M ical Society and consulting physician of the Mary Fletc Hospital in his residential town.

FREDERICK L. VON SUESSMILCH, M.D., Delavan, Wis. native of Hanover, Germany, died February 10, aged 77 ye He participated as surgeon in the civil war, being attached one of the Wisconsin regiments. The city of Delavan repeatedly elected him mayor, and he was for many years member of the State Board of Health. He was gradua from the Royal Medical and Surgical College, Dresd Saxony, in 1848.

G. A. WILDER, M.D., one of the oldest physicians of Cir ville, O., died suddenly January 30. Dr. Wilder served for ma years on the Board of Education and was a member of Pension Examining Board under President Cleveland. graduated from the Berkshire Medical College, Pittsfie Mass., in 1864.

WILLIAM H. HELM, M.D.. University of Pennsylvania, 18 of Sing Sing, N. Y., died February 5.

THOMAS H. ATKINSON, M.D., Jersey City, N. J., February aged 26 years.——M. E. Connolly, M.D., Dubuque, Io February 2, aged 54 years.——Christian W. Dellenbau M.D., Cleveland, Ohio, February 3, aged 68 years.——Ira Lyons, M.D., Huntington, Ind., aged 76 years.——T. McDonald, M.D., New Carlisle, Ind., February 7, aged years.

Deaths in the Medical Profession Abroad.—Dr. Filippo ssana, Emeritus Professor of Physiology in the Universities Parma and Padua.——Dr. G. Alexianu, Professor of Med- l Pathology at Bucharest.——Count Motta Maia, Professor Anatomy and Operative Surgery in the Medical Faculty of de Janeiro.——Dr. Francesco Bini, for many years Pro- sor of Psychological Medicine at Florence, aged 84 years. —Vallin, Professor of Clinical Surgery at Lille, France. anslator of Greig Smith's large work on Abdominal Surgery d author of numerous articles in this line. Physician to the grims at Lourdes. Death in early prime from small anthrax the wrist, contracted professionally.——Professor Zacharjin, oscow, the famous Russian who devoted all his earnings as ofessor to founding scholarships for poor students. Although quently summoned to the nobility he retained his simple, usque manners to the last. When the Czar Alexandria III. s on his death bed, Zacharjin scandalized the Court by his essing gown and farmer's boots which he wore everywhere. gave his services freely to the poor but the rich had to pay gh for them; his fee for consultation in certain families was ,000 roubles. In one case he received 25,000 roubles for a gle visit to the manufacturer Karetnikow, who also placed pecial train at his disposal.

MISCELLANY.

The Ninth International Congress of Hygiene and Demography will nvene at Madrid, April 10 to 17, with an exhibition of arti- es of interest in these lines. For particulars address Dr. melio Gimeno, Ministerium de la Gobernacion, Madrid, pain.

Correction.—In the Journal of January 22, page 202, column ie, seventeenth line from the bottom of the page, "rather an how" should read "rather than low"; also line thirty- o from top, "optical instruments" instead of "optic struments."

A Cordial Spirit.—Convalescent (dictating): Please say to rs. Jackson that I thank her, not alone for the brandy aches that she so kindly sent me, but for the spirit in which ey were sent.

Bismuth Capsules; a New Application of the Roentgen Ray to the agnosis of gastro-intestinal affections. An ordinary gelatin psule (2.25 by 1.25 cm.) is filled with a non-toxic substance, paque to the rays (metallic bismuth) and swallowed by the tient. Its varied course throughout the alimentary canal can en be followed with the fluorescent screen or by radiographs. casts a clear shadow and the importance of the information us derived in various affections of the stomach and bowels is ident, and also in the study of the effect of various medica- ents upon the peristalsis, etc., of the gastro-intestinal tract. he capsule is arrested and lingers for days where there is enosis of the pylorus or intestines. The interesting commu- ication on the subject in the *Deu. Med. Woch.* of January 13, from the eminent authorities, I. Boas and M. Levy Dorn of erlin, who have tested the capsule on fourteen persons and gard it as a valuable contribution to the study of these vis- era from many points of view. The capsule is coated with elluloid to keep it from dissolving and is stained a bright color enable it to be readily detected in the feces. Powerful rays nd a high tension current are needed, and it is well to note hether the shadow is more distinct from the front or rear. With much obesity, they found it impossible to trace the cap- ule lower than the stomach. In the majority of cases it was ound either in the greater curvature, near Bauhin's valve or the cecum. They never happened to witness its passage rough the pylorus. In several cases of slight gastric disturb- nce the capsule was found after twenty-four hours, invariably in the cecum; less time was required for it to pass through the small intestine to the cecum than for its passage through the pylorus. They are now searching for some substance to coat the capsule that will allow it to be dissolved at will by a chemic agent. They conclude by stating that henceforth a neoplasm or constriction requiring operation can be located with preci- sion by having the patient swallow a capsule as a preliminary to the operation.

Embalming Crushed Members; "No More Traumatic Amputations."—Several of our exchanges have recently been extolling the favorable results attained with Reclus' embalming process (*Rev. de Chir.*. January, 1897), in the traumatisms in indus- trial establishments, etc., as it saves the maximum of tissue and ensures the best stumps or an available member. Even from Chile comes the same cry of the increasing numbers of these accidents: "scarcely a day passes here in Santiago in which our *sui generis* surburban line does not crush the ankle or arm of some unfortunate," and the conservative embalming process is frequently practiced with most gratifying success (*Revista Medica*, October). The *Journ. d. Sc. Méd. de Lille*, December 25, describes the case of a woman eight and a half months pregnant, whose hand had been crushed in some ma- chinery. For several days the hand was plunged for hours at a time in phenicated and disinfected hot water. Then a few whiffs of chloroform were given her and the toilet of the hand accomplished with quantities of very hot water and with solutions of sublimate and potassium permanganate, remov- ing the loose projecting fragments of bone. Small squares of soft gauze impregnated with a poly-antiseptic salve consisting of all the substances currently used in surgery (less of those easily absorbed: sublimate, phenic acid and iodoform, and more of the others, boric acid, salol, antipyrin), were carefully fitted into every crevice, covering the hand entirely, comple- ting the dressing with a thick layer of cotton and a tight, compressing bandage outside of all, to secure anastomosis of the vessels. The patient then left for a maternity where she underwent a normal confinement. The embalming dressings are never touched for three weeks, leaving to nature the task of separating the dead from the living tissues. When they were removed in this case, after twenty-six days, under a thick layer of a fetid, chocolate-colored fluid, the wounded surface was found covered with healthy granulations, with the ne- crosed parts entirely eliminated. An autoplastic operation was performed a week later, which healed rapidly.

A New Conception of Artificial Immunity.—Ehrlich has suggested that possibly intoxication by a special toxin may be due to the combination of the toxin with certain cells of the organism. According to this idea the antitoxins are nothing else than the constituent parts of normal cells constantly eliminated, constantly regenerated, in the course of the immunizing pro- cess, which neutralize the toxin circulating in the blood, thus protecting the organism against its injurious action. Wassermann and Takaki have been experimenting in this line and they find that they can neutralize a fatal dose of tetanus toxin by injecting healthy brain matter. Their premises are that if the antitoxin of tetanus is derived from the cells of the central nervous system as we have reason to suppose, it should exist normally in the brain and medulla. We can consequently confer immunity by introducing into the system nerve sub- stance from these organs taken from healthy animals. These suppositions were confirmed by experience. Fragments of the brain and medulla of healthy animals, emulsioned in physio- logic salt solution, were mixed with a fatal dose of tetanus toxin and the mixture injected into white mice, which are par- ticularly susceptible to tetanus. No effects from the toxin were observed. A preventive injection of the brain emulsion several hours before the tetanus toxin was administered, also saved the animal from its effects. This power is more marked

in brain matter than in the medulla. It is inherent in the cells themselves, as the centrifugalized fluid is without it, and also the serous fluid of the cerebral ventricles, and emulsions of other organs, spleen, kidney, spinal cord, etc. These facts, with the results of clinical observation, seem to show that the tetanus toxin has a special affinity for certain groups of cells of the nerve centers. This affinity exists not only between the toxin and the living nerve substance, but for nerve substance taken from the brain and medulla of dead animals. When an emulsion of these organs is injected with or before the tetanic toxin, the latter combines with the nerve substance circulating in the blood and is thus neutralized. Wassermann's experiments suggest a new style of opotherapy: to determine for each bacterial toxin the special organs for which it has an affinity, and protect the organism by injecting emulsions of this organ derived from sound animals.—*Berl. klin. Woch.*, January 3.

Tubal Pregnancy and Vaginal Celiotomy.—Dürhssen contributes a study of this subject to the *Arch. f. Gynek.*, Vol. xiv, No. 2, describing his technique in full, advocating the vaginal route, as the operation is less severe, without shock, or consecutive necrosis or suppuration, and the patient recovers rapidly. He has operated on fourteen in this way, all anemic. Eleven recovered by the twelfth day; one died soon after leaving the hospital; one had such hemorrhage that the operation was supplemented with vaginal hysterectomy. In another there was a secondary suppurating hematocele. In his nineteen abdominal operations, there were two deaths, two secondary suppurating hematoceles, and one secondary consecutive to the operation. He proceeds the same whether the tube is or is not ruptured: 1. He opens into the abdominal cavity through the anterior cul de sac. 2. Draws down the fundus of the uterus into the vagina with Museux forceps, and then the diseased tube. The peritoneal adherences are usually easily detached. 3. Ligature in stages and section of the adnexa with the thermocautery. 4. He replaces the uterus in the abdominal cavity and closes, separately, the peritoneum and the vagina. If the uterus is retroflexed, he performs vaginofixation. As far as possible, no drainage. Thus performed, vaginal celiotomy does not interfere with future normal pregnancies. He considers that every tubal pregnancy in the early stages should be extirpated as soon as the diagnosis is established. Anemia is not a counterindication, but he prepares anemic patients by injections of artificial serum immediately before operating. He ascribes the etiology to peritoneal adherences consecutive to perisalpingitis, modifying the shape and direction of the tube, or to catarrhal inflammation of the tubal mucosa, generally of gonococcic origin, which arrests the peristaltic movements of the tube, with the loss of the cilia of the cells. The passage of the fecundated ovum toward the uterus is thus hindered, while the same factors favor the penetration of the spermatozoon. He also admits the possibility of a puerperal atrophy in nursing mothers which would favor the development of tubal pregnancy.—*Presse Méd.*, December 25.

Physical Treatment for Obesity.—W. Kinternitz reviews the disadvantages of the various antifat methods in vogue in an address reported in the *Therap. Woch.*, of December 12. He states that they are all more or less weakening, underfeeding, with occasional after-results such as disturbed digestion, neurasthenia, etc., while the use of the thyroid tablets has been followed in numerous instances by serious disturbances of the circulation and nervous system, and even diabetes. He prepares the patient by a preliminary course of training of the vessels all over the body, by mechanic and thermic stimulation. He accomplishes this by reducing the temperature by a cold bath lasting fifteen minutes, more or less, followed by the "reaction promenade," which by muscular exertion raises the temperature again to normal, but does not produce the excessive heat it would if it had not been preceded by the cold bath. He also uses massage and dry packs in certain cases, individualizing in all, and repeating the process of withdrawing the heat of the body and the reaction warmth production two or three times in the twenty-four hours. A valuable adjuvant is the sweat cure, which strengthens the patient while reducing his obesity and leaves him with better nutrition in every respect. He reports astonishing success with the new "electric light baths," which do not raise the temperature nor accelerate the pulse, while the amount of sweat excreted is enormous. C. Schmidt has shown that the loss of an atom of alkali has a constant equivalent proportion to the albumin, so that for each single atom of alkali salts withdrawn in the respiration, nine atoms of albumin are restored to the circulation. As the perspiration lowers the amount of water and salts in the blood, angiopetal currents arise which draw the albumin out of the tissues into the blood; the nutrition of the muscular tissues is improved, while the organic albumin is protected, and fat alone consumed in the metabolism, and all the functions are more thoroughly performed. He reports hundreds of cases thus treated with a loss of forty-five pounds in weight in a few weeks, without interrupting or disturbing any functions and with increased instead of diminished energies. The process is purely physical. The aim is merely to increase the physiologic consumption of fat. The non-interference with the diet is an important advantage of this method in the frequent cases of bons vivants. The patient can be treated at home and the treatment resumed as necessary to maintain the benefits secured.

Washington.

HEALTH OF THE DISTRICT.—The report of health officer Woodward ended January 29, shows the total number of deaths to have been 100. Of which number 61 were white and 39 colored. Among the principal causes of death were diseases of the nervous system, 17; circulatory, 5; respiratory, 12; urinary, 7. There were 4 fatal cases of diphtheria, 1 of whooping-cough, 1 of typhoid fever and 3 of la grippe. There are 46 cases of diphtheria under treatment and 48 cases of scarlet fever.

MEDICAL ASSOCIATION. — The standing committee of the Medical Association of the District of Columbia held a meeting on the fourth instant to determine which hospitals have agreed, and which have not, to enforce the recent rules of the Association regulating the admission and treatment of patients applying for free treatment.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The two hundred and seventy-fifth meeting of the society was held at the residence of Dr. T. S. Smith, the president. Dr. W. T. Carr read the essay of the evening entitled, "Remarks on the Technique of Symphysiotomy with Report of two Cases."

Cincinnati.

THE MORTALITY REPORT for the week shows: Stillbirths 5, zymotic diseases 16, phthisis 16, other constitutional 6, local 66, developmental 12, violence, 6; total, from all causes, 122; between 1 and 5 years 18; annual rate per 1000, 15.66; preceding week, 107; corresponding week 1897, 118; 1896, 134; 1895, 115.

THE GERMAN METHODIST DEACONESS' HOME has decided to erect a general hospital.

THE CINCINNATI HOSPITAL is considering the advisability of erecting an isolation department for the care of patients suffering from infectious and contagious diseases. A bill has been drafted and will shortly be presented to the legislature asking for an appropriation of $160,000. It is the intention to have the internes and nurses who have charge of this department also isolated from the general hospital proper.

THE NORTHEASTERN MEDICAL ASSOCIATION of Kentucky held its annual meeting in Cincinnati last week. Dr. A. S. Robertson of Sherburne was re-elected president and Dr. Adamson of Maysville secretary. Dr. C. A. L. Reed invited the association to the Cincinnati Hospital, where he performed several operations

the amphitheater, among which might be mentioned three ettements of the uterus, one Tait's operation for lacerated ineum, one vaginal hysterectomy and one retroflexion of uterus by abdominal section with fixation of the uterus by own method.

Health Officer Withrow has presented his annual report. Withrow has inaugurated a number of innovations in the partment since he entered last April. The most important ng the establishment of a completely equipped chemic and steriologic laboratory and the anti-spitting crusade. The ath rate is given as 13.7, which is the lowest ever reported Cincinnati.

Dr. Edmund L. Gros of Paris visited Cincinnati last week route to San Francisco. Dr. Gros was at one time assistant der Professor Charcot of Paris and he has done much ginal work along the line of suggestive therapeutics, scien- c hypnotism and ophthalmology, his last work being a thesis "Hydrophthalmia," which was recognized by the Faculty Paris with a laureateship bestowed upon Dr. Gros.

Smallpox.—Recent reports show that smallpox continues to read in Tennessee, and it is estimated that there are 1000 ses in Northern Georgia, Tennessee, North Carolina, South- a Kentucky and Virginia. There are several new cases in artow County, Ga., the total number there being fully 250. he disease has appeared at Troy, Anniston, and Hartzell, a., and is creating considerable alarm in mining districts of ast Tennessee. Dr. Allbright of the State Health Board nounced that a wholesale vaccination is the only thing that n prevent a general spread of the disease in Tennessee and all the districts affected. Compulsory vaccination has been dered, while places where the disease has not appeared are king vigorous measures to prevent infection.

Louisville.

Corpses.—At the instance of the General Baggage Agents' ssociation of this city, a joint meeting was held this week of e Executive Committee of the State Board of Health, the ty Health Officer, a representative of the Baggage Agents' ssociation and a number of undertakers of the city. The ject of the meeting was to consider certain recommendations Health Officer Allen in regard to the transportation of rpses. There are a number of provisions in the laws of the rious States bearing on the manner of embalming, which use considerable annoyance to baggage agents. The agents quest a perfected system of embalming by competent men, id an effort to have a uniform law adopted in order to facili- te the work of transportation of dead bodies. Rules similar those adopted by the Illinois State Board of Health will be ged and perhaps adopted by the Kentucky State Board of ealth.

Embalmers.—In connection with the foregoing paragraph, he Laufles House Bill, which was reported favorably by the mmittee on public health, was defeated by a vote of 54 to 19. his bill provides for a license for embalmers before they can actice.

Dentists.—House Bill 93, which was also reported favora- ly by the Committee on Public Health, was defeated by a te of 43 to 27. This bill was strongly urged for passage by he State Dental Association. It provided for re-enacting the w chartering the Kentucky State Dental Association, and creased their powers in issuing licenses to practice dentistry. also removed the headquarters from Louisville to Hopkins- lle. It is to be regretted that this bill failed in its passage. his was subsequently called up by Representative Vanzant, ho moved a reconsideration. The motion carried and after a ng discussion the bill was finally carried by a vote of 54 to 34.

Pulliam.—Dr. R. D. Pulliam of Leitchfield, Ky., died Feb- ary 2, after an illness of less than two weeks. He was 63 ears old and was one of the leading physicians of the county. e leaves a widow and eight children.

Wiley.—The Senate has confirmed the appointment of Dr. E. M. Wiley as Superintendent of the Central Kentucky Asylum for the Insane by a vote of 18 to 13. Strong opposition was brought to bear against the confirmation on purely political grounds.

Osteopathy.—A bill has been introduced into the Senate by Mr. Goebel of Kenton which, if it becomes a law, will enable the State Board of Health to effectually rid the State of these quacks. It provides that "any person is prevented from practicing medicine or treating any sick person by any method whatsoever without first complying with the act of April 10, 1893, to protect citizens from empiricism."

Free Medical School.—Among the bills advanced in the House is that one introduced by Mr. Lackey of Trigg County, providing for a State Medical College in connection with the Agricultural and Mechanical College at Lexington.

Denver.

Colorado Medical Library Association.—The fifth annual meeting of this association was held Jan. 17, 1898, Pres. T. H. Hawkins in the chair. Dr. Henry Sewall, the secretary, reported on the condition of the library. On Jan. 1, 1897, books, the property of the Denver Public Library, numbered 1559, and on Jan. 1, 1898, 1640; books, the property of the Colorado Medical Library Association, Jan. 1, 1897, 398; Jan. 1, 1898, 477; bound medical journals, Jan. 1, 1897, 1332; Jan. 1, 1898, 1910; Proceedings, Transactions. etc., Jan. 1, 1897, 1200; Jan. 1, 1898, 1320. It was voted to reduce the annual membership fee from $5 to $3. The secretary reported that some four hundred volumes of medical journals were awaiting binding, but that there was no money for that purpose. On motion of Dr. Fisk, a subscription was started to raise funds to bind these and $120 raised among the members. Drs. Munn and Sewall were appointed a committee to solicit subscriptions to complete the amount of $200. Officers for the ensuing year were elected as follows: President, William P. Munn; treasurer, Laura Liebhardt; secretary, Henry Sewall; librarian, John Parsons.

The Denver and Arapahoe Medical Society.—At the regular meeting of the society, January 25, Dr. Fisk brought forward a personal letter from Dr. Welch of Baltimore, asking the society to take some action upon governmental restriction of vivisection. The following resolutions were unanimously adopted:

Resolved, That it is the spirit of the medical profession of Denver that a strong protest be made against the passage of Senate Bill 1063, Calendar No. 136, entitled "A Bill for Further Prevention of Cruelty to Animals in the District of Columbia," and

Resolved, further that the president and secretary of the society be directed to communicate at once with our honorable Senators, urging them to do all in their power to defeat a bill that will do untold injury to the advancement of medical science and to the prevention of disease among mankind and animals.

Dr. Waxham read a paper, "Twenty-nine Consecutive Cases of Intubation with Twenty-seven Recoveries," and paid a tribute to the late Dr. Joseph O'Dwyer. All were treated with antitoxin. Of this number three were under 2 years of age with two recoveries, or 66⅔ per cent. Eight were 3 years old with eight recoveries, or 100 per cent. Six were 3 years old with six recoveries, or 100 per cent. Six were four years old with five recoveries, or 83⅓ per cent. Two were 5 years old with two recoveries, or 100 per cent., and four were 6 years old with four recoveries, or 100 per cent. Total, twenty-nine cases with twenty-seven recoveries, or 93.1 per cent. A mortality of only 6.9 per cent. This low mortality was attributed to the use of antitoxin. Dr. Levy also paid a tribute to Dr. O'Dwyer. He thought Dr. Waxham's conclusions correct. He thought that reports from those adverse to antitoxin were due to the fact that antitoxin was not administered soon enough in their cases. "Antitoxin is comparatively harmless

and it may be administered in simple anginas, and even asthma has been benefited by its administration. A diagnosis by bacteriologic examination is not necessary in every case. Here in Denver our health department has been infallible in every one of my cases." Dr. Munn thought that Dr. O'Dwyer had contributed the best pediatric idea of the century in his intubation study. He reviewed some of the statistics afforded by the city of Denver. In 1893 there were reported 178 cases of diphtheria with a mortality of 20 per cent.; nineteen of these cases were cases of laryngeal involvement and sixteen died. Early intubation and early antitoxin reduced this to 9 and 10 per cent. for the years 1895 and 1896. In 1895, when antitoxin was introduced into Denver, 123 cases were treated by antitoxin and 9 died, while 125 cases were treated without antitoxin and 31 died. He spoke of Dr. Crouch's diagnostic stain which contributed so much to the work of the health department. "Protest Against Dermatitis Originating from Exposure to the Roentgen Ray," was the title of Dr. G. H. Stover's paper. Dr. Rogers thought Dr. Stover was too positive in his statement that the X ray from a static machine would not burn. He reviewed the history of the girl who was burned by the X ray in New York, after an exposure of eight minutes. Dr. Freeman stated that some recent French writers had collected a record of fifty cases of injury from the X ray. Dr. Rogers also spoke of a new apparatus for localizing foreign objects in the body. The description appears in a recent number of the *British Medical Journal.*

A HOSPITAL IN BOULDER, COLO.—When the supreme court of Colorado handed down a decision last summer, denying the constitutional right of the University of Colorado to conduct a branch of the medical department in Denver, it became necessary to abandon the last two years of the medical course of the University. It was impracticable to attempt to conduct the two final years of the college without clinical work. A meeting of the citizens was held and it was decided to establish a hospital. The city council appropriated the sum of $3000, and the board of commissioners have assured an appropriation of $5000. It is expected that the building will be ready to receive patients by next fall.

Societies.

The following meetings are noted:

Connecticut.—Bridgeport Medical Society, February 1.

Illinois.—Kankakee County Medical Society, Kankakee, February 3.

Kansas.—Montgomery County Medical Society, Coffeyville, January 28.

Kentucky.—Floyd County Medical Society, Louisville, February 3.

Massachusetts.—Fall River Medical Society, February 2.

Michigan.—Saginaw County Medical Society, Saginaw, January 28.

Minnesota.—Minneapolis Academy of Medicine, February 2; Ramsey County Medical Society, St. Paul, January 31.

Nebraska.—York County Medical Society, York, February 1.

New York.—Niagara County Medical Society, Lockport, January 27.

Ohio.—Lucas County Medical Society, Toledo, January 28.

Pennsylvania.—Harrisburg Academy of Medicine, January 28; Oil City Medical Club, January 28; Luzerne County Medical Society, Wilkesbarre, February 2.

West Virginia.—Mason County Medical Association, Pt. Pleasant, February 1.

CHANGE OF ADDRESS.

Bond, S. S., from 813 7th St. to 818 N. J. Ave. N. W., Washington, D. C.
Cox, J. E., from Hooper, Colo., to 218 So. Broadway, Los Angeles, Cal.
Reed, B., from 4726 Kingsessing Ave. to 1831 Chestnut St., Philadelphia, Pa.

LETTERS RECEIVED.

Bernhardi, C., Rock Island, Ill.; Ball, M. V., Warren, Pa.; Brinkerhoff, W. C., Chicago, Ill.; Banister, J. M., Fort Leavenworth, Kan; Bloom, Homer C., Philadelphia, Pa.; Brothers, Samuel F., New York, N. Y.; Bradley, C. H., E. Las Vegas, N. M.; Bouffler, A. I., Chicago, Ill.

Colvin, D., Clyde, N. Y.; Chesterman & Streeter, Philadelphia, Pa. Caldwell, W. S.; Paris, France; Crowe, John W., Washington, D. C. Cokenower, J. W., Des Moines, Iowa.

Denison, Charles, Denver, Colo.; Deputy Minister of Justice, Ottawa Canada; Dercum, F. X., Philadelphia, Pa.; Doliber-Goodale Co., Boston Mass.; Day-Gage, Mary, Kingston, N. Y.

Engman, M. F., St. Louis, Mo.; Elliott, H. G., New York, N. Y.

Fairchild Bros. & Foster, New York, N. Y.

Hektoen, L., Chicago, Ill.; Hughes, Chas. H., St. Louis, Mo.; Hamilton, R. G., Ocheyedan, Iowa; Hessler, Robert, Indianapolis, Ind.; Hessert, William, Chicago, Ill.

Imperial Granum Co., New Haven, Conn.

Jackson, James H., Dansville, N. Y.; Jelks, James T., Hot Springs Ark.

Kendell, J., Covington, Ohio; Kenyon News and Postal Subscription Co., The, Chicago, Ill.; Koechl, Victor & Co., New York, N. Y.; Kress & Owen Company, New York, N. Y.

Lusk, Z. J., Warsaw, N. Y.; Lichty, D., Rockford, Ill.; Lewis, Le Roy Auburn, N. Y.; Lloyd, James H., Philadelphia, Pa.; Linley, Hubbard Atchinson, Kan.

Merton, J. M., Calumet, Mich.; McIntosh Battery and Optical Co., Chicago, Ill.; Mullin, J. M., Milwaukee, Wis.; Mann, Wm. B., Evanston, Ill. Moffett, W. E., Bible Grove, Mo.; Montgomery, Liston H., Chicago, Ill. Milliken, Jno. T. & Co., St. Louis, Mo.; Moore, Dwight S., Jamestown N. D; McBride, R. E., Houma, La.; Mercer, J. A., Chilton, Texas; Merck & Co., New York, N. Y.

Norris, A. L., Cambridge, Mass.

Polk, R. L. & Co., Detroit, Mich., (2); Pantagraph Priuting and Stationery Co., Bloomington, Ill.; Pilling, George P. & Son, Philadelphia, Pa. Phenique Chemical Co., St. Louis, Mo., (2).

Richards, R. M., Detroit, Mich.; Reed, Boardman, Philadelphia, Pa. Reber, Wendell, Philadelphia, Pa.; Reed, C. A. L., Cincinnati, Ohio.

Sherer, J. W., Kansas City, Mo.; Stokes, Wm. R., Baltimore, Md. Saunders, W. B., Philadelphia, Pa.; Sternberg, George M., Washington D. C., (2); Scudder Bros. Co., The, Cincinnati, Ohio.

Talbot, E. S., Chicago, Ill.

Uuiversal Medical Insignia Mfg. Co., Indianapolis, Ind.

Wellner, H., Concord, N. H.; Watson, W. S., Fishkill-on-Hudson, N. Y.; Woman's Medical College, New York, N. Y.; Wardner, Horace, La Porte, Ind.; Wingate, U. O. B. (2).

Youug, F., Rural Dale, Ohio.

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Annual Report of the Provideuce Retreat, Buffalo, N. Y., for 1898 Paper. Illustrated, pp. 24.

Annual Report of Second Hospital for Insane, Sykesville, Md. Paper Illustrated, pp. 28.

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Appendicitis Complicating Ovarian Cyst and Simulating Torsion of the Pedicle; Intestinal Resection with End-to-end Anastomosis by Means of the Murphy Button, with Recovery; Tonic and Spasmodic Intestinal Contractions with Report of Cases. By X. O. Werder, Pittsburg, Pa. Reprints.

Child Fetiches; King Arthur's Medicine; Law of Refraction, Change Following Increase or Decrease of Body Weight; Retinitis Pigmentosa without the Characteristic Pigmentation; Some Relations of Author Publisher, Editor and Profession. By George M. Gould, Philadelphia Reprints.

Cough Due to Lesious of the Nose and Throat. By. W. S. Anderson Detroit, Mich. Reprinted from Medical News.

Diphtheria in which Antitoxic Serum was Used, with Some Observations as to Its Employment. By Wray Grayson, Washington, Pa. Reprinted from Penn. Med. Jour.

Parotiditis Following Celiotomy; Treatment of Uterine Prolapse with Illustrative Cases. By Wilmer Krusen, Philadelphia. Reprinted from Am. Gyn. aud Obstet. Jour.

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Playfair School of Midwifery, Chicago. Aunouncement for 1898.

Refrigeration as a Means of Preservation of Bodies for Use in the Dissecting Room. By E. W. Holmes, Philadelphia. Reprinted from Internat. Med. Mag.

Trade Pamphlets.

A Modern Pathologic and Therapeutic Study of Rheumatism, Gout Rheumatoid Arthritis aud Allied Affections. By E. L. Gros. E. Fougera & Co., New York.

Aseptolin-Edson: A Formulated Treatment for Tuberculosis, etc Asepta Chemical Co., New York.

Minerva Medica. P. Blakiston, Son & Co., Philadelphia.

Purdy Electric Centrifuge. Williams, Brown & Earle, Philadelphia

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serviug in the Medical Department, U. S. Army, from February 5 to 11, 1898.

Capt. Jefferson D. Poindexter, Asst. Surgeon, will report in person to the president of the Army retiring board convened at the Army Building New York City, at such time as he may desiguate, for examination by the board. By direction of the President.

Major Louis S. Tesson, Surgeon (Ft. Ethan Allen, Vt.), is granted leave of absence for six months on surgeon's certificate of disability, with permission to go beyond sea, to take effect on or about Feb. 20, 1898.

Capt. William L. Kneedler, Asst. Surgeon, is relieved from duty at San Diego Bks., Cal., and ordered to report iu person to the superintendent of the U. S. Military Academy, West Point, N. Y., for duty at that post.

Capt. Charles F. Mason, Asst. Surgeon, Is relieved from duty at West Point, N. Y., to take effect upon the expiration of the leave of absence granted him, and ordered to Ft. Logan, Colo.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending February 12, 1898.

P. A. Surgeon L. H. Stone, retired, February 10.

The Journal of the American Medical Association

VOL. XXX. CHICAGO, ILLINOIS, FEBRUARY 26, 1898. No. 9.

ORIGINAL ARTICLES.

REPORT AS RESIDENT PHYSICIAN OF THE ISOLATION HOSPITAL (YELLOW FEVER).

Read before the Orleans Parish Medical Society, Jan. 22, 1898.

BY HAMILTON P. JONES, M.D.

VISITING SURGEON CHARITY HOSPITAL AND ASSISTANT DEMONSTRATOR OF CHEMISTRY MEDICAL DEPARTMENT, TULANE UNIVERSITY OF LOUISIANA, NEW ORLEANS, LA.

The instituting of the Isolation Hospital and the choice of its site showed the wisdom of the board of administrators of the Charity Hospital and its officers, which was amply brought out by subsequent developments and results.

The site was an ideal one for the purpose, consisting of a large isolated square of ground, in a very sparsely settled district, containing main and outbuildings well grouped about its center, the nearest inhabited building being fully six hundred feet from any of the hospital buildings.

It is worthy of note that no known case of yellow fever occurred within a radius of ten squares of the hospital during the entire epidemic, and but one occurred at that distance before the establishment of the hospital.

The ambulance, although quartered at the Isolation Hospital, was under the absolute control of the Board of Health and was maintained by it, all patients being delivered to the hospital.

By far the majority of patients were brought in the ambulance, a great many in the city wagon, many, however, were brought in cabs, wagons and in the cars and some even came on foot. Those delivered by the ambulance and city wagon had always seen a reputable physician and were brought out on his diagnosis, the remainder were diagnosed before admission by me, and Dr. Veazie, if present; and accordingly were sent to the detention camp or Charity Hospital, if not suffering from yellow fever; if suffering from the disease, into the wards, or if only suspicious, were sent into a tent used for the reception of cases of that class.

I generally saw each patient and made an examination before removal from ambulance, and supervised the removal. No matter what the physical condition of the patient our invariable rule was to have them transferred from the vehicle in which they arrived, in the recumbent position, on a stretcher, to bed, without allowing them to lift a finger toward their own assistance. Too much stress can not be laid upon the importance of this procedure, and the same method should be pursued at the initial point.

The patient was conveyed directly from the ambulance to his bed and placed therein, clothes and all; he was then stripped and given suitable apparel.

The patient's personal effects, money, etc., of value were disinfected and taken in charge by the Sisters, while the patient's clothes were washed, disinfected and placed in the fumigating room where two three-burner Truax-Greene-Hollister formaldehyde lamps were kept constantly burning.

Dr. Pothier our pathologist, at my request, placed therein air dried strips of cotton cloth which had been dipped in cultures of typhoid, Sanarelli and some germs obtained from the body of postmortem number one, of our series. These strips were subjected to the action of the formaldehyde gas for forty-eight hours; cultures under bacteriologic precautions were then made, which gave splendid growths, after expiration of thirty-six hours; the formaldehyde gas not having apparently affected the germs in the least. Investigations conducted at the Pasteur Institute and published in the *Annales* for Sept. 25, 1896, proved that formaldehyde was a good surface disinfectant for walls, etc., but had no penetrative power. I do not consider it efficient for the disinfection of clothing or anything requiring penetration.

I make these statements after mature consideration, as at an earlier period of this season I advocated its use. The formaldehyde lamps I consider especially unreliable.

The clothes were kept in these fumes until the patient's discharge. In case of death, the clothes were either destroyed by fire, or were given to some needy convalescent.

All infected linen, sheets, pillow cases, towels, etc., from the hospital were at once placed in a solution of bichlorid of mercury 1 to 1000, then boiled and washed. All urine, feces, urinals, night vessels, slop-pails and all utensils, such as sick-cups, thermometers, etc., were constantly disinfected with carbolic acid and solutions of bichlorid of mercury.

The utmost care was taken to destroy with fire all contaminating material capable of such treatment. The wards, halls, etc., were kept scrupulously clean and free from contaminating material, such as old shoes, rags, etc.

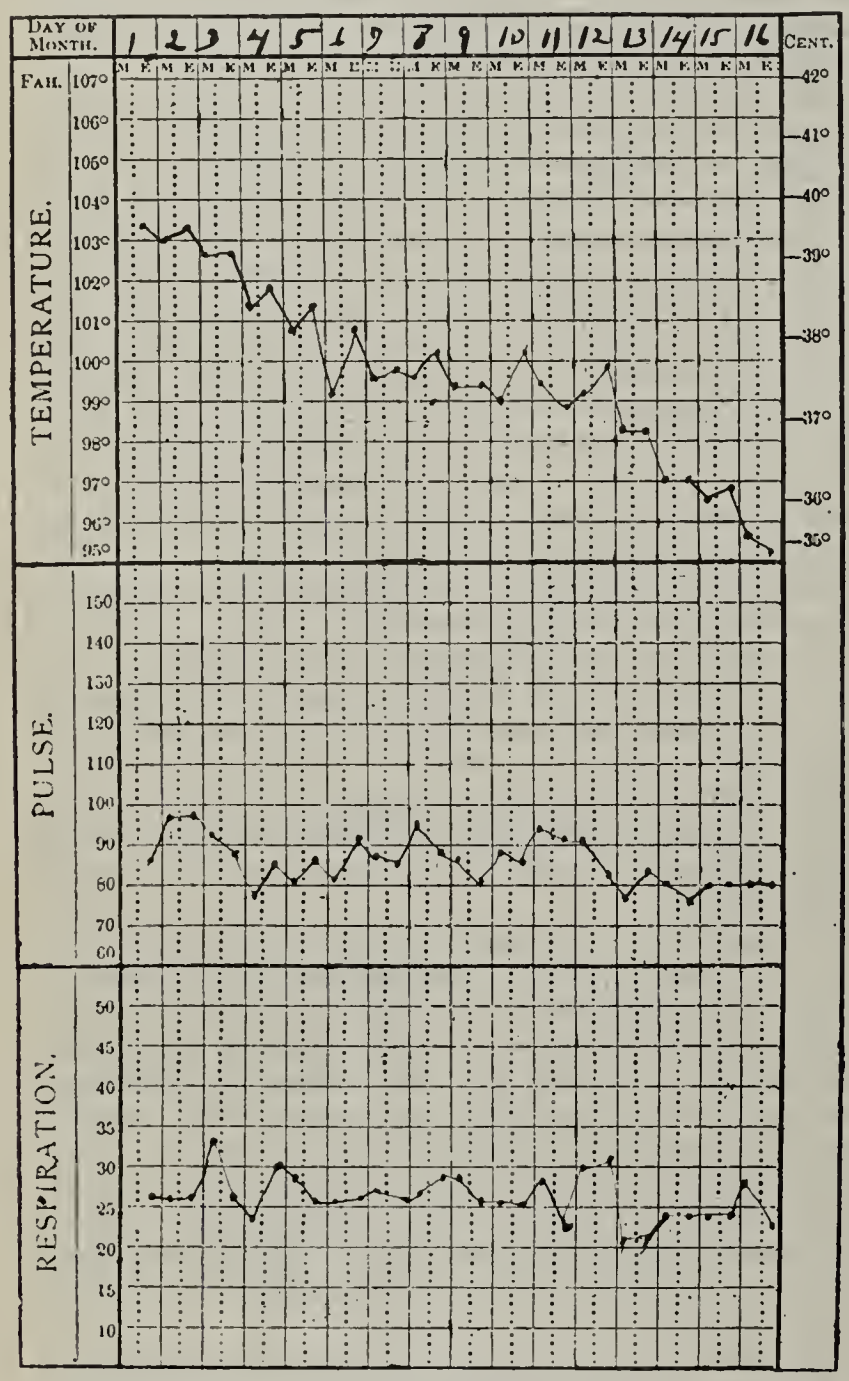
Catheters and surgical instruments were subjected to the usual process of sterilization.

In the cases of persons dying in the wards, the bodies were treated in accordance with the regulations of the Board of Health. The body was at once wrapped in a sheet wet with bichlorid of mercury 1 to 1000, after being divested of all clothing, and was then conveyed to the dead house. All burials whether by the hospital or by friends were done under the regulations of the Board of Health.

Cured patients were discharged after having their clothing and personal property thoroughly disinfected and their own persons given a thorough bath in a warm solution of bichlorid of mercury 1 to 2000, and being wiped off in pure alcohol.

Of necessity no visitors could be allowed at the hospital on their own account, as well as on that of

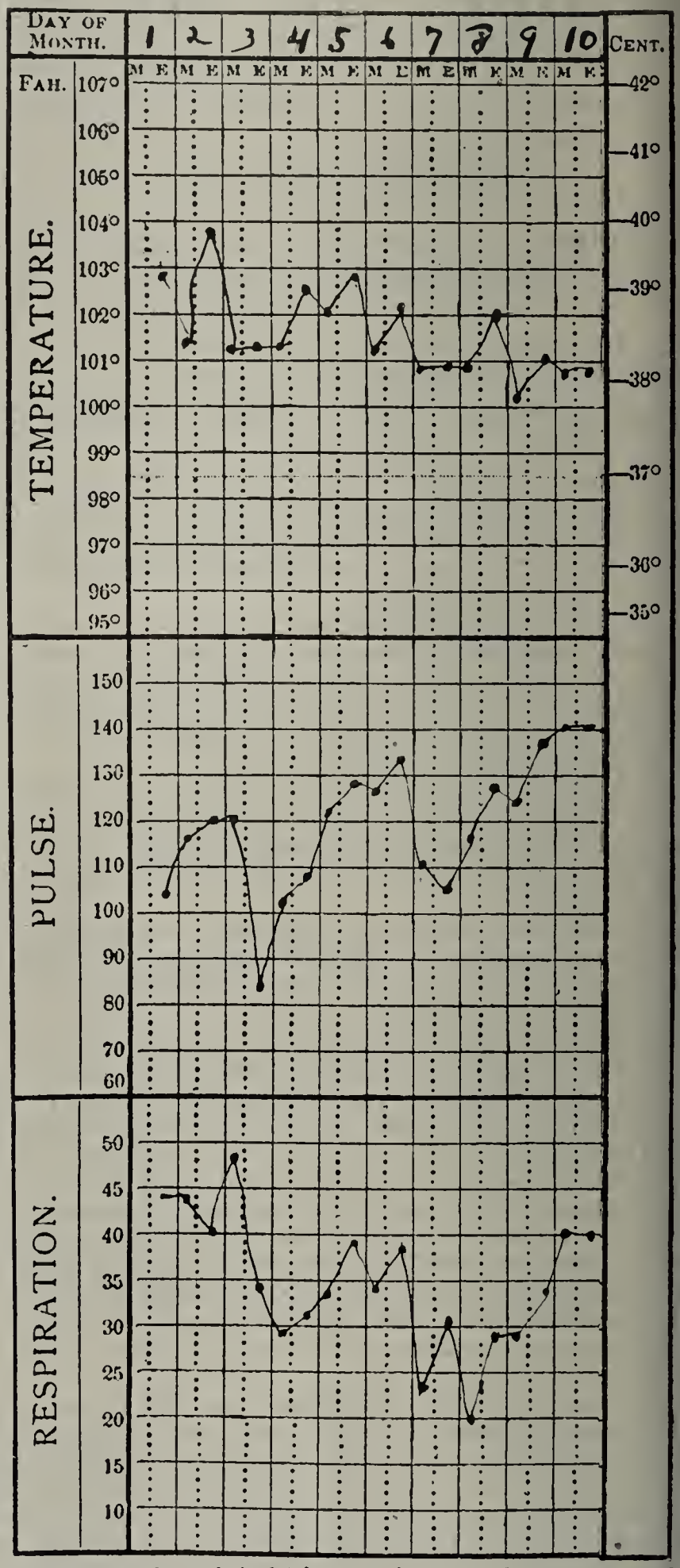
the inmates. Very few physicians were granted the privilege of visiting the institution, the welfare of the patients being our plea, as it is known that too much company, examination and discussion of symptoms is very injurious. Aside from Prof. E. S. Lewis, Dr. J. D. Bloom, Visiting Physician Veazie, and Pathologist O. L. Pothier, the following physicians were granted the privilege of prosecuting their studies in yellow fever in the hospital: Dr. P. E. Archinard, Bacteriologist of the Louisiana State Board of Health; Dr. Bernard Baker of Charleston, representtative of the Medical Society of Charleston; Drs. Geddings and Wasden of the U. S. Marine-Hospital Service.



Composite chart of forty-five cases of yellow fever treated at the Isolation Hospital.

Dr. O. L. Pothier, Pathologist of the Isolation Hospital, especially extended to these gentlemen the facilities of his department and the deadhouse for the prosecution of their labors and the obtaining of cultures.

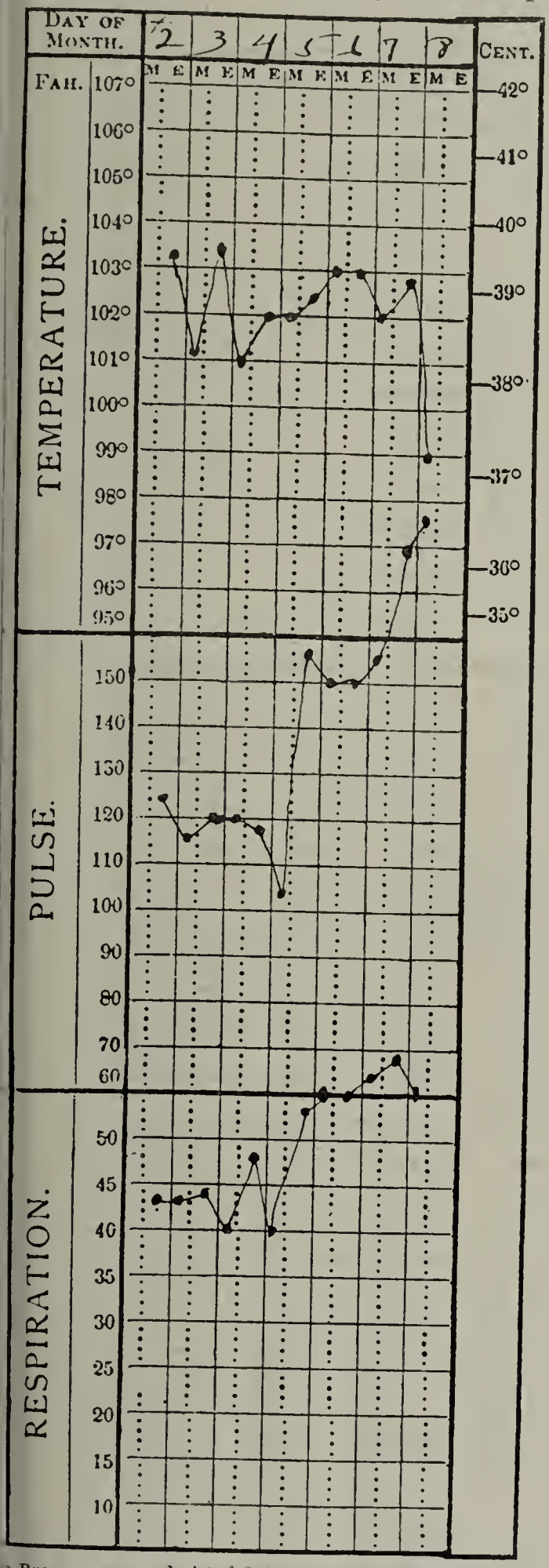
Dressing rooms for the visiting physicians, ministers, priests, etc., were provided in a building constructed specially for that purpose at the front of the main building. Each visitor, without exception, was required to exchange his outer clothing for a suit of white duck, previously soaked in a solution of bichlorid of mercury which was allowed to dry on it; to exchange his shoes for canvas ones and to wear a cap. At the conclusion of the visit, soap, water, towels and the necessary disenfecting solutions were provided. By the indiscriminate enforcement of these regulations, the danger arising to the community, from the visits of physicians to the hospital, was reduced to a minimum.



Composite chart of six fatal cases other than yellow fever, treated at the Isolation Hospital.

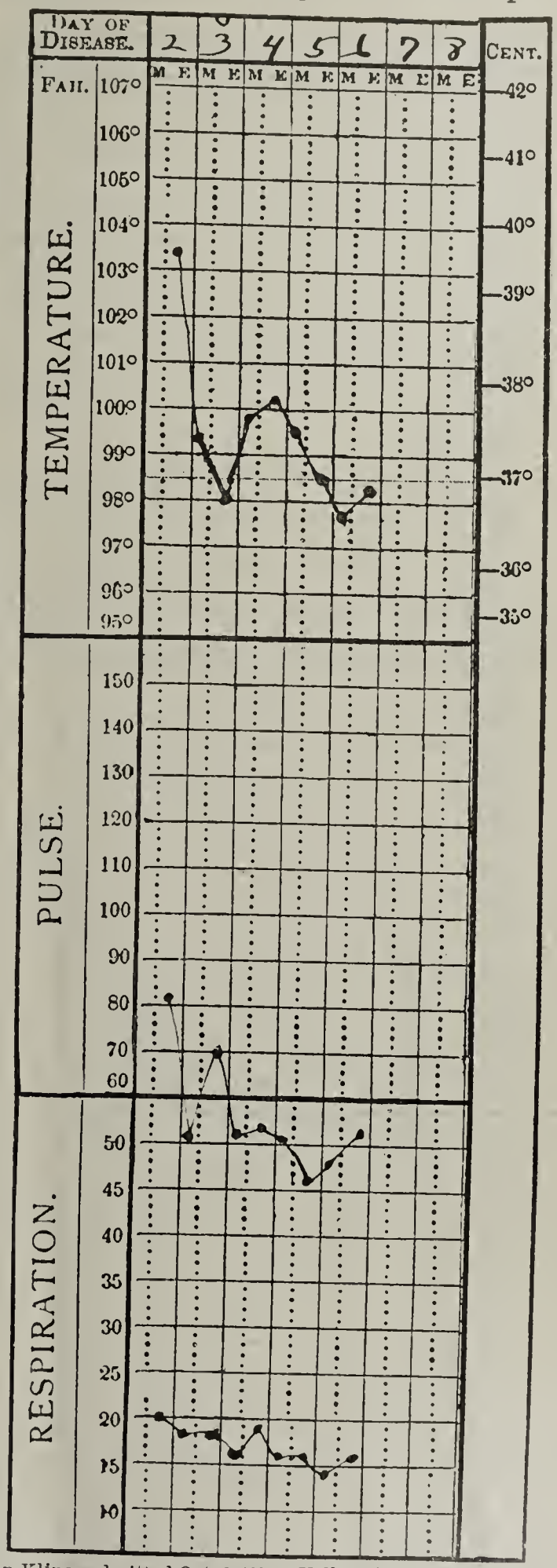
The pathologic department was of the greatest value and assistance in the intelligent treatment of the cases. In every case the urine was examined microscopically and chemically for casts, albumin, etc., daily or oftener as long as indicated; no small task when the number of cases is considered.

n admission the blood was examined for plasmo-
nalariæ and for Widal's reaction for typhoid.
ne holding of postmortems was of importance
nfirming the character of the disease, aside from
liarizing us with its pathology. The report of



a Brown, negro, admitted Oct. 2, 1897. Diagnosis, pelvic peritoneal infection of peritoneal cavity and death. Inserted for son.

ber 202 were yellow fever, with 45 deaths, giving a mortality rate, in the hospital for yellow fever, of 22.27 per cent, exceedingly favorable when compared with the average death rate of the Charity Hospital for the 43 years preceding 1880 of 50.2 per cent.



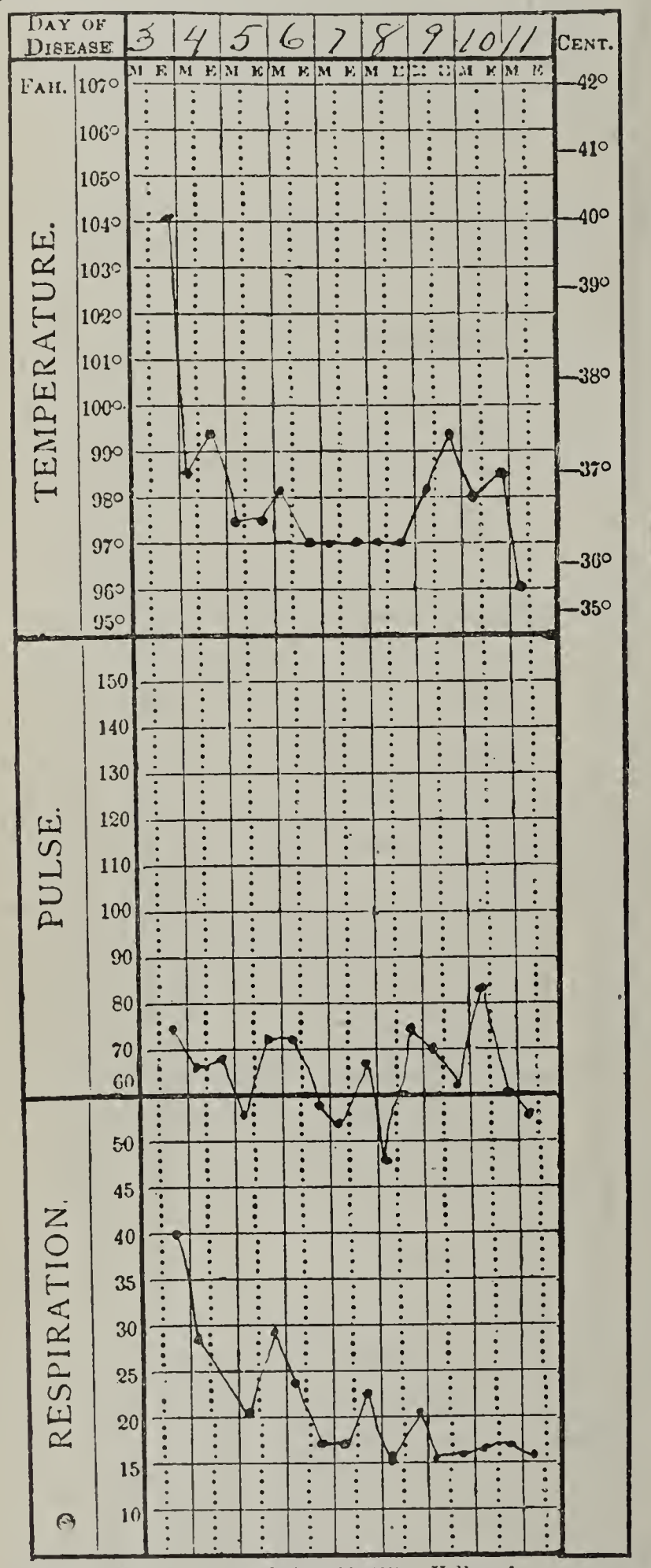
John Kline, admitted Oct. 6, 1897. Yellow fever; recovery. Duration, average case. A typical case; albumin 35 per cent., moist, bile stained casts, all varieties, and bile stained debris.

othier will show more fully the scope and value
work accomplished in his department.
will be seen by the accompanying list there
16 admissions with 51 deaths from all causes,
ortality rate of 23.66 per cent. Of this num-
Sixty-five children under 15 years were treated, with two deaths, 3.07 per cent.

The death rate for New Orleans from yellow fever in 1897 was 15.67 per cent. for reported cases, and in 1878 was 16 per cent. It is reasonable to suppose

that the proportion of unreported cases was the same in each year and that the severity of individual cases was the same.

Of the fourteen cases not yellow fever, six died, giving a death rate from other causes of 42.85 per cent.



Gusceta Mirata, admitted Oct. 25, 1897. Yellow fever; recovery. A typical case.

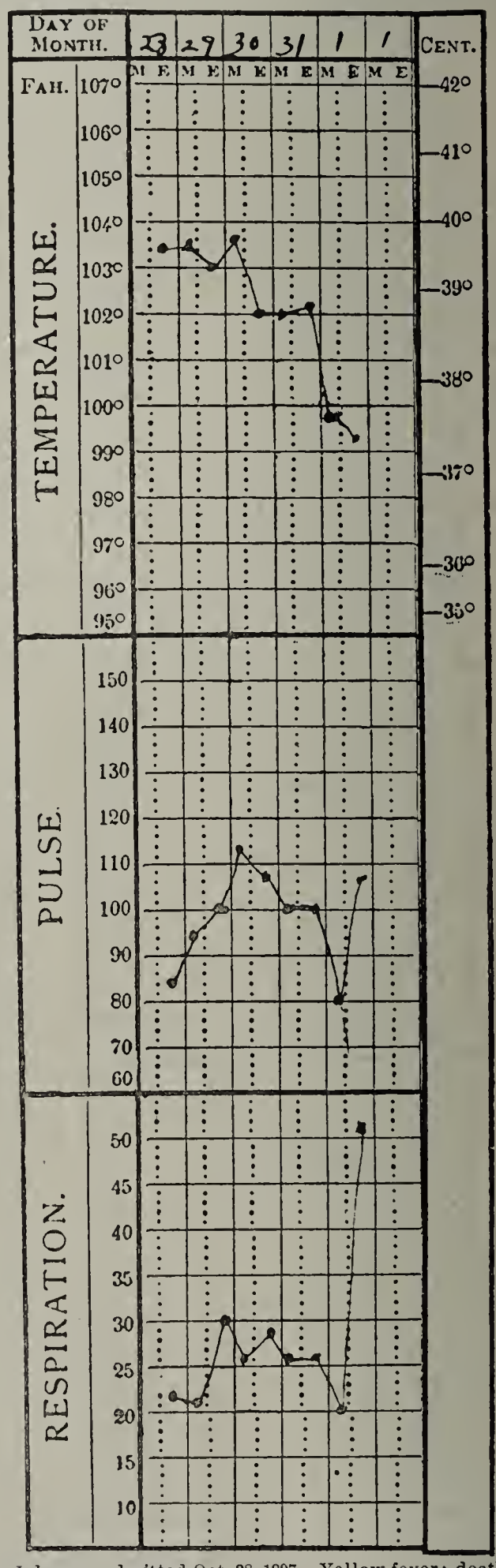
The cases were distributed as follows:

United States, 104 cases, 9 deaths, 8.65 per cent. death rate.

Foreign countries, 98 cases, 36 deaths, 36.73 per cent. death rate.

The great difference in death rates is due to t fact that Americans are better fed, are not as a cla habitual wine or beer drinkers, are stronger and mo enlightened.

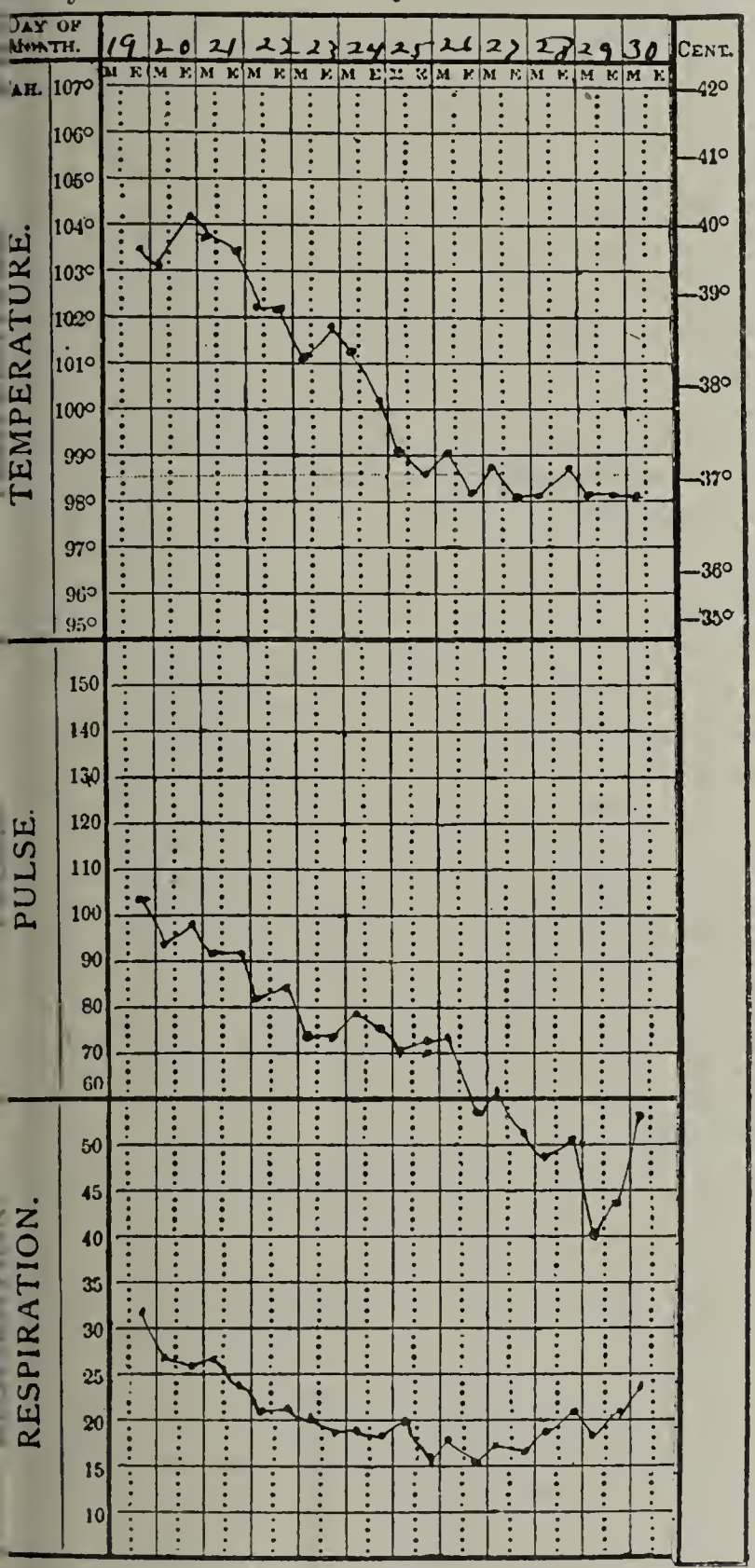
The disease runs a more severe course among u acclimated cases as is shown by the small death ra



Chas. Johnson, admitted Oct. 28, 1897. Yellow fever; death. Se case in a Norwegian sailor; uremia, black vomit.

among native Louisianians, 5.26 per cent. The m enlightened Americans, as a rule, reported their ca at once, while the foreigners concealed their ca until the last moment, bringing them to us in m instances too late to benefit them by treatment. Th

nparative death rates argue more plainly than rds the necessity for early transportation, if moved all, and the great danger of moving patients after stage of calm has set in. The difference between mortality in the Isolation Hospital and that of Charity Hospital, for former years, is due to the eful and unremitting attention given them and to fact that, in the Charity Hospital, those previsly weakened by disease and injuries, were subject to yellow fever when they were least able to resist

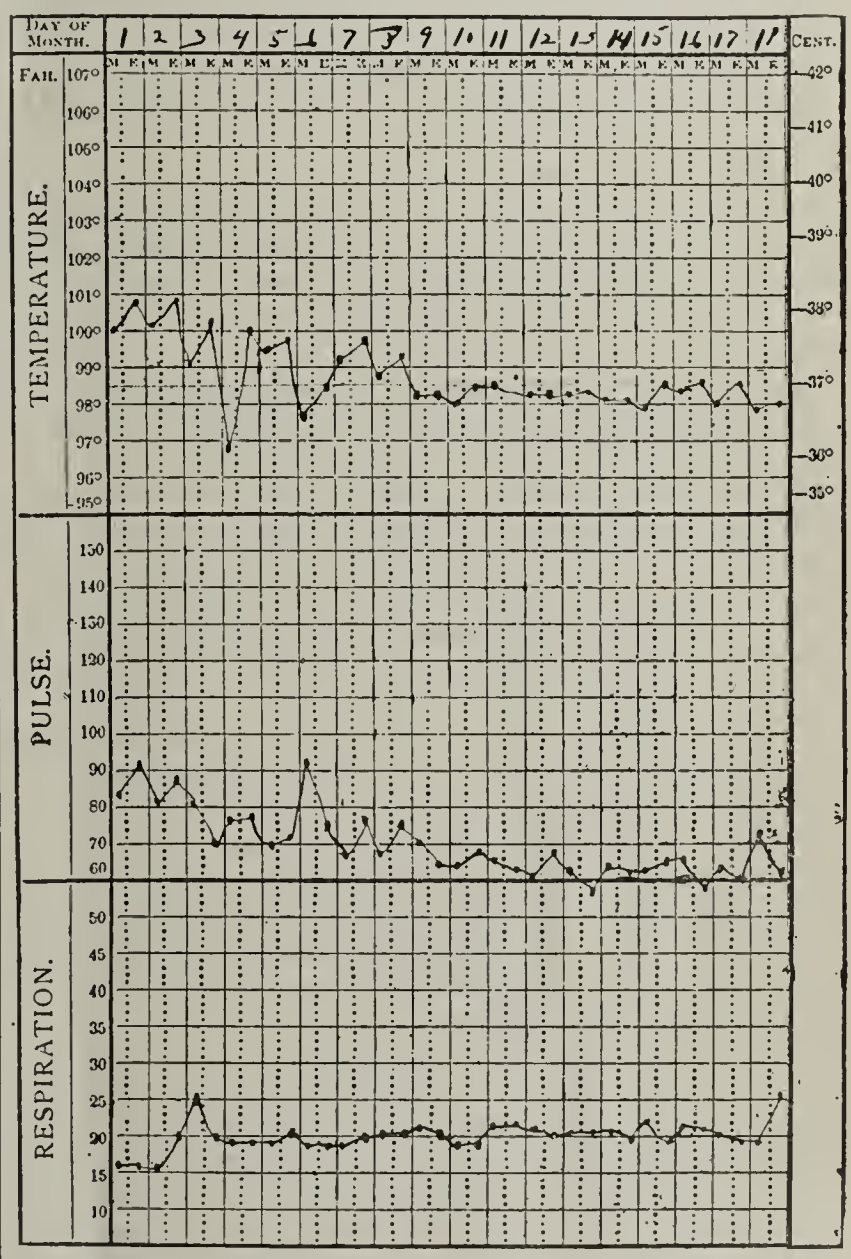


Hugo Hughs, admitted Oct. 19, 1897. Yellow fever; recovery. Severe se, marked jaundice, albumin 75 per cent., bile stained casts; slow d intermittent pulse irregularly suspended.

, and in consequence they died in great numbers. he wisdom of the board of administrators, if by othing else, is amply proven by the diminished eath rate of the Isolation Hospital. So far as I can dge the yellow fever of 1897 was the same in char-ter as that of 1878; and I have no reason to believe at the death rate would not have been the same in 97, as it was 1878, had all cases been treated in the harity Hospital in 1897, as they were in 1878.

As a rule, patients were not admitted until the expiration of the second day of the disease and very frequently much later, especially the foreigners. Nearly all of the cases were of a very severe type as will be seen by the reports of the pathologic department and the clinical records.

The following facts will indicate the character of cases of yellow fever treated: Albumin was almost an invariable constituent of the urine at one time or another, ranging from a trace to 80 per cent., moist, casts, renal epithelium and débris, always bile stained, and other evidences of an acute inflammation of the kidneys were present in 125 of the recovered and in all the fatal cases. Black vomit occurred in twenty-five of the recovered and in thirty-nine of the fatal cases, complete suppression of urine occurred in four of the recovered and in thirty-three of the fatal cases.



Composite chart of twenty five recovered cases of yellow fever treated at the Isolation Hospital.

Uremic convulsions occurred in twelve of the recovered cases and in forty of the fatal.

I do not recollect having seen bile stained casts and débris without albumin being present and in every instance of yellow fever, which came under my notice, they were so stained. In several instances the finding of casts and débris not bile stained led me to suspect that the patient was not suffering from yellow fever, but from some other disease associated with kidney trouble, and subsequent developments confirmed the suspicion. A few days ago I examined the urine of a case giving very suspicious initial symptoms of yellow fever. No albumin, but one hyaline and two granular casts were found, not bile

stained. I reported that I did not consider the case one of yellow fever, owing to this fact. The case developed into one of typhoid fever. We would expect, in very early stages of a case of yellow fever, in a person suffering from any cast producing renal trouble, to find casts not bile stained, which would, as the disease progressed, become bile stained. In any condition of the system associated with casts and bile-pigments in the urine, we would expect to find and have found the casts and the débris bile stained. I consider these observations of the greatest importance in the differential diagnosis of yellow fever and present this new and almost pathognomonic symptom under proper circumstances for what it is worth. The fact has been observed by Prof. Joseph Jones and others that the casts in yellow fever were bile stained; but the fact that this was of diagnostic importance has never been brought out before, so far as I know. Unfortunately I have not as yet been able to make any comparative observations on the presence or absence of the bile-pigments in the urine of dengue cases.

Hemorrhage from the bowels occurred in seven of the recovered cases and ten of the fatal; pneumonia, in one recovered case and one fatal; diarrhea in one recovered case and dysentery in two. Three recovered cases were associated with pulmonary tuberculosis.

The following complications were found in the recovered cases: paralysis two cases; delirium tremens two cases; peritonitis two cases; hysteria one case; round worms vomited by children twice.

The following is an analysis of the condition of the forty-five fatal cases on arrival: nineteen were moribund and died within a few hours of admission; thirty-three had complete suppression of urine; twenty-seven had black vomit before admission, and five, hemorrhage from the bowels.

Postmortems showed that over 40 per cent. of these cases suffered from some chronic trouble, either of kidneys, liver or heart.

These figures will explain in a measure the death rate of this institution as compared with others, and that of the city. It must also be borne in mind that every case was admitted here, no matter what the physical condition, in many instances after being refused admission elsewhere.

Bearing in mind the very important fact that yellow fever is a self-limiting disease and one that can not be arrested by drugs, our treatment was almost entirely symptomatic, each case being treated entirely on its own merits, our effort being directed rather to the prevention of bad symptoms than to their cure.

Every case should be and was regarded as serious and on account of the pathologic changes induced in the heart, liver, kidneys and other organs, etc., was given the closest medical attention, and most careful nursing. Since so many of the symptoms are due to the arrest of the functions of the skin and kidneys, efforts were directed to promote the activity of these organs during the progress of the disease, stimulating diuretics were avoided. The free use of hot mustard foot baths and hot cans, the regulating of the temperature of the room, large draughts of cream of tartar, lemonade, orange leaf tea, water, plain and carbonized, all tended to promote diuresis and diaphoresis.

Absolute rest in the recumbent position was maintained, the necessity for which was indicated by the cardiac weakness.

Pain in the head was relieved by phenacetin a
the ice cap, while pain in the back and limbs was
lieved by chloroform liniment, mustard plasters, e

Efficient but gentle purgation in the first stage w
always beneficial, 0.52 or 0.65 grams of calomel f
lowed by a dose of casto oil, Seidlitz powder or sal
usually being sufficient. It was observed that as
general rule those patients who received this tre
ment before admission, usually did better than tho
who had not. Purgatives, as a rule, were not admi
istered during the stage of depression unless specia
indicated by uremia or some such trouble, when ca
mel, in 0.32 or 0.65 gram doses, was generally give

Where the stomach was overloaded with food in t
early stages an emetic was administered with benef
but it was rarely required.

Hyperpyrexia was treated by the administration
one or two doses of phenacetin, rarely more th
two doses were ever given. reinforced with caffein a
brandy. The administration of hot mustard fo
baths, hot drinks and the application of hot cans
the patient, by inducing free perspiration, were ef
cient agents frequently used for the reduction of te
perature. Sponging the surface under the cover wi
tepid water and alcohol, Florida water or vinegar, h
a soothing effect on the patient and very frequent
was efficient. The injection of large quantities
ice water into the rectum not only had an exceeding
prompt effect on the temperature, as a rule, but serv
to flush out the kidneys and promote their functio

Arrest of the functions of the kidneys owing
the gravity and nature of the alterations in the
structure is beyond the relief of drugs. Howev
as the urine was always intensely acid it was our u
versal custom to administer an alkali in one form
another, usually a mixture of bicarbonate of so
0.65 grams to the dose in peppermint water. Th
not only acted as an anti-acid but was a very va
uable gastric sedative and anti-emetic.

Much good was accomplished and the functions
the kidneys restored by the injection, high into t
rectum by means of the rectal tube, of a pint or mo
of ice water, if indicated and the patient could e
dure it, or high enemas of a mixture of acetate
potash grams 2, infusion of digitalis 14.8 c.c. a
water to make 1 liter; these were given every thr
or four hours as indicated. The dose of digitalis w
regulated to fill indications.

Diuretin "Nolle" was used, but so far as I o
served, without success. Fluids freely were our ma
reliance and were given the patients on the slighte
pretext.

Dry cups were frequently used over the loins a
kidneys, followed by the application of sinapism
this procedure was in many cases very effective.

Retention of urine was a very common conditi
and was relieved as necessary by the catheter.

A few blood cells were occasionally found in t
urine and hemorrhages from the urethra occurred
two cases, but in none could the quantity of blo
present in the urine account for the quantity of alb
min present. All varieties of casts were found. Co
plete suppression of urine is an almost invariab
fatal symptom, and suppression either partial or co
plete is the chief cause of the hemorrhages from t
stomach and bowels.

The following causes also contribute toward t
productien of black vomit, which in itself, is saluta
in effect and seems to be rather beneficial than ot

erwise, it being an effort of nature to rid itself of retained poisons and if it were not for the grave pathologic condition with which it is associated and of which it is more a symptom, would undoubtedly prove to be the turning point in many a case of yellow fever.

The irritation of the gastro-intestinal mucous membrane, its congestion and fatty degeneration and the degeneration of the walls of the smaller blood vessels and capillaries is an identical process to that which occurs in almost all of the parenchymatous structures of the body, such as the liver, kidneys, etc.

Persistent vomiting and threatened black vomit were treated very much alike. Iced drinks, such as milk, lime water, lemonade, etc., were given, large quantities of cracked ice swallowed by the patients and ice-bags applied to base of neck, throat and epigastrium; soda and peppermint were also used with advantage, and in persistent cases of vomiting or hiccough codein 0.016 to 0.032 gram hypodermatically, or cocain 0.032 to 0.65 gram by mouth, would give the patient a little much needed rest. Opiates and depressing agents were used with great caution.

During the stage of depression alcoholics were used with caution, iced champagne appearing to be the best form, but in many instances, for the control of vomiting, etc., iced seltzer water or any other carbonized drink answering just as well. During the initial stages unless specially indicated alcoholic stimulants were abstained from.

Black vomit was best treated by absolute rest of the stomach, nothing being given by the mouth, nourishment and fluids being given by rectum and medication hypodermatically.

Strychnia, digitalis, digitalin, brandy, etc., were all freely used in the treatment of the disease hypodermatically when indicated, as was atropin, in suitable doses, which was especially useful where there was a cold clammy skin or depressing perspiration associated with sub-normal temperature.

The very slow and irregular pulse of the stage of calm was aided by the above measures. So long as the pulse ran a moderately slow course all went well, as a rule, and, on the other hand, an increase in the frequency of the pulse with diminished force was generally observed near the fatal issue, with a fall in the temperature sometimes as low as 95 degrees F., when there was much free hemorrhage from the stomach or bowels. Owing to the impaired functions of the liver and intestines, the extravasated blood into the gastro-intestinal tract was very prone to putrefactive changes and was a source of much of the secondary fever. The danger arising from this source was in a measure obviated by the use of intestinal antiseptics, such as the sulpho-carbolate of soda, salol, etc.

I practiced infusion with a pint or more of hot saline solution in four cases, three of which were comatose from uremia and had had black vomit and hemorrhages from the bowels, and one of which was comatose from uremia alone and had lost no blood. This case was bled through the median cephalic vein, first to the extent of eight ounces and was then infused with twenty-four ounces of a hot saline solution. I thought that these procedures rather accelerated the fatal issue.

Hypodermoclysis was practiced in five cases, none of which recovered. About twelve ounces of properly prepared and sterilized solution was injected very slowly into the loose cellular subcutaneous tissues of the back and sides, every eight or twelve hours. As this is a less formidable procedure I prefer it to infusion. I think that I used these agents at too late a stage of the disease, all of the cases having had convulsions and being moribund.

Delirium and uremic convulsions were treated by attending to their causes. Sedatives such as the bromids and chloral were given cautiously when indicated. Quinin was not administered unless the malarial organisms were found in the blood, which occurred in about sixteen cases. Other complications such as pneumonia, diarrhea, etc., were treated as the condition of the patient permitted, but generally as little as possible.

The diet consisted of liquid food at regular intervals during the entire course of the disease, milk and lime water, beef tea, chicken tea and the like being our main articles of diet.

But these were given at such intervals that our treatment was practically a starvation one. There was a constant cry from the patient for food. After the stage of calm was safely passed the diet was cautiously increased.

Fifty-one postmortems were made, of which forty-five were from yellow fever and six were from other causes, in every instance confirming the diagnosis made by us. In the yellow fever cases the following postmortem conditions were generally found.

The pupils were generally widely dilated and the conjunctivæ and sclera jaundiced. The skin of the face and upper portion of the trunk was generally of a golden-yellow color; while that of the dependent portions presented a mottled purple and a yellow ecchymosed appearance due to postmortem hypostasis.

On section the blood was dark and fluid, becoming bright scarlet on exposure, whilst all the tissues were found bile-stained, even the brain substance.

Intense congestion of the blood vessels of the thoracic and abdominal viscera was observed.

The pericardium was intensely congested, especially about the base of the heart, as were the capillary vessels covering the aorta and other large vessels in the neighborhood. This conjestion was more marked than in any pathologic condition I have previously seen, and was not present in the six postmortems held on the cases not yellow fever.

The heart was found filled with dark fluid blood, and the muscle softer and paler than normal, due to a condition of acute fatty degeneration. The blood as has been observed by Jones and others, has its fibrin very much diminished.

The lungs presented extreme congestion of the dependent portions. Circumscribed hemorrhages ranging in size from that of a pin point to that of a pea and larger, were frequently found in all the organs.

The mucous membrane of the stomach was intensely congested, softened and eroded; often containing large quantities of black-vomit, where none had been vomited before death. This was of an alkalin reaction due to the presence of ammonia, resulting from the antemortem decomposition of urea. The presence of the ammonia according to the observations of the late Professor Jones was easily demonstrated by holding over the opened body a rod which had been moistened in hydrochloric acid forming white clouds of ammonium chlorid $NH_3 + HCl = NH_4 Cl$. Microscopically the black-vomit presented blood corpuscles, gastric epithelium, bacteria, etc.

The duodenum, as a general rule, presented the above conditions intensified. This condition, however, in the majority of cases extended only down to the opening of the common bile-duct, below which the congestion was not so well marked. The intestines were dark in color and distended with gas; frequently the mucous membrane was so congested as to present the appearance of being raw. They frequently contained large quantities of black altered and decomposed blood, showing the necessity for the use of intestinal antiseptics.

The liver was generally yellow, dead-leaf or boxwood in color, due to fatty degeneration, bloodless; in deaths occurring early in the disease the liver was found to be intensely congested and yellow. Where yellow fever was engrafted upon chronic malaria the characteristic lesions of both diseases were found.

The gall bladder was generally flaccid and empty, being over-distended in only one case, where an impacted gallstone was found. The gall bladder sometimes contained a clear, albuminous, mucoid liquid, free from bile, and in some cases was filled with dark grumous blood.

The spleen was generally slightly enlarged, the parenchyma being generally normal.

The kidneys were generally of a brownish yellow color, larger and softer than normal, loaded with fat and were generally intensely congested. The capsule was generally adherent due to former troubles, while the cortex was swollen and fattily degenerated. The fatty degeneration first and generally most prominently showing itself in a line close to the bases of the Malpighian pyramids, as this sign was first noticed by our pathologist, I think it may with all propriety be safely and properly called "Pothier's sign."

The kidneys presented all the evidences of an intense acute inflammation. Putrefactive changes as a rule set in early and progressed very rapidly, associated with rapid disintegration of the blood. Blood taken from the living subject also disintegrated rapidly.

Complete clinical histories and records, pathologic reports, postmortem reports of all autopsies, accompanied by results of microscopic observations, together with the preservation of the microscopic slides and bacteriologic preparations, will constitute one of the most valuable and complete series of reported cases of yellow fever ever made.

Upon the completion of this work it will be placed in the archives of the Charity Hospital, where it will be at the disposal of the medical profession.

In conclusion I would state that no material advance has been made in the treatment of yellow fever; that the clinical and pathologic observations, microscopic and otherwise, both on the blood and tissues, of such men as the late Prof. Joseph Jones have been but confirmed.

The only really new work done was in the examination of the blood for malarial organisms, Widal's re-action for typhoid and yellow fever (Sanarelli's bacilli), in these cases; blood counts were also frequently conducted.

No great changes were found either in the number or structure of the corpuscles. Blood counts and examinations for the malarial organism were always made immediately after obtaining the specimens, within fifteen minutes, while the "Widal's reactions" were made when convenient. The work in this line conducted by the pathologist of the hospital, Dr. O. L. Pothier, as yet not being in readiness to report upon. The bacteriologic work undertaken by the above mentioned gentleman, and Dr. Pothier, Dr. Mioton and myself, while not original in any but a few points, still is along a new line of intense and absorbing interest to the investigator and of vital importance to these affected by the ravages of yellow fever.

So far as I can gather from Drs. Archinard and Pothier, the two principal workers, and so far as my own observations extend the prospects for the substantiation of the claims of Sanarelli of Montevidio, are good.

The Isolation Hospital was open in all about two and a half months, closing about December 14, 1897, and during this entire time the health and spirits of the entire corps were of the best.

No case of yellow fever was traced to the hospital, in spite of the fact that three of the Sisters had not had it. The ambulance superintendent had never had it, and was frequently covered with black-vomit. Fourteen cases passed through the wards who did not have the disease, none of whom contracted it, and of the army of prisoners engaged in destroying the infected buildings and in general cleaning up, numbering in all considerably over a hundred persons, not one contracted the disease.

A TYPICAL CASE OF YELLOW FEVER ILLUSTRATING THE VALUE OF WIDAL'S REACTION WITH THE BACILLUS ICTEROIDES.

BY OTTO LERCH, A.M., M.D., PH.D.
NEW ORLEANS, LA.

Frank, age 30 years, native of England, has resided in Louisiana during the past fifteen years. He is of florid, healthy complexion, weighs 160 pounds and has been employed in a Turkish bath establishment for several months, attending in the hot room and giving massage to the frequenters of the establishment. During the recent epidemic of yellow fever he has been employed as a nurse for patients stricken by the disease. During all this time and up to the 21st he has been in perfect health. On the 22d, at 8 P.M., he was seen by the writer and gave the following history: That on the day previous he was taken with a headache and general malaise, especially soreness in the limbs not severe enough to keep him from his daily occupation in the hot-room. He thought he had no fever on that day. On the morning he went from home to his work, a distance of about fifteen blocks, and though not feeling well, worked till the time he called the writer. He was stretched upon a cot, was very restless and complained of severe pain in the head, back, epigastrium and extremities. There was nausea and congestion of capillaries, especially of face; conjunctivæ were injected; tenderness upon pressure over epigastrium; tongue coated in the center; edges and tip of tongue red. He had urinated during the day and described the urine as being scanty and of high color. His intellect was clear; a slight chill had preceded the rise of temperature to 105; pulse 113; respiration 26. A hot foot-bath and a calomel purge 0.39 gram in 0.065 gram doses every hour, followed by a saline cathartic, were administered and the following powder given twice during the night: phenacetin 0.2, codein 0.02 and caffein 0.065 gram. The hot foot-bath, ice to the head and the above powder relieved him considerably, and on the morning of the 23d he returned to his home. At 8 A.M. his temperature was 102, pulse 80, pain over the epigastrium very severe and frequent vomiting. During the night he had taken iced seltzer water in small quantities at frequent intervals. This, however, though mixed with lime water, had not stopped the vomiting. He thought that it had lessened the nausea. The urine was scanty and contained about 3 per cent. of albumin and some casts of the uriniferous tubules. The vomit consisted almost solely of mucus tinged with bile. In the evening I found the temperature had risen to 103½, whereas the pulse had remained stationary. The vomiting had stopped, nausea lessened; he complained still of soreness, but not of pain except over the epigastrium. On the 24th, temperature 103½; pulse 80; the patien

appears and feels much better than on the previovs day; evening, pulse 80; temperature 102½; vomiting has stopped and he rests better. On the 25th, temperature 100; pulse 70; patient feels well, is hungry and wants to go to work; evening, temperature 101; pulse 70. After this date the patient was seen by a colleague who reported that on the 26th he found temperature and pulse normal and the patient feeling well, and he returned a few days later to his accustomed work.

On the morning of the 23d blood was taken with due antiseptic precautions from the tip of finger, and a few hours later examined under the microscope. It had almost the appearance of colored water, the red blood corpuscles being to a large extent dissolved. The Widal reaction with the bacillus cteroides of Sanarelli was then applied and gave the following results: In a dilution of one to ten arrest of motion of the bacilli and agglutination was complete within a few minutes, and in a dilution from one to forty the agglutination and arrest of motion of the bacilli took place within twenty minutes. The test was made with a culture obtained from Sanarelli, and the reaction was submitted to Drs. P. E. Archinard and B. S. Woodson.

The foregoing case shows several points of interest. It is a typical case, though occurring after the epidemic had subsided. From the onset of the disease we can observe the non-correlation of the lines of temperature and pulse, one of the characteristic features of yellow fever, its continuity to the fifth day with but a slight remission on the second day of the disease proves it a fever of one paroxysm, the maximum elevation of temperature is attained on the evening of the first day 105 degrees in the mouth below the tongue. On the morning of the second day the temperature registers 102, rising in the evening to 103½ degrees, and from this time shows a steady fall, till on the morning of the fifth day the temperature has reached normal. The pulse on the commencement of the attack was rapid, 113 and full, falling to 80 beats on the morning of the second day and remaining stationary the second and third days; its frequency falling to 70 on the fourth day. If we observe that on the second day a larger amount of albumin is found in the scanty urine, a symptom so constant in yellow fever that it is almost generally accepted as one of the pathognomonic features of the disease, and if we further note the congested face, pain in the epigastrium and characteristic vomit, headache and soreness in the extremities, the complete anorexia we can not doubt the diagnosis.

It seems strange that a man who has been almost daily and freely exposed to the cause of the fever during the epidemic, without being attacked, should succumb after further exposure to the cause had almost become an impossibility, the city having been practically free from the disease for several weeks. It seems that his system gradually becoming saturated with the cause of the fever had acquired a certain immunity, which it lost after a spree or some other weakening cause of which the patient does not give a history. That such an immunity can be acquired we have daily occasion to observe in this country where everybody is constantly exposed to the malarial organisms, and yet be subject to attacks of the disease only after a similar cause. More than this it is well known that men living in perfect health for years in a malarial country, suffer from malarial attacks when changing their abode to a country free from this disease, proving conclusively that they have carried the plasmodia in some form perhaps through a number of years without inconvenience. The demand made upon the system to adapt itself to new surroundings, to a new mode of life is often sufficient to cause malarial attacks.

Another point of interest in this case is, that the occupation of the patient in the Turkish bath, where he had to be a large portion of the twenty-four hours, in the hot room with a temperature of 160, was not sufficient to kill the bacilli, which according to Sanarelli and the recent observations of P. E. Archinard in collaboration of R. S. Woodson and J. J. Archinard, are the cause of the disease. Though the blood temperature is not raised, with each breath taken in the hot room, the heated air is brought in direct contact with the blood and the heat is immediately communicated to the tissues. If the Turkish bath can not be considered a prophylactic agent in yellow fever it may alone or in connection with the steam bath, serve as a prophylactic in other infectious diseases.

The blood, six hours after extraction presented almost the appearance of colored water.

Joseph Jones ("Treatise on Yellow Fever," p. 185) states: "The changes of the blood appear to be continuous from the time of the introduction of the poison to the fatal termination." (P. 186) "In some cases there is an almost entire disappearance of the fibrinous element," and (p. 188) "rapid dissolution of the colored corpuscles after the blood is abstracted from the body either during life or after death. The rapid alteration of the investing membrane of the colored blood corpuscles in the blood of yellow fever, after the abstraction of the blood from the vessels appears to be intimately related to, if not absolutely dependent upon, the physical and chemic action of the biliary and urinary constituents retained in the blood. During life the blood corpuscles in virtue perhaps of their vital endowments and of their relations to the oxygen received during respiration, resist the solvent action of the bile, urea and ammonia, but after the blood is abstracted and loses its vitality and is exposed in vessels these agents exert their characteristic action."

At the present day nearly all observers agree that the blood of yellow fever patients presents a normal appearance, yet others maintain that in some cases the blood shows a decided tendency to dissolution. This discrepancy of opinion may be due to the time of observation after extraction of the blood from the patient. I have no doubt that in this case the changes seen were postmortem, though I had no opportunity to verify this.

Sternberg ("Report on the Etiology and Prevention of Yellow Fever," p. 147) says that "the blood in yellow fever has been described by many observers as 'completely disorganized' as to its histologic elements. This is a mistake, as shown by the numerous micro-photographs made by the writer while at Havana in 1879, from the blood of cases near a fatal termination." The same author and others say that the prognosis in a case of yellow fever should be guarded. In the case under consideration the temperature on the first day rose to 105, and 3 per cent. of albumin was found in the urine on the second day. Yet the case goes on without any complication to recovery within five days, and soon thereafter the man returns to his usual occupation and has been attending to it since without interruption. Quoting from the above report we find in a series of cases in which a complete and careful record had been made by G. Sternberg that when the temperature rose to 105 and 106 out of thirty-six cases, twenty-two died and when the temperature rose to 104 and 105, out of eighty cases twenty-four died.

Though cases which appear mild at the outset may

assume a grave character we see that in this instance the reverse was the case.

The prompt agglutination of Sanarelli's bacilli and their arrest of motion in the hanging drop culture contaminated with the blood of this patient may prove of the highest value in the future and allow an early recognition of the dread disease, permitting a quarantine when it is yet of value to limit the spread of the fever.

LUPUS VULGARIS—ACUTE ECZEMA—CHRONIC ECZEMA—PSORIASIS.

A Clinical Lecture to Members of the AMERICAN MEDICAL ASSOCIATION, delivered in the Medico-Chirurgical Hospital of Philadelphia, June, 1897.

BY JOHN V. SHOEMAKER, M.D., LL.D.

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I have no fear of dwelling too much upon specialism because I find in numerous cases that the visible cutaneous affection is but symptomatic of some morbid functional or organic condition of the digestive organs, the blood, the kidneys, the genital apparatus or the nervous system. Consequently, in order to cure the disease of the skin I must apply the same diagnostic and therapeutic principles by which every general practitioner is guided. Dermatology is linked in the closest bonds to general medicine. This is a fact upon which I constantly insist.

LUPUS VULGARIS.

The first patient I introduce to you is a young farmer, 28 years of age, who entered this hospital a few days ago on account of an extensive and disfiguring eruption upon the face. The disease began fourteen years ago on the bridge of his nose and, as far as he can remember, in the form of scales. In the course of an indeterminate time these scales fell, there was some blood-stained fluid discharge and an indolent ulcer left. After a time larger and thicker scales formed upon this surface. The progress of the disease was attended by itching and pain. In the early course of the affection, during his boyhood, the nose was accidentally scratched by a piece of glass and this injury, he thinks, aggravated the disease, and caused it to spread with greater rapidity. Gradually the lesions extended from the nose to both cheeks and also along the nose to its tip. For the last eight years the diseased area has been of about the same dimensions as at present. The intensity, however, is not always the same. There are periods of exacerbation and improvement. The malady is generally less active in summer than in winter. There are other morbid foci upon the left cheek and chin. These began at about the same time as that upon the nose and have pursued a similar course.

At the present time the disease occupies the nose from root to tip, extending outward upon each cheek, forming some resemblance to the figure of a butterfly with outspread wings. Upon the left side a thin streak of the same character dips downward at a right angle from the tip of the wing to the corner of the mouth. Over the zygomatic process and malar bone of the right side is an oval patch of the same aspect, its long axis being in the vertical direction. Upon the right side of the chin, its center corresponding to a line dropped from the corner of the mouth, is another oval patch, the long axis of which is directed parallel to the lower border of the maxilla.

There are no other lesions upon the body than those enumerated. The patient's general health has been good until within the last few days, when he began to be troubled with pain in the lower limbs and debility. The difficulty seemed to be of a rheumatic character. Until this attack he had been able to do his farm work. He never had rheumatism before this time. The man's mother died of phthisis. He thinks that a brother also died of consumption. He does not know of any other case of skin disease in his family.

This case is of interest as regards the persistence, inveteracy, location and contour of the lesions. He has given us his history as far as he is able, but there is one important point which is omitted from his account. Upon examination I find around the borders of the lesions a number of small yellowish red papules. These vary somewhat in size, though none are large. They are moderately firm to the touch; I can distinguish that they originate in the corium.

The early period of life at which this affection began, its very chronic course, without much deterioration of general health, the intervals of improvement, and above all, the occurrence of spots of cicatrization exclude the hypothesis of epithelioma. Nor is syphilis likely to attack a country boy of 14 years. It is sadly true that children may become innocently infected if exposed to contamination and that now and then "tardy congenital syphilis," as it has been called, first manifests itself about the age of puberty. This case, however, does not correspond to the history of syphilis. A case of syphilis of fourteen years' standing would have given rise to much more extensive and destructive lesions than are here present. There would have been deeper ulceration and bone would have been involved.

The man is a sufferer from lupus vulgaris, which ordinarily commences in childhood, affects the face by preference, is characterized by spontaneous absorption of some papules or tubercles with ulceration of others and cicatrization in certain spots. Thus in a case of lupus carefully examined we may often witness the simultaneous existence of different stages. Here we may perceive stationary, or nearly stationary, papules and tubercles. Some of the lesions fade away and disappear, while others ulcerate. At the same time we may observe evidence of former ulceration in the form of scars. These peculiarities are distinctive of lupus.

Lupous ulcers are not usually very deep, but in some instances they may penetrate the subcutaneous tissue and even involve the bone, proving as malignant as carcinoma. In other cases, an old lupus has undergone transformation into carcinoma.

The edges of lupous ulcers are soft, the surface is red, smooth, and early bleeds. It often becomes covered with thin scales or crusts. The ulceration is at times attended or followed by abundant papillary outgrowths, this form being known as lupus verrucosus. The disease occasionally begins upon a mucous membrane.

The butterfly or saddle-back contour is much more frequent in lupus erythematosus than in lupus vulgaris, though I frequently observe it in the latter affection. The course of lupus erythematosus, however, is not evidenced by papules, tubercles and ulcers, and it is commonly surrounded by comedones and patulous sebaceous ducts. Erythematous lupus develops later in life than lupus vulgaris.

There has been much discussion of late years con-rning the tuberculous origin of lupus. The preva-nt opinion ascribes its causation to the bacillus iberculosis; yet these are confessedly present in small umbers and I have often searched for them in vain. is true that lupus occurs in a certain proportion of itients affected by pulmonary tuberculosis in those ho, like the present individual, belong to tubercu-us families or in persons who become subsequently tacked by consumption of the lungs. Such cases, owever, are greatly in the minority. On the other nd, lupus does not resemble clinically other un-oubted forms of tuberculosis of the skin, and most itients afflicted with lupus possess fair general ealth.

The successful treatment of lupus is not an easy sk. It usually demands the utmost patience in both ie subject and the physician. The hygienic sur-oundings should be of the best and we should aim to orrect any constitutional disorder which may be resent. I am no advocate of severe local methods as have frequently seen them followed by aggravation the malady. Scarification, cauterization and arettement are procedures which I have almost ntirely abandoned. I much prefer to begin with ilder applications combined with appropriate regi-en and internal remedies. If these prove without ail we may then cautiously resort to more heroic easures. In this case I have ordered that the iseased surface be painted every third day with ure carbolic acid. This substance has the valuable roperties of coagulating the albumin of the parts, aling up the blood and absorbent vessels and stim-lating repair. In addition to these applications the llowing ointment shall be kept constantly applied:

℞.	Hydrargyri chloridi mitis	gr. xv	97
	Creosoti	♏ x	62
	Bismuthi subnitratis	ʒj	39
	Unguenti zinci oxidi benzoati	ʒj	31

M. fiat unguentum.

On account of the family history of the man he all be placed upon an alterative course, consisting 1 drachm (3.7 c.c.), gradually increasing to 2 rachms (7.4 c.c.) of syrup of the iodid of iron thrice ily, together with an equal quantity of cod liver oil.

ACUTE ECZEMA.

This man of 25 years of age, has been troubled for week by a very extensive eruption. Commencing the scalp it has spread to the face, neck, trunk and xtremities until at the present time there is scarcely portion of the body entirely free from the disease. he exanthem is attended by excessive itching, burn-g and smarting. The general health is said to be naffected. The bowels are constipated. His appe-te has not been at all impaired.

The rash exhibits different types upon different arts of the body. Primarily it consists of small ves-les, filled with a pearly white fluid and situated pon an erythematous base. After a day or two they upture and discharge their contents, which dry into llowish crusts of greater or less size and thickness, cording to the number of vesicles which have aggre-ated before rupture. Upon the back of the neck the usts are particularly large, thick and numerous.

This can be nothing else than acute eczema of the siculär type. Of this phase of the malady it is, deed, an apt example. Closely grouped small ves-les on an erythematous base with heat, swelling, rning, tingling and itching signify eczema. The erythema, heat and swelling might be suggestive of dermatitis, but we have here no history of direct injury to the skin. Dermatitis herpetiformis is rare; the patches of erythema are of a dark red or purplish color, and vesicles vary greatly in size, while bullæ and pustules are often present. Herpetic vesicles do not rupture. Those of herpes zoster follow the course of a nerve and are often accompanied by sharp pain. In pemphigus we observe large bullæ or blebs.

Though vesiculation is the prominent characteristic of one variety of eczema, yet many cases run their course almost or quite free from this manifestation and require to be classed as erythematous, papular or pustular eczema according to their predominating lesions.

Acute vesicular eczema may be accompanied by constitutional symptoms so severe as to cause us to suspect the development of some eruptive fever. Such symptoms have been absent in this case notwithstanding the extensive surface involved. There have been no chills, fever, headache, backache, anorexia or nausea. The tongue is coated however, and the bowels constipated. As there has been no source of external irritation the disease in this instance is, in all probability, to be ascribed to imperfect digestion. This is a very common cause of eczema especially when, as often happens, the patient has a susceptible skin. Certain persons are predisposed to eczema as others to catarrh of mucous membranes; eczema has been termed catarrh of the skin, as affecting chiefly the mucous layer. Gastro-intestinal catarrh may be reflected upon the skin as acute or chronic eczema.

In treating such a case as this, therefore, it is important to avail ourselves first of the eliminative function of the bowel by administering a brisk purge. This should be followed by remedies which will improve the morbid condition of the alimentary tract and strengthen the digestive power.

Coincidently with such internal treatment we should combine emollient applications to the skin. Stimulating substances are inappropiate for topical use in acute eczema. They serve only to aggravate the disorder. We should choose the milder preparations, as those of lead, zinc, bismuth, magnesium, boric acid, diluted carbolic acid, a bland oil, etc. Remedies of this kind may be applied in the form of lotions, ointments or dusting powders according to the circumstances of the case. When the initial severity of the disease has subsided, if it shows, as it often does, a tendency to linger in a subacute or chronic form, we may begin cautiously to increase the strength of our applications or adopt others of a more decidedly stimulating character.

To revert to the patient I shall begin the treatment by the administration of:

℞.	Antim. et potass. tartratis	gr. ss		032
	Massæ hydrargyri	gr. x		65
	Pulv. jalapæ	gr. x		65
	Pulv. cinnamomi	gr. j		065

M. ft. chart.

This combination will have a beneficial influence upon the secretions of the alimentary tract in addition to unloading the bowels. After he has been freely purged he shall be placed upon:

℞.	Acidi hydrochlorici diluti	ʒv	18	48
	Pepsini pur	ʒiij	11	7
	Glycerini	fʒj	29	57
	Aquæ	q.s. ad ʒiv	118	28

M. ft. sol. Sig. Teaspoonful in water after each meal.

If the bowels should show any tendency to become

constipated again the patient shall be given every night or two a capsule containing 1 grain (0.065 gram) each of blue mass, powdered jalap and compound extract of colocynth together with 1-20 minim (0.003 c.c.) of oil of peppermint.

On account of the almost universal distribution of the eruption the patient shall be given a moderately warm bath every day while the inflammatory action is severe. This soothes the skin, washes away the products of disease, and allays the itching. Rain water is beneficial, but the addition of an alkali and emollient enhances its efficacy. About 4 ounces of sodium bicarbonate or borate and 3 pounds of starch added to the water makes as a rule, a soothing, grateful bath in such an extensive violent case as the present. It must be admitted, however, that there are cases which receive no benefit from general baths. Injudiciously or immoderately practiced immersion may aggravate the disease. We must be guided in each individual case by the effects.

After the bath the surface is gently mopped dry when it may be anointed with a mild preparation, such as the following:

℞. Calaminæ . . . . . ℥j 3|9
Bismuthi subnitratis . . . . . ℥ij 7|8
Unguenti cucurbitæ . . . . . .
Unguenti aquæ rosæ . . . . . āā ℥ss 15|6

Finally over the ointment a bland dusting powder, such as starch, arrow-root, lycopodium, talc or magnesium carbonate may be freely sprinkled. When so much of the surface is involved an ointment is usually preferrable in practice to a lotion. Except in the extremest cases a patient can scarcely be expected to sit at home in light undress and continually mop the surface with a wash.

CHRONIC ECZEMA.

Some of the results of a continuance of eczema are illustrated in our next patient, a man of 40, who has been afflicted with the disease for fourteen months. The predominant lesions are of the class known as secondary. Upon the flexor surfaces of both forearms, in the popliteal region of each side, the outer surface of each leg and around the ankles as well as upon the buttocks are spots and patches of infiltration, varying in size, those upon the forearms and legs being quite large. The skin is thickened, rough, hard, dry and inelastic. It is a deep red color in these situations. The eruption is accompanied by persistent itching. The larger patches are more or less plentifully covered with thin, grayish scales. Tormented by the itching the man has in numerous places torn the skin with his nails and blood crusts have been the result. At other sites the inelastic integument has given way to muscular traction forming painful fissures. Some of these are deep and bleed easily. To the troublesome itching the fissures add an element of actual pain. The totality constitutes to the patient a very distressing case.

The eczema in this instance, is certainly due to digestive derangement. The man has marked symptoms of gastric and intestinal dyspepsia with torpidity of liver and lack of assimilation. There is much flatulence, a coated tongue with fetid breath and irregular action of the bowels. In brief there is present a condition of auto-infection by imperfectly elaborated alimentary material. It will be necessary to unload his intestinal canal, stimulate the digestive functions and regulate his diet. He shall be allowed a sufficiency of nitrogenous food of the most digestible kinds, such as eggs, roast beef or mutton and plenty of m with once a day some well cooked vegetables. Witho attention by proper diet and remedies we should se in vain to cure this case by means of external remedi

I shall order first the capsule of which I have alrea spoken.

℞ Massæ hydrargyri.
Pulveris jalapæ.
Extract. colocynthidis comp . . . . . āā gr. j |065
Ol. menth. pip. . . . . m. 1/20 |003
M. et ft. capsula No. j. Mitte tales No. xx.
Sig.—One capsule to be taken every night at bedtime.

In order to improve his digestion he shall be giv a mixture of hydrochloric acid and pepsin, compos as follows:

℞ Pepsinæ glycerini . . . . . ℥j 31|2
Acidi hydrochlorici dil. . . . . m. ccccc 30|8
M. Sig.—Two teaspoonfuls after each meal.

Locally there shall be applied:

℞ Acidi salicylici . . . . . gr. xv |97
Acidi carbolici. . . . . m. x |62
Sulphuris sublimati . . . . . ℥ ss 1|95
Unguenti zinci oxidi benzoati. . . . ℥ j 31|2
M. ft. ungt.

PSORIASIS.

We have also two patients to form a contrast chronic eczema, and which require one to enumera the points of differential diagnosis. The first of the cases, a lad of 18, has been subject for four years to eruption upon the scalp, face, back and limbs. Up the hairless parts the characteristics of the lesions c be readily discerned. These consist of patches cover with silvery scales. The disease began as small, d papules, which by their growth and coalescence beca patches surmounted by the scales described. So of these primary lesions are to be observed now up the forearms. The patient himself points out sma discrete papules, which experience has taught him recognize at the earliest manifestation of the disea They are of rather a bright hue. The disease beg upon the scalp. The boy first noticed an unwont dryness of the scalp. After a time he could feel pimp upon the head, and in the course of a year scales w observed. Subsequently the eruption developed up the side of the trunk, knees and limbs. Individu papules are at first always separated by a space of i tervening healthy skin. A little scaling is seen up their tops almost from the very first.

Large patches exist upon the breast, back, thig legs and arms. They are prominent upon the ba of the elbows and just below the knees. The patch are largest upon the thighs and abdomen. They a thickened, red and scaly. Primary lesions are now process of evolution upon the hands. Until recen they had never appeared in this situation.

There is not much itching. If he becomes ov heated the papules and patches may itch. At su times he is apt to tear off scales in scratching, a then there is a little bleeding.

There is a distinct rheumatic history in this ca A year ago the youth suffered severely from rheuma pains, and has ever since been subject to sharp twing in the shoulders, loins, arms and legs. The pains a particularly sharp prior to the development of fre lesions. He has also some dyspeptic symptoms.

The next patient is a man, 37 years of age, who h two years has been troubled by a rash presenting t same aspect as that of the preceding case. In th patient the disease began behind the elbows, and sca patches are scattered upon various parts of the bod There is no occasion to describe them in detail.

s individual also, there is clinical evidence of the umatic dyscrasia. He describes himself as con- ntly feeling weary, having a weak back, desiring to abed in the morning. He formerly possessed aver- energy, and is not willing to be accused merely of iness. Nor do I regard his symptoms as due to iness, but as the sluggishness denotive of the hep- torpor so frequently the concomitant or the origin subacute rheumatic manifestations.

Both these cases are stamped with the same seal. e impress is characteristic and almost pathognomonic psoriasis. When once known this disease can gen- lly be recognized with ease and certainty. We can rcely mistake as regards psoriasis, but chronic cases eczema, attended by desquamation, may bear a cer- n resemblance to it and engender doubt. The course the latter affection, however, is altogether different m that of eczema. In psoriasis we have a history individual scaling papules separated by sound skin l in almost any case the physician may himself nonstrate the existence of such primary lesions in lition to the scale-covered patches. The papules present in both cases. In papular eczema there is such isolation of the lesions, which moreover very quently arise from a reddened base. Eczema has a dilection for the flexures of joints; psoriasis usually gins on parts where the epidermis is thickest. The les of eczema are thin and scanty; those of psoria- are thick, firm and generally of silvery aspect.

Psoriasis is fundamentally a hypertrophic disease, ended by inflammatory changes, enlargement of papillæ of the skin and hyperplasia of the cells of stratum mucosum. The patches in some cases ume huge dimensions, and in other instances very tastic outlines. It is essentially a stubborn affec- n. The treatment and prognosis of each case de- nds upon its cause. The origin may be in morbid nditions of the blood, nervous system and viscera. a large proportion of cases it is due, as in the cases ore you, to the influence of rheumatism. Gout o plays a large part in its production. It follows, refore, that successful treatment depends upon the neral principles of internal medicine, and that local rapy must in many instances be of minor impor- ce. Topical measures alone will seldom cure the lady. Quite often I order no local applications atever, and depend entirely upon systemic medica- n. This is the course which I shall pursue in the e of the second patient, the older man. I shall scribe:

Sulphuri sublimati	gr. iv	26
Potassii bitartratis	gr. j	065

t. et ft. capsula No. j. Mitte tales No. xxx.
ig.—From four to six capsules to be taken *per diem*.

Small doses of sulphur are of decided value in sub- te rheumatism. In these quantities it acts by ab- ption, stimulates the liver, the glands of the bowel of the skin. As a normal constituent of albumin of taurocholic acid the administration of sulphur logical procedure in disorder of the hepatic and aneous secretions and in perverted nutrition of the thelial elements of the skin, the cuticle, hair and ls. Furthermore, sulphur is extremely beneficial subacute muscular rheumatism of the type exhib- l by the patient.

n the case of the lad we find a more active mani- ation of rheumatism. The potassium iodid will exert a more speedy effect. I shall direct him to e 10 grains (0.65 c.c.) of that salt four times daily, increasing to 15 (0.97 c.c.) and then to 20 grains (1.3 c.c.) according to the manner in which it is tolerated. It shall be given in the compound syrup of sarsapa- rilla as a suitable adjuvant. For the youth I will order the following external application:

℞ Unguenti hydrargyri nitratis.	ʒ ss	1	95
Acidi salicylici	ʒ ss	1	95
Unguenti zinci oxidi benzoati	ʒ j	31	2

M. ft. unguent.

In such cases frequent steam baths are useful. Many practitioners accord a high value to chrysaro- bin as a topical remedy in psoriasis. I do not often employ this agent for the reasons already intimated. Moreover it is very irritant, and it stains the skin, hair, nails and underwear.

THE SCHOOL TRAINING OF YOUTH.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY CHARLES E. WINSLOW, M.D.
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The two essential parts of a human being are mind and body, and so constituted are they that each is of the utmost importance to the other. They are bound together by ties that render them inseparable through life. A suffering body depresses the mind; a harassed mind wearies the body. That which strengthens the human organism, stimulates the intellect to action. Raptures of the mind thrill the body. This being true, how important that from the first days of life, the intellectual and physical should grow and develop side by side.

That laws of health obeyed increase and add pleas- ure to life, should be known by every man, woman and child in our land. Health with a fair mind is worth more than a brilliant intellect in a feeble con- stitution.

The broadening light of knowledge reveals truths in cause and effect of hygienic principles before un- known. These bear added responsibilities, opening up a field of labor prepared for the growth of wise thought and action. We are realizing more and more the need of staunch and energetic men who can stand against the push and energy of the day, assert and maintain their beliefs and not break down in health as they are ready to grasp the great promises of the future.

A community's healthfulness greatly aids the prog- ress of business. The commercial interests of the nation demand the improvement and protection of human life. To promote the future prosperity of our nation, and to elevate the physical standard of the human race, we must build up the bone and sinew of the country; therefore the science of hygiene must be understood. The grandest results will be attained only when the people come to a full comprehension of the value of the laws of health. To bring the great- est influence to bear upon the education of the masses, we must begin at the foundation and enlighten the people through the growing youth of the land. We must instil into their minds a knowledge of the fun- damental truths of hygiene, and increase the powers of the intellect and body, thus making a better and stronger race of men and women.

The future history of our nation will be made by the children of the present. What we do for the child of today is something done for the adult of tomorrow. Every healthy child indicates a healthy

man or woman. Over twenty-five millions of youth in the United States—what a leverage for good! These minds filled with right ideas in regard to health, would be an unmeasured power whose expanding influence would be felt in ages to come.

Our schools are the corner stone of the nation; to them with their four hundred thousand teachers must we look for the forces that are to save the strength of its people. There should the pupils be taught the laws of health by word and deed. The members of the school board should be men of intelligence, interested in the children's welfare and impressed with the fact that the lives and health of fourteen millions of school children are of vital importance to the nation. The selection of sites, building and furnishing of school houses and engaging of teachers should not be controlled by money consideration.

The rights of our school children should be recognized in all ways that will protect and develop the mental, moral and physical health. The play grounds should be large and free from dampness; the buildings should be examples of scientific sanitation; the rooms warm and comfortable, light and airy, free from draughts and poisonous gases, furnishing two hundred cubic feet of pure air to each pupil, and everything should be clean and sweet. The walls of the room should be slightly tinted blue or green that they may be restful to the eye, and there should be the best of blackboards. Care should be taken to have desks so made and placed that they will tend to straighten, instead of deforming the child. The microbe-breeding slate should be discarded and paper especially prepared used in its place. The pencils should be disinfected daily. The school books made of suitable paper, with the printing plain and legible, should be owned and furnished by the district, thus preventing the carrying of books back and forth from families infected with disease, and also the sale of second-hand school books, coming, as they often do, from houses where disease has run riot. The use should be forbidden of the open bucket, in which, through the medium of the drinking cup, the water becomes contaminated with spittle from the mouths of disease infected children. There should be provided a place where the clothing can be warmed and dried. Children from homes saturated with germs of disease should not be allowed to endanger the lives of those from homes clean and pure.

A competent expert in the science of hygiene should carefully inspect the school and its surroundings, and thoroughly disinfect the building and its contents periodically. He should examine teachers, pupils and employes for contagious diseases, test the eyes of the pupils, see that all members of the school have been properly vaccinated, examine into suspected cases of sickness and infectious disease in families whose children attend the school. He should advise with regard to the amount of work pupils are physically able to undertake and also the kind of exercise needed by different children. He should report any needed changes in the buildings, and should lecture to the teachers and older scholars on the principles of hygiene.

The educators of our youth should be selected with the greatest care, for upon them rests a great responsibility; they are at the head of the institutions that indicate a nation's civilization; they are the developers of our citizens. Teachers are born, not made. They should have sound minds and bodies, should love their work and be in sympathetic touch with their pupils, studying their nature. They should have a facility to impart knowledge and at all times bear in mind that there is to be a moral as well as mental and physical growth. They should wisely encourage and interest the child in the lessons to be learned, teaching him to observe and think for himself, remembering that education is in a great measure the development of the faculties rather than the imparting of knowledge. They should teach the importance of self-control, and should be able to infuse joy and gladness into the heart of the child. They should understand physiology and hygiene and learn that there are conditions of the nervous system that must be wisely handled, that there are functions of girlhood that can not be ignored, remembering that the excitement of school life often hides from the teachers the pupil's weakness. The teacher should so instil the distinction between right and wrong into the mind of the youth that there will crystallize into the life all that is best of the moral, intellectual and physical world.

Education is development of power and a storing up of that which will give strength of character, penetration of mind and endurance of body. Childhood is the molding time of life, where weakness of intellect and organism is to be overcome; when deformities of mind and body are to be corrected.

The science that aims to give better health, longer life and greater happiness to man should be paramount to all others; it is of vastly more importance to the youth to know what will prevent misery now, than to know that centuries ago Alexander sorrowed because there were no more worlds to conquer.

Make the study attractive to the student, stimulating the mind to further investigation. No child is too young to learn. Sow the seeds in the kindergarten. Let the truths be gathered all along the path way of knowledge. Teach the children that cleanliness means health and strength. Teach them that filth and dirt infect the air we breathe, the food we eat and the water we drink, and that it breeds pestilence and transmits disease. Children should be taught not only the truths of the science of hygiene but also the practical use of the knowledge obtained. The mind and the body should be trained to perform all their functions and live as nature intended.

No false ideas of modesty should prevent the teaching of the evil effects of youthful vices, and the danger of bringing wretched manhood and misery to those who sin through ignorance. These things would better be learned in school from wise teachers than in the street from evil-minded youths.

The older young woman should be taught the importance of motherhood and all it implies. The appalling darkness that surrounds this subject and the ignorance shown by most young women at this period of their lives is an outrage against humanity.

At no time of life is the mental, moral and physical growth so rapid as in childhood. During that period most children are in school.

The first consideration of the teacher should be "how to keep the growing child well," aiming to improve the moral and physical, as well as the mental condition.

The high pressure system of education with its daily grind of study, followed by the severe strain of examinations, exhausts the mind, causes loss of appetite, interferes with sleep, making the child listless and is responsible for a large share of the increasin

nervous troubles. There are children who will bear crowding, but the majority, with their soft pliant brains, will not stand the strain. The per cent. of myopic cases increase as the pupils advance from grade to grade. This is due largely to close application with poor light, bad printing and defective blackboards.

Forming bones, growing muscles, developing nervous system and the constantly changing conditions of childhood need exercise.

Mind and body should be systematically trained, together growing in strength and power. Forcing either at the expense of the other is dangerous. To cram the brain of a poor, sickly body, without the vital force to use the knowledge, is to make an unbalanced human being. Cultivate good, active minds supported by the brawn and sinew of sound bodies, and they will wield an influence on this swiftly moving civilization.

Muscular tissue will not improve without muscular action. Exercise develops and tones up muscle and nerve force, thus increasing the heart's action, causing the lungs to expand and send richer blood to the brain, which brings clearness of thought and a more practical turn of mind. Manual labor and exercise should be wisely interspersed with study. Physical culture will give to our boys and girls more grace and finer physiques; the shuffling walk will be less often seen, the bent bodies will become more erect and awkwardness will disappear. Special exercises should be given to strengthen the weakest parts, fun and recreation forming part of the exercise. Motion is often rest to a child. Dr. Wey found that twelve of the dullest boys in school, after a course of physical training, without their knowing why it was done, increased their rank in their classes from 45 to 74 per cent.; their minds becoming more active, facial expression more intellectual and eyes brighter.

The children of civilized nations spend too much time in-doors. Long school hours should be avoided. Make the hours of study accord with the age of the pupil, who should rest each half hour. The French primary schools with their three grades, the first of three and a half hours, the second of four and one-half hours, and the third of five and one-half hours for mental work and two hours for bodily exercise, have improved the mental and physical condition of their pupils. In the half time schools of England, the children working half a day with three hours of study, pass the fourth grade in nine and one-half years, while the full time children studying six hours a day do not show the same aptness, and are ten and one-half years accomplishing the same result.

The studies should be made interesting, cheerfulness being encouraged. Forced stillness in a school room is painful. It shows too rigid a discipline, is wearing on the pupil and tends to suppression of the spirits that are needed to make a boy or girl an energetic man or woman.

All children have not equal ability to gain knowledge, and different organisms will not endure the same amount of work.

Rigid rules can not be enforced with safety; growing youth has peculiarities that can not be bound by human laws. The calls of nature must be attended to; because children make it a pretext to go out of doors, teachers are not relieved from the criminal responsibility for the destroyed health of a child The strain that comes to the young girl rapidly developing into womanhood is enormous, and a wise judgment should be used in meeting the dangers to her moral, mental and physical life.

The brightest pupils in school do not always achieve the grandest success in life. Machine work will not make capable men and women; the practical should be woven into the web and woof of children's lives, and their reasoning powers developed. Thoughtful meditation is worth more than impulsiveness.

Crowded education without due regard to the laws of health is responsible for the alarmingly increasing defects of childhood. The tendency to heredity, defective eyesight and hearing, pulmonary troubles and deformities, disordered digestion and shattered nervous systems threatens us as a nation.

Education should so improve the mental and physical condition of the child, that he will rise superior to his inherited tendencies; then will each successive generation grow stronger morally, mentally and physically.

In this age of excessive activity with its wonderful progress in trade, art and science, taxing brains to their uttermost, comes weariness and failure before life's work is fully completed. Education calls for the deepest search for treasures of science, which will bring to the surface grand results in a moral, intellectual and physical manhood, better prepared for life's work, thus enabling him to grasp great possibilities, and make them subservient to his will.

Civilization's light has lessened the shadows of ignorance and we begin to realize that influences are being generated now that will tend toward good or evil in the ages to come. Increased knowledge shows us the way to improve our schools, tells us what is needed to better protect and make sound in mind and body our youth, but back of this must be a power to make and enforce laws of health.

State and government must be the power, with agents systematically carrying on the work, and controlled and guided by a secretary of health at Washington.

Here on the edge of the century let us make ready for the future and send the rays of a brighter civilization into the next, by an army of perfected men and women whose exalted characters, brilliancy of intellect and physical power will make our nation the peer of all others.

Bradbury Building.

SPASMODIC CLOSURE OF THE GLOTTIS IN THE ADULT.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY HAMILTON STILLSON, M.D.

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Spasmodic occlusion of the larynx in the adult is usually of the nature of a reflex and is but a symptom of a nerve lesion more remote The remote causes are usually those that produce paralysis of the abductor muscles, notably, the lateral crico-arytenoids and those that produce spasm of the adductor muscles, notably the inter-arytenoids. A differentiation of these causes will be essential to the proper treatment of the cases when presenting.

In the remote causes proper has been enumerated spasm of the adductor muscles. This spasm is usually found in such nervous diseases as chorea and hysteria.

The spasm may always be relieved by temporary anesthesia. It is usually not severe nor of long duration. As a rule it is relieved before loss of consciousness supervenes, the exhaustion caused by the spasm relaxing the spasm. It is of the nature of a nervous cough and is to be treated as such.

It is with closure of the glottis by paralysis of the abductors that this paper has principally to deal. There are two forms, one seen in such diseases as epilepsy, and the other in such diseases as ataxia. In the so-called laryngeal vertigo, laryngeal epilepsy, there seems to be no paralysis of the abductors except during the dyspnea. These attacks are sudden and transient. There is nearly always previous discharge of frothy mucus without premonition as is usual in ordinary epilepsy. The patient will be seized with a sudden violent coughing that amounts to strangling. He will grasp a chair or like object if convenient, and in a few seconds fall, usually upon the back, and entirely lose consciousness. The attack will last but a few seconds. The patient will regain his feet and feel perfectly well, no pain or unpleasant feeling of any kind being present. Indeed, the patient may express the idea that the remembrance of the attack is pleasurable rather than otherwise. The loss of consciousness seems to resemble that of carbonic anesthesia from nitrous oxid, etc.

About thirty cases of this form of closure of the glottis have been reported in literature with sufficient care to warrant proper classification. They are as follows: Charcot (*Comptes-rendus de la Société de Biologie*, p. 336, Paris, 1876; *Le Progrès Méd.*, 1879, xvii, p. 317), Gasquet (*Practitioner*, August, 1819), Krishaber (*Ann. des Mal. de l'Oreille et du Larynx*, 1882, p. 182), Grey (*Amer. Jour. Neurol. and Psych.*, November, 1882), Lefferts (*Arch. Laryngology*, vol. iii, p. 165, New York, 1883), McBride (*Edinburgh Med. Jour.*, March 1884), Russell (*Birmingham Med. Review*, August, 1884), Massei (*Giorn. Internat. delle Sci. Med.*, anno vi), Hermes (*Journ. de Méd. de Paris*, 1887, p. 936), Knight (*Transactions Amer. Laryng. Asso.*, 1886, p. 34), Gleitsmann (*Med. Monatschr.*, i, p. 510), Dauvin (*Journ. de Méd. de Paris*, Aug. 17, 1887), Lennox Browne ("Diseases of Nose and Throat," 3d ed., p. 526), Armstrong (*Med. News*, June 8, 1889), Adler (*New York Med. Jour.*, Jan. 30, 1892, p. 128), Weill (*La Provence Médicale*, Dec. 3, 1887), Fereol (*Progrès Médicale*, 1879, No. 17, p. 319), Phillips (*Med. News*, Philadelphia, March 19, 1892).

Much discord exists as to the nature of this form of laryngeal spasm, but in the opinion of the writer the affection is of the nature of petit mal. Regular paralysis of the abductors is more common in such affections as ataxia, and the attacks differ from those of laryngeal vertigo in that the patient, though he may fall, does not lose consciousness. They differ also in being less sudden and less transient, having less frothy mucus exuded, having often more premonitory symptoms; but the main and principal difference is that there is paralysis or paresis of the abductors at other times than in the periods of dyspnea. There is, indeed, paresis of a greater or less degree almost constantly.

In the case that I record at the end of this paper, the first attack was characterized by loss of consciousness, but in all subsequent attacks, occurring throughout several years, the patient though greatly distressed knew perfectly well all that transpired. He was, indeed, more fully cognizant of the condition of affairs than was consistent with comfort.

This form of closure of the glottis is to be carefully studied, since it is often the one observable precursor of ataxia and may appear long before any other symptoms of that dreadfal disease make their appearance. Charcot, I believe was the first to mention it, though Fereol was the first to describe it fully and to trace its relation to ataxia. He gave it a most interesting and graphic description. Kussmaul and others have further developed the subject. Their researches show that when laryngeal paralysis is of central origin, it is most frequently found accompanying disease of the medulla oblongata and of the pons, as in bulbar paralysis, in multiple or disseminated cerebro-spinal sclerosis, in locomotor ataxia and in the general paralysis of the insane. In the case whose history I give below the disease occurred in locomotor ataxia of rheumatic origin.

Case.—On Jan. 5, 1894, F. M., English, aged about 35 years (occupation, proprietor of a logging camp) was brought to my office. He was of large, robust habit, florid complexion; had been drinking, and I thought at first that he was tipsy. He was led staggering and strangling into the office, his eyes staring, face livid and cyanotic, tongue out, presenting a most distressing and anxious appearance. I gave him a few whiffs of chloroform and sprayed his throat with cocain, and got a good view of the larynx. Vocal cords highly hyperemic, as was the mucous membrane throughout the nose and throat. At rest, the vocal cords were almost parallel and tolerably close together—voice not impaired. In inspiration the vocal cords pitched down, valve-like. Later there was audible inspiratory sound, especially in an inspiration taken after the pronunciation of a somewhat lengthened sentence. In expiration the vocal cords were close together and the false cords approached. There was hypertrophy of the lingual tonsil, thickening in the region of the pharyngeal tonsil, hypertrophied follicles on the posterior wall of the pharynx, edema and elongation of the uvula, edema of the right septum posteriorly, deviation of the right and left septum and septal spurs, hypertrophy of mucous membrane on the right and left lower turbinates. Among his general symptoms were constipation and hemorrhoids. His gait was unsteady, his feet being placed wide apart. He reeled while standing with his eyes closed. There was cutaneous anesthesia on the sides of the chest and on the lower extremities. The skin was not sensitive to the pain of pricking, but very sensitive to that of heat and cold. Patient complained that cold was painful to him. Knee jerk was absent; tendon reflex was absent.

Vision, right and left, $^{15}/_{20}$, unimproved; requires a +4 D. to enable him to read Jaeger No. 1 at fourteen inches. The range of accommodation was two inches. There was exophoria for a distance of two and one half degrees when looking straight forward, greater when looking to either side, diplopia when looking to the right or left of center, at which time patient complains of being dizzy.

History.—Twelve or fifteen years ago had a severe attack of rheumatism through shoulders and chest, dull soreness through muscles of chest and shoulders and for years after could not comb his hair with comfort, could not get arm up, the touch of the clothes was painful, rheumatism confined principally to the chest.

About five years ago, while engaged in the lumber business he had attacks of dizziness, especially after lifting or stooping, head would get dizzy and glimmer; had sick headache and dyspepsia, thought it was biliousness; knees would get weak and painful, especially after walking skids very much; would have sick headache every week and would end in emesis. Has not had this bilious sick headache for two years, but occasionally vomits after coughing awhile.

Four or five years ago the skin became numb: "If you would pinch it it would not hurt." It was then all around the chest. It is so now. The skin is very sensitive to heat or cold, can not take a cold water bath.

About five years ago the strangling cough attacked him. The spasm would last fifteen or twenty minutes. There would be a tickling in the throat as though a bread crumb were there, would hawk and try to get it out, then would cough and strangle, did not lose consciousness in these attacks nor fall, neither was there much expectoration. What he did spit up was a sort of white foamy phlegm. At first the attacks would

last from ten to fifteen minutes, "seemed to be caused by the drawing of the breath." Sometimes the patient would hold his breath to keep from having the pains.

A year or two ago had twitching of the eyelids on the right side. At that time the numb skin on the trunk felt creepy, especially when the clothes would touch it, and the patient felt as though walking on sand all the time.

A year ago last fall his eye trouble became worse—eyes saw double, and this double vision lasted for about two or three weeks, could hardly see across the house, could see double each way, to the right and left; would not see double when looking straight forward. After looking to the right or left it would take a little while to get the eyes pointed straight forward again.

March, 1896.—No heterophoria. V. D. = $^{20}/_{30}$; with + .50 C. axis 90° = $^{20}/_{20}$. V. L. = $^{20}/_{40}$; with + .50 C. axis 90° = $^{20}/_{30}$, to which was added + 3.50 for near vision. A test with the perimeter shows a slight narrowing of the field for red and a central scotoma in field of left eye. Patient no longer gets dizzy, except in bed at night, when he is awakened by a great noise in the head, and will be dizzy until he can assume a new position. The glottis does not completely close in spasm, though he occasionally has a tickling spasmodic cough of short duration.

December, 1896.—Does not strangle, and the cough is slight and controllable. Vocal cords during phonation are parallel. When getting his breath after having spoken a few words his inhalations are audible. Mucous membrane of the throat is pale. Vocal cords during phonation are not steady. The left vocal cord is in the median line and remains there during the use and non-use of the voice. During phonation the right vocal cord will come up into position parallel with the left, and then by a series of unsteady movements will go away from its partner. During inhalation the left cord remains in the median line and is sucked downward like a valve, while the right vocal cord is curved outward, being somewhat sickle-shaped, and is valve-like but not depressed as much as the left.

May 11, 1897.—The patient has had but one attack of strangling in several months, no dizziness, no pains, no difficulty in micturition or defecation, no hemorrhoids. The field of vision remains about the same. The scotoma in the right eye is not now demonstrable, and that in the left eye is much smaller, being but a mere line extending from the point of fixation half way across the nasal portion of the field.

SALIVARY CALCULI.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY W. FREUDENTHAL, M.D.

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NEW YORK, N. Y.

Salivary calculi are, as a rule, easily recognized, although they are not of frequent occurrence. They are most frequently located near the buccal end of Wharton's or Steno's duct, and often have a definite outline and shape, rendering their detection by palpation usually easy. There are, however, a number of cases recorded in which their discovery was made by mere chance. Such an instance occurred in my practice. In two of my cases the diagnosis was easily made.

It appears that the growth and formation of salivary calculi begin years before their detection, and in this respect their character is quite in contrast to the stones found imbedded in the nasal cavities, which latter reach a large size after sometimes a growth of only a few months. The secretory function of Steno's or Wharton's duct and of the nasal cavity proper are not only different, but the foreign bodies found there are of different sizes. Sometimes these ducts contain large stones, without in any way producing symptoms, or in any sense annoying the patient. Such an instance is the following case:

Case 1.—Mr. A. F., 23 years of age, for the last six years a professional clarionetist, came to me last winter, in the height of his season, complaining of a cold, contracted two weeks before, and in consequence of this an abscess had formed, as he believed, under the tongue. On examination I found a swelling about the size of a hen's egg in the left sublingual region. No hard substance could be felt at all. Believing that I was dealing with a ranula, I made a long incision through the buccal mucosa. A mass of fetid pus escaped, and, to my surprise, the end of a stone, oblong in shape, appeared in the opening. It was readily extracted. It undoubtedly came from Wharton's duct, judging from its contour. There is nothing unusual in its size and weight.

After thoroughly cleansing the abscess cavity, I passed a probe, and was surprised to find evidence of another stone situated deeply within the tissues of the submaxillary gland. My first effort to extract it resulted in failure, as it slipped back further in the cavity. My second attempt, however, was successful. The stone was irregularly oval and about as large as a cherry. One would suppose that a person whose mouth is constantly in action by reason of his professional occupation, would be able to detect anything of an abnormal character in it. Yet in this instance the patient never suspected anything whatever, until two weeks ago, when as he states, he contracted the cold, which most likely caused the abscess about which he consulted me. He is positive that before contracting his cold he never felt anything unusual in his mouth.

As an illumination of the powers of endurance, it is interesting to state that my patient, a weak man at best, not only followed his usual vocation as a clarionet player up to the day on which the calculus was discovered and extracted, but also played his musical instrument on the evening after the operation despite the fact that there was a large iodoform tampon in the old site of the calculus. There are on record other instances where a supposed "cold" led to the detection of salivary calculi.

Mr. Carver[1] removed a stone from a man 70 years of age, who had noticed some tenderness in the sublingual region only for about five or six weeks.

Demons[2] found a stone the size of an olive in Wharton's duct, which produced no symptoms until three weeks before its removal.

There are, on the other hand, cases recorded in which the stone had made its presence felt for several years before its final extraction. Alfred Smith and Alex. T. Scott[3] reported a case in which a tumor had been first noticed by the patient seven years before, at which time it was the size of a pea.

Jos. Dixon[4] describes the sufferings of his wife, who had noticed a swelling under the tongue for fifteen years. Mr. Alexander Bruce[5] removed a stone of "considerable dimensions," as he states it, although it weighed only 11½ grains. In this instance the patient had felt it fourteen years previously. Dr. Webb's[6] patient felt a small lump sixteen years before being operated upon. Dr. Padieu's[7] patient felt it for twenty-five years, and Dr. Schuster's[8] patient for forty-four years (!)

It is known that patients suffering from salivary calculi frequently obtain relief from their symptoms by squeezing out the pus and mucus which surround the stone and fill the cavity, into the mouth, from which they expectorate it or unconsciously swallow it. Thus, we can understand in Jos. Dixon's case the attacks of dyspepsia lasting for fifteen years, which were not amenable to treatment. The patient apparently swallowed the secretions which she pressed out from the glands.

Other symptoms caused by the stones are pain increased by movements of the jaw such as during mastication, and from retention of saliva shortly after mas-

1 The Lancet, March 13, 1886, p. 494.
2 Jour. de med. et de chir. de Bordeaux, Sept. 6, 1885.
3 Jour. of the British Dental Assoc., 1888, p. 175.
4 Lancet, Nov. 26, 1887, p. 1063.
5 Transactions of the Pathol. Soc. of London, Vol. xvii, p. 134.
6 Ibidem, viii, p. 221.
7 Gazette Med., June 6, 1885.
8 Oesterr. Vierteljahrsschr. fuer Zahnheilkunde, Oct. 1886.

tication. Still another symptom occasionally encountered is difficulty in breathing. That this last symptom is sometimes dangerous to life is proven by the case of J. W. Hulke, and my second case.

Hulke[9] treated a young lady who had a tumor under the tongue which had been growing for the last six years. This tumor sometimes enlarged temporarily to such proportions as to threaten suffocation. At times there would be a discharge into the mouth, followed by the return of the swelling to its former size. The patient indicated by her statements that the stone had nearly suffocated her.

The following case which came under my observation, illustrates this last point:

Case 2.—Mr. N. S., aged 45 years, had been suffering two and a half years before he noticed a swelling under the tongue. This swelling grew steadily, and occasionally caused him great pain. For the last ten days the pain and swelling had grown worse. During the night he snored so loudly that he had to be wakened, and on these occasions his face would become markedly cyanotic. The patient was tall and very stout, and had the hoarse voice that characterizes the chronic alcoholic. On examination the tumor was found to project slightly from under the tongue and to extend along the right of the frenulum, reaching to the floor of the mouth, backward between the root of the tongue and the angle of the jaw, at which spot it appeared to be adherent to the buccal mucous membrane, simulating the case described by Hulke. By palpation fluctuation was elicited, and a hard mass could be plainly felt within it. I was quite sure that we had to deal here with a salivary calculus which had formed in the beginning of the main duct, and I advised its removal. For obvious reasons the patient refused and went home. His heart and lungs were normal.

Several weeks later I received a note from his physician, stating that the patient had died. The night preceding his death he had imbibed more freely than usual, and then retired. Having fallen asleep, he began to snore so loudly that his wife awoke. She found the patient breathing with great difficulty, while his face was black and blue. She tried to awaken him, but failed. She had a physician called; but the patient died of suffocation before medical aid reached him. An autopsy disclosed an almond-shaped salivary calculus, imbedded in a pus cavity. Death no doubt resulted indirectly from its presence; for on previous occasions he would invariably get rid of the pus that had accumulated in the cavity by coughing or hawking it out, and in this manner relieve himself of the cause of his dyspnea. But on the fatal night he was so fully under the influence of liquor that he could not arouse himself from the stupor caused by it, and thus succumbed.

I remarked in the beginning of this paper, that when I compared the sizes of salivary calculi and rhinoliths that I believed that the majority of these deposits owe their formation to the fact that a foreign body enters the duct or gland itself.

When Clinton Wagner[10] says: "These concretions are formed by the deposit of earthy salts from the saliva in the excretory ducts leading from the gland or in the body of the gland itself, and that the cause of the deposit is an obstruction to the flow of saliva either to or through the excretory duct," he overlooks the primary cause of their formation, *i. e.*, a foreign body. Around this foreign body is deposited layer after layer of earthy salts. This obstruction causes a retention of the salivary secretion. I do not, however, claim that this process obtains in all instances of salivary calculi, but in the majority.

Professor Ribbert of Bern, found that a hair of a toothbrush had forced itself into Wharton's duct, thus giving rise to the formation of a salivary calculus around it.

In several other instances the same causative element was found. Hulke removed a stone weighing 76 grains. Its broken surfaces exhibited concentric rings around a small, black, central speck. This speck was a fragment of wood.

It must be true that in certain calculi no central foreign body can be demonstrated, because it has undergone chemical changes. Galippe reported a case of spontaneous discharge of a stone from Wharton's duct. This calculus had concentric strata without a kernel being found. But he found microbes, already described by Malassez and Vignal, in these deposits.

One case is reported by Wertheimer[11] in which an abscess formed during eating. The patient while eating blueberries suddenly noticed a tumor in the right submaxillary region, and at the same time a burning sensation in the mouth These symptoms always appeared during mastication. Finally, among greenish cheesy masses, the berries were found. Here stones had not yet formed, so, properly speaking this case does not belong here, but it shows how often foreign bodies enter Wharton's duct.

Case 3.—Mr. M. P., 57 years of age, merchant, of moderate habits and enjoying good health, had noticed for some time a small lump in the left submaxillary region. For the last three months it had grown steadily and had become painful during and after mastication. A simple incision was made, and a small oval-shaped stone removed. In cutting it open, concentric rings were seen and a very small piece of wood in the center. It was ascertained that the patient had been for years in the habit of chewing toothpicks. thus most likely forcing the foreign body into Wharton's duct.

These cases certainly prove that the formation of calculi around a foreign body does occur in these as well as in other parts of the human anatomy. That there are other causes for their formation there is no doubt, an increase or decrease in the quantity of saliva is an important factor.

A case of Thomas Ballard[12] is of interest: A young lady suffered from the effects of a buccal abscess which had opened spontaneously. Two small calculi were removed from the abscess cavity. It was learned that eleven years before she was salivated during an attack of jaundice. It is probable that this salivation caused a swelling of the excretory duct of the gland, then a retention of saliva and gradually the formation of a stone.

Just as increased flow of saliva may tend to produce a calculus, it may also tend to wash away a nucleus in the duct, around which salty deposits might form. This was the case with a patient of Kurz's, who had taken pilocarpin internally. The increased glandular excretion washed out a calculus from Wharton's duct.

In conclusion, I also believe that the submaxillary is more often the site and seat of calculi than the parotid gland, because the secretion of the former gland contains a comparatively larger proportion of mucin, a substance which seems to possess considerable adhesive properties, and seems to favor the deposit of inorganic salts. This belief is confirmed by the fact that the usual site of the calculus is just at the outlet of the salivary duct on the buccal mucosa, a point which furnishes a ready ingress for foreign matter.

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9 Transactions of the Pathol. Soc. of London, Vol. xxiv, p. 88.
10 N. Y. Med. Jour., Nov. 11, 1893, p. 560.
11 Corps étrangers du canal de Wharton. Bulletin méd. du Nord. Dec. 12, 1885.
12 Transactions of the Pathol. Soc. of London. Vol. xviii, p. 93.

DISCUSSION.

Dr. Solly—I once found a calculus in the submaxillary gland. I have never seen a case reported where the calculus was imbedded in the body of the gland. An incision was made following up the duct and the stone was felt by the finger, imbedded in the gland, and was then forced into the mouth and removed. The stone was about the size of a chestnut and weighed twenty-five or thirty grains.

Dr. Freudenthal—I am sure that there are several cases on record where the stone was in the body of the gland. Dr. Bull of New York has one, and there is a case reported by another surgeon whose name I do not recall, in which the stone could not be reached from the inside of the mouth and he had to make an incision from the outside.

AN UNUSUAL CASE OF BLOOD CYST OF THE POSTERIOR NARES.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN N. MACKENZIE, M.D.
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The patient was a young lady of 23. As a result of the imperfect extraction of a tooth, there was necrosis of the jaw, with subsequent exfoliation of bone, leading to a more or less complete obliteration of the lower portion of the antrum. This had happened five years before consultation. For three years before consultation she had suffered with symptoms referable to the orbit and antrum. On examination a small glistening point was seen, resembling the appearance seen in fibroma of the nasal cavity. The right side of the nose was occluded. The mass looked very much like a child's toy balloon. The envelope of the cyst was extremely attenuated looking as if it was scarcely a line in depth. I made an appointment with her to return the same day, but in the meantime a spontaneous rupture occurred, and when I examined her the next day I was unable to find any trace of the growth. The inflammatory process which originated the trouble probably started in the antrum as a result of the necrosis of bone, and from this the edema and the subsequent formation of the cyst had resulted. I consider this a unique case. Some cases of large serous cysts have been reported.

AN ETIOLOGIC STUDY OF ATROPHIC DISEASE OF THE UPPER AIR PASSAGES BASED UPON AN EXAMINATION OF TWO HUNDRED CASES.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY J. L. GOODALE, M.D.
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In the following paper I desire to invite your attention rather to the predisposing than to the immediate causes of atrophic states of the nose, pharynx and larynx. The statements current in our recent textbooks that certain classes of persons under certain conditions are particularly liable to these conditions appear to be derived from general impressions. Since under such circumstances, a few positive examples are apt to outweigh unduly a large number of negative and therefore easily forgotten ones, I undertook recently to submit the current statements to the test of a systematic examination. For this purpose 200 cases of atrophic disease of the nose, pharynx or larynx were investigated carefully with reference to the following points.

1. The relation of these states to age, sex, sexual functions in the female, and general nutrition.
2. The influence of a normal patency of the anterior nares.
3. The influence of the inhalation of an insanitary atmosphere.
4. The influence of pre-existing local or general disease.
5. The relation to associated hypertrophic states of the neighboring mucous membrane or lymphoid structures.

In the consideration of atrophic disease, I have at the outset excluded the following conditions:

1. An imperfect development of the intra-nasal structures, especially of the turbinates, occurring in chlorotic young women, and not associated with nasal obstruction or chronic inflammation of the nasal mucous membrane. For purposes of convenience, I have called this condition congenital hypoplasia of the nasal turbinate, since, although histologic examinations are wanting, an analogy is very directly suggested to Virchow's congenital hypoplasia of the female sexual and vascular systems associated with chlorosis.
2. I also exclude an imperfect development of the intra-nasal structures occurring in post-nasal obstruction, probably due as I have previously suggested[1] to the absence of normal respiratory alterations in intra-nasal air pressure requisite for proper nutrition.
3. There are to be excluded the anemic conditions of the nasal mucous membrane, secondary to general malnutrition, particularly seen in phthisis; also
4. The pressure atrophies from septal deviations and new growths.
5. Finally, atrophic states associated with syphilitic lesions in the vicinity.

With the exception perhaps of the last, such states are the result of altered nutrition and non-inflammatory in nature. They are therefore sharply to be distinguished from the genuine atrophy at present under consideration. The five conditions just referred to although recognizable when occurring typically may, if inflammation supervenes, closely resemble clinically mild forms of genuine atrophy. This possible source of error is to be borne in mind in the examination of cases.

For purposes of classification it appeared most natural to divide the cases of true atrophy into the following groups:

1. Atrophic states of the nasal structures, not accompanied by decomposition, whether or not associated with atrophy of the pharynx or larynx.
2. Atrophic states of the nasal structures with characteristic fetor, whether or not accompanied by atrophy of the pharynx or larynx.
3. Atrophic or dry conditions of the pharyngeal mucous membrane unaccompanied by atrophy within the nose.

For convenient designation these conditions will be called respectively, non-fetid atrophy, fetid atrophy and pharyngeal atrophy.

The relations of these atrophic states to sex are *non-fetid atrophy*, males 20, females 54; *fetid atrophy*, males 28, females 71; *pharyngeal atrophy*, males 12, females 15.

[1] An Experimental Study of the Respiratory Functions of the Nares; Boston Medical and Surgical Journal of November 5 and 12, 1896.

Age.—Since the age at which characteristic symptoms first developed is of more value than the age at the time of examination, a table of this is given.

AGE OF DEVELOPMENT.

AGE.	MALES.			FEMALES.		
Between	Non-fetid.	Fetid.	Phar.	Non-fetid.	Fetid.	Phar.
1 and 4	(3) 1	(2) 1	. . .	(6)	(5)	. . .
5 and 9	(4) 3	(9) 1	. . .	(8) 3	(28) 1	. . .
10 and 14	(4) 3	(8) 7	. . .	(2) 7	(22) 8	. . .
15 and 19	6	(2) 8	(4) 2	(2) 11	(5) 17	(2) 1
20 and 24	3	(3) 1	(2) 5	9	(1) 19	(1) 2
25 and 29	3	5	1	10	(3) 10	(3) 2
30 and 34	1	3	1	7	4	2
35 and 40	. . . . .	3	. . .	3	7	3
Above 40	. . . . .	. . . .	3	4	5	(5) 5
Doubtful Duration.	(6)	(4)	(6)	(36)	(7)	. . .

(Figures in brackets indicate age when characteristic symptoms appeared; unbracketed figures indicate age at time of examination.)

Sexual functions in the female—Character of menstruation. Non-fetid atrophy (54 cases): Menstruation regular and normal, 27 cases; menstruation irregular or scanty, 11 cases; menstruation not appeared, 6 cases; answers doubtful 10 cases.

Fetid atrophy (71 cases): Menstruation normal, 36 cases; menstruation irregular or scanty, 18 cases; menstruation not yet appeared, 8 cases; answers doubtful, 19 cases.

Pharyngeal atrophy (15 cases): Menstruation normal, 7 cases; menstruation scanty, 2 cases; answers unsatisfactory, 6 cases.

The patients were questioned with regard to the existence of any connection between the intensity of the atrophic symptoms and the period of menstruation.

In the fifty-four non-fetid cases, two only had noticed any increased dryness or discharge during menstruation, seventeen intelligent patients were sure that no such connection existed, and the remainder had never given the matter attention.

In the seventy-one fetid atrophies, nineteen had observed increase of crust formation during menstruation, nineteen were positive that no change occurred, three were sure that the nasal discharge diminished and was less fetid, the remainder being doubtful.

Of the fifteen pharyngeal cases only one had noticed increased dryness of the throat during menstruation.

A single case only, one of fetid atrophy, had noticed improvement after establishment of menstruation.

No case had noticed any change following marriage. In one case of non-fetid and one of fetid atrophy the symptoms greatly diminished after childbirth.

General health and nutrition.—In the seventy-four non-fetid cases it was noted that six males and thirteen females exhibited distinctly poor health and nutrition, the remainder being well up to or above the average.

In the eighty-seven fetid cases, twenty-four showed poor health and nutrition.

In the cases of pure pharyngeal atrophy, three cases, all females, showed poor health and nutrition.

The inhalation of an insanitary atmosphere and the previous existence of local or general disease were inquired into in all cases, but owing to the low degree of intelligence possessed by many of the patients, as well as for other reasons, the answers afford information of doubtful statistical value, and have therefore been omitted.

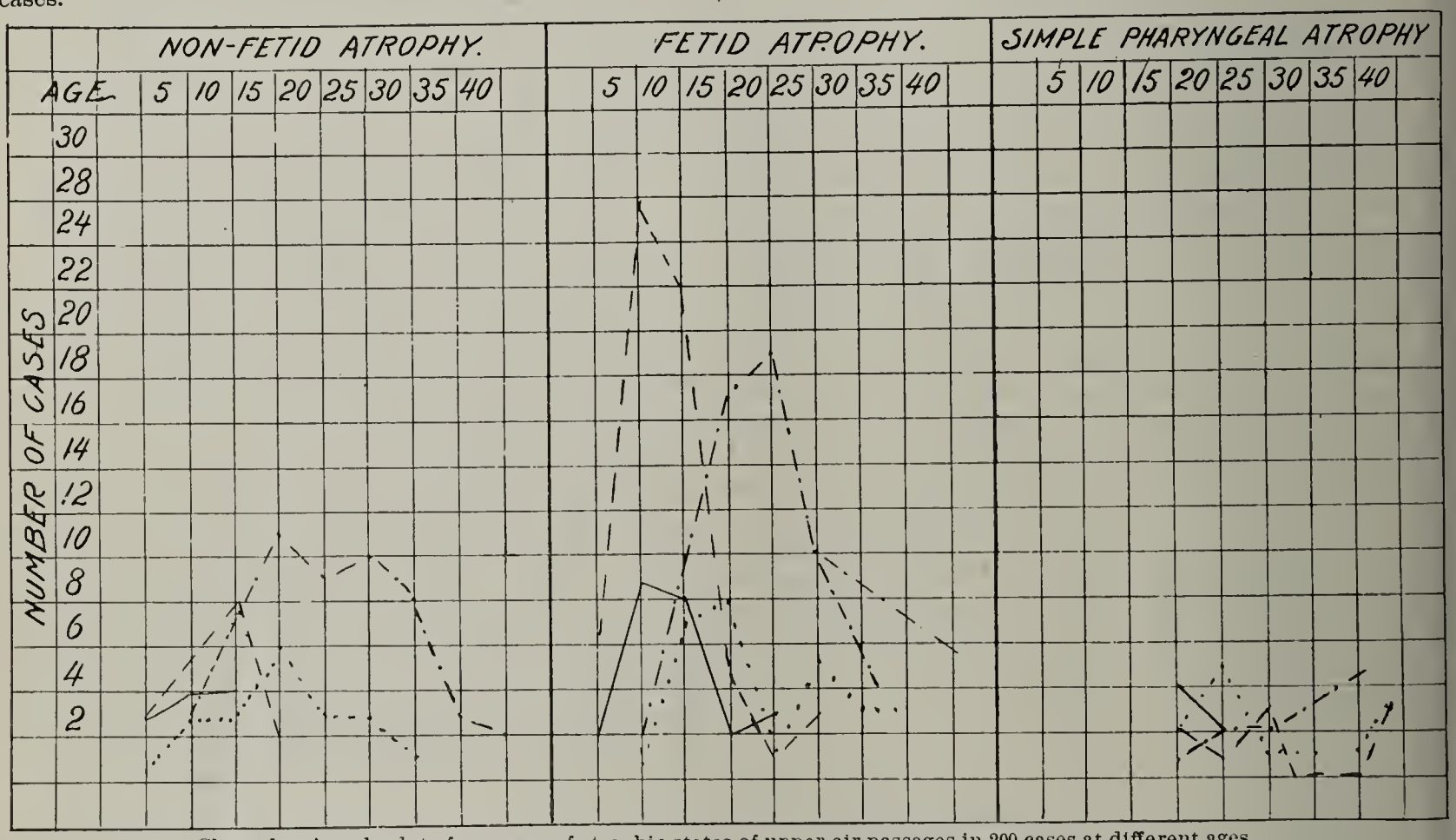


Chart showing absolute frequency of atrophic states of upper air passages in 200 cases at different ages.

Age of favorable commencement of affection, male ———. Age of favorable commencement of affection, female — — — —. Age at time of examination of male . . . . . Age at time of examination of female — · — · — · —.

Abnormal patency of the anterior nares.—The presence of a configuration of the anterior nares permitting abnormally free inspiration was noted with reference to the following points:

1. An upturned or tip-tilted condition of the anterior nares.
2. Abnormal wideness of the vestibule.
3. Development of the vibrissæ.
4. Degree of laxity of the constricting band.

Of the twenty male non-fetid cases, one showed moderate and five a considerable tilting up of the anterior nares.

Of the fifty-four female non-fetid cases, twenty showed this condition moderately, and two markedly.

In the fetid cases, out of twenty-eight males there was moderate tip-tilting in seven and marked in seven

cases, while among seventy-one females this condition was moderate in sixteen and marked in twenty-three.

A widening of the vestibule appeared abnormally marked in the non-fetid cases among eight males and twenty-one females, in the fetid cases among eighteen males and forty-two females.

The vibrissæ appeared less abundant and smaller than normal in the non-fetid cases among nine males and fifteen females; in the fetid cases among sixteen males and thirty-six females.

Of the pharyngeal cases two females and one male showed abnormal patency of the anterior nares in these particulars.

The constricting band of the vestibule appeared unusually lax or deficient in the non-fetid cases among eight males and twenty-one females; in the fetid cases, among seventeen males and forty-three females.

The relation to hypertrophic states of the neighboring mucous membranes and of the lymphoid structures.—Of the non-fetid cases, one showed distinct hypertrophy of the nasal mucous membrane directly contiguous to the atrophy, while three cases showed a polypoid condition of the middle turbinate in association with atrophy of the lower turbinates.

Of the fetid cases, only one showed a hypertrophic condition in association, this being an enlargement of the lower turbinates posteriorly.

On the other hand, the cases of pharyngeal atrophy showed a very different condition of affairs, for seven females and five males, ranging in age from 23 to 72, presented a distinct hypertrophy of the nasal mucous membrane.

With reference to enlargements of the adjacent lymphoid structures, adenoid hypertrophies or remains were present in nineteen non-fetid, in seven fetid and in three pharyngeal cases.

Hypertrophy of the faucial tonsils was present in nineteen non-fetid, in twenty-two fetid and in six pharyngeal cases.

Enlargement of the lingual tonsils was present in eleven non-fetid, in fourteen fetid and in three pharyngeal cases.

Time does not permit an enumeration of some other results of this work, such as the relation to the preceding points of unilateral forms of atrophic rhinitis, or the relation sustained to them by different localizations of the atrophic process in the nose, pharynx and larynx.

Conclusions.—In recapitulation, the following facts are evident.

Both fetid and non-fetid atrophies are more than twice as common in females as in males, while pure pharyngeal atrophy occurs with nearly equal frequency in both sexes.

Both fetid and non-fetid atrophy begin with greatest frequency between the ages of 5 and 15, while the pure pharyngeal form was not found before 20, and occurred irregularly from that age up to 72.

A distinct relation is sustained to the sexual functions in certain females. While menstrual anomalies are uncommon, perhaps not more frequent than in an equal number of females with healthy air passages, yet in 4 per cent. non-fetid and in 26 per cent. fetid cases the atrophic symptoms were increased during the catamenia, while in 4 per cent. of the fetid cases the symptoms were diminished.

The establishment of the menses and the occurrence of pregnancy improved the symptoms in isolated instances.

In all forms, three-fourths of the cases showed good health and nutrition.

Unusual patency of the anterior nares was found in 40 per cent. non-fetid, in 60 per cent. fetid, and in 10 per cent. cases of pharyngeal atrophy.

Distinct hypertrophy of neighboring portions of the nasal mucous membrane occurred only in isolated instances among the fetid and non-fetid cases, while among the pharyngeal cases it was found in about half the total number.

Hypertrophy of the pharyngeal tonsil occurred in 20 per cent. of the non-fetid cases, in 7 per cent. fetid, and in 10 per cent. pharyngeal.

Hypertrophy of the faucial tonsils occurred with equal frequency among the three forms, namely in about 20 per cent.

A review of the preceding results indicates that the weight of their testimony is distinctly against the theory that non-fetid and fetid atrophy is the sequel to a pre-existing hypertrophy, at least to a hypertrophy as we ordinarily understand the term. On the other hand, the facts are in direct corroboration of the supposition that the process is primarily an atrophic one, whether we consider it to originate in the action of a specific micro-organism or not.

In pure pharyngeal atrophy it is more difficult to draw conclusions, owing to the greater complexity of the conditions. Without discussing its etiology, we have reason, from these investigations, to suppose that a form of atrophic pharyngitis exists which differs in nature and origin from the conditions called fetid and non-fetid atrophic disease of the upper air passages.

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DISCUSSION.

Dr. Freudenthal—I think Dr. Goodale did not lay enough stress on the question of the sanitary condition of the atmosphere. It is remarkable what an amount of bad air otherwise well educated people will stand. The air that we inhale is moistened in the nose. In order to fulfil its work, the air must have 50 or 60 per cent. of relative humidity. In summer the air is filled with moisture, but in winter it is not. In New York the atmosphere in winter contains not more than 10 per cent. of moisture. It is very probable that such an atmosphere will dry the nasal mucosa. The lack of moisture in the air can be made up by the nose for a time, but if the condition goes on too long the parts dry out. I am positive that the dry atmosphere that we breathe in our houses for six months of the year is one of the principal factors in atrophic nasal disease.

Dr. Scheppegrell—In New Orleans we have a very humid atmosphere, but I have no reason to believe that atrophic nasal disease is more rare than elsewhere. Dr. Goodale has no faith in the fetid atrophic rhinitis being a consequence of hypertrophic rhinitis. In ozena I have never been able to see any relation between them.

Dr. Richards—In the mills in Fall River a moist atmosphere is necessary in handling the yarn, and yet I have a great many cases of atrophic rhinitis in my practice. Among the children who work in the mills it is common.

Dr. Solly—In Colorado, where the air is very dry, atrophic rhinitis is common, but hypertrophic rhinitis is not.

Dr. Freudenthal—There is often a large percentage of humidity in the outside air in New York. I spoke particularly of the air in the houses, which we breathe in winter.

Dr. Woolen—At the first meeting of this Section that I attended, I stated that I did not believe there was any such thing as a tonsil in a healthy throat. I have also for a long time doubted whether there is any such thing as atrophic or hypertrophic *rhinitis*. The pathology of these cases is to be found in a disturbance of nutrition of the parts. There is a pathologic process going on in the fibrous structures underneath the membranes not essentially inflammatory. If we study these cases we will find that a process of hypertrophy is started which does not need to go far before it frequently turns in the other direction and becomes atrophy by contraction of these fibrous elements. I have long ceased to regard these

cases as atrophic and hypertrophic rhinitis, but intra-nasal atrophy and intra-nasal hypertrophy.

Dr. HOFFMANN—If young children are closely observed it will be found that hypertrophic conditions of the nose and throat commonly exist.

Dr. GOODALE—It seems to me that the views of the different speakers may be brought into harmony when we consider the fact that under different conditions of the atmosphere the disease occurs with equal frequency. This may be explained by the great adaptability of the mucous membrane of the nose. This membrane has great powers of moistening the air. I have known individuals who were reared in a dry climate and those who were reared in a moist climate to have, normally, the same conditions in the mucous membrane. The predisposing causes of the disease are to be found primarily in the lack of resistance of the structures of the nose. This fact is corroborated by the greater frequency of these conditions among females, as a consequence of the greater delicacy of the mucous structures. My own view is that the cause may eventually be found in some bacterium.

MODERN PATHOLOGY AND THERAPY OF ACUTE RHINITIS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY A. R. SOLENBERGER, M.D.
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In creating a rational and scientific basis for the treatment of acute rhinitis, we may assert the same general principles, which are fundamental to all other diseases, viz., that if the constitutional condition of the individual is such as to render him free from the predisposition, there is no such thing as an exciting cause for that individual. This is almost self evident in the case under consideration; for there are those in every climate, exposed to all the exciting causes, who never suffer from colds. The physiologic balance between the digestive, nervous and circulatory systems is perfect; they are immune to all external influences; to heat or cold, to atmospheric perturbations and micro-organisms. This immunity means perfect adaptation of the systems of the individual to his artificial environments; it means perfect tissue resistance to all disease producing causes. Here, then, we have a condition which is incompatible even with a predisposition to nasal inflammations.

It would be rational, then, to direct our treatment to the removal of the predisposition by restoring the normal physiologic balance between the systems and that of the integrity of the tissues. Our therapeutic measures should be directed toward any cause that is found disturbing this physiologic equilibrium, or disintegrating the tissues.

To locate and give value to these disturbing elements is to bring to light the true causal conditions of acute rhinitis. By utilizing modern scientific methods of diagnosis, we have come to see these causes in embryo behind and eventually within the digestive, the nervous and the circulatory systems. They constitute those fundamental conditions which have long been known as pathologic entities, but they have not usually been recognized as being responsible for nasal inflammations. These basal conditions are the temperaments and diatheses; we know them as the nervous, the bilious and phlegmatic; the rheumatic, strumous and tubercular.

Scientific methods of diagnosis show us conditions within conditions — conditions within the temperaments and diatheses, which manifest themselves, first in the state of the nerves and ultimately in the blood. Broadly speaking, the first link in the pathologic chain of acute rhinitis will be found primarily in any influence whatsoever that will unduly dissipate the nerve force. This may be a pathogenic germ—any poison in the blood—any dietetic regime that, from indigestion and mal-assimilation results in mal-nutrition and retention in the blood of half assimilated and, therefore, toxic products; or a diet that reduces the alkilinity of the blood; or it may be midnight dissipation, mental or physical overwork—any influence that constitutes a nerve irritant becomes a nerve exhauster, a peripheral and finally a central paralysant.

To trace one of these causal influences arising from the transgression of a physiologic law, let the transgression be that of mental overwork or a restricted nitrogenous diet. In the one case you have a direct central nerve exhauster, in the other an indirect nerve exhauster from the presence in the blood of a peripheral irritant, perhaps the uric acid crystal or superfluous peptones. In either case, there is first nerve irritation, the nerve grip upon the blood vessels is tightened, the vascular membrane of the respiratory tract offers the least resistance, and that of the nasal cavities the least of all engorgement in the nasal cavities thus obeys a natural law; for, if now the irritating action continues in force, nerve exhaustion ensues, the nerves then loose their grip upon the blood vessels, there is vasomotor paralysis, the vessels have collapsed, filled with thickened and perhaps acid blood.

Here we have one pathologic pyramid of a well developed cold in the head, in which the inflammation of the Schneiderian membrane constitues simply the apex, and the abnormal condition behind or within the digestive, circulatory and nervous systems form the constitutional base.

There are, then, two primary conditions that come before the eye of the rhinologist in the treatment of acute rhinitis; 1, nerve irritants or exhausters; 2, tissue integrity. Nerve exhausters are as various as they are numerous, but the labor of detecting them is greatly simplified by the fact that they nearly all act through and culminate in the temperaments and diatheses. A vicious circle can always be seen in operation, nerve exhaustion, from causes outside the blood, produces an abnormal tissue chemistry; this results in waste and obnoxious products being thrown into the blood, which by their irritant action still further lower the nerve force and weaken the remote organs; these latter become reservoirs for accumulated by-products which are returned to the blood with increased irritative qualities.

If these organs happen to be the liver or kidneys there will be retention of urea and uric acid, resulting in reduced alkalinity of the blood—a condition most favorable for mucous membrane inflammation of the respiratory tract. Thus the center of the vicious circle acts upon the periphery and the periphery upon the center.

If, in the past, failure has been the rule in the treatment of acute rhinitis and the disease has gone on and become the base of many serious chronic conditions, it is due to the fact that the deep causal elements have not been sought; the causal links in the pathologic circular chain have not been found; the pernicious circle had not been broken.

These considerations, however, do not in the least displace local treatment; but they do speak for rational and conservative local measures. If the pathologic strata in the Schneiderian membrane has become ma

times superimposed, or if there exists nasal stenosis from whatever local cause, or if there is disease of the accessory sinuses, local operative treatment is rationally demanded; but even in these cases unless constitutional treatment goes *pari passu* with local measures, the apex is removed while the base of the pyramidal structure remains unshaken.

This one law, this fundamental law, controlling vital tissue, we must constantly remember; that tissue integrity, tissue resistance always determines, not only whether there shall be any inflammation at all, but whether that inflammation shall terminate as simple catarrhal, or go on to polypoid, suppurative or malignant degeneration. In the presence of this law the only treatment that will permanently avail is that which is aimed at the base of the diseased structure, —to the restoration and maintenance of the soundness of the tissues. The history of a nasal polypus or of a deviated septum runs a long way down the the pathologic chain, and will frequently be seen to have had its beginning in some constitutional taint in which the soft tissues and bones went wrong. It is not claimed that this law of tissue resistance of the organism is a new one; it is as old as modern pathology, but the plea is that it be made the basis both of preventive and active treatment of acute rhinitis. These considerations, which in the minds of some are still theoretical, have to me become substantiated facts, from the rather large opportunity I have had in the past few years for the study of typical cases, and applying constitutional treatment.

During a period covering the six winter months of 1895 and 1896, when the atmosphere of Berlin was unusually damp and cold, and still mildly charged with the influenza bacillus, the clinics of Fraenkel and Krause were constantly crowded with patients suffering from acute colds. In the numerous cases, which then came under my observation, I sought to secure an etiologic classification, based on answers to questions put to the patients, and by other usual tests to prove the presence, or absence, of the temperaments and diatheses. In the notes taken the disease was thus classified as subjective, when the cause or causes were purely internal; or as objective when they were external, and mixed, when the cause or causes were both internal and external. In referring to the cases which were regarded as typical, and which were thus carefully classified, an approximate résumé would be as follows:

Seventy per cent. clearly pointed to one or more constitutional conditions as the cause, while 15 per cent. appeared to be due to one of the many external irritants, through the medium of the atmosphere or contagion; 90 per cent. of these cases were acute exacerbations engrafted upon chronic conditions in the nose and throat, and always gave the familiar history of repeated attacks. Those which appeared to be due to pure and simple external exciting causes gave the history of the inhalation of fumes of irritating drugs or other atmospheric irritants, or extension of inflammation from bronchitis or laryngitis; of measles, scarlatina, whooping cough, or of the inhalation of hot, dry air or exposure to cold and to the influenza bacillus. In the laboratories of Dr. Alexander repeated microscopic examinations of the secretions were made to discover the bacillus, which Hajeck believes to be responsible for acute rhinitis, but even in initial cases many other bacilli were seen, among them, the pneumococcus of Freidlaender. A few trials to produce the disease in animals by Hajeck's diplococcus completely failed. In about 25 per cent. of the cases, classified as constitutional, one or more of the exciting causes were found to be present, but in much the larger part no such history could be elicited; there was always the familiar answer "I don't know how I caught cold;" but there was always the significant fact that the constitutional cases gave the history of repeated attacks, while those cases which were put down as local had seldom suffered from colds. We have spoken of scientific methods of diagnosis—that they enable us to ascertain the true causes of acute rhinitis, and that they confirmed the above principle of treatment. It must be acknowledged, however, that all modern scientific methods, advanced as they are, can only give us an approximate etiology, but the claim is that treatment based upon this has been eminently successful in effecting a permanent cure of acute rhinitis and its multitudinous concomitants.

34 Washington St.

NON-SPECIFIC PERFORATION OF THE NASAL SEPTUM.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY J. R. STRAW, M.D.
ASHLAND, WIS.

Perforation of the septum, either specific or non-specific, seems to have been considered of so little importance that few if any of our authors have given it more than a passing notice, in fact, all that I have consulted have dismissed it with only a paragraph or two at most.

Before I located on the south shore of Lake Superior, nearly four years ago, I had been taught to believe that practically all perforations of the septum were of specific origin, and up to that time was satisfied with that theory, and for several months after locating in Ashland, Wis., I continued to treat my cases accordingly. While I was soon impressed by the large number of perforations I found, I also discovered a supposed satisfactory explanation for them. Several Indian reservations surrounding our city, the inhabitants of which I had no doubt from another and correct ancient teaching, were thoroughly infected with syphilis, and that it would be somewhat disseminated among the superior race; however, after having lived there long enough to become acquainted with the people I found that the average white man in that section was about as moral and virtuous as elsewhere, and has little or no occasion and no disposition for social or other connection with this race.

After I had become well acquainted with the descendants and antecedents of some of the people who bore this "suspicious mark," I was forced to abandon the theory of syphilis in a number of them, and look for some other cause.

Very few of my patients were aware of the perforation, but came to consult me about their "catarrh in the nose," or some throat or ear trouble.

A large number of these perforations were in the anterior and cartilaginous portion of the septum, and a great many of them had cicatrized and showed no disposition whatever either to break down or advance, and even if there were unhealthy granulations, specific treatment did little or no good, so I began to resort to the galvano-cautery, and a protective dressing, such as unguentum. In a short time, without the

specific treatment, the season being propitious, the borders of the perforations became smooth.

In regard to the etiology of these cases, I believe it is primarily due to our climate, which during three or four months of the year is extremely cold, the thermometer ranging during this time, from 0 to 30 and sometimes even 40 degrees below, and one who is out any length of time is liable to have the tip of the nose frozen; this is usually considered a very trivial matter. I think this freezing and thawing process has a tendency to produce erosions of the mucous membrane and breaking down of the cartilaginous portion of the septum, or the inspissated mucous adhering to the anterior portion of the septum and the patient's continued picking at it abrades the surface and leaves the sensitive papillæ exposed to a temperature 15 or 20 degrees below zero, which, I have no doubt, freezes them every time the patient exposes himself to this extreme cold.

I have treated a number of cases during my three winters in this section, that were going through the disintegrating process. I at first thought that to destroy or burn over this denuded surface would cause it to heal, but after repeated trials discovered that this mode of treatment was only adding fuel to the flames, and that it was useless to do anything with the view of effecting a cure during the winter months, and I now do nothing more than protect the parts with some simple ointment and have the patient plug the affected side with cotton whenver he goes out of the house if the weather is cold. When the winter is over, which is usually about May 1, I then apply the galvanocautery followed by an antiseptic dressing, which usually effects a cure.

PRACTICAL VS. THEORETICAL TONSILLOTOMY.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY J. HOMER COULTER, A.M., M.D., Ph.D.
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I doubt if there is any one subject in medicine and surgery more prolific in the way of literature than that of the tonsil. Hence to claim the addition of anything new to the subject would either savor of presumption or a limited acquaintance with current medical literature. In the past ten years there have been published over six hundred papers on various points relative to the tonsil. When we consider the volumes such an amount of literature means we are driven to the conclusion that either the tonsil is a most important organ, or it is an unusually frequent victim of pathologic conditions. The generally accepted reason is the latter; especially, since if we claimed the former we must of necessity be able to thoroughly establish its functional character and capacity.

A very brief, and necessarily somewhat incoherent, reference to the etiology of enlarged tonsil seems necessary. At the same time we must recognize the fact that any pathology we may seek to establish must be subject to criticism, since an uncertain physiology precludes the possibility of a reliable pathology.

Before inquiring as to what is, or what the cause of, an enlarged tonsil, let us fix in mind an ideal of normality. Opinions on this point are varied as is the number of observers. Bosworth, Woolen and others claim there is normally no tonsil present on inspection. The greater number of writers, however, admit the existence of a protruding glandular or follicular collection of lymphoid tissue between the pillars of the fauces. Wagner has discussed at considerable length atrophy of the tonsils, but it is difficult to imagine how there can be a question of atrophy unless there was some considerable tissue previously present. In many cases there is not a real hypertrophy, but only an enlargement in the tissues already there; again, there will be a distinct hypertrophy, or actual formation of new tissue elements. It is not the purpose of this paper to discuss the cause of or differentiation of this condition. They do exist, and even hypertrophy and hyperplasia may frequently be seen in the same tonsil. Nor is it always an easy matter to distinguish between the two. Certain it is, however, both are pathologic and both demand and are amenable to surgical interference. A consensus of opinion would seem to indicate that the normal tonsil is a collection of racemose glands or follicles occupying and filling the space between the faucial pillars, Hence, when the tonsil protrudes beyond the pillar it is abnormal and pathologic. Remembering, however, that in very many instances the pillar is firmly adherent to the tonsil, we may then have a decided increase in the volume and yet no protrusion beyond the pillar.

I wish to particularly emphasize a point in the anatomy of the tonsil, the importance of such distinction will appear later. It has usually been referred to as an olive-shaped body. As a matter of fact, which dissection either on the patient or cadaver will demonstrate, it is more nearly almond-shaped, *i. e.*, somewhat flattened and larger at one end. This heavy end is uppermost, frequently buried well up under the pharyngeal aponeurosis.

Many excellent authorities have inclined to the opinion that a constitutional dyscrasia, usually the uric acid, is by far the most frequent and potent etiologic factor. The etiology, even though hypothetic, may be summed up in these two propositions: 1, an underlying constitutional dyscrasia; 2, a micro-organism in the follicles, producing in either case either an hyperplasia or an hypertrophy.

Dr. Stucky has claimed that, "of all diseases of the upper air passages none is more conducive to serious after-effects than pathologic tonsils." In health there is doubtless a certain amount of lubricant furnished by this collection of racemose follicles. But if it be diseased what good can come from its forcing upon the bolus of food or into the stomach an excretion of pus cells, cholesterin, epithelium and the various other products of waste and disease? Dr. Turck, demonstrated that, "the diseases of the mouth, nose and throat do often play a most important part in the etiology of chronic glandular gastritis." He further called attention to the fact that "the oral cavity, especially when infected, is a perfect incubator of disease germs." If such facts are demonstrable concerning the pharyngeal mucous membrane, how much more serious must be the secretions and excretions of the tonsillar follicles and crypts when diseased?

The symptoms and appearance of a tonsil demanding extirpation are matters of such universal knowledge that any further reference to them at this time seems superfluous. Admitting that its true etiology is the uric acid diathesis, the entire lymphatic system

n which we find the tonsils, joints, serous cavities nd ileocecal glands is likely to be involved, and hence such admission only emphasizes the necessity for surgical interference. At the same time it should also warn us that pathologic tonsils compel us invariably o look for pathologic complications elsewhere in the system.

This leads us to the further fact, that in case a constitutional dyscrasia does exist it must be treated as such independently of any presumable tonsillar complication. A tonsillotomy, no matter what the method employed, will not complete the cure of such dyscrasia. Nor is there any doubt of the bad effect such dyscrasia or diathesis has upon the tonsil as well as upon the general health of the patient.

The neuroses due to enlarged tonsils are so varied, frequent and positive that it is no longer questioned hat such do exist. Respiration is often affected. Phonation is most important, perhaps. I have never seen a case in which phonation was impaired that here did not occur a marked improvement in the voice, by thorough operation, both in its production nd quality. Some laryngologists think the pitch of he voice is lowered by ablation of the tonsil. My xperience, especially in professional singers, does not corroborate such a statement. I believe the added ase and increased clearness with which the voice is fterward formed will in reality raise the voice register y the same expenditure of effort, but only so in hose cases in which the gland has been thoroughly radicated. I can easily conceive why and how the egister might be lowered in case the pillars were not reed from their adhesions, and a stump of hard nyielding, cicatricial tissue is left between the pilars. The ocular and aural disturbances attributable o this cause are frequently met with, and often yield nost satisfactory results to the surgeon. Cough, I elieve to be one of the most frequent and persistent f all the complications. It is, though not so frequently s formerly, urged by some presumably intelligent hysicians, that the tonsil, if left alone, will atrophy ater and thus cease to be a source of annoyance. But scarcely think such advice is general, and could not e when once is seen the almost universal improvement in general health which their complete, and ften even partial, removal produces.

A partial destruction of the gland, by whatever nethod is used, will oftentimes do more harm than ood, and can not in any case accomplish all the posible good.

Whether the tonsil be a blood-elaborating organ, as ome presume, or an assistant to digestion, or a lubriating fountain, or a leucocyte guard to the system, he presence of a pathologic condition precludes the ossibility of its functional activity and demands emoval, since no known medicinal remedy can restore nat organic or functional capacity as it has become a eritable microbe trap. Though such a statement may eem to be rather sweeping and comprehensive in its ompass, it admits of but few exceptions. As such, owever, may be mentioned a tendency to or presence f malignancy, and even in the cases where surgical nterference is deemed advisable, no other method ffords nearly the hope of success of that suggested y this paper. Unusual vascularity or pulsation in he tonsil should be looked upon with suspicion in very instance. An acute inflammatory condition is ways an indication for temporary postponement and the same time is as positive an indication for subsequent operation. A prevalent epidemic would also suggest temporary delay.

I will call your attention to the various methods which have received popular recognition at the hands of surgeons. Celsus was wont to gouge out the gland with his finger, evidently considering it a nucleated structure. This is, however, too barbarous to receive notice further than for its historic interest.

Doubtless the most popular method is by means of the guillotine, in one or another of its many forms. The objections to this instrument are that one can not remove all the gland, except in rare instances; it often leaves a bruised edge, sometimes ending in a slough; again, you are never quite certain of the amount of tissue you are going to remove; the pillars are very apt to be iujured by it; the danger of hemorrhage is not insignificant, though not as great as when the bistoury is employed; if the tonsil be of that soft, flabby character often seen, or if it be small and adherent to one or both pillars the tonsillotomy becomes *perforce* practically useless. However, notwithstandidg these real or apparent objections, I am convinced there is no method better adapted in case of young children under 8 or 10 years of age. Ignipuncture has attained more or less popularity, but it is an endless process at best, as one is never certain that all of the diseased follicles have been destroyed; it leaves a rough, ragged surface and the capacity for the absorption of toxins practically undiminished; it also leaves a portion of the tonsil to be absorbed, or to act as a focus for future inflammations. The cold wire snare has no advantages that are not possessed by other methods, and is in addition an extremely painful procedure; the danger of secondary hemorrhage is doubtless as great as by any other method. The cautery loop has been highly praised by Knight, Wright and others. It is certainly in many cases an excellent method, though some of the objections urged against the tonsillotome are equally applicable to the cautery snare. The knife as a means possesses such patent and potent objections that more need not be said. In the same category may be placed the use of destructive caustics and strong astringents or interstitial injections of various medicaments, no one of which will more than partially remove or counteract the pathologic condition, and to the extent they fail in this particular, they, as well as any and all other methods, fall short in accomplishing the greatest possible good and are to just that extent impracticable. Every operator sooner or later, plainly or by inference, admits the necessity of removal of the entire gland if possible.

I am convinced that it is possible, for the very forcible reason that experience has demonstrated it most conclusively. Several years ago Dr. Pynchon of Chicago suggested a method which was original, and which an experience of over two hundred and fifty tonsils in the past two years convinces me, possesses some advantages over all other methods yet suggested. Dr. Pynchon gave a detailed account of the technique of his operation in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Nov. 22, 1890. Improvements in some minor points have in that time been suggested by the experience of both Dr. Pynchon and myself, and I will briefly describe the operation as it is now performed.

The tonsils as well as the pillars have been thoroughly anesthetized by the external application of a 30 per cent. solution of eucain well rubbed in and

the submucous injection of a few drops of a 10 per cent. solution into the upper portion of both pillars and tonsil; the tonsil is drawn well out into the throat and the pillars are both carefully dissected away from the tonsillar body to about one-half its extent. The electrode point being entered cold and burning out, as a usual thing. The upper point of the tonsil is then grasped with an appropriate forceps and employing the same traction as above referred to, the distance from the carotids is not only increased but a much better view of the field of operation is then obtained, then by a slow dissection enucleate the part, much as an ophthalmologist would enucleate an eye. Remembering always that the large end of the tonsil is uppermost and well imbedded high up under the pharyngeal aponeurosis; and further, that any of its tissue left will not only detract from the cosmetic as well as practical results of the operation, but will as well probably be a source of future trouble. After thus completely separating the upper portion to the extent of one-third or one-half of the gland, cut off the loosened part and apply to the surface a solution of silver nitrate, 6 grams to 30 c.c. water, after applying a coating of campho-phenique. The amount to be removed depends on the size and condition of the tonsil as well as upon the temperament of the patient. I have found that there was but little complaint of soreness if not more than one-third or at most one-half of the tonsil was removed at one séance. The remainder is treated in a like manner at a subsequent sitting. The length of time between the steps of the operation differs, but in ordinary cases a week is quite sufficient for the healing process, especially if the patient comes to the office for treatment meanwhile. This interoperative treatment is not so necessary as it is desirable, as I find a thorough cleansing and dressing of the wound assists materially in its healing, as well as reduces the soreness to a minimum. At these treatments the application of massage with a cotton-wrapped probe will help in giving a smooth surface to the parts after they have healed.

This method seems to be adapted to a larger percentage of cases for removal than any other now in common use. For the reasons already given it is the most practical in securing all of the pathologic tissue. The principal objections to its employment have been that it is not adapted to young children; this I consider the most valid objection that has come to my notice. The youngest patients I have known in which it was used were 10 and 12 years of age. The soreness and pain following the operation are not as severe as one might expect from treatment apparently so heroic. If the daily treatments are given, oftentimes there is no complaint whatever.

Very often the removal of one tonsil will effect a very considerable decrease in the size of the other. It will also have, at times, an almost miraculous effect upon a pharyngitis or other inflammatory action in the contiguous structures. Middle-ear difficulties seem especially amenable to its beneficent influence.

In closing allow me to call attention to several points which experience has taught me, will assist in giving the most desirable results.

1. Do only a small amount at each heating of the electrode—work five seconds and allow the patient to rest fifteen seconds.

2. Burn only where you can see just what you are doing.

3. Use an electrode bent at right angles and having a fine point. (At least three electrodes are desirable for the operation.)

4. Do not attempt too much at one sitting.

5. A strong solution of silver nitrate is an excellent hemostatic in case there is slight hemorrhage.

6. Be sure the electrode is thoroughly heated when you attempt to burn.

7. Cut off the portion loosened at each séance; it prevents healing by its friction, and is often an annoyance to the patient.

8. Do not operate if the gland be acutely inflamed.

9. Always remember the normal shape of the tonsil; and that one must dissect much more deeply at its superior portion in order to get all of the pathologic tissue.

10. It is sometimes best to cut from below upward while taking out the inferior portion; in this convenience should be the guide.

11. By care, the operation may be rendered almost if not entirely bloodless.

12. The indication in all cases is eventual total ablation.

13. Succeeding steps on the same tonsil should not be more than ten days apart.

14. When hemorrhage occurs, stop the bleeding at once with the heated electrode, and apply a solution of silver 6 grams to water 30 c.c., or stronger.

15. Try the method, in suitable cases, and I feel confident you will concur with me in the opinion that it possesses some advantages not found in any other.

103 State Street.

DISCUSSION.

Dr. GOODALE—I have recently completed some experiments which convince me that the tonsil does absorb through intact mucous membrane. Substances in the crypts are absorbed continually, under normal conditions, into the tonsils.

Frankel, in a paper published last year, stated that he had removed inflamed tonsils without any bad results. I have also removed a large number of inflamed tonsils without harm. I think there is no objection to removing these masses of putrefying material and getting them out of the system. I think my cases have improved and recovered more rapidly than if I had not operated.

Dr. LAUTENBACH—The question of absolute and complete extirpation of the tonsil is probably the most important which will come before this Section. The method which Dr. Coulter has advocated is the best for difficult cases. An important point is to get the tonsil into position. I have an instrument which I find valuable for this purpose, especially in the cases of children. The method I usually adopt is to remove all I possibly can at one time, either by the tonsillotome, the guillotine or the scissors. The fragments can be burned out with the electro-cautery at the same sitting. I think that in this way there is less inflammatory trouble. The patient is usually willing to stand one full rather than several partial operations. This is especially true of children.

Dr. ROE—I do not advocate the use of the cautery for the removal of tonsils, for the reason that I do not regard it advisable to reduce the tonsil or to replace it by scar-tissue. On removing the tonsil with a cautery there must be a very extensive burn, leaving cicatrix behind that often causes much trouble. The plan that I have adopted on removing tonsils is first to enucleate them from all adhesions to the pillars of the fauces. This I do with a slender instrument having a curved but a blunt tip. By so doing we lessen the danger of wounding the pillars of the fauces, which is the main source of hemorrhage after tonsillotomy. After this is done I either excise the tonsil with a bistoury or remove it with a cold-wire snare. By this method it is exceedingly rare that the operation is followed by any hemorrhage, and by the use of the snare it is unusual to have any hemorrhage at all. I always remove at one sitting every portion of the tonsil requiring removal. If you remove the diseased portions at different times, you have a series of sore throats, which is entirely unnecessary. There are many cases of diseased tonsils unattended with hypertrophy, which cause a great deal of disturbance in the throat. This tissue can readily be seen by pressing back the pillars of the fauces or by drawing out the diseased tissue with a tenaculum.

The importance of the removal of this diseased tissue has also been corroborated by Harrison Allen. I have seen a number of such cases in vocalists, in which very marked vocal disability was entirely relieved by the removal of this diseased tonsillary tissue. In the removal of this tissue and the use of the knife and the tonsil punch forceps is much superior to any other method, and especially to the galvanic cautery; for the reason that the cicatricial tissue caused by the use of the cautery interferes with the proper action of the pillars of the fauces, thereby causing more or less rigidity of the parts and consequently seriously affecting vocalization.

Dr. RICHARDSON—I have found that the most unsatisfactory cases were those in which the pillars of the fauces were attached to the anterior surface of the tonsil. I saw Dr. Roe operate in Rochester, and was so delighted with the procedure and with the complete separation of the pillars from the tonsil, that I obtained one of the instruments used by him. I have used the instrument since with a great deal of satisfaction, especially where there were strong adhesions between the anterior pillars and the tonsils. It is in these cases that we have the greatest difficulty and the greatest danger of hemorrhage. In the simple drawing out of the tonsil the pain is not very great and there is little or no bleeding; while we know that by the galvano-cautery method the pain is exquisite for hours and sometimes days afterward.

Dr. WOOLEN—As to the use of the cautery, I think the truth was well formulated by an assistant of mine who said: The difference between the galvano-cautery and the scissors or other cold instruments is that with one we have a wound, and with the other a wound *plus* a burn, a distinction always worthy of special recognition.

Dr. DALY—There is no operation for the removal of tonsils that can not be well and efficiently done with four instruments, two knives proper length, a tenaculum, and the curved rat-tooth forceps. An enlarged tonsil is not part of a normal throat. First, remove the tonsils; second, do it quickly and effectively by the most painless method you can adopt; but last, and most important of all, leave the throat and fauces in the anatomic condition in which nature intended them to be.

Dr. CLINE—I have made liberal use of the actual cautery, and have found it valuable in certain cases. It doses no harm if you use it in the proper manner. I have never had any serious results from a burn, provided I did not burn anything I had no business to. This is true also in regard to the nose. I separate the tonsils from the pillars, and then use the tonsillotome instead of dissecting out the tonsil. Unless you have the patient anesthetized, or well cocainized, there will be difficulty in removing the tonsil by enucleation. Take the tonsil out with one stroke of the tonsillotome and then if after that there are any of the crypts left remove with the actual cautery. I see no objection to taking out an inflamed tonsil, particularly if it is hypertrophied.

Dr. GIBBONS—I approve of Dr. Roe's method of separating the pillars. In doing this I use a tonsillotome that is not sharp. I generally take a small piece of pine wood and twist it around the edge to dull it. The cold snare requires a strong hand. I have seen Bosworth find difficulty in using it. I have often thought that the snare could be improved by using hydraulic force. I use electricity very seldom, except sometimes to separate the pillars. I sometimes use the snare.

Dr. RICHARDS—The Leland tonsil knife answers very well in certain of the flat tonsils, where the ordinary tonsillotome is inadmissible. This knife, which is short, curved, probe pointed, set at right angles to the handle and made right and left, is introduced into a crypt and pushed along the curve and allowed to cut its way out. This is successively done until all the crypt are entered. The resulting tabs of tonsillar tissue are readily removed with curved scissors. Originally I followed the use of the knife with the galvano-cautery point, carrying it to the bottom of each crypt operated on. This was rather painful and followed by more or less inflammation, in one case by peritonsillar abscess, so that I now rarely use the galvano-cautery for this purpose. With this method the operation is almost painless and can be completed in one or two sittings.

THE CHAIRMAN—I have removed tonsils by all methods, and am satisfied with none of them. There is something to be said in favor of each method, and each has its disadvantages. I have adopted the expedient of selecting my cases. In those where I think hemorrhage is liable to result the cautery in some form is selected. In children the tonsillotome is the best instrument. As to Frankel's statement that he had had no bad results from the excision of acutely inflamed tonsils, I do not understand that he advises the operation in this condition. He used it as a means of securing specimens for bacteriologic investigations, not as a remedial measure.

In reference to the separation of the pillars from the tonsils, if there is any muscular substance involved, I separate it, but if there is simply mucous membrane, I do not think it is necessary to subject the patient to this additional procedure. In many cases the membrane is reflected from the anterior pillar and makes an envelope for the tonsil, it contains no muscular substance and I see no objection to making the ablation through this structure.

Dr. COULTER—I think that Dr. Goodale misapprehended my ideas in reference to the absorbent power of the tonsils.

After the removal of tonsils in an inflamed condition, you necessarily add to an already dangerous condition if you then apply the cautery. My ideas of pathology would not lead me to operate on an acutely inflamed tonsil.

The tonsil is a gland, not made up of any part of the pillars but distinct anatomically from them, and you can use the cautery without fear of producing any cicatrix. If you do not destroy any muscular tissue, you have no cicatrix. With the knife you can not do this. If you have hemorrhage, you can not see where you are operating, and will either destroy muscular tissue or leave some of the tonsil, either of which is undesirable.

A CASE OF CHRONIC ABSCESS OF THE TONGUE.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

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I offer this single case of chronic abscess of the tongue for your consideration, on account of the infrequency of its occurrence and the peculiar train of symptoms which attended its final termination. A chronic abscess of the tongue is a small rounded or oval tumor situated deep in the base on the dorsum of the tongue, anterior to the circumvallatæ papillæ, filled with pus in which fluctuation is present or absent according as the pus is, or is not, tightly pocketed and of several years' duration. According to Butlin this disease is a very uncommon one, and is most frequently observed in adults. Butlin states that the commencement is insidious, and that there is seldom any history of inflammation preceding the onset. In the case which I report I knew of the existence of the abscess for over a year before the pus was liberated or any acute symptoms developed, and the patient states that she had known of its existence since early childhood.

During the fall and winter of 1889, I was treating a young woman 18 years of age for a nasal and post-nasal catarrh. On the paternal side there was a strong tubercular history. The patient had the usual diseases incident to childhood. At the time of her first visit I noticed a prominent oval elevation in the center of the dorsum of the tongue just anterior to the circumvillatæ papillæ. This mass was about two centimeters long, about one centimeter in breadth, and projected above the surface of the dorsum of the tongue about one-half centimeter at the most elevated point. The mucous membrane over the mass was paler than over the remaining surface of the tongue and was very tense. The tumor seemed tense, deeply seated and no fluctuation could be detected. The woman stated that this mass had been noted in her tongue since early childhood, and as it had caused her no inconvenience she did not care for surgical interference. As the growth seemed in no way to interfere with functions, and offered no obstruction to the proper treatment of the throat I respected her wishes. I diagnosticated the growth to be either a dermoid or a simple cyst.

December 15, 1889, ten days after the patient had been discharged, I was called to see her on account of an intense earache. In the morning she had noticed considerable soreness in the lateral walls of the pharynx, which as the day wore on became more intense and radiated toward the ears. I examined the pharynx and found it quite normal in appearance both in the oro- and naso-pharynx. The auditory canals and membranes were normal. Hearing normal. The patient was evidently suffering, and I was perplexed.

December 16. Patient reported at my office in the morning. Had passed a sleepless night. Evidences of pain very marked. Had taken no food for twenty-four hours. Temperature 99.8. Nose, naso-pharynx, oro-pharynx, larynx, auditory canals and tympanic cavities normal. Now all the pain was referred to the ears. The growth at the base of tongue appeared about the same as usual.

December 17. Patient's appearance as she sat in waiting room gave me great concern. Her expression was one of extreme anxiety, and her face bore evidence of great suffering. The hypodermatic use of .016 gram of morphia the night before had given only a transitory relief. The organs giving rise to painful sensations all appeared as normal as ever. Temperature 100. While examining the patient's pharynx the happy idea occurred to me that the mass at the base of the tongue might be the cause of all the trouble, although appearing perfectly benign. Introducing my index finger into the mouth I essayed to make compression on the growth, when the patient gave evidences of the most intense pain. I immediately laid the abscess open through its anterior two-thirds, resulting in the evacuation of several drachms of a very offensive, thin, watery pus. The symptoms were immediately ameliorated.

December 18. The day and night's rest had worked a marvelous change in my patient. She willingly submitted to a thorough laying open of the abscess cavity, which was then thoroughly curetted and packed with iodoform gauze. From this date the patient made a rapid and complete recovery. Swelling disappeared, and at the present writing shows only as a slightly elevated linear cicatrix. The patient is now under my observation, and the cicatrix is all that shows of the former condition.

The most interesting feature of this condition is the fact that the abscess remained quiescent so many years and then took an active course. It is also interesting to observe that all the symptoms produced by this change in the nature of the abscess were referred away from the seat of the disease. There was no change in the appearance of the tissues over or about the seat of the abscess, nor was there any spontaneous or superficial pain in the part of the tongue affected. It was only when firm and great pressure was made that any evidences of pain were demonstrated.

1102 L. Street, N. W.

DISCUSSION.

Dr. WOOLEN—Possibly this case was not an abscess for all these years. I have a case of blood cyst, or perhaps more properly varix of the tongue, which I have watched with solicitude for many years for fear it would rupture. Possibly Dr. Richardson's case may have begun in that way. I can hardly understand how an abscess could exist for so many years and pus be carried in it all that time. I think it likely that there was degeneration of some cystic formation. In my patient the growth is bluish in appearance, has evidently liquid contents, and is the size and shape of a teaspoon inverted on the tongue. It is pulpy and fluctuates as blood fluctuates. It gives the patient no inconvenience, but I fear rupture either spontaneously or artificially.

Dr. W. H. BRYAN—I can hardly conceive of an abscess existing as such for so long a time. It is possible that there may have been a cystic condition from which has developed a septic inflammation at a later interval.

Dr. D. BRADEN KYLE—I have only seen one case of abscess of the tongue and that was tubercular. Not only the tonsil but the cervical glands were involved, although the glands did not suppurate. Six weeks before operation marked symptoms of abscess at the base of the tongue had developed. The abscess was opened and contained cheesy material in which tubercle bacilli were found. This was a so-called chronic abscess, but it was really an acute condition at the time it was opened.

Dr. MAX THORNER—I have seen two cases of chronic abscess of the tongue. One was produced by a foreign body. There was swelling and all the symptoms of abscess at the base of the tongue. The symptoms had been present for half a year. I found a fish-bone embedded in the abscess. In the second case there was a chronic abscess of the base of the tongue of ten months' standing, which was no doubt tubercular. There was great difficulty in healing the wound, which closed superficially leaving a fistulous opening. I could get no detailed account of the history.

Dr. C. W. RICHARDSON—I had also thought at first that my case was probably a broken down cyst that had undergone suppuration, but after looking up the subject I came to the conclusion that it was a chronic abscess, for several reasons. Cysts are usually situated where the glands are more prominent and more numerous. They are more on the surface than this, which was embedded in the tongue, or to use Dr. Woolen's description, looked as though a teaspoon had been placed on the surface of the tongue. I am ready to accept the diagnosis that the condition may have been tubercular. In fact this young woman has a strong tubercular history on the paternal side. Nevertheless I think there is such a thing as chronic abscess of the tongue, and that such cases have been described, among them some which have existed for years before being opened.

CASE OF RECURRENT HEADACHE, EACH ATTACK BEING RELIEVED BY THE DISCHARGE THROUGH RIGHT NOSTRIL OF A FLUID FROM THE CRANIAL CAVITY.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY W. SCHEPPEGRELL, A.M., M.D.
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The case which I report is so unusual that I am unable to find a similar instance in the records of medical literature. The case is one of recurrent headaches of a most violent character, each paroxysm continuing until relieved by the discharge of a watery fluid from the right nostril.

The following is the interesting history of this case: Sister M. J., a member of a holy order, suffering from deafness and an affection of the throat, was referred to me in January, 1893. While treating these conditions, from which the patient soon recovered, she called my attention to the repeated headaches from which she suffered, and to the fact that they were relieved by the discharge of a straw-colored fluid from the nostrils.

In February, 1885, the patient suffered from a most agonizing headache, which persisted in spite of the efforts of several physicians The pain at times became so severe that the patient was entirely oblivious of her surroundings. This continued for three weeks, and was relieved by an accident which appeared almost providential. While descending a stair, the patient fell down a considerable distance, her head striking against a stone jar at the bottom of the staircase. The fall was so severe that the patient was unconscious for several seconds, but when she revived, she observed that there had been a profuse discharge

of a yellow watery fluid from the nostrils, and that the headache, which had persisted for three weeks, had entirely disappeared.

Five or six weeks after this occurrence the headache developed again, the symptoms being the same as in the former attack, but at the end of the fourth day there was a spontaneous discharge from the nostrils, principally from the right side, and again complete relief. These attacks recurred at varying intervals, the intermissions sometimes being only twenty-four hours, and rarely more than two weeks. The headaches persisted from three to five days, and sometimes as long as ten days.

Various remedies were prescribed for the relief of the patient, but without success. The discharge of the watery fluid from the nostrils, at the end of the attacks, did not appear to have attracted the attention of the attending physicians, or if it did, was considered as a mere coincidence.

On account of the unsuccessful efforts to relieve this condition, the patient finally decided to make no further attempts to relieve this affection, which made her life a burden.

In describing her symptoms to me, the patient stated that when these headaches commenced there was a feeling of stiffness in the neck near the collar bone; then the pain seemed to ascend until it formed a focus in the upper part of the head near the crown, and produced a sensation as if a boil were forming, the pain extending over the whole upper part of the head, and her eyes could be kept open only with difficulty. The face is flushed, but there is no elevation of temperature. An ophthalmoscopic examination gave negative results, and there was no exophthalmus.

From a careful study of this case, the conclusion was evident that there was direct cause and effect between the watery fluid, which afterward discharged from the nostril, and the recurrent headaches. The quantity of liquid discharged (about one ounce) indicated that an accumulation formed in a receptacle of about this capacity, and that the pressure was instrumental in causing the violent pain, and that relief was due to the discharge of the fluid.

From the location of the pain, my first impression was that the sphenoidal cavity of the right side was the cause of the symptoms complained of, and when I explained my view to the patient, she readily gave her consent to an exploratory puncture into this cavity, with a view of obtaining relief.

The opening of the sphenoidal cavity, as well as the other operative procedures, were undertaken during a paroxysm of headache, while there was evidence of strong pressure, so that liberation of the fluid and the subsequent relief would show that the seat of the trouble had been reached.

After thorough cocainization of the right nasal cavity, a long trocar, with the point slightly bent upward, was passed close to the septum at the level of the middle turbinal and then directed upward in the posterior upper part of the nasal cavity. With some pressure and a slight rotary motion, the wall was perforated and the free entrance of the trocar showed that the sphenoidnl cavity had been reached. The trocar was then withdrawn and the canula left in place, but there was no discharge of the liquid.

A probe was now passed into the cavity, which appeared to be normal. There was no discharge of fluid, and the patient experienced no relief from the headache. The operation was done with due regard to asepsis, and there was no reaction or ill effects.

As there was considerable pressure about the eye, and from the fact that pain is sometimes referred to another locality by the patient, I then decided to open the frontal sinus. After an ineffectual attempt to catheterize this cavity from the nostril, the frontal sinus was opened externally under chloroform. A vertical incision was made over the inner superciliary region of the right eye, the skin and periosteum drawn back and an opening through the outer wall of the sinus was effected by means of a small trephine. There was no discharge of a fluid.

A probe passed through this opening entered the nasal cavity without difficulty. The periosteum and skin were then carefully stitched, and the wound healed by first intention. The scar was scarcely noticeable, but there was no relief from the headaches.

Although an affection of the ethmoidal cells could not readily explain the symptoms, still in view of the intense suffering of the patient, and her almost total disability to perform her duties, every attempt was made to relieve her. The ethmoidal cells were opened without success, and the antrum of Highmore was catheterized without giving relief.

While making a preliminary report of this case before the Orleans Parish Medical Society, a physician, in the discussion, stated his opinion that the symptoms might be of hysterical origin, and that there was no evidence, besides the word of the patient, that there was a discharge from the nostrils at the end of each paroxysm of headache.

Though this opinion was contrary to my belief, I decided to obtain corroborative evidence, and had the patient, during one of the attacks, placed in a private ward of the Eye, Ear, Nose and Throat Hospital, under the charge of two trained nurses, who were instructed never to leave the patient and to watch carefully for the discharge of the watery fluid from the nostrils.

At the end of three days the watery discharge was seen by the nurse, and a portion of it saturated a towel on the bed.

Having now excluded the various accessory sinuses, the probability of this discharge coming from the cranial cavity, which occurred to me from the early history of the case, became more fixed, and I decided to obtain a specimen of the discharge for microscopic examination. With this view, the patient was instructed to have a vessel always with her during the next paroxysm and, if possible, to catch the fluid so that a careful examination could be made.

The second attempt was successful, the larger part of the liquid being discharged into a bowl and soon after brought to me.

The fluid had a specific gravity of 1005, was slightly alkalin in reaction and contained a small amount of albumin. Chemically, the liquid resembled the cerebro-spinal fluid and the contents of the cranial lymphatic vessels in this region, which are almost identical in character. When this fluid was allowed to settle in a conical glass, there was a heavy white deposit; the clear supernatant fluid was of a pale straw color, and did not coagulate. The sediment consisted almost entirely of pavement epithelial cells, some occurring singly and others in flakes. A few red blood corpuscles were seen.

In a second specimen sent for examination, the admixture of blood was so large that it imparted a reddish tinge to the whole body of the liquid. In

this specimen, also, there was a heavy deposit of pavement epithelium or endothelium.

It has been shown by T. S. Flatau (*Deutsche Med. Woch.*, Leipzig, Oct. 30, 1891) that there is sometimes a communication between the subarachnoid space and the nostrils, and he quotes a case of hydrocephalus which recovered after an abundant serous discharge from the nose. The existence of such a communication is also demonstrated by Schwalbe, Key and Retzius. Naunyn and Schrieber were also able to inject warm salty solution into the subarachnoid space of the dog which was discharged at the nostrils, the phenomena being accompanied by a protrusion of the eye and chemosis. In investigations on the human subject, Flatau found that although injections into the subarachnoid space reached the nose, the injection of colored fluid into the nose did not lead to an entrance of the fluid into the arachnoid space on account of the barrier presented by the columnar epithelium.

Another case, which is interesting in this connection, is one of meningo-encephalitis consecutive to an exploration of a supposed frontal sinus, reported by Dr. Mermod (*Ann. des Mal. du Lar. et de l'Or.*, April, 1896). The following is a synopsis of the report of this interesting case: A man, 30 years of age, who had undergone the successive opening of the right maxillary, the left sphenoid sinus, and of the right anterior and middle ethmoidal cells, on account of a chronic suppuration of these cavities, was affected with a cephalalgia of the right frontal region, which diminished after a free evacuation of a clear nonpurulent liquid. Under the supposition that it was an affection of the right frontal sinus, a flexible shaft was introduced, which penetrated a large cavity resembling an enlarged frontal sinus.

A second exploration, made under the same conditions, to the depth of 6½ cm., measured from the entrance of the nostril, was followed by violent pain in the head, rigors and unequivocal signs of meningitis. A large trepanation was then made, and it was found that the frontal sinus was entirely wanting, and its place was occupied by the frontal lobes. A sound introduced from above immediately and without difficulty penetrated into the nostril.

The patient died twenty-four hours later. The autopsy showed a sero-purulent meningitis commencing from the anterior part of the frontal lobes; there was no traumatism of the brain. Although the exploration had been made with care, and under all necessary antiseptic precautions, it had been the cause of the meningitis. The liquid, which ran intermittently from the nose, had been a cerebro-spinal fluid.

From a careful analysis of the case which I have reported, I concluded that the fluid, which had caused the first attack of cephalalgia, had accumuluted in the cranial cavity, and that the fall had been instrumental in breaking though the barrier which existed between the liquid and the nasal cavity.

The point of differentiation, which now presented itself, was as to whether this fluid came directly from the subarachnoid space or from some cystic formation in this region, connected with the lymphatic circulation.

The subarachnoid space is the interval between the arachnoid membrane and the pia mater. At the base of the brain there is a wide interval between the two middle lobes, and also behind the hemispheres of the cerebellum and the medulla oblongata. This space is filled with a cerebro-spinal fluid, which fills up the interval between the arachnoid space and the pia mater. The subarachnoid space usually communicates with the general ventricular cavity of the brain by means of an opening into the inferior boundary of the fourth ventricle.

The conformation of this space and the extensive communication of its fluid, including even the ventricular cavities of the brain, would easily explain the depressing as well as agonizing character of these headaches, the effects of which were so severe that they almost entirely incapacitated the patient from duty.

If this fluid were discharged from the subarachnoid space, it was difficult to understand why the same quantity came from the nostrils after each attack, and also why the discharge ceased so abruptly and did not continue to drip for some time after the first pressure had been relieved.

This peculiarity caused me to believe that it was due to a cyst connected with the lymphatic circulation in this region. The foramen cecum is an aperture formed by the frontal bone and the crista galli of the ethmoid, and when pervious transmits a small vein from the nose to the superior longitudinal sinus If the efferent lymphatic vessel of the perivascular lymphatics surrounding this vein should become occluded, it would form a lymphangiectasis, which would continually dilate from the plasma oozing from the blood vessel surrounded by these lymphatics.

The location of such a cyst in this region would not only cause all the disturbances due to pressure in the subarachnoid space, but would also explain the limited amount of fluid which was discharged after each attack. The slight admixture of blood corpuscles evidently came from the ruptured point in the upper part of the nasal cavity.

When my conclusions had been formed in this case I declined to make further surgical interference. Learning that the patient had suffered from attacks of rheumatism, I suggested to her physician to push the anti-rheumatic preparations, which was done, however, without any beneficial influence on the recurrent headaches.

I have from time to time examined the nostrils of this patient to see whether, perhaps, the cyst might protrude into the nostril, as we know that continued pressure will sometimes cause absorption of even bony tissue, and that the attacks might be relieved by early incision, but this has not yet been the case.

Medical Building.

DISCUSSION.

Dr. GIBBONS—I am following at present a peculiar case of headache. Among the symptoms I find a suicidal tendency and also a fear of going insane. I think it is really a disease which ought to be termed "suicide," differing from melancholia in that really insane persons do not think they are insane, whereas these patients will tell you that they contemplate insanity or suicide.

The physiologic functions of this region are not well known. In my opinion, the cells have something to do with receiving from the air an electric current. They are grouped exactly like the cells of a storage battery, and I believe they have some such function. If Dr. Scheppegrell does not get relief after these operations, I believe it is because the enlargement of the cells or some other growth has not yet been reached.

Dr. J. SOLIS-COHEN—I would like to ask whether the possibility of specific disease has been eliminated.

Dr. SHEPPEGRELL—The attending physician had given iodid of potassium without effect.

Dr. J. H. BRYAN—Possibly it may be one of hydrops. Secretion may have taken place in one the deeper ethmoidal cells

which could not be opened. Hydrops is a very rare condition. I thought it did not exist until Dr. Herman Knapp made his interesting report of some cases, the history of one of which was very much like this.

Dr. Max Thorner—There seems to be no doubt that the headaches were due to some intracranial pressure, though the ophthalmoscopic examination showed nothing unusual. In a case shown by Dr. Woakes in 1885 at the London Hospital for Diseases of the Throat and Chest, he considered the discharge from the nose to be cerebro-spinal fluid, in a case that bore close resemblance to the one reported A chemic and microscopic examination, if I remember rightly, was not made at the time. The discharge occurred intermittently and was always preceded by headache. A communication between the arachnoid space and the lymphatics of the nose has been proved to exist by Flatau's magnificent demonstrations, made at the International Medical Congress at Berlin, in 1890. This fact accounts for many otherwise obscure phenomena.

Dr. J. A. Stucky—From the history of the case and the quantity of the discharge, I am almost forced to conclude that the discharge was from the cranial cavity. There would not be over an ounce or so from the ethmoidal cells, even if they were much enlarged.

Dr. G. V. Woolen—I have often been surprised at the amount of discharge in the ethmoidal cells and at the large quantity of polypi that can be taken from this region. The amount of operative tolerance in this locality is remarkable at times. It does not seem that the fluid was cerebro-spinal, or there would have been other cerebral symptoms besides pain, such as coma, paralysis, etc.

Dr. A. De Vilbiss—Although many have done considerable work in the region of the roof of the nose, we should not invade that region without some fear of doing harm. Only about four months ago I witnessed the death of a patient from an operation in that direction. In old cases where we have empyema we can operate more readily than in acute cases. That the cerebro-spinal fluid can leak out and escape through the nasal cavity I believe, though I have never made any postmortem demonstration of the avenues by which it comes. I had a patient who, every few months, by bending the head forward could discharge about half a teaspoonful of cerebro-spinal fluid through the nose. He had also symptoms of focal epilepsy. He was relieved by puncturing the dura and drawing off the cerebro-spinal fluid.

Dr. Scheppegrell—This case could not be one of hydrops of the ethmoidal cells, as this would not account for the sudden and complete discharge of the fluid, which indicates the existence of a kind of buffer, which in this region could be furnished only by the intracranial pressure. As already stated, a cystic accumulation in the subarachnoid space would alone explain the character of the fluid examined and the various symptoms presented in this case.

THE TREATMENT OF EMPYEMA OF THE FRONTAL SINUS.

Discussion in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

Opened by J. H. BRYAN, M.D.
WASHINGTON, D. C.

In accepting your invitation to open the discussion on this most important and interesting subject, I feel that I can not do better than first to call your attention to a few of the anatomic peculiarities of the frontal sinuses, in order that the pathology and treatment of chronic suppurative inflammations of these cavities can be the better understood.

The size of the frontal sinuses varies greatly in different subjects, and frequently in the same subject the variation is very marked, one cavity occasionally being quite large while the other is many times smaller, or absent altogether.

After an examination of 120 skulls made by Herbert Tilley [1] he considers a sinus normal when it measures 28 mm. from the median line outward to about the junction of the inner and middle third of the supra-orbital ridge; and in vertical extent measured from the root of the nose from 20 to 22 mm. Lamb,[2] who has also investigated the size of these cavities, found the right one with a varying capacity from one and one-third to six c.c. while that of the left sinus was from one and one-fourth to four and two-thirds c.c. As showing the difference existing between the two sides he found in one instance the left sinus was to the right as seventy to ninety-five.

In health these cavities are separated by a very thin partition or septum which in the majority of instances is complete, although they occasionally communicate through a small opening. The septum is occasionally not straight, deviating to one side or the other thereby rendering one cavity smaller than the other.

Situated between the frontal and ethmoidal sinuses there is a series of cells formed by the junction of the ethmoid and frontal bones, but which form no part of either of these cavities. They, however, bear a very important relation to both sinuses, for when affected by an extension of a morbid process in either of the adjoining cavities they seriously complicate these conditions and render the prognosis much more uncertain. I believe in nearly all severe cases of empyema of either the frontal or ethmoidal cavities these cells are to a greater or less degree, affected.

Chronic empyema of the frontal sinuses while not an uncommon occurrence in some of the continental countries, as Russia and Germany, has not been so frequently observed in this country until within the past few years, and especially since the frequent visitations of epidemic influenza, which seems to have a special predilection for the accessory sinuses. While chronic suppuration of this cavity may and does frequently arise from other causes such as an extension of simple catarrhal inflammations from the nasal cavities, and from the retention of the secretions in the sinus by obstructive lesions within the nose, the most frequent cause in my experience has been the extension of the morbid process from the nose in the course of an attack of grippe.

While the prognosis of this affection is generally favorable the treatment will be found to be difficult and tedious according to the methods adopted for its relief.

Since the rapid advances made in the study of diseases of the nose there is a tendency on the part of some rhinologists to treat this affection through the nose, especially since Jurasz has pointed out the feasibility in a few cases of passing a probe through the infundibular orifice in the nose. There is no doubt that in a few instances this can be done, but in the majority of cases it will be found to be impossible to pass a probe into the frontal sinus through the fronto-nasal duct, for generally this duct is situated far back, and is occasionally so tortuous that no probe can be made to follow its course. When sounding the frontal sinus is possible treatment conducted through the nose without first making an external opening is only suitable for acute cases.

Max Schaeffer has proposed opening the sinus by making a forced opening through the nose. It is only necessary to mention this method to condemn it as very dangerous, for there is already one fatal case, by this method, on record. Any one who has paid any attention to the anatomic irregularities that exist in this region can not feel assured that he can enter the sinus by forcing an instrument through the middle meatus or middle turbinated body. Even should one be successful in entering the sinus by either of the above mentioned methods little could be

accomplished in relieving the inflammatiom, for in these chronic cases the pus is very thick, best described as stringy in character; the cavity is generally filled with granulation or polypoid tissue, and there is frequently some caries of the surrounding bony walls. When such conditions exist no amount of irrigation with antiseptic lotions will relieve the inflammation. I can therefore speak of these intranasal methods only to advise against their employment in chronic frontal sinusitis of long standing. I think most authorities of any extended experience will agree that one of the external methods will in the majority of cases be called for, and the earlier the operation is done the shorter will the usual subsequent treatment be.

There are several methods proposed for entering the frontal sinus. One, which I employed in a case successfully, but in which the subsequent treatment was very tedious, is where the incision is made along the lower border of the supra-orbital ridge, first pulling the integument forcibly up on the forehead so that the line of incision would fall just under the eye-brow. The incision beginning at the root of the nose and extending outward from an inch to an inch and a half is made down to the bone, the integument and periosteum elevated, and the sinus opened at the internal angle either by means of a drill, chisel or trephine. This opening does not admit of a thorough inspection of the interior of the cavity, and any caries of the septum or fronto-ethmoidal cells could easily escape detection. The disadvantages of this method are that the opening does not admit enlargement of the fronto-nasal duct as readily as that through the anterior wall, consequently the cavity has to be irrigated through a rubber or metallic drainage tube introduced into the sinus at this point, which results in the patient recovering with a decided depression over the opening into the sinus, and occasionally with a fistulous opening remaining.

Panas,[3] who has had a large experience in treating this affection, recommends that an incision be made along the lower border of the supra-orbital ridge and then makes another perpendicular to this upon the base of the nose, the triangular flap including integument and periosteum thus formed is detached from the bone, and an opening made into the sinus near the inner angle of the orbit large enough to admit of a thorough exploration of the cavity.

Another method, which offers many advantages over the above mentioned procedures, is that devised by Ogston [4] of Aberdeen, in 1884, and more recently and independently advocated by Luc.[5] In this operation the incision is made in the median line commencing at the root of the nose and extending from an inch and a half to two inches on the forehead. The skin and periosteum are elevated and a centimeter of bone removed from the anterior wall of the sinus by means of a crown trephine applied several lines from the median line and about two or three lines above the supra-orbital ridge. By this means an opening of sufficient size is made so as to admit of a thorough exploration of the sinus, and caries of the bony walls, the septum, or of the fronto-ethmoidal cells can be easily detected and removed. After the removal of any polypoid or necrotic tissue the cavity is thoroughly cleansed, and the fronto-nasal duct enlarged by passing a trocar from the sinus into the nose, using the little finger as a guide, after which a self-retaining drainage tube is introduced through this enlarged opening and allowed to remain as long as necessary. The membrane lining the cavity may be touched with a 20 per cent. solution of the chlorid of zinc and the wound closed by means of an interrupted or a subcutaneous suture, which should then be hermetically sealed with a solution of iodoform and collodion. The subsequent irrigations can be made through the drainage tube until all secretions have ceased to form.

The advantages of this method of treating chronic abscesses of the frontal sinus are manifest in that the cavity with all of its irregularities is rendered thoroughly accessible, and all diseased tissue can be removed before closing the wound. There is no depression left after the removal of the button of bone from the anterior wall of the sinus, and only a slight scar remains which in carefully managed cases amounts to little more than an exaggeration of the natural cleavage of the skin so frequently observed in this region.

The duration of treatment is very materially reduced by this method. In a case I reported at the recent meeting of the American Laryngological Association the duration of treatment was a little over six weeks from the date of the operation, and it was somewhat prolonged in this case owing to an unfortunate accident which resulted in suppuration taking place in the line of incision, either from an imperfectly sterilized cat-gut suture, or an infection of the under surface of the wound from the cavity below.

Botey[6] has modified this operation somewhat with the view of preventing the scar that may be left after the median operation. After shaving the inner two-thirds of both eyebrows, he makes an incision the length of the internal third of the supra-orbital ridge, which is prolonged to the root of the nose. After elevating the integument and periosteum he removes the external plate of the sinus near the root of the nose, and then carefully detaches fragments of the anterior ethmoid cells until a large communication is left between the frontal and nasal cavities; the sinus is cleared of all diseased tissue and a strip of iodoform gauze introduced through the opening into the nose, when the external wound is closed.

This operation would seem to present some advantages over that of the Ogston-Luc method, especially in not leaving much of scar, and also in having the fronto-nasal opening sufficiently large to do away with a drainage tube.

After the artificial opening has been made the subsequent treatment consists in keeping the cavity free from all secretions, which is done by frequent irrigations with antiseptic lotions. The use of strong antiseptics in this cavity as well as in the other accessory sinuses can not be too strongly condemned. The best results are obtained after the persistent use of such mild applications as hydrogen dioxid and a saturated boric acid solution.

Dr. MAX THORNER—Diseases of the frontal sinus, acute as well as chronic, are often of such a nature that diagnosis is easy, but in some cases it is very difficult. It is often extremely hard to find from which of the accessory cavities the discharge takes place. A patient who was brought to my service in the Cincinnati Hospital had previously all the accessory cavities of one side opened without finding the

1 Lancet, London, Sept., 26, 1896.
2 Reference Handbook Medical Science, Vol. vii. p. 659.
3 Archives of Ophthalmology, Vol. xx. p. 658.
4 Medical Chronicle. Dec. 1884.
5 Archiv. internat. de laryngol. Par. 1846, ix. 163-178.
6 Rev. hebdomadaire de laryngologie, d'otologie et de rhinologie, No. 3 Jan. 16, 1897.

cause of persistent headache. It had been rather the habit of late to operate on the accessory cavities in headache which can not be traced to any other cause. It is almost impossible to gain admission into the frontal sinus through the nose, although I will not deny that it can occasionally be done. Some time ago I tried, on the cadaver, to introduce probes through the nose into the frontal sinus, and was astonished to find in how many different directions my probe had been conducted. Some observers have repeatedly stated that it was very easy to introduce a probe or flexible canula, but I do not think so. Even if there is only one case on record where death has followed the attempt at opening the frontal sinus from the nose others have occurred. Whatever may be the opinion regarding acute, I think that all agree that in chronic cases we should do the external operation. Operative treatment through the nose in such cases is almost impossible, and always dangerous.

The method mentioned by Dr. Bryan is among those almost universally used. Of late I have changed my method slightly. I do not make the incision in a straight line along the eyebrow, but following the eyebrow about two-thirds its length, and then curve it slightly upward toward the median line. I have found that access to the cavity is better, while the scar is almost invisible. In chronic cases, where there is extensive caries it is almost impossible, in my experience, to get healing in four to six weeks. In the modern, or so-called radical operation upon the middle ear cavities, we have the advantage that we plaster the skin into the wound-cavity to cover the raw bone surfaces, but we can not do that in the frontal sinus, though I think it has been proposed. Healing takes almost twice as long where there is extensive caries, especially where the conditions for drainage are not favorable. I have found it most advantageous in such cases to drain for some time at least through the external opening although it takes longer. In all cases where I found extensive caries, I left a little hole for drainage, and the results were better than where I had closed the external wound by sutures at the time of the operation and depended upon drainage through the nose alone. This method does not preclude closing the external wound at once in cases where we find no caries at all, or only to a slight extent.

Dr. J. A. Stucky—I have seen quite a number of these cases, and in every one there has been serious trouble in the middle meatus, and the middle turbinal has been enlarged. I have found that removal of the anterior end of the middle turbinal gave great relief. I believe the orifice of the infundibulum is closed by adhesions, and if we succeed in opening the process and subduing the inflammatory conditions, nature will often complete the case. By frequent cleansing of the nasal cavity and keeping the patient quiet, especially in acute cases, we can prevent more serious attacks. As to chronic cases, I am in favor of the external operation. I believe in making a large opening to see what you are doing and also to get free drainage. I prefer to make the opening with the trephine, at the root of the nose. I do not like the opening at the eyebrow, which I have tried but have had much trouble and swelling.

Dr. Scheppegrell—Where the external operation is necessary it should be done by the radical method which Dr. Bryan suggests. We should not however proceed to external operation too soon. The attempt at intranasal treatment should be made first. As to the difficulty of entering the frontal sinus through the nose, I have done it a great many times, and have been sure that the probe reached the cavity. If the case has not gone to the point of caries, we should try the intranasal treatment first.

Dr. DeVilbiss—I am in favor of the external opening. I would like to ask the last speaker to give us his plan for draining the frontal sinus through the nose where there is empyema.

Dr. Scheppegrell—I have used a weak solution of peroxid of hydrogen to clear the nostril. No two cases are alike, and we must study the topography of each individual case. I try until I finally succeed in finding the natural channel, and then the probe is passed upward into the passage, then syringe with a gentle and continuous pressure.

Dr. Cobb—The difficulty of catheterizing these cases is almost unsurmountable. In experimenting upon anatomic preparations, if you take a probe and bend it to the extent necessary to reach the frontal sinus, you will find that the bend is too great to allow it to enter the nose. The evidence is lacking that the probe really does reach the sinus. The fact that pus follows it would prove only that the ethmoidal cells might be affected. Peroxid would cause bubbling in case it encountered any pus on its way to the frontal sinus. It is very difficult to tell whether you are actually in the sinus.

Dr. Freudenthal—I always try to benefit those chronic cases by intranasal treatment, but I have never succeeded, and finally have to come back to the external operation. I have one case on record which I have been treating for three years. I do not believe that entrance into the frontal sinus is as difficult as some of the gentleman believe. In about 15 or 20 per cent. of the cases with a very fine probe, you can enter the sinus easily.

Dr. Myles—I have operated on eleven cases externally, and dozens internally as I suppose all have. I originated the idea of taking out all of the bone between the central part of the nasal processes and the sinus, as near the floor as possible. I operated on several cases in that way, and kept them open for six weeks. These cases are all in fairly good shape with freedom from pain, though occasionally a little mucopus escapes. I abandoned this operation because I could not chisel away the floor of the sinus through this opening and it was difficult to enlarge the opening to the extent that I wished. So I adopted the method of Luc, I believe. I think his technique is by far the best of all. A few weeks ago I operated on two cases in which the cavities were full of pus and carious bone. I chiseled a large hole just above the orbital ridge, making a passage into the nose. In both cases I used soft rubber tubes and sewed up the external wound at once. I left the tubes in for about three weeks. The patients were relieved, and the one which was the more serious is, now doing well. The other operated on after a general surgeon had done a double external operation, and I had to cut through a line of cicatricial tissue. The external wound was perpendicular, and healed in three days. The secret of success is in making a large opening into the nose. I am strongly in favor of removing the middle turbinal before operation and also the ethmoid bone which lies between the infundibulum and the upper part of the septum.

As to immediate closure of the external wound, the new membrane forms just as well in the closed dark

cavity as in the light. I have tried to ascertain how the bare bone closed over in these cavities. In one case I reopened, and found the granulations very exuberant and softened by the atmosphere which passed upward in respiration.

THE CHAIRMAN—We must draw a sharp line of distinction between acute and chronic cases. Our reports and statistics are vitiated by dragging in acute with chronic cases. The majority of acute cases recover spontaneously, and the operation receives the credit of the cure. Intranasal methods should be carried out tentatively, especially where there is polypoid degeneration of the middle turbinal or the presence of actual polypi. The nose should be cleared and the anterior end of the turbinal removed if necessary. The operation by the intranasal method often does not result in a perfect cure, though it often relieves the headache and may establish better drainage. Intranasal treatment should not be carried on too long; in this way we may weary and discourage our patients. After having done what is really essential by intranasal treatment we should proceed to the external operation. I consider Luc's a great advance over previous methods in the external treatment of this disease. It will enable us to promise a cure if there is no caries, and it leaves no deformity. This operation has been well described by Dr. Bryan, but there are several points that were not quite clear to me. First, as to whether the incision is made exactly in the median line or deviated a little to one side; second, in reference to the modification of Luc's operation, in which there is an incision along the orbital arch and then a vertical one connected with it, with a view to lessening the deformity.

Dr. BRYAN—I invariably relieve the intranasal conditions as far as possible before resorting to operation. The removal of the middle turbinated body is sometimes necessary when the ethmoidal cells are involved. These cases can not be cured unless every bit of caries and pus is removed. After the cavity has been thoroughly curetted and the diseased tissue removed, I know of no reason why the patient should have an open wound until the so-called healing of the internal cavity takes place; this occurs just as rapidly when the wound is closed. As to the incision, my last case had a decided furrow in the median line and I followed this. It seems to me that Botey's method is a great advance over the median operation, though I have never tried it. The incision is described as commencing at the inner third and under surface of one eyebrow and then carried across the root of the nose, the integument and periosteum elevated, and the opening made just above the inner angle. The great advantage is that the rubber drainage tube is dispensed with. The communication between the sinus and the nose is a large one.

Gerson's Elastic Suspensory Bandage.—A soft elastic cloth, fringed on one edge, is covered with "York's rubber zinc plaster" and applied in epididymitis as follows: The scrotum is freed from hair and moisture and the bandage is applied around the empty scrotum below the testes, with the fringe up to prevent cutting. The scrotal skin thus drawn tight exerts constant pressure on the swollen testes and reduces the swelling. When the bandage becomes loose, as the swelling subsides, it is removed and applied higher up until complete recovery. In case of varicocele the bandage is removed at night. Frank and Lassar endorsed from personal experience the usefulness of this bandage.

MENIERE'S DISEASE, WITH REPORT OF A CASE.

Presented in the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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PHILADELPHIA, PA.

The employment of a term as indefinite as "Meniere's Disease" is now generally held to be, in giving title to the subject to which I ask your attention, may call for some explanation or apology, for quoting the words of Sir Wm. B. Dalby: "The term serves more frequently to mark ignorance of the lesion which occasions a series of symptoms, often analogous, but which are under the influence of very different causes." Such apology if called for must be the admitted absence of any designation more definite, and yet generally applicable to all cases of, or the various symptoms met with in, this disease, together with the great diversity of opinion which still obtains in the minds of the profession concerning it. Until we know the exact pathology and are able to separate other analogous diseases with which it may be confounded, it is wiser to hold to the name "Meniere's disease." Faintness, deafness and vertigo were the symptoms that especially engrossed Meniere's attention, and of these the latter seemed most momentous, and his investigations led him to believe that the lesions which produced it were restricted to the semicircular canals. That this is not the universally accepted opinion is proven by the widely divergent expressions of master minds engaged in the study of both its lesions and symptoms. Politzer and Lucae both report instances in which the semi-circular canals were absent or, by trauma, filled with blood, and yet the patients did not suffer from any disturbance of equilibrium. Gradenigo, Moos and Burnett believe the vertigo to be chiefly due to an extension to the labyrinth of a chronic catarrhal affection of the middle ear. Steiner of Cologne believes that the vertiginous symptoms result from lesions within the brain or its membranes, causing alterations in pressure. Baginsky, Randall, Dench and others regard Meniere's disease as a complex of symptoms, in which the cause can not be due to disease of the canals alone, but whether labyrinthine involvement, such as hemorrhage or serous effusion, is present in all cases is a question, as yet, not certainly answered. It may be caused by organic changes in the perceptive mechanism, or secondary to diseases of the conductive apparatus, or to blood conditions, or circulatory disturbances, to certain diatheses, or may be wholly reflex. Mettler says it is too complicated to be considered as a mere disarrangement of the function of the semicircular canals alone, and yet it may be considered that in true Meniere's disease these only are affected, and that aural vertigo may not be aural at all, except so far as having certain aural symptoms associated with the vertigo are concerned. Bezold has collected and reports forty-six cases of necrosis of the labyrinth, and notes that only twelve showed symptoms of vertigo.

Mackenzie says it is due to the effect of irritation of the terminations of the vestibular nerve. Finally, aural vertigo may co-exist with or occur apparently as the result of the most varied diseases, as for instance, hysteria, hystero-epilepsy, syphilis, vaso-motor disturbances, cerebral diseases, inflammatory conditions of the middle ear or growths upon the auditory nerve, gouty or rheumatic diatheses, pelvic and visceral inflammations, etc. And so I might multiply authors and recount opinions and cases, but enough has been given to show that we are dealing with an intricate and imperfectly understood disease, one whose manifestations seem entirely out of proportion to its lesions.

The following case is so typical that I believe its relation will be of special interest. The subject of it, Mrs. S., age 30, married, the mother of two children, the youngest born just one month prior to the commencement of the present illness. Her accouchement was normal and convalescence good. Family history excellent, with the exception of one brother who died at 33 of cerebral meningitis. She has always enjoyed good health, and is of a most bright and cheerful disposition, courageous and hopeful to the extent of light heartedness throughout her most distressing sickness. Manifesting a most intelligent interest in her own case, so apt in noting and describing her various symptoms or recounting her sensations, I requested her to write them out for me, and after hearing them, I think you will agree with me that a study from the standpoint of patient or laity, is not only an innovation but one of value and instruction:

"I went to bed on the night of January 6 feeling well but extremely tired, and the first premonition of approaching illness was on being awakened at 8 o'clock in the morning of the 7th, when I experienced the most violent noises in my head, like the pounding of iron. I had no dizziness or nausea during the forenoon, but on going down stairs received a slight physical shock as if the steps wavered, and came in contact with the feet too suddenly. This continued all the morning, and was accompanied by a feeling of great lassitude. I ate heartily at luncheon, had no pain in my head or elsewhere, although the noises continued without interruption, if anything, increasing in violence. A loud noise such as the water rushing in the toilet room, seemed to aggravate this condition, filling the head with noise. At about 1:30 P. M. I was seized with the acute attack of vertigo. I had just nursed my month-old baby when the room suddenly and with great violence seemed to turn directly upside-down, the floor approaching me and giving the sensation of an actual shock as if caused by an earthquake. I staggered to the door with my feet wide apart like an intoxicated person and called for assistance, then fell into a chair and life seemed to leave me for an instant. A glass of wine restored me temporarily and I reached the bed without assistance and lay down. Upon moving my feet on the bed I experienced a slight sensation of the bodily physical shock before produced on going down stairs in the morning. The physician arrived about 2 P. M. when the violent symptoms, especially vertigo, had somewhat subsided, but immediately after his leaving I was seized with a violent spell of vomiting, after which I arose from bed and went down stairs to be conveniently near some member of the family. About an hour later I was seized with a second attack of vomiting, this time accompanied by the most awful dizziness imaginable. The doctor likens this condition to seasickness, but I am sure that no seasickness could be half so terrible. The nausea, vertigo and vomiting continued during the afternoon and were intensified by the slightest movement of any part of my body, the room seeming to spin round and round with great velocity. I was utterly unable to rise to return to my room and was finally carried there in great distress from the disturbance and change of position. Doctor called again at 7 o'clock in the evening and ordered absolute quiet, and I retired and slept heavily until morning. Upon awakening, all the symptoms returned with increased force, the slightest movement of any portion of my body, excepting my hands, producing the most deathly nausea and vertigo, together with a feeling as if I were falling to the affected side (the left), while the room would seem to revolve rapidly in the same direction, and the floor or objects under or below me seemed to rise up violently against me. These symptoms as before were increased by any movement of my extremities, even the simple movement of the eyeballs being sufficient to produce it, and it was only by maintaining an immovable position on my left side with my eyes closed that I enjoyed the least immunity from these distressing feelings. They continued without abatement for a week or eight days, when gradual amelioration took place, though several days elapsed before I was enabled to actually change my position on the bed; this was done by keeping the upper part of my body thoroughly rigid and horizontal, the least raising of the head or trunk instantly producing the feeling of shock and dizziness, yet without such violent recurrence of nausea. The inhalation of strong ammonia salts during these efforts at change of posture seemed to partialy restrain the distress, especially the nausea. After the first week the vomiting ceased and in the next few days some abatement in the violence of the other symptoms, except movement, when the feeling of shock recurred as if the bed rose violently against me. This lasted during the entire three weeks I was in bed. In disappearing it seemed to leave the various parts of my body by degrees, beginning at the extremities and approaching my head, the last place to subside being the affected side between the shoulder and hip, where I still periodically notice it. On moving across it the bed seemed to rise like the ocean billows carrying me on their crest. As the vertigo grew milder the violence of this motion and the excursion of distant objects, seen through my windows, first grew less and less; nearer objects, as the confines of my room and its furniture, later, and finally my bed on which I rested. When convalesence had proceeded far enough and I could get up, I staggered considerably and pitched forward to the right or unaffected side. I was obliged to help myself by the bed and furniture, fearing to trust myself to others.

At the present time, six months since I was stricken, the noises continue with varying intensity, ranging from those heard on a quiet summer night, to those heard in a foundry. It is much less when lying on the affected side; and when lying on the other side, no matter what they may have been during the day or when up and about, they resemble the chiming of bells, and sometimes like the shifting of sand or rubbing of sand paper. External noises when near me sound abnormally loud, as for instance persons coughing or the tearing of paper, which are almost painful

and startling. I am unable to distinguish the ticking of a watch when held close to the affected ear."

I do not know that I can add materially to this excellent description by my patient of the subjective symptoms of the case and will therefore address myself briefly to those that are more especially objective.

On first seeing my patient, some hours after the inception of the attack, the symptom most complained of was the tinnitus, and my next visit, some five hours later, the triumverate, tinnitus, vertigo and nausea or vomiting; fullness and loud thumping noises were felt throughout the head, while sharper, higher pitched sounds and the vertigo were referred to the left ear. The patient, a robust, plethoric woman, seemed now to have some slight increase of color in her face, rather than the pallor usually attendant on the invasion of this disease. Pulse and temperature were about normal throughout her illness. The temperature never arose above 100 degrees F. and the pulse ranged between 75 and 90. Early and repeated examination disclosed no change in the drum membrane. At my first visit hearing power in the left was almost lost. So excessive was the vertigo and so easily excited or intensified that no little difficulty was experienced in making thorough examination. A heavy step or a slight jar of the bed, or the suggestion of a change in position for the administration of medicine or examination, were met with the most vigorous protests from the patient, who in other sicknesses had proven herself most tractable. At my first visits after some efforts for the relief of the nausea and vomiting, with but little effect, calomel in divided doses was given until free purgation, combined with acetanilid and citrate of caffein, together with 1 gram doses of sodium bromid every three hours. The horrible tinnitus prevented her from sleeping, but this was fairly well overcome, by 0.65 gram of trional at bed time. On the evening of the second day, 0.016 gram doses of muriate of pilocarpin were administered hypodermatically every half hour until four doses were given, producing free though not excessive diaphoresis for a few hours, but making no impression on the disease. The next day 0.32 gram doses of potassium iodid, three times daily were prescribed, which in a few days were increased to 0.65 gram, and with the sodium bromid was the predominant treatment for several weeks. During the second week there were some manifestations of rheumatism in the extremities, which promptly disappeared on the administration of salicylate of colchicum. Absolute rest and perfect quiet were insisted on, and in the third week recovery was taking place, nausea disappearing first, vertigo and tinnitus subsiding later in the order named; both these latter, however, are still periodically present. a quick turn of the head, a violent motion of the body or a loud noise being sufficient to reproduce them.

Early in the attack Politzer inflation and the use of the Eustachian catheter mitigated the tinnitus but later, as Randall has pointed out in cases of internal ear disease secondary to disease of the conducting apparatus, intensified it. At the present time, six months after the attack, hearing power is improved, though for both high and low pitched tones it is still very greatly impaired, while loud tones of any pitch, especially if close, are painful. During the past month the bromid had been discontinued, and the iodid supplanted by Donovan's solution in ten drop doses thrice daily.

From observation in this and a number of other less typical cases, I conclude that it is a disease of more frequent occurrence than supposed by the profession at large, many of the milder forms and oft recurring cases being ascribed to cerebral troubles or gastric or visceral disturbances; the liver, long the scapegoat for human ills, is compelled to add this to its burden of offenses; especially is this so if occurring coincident with some indiscretion or irregularity of diet. The aurist is usually quick to recognize this disease even in its milder or atypical forms, but from the frequency with which I have found the ear ignored in attacks of vertigo, no reference by examination or otherwise being made to it, I think it is too often unrecognized until repeated attacks have worked irreparable injury. In the milder forms, rest in bed, restricted diet, attention to the excretory functions and the administration of bromid salts usually suffice. In gouty and rheumatic cases I have found salicylates or lithium salts, with potash and colchicum, most effectual. In the more severe cases, especially if at the outset they seem apoplectiform in character with full tense pulse, I would not hesitate to bleed freely and follow by arterial sedatives and absorbents. Quinin, as advised by Charcot, I have found useful chiefly in cases with sluggish secretions and malarial complications, when the addition of arsenic or dioscorea villosa increases its beneficial effect. All that has been said concerning the milder cases, or concurrent complications, will apply to prevention of recurrence of the attacks, for I think it is fairly well established that one paroxysm predisposes to others subsequently.

SOCIETY PROCEEDINGS.

The Quarantine Convention of the South Atlantic and Gulf States.

(*Concluded from page 433.*)

FEBRUARY 10—MORNING SESSION.

The first paper read was

QUARANTINE AS IT AFFECTS PERSONAL RIGHTS,

by ex-Lieut. Gov. SHANDS of Mississippi, now professor at the law department of the State University. He discussed the question as to the extent laws can go in their effect upon the constitutional rights of the citizen, quoted from the Constitution as to the abridgement of the rights of the citizen, and said that any enactment interfering with the rights would be set aside by the courts. He also referred to a number of legal decisions touching upon the subject of his paper, and cited a Michigan case, emphasizing the position he took that laws bearing on the rights of citizens would not hold. He cited opinions, however, that quarantine laws were constitutional when the necessity of the enforcement of the provision abridging personal rights was apparent and necessary to public health.

Hon. C. H. AUSTILL of Spring Hill, told his experience with the yellow fever refugees last year, and how few personal rights individuals had during the quarantine. Mr. Austill thought, however, that if legal and reasonable quarantine laws were enacted it was the duty of the people to obey them. He deprecated very much the character of the quarantine laws established and operated last year.

A. L. MCLEOD of Selma, said that the fever was a great evil and the quarantine also an evil, a lesser evil than the fever, perhaps a necessary evil; but a quarantine regulation should be a reasonable one. As it was last fall, in many instances it was a species of absolutism and despotism. He in the quarantine campaign last fall cited instances where the regulations had been extremely autocratic and despotic. He thought that the convention should recommend the passage of laws that would deprive a State, city or town of the right to quarantine other than infected places.

Hon. F. G. BROMBERG of Alabama, thought the remedy for

the mischievous features of quarantine was the proper education of the people. He said that in the end the courts would have to pass upon these rules and regulations. He thought that there should be a bureau of health at Washington the same as a Department of Agriculture. True ideas should be promulgated all through the country, and the people would be better posted and know better how to act.

The next subject of discussion was

NATION, STATE AND LOCAL QUARANTINE; HOW BEST TO ADJUST THEIR RELATIONS.

A paper was read on this subject by Dr. W. H. SANDERS, State health officer of Alabama. He took the position that local and municipal quarantine laws must be made subordinate to those of the sovereign State. The State must be the judge of the reasonableness of the quarantine laws of local and municipal government, wherever they conflict with those of the State. In her own borders the State should be supreme. Then assign to the National Government the dutes of its own sphere. Let there be established a national bureau of public health. Let the members of it be from the different States, so the body could be in touch with all the different States. Let this body create rules and regulations in times of pestilence, and all the States would feel it incumbent upon them to support its laws, as all the States would have a voice in these rules. Dr. Sanders then presented a map of Alabama to illustrate the system he advocated. His plan was to have a health officer in every county, thoroughly familiar with the topography of his county, theoretically if not practically familiar with all infectious diseases, familiar with all the roads and avenues of traffic, and ready to act a moment's notice. The same to be with reference to the State Board of Health officer, except that he only familiarize himself with all the towns and cities near the adjoining States. In other words, to have a zone around the State guarded by the State health officer, assisted by his co-workers, so that the people within this zone could pursue their vocations undisturbed by the inconvenience of local and municipal quarantine regulations. Dr. Sanders, with the aid of the map, elaborated his plans in detail. He outlined his plans especially in opposition to a National quarantine system with one man from Washington in times of pestilence directing from that distance all the quarantine operations of the South. The necessary appointment of hundreds of thousands of quarantine officers at a short notice, officers, too, over whom the people of the South would have no voice in selecting. He predicted that such a course would result in trouble and a chaotic condition of affairs.

Hon. F. C. ZACHARIE of New Orleans divided the quarantine ideas into four classes. First, the people who believe in the absolute States rights, the second in the Federal sovereignty with reference to quarantine, a third class who believe in local and municipal quarantine, and a fourth class, composed generally of merchants, who would put the quarantine regulations upon a business basis, and would waive constitutional rights and home rule and depend upon the highest authorities to enforce quarantine regulations. Mr. Zacharie reviewed at length the great trade of the Mississippi Valley, how it was acquired and what it meant to the South. He intimated that Federal control of quarantine would be putting the South at the mercy of its mercantile enemies, and how easy it would be for the government to send down an expert to diagnose a case of fever as yellow fever and then close up several ports of the South for six months to the vast commercial injury of its cities and people and to the delight of the commercial enemies of the South. He referred to the malicious reports that had been circulated in the last two or three years against the South. The report, for instance, that grain which came to New Orleans and Mobile was damaged or ruined by reason of the dampness, and which report was found to be absolutely untrue. He believed that the Federal control of the quarantine would be disastrous to the southern business. He believed, however, that the Federal Government should define a reasonable quarantine and see that all vessels coming from infected ports were thoroughly disinfected and fumigated. Mr. Zacharie advocated forming a central society composed of delegates from all counties of the State to meet together and discuss hygienic and sanitary matters and give health information throughout the State, thus educating the people along that line.

Mr. FARRAR then offered the following resolution:

Resolved, That it is the sense of this convention

1. That it is the imperative duty of the Congress of the United States, under the power to regulate commerce with foreign nations and among the States to establish immediately a general system of maritime quarantine, and in pursuance thereof to locate on the Gulf and Atlantic coasts, at safe and convenient points, as many quarantine stations as the exigencies of commerce may require, to which stations all vessels coming from infected or suspicious ports and bound to any port in the United States should, before presenting themselves for entry at such ports, be required to repair to and perform quarantine, according to uniform regulations, putting all the ports of the United States on an equality, reserving to such port, however, such reasonable right of detention, inspection and fumigation as the local *bona fide* health laws of such ports, not amounting to regulations of commerce, shall require.

2. That it is the imperative duty of the Gulf and South Atlantic States—Texas, Louisiana, Mississippi, Alabama, Georgia, Florida, Tennessee and South Carolina—under paragraph 3, of section 10, of article 1 of the Constitution of the United States, to obtain the consent of the Congress, and of the Congress to give such consent, to an agreement or compact between themselves for the establishment of a uniform system throughout these States of local quarantines and health laws, based on scientific principles and as little restrictive of traffic, transportation and intercourse as the health and welfare of the people will permit.

3. That in order to enable the Congress to have complete control over the localities selected for its quarantine stations, the States ought to, under paragraph 17 of section 8 of article 1 of the Constitution, to cede their jurisdiction to the Congress over all such localities.

4. That the line of demarcation between these State and Federal quarantine laws ought to be clearly drawn, so as to prevent all conflicts and jealousies between the officials charged with the execution of the same.

5. That all of these laws ought to be executed in a mutual spirit of conciliation and respect, so that by their combination and co-operation the safety of the people, which is the highest law, may be secured.

They were referred to the committee on resolutions.

Dr. J. B. ELLIOTT discussed the paper read by Dr. Sanders, and agreed with him in many things, but did not think Dr. Sanders valued sufficiently the most important thing in the convention, which was, in his opinion, "Who shall make the laws?" At present the quarantine laws are contradictory and unsatisfactory. He thought the convention ought not to adjourn until it had passed an explicit resolution with reference to those who should make the laws. A solid, durable system of quarantine laws, he thought, should be framed by a representative body, composed of delegates from each State, to whom should be delegated the power of making those laws. Under the present quarantine system the laws are arbitrary and despotic, and are naturally resisted by the people. Congress is not the proper body to make these laws. A presidential appointee can not make satisfactory laws. Dr. Elliott thought a legislative body ought to be appointed, composed of representatives of the different boards of health of the different States, to meet as often as necessary until a perfected system of sanitary and quarantine laws could be secured. He thought Congress should be appealed to on this question at once.

Dr. E. H. SHALL of Birmingham thought the great question was how best to keep yellow fever out of the country. This, he claimed, was the first principle, the first matter to be considered. He thought that regulations, tyrannic if necessary, should be adopted by Congress to prevent the fever from coming into this country. He thought that the Federal, State and municipal governments should work in co-operation to this end.

Dr. CUNNINGHAM of Alabama spoke of the importance of the convention and of the efficiency of the medical profession had they the means and power to handle yellow fever when in their midst. He maintained among other things that if Cuba were bought or taken by force it would greatly minimize the danger of infection from that island. He deplored the fact that Southern boards of health, the peers of any in the United States, had no money to fight yellow fever, and he believed that these delegates should demand the necessary money from Congress to carry on that work. He paid a high compliment to the Marine-Hospital Service, and thought the whole matter should be turned over to them, with the necessary money from Uncle Sam's treasury to do the work.

Dr. CARTER, in response to references that had been made to the Marine-Hospital Service, gave a short account of its workings.

Mr. RUSSELL thought that Federal and State quarantine systems could be drafted so that they could be in operation in the same State, even in the same town, just as they do now with the Federal and State courts and laws, without conflicting.

HARRY PILLANS of Mobile said he had been impressed with the warning given by Colonel Zacharie of the Federal supervision of maritime quarantine. He thought, too, that it

might operate to the commercial disadvantage of the South. He said that Dr. Carter had answered in response to a question that even now there was a difference in the detention of vessels at ports north and south of Baltimore in favor of the North.

Mr. CLARKE of Mobile spoke of the matter of a board appointed by Congress to make quarantine laws. He said that Congress had not a particle of power to delegate to any other body the right to make laws. They might give that board a wide range, but could not delegate to it the power to make laws. As to Congress making an unjust discrimination against the South in the matter of the Federal supervision of maritime quarantine, Mr. Clarke did not believe it. He said if Congress had desired to discriminate against the ports of the South it would have done so by simply withholding appropriations, when in fact in the last ten years it had spent millions and millions of dollars on the ports of Galveston, New Orleans. Mobile and other Southern ports. He did not believe there was much diversity of opinion in the convention as to a national quarantine service to protect the Southern coast.

Professor SHANDS said in reply to Mr. Clarke that he thought that Congress could empower Dr. Elliott's proposed board of health office to make quarantine regulations as well as it now empowers the Secretary of the Treasury to make the regulations.

Col. ZACHARIE said Mr. Clarke's reference to appropriations for the South had been most unfortunate, and went on to tell how the East had always been given the preference in the matter of appropriations; how five times as much money had been spent giving New York three waterways as had been spent on the whole Mississippi River, draining twenty-one States. As to the present appropriation contemplated for the Passes, it was seen that the very men in Congress who sneered at the proposed appropriation were the ones who were from the East, interested in the appropriations for the East. He was sorry to say it as an American citizen, but the money powers of the East controlled the Government in the matter of appropriations for the East. He also alluded to the Union Pacific sale by the Government, and how the public press had, in that instance, prevented fraud by the Government.

Mr. CLARKE, in reply, said that if Col. Zacharie would examine the record he would see that there had been more money spent by the Government on the Mississippi River in the last ten years than on the New York harbor and waterways leading into it in the whole history of the Government.

Mr. MCLEOD of Selma offered a resolution to the effect that every State should pass laws with reference to quarantine and call upon the authorities of the different counties and towns to enforce them. The object of this was to prevent the shotgun quarantine.

Dr. MOODY of Mobile classed Dr. Sanders' system as a keynote of the situation.

Dr. KOHNKE replied to what Mr. Pillans had said about discrimination practiced against the South. He said there was a difference in the time of detention of vessels, but it was agreed to at a conference of medical men at which the South was represented. Had it been the same time for detention as in the South it would have been really a discrimination against the North, as yellow fever is much more easily introduced in the Southern than in the Northern ports.

Dr. ROBBINS of Vicksburg made a short talk in favor of national quarantine, and said he hoped the convention would not be turned from that by the appeals to prejudice and fears by the legal gentlemen.

AFTERNOON SESSION.

The Committee on Resolutions made a partial report against the bill in Congress now pending against vivisection. The committee reported as against the bill, that is, in favor of vivisection. It was discussed by Mr. Bromberg and Mr. Clarke of Mobile, Dr. Hamilton of Chicago and others. Mr. Bromberg opposed the passage of the resolution on the ground that it would be an officious interference with Congress; that if the bill in Congress was not passed, every "Tom, Dick and Harry" in the country with an "M.D." to his name would be engaged in vivisection. Dr. Hamilton of Chicago explained that the resolution was in the interest of science and ought to pass.

Mr. CLARKE thought the convention had its hands full in trying to advise the Senate committee on the quarantine question without going out of its way to offer advice on the vivisection bill. He thought the convention should devote itself to quarantine.

Dr. HORLBECK thought the matter perfectly germane to the quarantine question, as it was on the matter of the investigation of the yellow fever bacillus.

A long, uninteresting and general discussion followed, the resolution being finally adopted.

The national quarantine discussion was then renewed. Dr. ROBBINS and Mr. FALKNER again made speeches in its interest.

Hon. LESLIE SHEEDON of Mobile said that the United States has the right to regulate maritime quarantine and the communication between States, and he thought there was a field for the operation of both the United States and the State Governments in which to work. He advocated Dr. Sanders' plan to be recommended favorably to Congress.

The report of the Committee on Suffrage was then taken up. It gave to the South Atlantic States and Southern States five votes each, and to the other States two votes each, voting to be on the unit rule. There was a long debate on the question as to whether the unit rule should prevail or not. When the vote came the unit rule was rejected by a vote of 56 to 34.

EVENING SESSION.

The first paper read was

A NATIONAL BUREAU OF PUBLIC HEALTH,

by Dr. U. O. B. WINGATE of Milwaukee. The Doctor presented a concise and clear argument for a national bureau of public health, which he advocated strongly as a means to help the South in controlling the yellow fever. He said the Marine Hospital Service had its hands full with its own work, and could not give the proper time nor consideration to this matter. Dr. Wingate thought that in addition to a national system of sanitation and quarantine there should be the same systems in the South in towns and cities to work in harmony and co-operation with the national organization.

Dr. DRAKE also in a paper on "National Quarantine," deprecated some of the statements that had been made by able constitutional lawyers against the Federal control of quarantine as well as some of the statements against the Federal Government itself. He began by a wholesale roast of the quarantine regulations last year, drew a picture of the general conditions, told of the failure of the local authorities in many instances to keep out the fever. He told of the stoppage of mails, burning of bridges and other lawless acts, and then in a very strong argument, advocated national quarantine hereafter to have control.

Dr. HORLBECK'S paper was mainly a denunciation of the Caffery quarantine bill, as pernicious and likely to do a great deal of damage if passed. He intimated that it was made in the interest of commerce instead of public health. He said also that it gave undue rights and privileges to the National Government. He closed with the statement that national quarantine should be co-operative, not autocratic.

Dr. ELLIOTT presented an outline of a quarantine plan to be submitted to Congress. It was on the line of the quarantine council which he had advocated during the day. He presented it as a resolution and it was sent to the committee on resolutions without discussion.

Mr. FARRAR (by request) offered the following resolution, which was loudly cheered and sent to the committee on resolutions:

"*Resolved*, That the quarantine convention of the South Atlantic and Gulf States invite the attention of the Congress of the United States to Senate bill No. 2680, introduced by Hon. Mr. Caffery of Louisiana, as not conducive to the sanitary interests of the country. They do not regard the bill mentioned as necessary or wise. The powers proposed to be confided to the Secretary of the Treasury are extreme and dangerous. We, therefore, respectfully recommend that said bill do not pass."

New Jersey State Sanitary Association.

(*Continued from page 436.*)

GEORGE F. LORING, Architect, of Boston, Mass., read a paper on

SCHOOL ARCHITECTURE.

He said: At the request of your president I propose to give you the result of my experience in school architecture. The relation between architecture and hygiene is close and vital. Building, the parent of architecture, owes its creation to the desire of men for more hygienic shelter than was furnished by forests or caves. After the erection of his own hut his belief in the humanity of the gods led him to provide the same comfort for them while his reverence caused him to change from mud to wood and to clay and to stone. By the erection of temples the esthetic element was introduced and developed. Architecture is thought of only as proportions and detail.

Why human energy should take this direction instead of developing the physical part of man may be found in the superstitious regard for the body itself. All the functions were thought to be controlled by superhuman forces; the mind being controlled by physical and religious abstraction tending to turn

he same away from the body, could but produce its own em-odiment in architecture. The greatest achievements of archi-ecture have always been identified with the most mental and piritual activity. The greatest triumphs have been in its pplication to the arts and industries. If our architecture is rue it will be influenced by our activities and partake of the nfluence of the time.

Our modern steel buildings with the improved mechanical nd scientific apparatus, to a great extent typify the national haracteristics and the life of the times. A true architect is orn, not made, and he will not cast aside these facts or it will e looked upon as absurd.

Hygiene has been the last of all branches to develop, due to uperstition and lack of knowledge. The microscope and the tudy of specialists has brought to our minds facts that have een concealed and laid for us a foundation on which to build; he application of these principles as applied to building of choolhouses is the subject here treated. In this northern cli-nate and congested population the average individual spends t least 90 per cent. of his entire life in doors. The sanitary onditions of our buildings therefore must exercise a powerful nfluence on the general health. The best means for a study f these problems is afforded by the public schools.

The large number of people of practically the same age, for he same length of time, under the same conditions placed in given area, make it possible to deduce much more reliable lata than can be done in any other way. Then also, children s a rule are free from chronic diseases or other diseases found n adults. Some one has said that a child may be regarded as very sensitive hygienic instrument responding quickly to hange and environment. Following this line of thought I ave made a study of school construction from the standpoint f hygiene as well as architecture.

Sixteen years ago school buildings were erected with the idea hat all that was required was the housing of so many pupils, rotection from the weather and so much floor space, all at the east possible cost. At about the time mentioned I began an nvestigation of this subject, being assisted by a bright man who was principal of a school. Much has been written on this opic but my remarks are based on actual experience in this ine.

Given a committee of fairly intelligent men, the first busi-ess instead of the last, which is the usual method, should be he selection of the architect. This should be done before any ite for the proposed structure is purchased. The location at suitable point within the school district, for convenience and ccessibility, is acknowledged. The exposure of the school uilding is of the utmost importance and preferably the lot hould face either to the north or the south; the class rooms an then be located on the southerly side of the structure with-ut too long corridors.

We are advocates of the sun buildings for class rooms; we lo not agree with those that advocate northwest or northerly xposure, when we consider the number of days in the year when the sun is obscured, that the sun is nearly vertical over s at its highest point in the summer time, that for spring, fall nd winter days the sun is necessary for health; that east and west exposures in the morning and afternoon are as bad, in the pinion of those with whom we differ, as the southerly, and hat the amount of fuel necessary for warming fresh air for orthery rooms is more by at least four tons per room than for outherly ones. We all know the agreeable sensation of direct unlight. Sunlight is the only disinfectant which sustains nan while it kills the microbe, and you can not but agree from he standpoint of health and economy that our conclusion is orrect. We believe that the body is of as much importance s the eye, with the windows properly screened against intense unlight by use of curtains to each window in two parts, with he rolls at the meeting rail, the top running up and the bot-om one down, the light can be controlled.

All windows in class rooms should be square-headed without ransom tops, which can not be properly curtained, and with-ut the bar over the transoms, as they throw strong shadows ver the desks. The light from the upper part of the window s most valuable and should not be made circular or in the othic style. Double windows or four runs of sash should be uilt in on the cold sides of class rooms. They have the advan-age of preventing the frosting of the glass surfaces and chilled ir will not flow downward on the bodies of pupils that happen o be seated in the outer aisles. With double windows the ind pressure on the walls of the exterior does not affect the ovement of the air in the heating and ventilating ducts. he interior lighting of corridors and location of stairways can e disposed to best advantage with the style of the building entioned. The space surrounding a building and within the oundary of the property lines should be at least twenty feet.

A lot where the grade of the land falls, or so graded as to fall to the rear is much the better for the basement, and for access to the same.

Except for high schools, no building should have more than two stories of class rooms. By spreading the building over the ground, instead of vertically, we gain in breadth architectural effect, lessen the danger to health of young persons by loss of energy climbing stairways, and lessen the danger from panics; the additional cost of a building two stories high as to one of the same capacity three stories high is so small that it is not worth considering.

In fixing the heights of stories we are governed some by the amount to be expended; the proper height of basement should be nine feet six inches to ten feet, of first story thirteen feet and second story twelve feet. The light in rooms on the second story is always superior to that on the first and we therefore increase the height of the story and of the glass surface of the first story to equalize the same; in any event the window heads should be finished to the top so no shadows can be thrown on the ceilings. The sill of windows should be three feet four inches from the floor. The proportion of light to floor of class rooms should never be less than one square foot of glass surface to six square feet of floor surface, and from experience we can say that this holds good for rooms thirty-eight feet wide, lighted from one side only. Within the limits of a city where adjoining buildings are about twenty feet from exterior walls we should increase our glass in proportion of 1 to 5.

Every room should receive the direct rays of the sun for some part of the day. The special arrangement of curtains before mentioned we consider better than dusty and rattling shutters. The direct rays can be wholly or in part excluded if desired, in direct sunlight the rooms up to the limit mentioned are sufficiently bright to allow the reading of extremely fine print without exertion; at other times the shades are not required.

The worst light is from the front. The best light is from the left side or left side and back. As the teacher suffers from the light as well as the pupil, and is placed necessarily in the opposite position, we believe that the desk should be placed on the floor, in such position as may suit the individual taste; supplemented by swivel chair is convenient and comfortable. The ceiling plays an important part in the distribution of light and should be white. We have used stamped metal ceilings painted white, but they are objectionable on account of the many shadows they throw; the paint soon becomes dull and is not the equal of a perfect plaster ceiling for reflecting light; the walls are better for the eye if tinted. Nothing can be better for blackboards than natural slate, but the joints should be cemented together after being placed; the chalk receivers should be placed at a height of two feet two inches from the floor for small children, and not over three feet four inches for high school pupils. Blackboards should not be placed between windows, and from thirty feet to forty feet in length is sufficient for any class room. Dustless crayons should be used; if common ones are used the board should be wiped off with a damp cloth, and not with a dry brush. Slots in the top molding of the boards should be left for cards. Picture moldings should be placed everywhere.

The number of pupils to a room can only be decided by the committee in charge.

The sizes of rooms for good seating depends on the size of the desks and ages of the pupils. The blackboard aisle should be three feet eight inches, the exterior aisles two feet four inches wide, inside aisles never less than twenty-one inches. An average desk twenty four inches wide, fifteen and a half inches deep, with chairs thirty one inches from back to back, seating grammar school pupils up to the age of 14, allowing space for teacher, will make a room twenty-six feet six inches by thirty-four feet three inches and allow fifty-four seats when fronted the narrow way, or fifty-two seats when fronted the wide way of the room. We find by careful adjustment of sizes of seats and ages of pupils that it is not necessary to allow twenty square feet of floor surface per pupil. As most authorities state they do not make any allowance for the age and place small and large on the same footing, we estimate fifteen square feet for the primary, seventeen square feet for grammar and twenty square feet for high schools. This makes quite a difference in the area and cost of a building. The adjustable desk with adjustable seat having a back of one curve seems to us the best and most comfortable for pupils. In a room longer than thirty-six feet it is difficult for a teacher to speak in an ordinary tone of voice so as to be clearly heard by the pupils in the rear row of seats.

Corridors should be without obstruction and never less than eight feet; ten is better. Stairways should be six feet wide

and each flight broken with a landing. These stairs should be as near the exits as possible and also equally placed at each end of the building. No portion of entrances, halls, corridors or stairs should be so planned that one teacher in charge of a floor can not command a view of the same for maintaining discipline.

Stairs, if of wood, should have stringers or supports of heavy hard pine, or of iron. If of iron, flat pieces of sheet lead should be sunk in each tread or sinkage filled with asphalt. The rise should never be more than seven and a half inches for each step with eleven inch treads.

From each class room there should be two doors connecting with the corridor; these doors should be hung to swing both ways; they should be fitted with new spring check, so whichever way they swing they stop on the return, at the center; glass panels in these doors are necessary.

If proper stairways are put in, there is no necessity for fire escapes on the exterior, any more than it is necessary to put up unsightly ventilators on the roof if proper system of ventilation is installed. If the building is laid out as described there can be no dark places. The details of lunch rooms, laboratories, specimen rooms, principal's office, teachers' rooms, libraries, superintendent's office, supply rooms, are matters for consultation. The female teachers' room should have toilet conveniences so that the girl pupils could use it for a sick-room; lockers for the teachers should also be placed in that room.

Laboratory walls should be of brick if the building is of brick, and finished in enameled brick or enameled paint; floors of the same should be of granolithic or asphalt. Floors of basement should be of granolithic; concrete is cheaper and also poorer in wearing qualities, as it disintegrates; much of the dirt on the floors of corridors and class rooms is from this source. The boiler room floor should be paved with brick and grouted in cement: the ceilings of basement where wooden framing is used in floor above should be wire lathed and plastered and is a protection against noise, dirt, drafts and fires. The best flooring for upper floors is selected dry maple or cone-grained hard pine, and the boards should be narrow, matched, and blind nailed. If nailed in the ordinary manner every nail hole and crack is a place for deposit of human and animal wastes. The floors may be covered with two coats of elastic varnish that will not mar or scratch; they should not be oiled as that turns hard pine black.

If wooden construction is used for floorings then the same should be protected against fire by use of salamander fireproof sheets put down between the under and upper floors with lapped joints and coated over with a solution of that make. If the partitions are of wood, then they should be fire stopped at each floor and ceiling. If brick walls are furred off for plaster and finish, the same should be fire stopped at top and bottom in each story. All staircases should be carried by brick walls and they should not be laid out in plan so as to be over the boiler room.

Concrete-expanded metal lath and steel construction for fireproof floors would cost about seven cents per square foot more than wooden construction and we hope the time will soon come when committees will be willing to pay the additional cost.

In the disposition of the basement plan the space instead of being filled with pipes, ducts, boilers, piers, etc., can be so planned as to have good rooms available for wardrobes, if desired, for toilets, manual training rooms, janitor's room, bicycle rooms, lunch rooms, etc., whereas, in many schools this portion of the building is absolutely worthless and can not be utilized, show lack of knowledge and experience on the part of the designer.

Assembly halls are usually placed in the roof space for economic reasons. The first or second floor would be safer and more convenient; if located on the second floor by providing wide openings to each adjoining class room at the platform end of the hall. The accommodations can be increased by using these class rooms, and allow of a smaller hall if necessary. From motives of economy the hall may be used as class rooms and arranged with folding partitions; the platform may be in sections, removable and a storage place provided. Quite often we arrange two class rooms so that they may be thrown together, making one large room; if on first floor they may be used for town purposes, etc. Regarding acoustic qualities of class rooms with height of from twelve to thirteen feet, the proportions of 26 x 34 or 26 x 32 are always good.

Authorities differ regarding the width of class rooms and quality of light; one says width of room equals two and one-half times top of windows from top of desks; this would give about twenty-six feet width for thirteen foot story and twenty-four feet width for twelve foot story. When there are no limitations the nearer this rule is adhered to the better the result.

The wainscot work of class rooms and elsewhere would be more vermin and dust proof if made of hard plaster painted four coats of lead and oil with soft gray color and finished without a gloss. Standpipes and fire hose should be furnished where the appropriation admits of it. The interior finish should always be of ash or oak, and the additional cost for ash over whitewood (which is so often used) would never be known if incorporated in the specifications. The style of the same should be simple and free from too many projections to catch the dust.

Wardrobes.—As contagion is most likely to occur from garments, which being porous, absorb and transport gases, microbes, etc., it is necessary to have two wardrobes properly arranged on each floor, one for each sex if appropriation permits. The latest improved wardrobes set up in separate rooms or in corridors either in the basement or on each story is made with separate stalls of three to four inch by three to eight inch channel irons covered with three to four inch half oval with open spaces up ten inches from the floor and the top five foot four inches from the floor, between each stall and forming the back between two sets of stalls on these frames filled with one and one-half inch diamond mesh No. 9 wire. At the bottom is a shelf for rubbers, two rings and cups for umbrellas with hangings on each side, none on the back. They are about one foot three inches deep and one foot six inches wide. The cost of this style of wardrobe put up is about $1 per hanging, as there are two to each stall, $2 per stall. In estimating the number of stalls that can be placed in a room and have plenty of freedom for aisles, etc., allow two square feet per hanging. We believe the best place for wardrobes is in each corridor, provided it is wide enough. There will be no traveling up and down to the basement. If separated for sexes there is less crossing of files or pupils, being more direct, cleaner and just as well ventilated.

Wardrobes seem to be the most difficult part of school sanitation, there being many advantages in the open method by placing them in wide corridors or in the basement, unless an appropriation large enough for special rooms with a thorough circulation of fresh air, is provided. The advantage of having them in the corridor is that the teacher in command of that floor maintains the discipline.

Sewerage.—Where there are no sewers we unhesitatingly use the cremating closets, but these should never be supplied with foul air drawn from class rooms above; there should not be a connection of any kind between closet room and rooms above. In no case should the wastes of sinks and bowls or private toilets be discharged into these vaults; the wastes should enter a cesspool, preferably a double cesspool a tight one for solids and a leeching one for liquids. The best urinal is of slate with the dry air system, using no water. There should be a connecting waste from the trough and a connection made to the cesspool drain. We are sure from the experience we have had, that these, when properly erected, will last forever without repair and that they are free from odor if an earthen urinal is desired, the best is the Stevens' patent ventilated from the bottom of the bowl and automatically flushed; slate is the best material for slabs.

Water-closets for pupils' use, where there is water carriage should be with automatic seats. The Hellyer Oxford Closet a moderate priced vitreous earthernware product of this country, has lately been fitted with a perfect seat, absolutely sure in action, and not likely to wear in any part; these closets set with a space of from twenty to twenty-four inches between the back of the slab and wall will allow access to all the pipes points, and tanks; nothing but the closet is exposed to view the closets are set separately with separate tanks, enclosed in ash, slate or marble partitions six feet six inches high; door should stand open in the closet with spring attachment and with spaces at top and bottom; each closet should have sea ventilation, and the toilet-room should be supplied with fresh warm air and a foul air extracting flue. No metal ducts for fresh air supplies to class rooms should be allowed to cross the ceilings of these rooms, as the joints in the metal work and around brick openings can not be made tight, and the fresh air becomes foul. There is no particular advantage in placing the toilets in an annex with cut-off outside the building, except that it is more convenient to have these on a level with the class room floors, in which case the building will be more costly.

The thick porcelain slabs with backs are the neatest and best device for drinking fountains in the corridors; or, if economy is the word, you can obtain an iron fountain with push button instead of a faucet, and when painted white is neat, serviceable and cheap. Each pupil should have an individual cup or glass and place for the same should be provided either in individual wardrobe, stall or desk.

The principal's and teachers' rooms should be fitted with ater-closets and bowls of approved make.

There should be two sill cocks and supplies at the ends of the uilding with shut-offs inside and a hose bibb and sink for use f the janitor in the boiler-room. The practice of making one arge foul air extracting flue answer for two or more rooms hould never be allowed, it being a conductor for sound and oul air between all parts so connected. Each room should ave an independent outlet. . . .

Cost of school buildings.—As we understand it, structures or this purpose are not to be erected as monuments to committees or the architects, they should be business buildings, eatly and plainly treated for the purpose, but not necessarily uilt like factories; it does not cost much to get breadth of reatment and architectural effect in a modest way. Unfortuately we have always been limited to cost. We can honestly ay that the appropriations have never been exceeded; to the est of our ability we have included as much of the above points s the money at our command would allow. For high schools f brick and stone the price per cubic foot of contents varies in ifferent localities from 11.2 to 12.5 cents; per square foot of round covered for two stories of class rooms from $5.50 to $6.50, or three stories of class rooms $7.50. The cost per pupil averges $160 to $175.

The Montclair high school erected by us in the year 1892 cost s follows: per cubic foot 12.3 cents, $6.42 per square foot of rea of first floor, or $160 per pupil, and accommodates 605 upils. The most expensive schools we ever erected cost 15 ents per cubic foot, a limit which there is no necessity for xceeding. Brick grammar schools without assembly halls cost er square foot of first floor area from $4.50 to $5.50 and from .8 cents to 11.34 cents per cubic foot, and per pupil from $68 to 75. Brick grammar schools with assembly halls will cost bout $80 to $85 per pupil. Wooden school buildings without ssembly hall cost from 7 to 8.4 cents per cubic foot, $3.25 to 3.78 per square foot of first floor area and from $50 to $60 per upil. Wooden school buildings with hall cost per pupil about 68.

The above prices include the building complete, including eating, ventilation, sanitary appliances and architects' serices, without furniture. In estimating the cost of furniture, sing adjustable desks of birch, adjustable seats, teacher's lesk, swivel chair, extra chair, clock and shades, the cost per lass room for primary schools is $167, for grammar schools 200, for high schools $250.

Dr. O. W. Braymer of Camden read a paper on

INFANT MORTALITY AND ITS CAUSES.

He said the frightfully great mortality is a well-known fact. he first year of life is the period of the greatest loss. Fifteen ut of every 100 die; four times as many die in the first as in he second months; and almost as many during the two years fter. One-tenth die before the eleventh day. Winckel says hat 10 per cent. die before the eleventh day; one-fifth to onefourth before the end of the fifth year; 20 per cent. before they re six months of age. What is the cause? There are several. hysical defects at birth; feeble system; proneness to contaious diseases; unwholesome surroundings; improper food; efects due to defective ova; maternal impressions or injuries, nd diseased parents. Much can be done to reduce this rate rom contagious diseases. The last causes we can readily see ow to relieve. Congenital defects should be prevented by roper dress of the mother, as tight corsets or clothing prevent he expansion of the uterus during pregnancy. Injuries cause any defects, as blows, etc. Syphilis or tuberculosis also prouces feeble offspring. Again, when births are too frequent he children are not strong and are made feeble by improper utrition, and want of care. A blot on the enlightenment of he age is to allow felons, the syphilitic, the tuberculous, the eak-minded, etc., to propagate without restriction. These ring into the world children of no utility. Man is below all easts save monkeys in having no control of his sexual desires. n rearing blooded animals, we expect to have the birth at the roper time of the year, of pure stock, and in a first-class conition. It is not so with the human being; no thought is iven to this; children in the best families are not looked upon ith joy. The authorities do not take enough interest as to ygiene of the home, and all that will conduce to the production of healthy children. The common people are not taught s to the value of cleanliness, fresh air, proper clothing; all his should be impressed upon them by persistent education long sanitary lines. It is difficult to make people believe that hildren should be dressed not as to season, but according to he temperature. There should be an interdiction of the old urse's bottle with the tube by every board of health. This the source of much injury to nursing children, as causing ad food to be taken during the time of nursing. We should go everywhere and teach morality, cleanliness and common sense; into the school room and teach sanitation in its fullest points; how to live and how to die; teach physiology of life, purity and health. We must not allow pride and the prevailing fashion and public opinion only to govern the growing child. Then the legislature must enact laws to prevent marriages of cripples, degenerates and the unhealthy. The conscientious minister must assist from the pulpit; he should be a physical exponent of the hygienic laws. The legal profession must assist by enforcing the laws so enacted; all can help by teaching hygiene and sanitary science, and the great reform can be quickly and easily obtained if the National government will heed the crying need and give us a Department of Public Health.

(*To be continued.*)

SELECTIONS.

Vaccinia Inusitata.—Dr. Lamb reports two cases of unpremeditated vaccination, as follows: "On Nov. 21, 1897, I was called to see a man and his wife, having six weeks previously vaccinated their child. The parents had during this period been attending to the child's arm, which was discharging some clear fluid, and the vaccination marks were covered with brownish crusts. No definite history of inoculation could be got; but on several occasions the husband had attended to the child's arm before getting out of bed, and had then urinated without previously washing his hands. On November 17 he complained of some pain and tenderness in the groin and also noticed some swelling in that region. He discovered some marks on his penis but did not take much notice of them. On the same day his wife had pain on micturition, but had no vaginal discharge. On the 18th the swelling was more noticeable and the pain and tenderness were much increased. His wife also had a small swelling in the right groin. On the 21st both husband and wife were worse. On examining the husband I found the horizontal inguinal glands were much enlarged on either side, and were also painful and tender. On drawing back the prepuce I saw five typical vaccination marks about a week old on the glans penis. The vesicles contained a very small quantity of lymph. There was no urethral discharge. His wife had two vaccination marks one just inside the labia and the other at the margin of the orifice of the urethra, the latter accounting for the pain on micturition. They seemed to be about the same age as those on the glans penis of the husband. There had been no sexual intercourse since the 14th. On the 22d the conditions were more aggravated in both cases. In the husband's case there was some swelling of the penis, and by the 23d that had become so great that the prepuce could not be retracted, and there was some discharge coming from the glans but none from the urethra. On the 27th the glands in both were nearly their normal size and all the local conditions in both husband and wife were not so great, although the wife had still some pain on micturition and a slight discharge from the vagina. On the 29th the husband returned to his work and his wife was able to resume her house duties without any discomfort. The mode of onset and the subsequent history with their complete recovery in so short a time leave no doubt as to the true nature of the case.—*London Lancet*, January 1.

Treatment of Chlorosis.—Dr. Latham of London writes to the *Practitioner*, October, an interesting contribution regarding the treatment of anemia and chlorosis. He has found the following treatment serviceable in many cases of chronic chlorosis:

Tinct. ferri perchlor	m.x–xx.
Sp. ætheris sulph	m.x–xv.
Tinct. nucis vom	m.x.
Tinct. quassiæ	m.xxx–xl.
Aq. ad	℥iss.

To be taken twice a day, an hour before luncheon and dinner.

It has been said that when iron is tolerated in chlorosis, the

remedy "is only effectual when given in large doses"—in such doses as will render the alkaline sulphids formed in the intestine inert. I dissent altogether from this plan of treatment. Large doses not infrequently set up considerable intestinal irritation, a febrile condition, palpitation or headache. "Every physician is acquainted with the symptoms which arise when young girls have taken large doses of iron for some time. Irritation of the abdominal organs, which evidently begins in the intestine, is set up, and may extend to the peritoneum and be accompanied with the usual symptoms, pain, discomfort, a tendency to vomit, diarrhea or constipation and general exhaustion; the last, however, not being apparently dependent upon the condition of the abdominal organs. These symptoms may persist for some days even when the iron is immediately discontinued, and may then gradually subside."

It is well then not to exceed moderate doses of iron; but, if necessary, we should endeavor to limit the formation of the alkaline sulphids in the intestine by other means. One of the most effective ways of doing so is to ensure a daily, satisfactory and natural action of the bowels. Constipated bowels may, as Sir Andrew Clark pointed out, lead to the absorption into the circulation of toxins, which then have a destructive action upon the red corpuscles.

An Irish Surgeon's Adventures in Turkey.—Surgeon Charles S. Ryan, formerly with the Turkish army in the warfare of ten years ago, has written a charming narrative of his experiences in the Orient. The *Lancet* dubs the book by the title "Phil Fogarty II." for the adventures which the author relates are even superior to the experiences of the Thackeray-Lever hero. Dr. Ryan is an Australian Irishman, and evidently possesses qualities eminently suitable for an army surgeon; indomitable pluck, cheerfulness under the most depressing conditions and, above all, the quality of sympathy. Dr. Ryan finished his medical education at Edinburgh University and was enjoying a holiday when he saw an advertisement from the Turkish Government inviting applications to serve as an army surgeon. He at once applied and was accepted, and the first post to which he was appointed was the camp outside Widdin. Of his work here he gives the following picture: "Half a mile from the camp was a large marsh or swamp, where great white arum lilies grew, with jonquils, narcissus, and the different kinds of iris in magnificent profusion, as well as millions of the tiny white snowflakes. I had a trench dug outside my tent, and once a week our two servants . . . brought back barrowfuls of flowers, which I planted in the trench. Here, too, the orderlies made us a great seat of turf and every morning from six o'clock till half past nine, I sat there among the flowers to receive my patients, who used to come up from the various battalions to have their ailments treated. As I sat on my throne of turf I had a sack full of Epsom salts beside me, together with a bucket of water and a pannikin, so that when the patient had swallowed a handful of salts I presented him with a pannikin of water and washed the nauseous mouthful down." Dr. Ryan was soon, however, to see very different work. His account of the siege of Plevna and the appalling state into which the hospital got toward the end of that magnificently borne time of trial reads like a chapter from the "Inferno." We must not quote any more, but will only say that after getting out of Plevna, Dr. Ryan volunteered for service with the Stafford House ambulance for service in Erzeroum. Here things were, if possible, worse than in Plevna. Typhus fever, cold and starvation added to the misery of wounds made up a terrible tale. We can sympathize with Dr. Ryan's trials on his journey from Erzeroum to Trebizond, and from a personal experience of the country we know what he must have undergone. Every one should read this book; it is a plain unvarnished tale of what goes on in war, and takes us back to the simplicity of MM. Erckmann-Chatrian, whose war stories are, we think, superior to those of Zola, except perhaps his "Attaque du Moulin." The style is easy and eminently readable.

Some Animal Substances used as Remedial Agents a Century or More Ago.—*Human skull* (cranium hominis). The powder, in doses of one dram, used in epilepsy; those a long time buried said to have been preferred, and some even limited the remedial action to the os triquetrum (bone of the carpus, situated between the os lunare and os orbiculare).

Paring of the nails (rasura unguis). A common emetic.

Mummy (mumia). Either that brought from Egypt, or prepared by dipping muscular flesh in spirit of wine and hanging it up in a brisk draft of air, or smoking it like ham. Used in bruises, epilepsy, asthma, phthisis, in powder ½ to 1 dram. Classified by one writer (1753) as a vulnerary.

Puppies (catelli). Live puppies, split in half and applied while warm; employed as poultices "to draw venom" from sores or boils. The puppies were sometimes boiled first in oil to make the poultice "mucilaginous."

Wolf's liver (hepar lupi). Used dried in diseases of the liver.

Fox lungs (pulmones vulpis). Used when dried and powdered in a pectoral linctus. This remedy was a great favorite among the common people. One writer says that the lungs of a fox must be a specific for asthma because "that animal is remarkable for its strong powers of respiration."

Huckle bone of the hare (astragalus leporis, talus leporinus). Diuretic powder.

Hare's fur (pili leporis). Styptic.

Musk (moschus). Antispasmodic and diaphoretic. The author of the New Dispensatory (1753) quaintly remarks that in his day "it has been for some time out of use, even as a perfume, on a supposition of its occasioning vapors, etc., in weak females and persons of sedentary habits."

Elk's hoof (ungula alcis). Anti-epileptic, either worn externally, so as to touch the skin, or taken in powder in doses of one dram. Said to "smell very sweet, by which it may be distinguished from a buffalo's hoof, which is sometimes sold for it."

Bone of a Stag's heart (os e corde cervi). Cardiac, esteemed to remove barrenness and prevent abortion. Dose, in powder, one dram.

Hartshorn shavings (rasura cornus cervi). The horns of the buck or fallow deer. To quote the New Dispensatory (1753), "Many extraordinary virtues have been attributed to these horns, and to all the parts of the animal in general; but experience gives no countenence to them; nor do they seem to have any other foundation than the great timidity of the hart, the annual removal of his horns, and an opinion of an extraordinary longevity; from these circumstances it was inferred that all parts of him must be proper for intimidating the enraged archeus, renewing health and strength, and prolonging life."

Boar's tooth (dens apri). Used as hartshorn shavings, but of greater value.

Rhinoceros horn (cornu rhinocerotis). Alexiterial, in powder; dose one dram.

Unicorn's horn (cornu unicornus). Resists the operation of poisons.

Inward skin of the fowl's gizzard (pelliculæ stomachi gallinæ interiores). "To strengthen the stomach."

Egg shell (caro testudinis). "Highly nutritive, analeptic and antiscorbutic." (Gray.)

Skinks (scinci). Dried, salted and powdered skins were considered alexipharmic, aphrodisiac and diuretic. Were also used in the preparation of the "mithridate."

Scaly lizard (lacerta agilis). Was sometimes used instead of skinks.

Vipers (viperæ). Both live and dried; were official in the Edinburgh Pharmacopeia and considered "alexiterial, sudorific, depurative and very nutritive." An old work on materia medica discusses the subject in part as follows: "The viper or adder is one of the viviparous reptiles, without feet, about an inch in thickness, and twenty or thirty in length. The poison of this serpent is confined to its mouth, at the basis of the phangs, or long teeth which it wounds with, is lodged a little bag containing the poisonous liquid, a very minute portion of which, mixed immediately with the blood, proves fatal; our viper catchers are said to prevent the mischiefs otherwise following from the bites by rubbing olive oil warm on the part. The flesh of the viper is perfectly innocent and strongly recommended as a medicine of extraordinary service in scrophulous, leprous and other obstinate chronical disorders; its virtues, however, in these cases are probably too much exaggerated. The viper is undoubtedly an high nutritious food, and hence, in some kinds of weaknesses and emaciated habits is not undeservedly looked upon as a good restorative. To answer any valuable purposes, fresh, vigorous vipers (not such as have been long kept alive after they are caught) should be liberally used as food; the wines and tinctures of them can scarce be supposed to receive any considerable virtue from the animal(?); the dry flesh brought from abroad is entirely insignificant."

Toad (bufo). The toad "dryed by a gentle heat and pulverized" was greatly esteemed as a diuretic and antihydropic. Dose in powder, to one dram. Applied externally to the abdomen to restrain "haemorrhagies." "Bufo Præparatus" or "prepared toad," was officially manufactured by the old Edinburgh Pharmacopeia as follows: "Put live toads into an earthern pot and dry them in an oven moderately heated till they become pulverable."

Prepared goat's blood (sanguis hirci præparatus, Edinburgh Pharmacopeia). "About the beginning of summer, take blood from any convenient artery of a middle-aged goat and expose it in a clear vessel to the sun, or a moderately heated oven, till sufficiently dried." Paris, the author of "Pharmacologia," and professor of materia medica in the Royal College of Physicians, London (1819–21), quoting from Browne's "Vulgar Errors," states that in many of the ancient works on physic, the blood of the goat was extolled for its efficacy in dissolving stones, and from this supposed lithotriptic virtue, it forms the principal ingredient of the "Powder of Nicolaus" and of the "Electuary of the Queen of Colein." The expression which gave origin to this belief was evidently allegorical, signifiying that the blood of the goat, by which our Savior was typified, was capable of softening the stony hearts of his enemies, or according to others, that by his influence the stony rocks and veil of the temple were shattered.

Frog's spawn (sperniola, ranarum sperma). "Celebrated as an excellent cooler for external purposes"; also used as an ingredient of a distilled "simple water."

Salamander (salamandra). Prepared by infusion in oil. Used by internal administration as a diaphoretic; externally, useful in rheumatism.

Bone of the perch's head (os e capite perciæ). Absorbent, lithotriptic; externally in tooth powders and to dry ulcers.

Pike's jaw bone (mandibula lucii). In powder, useful in leucorrhea and to facilitate labor; dose 1 to 2 drams.

Liver of eels (hepar anguillæ). Used dried and powdered, to facilitate labor; dose 1 to 2 scruples.

Hog lice, wood lice (millipedes, etc.). Alive, No. 12 (Gray) or dried and powdered, in dose of one to three scruples; used as a diuretic, "aperitive," and in the treatment of jaundice. Millipedes were official in the early editions of both the London and Edinburgh Pharmacopeias.

The insect kingdom was also called upon to furnish scorpions, beetles, bedbugs, ants, bees and a number of other substances, like cantharides, cochineal, etc., used more or less at the present time.—*Pharmaceutical Era*, January 6.

PRACTICAL NOTES.

Negative Antibacterial Effect of Tannin.—Sabrazés states that tannin has no antibacterial effect. On the contrary, it rather seems to favor the development of Koch's bacillus *in vitro* and in the guinea pig.—*C. R. Soc. de Biol.*, 1897, No. 40.

Lymph Glands in Carcinoma.—The importance of exterminating the lymph glands even down to the base of the broad ligament, in carcinoma of the uterus, as in carcinoma of the mamma, was emphasized at the Moscow Congress, and for this reason the abdominal route recommended.

Absorption of Antitoxin in the Alimentary Canal.—Escherich has established the fact that diphtheria antitoxin is readily absorbed by infants if administered per os or per rectum, but that it is not absorbed by older children or by adults when administered in this way.

Chlorid of Zinc in Gynecology.—For cauterizing the uterus after curettement, or in case of erosions, Schlapobersky has found a 20 per cent. solution of zinc chlorid extremely effective and satisfactory in every respect.—*St. Petersburg Med. Woch.* December 25.

Powders for Migraine.—Antipyrin and potassium bromid, aa. 50 centigrams; cocain hydrochlorate, 1 centigram; caffein, 2 centigrams; pulv. paullinia sorbilis, 30 centigrams. For one powder. Make six. Take one at the first indication of migraine.—A. Rohin in *Semaine Méd.*, January 19.

Xerophthalmia.—E. Neznamov cures xerophthalmia by bathing the conjunctiva with a salt solution to which a little sodium bicarbonate has been added; then swabs lightly with sulphuric ether on a cotton tampon. The lachrymal secretion is also stimulated by an occasional whiff of some ammoniac liquid during the day.—*Semaine Méd.*, December 29.

Bronchial Asthma.—The injection of a Pravaz syringe of the following fluids will sometimes arrest an attack of asthma; occasionally two or three injections are required: Morphin sulphate 75 milligrams; strychnin sulphate, 1 centigram; hyoscin hydrobromate, 3 milligrams; aq. dest. 10 grams. For hypodermic injections.—S. Solis-Cohen, *Semaine Méd.*, December 29.

Anesthesia of the Urethra by Rectal Injections.—Morphin hydrochlorate, 15 centigrams; atropin sulphate, 5 milligrams; aq. dest. 50 grams. For external use. Two to four grams of this solution injected into the rectum will completely abolish sensibility in the posterior urethra.—M. Scharf, *Progrès Méd.*, December 25.

The Value of Filmogen is cordially endorsed by Unna in the *Monatsheft. f. prakt. Dermatologie*, Vol. xxv, No. 4. It is an insoluble varnish superior to collodion, etc., for several reasons, taking up medicaments readily and adhering to moist surfaces. Unna has obtained remarkably favorable results in infantile intertriginous eczema, with 5 per cent. ichthyol in filmogen (*vide* JOURNAL, Vol. xxvii, No. 24). It is readily removed with alcohol or ether.

Treatment of Orchitis.—Du Castel disapproves of keeping patients with orchitis in bed, and has been very successful with a compressing cotton-lined suspensory, allowing the patient to pursue his usual occupations, after the pain has been relieved by painting the effected part with methyl or ethyl chlorid, which produces refrigeration similarly to ice, recommended for the purpose by Diday. He has cured in this way cases complicated with severe vaginalitis, and in chronic cases rebellious to all treatment finds this method as satisfactory as any.—*Semaine Méd.*, January 19.

Aluminium Acetate in Uterine Hemorrhages.—The hemostatic, antiseptic and astringent properties of this substance render it an effective means of arresting hemorrhage from the uterus, post partum or otherwise. Kalenscher makes the injection through a rubber tube attached to the end of a syringe holding 20 to 30 c.c. of a 3 per cent. solution, introducing it into the uterus. The astringent power is such that the vagina contracts until it is difficult to insert the finger. Three to five injections are usually required.—*Semaine Méd.*, January 19.

Alcohol as a Disinfectant.—Recent researches seem to show that absolute alcohol is devoid of all disinfectant properties, whereas proof spirit (50 per cent.) gives more tangible results in this direction than either stronger or weaker solutions. Antiseptic substances which, in aqueous solution, are more or less active germicides, entirely lose this property when dissolved in strong alcohol, but, on the other hand, corrosive sublimate, carbolic acid, lysol, and thymol, dissolved in a 50 per cent. solution of alcohol, disinfect better than aqueous solutions of the same strength.—*Med. Press and Circular*, January 26.

Organ Therapeutics in Infantile Nephritis.—Concetti announces extremely favorable results from the administration of renadene (an article manufactured from the kidneys of young pigs, mixed with sugar of milk) to six children under 5 years of age. Three were cases of acute primary nephritis, the others were chronic cases consecutive to scarlet fever or whooping cough. As much as four grams a day were given and it was always well tolerated. The improvement in the general condition was "rapid and conspicuous," and all the local symptoms progressively disappeared. The acute cases were attenuated and promptly recovered. The usual hygienic measures were applied at the same time.—*Gaz. d. Osp. e d. Clin.* December 26.

Iodoformed Salol in Tuberculosis of the Bones.—P. Reynier confirms his former announcement in regard to the benefit derived from salol heated to 48 degrees C. with iodoform (at which

point it melts, crystallizing into a solid mass as it cools), injected into tuberculous lesions of the bones, the soft parts over it sewed up at once, without drainage. In one of the six cases he reports, the patient's leg was amputated one year after on account of the spread of the disease. The injected spot was found entirely healed, the salol forming a solid adherent block, hard to be detached. The Soc. de Chir. does not endorse the method, observing that it promises no better than Reclus' iodoform salve, which did not survive, and the *Cbl. f. Chir.* agrees with this opinion (November 13).

Bromid of Ethyl in Hysteric Aphonia.—Arslan reports five cases of hysteric aphonia in women treated with success by bromid of ethyl. The patients were rapidly anesthetized with full doses (10 g.) of the drug and as soon as they were partly insensible, it was suggested that they shout loudly their name, count numbers, etc. The results obtained by the method were satisfactory. In four of the cases there was evidence of disease in the nasopharynx. In three cases influenza was an exciting factor.—*Gazetta degli Ospitali.*

Improved Local Anesthesia.—Operations on fingers and toes, ingrowing nails, panaritium, etc., are the most difficult to anesthetize with the Schleich method, and yet they are the most frequent in general practice. Oberst's method is simple and effective for these cases. The finger or toe is first raised to expel the blood, and the central end, as close to the field of operation as possible, is wound once or twice with an elastic cord, the ends not tied but held with a clamp. Cocain is then injected in the four sides of the finger, directed toward the tip, just below the ligature. The anesthesia is complete in three to ten minutes, tested with a prick, and lasts as long as the circulation in the part is arrested. This method has been followed at Breslau in 124 cases of the kind with such satisfactory results that Honigmann recommends it warmly in the *Cbl. f. Chir.*, December 25.

Treatment of Hemiplegia with a combination of passive gymnastic, baths and go-cart. Huchzermeyer of Oeynhausen advises commencing the treatment promptly, not waiting for complications to develop. He applies it to hemiplegia without regard to the etiology. Commencing with passive exercises of the affected and also of the sound members, half an hour twice a day, stretching, twisting, turning, etc., until every muscle has had its due share of gentle exercise. He considers electricity and massage superfluous in many cases and injurious in others, but supervises the diet and gives four or five salt baths a week at 26 to 27 degrees R., which he considers a most important factor in the treatment. The patient often feels his first spontaneous movement as his members are buoyed up in the dense salt water. The same effect on a larger scale is obtained by a large go-cart, such as is used to teach children to walk, which holds the body in an upright position and allows the patient to swing his legs with the slightest effort of the muscles. The patient recovers under this treatment with remarkable rapidity and completeness.—*Deutsche Med. Woch.*, January 6.

Traction of the Tongue in Apparent Drowning.—A report was recently published in *La Tribune Médicale*, which appears to illustrate the value of traction of the tongue in the restoration of the apparently drowned. A boy fell into one of the docks at Havre, and was not recovered till he had been immersed fully five minutes. He was quite unconscious when brought to land, but a custom-house officer at once proceeded to perform artificial respiration by Laborde's method (rhythmic traction on the tongue), while other attendants rubbed him vigorously and blew air into his mouth. In half an hour signs of life reappeared in the form of respiration and a few moans. He was quite two hours longer before completely recovered. Our contemporary considers that the fortunate result was mainly due to the tractions on the tongue, and with Dr. Gilchrist of Nice, who has called our attention to the report, suggests that it should be made widely known through the lay press that traction on the tongue repeated regularly fifteen times a minute, is a highly efficacious treatment in many cases of apparent death from asphyxia—*Brit. Med. Jour.*, January 29.

NEW INSTRUMENTS.

AN ELECTRIC STERILIZER FOR INSTRUMENTS IN EAR, NOSE AND THROAT PRACTICE.

Read by title at the Tri-State Medical Society, Louisville, October, 1897.

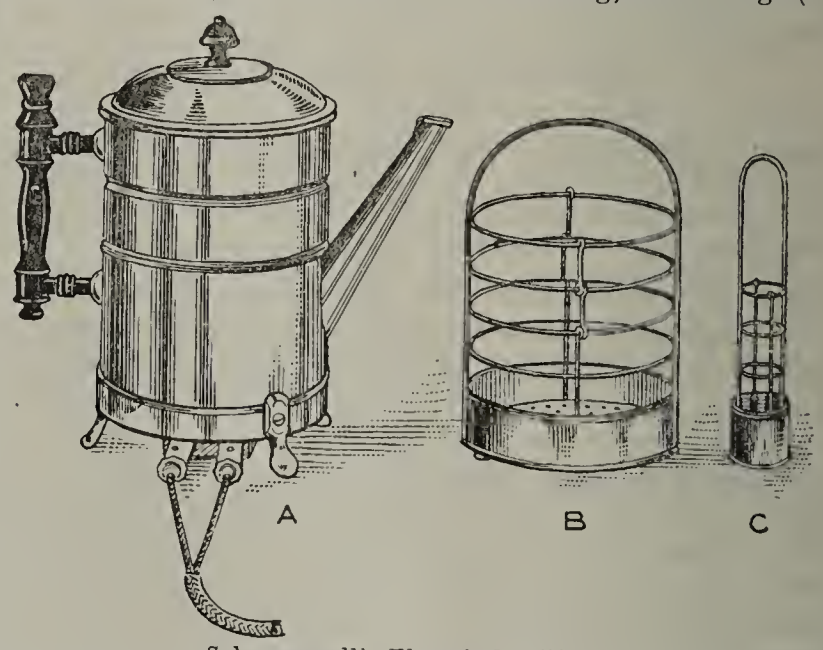
BY W. SCHEPPEGRELL, A.M., M.D.
NEW ORLEANS, LA.

The necessity of sterilizing all instruments for surgical operations has been so thoroughly instilled into the minds of medical men that we rarely find a surgeon who does not give careful attention to these details. Many forms of sterilizers have been suggested for preparing instruments for surgical operations, and the majority are of more or less practical value. A subject, however, to which the same amount of attention has not been given, is the preparation of instruments in ordinary use in office practice. It otolaryngology this refers especially to nasal and oral speculums, tongue depressors, applicators, etc. Each of these may be the means of carrying infection, unless the same attention is given as in the preparation of instruments for surgical operations.

A probable reason why more consideration has not been given this subject is the difficulty of arranging a suitable apparatus in a private office without the disagreeable effects of the heat and odor arising from the sterilizing process. Alcohol and gas lamps each have an objection in this connection. For the purpose of facilitating this matter I have recently devised an electric apparatus, which may be used not only for preparing instruments for operations, but more especially for sterilizing those in ordinary use. As this method obviates the odor from the products of combustion from oil, gas and alcohol lamps, and the inconvenience of using these where there is a current of air, it has displaced all others in my office.

A vessel of two quarts capacity is used, the heat being obtained from fine German silver wire at the bottom of the vessel, as in electro-culinary utensils. In this way boiling water may be obtained in a few minutes.

In this vessel (A), when used for sterilizing, a wire cage (B)



Scheppegrell's Electric Sterilizer.

containing the instruments is lowered into the vessel and left sufficiently long to become thoroughly sterilized. A smaller cage (C) is made for applicators. All metallic instruments used in the office may be prepared in this manner and may be made thoroughly aseptic.

In regard to the economy of this method, it has been shown by James S. Stevens and Burton S. Lanphear (*American Electrician*, September, 1897), that if electric energy can be furnished for fifteen cents per kilo watt-hour, which is believed to be slightly in advance of the average rate, the use of the electric heater is about 30 per cent. cheaper than the commercial (95 per cent.) alcohol for the kind of work for which these heaters are designed.

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SATURDAY, FEBRUARY 26, 1898.

THE ANNUAL MEETING OF THE TRUSTEES.

The Trustees met in annual session, according to the regulations, February 15. All the members were present and the usual routine matters disposed of.

The affairs of the JOURNAL have been very prosperous this year as compared with former years. The circulation has greatly increased, and the finances of the ASSOCIATION have never been in better condition.

The Board adjourned to meet in Denver on Monday, the day before the meeting of the ASSOCIATION. The formal announcement of the special train will not be made until the question of rates by the railroads shall have been definitely settled.

Among other items of general interest to the ASSOCIATION may be mentioned that the Trustees authorized the engaging of a special JOURNAL TRAIN from Chicago to Denver. A committee was appointed to have charge of the same, consisting of the Editor of the JOURNAL and Dr. TRUMAN W. MILLER, with such assistants as they might select from the members of the ASSOCIATION. It was decided that some features of former trains, which have been considered objectionable by many, will be eliminated.

DECREASE OF DEATH FROM CONSUMPTION.

A recent issue of the JOURNAL (Feb. 5, 1898) contained thirty-five pages of matter on the subject of pulmonary phthisis, contributed by nine different writers, scattered from the Atlantic to the Pacific coasts, and during the past decade an enormous amount of more or less valuable similar literary effort has been devoted to the "great white plague." Since the publication of this last batch of papers the JOURNAL has undertaken to ascertain the effect of this agitation during the last ten years, and the results of the inquiry are decidedly reassuring, at least as to the disease in urban populations.

Roughly stated, twenty principal cities, having an aggregate population of about seven and a half millions (7,478,506), in 1888, had nearly twenty-five thousand deaths (24,708) from consumption in that year; in 1897 the same group of cities, with an aggregate population of nearly ten millions (9,971,341), had a little more than twenty thousand deaths (20,161) from this cause. In exact percentages and per milles the following are the figures: Death rate per 10,000 of population from consumption in twenty cities, in 1888, was 33.03; in 1897 it was 20.21; decrease in death rate 38.8 per cent. Actual decrease in number of deaths, 4547. Actual increase in population, 2,492,835; per cent. of increase in population during the decade, 33.33.

In four of the reporting cities, namely, Minneapolis, St. Paul, Denver and Omaha, there is an actual and relative increase—due, as to the first three, to the increasing number of imported cases,concerning which Health Commissioner MUNN of Denver estimates that 85 per cent. of all consumptive patients in that city are exotic. Among the remaining sixteen cities the most notable reductions are Buffalo, 46 per cent. decrease; Cincinnati, 44 per cent. decrease; Philadelphia, 43 per cent. decrease; New York, 30 per cent. decrease; Brooklyn, 28 per cent. decrease; and Chicago, 24 per cent. decrease.

Of those who assign causes for this decrease, Dr. BENJAMIN LEE, health officer of Philadelphia, gives the following: "First, improved pavements; secondly, improved drainage; thirdly, generally improved sanitary condition of small streets and alleys; fourthly, the diffusion of information by the Pennsylvania Society for the Prevention of Tuberculosis; fifthly, notification by physicians and disinfection of premises, both prescribed by the City Board of Health."

New York tersely ascribes the result to "clean streets, cattle inspection and treatment of tuberculosis as infectious." Dr. S. H. DURGIN of Boston, to "better care from increased knowledge, better isolation, clothing and shelter, greater cleanliness of person and environment." Dr. MAX C. STARKLOFF of St. Louis to "education of the public to appreciate its contagiousness, observance of health department notices against expectoration in public places, and fumigation of premises where death has occurred." Dr. J. M. WITHROW of Cincinnati says: "The decrease is largely due to isolation of consumption patients in hospitals and the practice of sending all city hospital consumptives to a special isolation hospital in the country." And Dr. W. C. WOODWARD of Washington, D. C., thinks it is due to "improved modes of living."

To all of which, and much more of the same sort, the JOURNAL begs leave to add a factor entirely and somewhat naturally overlooked by the health authorities, to wit. the earlier recognition of the disease and its improved and more successful treatment by the medical profession. This factor will undoubtedly account for a large share of the apparent reduction shown in the foregoing figures—a reduction which, it is to be borne in mind, is "apparent" to the extent that they deal only with urban populations and take no note of the increasing numbers of consumptives who are sent away and die in sanatoria, health resorts and elsewhere.

THE "MICROBES" OF RHEUMATISM.

The popular or prevalent theory of the nature of acute articular rheumatism may be assumed to be, at the present time, that of its bacterial or infectious origin. The exact microbe which causes it has been so far unknown, and there may yet be in the minds of some a reservation of doubt as to the above stated pathology. The fact that acute rheumatism is not unknown or infrequent in the polar regions, where NANSEN is said to have suffered from it, may not be much of an argument against this origin of the disease, but it suggests at least a relationship to other diseases that are prevalent in Arctic climates and that are more generally attributed to irregular or morbid metabolism in the system than to living germs from without. The various bacteria, that have been credited or suggested as producing this disorder, by LUCATELLO, SAHLI, LEYDEN and others, have not been generally accepted as having such function by those best qualified to judge, and it has commonly been relegated to the large class of presumably or more or less certainly infectious diseases of which we are yet ignorant of the inciting germ.

The most recent researches in this special direction are possibly a little more suggestive and promising than any that have preceded them. In the November issue of the *Annales de l'Institut Pasteur*, M. ACHALME publishes an account of an organism that he has found most abundantly in the autopsies of two fatal cases, but also in the blood of living subjects of rheumatism and which from its behavior in control experiments and cultures appears to be possibly connected directly with the disease. It was a thick rod-like bacillus, not dissimilar to that of anthrax, exclusively anaerobic, requiring for its culture a very complete vacuum, staining readily by anilin and by the WEIGERT and GRAM methods. Its cultures give rise to lactic acid and an odorous mixture of acetic, butyric and propionic acids; its development was arrested by very small amounts, less than those required for other organisms, of sodium salicylate.

When inoculated into guinea pigs it caused the characteristic symptoms, infiltrations, pleural effusions, etc, of rheumatism, the animals succumbing in twenty-four to thirty-six hours. In rabbits endopericarditis and pleurisy closely resembling those in the human subject followed the injection of serum from inoculated guinea pigs. The bacillus readily associated itself with other microbes, especially streptococci, and seemed to favor their penetration into the organism.

The discovery of ACHALME is to a certain extent corroborated by two later investigators, M. TREBOULET and COYON, who reported their results to the Société Médicale des Hôpitaux, Paris, on December 24. They made a special search for ACHALME'S bacillus in a number of cases of rheumatism, and in every patient examined they found a special form of diplococcus, oblong, always in pairs, about two microns in diameter, to a certain extent anaerobic, and not decolorized by GRAM'S method. In two very severe cases of rheumatism, however, they found ACHALME'S bacillus, and also in certain autopsies, associated with their own diplococcus. According to their observation the bacillus appears to be only associated with the severer forms of rheumatism, while they suggest that their own discovery, the diplococcus, may be the common microbe of the disease.

Whatever may be the estimate of the importance or value of these researches, they are in the right direction, and should lead to still further studies upon this subject. There are relations between acute and chronic rheumatism also that require elucidation, in fact the whole subject is a broad enough one to engage attention for some time to come; there is not much danger of the immediate exhaustion of the field for research in this special direction. There are other bacilli that produce lactic acid and that succumb to the salicylates than that described by the French author, but his discovery has enough special characteristics to suggest a possible connection between it and the severer manifestations of acute rheumatism. The diplococcus found by the other observers may or may not be found later to be directly connected with the lighter phases of the infection; it certainly deserves a further study as to its reactions and development. The lead thus opened will undoubtedly be followed up and it is to be hoped will before long give us some more definite knowledge than we now possess of the real nature of the rheumatic poison.

THE FREE MEDICAL AND SURGICAL TREATMENT OF THE WELL-TO-DO IN MICHIGAN UNIVERSITY.

Since their establishment the Clinic and University Hospital at Ann Arbor have, as a rule, treated all who applied. Occasionally a particular professor would object to treating a notoriously rich person, but no rule has been adopted. Moved, doubtless by

ıe protests of the profession and their own sense of quity, the medical faculty requested the Board of egents at a late meeting to exclude all well-to-do eople seeking admission to the University Hospital. he board has the matter under consideration. It is ported in the public press that the majority are opposed to such exclusion of the rich. They hold that ıe hospital is for teaching students of the medical epartment, and that a millionaire makes just as good subject for teaching as a pauper; that he pays taxes the support of the hospital, and so has a right to ıe free services of the University Hospital staff.

This view of their duties is quite at variance with ıat held by the people who elected the regents. The ıtter expect the regents to conduct the University Iospital and Clinic in such a manner as to teach the ıedical students practical medicine and surgery, ithout disturbing the interests of any class of citiens, and without promoting discord between classes, r antagonism to the university based upon unjust iscrimination.

First it is creditably stated that the University Hosital would be full from the ranks of the poor, if only he rich were excluded. Hence there is no need to dmit the rich for the purpose of augmenting the size f the clinic. It is also creditably stated that the haracter of cases presented by the well-to-do, differs n no essential respect from those of the poor; all are f the chronic order admitting of transportation over ong distances, as cases of cataract, chronic surgical njuries or diseases. Hence on the ground of quality f cases there is no reason for the admission of the ich to the Hospital for the benefit of the students.

But the regents were chosen to conduct the Hosital for the benefit of all the people of the State, so hat it is pertinent to inquire respecting this benefit. An illustration or two may aid us to understand the ffect of free treatment of the rich at the University Hospital. A friend of the writer living in western Michigan told him that for years the only way he ould keep any case of cataract, or other operative ase on the eye, was to figure out the railway fare to nd from Ann Arbor and the cost of two weeks board at three dollars per week, and offer to do the operation for the resultant sum. Before he adopted this rule all well-to-do people went to the University Hospital. The fact of the free treatment of the rich at the University Hospital, was the club used by the rich to compel his working at utterly inadequate prices. Even those who had no idea of going to Ann Arbor used this club of the Free University Hospital to compel him to meet the competition of that institution, to support which he was taxed. He observed that these same people developed the habit of beating others on all possible occasions, apparently because they had beat the State out of services for which they were able to pay. He also said that there was much grumbling on the part of persons of moderate means, because their rich neighbors got for nothing services for which they paid—grumbling directed against the University.

Another practitioner in a different portion of the State would not adopt this plan; as a consequence nearly all well-to-do operative cases left him and were treated at the Free University Hospital. What work this man did, he insisted on being paid for in a reasonable manner; the result to his practice was evident. The cases that were able to pay largest fees went to Ann Arbor and were treated for nothing.

These two practitioners are types of all who treat chronic medical or surgical cases, and they illustrate the effects of the Free Hospital service at the University. The rich have been encouraged to try and get something for nothing, thus engendering a spirit hostile to the best citizenship. The poor have been crowded from the place and service intended for them, and so wronged. While persons of moderate means who regularly pay their medical advisers, are dissatisfied with being also forced to pay taxes in support of a hospital, physicians and nurses, for the free treatment of their rich neighbors. It is obvious that the Free University Hospital undermines the financial support of the medical profession both directly and indirectly; directly, in that their own rich patients are lured away by the cheapness of the Hospital; indirectly, in that many well-to-do people by the threat of going to the Free Hospital, compel services at rates far lower than rates for such services in regions distant from the influence of the University Hospital. It is thus evident that the value of the University Hospital would in no respect be impaired by restricting admission to those unable to pay for medical services. The quantity of patients would be as large as it could accommodate, and the quality all that can be secured in a small town. Therefore the interests of the Hospital would be advanced by restricting admission to the poor.

It is farther evident that the interests of rich, poor and those in moderate circumstances unite with those of physicians in demanding that the University Hospital be closed to those able to pay for medical services.

It is hoped that the Board of Regents will regard their obligations to the Hospital, to the University, to all citizens of the State and heed the request of the Medical Faculty.

THE APOTHECARY.

Our editorial on the "Passing of the Apothecary" seems to have provoked considerable discussion, some in concurrence and some adverse, and we have been "roasted" with great unction in some pharmacy journals. It was not intended to belittle the profession of pharmacy but merely to show the trend of the times. One of our correspondents (in January 15

issue), in trying to show that we are mistaken, confirms much that we said but blames it all on the physician. "We are compelled to load down our shelves with a dozen makes of pills, etc., merely to please the physician." And he concludes by saying that "the lot of the pharmacist is not a happy one" because the physician allies himself with the manufacturing chemist to enrich him and help himself.

This is the very point. Why does the physician ally himself with the manufacturing chemist? Why do men standing at the topmost rung of the profession agree to become consulting therapeutists for commercial concerns? Why do chemists of international ability become the attachés of these establishments? Is it commercialism that is at the bottom; is it according to an industrial evolutionary law? We did not answer these queries, we simply mentioned the fact as it exists. And while there are many able, intelligent and exceptionally well educated men in the profession of pharmacy, some better educated than many physicians, we still maintain that, in certain cities at least, there are numerous drug stores conducted by individuals who have studied a few months or more and passed a haphazard examination, and who conduct a variety store rather than an apothecary shop, who are merely agents for the wholesale houses. We know at least a half dozen stores in one large city, run by the wives of young men who themselves one year before were workmen in some other trade. While there are probably more college trained men in the profession of pharmacy today than ever, yet we affirm that today it is possible as it never was before, for a person to dispense medicine in a large city who does not know how to make a tincture, a pill, a suppository or any of the ordinary preparations called for. That these things are done for him, and apparently satisfactorily, by large concerns whose tendency is to grow larger and to embrace more and more the work of the individual pharmacist. It is true that the department stores do handle toilet articles, etc., and even patent medicines and quinin pills, but glance into the windows of the metropolitan fashionable drug shop and see what importance is given to bric-a-brac, to the *bar*, to soaps and perfumes and candies! We regret the departure of him of "the mortar and pestle," and if it be true, as our correspondent says, "that better days are in store for him," we congratulate him. We feel, however, that this thing is not of the physician's doing, though he is drawn into the struggle, but that it is the result of a chain of circumstances peculiar to the time, against which neither the pharmacist nor the physician can battle successfully.

THE DISPENSARY WAR.

In nearly all of the large cities the evils of free dispensaries are recognized, and the great question is to know what to do, how to abandon them and how to end their pauperizing influences. In the city of New York two parties are gathered in battle array. One would like to restrict the present free practice in dispensaries and stop the organization of new ones; the other would enlarge the scope of this work, and permit new places to give free treatment. The college teachers and post-graduate schools are very active to keep up the dispensaries, and the general practitioner realizes their danger to himself and the community. The issue is to be settled by a bill prohibiting dispensaries except under certain general restrictions, now pending at Albany. At this distance it is difficult to understand how any defenders of the present dispensary system can make a reasonable plea for their continuance on their existing basis. The profession have fallen into a low commercial level of giving gratuitous services, at all times and places, and have lowered themselves and the recipients of their charities. No other profession has pursued such foolish ways of work for the community, and as a result there is suffering. The blatant quack comes into a community and is paid for his pretentions. The poor always have money to reward him, but the well trained physicians must give their knowledge and skill for charity. The war should be to revolutionize these senseless delusions and not to perpetuate what is so clearly a wrong. We all unite in calling for a higher grade of medical preparation, and why should there not be an equal union of sentiment in raising the work of the profession to at least a common sense basis of reciprocation and dignified recognition of the value of such services. It is to be hoped that the good sense of the metropolitan physicians will prevail over the narrow policy of continuing an abuse fatal to all that is just and equitable.

CORRESPONDENCE.

Dr. McLean's "Personal Observations in Pulmonary Phthisis."

DENVER, COLO., Feb. 12, 1898.

To the Editor:—I have just finished reading this excellent paper in the February 5 issue of the JOURNAL and I feel like congratulating the author on writing the best article that has appeared for some time on the *prevention* and treatment of consumption. It is *prevention* more than *cure*, because once the conditions of imperfect aeration of the lung apices and the peripheral or terminal laxity of pulmonary blood vessels exist, which constitute the *gist* of this unanswerable argument, and the preventive warfare of the individual must be constant thereafter in order that health may be maintained. We seem (only *seem* in any case) to neglect these preventive means in treating and writing of the serious and advanced lesions which predominate in the class of tubercular cases which come under observation in this sanitorium State. It gives me pleasure to endorse these measures which are preventive. They are applicable alike everywhere, but especially in low damp climates where the dangers are greatest. Prevention antedates and then goes along with treatment, of which it is the major part any way. This idea seems to emphasize the importance of Dr. McLean's earliest "diagnostic symptom," or the "gravitation

ough," as he calls it. His idea is unique and its explanation ausible with regard to the early hacking cough or clearing of ie throat on retiring at night. It may be the first sign-board n the road to phthisis and therefore a good warning for the st of us to review our own experience in recognition of it. To ke an N. B. of so early a symptom is to be forewarned of the ouble to come. It beats the bacillus of tubercle as to time, r all that we now know, and fixes it as an after episode of an ready established condition.

The treatment indicated is in confirmation of all we have een preaching for these past twenty-five years in favor of xercise and high altitude climate. Especially is it gratifying o me to see such a confirmation of the need and such a proof f the utility of the "In- and Exhaler," advanced by one who ad probably never seen this little pocket device (descriptions f which will be sent to any one applying to the Denver Surgi- al Instrument Co.). I infer this unfamiliarity with the In- nd Exhaler because in the claim advanced for "mechanical xpansion" of the lung periphery and bronchi, as a possible ubstitute for living "at an altitude that gives immunity gainst phthisis." McLean says: "Among the various inge- ious methods which have been devised I could find none that vere free from objection, as they almost invariably increase he heart's action, which opposes rather than helps the pur- ose of their use." The ease with which this "mechanical xpansion" can be accomplished *at will* by the total of the one o two hours in each day's interrupted use of this In- and Exhaler, is apparent to even a lay observer. It is evident, too, hat this is without any undue disturbance of the heart's ction whatever, because of the *adjustibility* of the instru- ment's two valves. Special reference is made to the *exit valve* ecause it is only during *expiration* (not with *inspiration* as in faulty methods usually employed) that this "mechanical expansion" can be obtained. The most delicate bedridden invalid can lie near a window and breathe in, through a tube attached to this inhaler and extending out doors, the cold lung-expanding air, medicated to suit with mentholated, for- malined, eucalyptized, etc., vapor, and according to his or her strength compel its entrance into the finer tubes and vessels of the lungs. The heart meantime is only helped in its action, for the limit of the instrument's use is suggested to be the reddening of the face, *i. e.*, the congestion of the body's periphery by the driving outward of the blood from the impeded and paralyzed pulmonary vessels. Dr. McLean's endorse- ment of the pneumatic cabinet, and then his criticisms of its impracticability and cost furnish an excellent recommendation for this convenient little pocket device, easily made adjustable to every one's needs.

I may attempt to answer the question propounded, where the author instances Reynard's experiment proving that a rab- bit confined for a month in an atmosphere reduced in pressure to the equivalent of that at 6000 feet elevation, developed the same blood changes as in "rabbits transferred from sea level to a climate at 6000 feet elevation," namely, "Would the same changes in the blood have been produced in an animal breathing the same rarefied atmosphere of 6000 feet with the density of atmosphere pressing upon the external sur- face of the body as exists at the sea level?" That is, was the improvement due to the rarefied air alone which the ani- mal breathed, or was it due to this combination with the diminished air pressure upon the surface, or was it due to the decreased pressure on the external surface alone? I should say that you can not disassociate the dual effect in explaining the total benefit invalids receive in resorting to a high altitude. On the one hand you have the increased pressure (Dr. McLean's "mechanical expansion") due to the positive necessity to breathe a fifth more air to get the same amount of oxygen at a mile above the sea; and on the other hand you have the *suction* of the blood from the thorax and closed areas toward the periphery.

This latter is similarly explained, but the *reverse* of the con- gestion of the spinal cord and proportionately of all partially closed areas (as in the coverings of the brain) manifest in the caseous disease. This is the effect produced in workmen sub- jected to toiling in an atmosphere of greatly reduced pressure.

But the internal increased pulmonary air-pressure and the external diminished pressure of a high altitude atmosphere may be variously substituted for and varied in their propor- tionate effects by mechanical devices and systems of exercise. For instance, in the pneumatic cabinet, a person breathing the outside air, with the air around him reduced, has the pro- portionate drawing of the blood into his peripheral vessels cor- respondingly exaggerated according to the diminished pressure reached in the cabinet. On the other hand, exercise can be chosen, as Dr. McLean has so well shown, which will increase the "mechanical expansion" of the peripheral air cells and tubes of the lungs, with no dependence at all upon the suction effect mentioned of a circumambient atmosphere reduced in pressure. The inhaler referred to, if faithfully used, can do this. In fact, I believe the proportionate manifestation of tuberculosis in the lungs, as compared with other organs, would be greatly lessened and a good percentage of consump- tion be prevented if there existed the determination and will power, especially among the young, to persistently practice mechanical expansion by this, or possibly by some equivalent method. To use the words of Dr. McLean, "the price of health is vigilance and effort. If the phthisical patient would live and be healthy he must work for it, and in the way I have indicated or by some similar method, or he will miserably per- ish, notwithstanding he may swallow all the drugs in the dis- pensatory and be injected with all the serums and specifics, so-called, which are now obtainable. The expansion method of treatment is *nature's method* and is helpful in every stage of the disease, except where there is active hemoptysis from organic changes."

Let me urge the thoughtful perusal of Dr. McLean's paper.

CHARLES DENISON, M.D.

Prescribing Ready-made Compounds.

CHICAGO, Feb. 9, 1898.

To the Editor:—In the prevention and successful treatment of disease our science culminates and becomes an art. Thera- peutics, the philosophic adaptation of remedial agents to the correction of pathologic conditions, the cure of disease in the human organism and its restoration to that physiologic equi- poise we dominate health, is the full consummation of science and art. No one unfamiliar with physiology and pathology, pharmaco-dynamics and therapeutics can prescribe for any dis- ease in a scientific manner. Therapeutics must be regarded as first among the principles of scientific medicine by learned and cultured members of our profession. The adaptation of means to the accomplishment of wisely purposed ends in the practice of medicine and surgery, implies much as to acquirements and knowledge? Every case is stamped with an individuality by which it is differentiated from all others. We find special per- versions of functions and pathologic tendencies having relation to the assemblage of abnormities presented by the case. The educated physician addresses himself to the task of securing a mastery of every factor and of meeting every indication essen- tial to final victory.

When men of rare endowments and an encyclopedic fund of knowledge recognize the necessity for clear definite information and long investigation before authorizing the use of remedies in many cases, how can we reconcile the conduct of many with the obligations imposed, who simply order some nostrum, ready-made formula or trademark preparation? How can the manufacturing man even though he be a pharmacist, prepare such a combination of drugs as to adapt them to the cure of the hundreds of diseases met with each year? Drugs and

chemicals are modified in their action upon the human organism by age, sex, habits, idiosyncracies, temperament, constitutional taints (acquired or hereditary), avocation, climate, condition of the system at the time of administration, etc. Men who use these ready-made cure-alls forego the exercise of those powers of ratiocination in the adaptation of remedies to each individual case, according to its peculiarities and needs, which ever and always distinguish the learned from the ignorant. They insult the educated pharmacist by presuming that he could not prepare any combination required by the formula they wrote: and they only too often make clear the fact that they are incapable of originating such a combination of ingredients as the complexities of the case demand.

Prof. Geo. B. Wood, the scholar, scientist and author, in his great work published in 1860, entitled, "Therapeutics and Pharmacology," uses this language touching ready-made formulæ:

"It leads to an indolent reliance on mere authority by sparing the trouble of thought, and greatly conduces to an empiric and routine practice, neither creditable to the physician nor profitable to the patient. The author has preferably sought to give principles, by which the physician himself may construct formulæ suitable to each special case. He has endeavored to point out in reference to each medicine the peculiar circumstances which render its use appropriate, and the modification in doses it must undergo to adapt it to the varying circumstances of different cases, or the same case at different times. He has also called attention to the medicines with which in each special case it may be appropriately combined to aid or qualify its action. With this knowledge and that of the pathologic conditions to be corrected, the educated physician will be qualified to form much more appropriate associations or combinations of medicines, and to regulate much more correctly the proportions of the several ingredients in correspondence with the indications than any formulary can possibly do for him; nor can any medical man be considered educated or duly instructed until he is capable of constructing such formulæ for his own use and purposes."

The educated physician and educated pharmacist have delicately allied duties in their relations with the public, and no educated physician should allow his prescriptions to go to a mere trader in drugs; nor should a pharmacist ever commend an illiterate, uneducated physician. We should stand in an honorably helpful relation to each other and strive to excel in the breadth of our attainments, the excellence of our work.

W. T. AKINS, M.D.

Appendicitis: Comments Upon Dr. Haughton's Letter.

NEW YORK, Feb. 15, 1898.

To the Editor:—In the JOURNAL for Feb. 12, 1898, I find a reply from Dr. Haughton to Dr. Carstens which seems to fail to comprehend the subject of appendicitis in just the proper way. Perhaps there is no subject in medicine more thoroughly understood than that of appendicitis. The pathology, etiology, symptomatology and anatomy are all so completely recorded by our authorities that it is only the men who are too busy to read the works of authorities who imagine that there is still much room for discussion upon the subject. It has been demonstrated and recorded that the operative death-rate in acute and in chronic appendicitis without abscess, is only a fraction of 1 per cent. at the hands of several of our American surgeons.

It has been demonstrated and recorded that the men who represent diagnostic acumen of the highest order are powerless to make a prognosis about the outcome of any given case of appendicitis. It has been demonstrated and recorded that so large a proportion of "cured" appendicitis patients carry concretions and mucous inclusions and tubercular foci, and entozoa, and chronic abscesses that the eventual death-rate in appendicitis is not likely to show less than 25 per cent. death-ra under any form of medical treatment.

Curiously enough the reports of long lists of cures und medical treatment have seemed to be rather dishonest in the nature, and they bear the ear marks of a spirit of controver rather than of an interest in pure science. A medical repo on appendicitis cases should have several clearly defined fe tures. A statement about the length of time of observation, number of deaths, of number of occurrences of acute symptom of interval palpation findings, and of the interval condition general health of each and every patient. I am acquainte with several physicians whose love for truth was so muc greater than their love for controversy that they began to g statistics of this sort, but unfortunately for statistics they soo decided that their appendicitis patients must be operated upo promptly.

Apparently every physician who publishes long lists of a pendicitis cases cured by medical treatment knows in his hea that he is doing wrong. When he congratulates a patient o getting well without operation he knows in his heart that tha patient is very likely indeed to be carrying at least a mucou inclusion, and that he is not a cured patient. It is almost ir comprehensible that men whose duty it is to devote their live to the relief of suffering should be so fond of controversy tha they can not be honest to themselves, or to their sacred profes sion, or to the people whose precious lives are entrusted to thei care. Dr. Haughton has quoted one writer who published list of appendicitis cases cured by medical treatment. I hav challenged this writer's report, and although he has privatel stated that he will not look up his cases, and that he will no tell the profession what has become of them, I shall keep try ing in various ways to get him to do it, and I hope to get general report in the interest of science before the matter i allowed to rest. I may have to bear a great deal of persona abuse and may be put to much trouble, but it is all for th sake of humanity, and that makes one's labors seem light Clouds are coming over many a happy home in this fair lan on this very day because the family physician who conscien tiously tries to do the very best thing for his appendiciti patients is misled by controversial reports from physicians wh do not realize that their irresponsible influence is carrying death in its trail.

ROBERT T. MORRIS, M.D.

Appendicitis.

MARIETTA, OHIO, Feb. 15, 1898.

To the Editor:—I have been interested for some time past to learn how it happens that some doctors have so many cases of appendicitis, upon which they find it necessary to operate. Is it not a fact that most of the so-called cases of appendicitis are primarily impaction of the cecum and colon, which by proper medication can be relieved and avoid the operation? These thoughts come to my mind from the fact that I have been in a very active general practice, medical and surgical, for the past fifty-four years, and have never had but one case that needed operation, and that one in my early service, and far advanced. I lanced it and he soon made a good recovery. I think that with those in which I have been called in consultation, I have treated more than one hundred cases without the loss of one, simply by medication. I have no doubt but the vermiform appendix plays its role in all such cases and was placed there for some useful purpose, although we may not *fully* understand it. I shall in the future as in the past, try medication before operation.

B. F. HART, M.D.

Foreign vs. American Schools.

WASHINGTON, D. C., Feb. 14, 1898.

To the Editor:—It is gratifying to note in the columns of the JOURNAL that several correspondents have had the courage

to speak out their convictions as to the supposed advantages of European medical education when compared with those of our own country.

Permit me to say that my personal experience warrants the full corroboration of the statements made by your correspondents. Familiarity with the teaching of the medical schools in our Eastern cities, and frequent trips across the Atlantic the last twenty years, during which I studied at the principal European medical centers, have afforded ample opportunity to make comparison which, without any spread-eagleism, I am forced to say is greatly in favor of my native land. Just why any true American should go into ecstacies over anything German has always been a puzzle to me. While there are many individual Germans whom I respect and admire, candor compels me to say that after much travel around the globe Germans, as a class, are the rudest people I have ever met, and beyond beer and music I found nothing to admire in a country where most things partake of the cheapness and mediocrity of the imported articles labeled *in Deutschland gemacht*. During my stay in that garish but most dull and unattractive city, Berlin, shortly after the Franco-Prussian war, I was constantly taken for *ein Britisher*, and on witnessing an operation it was a common thing to be told that "they do it better in your country," little knowing that I was from the land of the tabooed pig and apple.

Though devoting a year to the study of German medical nomenclature alone before going abroad, I found it impossible to seize more than a general sense of the lectures attended. The study of German, in view of the enormous growth and great spread of English, is a waste of time only equaled by the *German medical journal disease*, or the absurdity of expecting to find in that country what exists in greater perfection in New York, for instance. Indeed, medical education has so advanced in this country of late that it is safe to predict that before many years Europeans will come here for study.

Of course I do not wish to imply that nothing is to be gained by going abroad. If the medical man really wants to learn he will find London, Paris and Rome the best places, and if interested in neurology, psychiatry or criminal anthropology, he will find Italians in the foremost rank. Every medical man who can afford it should visit Europe, not so much with the expectation of professional benefit as for that accruing from attrition with other minds, the wiping away of numerous cobwebs of prejudice, and the still stronger reason that he will return to his native land a better American.

IRVING C. ROSSE, M.D., F.R.G.S.

Leprosy in Norway and America.

BERGEN, NORWAY, Feb. 1, 1898.

To the Editor:—Allow me to make some corrections of Dr. Caldwell's article in the number of December 18, which you have sent me. Dr. Caldwell says that in our hospitals for the confinement and treatment of lepers were "domiciled over one thousand unfortunates afflicted with that terrible disease." From where or from whom Dr. Caldwell has obtained this information I can not imagine, for we had last summer not more than about three hundred and fifty lepers in our institutions. Later on Dr. Caldwell says that "I, in my visit to the United States found three cases in the hospitals in Chicago and twice as many in New York, as well as encountered several cases of true leprosy upon the streets of each city, all of whom were treated for lupus, syphilis or some other form of skin disease." I regret if any of my Norwegian colleagues has given such information to Dr. Caldwell. The truth is that in Minnesota I found one case and in the City Hospital in Chicago one case, not of leprosy treated for syphilis, but of syphilis diagnosed as leprosy. Now this is not to be wondered at, when the doctors have no acquaintance with leprosy. You will allow me to tell the incident in the City Hospital in Chicago, where I went accompanied by my colleague, Dr. Sandberg of Chicago. A young American doctor led us to the patient, who was a Dane. I saw at once that the man had no leprosy and asked him in Danish, "When did you get your chancre?" "Seven or eight months ago," replied the man. The young American doctor, who understood the word chancre, I suppose, said: "Oh, sir, he does not understand that." "Certainly he understands." said I. "He had his chancre eight months ago." "Oh, dear me," said the young man.

In the streets of the cities I never saw a leper, and I account for disease not spreading from the leprous immigrants of Wisconsin, Minnesota and Iowa by the cleanliness of the people everywhere. I said then and I say still: The first thing a Norwegian peasant, who is not cleanly, learns in America is to wash himself, and that does great credit to American customs. While writing you I will take the liberty to say some words of Dr. Ashmead's letter in the same number. I will not take up a discussion of the Leper Conference in Berlin. I will only say that I still never have seen an instance of "melancholia of leprosy." This affection is a discovery of Dr. Ashmead, but I regret to say that neither I nor anyone else in Norway has any idea of the existence of such an affection. One may meet with lepers who are melancholic, of course, but generally our lepers are of the same mental disposition as other people, and remarkably seldom we see a depression of their good humor, in spite of the disease; the reason is that the brain is never affected in leprosy, and one sees often enough people keep their good spirits in spite of even more fearful diseases than leprosy. I am, sir, yours respectfully, G. A. HANSEN, M.D.

The Alleged Castration of Squirrels.

HUDSON, OHIO, Feb. 8, 1898.

To the Editor:—In a recent JOURNAL Dr. Taylor has a communication with this heading "Do adult squirrels castrate each other?" A better heading would be "Do any squirrels castrate each other?"

In Vol. iii, page 646 of Owen's "Anatomy of Vertebrates" you will find a description of the male organs of the rodentia. Among other things he says: "The testes undergo a periodical increase of size and *change of position*, passing from the abdomen into a sessile scrotum and being again retracted, after the rut, within the abdomen." This change of position involving the disappearance of these glands, which are very conspicuous during the rutting season, has given origin to the belief that the males were often castrated. The Doctor notes a very significant fact that this supposed castration by another squirrel leaves no visible scar. If a surgeon will perform the operation with his sharpest knife he will leave a scar that will bear witness to his work. Any one who will carefully dissect one of these supposed emasculated males will find the missing testes within the abdomen so reduced in size as to be easily overlooked. M. C. READ, M.D.

Physicians Should be Compensated.

PHILADELPHIA, PA., Feb. 18, 1898.

To the Editor:—The editorial in the number of your JOURNAL for February 12 upon the subject of "notification of contagious diseases" is very timely. I have never been able to understand why physicians should be forced to make notification of contagious disease without compensation, as is commonly done in this country. In England physicians are paid two shillings and six pence each time they give notice of a case of contagious disease in their private practice, and one shilling if the case occurs in a public institution. This is provided by law. It seems contrary to fundamental justice, if not to law, that the medical profession should be made to perform labor without compensation, and I have often wondered whether the courts would not sustain a resistance of it.

Respectfully yours, ARTHUR V. MEIGS, M.D.

Advertising in Medical Journals.

SOUTH MCALESTER, I. T., Feb. 4, 1898.

To the Editor:—In answer to an advertisement in the *Tri-State Medical Journal* for December, 1897, I received the following literature:

DOCTOR—DO YOU CURE YOUR GOITER PATIENTS?

I cure all of mine and receive from $25 to $50 from each of them. The cost of treating a case will not exceed $1. Inclose a 2 cent stamp for particulars.—M.D., Lock Box —, Bloomington, Ill.

When respectable (?) medical journals admit such people to their advertising colums it is certainly time to cry halt. We wonder at the imbecility of the laity when they employ quacks, but what shall we say of the members of the profession who are equally guilty, as proven by the enclosed testimonial?

Such journals are more than "particeps criminis," they are the instigators. Some means should be devised to compel these people to either sail under their true colors or return to the ranks of professionalism. Fraternally,

C. A. SHAW, M.D.

ASSOCIATION NEWS.

The Senn Medal.—Those members of the AMERICAN MEDICAL ASSOCIATION intending to compete for the medal offered by Dr. Senn for the best essay on some surgical subject, are requested to forward the type-written copies of contributions before March 1, 1898. Address,

J. MCFADDEN GASTON, M.D., Chairman, Atlanta, Ga.

Section on Materia Medica and Therapeutics.—The following papers and discussions have been promised for the meeting at Denver, Colo., June 7–10, 1898:

"Yellow Fever: Its Etiology and Treatment." Discussion by Surgeon-General George M. Sternberg, Washington, D. C.; Prof. John Guitéras, M.D., Philadelphia; Drs. Sollace Mitchell, Jacksonville, Fla.; T. S. Scales, Mobile, Ala.; G. B. Thornton, Memphis, Tenn.; H. M. Bracken, Minneapolis, Minn.; P. E. Archinard, New Orleans, La.

"Aims of Modern Treatment of Tuberculosis." By Prof. Edwin Klebs, M.D., Chicago. Discussion by Drs. Charles Denison, Denver, Colo., and C. H. Whitman, Los Angeles, Cal.

"Serum Therapy of Tuberculosis." By Prof. S. O. L. Potter, San Francisco, Cal. Discussion by Prof. James M. Anders, M.D., Philadelphia.

"The Therapeutics of Pulmonary Phthisis." By Paul Paquin, M.D., St. Louis, Mo.

"Tuberculin as a Diagnostic and Curative Agent, with Report of 250 Tubercular Cases Treated." By C. H. Whitman, M.D., Los Angeles, Cal.

"The Practical Value of Artificial Serum in Medical Cases." By P. C. Remondino, M.D., San Diego, Cal.

"The Use of Remedies in Diseases of the Heart and Blood vessels." By T. Lauder Brunton, M.D., D.Sc., F.R.S., London, England.

"The Mescal Button." By Prof. D. W. Prentiss, M.D., Washington, D. C.

"The Modern Intestinal Antiseptics and Astringents." By William Frankhauser, M.D., New York.

"To What Extent is Typhoid Fever favorably Modified in its Course, Duration, Termination or Sequelæ by the Administration of Drugs?" By Frank Woodbury, M.D., Philadelphia, Pa.

"Strychnin." By J. N. Upshur, M.D., Richmond, Va.

"Methods of Teaching Materia Medica and Therapeutics." By Prof. G. H. Rohé, M.D., Baltimore.

"The Study of Materia Medica and Therapeutics." By H. M. Bracken, M.D., Minneapolis, Minn.

"The Great Therapeutic Importance of a Rational Adaptation of Cathartic Remedies to the Physiologic Functions of the Gastro-intestinal System." By E. D. McDaniels, M.D., LL.D., Mobile, Ala.

"Why the Pharmacopeial Preparations Should be Prescribed and Used by the Profession." By Leon L. Solomon, M.D., Louisville, Ky.

"The Use of Electricity by the General Practitioner." By Caleb Brown, M.D., Sac City, Iowa.

The following have also promised papers, subjects to be announced very soon, together with the day assigned for each discussion and paper:

Drs. J. E. Atkinson, Baltimore; Henry Beates, Philadelphia; T. M. Balliet, Philadelphia; George F. Butler, Chicago; Dudley W. Buxton, London, Eng.; J. Solis-Cohen, Philadelphia; N. S. Davis, Jr., Chicago; P. J. Farnsworth, Clinton, Iowa; J. E. Moses, Kansas City; Prof. Joseph Remington, Philadelphia; Drs. L. E. Sayre, Lawrence, Kan.; H. V. Sweringen, Fort Wayne; E. L. Stephens, Fort Worth.

The Chairman will be pleased to receive and place upon the program subjects for discussion and papers.

JOHN V. SHOEMAKER, M.D., Chairman.
1519 Walnut Street, Philadelphia, Pa.

SOCIETY NEWS.

New Hampshire Medical Society.—The adjournment of the Society to May 30 and 31, 1898, necessitates a change of date, as May 30 is a holiday (Memorial Day); therefore, the annual meeting will be held in Concord, May 26 and 27, 1898.

Atlantic City Medical Society.—The following officers of the Atlantic County Medical Society was elected at a recent meeting: President, W. Blair Stewart, Atlantic City; vice-president, H. C. James, May's Landing; secretary and treasurer, Walter Reynolds, Atlantic City; reporter, W. C. Darnall, Atlantic City; permanent delegate to State Society, Theophilus Boysen, Egg Harbor City.

Medical Society of the State of Pennsylvania.—The next meeting of this society, May 17, 18 and 19, at Lancaster, will be the fiftieth anniversary of the Society's existence. The first day will be devoted to the "Practice of Medicine;" the second to "Surgery;" the third to "Obstetrics." The evening of the second day, will be devoted to an illustrated lecture, by Dr. J. T. Rothrock, Commissioner of Forestry of Pennsylvania, on the "Sanitary Relations of Our Highlands to the State."

The American Pediatric Society is making a collective investigation of infantile scurvy as occurring in North America, and earnestly requests the co-operation of physicians, through their sending of reports of cases, whether these have already been published or not. No case will be used in such a way as to interfere with its subsequent publication by the observer. Blanks containing questions to be filled out will be furnished on application to any one of the committee. A final printed report of the investigation will be sent to those furnishing cases. Signed by the following Committee:

J. P. Crozer Griffith, Chairman, 123 S. Eighteenth Street, Philadelphia; William D. Booker, 853 Park Avenue, Baltimore; Charles G. Jennings, 457 Jefferson Avenue, Detroit; Augustus Caille, 753 Madison Avenue, New York City; J. Lovett Morse, 317 Marlboro Street, Boston.

Americian Academy of Medicine.—Announcement and preliminary program of the twenty-third annual meeting to be held at Denver, Colorado, on Saturday, June 4, and Monday, June 6, 1898. The meeting will be held in the Brown Palace Hotel, which has been made the headquarters of the Academy, the management having given special rates for the occasion. It is suggested that rooms be secured early, especially if it is intended to remain to the meeting of the AMERICAN MEDICAL ASSOCIATION.

It is planned to hold three sessions on Saturday beginning at 10 A.M., at 3 and 8 P.M. Another session will be held on Monday, at 8 A.M., at which time it is hoped all the business can be completed, affording the Fellows an opportunity to attend the meetings either of the Association of American Medical Colleges or the National Confederation of State Medical Examining and Licensing Boards, which meet on this day. This plan contemplates holding the reunion session on Monday evening.

The following papers have been promised. Several others have written expressing a desire to prepare a paper, but as a definite promise has not been given, it is thought wisest not to

publish their names. The arrangement is alphabetical, and not in the order in which the papers are to be read:

1. Dr. L. Duncan Bulkley of New York, "The President's Address."
2. Dr. Charles Denison of Denver, "The Advantage of Physical Education as a Prevention of Disease."
3. Dr. Thomas C. Ely of Philadelphia, "The Importance of Training the Special Senses in the Education of Children."
4. Dr. J. Edgar Fretz of Easton, Pa., "Some Criticisms on the Questions of the Medical Examining Boards by a Recent Graduate."
5. Dr. G. G. Groff of Bucknell University, Lewisburg, Pa., "The Necessity of Medical Supervision in School Life."
6. Dr. Bayard Holmes of Chicago, "Growth and Strength and its Relation to Education and Medicine."
7. Dr. Henry M. Hurd of Baltimore, "How Much to Educate the Growing Brain."
8. Dr. Woods Hutchinson of Buffalo, "The Muscular Basis of Education."
9. Dr. Edward Jackson of Philadelphia, "The Care of the Eyes During School Life."
10. Dr. Elmer Lee of New York, "The Interdependence of Healthy Bodies and Healthy Brains."
11. Dr. J. C. Lichty of Clifton Springs, N. Y., "The Modern Sanitarium and its Relation to the General Medical Profession."
12. Dr. Charles McIntire of Easton, Pa., "Snags in the Course of the Medical Examining Boards."
13. Dr. Rupert Norton of Washington, D. C., "The Child's Brain as Illustrated by Recent Neurologic Studies."
14. Dr. F. T. Rogers of Providence, R. I., "The Ethical Advertiser."
15. Dr. J. T. Searcy of Tuscaloosa, Ala., "How Education Fails—Physiologically Considered."
16. Dr. Charles G. Stockton of Buffalo, "The Kindergarten."
17. Dr. James L. Taylor of Wheelersburg, Ohio, "The Amount of Work a Growing Brain Ought to Undertake."
18. Dr. Casey A. Wood of Chicogo, "Kindergarten and Primary Grade Work in the Public Schools and its Influence upon the Eyesight."

There is room for the presentation of a few more papers. Fellows desiring to contribute are requested to send the titles to the Secretary promptly.

Many of these papers are planned for the discussion "The Physiologic Side of the Education of Youth," the special theme suggested for the meeting.

The Camden County Medical Society has sent the following letter to Hon. Herbert W. Johnson, Senator; Hons. William J. Bradley, John H. McMurray and Edgar J. Coles, Members of Assembly:

CAMDEN, N. J., Feb. 8, 1898.

Gentlemen:—In compliance with the instructions of the Camden County Medical Society, at a meeting held this day, the undersigned have the honor to call your attention to and to solicit your interest in Senate Bill No. 80, entitled "An Act to Establish a Village of Epileptics," introduced by Senator Daly and referred to the Committee on Miscellaneous Business.

The subject of segregating epileptics for industrial education and medical treatment was brought to the attention of the legislature of this State in 1896, and a bill was passed providing for the establishment of a colony for that purpose which, however, met with the disapproval of the Governor.

At the annual meeting of the Medical Society of New Jersey in 1897, the necessity for this measure furnished the subject of an address by the president, Dr. Thomas J. Smith of Bridgeton and a committee was appointed to present the matter to the legislature.

In emphasizing the importance of this measure, Dr. Smith stated that there were probably from 2000 to 3000 epileptics in this State, 500 of whom were doubtless confined in almshouses, asylums or in private families. These cases impose a heavy burden on the State and the family, and some of them are not infrequently a menace to the comfort and safety of society. Neither the hospital nor the asylum affords the proper conditions for their treatment, since an institution, to meet their highest needs, should possess the facilities for mental improvement, industrial education and physical development, as well as the advantages for medical treatment. These opportunities are afforded in the greatest degree by the colony system, and, where this system has been introduced, the percentage of cures has been materially increased.

The segregation of epileptics into colonies originated with the French in 1848, as stated by Dr. Smith, and the success of the system has led to its establishment in England, Germany and other European countries. In this country, colonies have been or are now being established in Massachusetts, New York, Pennsylvania, Maryland, Ohio, Illinois, Iowa, Wisconsin, Minnesota and California.

It is an axiom in political economy that the prosperity of the State, rests, in no small degree, upon the physical welfare of her citizens; and in this era of unrivaled medical progress, New Jersey should not fall behind her sister States in the intelligent and beneficent care of her people.

With the hope that this measure may meet with your favorable consideration and active support, we have the honor to convey to you this Society's best esteem and to express at the same time the assurance of our high regard.

Very respectfully,

[Signed] E. L. B. GODFREY, M.D., WILLIAM H. ISZARD, M.D., } Committee.

PUBLIC HEALTH.

Personal.—Dr. William H. Welch of Johns Hopkins Hospital, has reconsidered his declination of membership in the Maryland State Board of Health, and accepted the appointment.

Compulsory Antitoxin.—According to the *Semaine Méd.* the Government of Bosnia and Herzegovina has rendered the use of diphtheria antitoxin compulsory, both as a curative and preventive.

The Bubonic Plague Still Prevailing.—The recent invasion of Sinnar by the plague caused a riot by reason of the authorities having attempted isolation. The temporary hospitals were attacked, the quarantine camp set on fire, and the mob were dispersed only after the police had resorted to extreme measures. The reported deaths up to January 31 were forty-three.

Health in San Francisco.—The semi-annual report of the Health Department of the City and County of San Francisco, Cal., gives 3,000 deaths for the period from July 1, 1897, to Dec. 31, 1897. The greatest number of deaths occurred in November, viz., 581, and the least in December, viz., 138. The chief causes were: Phthisis pulmonalis, 427 deaths; heart disease, 385; pneumonia, 237; violence, 202; nephritis, 187; cancer, 179. In 257 cases of diphtheria reported there were 44 deaths and in 53 cases of scarlatina, 2 deaths.

Health in Michigan.—The report for January gives the ten diseases most prevalent during the month, as rheumatism, influenza, neuralgia, bronchitis, tonsillitis, pneumonia, pleuritis, diarrhea, inflammation of the kidney and erysipelas. Consumption was reported at 150 places; diphtheria, 73; measles, 63; scarlet fever, 61; typhoid fever, 57, and whooping cough at 31 places. As compared with the previous month, consumption, diphtheria, scarlet fever and typhoid fever, shows a decrease, while measles increased. Compared with the average for January, in the twelve years, 1886–1897, prevalence of consumption showed a marked decrease and remittent and intermittent fever a large decrease.

Health in Michigan during 1897.—From the report of the Michigan State Board of Health we glean the following: During the year 1897 action was taken on 124 more outbreaks of diphtheria than in 1896, 49 less of scarlet fever, 55 less of typhoid and typhomalarial fever, 332 more of measles, 76 less of whooping cough, 6 less of smallpox and 155 more of consumption. In all, 425 more outbreaks were acted on in 1897 than in 1896, and 66 more in 1896 than in 1895. Only two outbreaks of smallpox were reported during 1897, with but fifteen cases and no deaths.

Progress in Official Vaccination with Calf Lymph in England.—At a meeting of the Redruth (England) Board of Guardians, held in October last, a communication was read from the Local Government Board recommending that sixpence per case extra for vaccinations performed with calf lymph would be a sufficient remuneration for the medical officers. The Board added that the guardians themselves could not supply calf lymph except

in the case of an outbreak of smallpox. It was eventually resolved that sixpence be allowed in each case where calf lymph was used, although one guardian moved that only threepence should be given.

The Louisiana State Board of Health.—A new board has been appointed by Governor Foster to take the place of that which resigned about the first of this year. The membership of this board comprises men well known in the medical and business communities. The board is constituted as follows: Drs. Edmond Souchon, L. F. Reynaud, Luther Sexton, J. J. Castellanos and H. L. Lewis, and Messrs Stanley O. Thomas, J. D. Hill, Charles W. Castles and Jules C. Denis. These officers went on duty about February 1.

The Efficacy of Antitoxin is strikingly apparent in the official public health statistics recently published by the German Government for the years 1885 to 1895, the latter the first year when antitoxin came into general use. The mortality from diphtheria and croup was less by 49.48 per cent. than the average of the preceding years. The morbidity also showed a similar decrease, varying with the locality from 31.50 to 64.75 per cent. less than preceding years. The reports from Norway are still more conclusive. At Geneva also, the children in a large asylum were exposed to contagion and all but two received preventive inoculation. These two promptly succumbed while none of the rest were affected.

Health in New York During 1897.—According to the *Monthly Bulletin* for December, the deaths reported during the year were 117,085, or 3,600 less than in 1896, being the smallest mortality since 1889. This makes the death rate for the year 18.50 per 1,000 population, while that of the two years preceding was 19.00. The death rate of the Maritime District was 18.90; Hudson Valley, 17.75; Adirondack and Northern, 14.50; Mohawk Valley, 16.00; Southern Tier, 14.00; East Central, 16.00; West Central, 14.50; Lake Ontario and Western, 15.25. The mortality has increased in rural parts, decreased in urban. Infant mortality is lower, 32.6 per cent. As to causes, compared with 1896 there were 1,500 less deaths from diarrheal diseases in 1897, 500 less from diphtheria, 600 less from measles, and a moderate increase in those from scarlet fever. The deaths from grippe early in the year were the same for both years, viz., 3,000. Consumption caused 10.8 per cent. of the whole mortality, or 12,638 deaths in 1897 against 13,265 in 1896.

Disinfection Work at New Orleans.—The board of Health of that city has been very diligently engaged in offering disinfection of domiciles and articles of clothing that have been brought within the range of yellow fever infection, during the late epidemic. The following are paragraphs taken from a circular of information that was prepared and published in the daily papers in December: "The board offers to perform the necessary work of disinfection, without charge, and with the least possible inconvenience to householders. The citizens of New Orleans are earnestly requested to second this effort of the board to free the city of any lingering trace of infection. Applications should be made in writing, and will receive attention in the order of their receipt. In view of the great value of thorough aeration as a means of purifying the interior of dwellings, it is respectfully suggested and urged that every opportunity be utilized to admit a copious supply of dry, cold air and plenty of sunshine into houses where sickness has occurred, and to so dispose bedding, clothing, etc., in such houses as to secure the full benefit of this plan of purification."—*N. O. Medical and Surgical Journal*, February.

New York City Board of Health.—That Board having been put upon the defensive regarding its large production and sale of antitoxins and vaccines, it has caused to be prepared a showing, in the first place, of the excellent results that have flowed from its vaccination methods. For example, it is set forth that since 1874, after the passage of a rule by the Board of Education providing that no pupil should be allowed to attend school nor any teacher employed unless vaccinated, not one pupil or teacher was afflicted with smallpox. President Straus also shows that in no other city in the State are vaccine virus and diphtheria antitoxin manufactured in such large quantities. The following table shows the diphtherial death rate since 1892:

Years.	Estimated Population.	Deaths by Diphtheria.	Rate of Mortality.
1892	1,708,124	2,106	1.23
1893	1,758,010	2,558	1.45
1894	1,809,353	2,870	1.59
1895	1,877,195	1,976	1.05
1896	1,934,077	1,763	.91
1897	1,990,562	1,591	.80

In 2450 cases treated with diphtheria anti-toxin by inspectors of the Board in 1895, 1896 and 1897, there were only 363 deaths. The cost of diphtheria antitoxin, as manufactured by the Board of Health, is $1 an ounce. If purchased at drug stores it will cost $12 an ounce. Manufacturing in large quantities made it possible to produce both vaccine virus and antitoxin at the lowest possible cost. Even at the large price charged by druggists it did not always follow that the vaccine and antitoxin sold by them were pure and fresh.

National Quarantine the Only Means to a Satisfactory End.—Some years ago we advocated in the pages of the JOURNAL time and again the prime necessity of active and satisfactory measures being taken by the National Government to secure adequate protection from the invasion of preventible epidemic diseases, urging the need of a National Department of Public Health, properly organized and equipped as being fully justified by the experiences of the past. The matter, however, was relegated to the Marine-Hospital Service, and we quietly rested on our oars, and have waited patiently to see just what we expected, viz: a failure in a very important and vital field, once! yes, twice and three times! With the culmination and decline of the last visitation, we thought the time opportune to again take up our former line of argument, sincerely hoping that our national law-makers would give this subject the consideration it demanded. The last epidemic and the two preceding ones were reasonably slight as compared with former visitations, but even they caused sufficient loss of life and property interests to have justified far more effective measures of precaution. It has been demonstrated that both cholera and yellow fever can be kept out of the United States—if so, somebody is certainly to blame. The Marine-Hospital Service having proven ineffectual, our national law-makers must shoulder the responsibility if they do not provide something better. With both branches of Congress and the Executive head of the government in the hands of one party—and that party one that has ever shown strong leanings to centralism and paternalism, is it not to be hoped that strong and effective measures on the part of the National Government shall at once be set on foot and the means of relief given in accordance with the demands of the times. The ineffectual efforts of the Marine-Hospital Service, the discordant and irregular methods of State, municipal and local authorities should no longer be tolerated. From one end of the land to the other the people have spoken time and again. Will our law-makers heed their voice and outcry of unison, or will they longer dilly-dally with a question far more important than tariff-tinkering, the currency or acquisition of adjacent islands in either the Atlantic or Pacific. The report from Edwards, Miss., by Associated Press dispatches of January 26, that the yellow fever in that locality has not disappeared gives serious apprehension that the disease may survive the winter and appear again in epidemic form with the coming of warm weather. There has been practically no winter along the gulf coast, and as January is nearly spent, it is probable that there will be no weather sufficiently severe to destroy the germs. If yellow fever ap-

rs again on the gulf coast its spread over the entire South be prevented only with great difficulty, and as much to be aded as the disease itself is the faulty and hysterical quar- ine that impedes commerce, prevents travel, produces busi- s stagnation and causes many hardships and inconveniences hout effectively checking the spread of the disease. The erience of last year gave proof not only of the insufficiency, ; of the positive harmfulness of State and local quarantines. elligent co-operation between these bodies seems impossi- . They are lacking in means, financial and otherwise, to perly grapple with the necessities of the situation, and hav- no general direction or concert of purpose their efforts are se than futile. Quarantine is essentially an interstate mat-

It must necessarily in some degree effect the regulation interstate commerce. To be effective there must be general ection and uniform conduct, and that can be given by the tional Government only. The continuance of yellow fever the gulf coast, therefore, with the strong probability that ill again become epidemic in extreme Southern localities h the coming of warm weather, demands the speedy pas- e of adequate and effective means by Congress. A bill uld be passed in time for the Government machinery nec- ary for an effective quarantine to be organized and put into ration before the beginning of summer. Nashville has no r of a visitation of yellow fever. The immunity of the le-lands of Middle Tennessee from the spread of the dis- e has been thoroughly demonstrated, but Nashville has a y near interest in the proper regulation of the quarantine. e trade of the city suffered greatly last fall because of the valence of shotgun quarantine throughout the region to the th of us, wherein the representatives of Nashville houses stantly travel. The State of Tennessee has a very strong erest in the establishment of proper quarantine laws, be- se all of the western portion of the State is subject to the ages of the disease. The Gulf States are vitally interested this question, and to every State in the Union by both sym- thy and interest, it is a question of paramount importance at should be met in only a practical manner, regardless of l-time traditions of State rights, or party slogan, or a parti- n feeling. It is a question that demands the highest order statesmanship regardless of party success or present or ure personal welfare of those to whose solution it is entrus- l.—Editorial, *Southern Practitioner*, February.

NECROLOGY.

S. G. Matson, M.D., Viola, Iowa, born in Vermont, March 1808, died in Fayette, Iowa, February 5. His early life was nt in New England, and he was graduated from the Med- l Department of the University of Vermont in 1832. In 15 he removed to Iowa. In 1846 he was a member of the nstitutional Convention which formed the first constitution the State of Iowa. He was also elected a member of the st general assembly of the State, which met at Iowa City, v. 30, 1846, and in extra session, Jan. 3, 1848. Failing by e vote of being elected speaker of the house, he became airman of the committee on schools and took a leading part enacting the first school laws of the State. He also pre- red and introduced the bill locating the State University at wa City, and was afterward a member of its first board of stees. In politics he was originally a "Jefferson demo- t," but united with the republican party at its organiza- n and voted for John C. Fremont for president in 1856. He ntinued an ardent republican, casting his last presidential te for Wm. McKinley in 1896. In appreciation of his ser- es rendered the State, by request, a life-size oil painting of . Matson was secured and placed in the Historical Depart- nt of the Capitol, at Des Moines.

John Cronyn, M.D., Buffalo, N. Y., died February 11, ed 73 years. Born in Ireland, he located in Toronto, Can., 1837, and later entered the University of Toronto. In 1850 passed his medical examinations but did not take the degree ing to the test of oath which required graduates to sub- cribe to the thirty-nine articles. Being a Roman Catholic he fused to do this and was obliged to go before the Provincial censing Board, which admitted him to practice. A few years later the Canadian Government removed all sectarian restrictions and he obtained his degree of M.D. His thesis received the Chancellor's prize. In 1859 he moved to Buffalo. In 1883 he was largely instrumental in the establishment of the Medical Department in Niagara University. He was soon appointed to the chair of professor of principles and practice of medicine, and later made president of the college faculty. He held this position until his death. In 1888 Niagara University conferred on him the degree of Ph.D. and in 1893 that of LL.D. For several years Dr. Cronyn was a member of the board of directors of the Buffalo State Hospital, and was once president of the board. During the last twenty years he has been president of the New York State Medical Society and at different times president of the Erie County Medical Society. He was an honorary member of the Ontario Medical Association.

John G. Truax, M.D., Rush Medical College, Chicago, 1871, died at his home in New York City February 16. He was born in Durhamville, N. Y., March 5, 1848, and for two years after graduation served in the Chicago hospitals, and then went to the Peninsula on Lake Superior, where he remained among the iron mines until 1876, when he went to New York, eventually to fill many responsible positions in social and club life. A recognized authority in pottery, he was also the possessor of the works of many foreign and American artists, wrote considerably for the New York State Medical Association, and participated somewhat in the debates of the New York County Medical Association, before which he first introduced his alcoholic test for urine. His predilections, however, were for hospital work and dealings with large bodies of the community; hence he was a pension examining surgeon, a visiting physician to the Harlem Hospital, a member of the Board of Governors of the New York Juvenile Asylum and chairman of the Board of Trustees of the Mott Memorial Library.

Arnold Stub, M.D., Geneva Med. Coll. N.Y., 1872, died in Brooklyn, N.Y., during the second week in February. Born in Ebling, Prussia, in 1832, he came to this country when 24 years old. He entered the volunteer army during the civil war, served as medical purveyor under General Hancock, and was mustered out as surgeon of the 90th N.Y. Vol. Inf. on Jan 3, 1865, after which date he became a resident of Brooklyn.

Charles J. Bickham, M.D., Tulane University Medical Department, New Orleans, 1856, died at his home in New Orleans on February 14, aged 69 years. He filled many offices of trust in the line of his profession, and was prominent in the late yellow fever epidemic as an expert authority.

Dr. Selwyn Clark, M.D., Rockford, Ill., died February 12, aged 59 years. He was a graduate of Beloit and the College of Physicians and Surgeons, New York, 1865. He served as a surgeon in the 25th regiment, Illinois infantry. His health was shattered during two months' imprisonment in Libby prison. For many years he was a trustee of Rockford Seminary.

William T. Elmore, M.D., Dartmouth, 1888, died from pneumonia in New York City, February 12, aged 44 years. His birthplace was Montgomery, Ala. He went to New York fifteen years ago.

Sumner Laughton, M.D., Bangor, Maine, died February 8, aged 86 years. He was a graduate in medicine from Bowdoin in 1834; was later president of the State Medical Society, an honorary fellow of the Maine Academy of Medicine and a member of the American Medical Association. At the time of his death he was chairman of the Maine Board of Registration.

Stephen W. Van Duyn, M.D., New York University Medical College, 1865, died in Plainfield, N. J., January 25, aged 61 years. He was a war veteran, having been mustered out of the United States service April 13, 1865, as assistant surgeon of the First Regiment New Jersey Cavalry. From 1866 to 1869 he was an assistant surgeon U. S. A., and subsequently was many years in practice in Newark, N. J.

MISCELLANY.

An Anonymous Benefactor.—A benevolent Hamburger, who withholds his name, has bequeathed 250,000 marks for the erection of a hospital with rooms for one hundred tuberculous patients, who are to get bedding, board and treatment for twenty-five cents per day.

Editorship of the "British Medical Journal."—The vacancy in the editorial chair made by the death of Mr. Ernest Hart, has been filled by the promotion of Dr. Dawson Williams, the assistant editor, to the editorship. Mr. C. Louis Taylor, the sub-editor, succeeds Dr. Williams as assistant editor.

Purulent Periperitonitis.—By this name Franke describes a generalized suppuration spreading extraperitoneally, between the peritoneum and fasciæ, all around the abdomen, and reports two cases, one of which recovered and a necropsy was impossible in the other. An abstract in the *Cbl. f. Chir.* rather doubts the correctness of the diagnosis.—*Mitth. a. d. Grenzb. der Med. u. Chir.*, Vol. 2, Nos. 1–2.

Tribenzoylgallic Acid.—A preparation under this name has been brought out, which is said to be prepared by agitating an alkaline solution of gallic acid with benzoyl chlorid and purifying the resulting product by recrystallization after exhausting with boiling water. The compound appears to remain unchanged by the secretions of the mouth, esophagus and stomach, but in the intestines is readily split up, gallic acid being reformed and exerting its specific properties.—*Druggists' Circular.*

Antivivisection in Germany.—Some years ago an antivivisection movement was started in Germany, and the government asked Virchow's opinion on the matter. He took the current textbook on physiology and marked with a blue pencil all the paragraphs in which it stated that the fact had been established by experimentation on animals, and sent the heavily marked book without a word of comment as his reply. The subject was dropped at once, and probably forever in that country.

Encysted Calculus.—Professor Guyon stated, in 1894, that he had never encountered an encysted calculus and doubted their existence, but Ortiz of Buenos Ayres, reports four cases in which he discovered an additional calculus encysted in the wall of the bladder, and observes that probably many others have been overlooked by surgeons in operating. It is difficult to differentiate such a calculus; the only guide is a lack of mobility, and palpitation during lithotomy.—*Anales del Circ. Méd. Argentino*, November.

Chinopyrin.—Chinopyrin is the name suggested by Santesson for a combination which is made by mixing three parts of quinin hydrochlorate, two parts of antipyrin and six parts of water, the mixture being then warmed. The disagreeable effects of quinin are mitigated by this form of exhibition; it is particularly suitable for subcutaneous injection in cases where administration per os was inadvisable. Its antipyretic powers, grain for grain, are somewhat less than those of quinin. The name quinopyrin has also been suggested for this combination. —*Deutsche Medicinische Wochenschrift.*

A Vitiated Policy.—In an action brought by a policy-holder for the recovery of $10,000 from a life-insurance company the justice of a New York court very rightly decided in favor of the defendant. The points of the case were that in the application dated November 15, 1895 the warrant was given that the health at that time was good and also that no physician had been consulted since the previous January. The further agreement was that the policy should take effect only in case of good health at the time of its delivery, which was Dec. 4, 1895. The evidence showed that physicians had been consulted within the limit restricted, that the diseases which caused death were of acknowledged gravity and that the policy was received on the death-bed. The party who held the policy died Dec. 4, 1895.

Section Work in the British Medical Association.—The differentiation of work in the British Association goes on. The number of sections that are to be provided for at the Edinburgh meeting next July will be sixteen. The subjects of anatomy and physiology have been assigned to separate sections; three other subjects, "Neurology," "Medicine in Relation to Life Assurance" and "Tropical Diseases," have grown to the stature that seems to demand separate sectional development. Our own great ASSOCIATION is at present able to get along with a fewer number of compartments, namely, twelve, in the hull of our own craft. What the next specialization will be by the British Medical Association is not easy to foresee.

Dr. Weir Mitchell's Novel.—The *Bookman* states that Dr. Mitchell's recent book "Hugh Wynne," is one of the most popular of those now on the current list. An amazing incident in connection with the book is a critique thereof that has appeared in *The Friends' Intelligencer*, a kind of organ of the Quakerdom of Philadelphia, and that has been separately printed in pamphlet form. While doing full justice to the literary merits of the book, the Quaker reviewer shows up a number of historic mistakes into which the author has fallen in regard to the Quakers of the Revolutionary period, their customs and discipline, together with misaprehensions as to the personal characters of several of the historic characters of the novel. The reviewer regards the novel as an unfavorable picture of the Friends of that period, and in a very gentle but none the less effective manner, exposes what he considers the Doctor's mistakes. If you happen to come across the review be sure to insert it in the copy of your novel, for it is worth preserving.

Reaction Time in Abnormal Conditions of the Nervous System.—Recent investigations in the Yale psychologic laboratory, made in cases of neuritis, locomotor ataxia, alcoholism and hysteria, are recorded in the *Medical Record* of February 5. The results go to show that: 1. Alcoholism shortens the simple reaction time, hysteria leaves it unchanged, and local neuritis, multiple neuritis and locomotor ataxia lengthen it. 2. Local neuritis scarcely lengthens the additional mental processes involved in complex reaction time; alcoholism lengthens them somewhat, while locomotor ataxia, multiple neuritis and hysteria double and triple the normal time. 3. The individual's regularity is much greater than normal in locomotor ataxia and alcoholism, and much less than the normal in the other diseases. The irregularity is specially marked in hysteria for the higher mental processes. 4. Subjects with multiple neuritis, locomotor ataxia and alcoholism are much more distinctly marked off in respect to the tests than normal individuals.

Insurance of Students in Germany Against Laboratory Accidents.—Since the beginning of the academic half-year all students attending the chemic and physical laboratories of the University of Heidelberg have been insured against accidents happening in the course of the lectures, of the laboratory work and of scientific excursions. The insurance premium is paid by the treasury of the University, which has also made a new regulation in connection with the subject requiring the students to pay a small sum in addition to the class fees. This step is surely deserving of imitation by other universities and such advantages ought not to be limited to laboratory work only, for medical students run much greater risk both in the dissecting rooms and as dressers in the surgical clinics, and as clerks in the infection wards of the university hospitals. This fact should be considered by the other universities in the event of their imitating the example of Heidelberg.

Selling Medicine for Trick Purposes an Assault and Battery.—A conviction of assault and battery, in the case of State vs. Monroe, of most peculiar character, was affirmed by the supreme court of North Carolina, Dec. 21, 1897. An individual, Will Horn, had administered to one Ernest Barrett a dose of croton

oil, and the oil had had an injurious effect on Barrett. This led to the prosecution of the defendant Monroe for assault and battery. Monroe admitted that he sold the oil to Horn, and at his request dropped it into a piece of candy, but denied that he knew that these parties were playing practical jokes on each other, and denied knowing for what purpose Horn wanted the oil. His guilt as a principal, not as an accessory, the court holds, depended upon whether he knew, or had reason to believe, that the dose was intended for Barrett or some other person as a trick, and not for medicinal purposes. Upon the whole evidence, he was found guilty. The instruction given the jury that if the defendant knew or had every reason to believe, and did believe, when he sold the oil, that it was intended for Barrett or some other person as a trick or joke, and not for a medicinal purpose, the defendant would be guilty of assault and battery; also that it was not necessary that it should be a poisonous or deadly dose; but that it was sufficient if it was an unusual dose, likely to produce serious injury, the supreme court pronounces unobjectionable, in point of law.

"Governor" Lutz.—Missouri has a governor who has apparently made it a point to antagonize the medical profession at every point, and some aggressive members of the St. Louis Medical Society have proposed that Dr. F. J. Lutz, the well known physician of St. Louis, shall take the place at the next election; Governor Lutz would honor the place.

The New Anatomy.—In a case reported by one of the New York dailies, "a fracture of the 'hypoid ball' in the victims' throat" is reported. It is to be hoped that the Eastern "General Reader" will not be led into his usual bootless search after novelties, notwithstanding the fact that the culprit may have been misguided by De Quincey's brochure, "On Murder Considered as a Fine Art." Chicago, for the present, is obliged to be content with a students' snow-ball fight in which the police were driven off with some few bruises and possibly with what Mark Twain designates as "rows of acrostics."

Hospital Having School Must Pay Duty.—In reply to a letter of inquiry from the superintendent of the Roosevelt Hospital of New York, Assistant Secretary of the Treasury W. B. Howell stated, January, 1898, that there is no provision of law under which scientific instruments, etc., can be imported free of duty for a hospital, although a school of instruction may be connected with such institution. Paragraph 638 of the act of July 24, 1897, provides for the free entry of philosophic and scientific apparatus, etc., when imported in good faith for the use and by order of any society or institution incorporated or established *solely* for religious, philosophic, educational, scientific or literary purposes, whereas, Mr. Howell declares, a hospital is not established *solely* for such purposes.

Primary Tuberculosis of the Nose.—The rarity of this affection makes a case reported in the *Laryngoscope* (February) of interest. The growth, slightly larger than a cherry, and irregular, was located on the cartilaginous septum, attached by a broad base, rather firm to the touch and not freely movable. Under cocain anesthesia the large part of the tumor was removed with a cold wire snare, and the remainder destroyed by the electro-cautery and concentrated solutions of lactic acid (beginning with a 40 per cent. and increasing to an 80 per cent. solution), with iodoform insufflations, were used. The diagnosis was confirmed by the microscope. The patient, after a year and a half, is absolutely well and presents a normal septum.

Serum Diagnosis of Yellow Fever.—In the *New Orleans Medical and Surgical Journal* (February) a series of 100 cases are given by Archinard and Woodson in which the agglutinative test was applied to the bacillus icteroides and controlled by its application to the bacillus typhosus. The authors claim that while their work has been along the lines laid down by Sanarelli, they have made various departures therefrom, not the least of which has been this application of Widal's method of serum diagnosis to the bacillus icteroides. The first fifty were taken from typic yellow fever cases, the second fifty being suspect blood and including cases of typhoid fever, malaria and yellow fever. The authors' conclusions are: 1. Our work demonstrates the practical value of serum diagnosis in yellow fever. 2. That it may be utilized as early as the second day, and be exceptionally present as late as nineteen years after the disease. 3. That a dilution of 1-40 with a time limit of one hour is to be preferred for accuracy of diagnosis. 4. That the dried blood method of Wyatt Johnston is perfectly satisfactory. 5. That the serum diagnosis of yellow fever should be instituted in all countries wherein the disease may exist endemically, or which may be occasionally visited by epidemics. 6. That it is exceptionally valuable at the beginning of epidemics in the diagnosis of early and doubtful cases.

Trained Nurses at the Health Exposition.—At New York's Health Exposition to be held for five weeks, beginning April 25. The most important single department, both from a popular and educational standpoint, will be the Trained Nurses Educational Exhibit, which will occupy one entire wing of 12,000 square feet on the second floor. The display here will comprise everything in modern hospital and sick room service, an historic collection representing the advance in medicine and surgical science during the century. There will be a sick room not only of the rich house with all expensive appliances in furnishings, but also a duplicate of the sick room in the house of the very poor. The manager of this department is Miss Mary E. Wadley of the Bellevue Post-Graduate School. Exhibits have already been secured from nearly all the hospitals in New York and Brooklyn, and the co-operation of all the nurses in the country is desired. During the first week of the Exposition, there will be a convention of the National Association of Trained Nurses at the Grand Central Palace. An attractive corner of the second floor will be occupied by the Domestic Science Department of the W. C. T. U. in charge of Miss Marion A. McBride of Boston. Here there will be noon-day talks on everything connected with this branch of the W. C. T. U. work, such as "Nutrition," "Cooking without Alcohol in the Home and Hospital", etc., and afternoon receptions and 5 o'clock teas daily.

Does Not Appreciate Some Fine Distinctions as to Expert Evidence.—It is laid down in the books that a question to an expert witness should not be so framed as to invade the province of the jury. With this for its text the supreme court of Minnesota says, in the case of Donnelly vs. St. Paul City Railway Company, December, 1897, that the line of cleavage between what does and what does not invade the province of the jury is not capable of definite location by any exact rule applicable to all cases without regard to the subject of inquiry. The mere fact that the opinion called for covers the very issue which the jury will have to pass upon is not conclusive that it is not the proper subject of expert or opinion evidence. For example, sanity or insanity is the subject of expert testimony, although that may be the sole issue to be determined by the jury. Continuing, the supreme court says that neither does it appreciate the fine distinctions sometimes sought to be drawn between asking an expert whether in his opinion, certain causes might produce certain results, and asking him whether, in his opinion, they did produce such results. It is well settled that the opinions of medical experts as to the cause of death are admissible, such opinions being founded either upon the personal knowledge of the facts in the case, or upon a statement of the nature of the injury or symptoms and nature of the disease as testified to by others. There can be no difference in principle, the supreme court further asserts, between an opinion as to the cause of death and one as to the cause of physical ailments which

have not resulted in death. So it holds that when the issue is whether the present bodily ailments of a party were caused by certain injuries, a medical expert may give an opinion as to the cause of such bodily ailments, founded upon a statement of the nature of the injury, the subsequent symptoms of the party and *his present physical* condition as testified by others.

Tuberculosis of the Bones and Joints.—In a report of observations on more than one hundred tubercular joints made by Nichols of the Sears Pathologic Laboratory of the Harvard Medical School (*Boston Med. and Surg. Journal*, January 27), the following conclusions are of interest: Injuries of moderate severity favor the production of the disease. In the bones the disease begins in the epiphysis, and is more extensive than appears on gross examination; hence, in operations for removal of the disease a considerable margin of apparently healthy bone must be removed. Tuberculosis of the joints is generally, if not always, secondary to tubercular disease in the epiphysis of an adjacent bone. Abscess formation is due to extension of the tubercular process to the soft parts; the contents and wall of the tubercular abscesses are different from those of infectious abscesses; partial removal of the abscess wall is harmful. Repair is caused by the formation of fibrous tissue, which replaces and partly encapsulates the tubercular tissue; repair may be incomplete; fibrous tissue may produce fibrous anchylosis, or the tissue may become ossified and lead to bony anchylosis. Paraplegia in Pott's disease is rarely due to direct bony pressure; usually the pressure is caused by tubercular peripachymeningitis; rarely the pressure causes degeneration of the cord.

Kocher's Method of Amputation of the Female Breast.—*Annals of Surgery* for February describes this method at length, as reported to the Section on Surgery of the College of Physicians of Philadelphia by George B. Wood, M.D. "The salient points of difference between this operation and the one mostly in vogue in America, that of Halsted, are: 1, the incisions are different; the axillary incision of Kocher's allowing a free entrance to the armpit, and not necessitating the loss of time required in dissecting back the triangular skin-flap of Halsted's operation. By Kocher the axilla is cleaned from above downward and inward toward the chest, while Halsted makes the dissection from within outward and upward. Here it is claimed for the Halsted operation that the removing of fascia in this direction is easier and attended with less hemorrhage. The vessels supplying the axilla begin above and run downward, and it is easier to dissect out a vessel from the base toward the periphery than in the other direction. . . . But where the operation of Kocher saves time as compared with that of Halsted, is in the removal of the pectoral muscles; it being much easier to strip these muscles downward and inward off the chest and then to cut through the origins than it is to dissect off each rib attachment separately, as is required where the pectoral muscles are removed upward and outward. Also, in the Kocher method no extra dissection of the pectoralis minor is required. By beginning as advised by Kocher the annoyance of having a large, loose mass of tumor, fat and muscle to take care of during the dissection of the axilla is avoided. Tke idea of sawing through the clavicle in case of involvement of the supraclavicular glands belongs to Kocher, and though it may seem to some unnecessary, it certainly gives a much better chance to dissect the lymphatics from around the vessels.

Washington.

REPORT OF THE HEALTH OFFICER.—The report of Health Officer Woodward for the week ended February 12, shows the total number of deaths during the week to have been 106, of which number 48 were white and 58 colored. Among the principal causes of death were: Diseases of the nervous system, 14; urinary, 9; circulatory, 7; respiratory, 26; 3 from la grippe, 1 from diphtheria; 3 from whooping cough and 1 from measles.

MICROSCOPIC SOCIETY.—At the recent meeting of the Microscopic Society, Dr. Robert Reyburn read a paper entitled "Bacteria," and gave the life, history and general description of most of the forms with which the pathologist has to deal. The paper was made more interesting by lantern-slide illustrations.

MEDICAL SOCIETY.—At a meeting of the Society held on the 14th inst., Dr. McLaughlin read a very valuable paper, entitled, "The Uric Acid Diathesis in its Relation to Skin Diseases." Dr. Lamb presented the following interesting specimens: pericarditis and pneumonia; ruptured Graafian Follicle from a Cow; teratological specimen.

PHYSICIANS RESIGN.—Four of the most prominent members of the attending staff of the Garfield Memorial Hospital have recently handed in their resignations, thus severing their connection with that institution. The physicians who resigned are: Samuel S. Adams, George N. Acker, James C. McGuire and Joseph H. Bryan. Some time ago, it will be remembered, W. W. Johnston severed his connection with the institution. These gentlemen for some time have disapproved of certain administrative methods of the hospital and recently discovered that some of the lay hospital authorities were clandestinely offering their positions to other physicians in the District. To the credit of the physicians, it may be stated that some declined absolutely to succeed these gentlemen, under the circumstances. There has always been trouble in this institution between the medical men and the laymen on the board, because of the domination of the latter over the physicians, in purely medical questions. It is high time that the profession of the District of Columbia should discipline this institution and demand the respect due the medical men on their board and staff. These gentlemen who have resigned are well known to the profession of this country and an unbiased mind can readily appreciate the loss to the institution resulting from their resignations.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The report of the Central Dispensary and Emergency Hospital for the past month shows the total number of new cases to be 553; total visits, 1869; emergency cases, 292; house cases, 38; deaths, 6; ambulance calls, 44; prescriptions, 2438.

SANITARY NEEDS OF INSTITUTIONS.—Health Officer Woodward has submitted to Chairman McMillan, of the Senate District Committee, a statement of the sanitary conditions of a number of charitable institutions in the District. Dr. Woodward suggests many changes and improvements and points out many preventable defects which need prompt relief. Chief among these may be mentioned, defective buildings, overcrowding, defective plumbing, deficient bath accommodations, defective light, heating and ventilation and lack of isolating accommodations for contagious diseases.

THE TELEPHONE WAR.—The physicians of the District have joined in the general sentiment against the overcharge, poor service and eves-dropping methods with respect to messages, which are now in vogue by the local telephone company. A large and enthusiastic meeting was held on the 17th inst., at the Medical Association rooms, which resulted in the passage of resolutions denunciatory of the telephone grievance, and the appointing of a special committee to wait upon the Telephone Company for the purpose of securing better service, unlimited use and secrecy in regard to medical messages passing through their central office. The committee consists of Drs. G. Wythe Cook, H. P. Thompson and H. L. E. Johnson.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 276th meeting of the Washington Obstetrical and Gynecological Society was held at the residence of Dr. Kelly, No. 1312 15th st., N. W. Dr. E. A. Ballock presented a very interesting paper on "Adenoma of the Breast," which was fully and freely discussed by the members present.

Detroit.

The Regular Meeting of the Wayne County Medical Society was held February 17. Dr. W. F. Metcalf read an interesting paper on "Office Treatment of Gynecic Cases." The Doctor discussed the subject in a general way, giving the most important conditions and symptoms which are found necessary to treat in regular office practice. Dr. Hal. C. Wyman followed with a paper on "A Wound of the Pericardium and Pleura Treated by Suture; Recovery." The Doctor stated in his paper that some ten days previously he had been called to a town in the interior of the State to treat a man who had been wounded in the chest by the bursting of a saw. He found the man lying on his back with a pulse of 140, respiration 56. On examining the man's chest he found a large gaping wound in its wall through which the heart projected at each respiratory movement. The rent included both the pleura and pericardium. Pushing the apex of the heart back into its normal position, the Doctor grasped the torn edges of the pericardium and sutured with catgut. The pleura was then closed and the chest wall hermetically sealed without drainage. The patient's condition at once improved and he is now convalescent. Dr. W. H. Poole presented the report of a very interesting case of rhinolith, which had by its presence in the middle meatus of the left naris produced symptoms of stenosis of the tear-duct of that side.

At a Recent meeting of the Board of Health the resignation of Dr. Samuel Duffield as health officer of the city was accepted, and Dr. Heneage Gibbs of Ann Arbor elected as his successor. This action of the Board has the approval of the majority of the profession in Detroit, as Dr. Gibbs is highly esteemed for his distinguished learning and ability.

Denver.

How May the Mortality in Appendicitis be Diminished?—Dr. Charles A. Powers opened the scientific program by the reading of a paper on the above subject, in which he has given the histories of fifteen cases of acute appendicitis seen by him during the past four months. He classified them as follows: 1. Cases which had developed general suppurative peritonitis when first seen, five. 2. Cases of local appendicitis ten. Five cases in the latter class were submitted to operation, all recovered. In the remaining five cases he had advised against operation, and all of these recovered. Of the five cases of general peritonitis operative interference offered absolutely no chance of recovery. Each of these died. Of the complications met during the operation one deserves particular notice. On operation the whole right side of the abdomen was found to be the seat of old, dense adhesions; the appendix lay in the pelvis; it was long, large and gangrenous and densely adherent to all the tissues about it. On digging it out with the finger a gush of straw-colored fluid came; this fluid was urine. He at once packed the wound with gauze and opened the abdomen in the mid-line and examined the bladder, which was intact. After ligation of the appendix the entire wound was freely packed with iodoform gauze, a glass tube being inserted to the pelvis and another at the upper part of the wound behind the colon. Through these channels the urine found ready egress. The fistula closed at about the sixth day, after which the patient went on to complete recovery. Dr. Powers has no sympathy with the extremists who cry loudly for operation in every case. "We must base our decision," he said, "for or against operation on the evidences taken as a whole." Timely operation is safer than delay, and in doubtful cases an exploratory incision will be attended with less danger than will delay. Dr. P. D. Rothwell gave the histories of several cases in which the symptoms indicated appendicitis but the diagnosis of impacted feces was corroborated by emptying the colon. He favors flaxseed poultices, laxatives and purgatives. Dr. Whitney said that 80 per cent. of all cases of appendicitis recover of themselves. He classified appendicitis into cases: 1, which come abruptly and manifest general infection; 2, localized appendicitis with severe symptoms; 3, mild cases, and 4, cases which begin mildly and rapidly develop alarming symptoms.

Dr. Sewall said he is interested in the prophylaxis of appendicitis which alone could diminish the mortality. The appendix is an organ of low vitality and can not withstand any insults. Impaction is the prime cause.

Dr. Bonney said the majority of cases he had treated were mild. The surgeon he thinks should be called in early. He related a case of a woman 30 years old who presented all the symptoms of appendicitis, and in which the consent for operative interference could not be obtained. On the fifth day convalescence set in. On the tenth day she developed a chill, pain in cardiac region, pericarditis, pleurisy and then pneumonia and lastly nephritis with fatal termination. Probably the appendicitis preceding had much to do with the course of the succeeding phenomena. Dr. Leavitt called attention to the need of an early consultation in cases of appendicitis.

Dr. Hershey said he believed in preventive measures, and believes that in the majority of cases an acute or chronic enteritis can be traced to have been the cause. He thinks that cases requiring surgical interference are very few indeed. Dr. Freeman said his rule is that if within forty-eight hours the symptoms do not tend to increase in severity he treats it expectantly. All cases starting with violence, he operates at once. He does not operate on cases seen on the fourth or fifth day, but waits until the seventh because of the adhesions that are being formed during that period, and which are the barriers nature throws out. If the appendix forms part of the abscess he lets it alone. Patients having suffered from repeated attacks of appendicitis, and who live outside the reach of a surgeon he advises an operation between the attacks. Dr. Rogers referred in his remarks to the great injustice done by the daily papers to the cause of surgery in general and appendicitis in particular. The cases that recover are not reported, but fatal cases receive a write-up, especially if the patient happens to be prominent in the walks of life. He mentioned a certain town where the physicians dare not operate on appendicitis. If they did, it would be at the risk of their lives. Dr. Grant recommended very early operation, and believes that should all operations be performed the first twenty-four hours the statistics would show different figures. Dr. Lobingier also favors early operation; urged the advisability of consultation with surgeons. Reported a case of a woman who was operated on twenty-seven hours after the initial symptoms. Pus was found in abdominal cavity, but the patient recovered. Dr. Nichols took exception to Dr. Freeman's views. Under no circumstances does he leave the appendix in the abdomen. Dr. Wetherill made an analogy between the appendix and Fallopian tubes. The successful cases he thinks are due in a great measure to the skill and dexterity of the operator, and a general surgeon can not expect the results obtained by a Joseph Price or John B. Deaver.

Letters were read from Senators Wolcott and Teller in answers to resolutions passed at its last meeting, protesting against the passage of the bill for further protection of cruelty to animals in the District of Columbia. Both Senators express their willingness to interpose the passage of the bill.

Resolutions on Vivisection Passed at the Stock Growers' Convention.—At the convention of the national stock growers held recently in this city, the following resolution was unanimously adopted:

Whereas, Viewing with alarm that a bill before the present Congress, known as the anti-vivisection bill, purporting to be antagonistic with scientific methods used in placing knowledge in the minds of scientists, for the protection of live stock and prevention of the spread of disease which can alone be acquired by scientific methods; be it

Resolved, That we, the representatives of the live stock interests of the United States, in convention assembled in Denver, Colo., under the call of a national convention of live-stock

men for the purposes of protection of the industries we represent, call upon the Congressmen and Senators of the State here represented to cast their vote against any measure that will prevent scientific research to be continued in the interests of the animal kingdom.

From the further fact that immediate action is about to be taken on the above bill, it is further resolved that the secretary of this convention be requested to convey this resolution to the Congressmen and Senators of the States at interest at once.

MEAT FROZEN FOUR YEARS AGO.—Whether there are such epicureans who will relish viands four years old is a matter for gastronomes to decide. Our health commissioner, without waiting for a decision from the connoisseurs, has seized and destroyed 40,000 pounds of such venerable article. It is said that the killing was done in Omaha, Neb., in 1894, frozen and hung in a refrigerator, and the dealers waited for a favorable opportunity to feed with it some community which does not know of its antecedents.

NEXT MEETING OF THE AMERICAN MEDICAL ASSOCIATION, JUNE 7 TO 10, 1898.—At a recent meeting of the Committee of Arrangements the following has been reported: The medical profession of the city have subscribed the amount of $6000. The Committee on Meetings reported that the Gulf Railroad has published 20,000 copies of a pamphlet entitled "Colorado, About its Climate." The Committee on Hotels has gotten out an attractive leaflet giving the hotels and principal boarding-houses of the city. The Committee on Souvenir Book reported they have in preparation an exceedingly attractive souvenir volume, profusely illustrated, giving information on every imaginable subject of interest in the State, as well as a map of the State and city. It is confidently expected that the railroads will furnish an excursion "over the loop" and to Colorado Springs and Manitou, and that half rates will be charged for transportation and a time limit on all railroad tickets, of thirty days from the date of arrival.

Hospitals.

ACCORDING to the "Thirteenth Annual Report of the New York Post-Graduate Hospital" from Oct. 1, 1896, to Oct. 1, 1897, 2303 house patients were treated. Of these 823 were babies. In the dispensary 19,017 patients were treated, to which 65,536 visits were made. Of 116 cases investigated as to their being eligible to charity treatment 52 were found deserving, 20 gave fictitious addresses and 44 were turned away. Of the 2303 cases 1326 were treated absolutely without fee, 527 on partial payment and 550 were pay patients.

THE MARYLAND HOSPITAL FOR THE INSANE reports Oct. 31, 1897, during the year the number treated was 610. Forty-three patients died and fifty-three were discharged. The percentage of recoveries of the number treated was 6 per cent. Eliminating those cases of over a year's duration, the recoveries were 80 per cent.

Societies.

The following recent meetings are noted:

Alabama.—Cullman County Medical Society, Cullman, February 7.

California.—Pasadena Medical Society, February 10.

Connecticut.—Hartford Medical Society, February 7.

Illinois.—McDonough County Medical Association, Macomb, February 7.

Indiana.—Johnson County Medical Society, Franklin, February 10.

Iowa.—Southwestern Iowa Medical Society, Creston, February 17.

Massachusetts.—Boston Medical Society, February 14.

Missouri.—Academy of Medicine, Kansas City, February 12; City Hospital Medical Society, St. Louis, February 17; St. Louis Medical Society of Missouri, February 19.

Nebraska.—Lincoln Medical Society, February 8.

New Jersey.—Atlantic Academy of Medicine, February 11.

New York.—Albany County Medical Society, February 16; Binghamton Academy of Medicine, February 15; Jenkins Medical Society of Mount Vernon, February 10; Rensselaer County Medical Society, Troy, February 8.

Ohio.—Delaware County Medical Society, Delaware, February 15; Jackson County Medical Society, Wellston, February 8; Muskingum County Medical Society, Zanesville, February 10.

Pennsylvania.—Delaware County Medical Society, Chester, February 10; Lackawanna County Medical Society, Scranton, February 10.

Tennessee.—Smith County Medical Society, Carthage, February 7; White County Medical Society, Sparta, February 10.

Texas.—Hunt County Medical Association, Greenville, February 7.

CHANGE OF ADDRESS.

Bovinine Co., The, from 495 W. Broadway to 75 W. Houston St., New York, N. Y.
Bennett, Alice, from Wrentham, Mass., to Biltmore, N. C.
Blech, G., from Detroit, Mich., to 6236 Sangamou St., Chicago.
Cockey, M. G., from Topeka, to Belvue, Kau.
Herrick, A. B., from Lisbon, N. D., to Santa Rosa, Cal.
Holmes, C. R., from 84 N. 7th to 8 E. 8th St., Cincinnati, Ohio.
Hill, F. E., from 10 W. 9th to 23 E. 9th St., Cincinnati, Ohio.
Norman, J. B., from Hume to Pilot Grove, Mo.
Olsen, A. B., from Chicago to Battle Creek, Mich.
Pomeroy, H. M., from New York, N. Y., to San Diego, Cal.
Sattler, R., from 64 W. 7th St. to Groton Bldg., Ciucinnati, Ohio.
Thompson, J. H., from 31 Times Bldg. to 403 Deardorf Bldg., Kausas City, Mo.
Wandless, H. W., from Dallas, Texas, to 272 Madison Ave., New York.
Zinke, E. G., from 413 Elm St. to 13 Garfield Pl., Cincinnati, Ohio.

LETTERS RECEIVED.

Akins, William T., Chicago.

Berry, J. T. B., Brandon, Miss.; Baker, L. B., Erie, Pa.; Brown, R. A., Cotton Plant, Ark.: Brown, Mark A., Cincinnati, Ohio; Blackburn, M. H., Dover, Ill.; Bernays, A. C., St. Louis, Mo.; Baldy, J. M., Philadelphia, Pa.; Brannou, L., Joliet, Ill.

Cronica Medica Mexicana, Mexico City, Mexico; Cleveland Medical Gazette, The, Cleveland, Ohio; Cutter, J. A., New York, N. Y.

Doolittle, George T., Spokane, Wash.

Elliott, H. G., New York, N. Y.; Elliott, A. R., New York, N. Y.

Fairbairn & Sons (Ltd.), Ediuburgh, Scotland.; Floyd, R. G., Eureka Springs, Ark.; Fry, Frank R., St. Louis, Mo.

Galloway, D. H., Chicago.

Hayden, A. M., Evansville, Ind.; Hughes, C. H., St. Louis, Mo.; Hoag & Curtis, Springport, Mich.; Helgeson, P. A., Lake Mills, Iowa; Hummel, A. L., Advertising Agency, New York, N. Y.; Herrick, A. B., San Francisco, Cal.

Johnson & Johnson, New Brunswick, N. J.; Johnson, H. P., Long Prairie, Miun.; Jonas, A. F., Omaha, Neb.

Keyser, John, Cincinnati, Ohio; Knott, Van Buren, Sioux City, Iowa; Knopp, C. P., Wyoming, Pa.

Lewis, J. Harry, Kansas City, Mo.; Lewis, LeRoy, Auburn, N. Y.; Lerch, Otto, New Orleans, La.; Lyle, B. F., Cincinnati, Ohio.

Merck & Co., New York, N. Y.; Milliken, John T. & Co., St. Louis, Mo.; Malt-Diastase Co., New York, N. Y.; Mortimer, Dr., St. Louis, Mo.; Meiseubach, A. H., St. Louis, Mo.; Mills, H. B., Philadelphia, Pa.; Medico-Chirurgical Journal, Bristol, England; Manley, Thomas H., New York, N. Y.

Pneumochemic Co., The., Cincinnati, Ohio; Phelan, H., San Francisco, Cal.; Pomeroy, H. M., Sau Diego, Cal.; Preston, C. H., Davenport, Iowa; Parmele, Charles Roome, New York, N. Y.; Proctor & Collier Co. Cincinnati, Ohio; Pilling, George P. & Son (2), Philadelphia, Pa.

Shoemaker, F., Fort Sill, O. T.; Schering & Glatz, New York, N. Y.; Sternberg, George M., Washington, D. C.; Sefton, Frederick, Auburn, N. Y.; Small, Sidney I., Saginaw, W.S., Mich.; Skinner, Calvin, Malone, N. Y.; Stokes, William R., Baltimore, Md.

Ticmauu, George, & Co., New York, N. Y.

Wabash Railroad Company, Chicago; Wiggin, O. C., Kingston, R. I.; Wilde, Julia Cabot, New York, N. Y.; Wilson, R. H., St. Louis, Mo.; White Rock Mineral Spring Co., Waukesha, Wis.; Woman's Medical College, New York Infirmary for Women and Children, New York, N. Y.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serviug iu the Medical Department, U. S. Army, from February 12 to 18, 1898.

Capt. Paul F. Straub, Asst. Surgeon, is relieved from duty at Angel Island, Cal., and ordered to report in person to the commanding General, Dept. of the Columbia, without delay, for assignment to duty.

First Lieut. Carl R. Darnall, Asst. Surgeon, is relieved from duty at Ft. Clark, Texas, aud ordered to Ft. McIntosh, Texas, for duty at that post, relieving Capt. Frederick P. Reynolds, Asst. Surgeon. Capt. Reynolds, on being thus relieved, is ordered to Vancouver Bks., Washiugton, for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending February 19, 1898.

Asst. Surgeon G. C. Hubbard, sent to St. Elizabeth's Governmennt Hospital for the Insane.

Asst. Surgeon J. C. Thompson, detached from the naval hospital, Mare Island, Cal., and ordered at once to the "Mohican."

P. A. Surgeon L. H. Stone, ordered to be examined for retirement February 4 and to wait orders.

P. A. Surgeon B. R. Ward, upon completion of temporary duty in New York to proceed home and await orders.

Medical Inspector J. G. Ayers, ordered to assume charge of hospital on Widow's Island iu addition to present duties.

Asst. Surgeon H. H. Haas, ordered to the "Vermont."

Surgeon A. C. H. Russell, ordered to duty in the bureau of medicine and surgery February 9.

Asst. Surgeon G. C. Hubbard, ordered home and granted three months' sick leave.

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ORIGINAL ARTICLES.

GASTROTOMY FOR THE REMOVAL OF FOREIGN BODIES IN THE STOMACH.

WITH REPORT OF A CASE, AND A TABLE OF REPORTED CASES OPERATED ON UP TO THE PRESENT TIME.

Read before the Missouri State Medical Assoeiation, at St. Louis. Mo., May 19, 1897.

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INTRODUCTION.

Although gastrotomy for the removal of foreign bodies was performed as early as 1602, it is remarkable to note that from 1602 to 1887, a period of 285 years, only thirty-five cases have been reported as operated on. Many cases of foreign bodies in the stomach, no doubt, were not operated on, and perhaps some have been operated on of which no reports have been made. From 1887 to date twenty-two cases have been reported. Gastrotomy, even in the pre-antiseptic and aseptic period, was a comparatively safe operation, only five out of the thirty-five cases operated on prior to 1887 having proved fatal.

The patients on whom this operation was done were usually either lunatics, or fakirs who swallowed the objects for money.

The indications for the performance of gastrotomy for the removal of foreign bodies in the stomach are: 1, the presence of a body that, on account of its size or form, can not pass through the intestines; 2, the presence of urgent symptoms in the patient.

Foreign bodies may remain in the stomach for a long time without causing serious disturbances, and in some cases their presence may not be known (as in lunatics) until discovered after death by post-mortem. In this respect the form, size, number and weight of the body play an important rôle. Long bodies, such as knives, table forks, spoons, pencils and bars of metal, usually remain in the stomach and give rise to serious symptoms on account of their weight and form. In cases where small objects are swallowed repeatedly their aggregation will eventually, by their weight, favor an accumulation in the stomach and finally may give rise to serious symptoms, producing dilatation of the stomach and local inflammation, adhesions or perforations. That the long continued presence of foreign bodies in the stomach, although tolerated, perhaps, for a long time, will eventually give rise to disturbance of nutrition and other local conditions seems reasonable. There may be symptoms of a catarrhal condition of the stomach, pains in the pit of the stomach and shifting from one spot to another, often influenced by the posture of the patient. When foreign bodies set up subjective conditions that are progressive in character the patient ultimately grows pale and thin; there may be vomiting, hemorrhage and extreme wasting, eventually ending in exhaustion and death. Where the presence of foreign bodies in the stomach can be established the sooner they are removed the better will be the prognosis, no matter what the character of the body may be.

To the cases that have been reported I have the honor to add the following, which came under my care and observation March 30, 1897. The patient termed himself "The Human Ostrich," and had followed the profession of swallowing glass, metal, etc., for a period of nine years. He presented himself at my clinic, giving the following history:

HISTORY OF THE CASE.

The patient, L. W., "Signor Ranana," aged 22, has the following history:

Family history.—Father and mother living and of very nervous temperament. One living sister.

Previous history.—Patient received a very fair education, attended public high school and college and was within one and one-half years of graduation when he left school. While still at school he witnessed, in March, 1888, an exhibition by a professional glass eater. He paid the "Signor" ten dollars to teach him the art of glass-eating. After experimenting for a few days he found he could perform the same feats. At first he gave private exhibitions. He took great interest in swallowing other objects, such as nails, and practiced sword swallowing also. In 1894 he joined a specialty company. At this time he practiced needle and pin sticking (perforating the skin with needles or pins). Since 1894 he has been continually giving private and public exhibitions, at least one or two a week. He does not remember the quantities swallowed. In the early part of March, 1897, he started out on a trip, and on account of scarcity of funds was obliged to give as many as six to twelve exhibitions daily, in saloons and elsewhere, but he did not swallow much at a time, only a bite or two of glass, four or five nails, screws or cartridges, or a few fence staples. He always carried a supply of the objects, so as to be able to give an exhibition of swallowing at any time. In his repertoire were pearl-top lamp chimneys, two-, four-, six- and eight-penny wire fence nails, barbed wire fence staples, and thirty-two and thirty-eight caliber cartridges. He never swallowed tacks.

The patient states that up to 1897 he never had any trouble. He never was sick, nor did he have any trouble with his bowels. On March 15 he gave a number of exhibitions, and on March 16 a "lump in the stomach" and the first pains were noticed. On March 18 the last object was swallowed, a thirty-two caliber cartridge. He came to St. Louis to seek relief, feeling that he was beginning to get into a serious condition.

Present condition.—The patient is 6 ft. 1 inch in height, weighs 153 pounds, has hazel eyes and curly brown hair. His color is pale, gums spongy and breath very foul. He complains of a weight in his stomach, but has no other pains. His pulse is 76, temperature 98 degrees and respirations 23.

Physical examination.—Patient stripped to the waist. Inspection in both upright and recumbent position reveals nothing abnormal. In proportion to his height he ought to be more fleshy.

Palpation and percussion with patient standing upright, body inclined forward, mouth open and abdominal muscles relaxed. In this position palpation and ballottement reveal distinctly a mass situated in the umbilical and hypogastric regions. The mass (tumor) can be raised, and in descent a distinct impulse is felt against the fingers. The mass is about the size of an ordinary hand.

Palpation and percussion with patient reclining on his back

reveals a mass in the umbilical region. Deep pressure clearly outlines the same. Changing the position so that he lies on his right side the mass shifts its position to the right hypochondriac and lumbar regions, and can be clearly defined by palpation. Turning the patient on his left side the mass shifts to the left hypochondriac and lumbar regions. Placing the patient on his back again the mass returns to the umbilical region, and occupies the same position when he arises to his feet.

The manipulations were not associated with any degree of pain, only when deep pressure was practiced the patient would admonish the manipulator to be gentle; it hurt him.

Remarks. — The physical examination alone was sufficient to establish the diagnosis of foreign bodies in the stomach. The patient was willing to have an operation performed, and so was admitted at once (March 30) to the Rebekah Hospital for observation and preparation for the operation. He was placed on liquid diet and orders left to look after the bowels and stools.

The question whether the foreign bodies were located in the stomach or elsewhere was a very important one from an operative and prognostic standpoint. That they were in the stomach was demonstrated to my mind by the constancy of the position of the mass and the position that it occupied. The previous history of the patient was also a valuable point in determining this. The points on which this diagnosis was based were:

1, the position of the mass when the patient was placed in the upright position; 2, the position of the mass when the patient was reclining on his back; 3, the position of the mass when the patient was reclining on his right or left side; 4, the previous history of the patient.

1. The position of the mass when the patient was on his feet or lying on his back. Palpation and percussion demonstrated that it was mostly in the umbilical, but partly in the lumbar region. The mass being a large one and composed, as it was, of heavy objects, the *raison d'être* naturally would be that such a mass would in time have its effect on the stomach and produce dilatation of that part with which it was in contact; gravitating toward the lowest point, this being some part of the greater curvature. Gravitation and dilatation would explain its position in these regions. The only other position that the mass might have occupied would be in some part of the large or small intestine. But this supposition becomes untenable when we critically analyze the possibilities. If the mass had accumulated in the small bowel there would have been symptoms of obstruction and previous history of pain, possibly inflammation. Also, the tumor would not have been as constant in position unless surrounded by inflammatory adhesions that would make a solid, immovable mass. The same would be true of the colon; if in the cecum, we would certainly have had a train of symptoms of either obstruction or inflammation; if in the transverse colon, the position would have been lower. The only other part of the colon would have been the sigmoid or rectum, in either of which the symptoms of obstruction or inflammatory reaction would have been prominent.

2 and 3. Positon of mass when patient reclined on left or right side. The constancy with which the mass would shift to the left or right side and return to the median line when the patient was on his back was a strong argument in favor of its location in the stomach. No other location could explain the constancy of position in either region when the patient lay on either side.

4. Previous history of the patient. In establishing a diagnosis this is of the utmost importance. Such a mass accumulated anywhere else in the gastro-intestinal tract would very soon have given rise to very serious symptoms, either of inflammation or obstruction.

Being so firmly convinced that the foreign bodies were located in the stomach, as determined above, other corroborative testimony was hardly necessary. My diagnosis was concurred in by Professors Lemen, Crandall, Bond and others who saw the case afterward. I might have passed a metallic sound into the stomach, passing an electric current through it, but I did not want to do anything that might injure the parts, which might have been done by probing or the reflex vomiting excited by it. However, on April 5 the stomach was inflated with air, so as to more clearly outline its lower border. It was found below the umbilicus, as had already been demonstrated. It was decided, however, to demonstrate, if possible, the presence of the mass by means of the X-rays.

X-RAY EXPERIMENTS.

On Friday evening, April 2, the experiments with the X-rays were made. The apparatus was Thomson's high tension coil 6 inch spark, and was in charge of Dr. Ernest Rubel of the St. Louis Electric Supply Co. The apparatus worked admirably. The fluoroscope was used first. By it the mass could be outlined as a dark spot about four to five inches in diameter. The patient was placed in a standing position with his back to the tube. The position of the mass was the same as revealed in the physical examination, viz., principally in the umbilical region.

A 14 x 17 Cramer, Banner plate, properly wrapped, was placed on a table on which the patient was laid. The plate was so placed that in its area was comprised the abdominal cavity, part of the pelvis and thorax. The exposure was one hour in duration.[1] The X-rays were so powerful that at a distance of six or eight feet from the tube, and on its side or behind it, the fluoroscope showed the skeleton of the hand distinctly. The tube was placed over the abdomen with its long axis parallel with the axis of the body, the center of the tube about over the location of the mass. The distance of the tube from the body was twelve inches; time of exposure for first plate, one hour; second plate, forty minutes.

The plates when developed did not give as good a shadowgraph as was desired. The lumbar spine and the lower part of the thorax were faintly outlined. There was a shadow marking the site of the tumor which, although not as clearly defined as desirable, yet to the practiced eye demonstrated the presence of some foreign body. This shadow was situated a little to the right of the spinal column and in the umbilical region.

Not satisfied with these plates, further exposures were made, the last on Monday evening, April 6, the evening before the operation. Three exposures were made, ranging from thirty-seven to forty minutes each. On development of the plates it was found that the plates of the first exposure were the best, the one exposed one hour being the best of all. The total time during which the patient was exposed to the X-rays at the various sittings, was nearly five hours.

OPERATION (GASTROTOMY).

April 7, 3 P.M., at the Rebekah Hospital, in the

[1] Since the above experiments were made improved methods of technique have made it possible to shorten the exposures to one-half or one-fourth of the above time.

resence of a number of visiting members of the Tri-tate Medical Association, and assisted by Drs. Born, orsey and others, I performed gastrotomy.

One-half hour previous to the operation the stomach as washed out with a Pasteurine solution. The an-sthetic was chloroform.

Incision from the xiphoid to umbilicus was made the median line, and anterior wall of the stomach resented in the depths of the wound. It was noticed hat the stomach was dragged down considerably, so hat the superior curvature presented at about the iddle of the incision. Introducing my hand into he abdominal cavity I could feel the mass situated elow the umbilicus and to the right of the spinal col-mn. The mass was situated nearer to the pyloric end nd this part of the stomach was sacculated. Pulling ently on the anterior wall, I was able to draw the omach out of the abdominal wound to such an xtent as to bring the mass into the bottom of the ound area. Grasping the stomach wall with two nall, short bullet-forceps, midway between the reater and lesser curvature in the axis of the organ, made an incision between the forceps into the cavum" with a knife, the forceps being held by an ssistant. Previous to opening the stomach sterilized auze was packed all around it and into the wound, ffectually shutting off the abdominal cavity. The art of the stomach that was extra-abdominal was ept lifted up by the assistant, and was also protected y sterilized gauze.

The opening into the stomach, into which I could ook and see the mass, was two inches in length. I troduced a pair of Bergmann calculus forceps and elivered the articles that were on top in the pile of ardware. I continued this operation with the for-ps until I felt that its further use might "jab" the harp articles into the stomach wall. I had provided yself with various shaped spoons, thinking that per-aps they might be of value to scoop out the articles ithin the stomach. Seeing the sharp nature of the bjects, however, I concluded not to use the spoons, ut to enlarge the stomach incision and introduce my and. The wound was enlarged to four and one-half ches, so that my hand could pass freely into the vity of the stomach. From the first incision (two ches) there was no hemorrhage, and from the last ly a little bleeding from the cardiac end of the ound; this was arrested by putting on a hemostatic rceps. With my left hand I scooped out the remain-g articles. I worked very carefully so as not to jure the stomach walls, and also not to cut my fin-rs on the sharp points of the nails, staples, etc., and the broken pieces of glass. I had expected to find me of the articles imbedded in the mucosa or walls the stomach. The objects were clean (kept so by e action of the gastric juices). The iron ones were ued and smooth; those of brass and copper (cart-dges and chain) of their natural color and bright. here was a thick glairy mucus between them, the ass especially being surrounded by this mucus. uring the operation of removing the objects there as continual secretion into the stomach taking place, that it was necessary, every now and then, to mop is out by means of gauze sponges. The color of e secretion was greenish black.

To satisfy myself that everything had been removed swept my fingers over the interior of the stomach, pecially along the greater curvature, and introduced y index finger into the cardiac and pyloric openings. Everywhere the mucosa was free from pockets; nor could anything be felt in the stomach walls. Being satisfied that everything had been removed, the interior of the stomach was irrigated with sterilized water, a small quantity being poured in and mopped out with gauze sponges. This operation was repeated several times. Inspection of the mucosa did not reveal any ulcerations, simply abrasions here and there; the membrane seemed somewhat thickened, however.

The stomach wound was closed by three rows of sutures. The first was a strong No. 6 silk, threaded on a straight thick darning needle, and was passed through the mucosa in the form of a continuous suture. The second was of the same silk as the former, a continuous suture, and introduced through the peritoneum and muscular coat, so as to bring the peritoneal surfaces into apposition. The beginning of this line of sutures was one-fourth of an inch from the end of the wound, in the form of a Lembert stitch. The first stitch being tied, the rest of the suture was passed, entering a little more than one-eighth of an inch from the lip of the wound, coming out of the wound and re-entering the opposite lip of the wound. The third row was made with No. 2 braided silk threaded on a straight No. 8 sewing needle. This was a continuous Lembert suture, and completely buried the previous layer of sutures.

The stomach was carefully wiped off with gauze sponges, as was also the abdominal wound. The packing of gauze, which was hardly soiled so carefully had the operation been done, was removed from the abdominal wound, everything again "reviewed," and then the stomach was dropped into the abdominal cavity. There was a strong temptation to lessen the size of the stomach by imbricating a portion of the wall, but I concluded to allow nature to assert herself and correct the dilatation.

The abdominal wound was closed by interrupted through and through sutures. Iodoform collodion was applied over the abdominal sutures, and a cotton pad and a bandage applied.

The time of operation was one hour. The list of articles removed from the stomach shows: Twenty-five staples for barbed fence wire; 15 one and one-half inch screws; 6 two inch horseshoe nails; 16 two inch wire nails; 30 one and one-half inch wire nails; 16 thirty-two caliber cartridges; 5 thirty-eight caliber cartridges; 2 pocket-knife blades (broken); 2 inches of brass wash-stand chain, and 2 small staples; total 119 pieces. Eight cartridges passed after operation. There was also one ounce of comminuted glass (electric light globe); making the total number of objects 127, total weight, one pound.

PROGRESS OF THE CASE.

From the time of admission into the Rebekah Hospital, March 30, to the time of operation, April 7, the records show that the patient complained daily of acute griping pains. Sometimes these pains would recur every fifteen minutes. He was kept on liquid diet and bowels moved by salines and enemata.

Bedside record.—On the morning of the operation, April 7, the patient's temperature was 98, pulse 74.

April 7: 7 P.M., temperature 99, respiration 38, pulse 72; belching considerable gas; 9:45 P.M., temperature 99.5, respiration 34, pulse 114; one-thirtieth strychnia given hypodermically.

April 8: 12 A.M., temperature 100, respiration 34, pulse 90; 10:30 P.M., temperature 99.4, respiration 30, pulse 86. Vomited some dark slimy matter, about 3 ozs.

April 9. 12 A.M., temperature 99, respiration 30, pulse 96;

10:30 P.M., temperature 100, respiration 28, pulse 86; vomited dark green slimy liquid.

April 10: 1 A.M., temperature 98, respiration 28, pulse 86; 2:15 P.M., temperature 101, respiration 30, pulse 88. Coughing; inhalation of tinct. benzoin and chloroform. Calomel gr. 1 every hour for eight hours. Examination of lungs posteriorly reveals coarse râles in right lung; 4:15 P.M., temperature 102, respiration 30, pulse 88.

April 11: 1:15 P.M., temperature 101.6; respiration 28, pulse 90; 7:35 P.M., temperature 102, respiration 27, pulse 86. Examination of lungs by Prosessors Lemen and Crandall revealed pneumonia of right lung with solidification at base.

April 12: 12 A.M., temperature 101, respiration 26, pulse 82; 2:15 P.M., temperature 102, respiration 30, pulse 88; 8 P.M., temperature 102, respiration 30, pulse 90.

April 13: 8 A.M., temperature 100, respiration 32, pulse 88; 12:15 P.M., temperature 101, respiration 30, pulse 88; 9 P.M., temperature 101. respiration 30, pulse 88.

April 14: 8 A.M., temperature 101, respiration 28, pulse 90; 4:45 P.M., temperature 101.3; respiration 23, pulse 90.

April 15: 8 A.M.. temperature 100.3, respiration 22, pulse 86; 2:30 P.M., temperature 101, respiration 22, pulse 86; 8 P.M., temperature 100, respiration 22, pulse 84. Wound was dressed today. The stitches, which were loose, and the collodion dressing were removod. The bridges of tissue between the stitches seemed to be united. The wound was macerated under the dressings and a large area of epidermis around the wound was exfoliated. A pad of gauze was placed over the wound and over this adhesive strips, taking a good hold on either side of the wound (passed halfway around the body).

April 16: 8 A.M., temperature 100, respiration 24, pulse 84; 4:30 P.M., temperature 100, respiration 24, pulse 86. Wound had discharged very much so that dressings were soaked. On removing the dressings and plaster I found that the parietal wound had become torn open and was gaping. The peritoneum, however, was intact, with the exception of the lower angle, at which there was an omental protrusion about two inches long and one and one-half inches at the base. The wound was carefully cleansed with sterilized water and firmly packed with iodoform gauze, the gauze being so placed as to surround the protruding omentum so as to isolate it from the rest of the wound. No bad effects seemed to follow the opening of the wound.

April 17: 1 A.M., temperature 101, respiration 24, pulse 86; 12:15 A.M., temperature 99.5, respiration 22, pulse 84. Wound dressed and packed as on previous day.

April 18: Condition as on previous day. Wound dressed.

April 19: 8 A.M., temperature 100.2, respiration 34, pulse 84; 4:15 P.M., temperature 100, respiration 22, pulse 84. Wound dressed.

April 20: 8:30 A.M., temperature 100.2, respiration 24, pulse 90; 4:30 P.M., temperature 99.3, respiration 22, pulse 84. An elastic ligature was thrown around the base of the omentum so as to strangulate the protruding portion, having waited until now so as to get firm adhesions to the peritoneum. The only inconvenience caused by this protrusion was nausea at times.

April 21: 8 A.M., temperature 98.4, respiration 22, pulse 84; 5:30 P.M., temperature 100, respiration 22, pulse 86. Omental stump contracted, circulation cut off; twisted ligature tighter; wound repacked.

April 22: 8:15 A.M., temperature 100, respiration 22, pulse 86; 5 P.M., temperature 99, respiration 20, pulse 82. Dressed and packed wound. Cut off the omental tumor, first tying a heavy silk ligature around it.

April 23: 10 A.M., temperature 100, respiration 22, pulse 80.

From this time on the temperature varied from normal to 99.5 degrees F., the pulse from 76 to 80, and respiration from 16 to 20 per minute.

With the general improvement the lung also became cleared up, so that by May 1 all symptoms of consolidation had passed off. The wound is closing up fast by granulations.[2]

REMARKS.

The object in giving the details of this remarkable case is to call attention to several peculiarities. 1. The pneumonia. 2. The non-union of the wound and blistering of the skin.

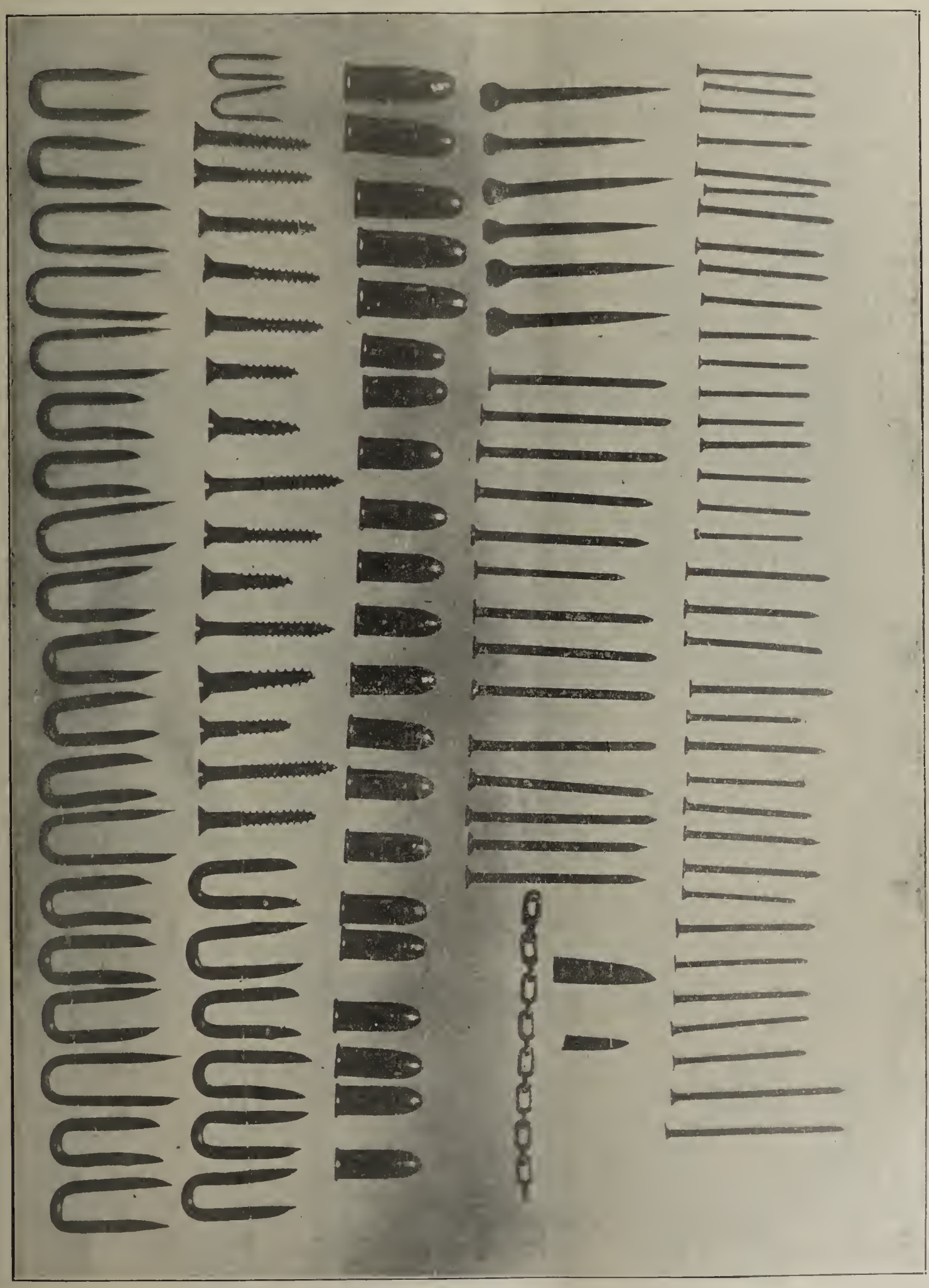
[2] The usual rules as to feeding after laparotomy were observed: No food or drink for first twenty-four hours; then liquids, liquid peptonoids, malted milk. After ten days, oatmeal and solid food. Pneumonia was treated expectantly, free stimulation, etc.

From the bedside record given above it will be noted that the patient promptly recovered from the shock of the operation; in fact, there was practically no shock at all. On the evening of the day of operation his pulse ran up to 114, temperature, 99.4 degrees, respiration 34, and the condition of the pulse, respiration and temperature during the first three days after the operation shows a perfectly aseptic, normal course. On April 10 it is noted that the patient coughed, and an examination of the lungs indicated congestion. The day following, April 11, examination by Profs. Lemen and Crandall revealed solidification of the lung on the right side. Referring to our bedside record we find the following: 1 A.M. temperature 98 degrees, respiration 28, pulse 86; 2:15 P.M. temperature 101 degrees, respiration 30, pulse 87; 4:15 P.M. temperature 102 degrees, respiration 34, pulse 88.

The patient had no chill, nor did he have much pain. The coughing caused him some pain, but there was no expectoration of pneumonic sputum. Here we have the evidences of a hypostatic pneumonia although with atypical symptoms, especially when we note the respiration and pulse, a temperature of 102 degrees, and pulse not above 96. Usually, when inflammatory or congestive conditions of the lung supervene with a rise of temperature there is a concomitant rise of pulse, so that with a temperature of 102 degrees we would expect a pulse rate considerably above 100; that has been my experience. The interesting feature about this question is, what caused the pneumonia? It is possible to have hypostatic pneumonia following surgical operations, in cases that are debilitated. It may follow in any case of sickness of long duration where the nutritive powers are below par. Yet I have never had it occur in my surgical practice.

What part did the X-ray play in its production? This question I can not answer positively, only in a conjectural way. It will be noted that the patient was exposed several times, the exposures varying from thirty minutes to one hour. Including the use of the fluoroscope, he was exposed perhaps five hours in all. The conditions, such as chilling the patient, under which the exposures were made might have been a factor in causing the pneumonia. The room in which the exposures were made was of average temperature, 70 degrees F. The patient was exposed having on only a thin undershirt, with lower limbs enveloped in a blanket. The first exposure was made on April 2, five days before the operation and eight days before the first symptoms of the lung complication arose. The last exposure was made the evening before the operation, and four days before the complication arose. The above facts would not bear out the argument that exposure of the patient to changes of temperature caused the pneumonia, because we know that where exposure is a factor in producing pneumonia the onset is rapid, usually ushered in by a chill, increased temperature and high pulse-rate. I can not imagine a pneumonia, such as our patient had, with its atypical symptoms, to follow exposure; so that I believe we can exclude this argument. The only one left would be that the X-rays were the cause.

The extensive use of the X-rays develops the fact that under certain conditions they are not as harmless as may be supposed. Reports of cases of burns of the integument are received. Two have occurred in the Rebekah Hospital, not in my service, however. It is reported that depilation and periostitis occur. The



Objects removed from the stomach of Sig. Runana by A. H. Meisenbach, M.D., at the Rebekah Hospital, St. Louis, April 7, 1897.

GASTROTOMY FOR THE REMOVAL OF FOREIGN BODIES. CASES REPORTED UP TO DATE.

No.	Date.	Literatnre.	Operator.	Patient, Sex, Age, Occupation.	Foreign body.	Time in Stomach.	Condition before Operation.	Operation.	Adhe-sions.	After Treatment.	Resnlts.	Remarks.
1	1602	Kaiser, Czerny's Beitr. z. Operat. Chir. 1878, p. 98.	Mathis, Prague.	M., 36, Jnggler.	Knife, 21 cm.	51 days.	No great inconvenience.	Adhesions produced by irritant plasters. Knife extracted throngh incision.	Pyloric end to abdom. walls.	. . . . .	Recovery after few weeks.	. . . . .
2	1635	Berlin. Klin. Woch., No. 7, 1883.	Daniel Schwabe, Koenigsberg.	A. Gruenhyde, M., 22. Farmhand.	Tableknife, 18 cm. long, 1.5 cm. wide.	41 days.	No great difficulties.	Incision beneath and parallel to short ribs. Stomach hooked up with curved needle. Knife removed throngh cnt made upon blade, which could be felt through stomach walls. Stomach wound left to take care of itself. Abdom'l incis'n closed with 5 stitches.	None.	Abdomin'l stitc'es removed on 2d and 3d days; wd. washed with wine; strict diet, 14 days.	Recovery after two weeks.	First few days bloody urine; first stool also bloody; lived many years and in perfect health.
3	1692	Nen. Mag. f. Aertz., v. Baldinger, xiii, p. 570, 1791, Richardson, Bost. Med. and Sur. Jonr., Dec. 16, 1886.	Wesener, Halle.	Rudluff. "Hallischer Messerschlucker." M. 16. Farm. boy.	Knife.	Seven months.	No great inconvenience.	Seven mos. after swallowing nlceration 3 finger brdths. beneath pit of stomach. Marked redness; 6 days later spontaneons opening with fetid pns; 9 wks. later knife appeared in wd.; fastened by means of silk thread tied aronnd boy's waist; 2 wks. later spontaneous delivery.	Exten. sive.	. . . . .	Complete recovery.	. . . . .
4	1720	Meyer. Ueber d. Gastrot. Inang. Diss. Leip., 1862, p. 12. Mem. de l'Acad. Royale. 1743, iii, p. 167.	Huebner, Rastemberg.	Woman.	Knife, 16.5 cm.	11 days.	3 days no disturbance, then sharp pains; soon knife conld be felt on left side.	On 11th day incision in left hypochondrium, where snppuration had occnrred; at this point knife had penetrated stomach wall.	Pyloric end to abdom. wall.	. . . . .	Recovery in a short time.	. . . . .
5	1786	Kaiser, Czerny's Beitraege, 1878, p. 99.	Frisac, Toulouse.	Man. Porter.	Piece of knife, 4.5 cm. long.	. . . . .	. . . . .	Incision in epigastrinm parallel with linea alba, through which knife could be felt; knife had pierced stomach wall; point grasped with forceps and knife removed; 2 stitches in stomach wound, 1 quill snture in abdom. wd.	Present.	. . . . .	Recovery.	Case overlooked nntil recently; probably authentic; Baron Larrey present at operation.
6	1819	Rnst's Mag. f. d. Gesam. Heilk. xiii, 1820, p. 124.	Cayroche, in Mendes.	Woman. 24.	Silver fork, 3-pronged, 17x2 cm.	229 days.	Fork felt thro' epigas. In 5 mos. vomiting, severe pain, emaciation, swelling in left side size of hen's egg.	Incision 5 cm. long made over swelling, from above downward, rectns abdominis drawn to one side, stomach opened, fork withdrawn, tines first.	Extensive.	Bleedi'g practiced after opera.; wd. fever; abdomen tend'r; gastric fistula, closed in 4 days; solid food 6th day; left bed 14th day.	Complete recovery in 51 days.	. . . . .
7	1822	Adelmann, Prag. Vierteljahressch., 1876, 131, p. 78. Frariep's Not. 1822, No. 36, p. 224.	Reynard, in Grenoble.	Lajarisse. Young man. Jnggler.	Fork.	31 days.	Fork felt through abdominal walls.	Gastrotomy, right side of abdomen.	. . . . .	. . . . .	Complete recovery.	Patient reported alive in 1875.
8	1823	Kaiser. Czerny's Beitr. 1878, p. 100. Sedillot, Contrib. à la Chir., 1868, ii, p. 456.	Berther-and.	Cavalry-man.	Silver spoon.	Several weeks.	Pain in stomach after 1 week, followed by pain in epigastrium.	With exploring needle hard resonant body felt. Incision; removal of spoon with forceps.	General.	Simple dressings.	Rapid and permanent recovery.	. . . . .
9	1830	Richardson, Bost. Med. and Sur. Jonr., Dec. 16, 1886.	Garcia.	. . . . .	Stick, 10 inches long.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Recovery.	This case is donbtful.
10	1836	Adelmann, Prager Vierteljahresschrift, 1876, Vol. 131. p. 79.	Fideli in Rivaam Gardasee, 1836.	Darmenica Borsetti. Chia carini. Peasant. Widow. 50.	Brass fork-handle and 4-p'g'd fork without handle. 10 cm. long.	About 2½ years.	Terrible pains, violent cramps, insomnia, vomiting after each morsel of food.	Fifteen months after swallowing abscess appeared in right hypochondrium; 2 mos. later large quan. of pns discharged thro' mouth; 1 mo. later open'g of abscess outward; after repeated clos'g and open'g of wd. sharp end of fork appeared, remaining in same position 11 mos; open'g then enlarged and fork removed.	Very extensive.	. . . . .	Wound healed in fifteen days.	Convulsions fol. oper. Slight hemor.; food particles discharg'd thro' wd. for 30 hrs. Hysterical subject who became insane after death of son.
11	1848	Adelmann, Prager Vierteljahresschrift f. d. Praktische Heilkunde, 1876, Vol. 131, p. 80.	Tilanus, in Leyden.	Insane woman. 32.	Silver fork, 21 cm. long, also piece of earthenware pyramidal in shape, 2x1 cm.	3 days.	Extremely emaciated; Swallowing followed bydysphagia; presence of bodies determined by palpation and metal stomach sounds.	Under ether narcosis, incision 8 cm. long, parallel to linea alba, from point 3 cm. below ensiform cartilage; stomach not seen bnt felt, drawn forward and fixed with 2 forceps; incision into stomach 2½ cm. long accompanied byfree hemorrhage; after repeated efforts fork and earthenware located and extraced; stomach closed with 5 sutnres, ends of which were allowed to project from lower angle of abdominal wonnd; latter closed with simple sutures; secnred with adhesive strips.	None.	On first and second days occasional vomiting of grcenish-yellow fluid; abdomen somewhat painful, tender and tympanitic; pulse, 2d day, small, weak, 100.	Death morning of 3d day.	Autopsy; plastic exndate in wd. region: stom., liver and abdom. walls glued together; stomach wd. entirely closed; dilatation great; upper third of esophagus wounded and perfor. in region of larynx. Snppnrating sinus near thyroid gland.
12	1855	American Jour. Med. Sciences, July, 1855, p. 272.	J. Bell, Walpello, Iowa, U. S. A.	Man. 27. In a drnnken fit.	Bar of lead, 10 x ¾ x ½ in., weight 1 pound.	9 days.	No inconvenience at first; on eighth day pain, vomiting and prostration.	Jan. 3, incis. 4 in. long, from umbil. to false ribs, 2 in. to left of median line; incis. into stom. large enough to withdraw bar of lead; allowed to close by contraction of muscnlar walls of stom.; abdom. wd. closed with snts.	None.	Symptoms of gastritis; injecti'n of morph.; 2 venesect'ns; enemata; abdominal wd. healed in 5 days.	Recovery in fourteen days.	At work on Feb. 19, 1855. Operation done in twenty minutes.
13	1856	Kaiser. Czerny's Beitr. z. Operat. Heilk. 1878.	Glueck, America.	. . . . .	Tracheal catheter.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Death.	. . . . .

		1876, p. 170.	France.	geon.	fork.			Gastrotomy.			Recovery.	
15	1857	Adelmann, Prag. Vierteljahress. 1876, 131. p. 78	Bouchet, in Lyous.	Woman.	Silver fork.	. . . . .	. . . . .	Gastrotomy.	. . . . .	. . . . .	Recovery.	. . . . .
16	1858	Richardson, Bost. Med. and Sur. Jour., Dec. 16, 1886.	Holbeck, Wadkinsk.	Peasant. Simeon Wodion.	Iron fork, wood hndl. 21 cm. long.	6¼ months.	Loss of appetite, pain. nausea and vomiting.	Between 7th and 8th ribs small fluctuating cavity with fistula secreting fetid pus; metallic body felt, incision made and fork extracted.	Extensive.	Dicharge of cartilagino's portions 7th and 8th ribs.	Death three months later.	Death due to caries of sternum and several right ribs. Autopsy shows perfect adhes. of stom. incision with abdominal walls.
17	1876	Schmidt's Jahrbücher, 1876, p. 172.	Leon Labbé, Paris.	Lansseur. 18.	German silver fork, 5 prongs.	2 years and 10 days.	Symp. of asphyxia, ceasing after fork passed larynx; later attacks severe gastralg. with syncope, fail. health; end 2d year frk. prongs felt in region of stom.	Caustics applied first to produce adhesion of stomach to abdominal wall without success; incision 4 cm. long, internal to and parallel with false ribs; with forceps part of stomach grasped and drawn through wound; sutured in position with 8 stitches, incised and fork removed with forceps.	None.	Solid food after 5th day; no fistula remaining after 15th day.	Complete recovery.	. . . . .
18	1879	Hacker, Magenoperat. 1886. N.Y. Med. Rec., xv, June 6, 1879.	J. C. McKee. America.	M. 28. Laborer.	Copper wire 3 inches long.	Two months.	Wire inserted in nostril; disappear. into pharynx and stom.	Two months after swallowing acute pain to the right and 3 inches below umbilicus. Tumor formed, cut down upon and wire removed from pus cavity.	. . . . .	. . . . .	Recovery.	It is not definiteiy known that wire was in stomach.
19	1880	Berliner Klin. Wochen. 1880. Richardson, Bost. Med. and Sur. Jour., Dec. 16, 1886.	Billé.		Sponge covering pencil attached to silver wire, 50 cm.	. . . . .	Esophagotomy done first at level of hyoid bone; body could not be grasped.	Gastrotomy done later; incis. 2 finger breadths below margin of ribs, 3.5 cm. long thro' peritoneum; stom. stitched to abdom. wound; incision 2.5 cm.; sponge at pylorus; seized, removed with silver wire,; was in lower end of esophagus; whole was 35.5 cm. long.	None.	. . . . .	Death five days after operation.	. . . . .
20	1880	Med. Press and Circular, N. S., xxxii, 1881, p. 321.	L. A. Fleury. South America.	M. Cook.	Plated dinner fork.	2 months and 6 days.	No inconvenience except slight naus. and vomit.; two months later jumped from low fence, felt sharp pain in upper part of abdom.; fork prongs felt through walls.	Gastrotomy Sept. 14. Incision 3 in. long, gastric region, external border rectus muscle Incision around tines of fork. Fork extracted, handle in pylorus, prongs in anterior walls of stomach.	None.	Icewater diet.	Recovery.	Fork swallowed accidentally while patient tried to imitate slight-of-hand performance.
21	1880	Belincr Klin. Wochenschrift, 1883, p. 106.	Felizet.	M. 19. Waiter.	Spoon.	. . . . .	. . . . .	Stomach inflated with ether so as to be easily seen and grasped.	None.	. . . . .	Recovery. 3 weeks.	Small fistula remaining.
22	1882	Richardson, Bost. Med. and Sur. Jour. Dec. 16, '86; Lancet, '82, ii, p. 1014.	Beattie Dean, HongKong	Ito. M.	Toothbrush.	5 days.	. . . . .	Gastrotomy done on 5th day; transverse incision; brush removed; stomach and abdominal wound sewed up.	None.	. . . . .	Recovery.	. . . . .
23	1883	Correspondenzblatt für Schwelzer Aertzte, 1883, Nos. 23 and 24.	Kocher. Berne.	M. 37.	Coin Probang.	1 day.	Hardly any disturbance.	Incis. 2 cm. below margin of ribs; stom. opening 3 cm. long midway between greater and lesser curvat.; stom. clos. with 10 Lembert stitches.	None.	. . . . .	Recovery.	. . . . .
24	1883	Centralb. f. Chir., 1884, No. 20; Wiener Med. Woch., 1883, Nos. 51-52.	Gussenbauer. Prague.	M. 29. "Sword-swallower."	Part of swrd. 27x2 cm. Jagged end, round p'nt.	2 days.	Emetics and suspension by feet; fever, vomiting and hiccough; not palpable.	After opening of abdom. sword found wholly in stom., lying obliquely from above down to the left; removed with little trouble.	None.	. . . . .	Death in two days; septic peritonitis.	Point of blade had pierced stom. wall; other end had lacerated esophagus.
25	1883	Laugenbeck's Archives, Vol. 29, p. 609.	Schönborn Königsberg.	F. Young girl.	Hair ball.	Formed gradually.	Tumor in left side of abdom.; supposed to be spleen, omentum or floating kidney.	Laparotomy; long incision in anterior wall of stomach; ball free in stom.; easily removed; stomach wound closed with 65 Madelung stitches.	None.	. . . . .	Recovery in 3 weeks.	Both wounds healed by first intention.
26	1883	Centralb. f. Chir., 1884, Vol. 42, p. 708; London Lancet, 1886, No. 3.	Knowsley Thornton.	F. Young girl. 17.	Hair ball, 9 inches long.	Formed grad. fr. comb'gs	Diagnosed as abdominal tumor.	Abdominal incision in linea alba; stomach incision transverse, to avoid vessels; wound closed with 15 sutures.	None	Sponge missed; abdom. re-open'd day after opera.; sponge found.	Recovery.	. . . . .
27	1883	Centralblatt f. Chirurgie, 1883, p. 342; Gazette des Hopitaux, 1883, No. 39.	Gerard Bourgueil.	M. 30.	Stick of elm wood, 21.5 cm. long.	6 weeks.	Pain, nausea and vomiting; purgatives used without success.	Six weeks after swallowing abscess formed 4 cm. below margin of ribs; opened; foreign body in bottom; 10 cm. cut off and removed; 40 grams of castor oil, and rest of stick came with stool on following morning.	Extensive.	. . . . .	Recovery in 14 days.	. . . . .
28	1885	Billroth. Langenbeck's Archives, Vol. 29, p. 609.	Billroth. Vienna.	Girl. 19.	Plate of 6 teeth.	. . . . .	Palpation painless. Nothing detected.	Incis. 11 cm. long, bginning 7 cm. below ensiform cartilage in median line, extending obliquely downward to left; stomach drawn forward by 2 thread slings, teeth pushed into this portion and removed; closure with superficial stitches and several Lembert stitches; abdominal wall sutured in three stages.	None.	Ligature discharged through a sinus in the fourth week.	Recovery after the 5th week.	. . . . .
29	1885	Langenbeck's Archives, Vol. 33, p. 574.	Credé. Dresden.	Friedrich Möcke. M. 24. Hair dresser.	Plate with 8 teeth and 2 clamps.	1 week.	Pain in pylorus, then nausea, vomiting and sleeplessness and great excitement.	Oblique incision, 12 cm. long, parallel to ribs; stom. drawn through opening, plate felt thro' pylorus; incision through stomach wall 5 cm. long, beginning 2 in. from pylorus; stomach wound closed with 3 rows of stitches; dropped back into abdomen; abdominal wound sutured and dressed with iodoform.	None.	Very little reaction; no vomiting.	Recovery in 21 days.	. . . . .
30	1886	New York Medical Record, 1886.	Bernays. St. Louis.	M. 28. Tailor.	Knife 24 cm. long.	30 minutes.	No great inconvenience.	. . . . .	None.	. . . . .	Recovery in short time.	. . . . .
31	1886	Bul. de l'Acad. de Méd, Aug. 24, 1886.	Podaillon.	M. 24.	Plated iron fork 21 cm. long, wt. 59 grams.	15 days.	Diagnosis with electromagnet; positive result.	. . . . .	None.	. . . . .	Recovery.	. . . . .

32	1886	Lancet,'91, i, p. 249; Brit. Med. Jour., Jan., 1893.	Lawson.	M. 37.	Iron wire 7½ in. l. Clay pipestem 2½ in. long.	. . . . .	. . . . .	. . . . .	None.	. . . . .	Recovery.	Insane; attempted suicide.
33	1886	Boston Medical and Surgical Journal, 1886, ii, p. 569.	Richardson.	Jno. McC. M. 37. Teamster.	Plate with teeth.	11 mos.	Constant pain; great emaciation; inability to swallow food; body detected with iron probang, about 2 inches above cardiac opening into stomach.	Incis. 6 in. long in left hypochondrium, 1½ in. below and paral. to margin of ribs, beginning at anterior border of rectus, extending downward and outward; stom. raised with T-forceps, incis. to admit hand and forearm; foreign body located in esophagus and removed with index finger and forceps; stom. closed by 2 layers of sutures, mucous memb. with continuous silk, peritoneal with 36 Lembert; abdom. closed with deep and superficial silk suts.	None.	High'st temp. 101.8 cough, expect. of pus; 3d dy. about 8 oz.; 4th dy. 2 to 4 oz; liquids, ice-cream to end 2d wk., later sol. food plenty; wt. in 4½ mos. 165 lb., stiches cut 7th day.	Recovery. Went back to work in 2 months and 20 days.	First case recorded in which hand was introduced into stomach for the purpose of removing foreign body.
34	1887	Langenbeck's Archives, Vol. 37, p. 233.	Stelzner.	M. 25.	6 pieces wood 8-10 cm. l. ¾ to 1½ cm. thk.	23 days.	Serous mem. of stom. pale, mucous membrane engorged.	Gastrotomy and enterotomy with removal of 4 pieces of wood; 9 days after patient's dischar. 2d enterotomy with remov. of 3 pieces of wood.	None.	. . . . .	Recovery.	. . . . .
35	1887	N. Y. Med. Jour. 1887, Vol. ii, p. 481.	Bull.	M. 16. Boy.	Peach stone.	9 days.	Stone lodg. in esopha. near cardiac open'g.	Removed through month with sponge passed by way of stomach.	None.	. . . . .	Recovery.	. . . . .
36	1888	Nord. Med. Arkiv. Schmidt's Jahrb., 218.	Berg.	. . . . .	Hair ball. Wt. 900 gr.	. . . . .	. . . . .	. . . . .	None.	. . . . .	Recovery.	. . . . .
37	1888	Jour. Amer. Med. Asso. Centralblatt f. Chirurgie, No. 48.	Wittc.	F. 31. Acute mania.	Four prong. fork 7½ in. long.	3 mos.	. . . . .	. . . . .	Stom. to abdom'l wall; anterior wall of stomach perforat.	. . . . .	Recovery.	. . . . .
38	1889	Bull. deChir. Virchow's Jahresberlcht, ii, p. 524.	Terrier.	M. 19. Butcher.	Fork, 22 cm. long.	24 hours.	. . . . .	. . . . .	Noue.	. . . . .	Recovery.	. . . . .
39	1889	Sklarek. Inaugural Dissertation. Bonn, 1889.	Tredelenburg.	M. 25. Officer.	Plate with 1 tooth.	Several hours.	. . . . .	. . . . .	None.	. . . . .	Recovery.	Swallowed during sleep.
40	1889	Langenbeck's Archives. Vol. 38, p. 169.	Hashimoto.	M. 36. Hairdresser.	Toothbrush, 16.5 cm. l'ng.	7 days.	Anterior wall of stom. perfora. (Peritonitis)	After body was extracted, excision of fistulous opening was done and wouud sutured.	Extensive.	. . . . .	Death, 3d dy. Peritonitis.	Anterior end of brush handle thickness of leadpencil and split.
41	1890	Gaz. des Hop., No. 51. Virchow's Jahresbericht. Vol. ii, p. 514.	Perier.	M. 32. Demeuted.	New silver coffee spoon.	24 days.	Examinatiou with electric sound gives positive diaguosis.	. . . . .	None.	. . . . .	Recovery.	. . . . .
42	1890	Boston Med. and Surg. Jour., No. 123, p. 177.	Richardson.	F. 30.	Open safety-pin.	4 days.	. . . . .	Found sticking in posterior wall of stomach.	None.	. . . . .	Recovery.	Leadpencil hold'r discharged later per rec.
43	1891	Semaine Med., 1891, i, p. 1. Schmidt's Jahrbüch. No. 232. p. 174.	Heidenreich. (Nancy.)	M. 29. Sword-swallower.	Silver spoon. 20 cm. long, wt. 27 g.	14 days.	. . . . .	. . . . .	None.	. . . . .	Recovery.	. . . . .
44	1892	Johns Hopkins Hosp. Bul. Virchow's Jahresbericht, Vol. ii, p. 447.	Finney.	M. 49.	Peach stone.	5 days.	. . . . .	Large opening of stomach; removal of stone with sponge drawn down esophagus by sound passed up through stomach.	None	. . . . .	Recovery.	. . . . .
45	1892	Medical Fortnightly, St. Louis. Mo., U. S A., May 15, 1892.	Heine Marks. St. Louis, Mo., U. S. A.	John W. K. M. 20. Glass and tack eater.	Pieces of glass, tacks, screws, nails. etc., 16 oz., removed.	At odd intervals during 8 years.	One attack of gastro-enteritis in 1890; lasted 1 week; 2d attack 4 days before enter'g hospi.; severe pains, vomiting some tacks, screws and nails. Abdom. tender but not tympanitic; appetite *nil;* gradual decline to state of exhaust'u.	Median incision; stomach raised into wound and hard masses felt; incision 3 in. long in superior curvature; about 13 ounces of glass, tacks, screws, nails, etc., removed; stomach flushed out and apparently all foreign bodies removed; closed with interrupted Lembert sntures; peritoneal cavity sponged out and abdominal wall sutured.	None.	Hypodermic stimulation. Heat externally.	Death a few hours after operation.	No hemorrhage from stom.; no tympanites or peritonitis; post-mortem 10 hrs. after death revealed numerous ulcerati'ns and scars in digest. tract, and foreign bodies, about 3 oz. lodged in esopha., stom., large and small intestines and appendix.
46	1893	Lancet, i, p. 20. Centralb. f. Chir., '93, No. 36.	Cant.	F. 68. Suicide attempted.	Razor.	6 days.	Severe hemorrh.; abscess of abdom. wall.	. . . . .	None.	. . . . .	Death fifth day.	Lavage with perm'gnate of potash solu'n.
47	1894	The Medical Fortnightly, St. Louis, Aug. 15, 1894.	Outten. St. Louis, Mo., U. S. A.	J. P. M. 52. Section hand.	Double gastrolith, *a*, 12 5 cm. long, wt 396.8 gram. *b*, 6 9 cm. long, wt. 220.8 gram.	. . . . .	Nausea and vomiting at repeated intervals; dragging pains in region of stomach.	Incision, 6 inches, in linea semilunaris, from top of this transversely across to linea alba; stomach raised into wound, incised, and larger gastrolith removed; Lembert sutures; second incision also transversely to avoid vessels, second mass removed; Lembert sutures; abdomen sutured.	None.	Pneumonia complication; 1 mo. after operation convalescent and walking about wards; consolidation and cough persisted and phthisis deveioped; pulmonary trouble attributed by Dr. Outten to ether.	Recovery from operation; death from phthisis three months later.	Double incision into stomach was surgical mistake, but was better than to leave needle holes at first suture line.
48	1894	Lancet, i, p. 734.	Wallace.	F. 28.	Plate with 5 teeth.	Several days.	Lodged in lower portion of esophagus.	Introduction of entire hand into stom., remov. of teeth from esopha. with finger and forceps.	None.	. . . . .	Recovery.	Swallowed accidentally during sleep.
49	1894	Lancet, ii, p. 432.	Gemmel.	M. 43.	192 nails, buttons, hairball; total wt. 11 lb, 9½ oz	. . . . .	Auterior stomach wall injured but not perforated.	. . . . .	None.	. . . . .	Death 4 hrs. after operation from collapse.	Piece of wood and one nail found in abdom. at postmortem; probably escaped when stomach was opened.

50	1894	Lancet, ii, p. 1028.	Mayo Robson.	F. 10.	43 iron nails. 93 brass and zinc wlres, 12 larg. nails, 3 buttons, 1 safety pin, 1 sew. needle.	. . . .	. . . . .	. . . . .	None.	. . . . .	Recovery.	. . . . .
51	1894	Deutsche Med. Wochenschrift, No. 39.	Czerny.	M. 32. Laborer.	3 shut pocket knives.	48 hours.	Swallowed foreign bodies as a means for a livelihood.	. . . . .	None.	. . . . .	Recovery.	After operation swallowed two pocket knives which passed off per rectum.
52	1895	Lancet, April 6, p. 904.	Swain.	F. 20.	Hairball. 5 lb. 3 oz.	. . . .	. . . . .	. . . . .	. . . .	. . . . .	Recovery.	. . . . .
53	1895	Centralblatt f. Chirurgie, 1896, No. 3.	W. of Schutten	F. 30. Weaver of shoe-uppers of cow's hair.	Hairball, 7.6 cm. diam.. wt. 120 gm.	. . . .	. . . . .	. . . . .	Marked; extensive to periton.	. . . . .	Recovery.	. . . . .
54	1896	Jour. Amer. Medical Asso.. Feb. 1, 1896.	Wm. L. Allen, Davenport, Iowa.	Maggie Heinz.. F. 16.	Hairball, length 9½ inches, circumference 8½ in.	. . . .	More or less pain after eating; vomiting frequent; emaciation; alternating diarrhea and constipation.	Inci. in median line, from ensiform carti. down below umbilicus; stom. inci. long, parallel to greater curvature; hairball removed with difficulty; stom. wound sutured in two layers; mucous membrane continuous silk; serous interrupted Lembert.	None.	Codein, ½ gr. bypodermically; milk, liquid peptonoids per rectum; peptonized milk by mouth 6th day; stitches removed 7th day; union by first intention.	Recovery; dischraged cured on 26th day.	Patient was in the habit of biting off ends of hair since 3 years of age; felt tumor during last five or six years, but it did not increase in size apparently.
55	1896	Annals of Surg., April, 1896, p. 415.	Morton, Bristol.	M. 27.	Plate with 2 up'r incisors	1¾ years.	. . . . .	. . . . .	None.	. . . . .	Death, 8th day.	Swallowed accidentally; death from local suppurative periton.
56	1896	Centralb. f. Chir., No. 311. Bericbt über den Congress, No. 24, 1896.	Stelzner.	F. 18.	Hairball size of goose-egg wt. 180 gms.	. . . .	. . . . .	. . . . .	None.	. . . . .	Recovery.	Habitually bit off the ends of own hair and that of other girls.
57	1897	Deutsche Medicinische Wochenschrift, Jan. 21, 1897.	Fricker, Odessa.	Mrs. A. F. 32.	1 key, 2 teaspoons, 1 fork, 2 piec. wire, 2 hairpins, 12 piec. glass, 1 window latch, 1 steel pen poiut, 9 sew. needles, 1 piece of graphite, 1 sm. sh'ebutton, 1 grapeseed, 1 crocheting needle.	Articles swallowed at various intervals during 3 mos. prior to operation.	At first slight inconvenience, loss of appetite. slight pain, gradual emaciation. All remedies without curative effect. Latterly all symptoms much aggravated; marked swelling in left side from margin of ribs to rim of ilium; fluctuating and very tender; vomiting and constipation.	Incision over swelling, evacuation of pus and withdrawal of crocheting needle; other articles detected in stomach; abdominal incision enlarged, stomach drawn out and incision made not connecting with abscess; incision 4 cm. long, near lesser curvature; all bodies removed without difficulty, except fork; stomach sutured, 2 rows; mucous, catgut; serous, interrupted Lembert silk; abdominal wound packed with iodoform gauze until fifth day, then closed with secondary suture.	Extensive.	Nourishment by enema during first five days; later, carefully regulated diet per os; temperature never above normal.	Recovery in 4 weeks.	Articles swallowed during attack of temporary insanity from loss of child, and with a view to suicide.
58	1897	Unpublished.	Von Quast, Kansas City, Mo.	M. 36. Showman.	Nine drams br'ken gl'ss, 2 pock't knives. 5 knife blades, 1 barb wire staple, 3 screws, 1 horse-shoe nail, 16 ta'ks of all sizes, 4 finishing nails, 1 12-penny nail, 85 wire n'ils of sizes 4 to 12.	Not stated.	Emaciated, suffering from want of food and retching.	Incision ensiform to umbilicus; stomach incised so as to introduce forceps and fingers; stomach wound closed by interrupted Lembert sutures.	None of stomach; some of the foreign bodies to the mucosa.	Strych. hypodermic. or by mouth cautiously; rectal enema of warm water and nutrient enemata after 6 hrs.	Death in 48 hrs. from enteritis and exhaustion.	Patient was in wretched condition, but demanded relief. Possibly long exposure to X-rays to diagnose the contents of the stomach and relieve our minds of "fakirism" had something to do in the production of enteritis or peritonitis. There had been considerable hematemesis and blood passing from bowels.

NOTE.—The last case came to hand too late for classification at the time paper was read.

I wish to acknowledge the very valuable assistance rendered by my colleague Dr. W. H. Fuchs, in the tabulating of the cases of gastrotomy for foreign bodies herein given.

effects are not immediate, due to the heat of the electric current, but are remote in their manifestation, occurring sometimes five to ten days after the exposure. This being the case, there must be some effect of the X-rays on the tissues. Sorel, a French surgeon, recently made the statement, in a paper before the Havre Lyceum. that pneumonia can be produced by the X-ray. Having seen this statement in a cablegram from Paris, I wrote W. W. Keen about the case, because his extensive experience in X-ray work makes his opinion authoritative. According to Keen, Sorel is a French provincial surgeon whose statements are trustworthy. Keen also concurred in the opinion that it is possible to produce pneumonia by the X-ray.

Another argument in favor of the assumption that the X-ray caused the pneumonia is the fact that the pneumonia occurred on the right side, and the X-rays were directed principally over this side, because the mass was somewhat to the right of the spinal column when the patient was in the reclining posture.

The non-union of the wound is also an interesting question. In surgical wounds non-union may be due to the following causes: 1, faulty coaptation; 2, strains on the wound, 3, sepsis, 4, certain states of the system, such as extreme jaundice, etc.

The first, third and fourth conditions can be excluded entirely. It might be argued that patient's straining while coughing might have produced it. This might be true, but I have had patients in whom bronchial irritation before the operation (laparotomy) caused coughing spells afterward and, still, union took place. In these cases the precaution was always taken to support the wound by the application of adhesive strips around the body. It has been noted that when the stitches were removed the parts were macerated under the loose epidermis. This does not occur in normal wounds. The history is the strongest argument in support of the theory of the effect of the X-rays. In the cases reported the effects were always remote, as in this one.

Although I can not prove the statement at present. I believe that the complications in this case were due to the X-rays, an X-ray pneumonia and non-union of the wound. The *modus operandi* of the X-rays in these complications is, I believe, that they cause a vaso-motor paralysis, producing a dilatation of the vessels, from which cause local stasis results.

To my knowledge this case is the first on record in which the X-rays have been used to demonstrate foreign bodies in the stomach. Fricker, of Odessa (see case in table), was deterred from using them in his case on account of the extreme weakness of his patient. Fricker's and my case are the only ones reported of gastrotomy for the removal of foreign bodies, since the discovery of the X-rays. This case is also the first reported, in this country, of pneumonia following the application of the X-rays.

POINTS OF INTEREST.

The points of interest in this remarkable case are: 1. The period of time during which the patient has been swallowing objects. 2. The number of bodies found in the stomach. 3. The character of the objects found. 4. The absence of serious subjective symptoms in the patient, and the absence of serious pathologic conditions in the stomach. 5. The complications after the operation, due to the X-rays: *a*, pneumonia; *b*, non-union of the wound. 6. The first case of pneumonia due to the X-rays reported in this country. 7. The first case, on record, of foreign bodie in the stomach on which the X-rays were used to co roborate a diagnosis.

SUMMARY.

Summarizing the data contained in the foregoin table, we have the following:

Total number of cases reported to date, 58. Of th number there were forty-seven recoveries or 81.03 pe cent.; ten deaths or 17.24 per cent., and one doubtfu or 1.73 per cent.

Of those cases in which no adhesions of the ston ach to the abdominal walls or surrounding viscera wer present, thirty-eight in all, there were thirty recove ies, or 78.95 per cent.; seven deaths or 18.42 per cent one doubtful or 2.63 per cent.

Of those cases in which adhesions were presen thirteen in all, there were eleven recoveries, or 84.6 per cent.; two deaths, or 15.38 per cent. Of thos cases in which the existence of adhesions wa doubtful, seven in all, there were six recoveries (85.72 per cent.; one death or 14.28 per cent. It wi thus be seen that the existence or absence of adh sions had, apparently at least, no influence on th mortality rate.

Assuming that the period of antiseptic surgery b gan with the year 1880, and dividing the report cases into two groups, i.e., those reported before 188 and those reported since that date, we have the fo lowing exhibit of mortality percentages. 1. Befo the introduction of antiseptics: Total number of cas eighteen; recoveries fifteen or 83,33 per cent.; deat three or 16.66 per cent. 2. After the introduction antiseptics: Total number of cases forty; recoveri thirty-two or 80 per cent.; deaths seven or 7.50 per cen doubtful result one or 2.50 per cent.

A noteworthy fact in connection with the cas enumerated in the table is the short period interve ing between the entrance into the stomach of t foreign body or the diagnosis of its presence the and the performance of the operation, during t period since the introduction of antisepsis. This probably attributable to two factors: 1. The improv methods and facilities for making diagnoses; and the improvement in surgical technique and the exte sion of surgical interference since the introduction antiseptics. Taking into consideration all the ca contained in the table, however, we find that the ti intervening between the introduction of the forei body into the stomach and its removal, is definit known in only so few cases, that its consideration a factor of possible influence on the mortality rate wo be entirely unsatisfactory. It has, therefore, not be considered separately.

The following is a summary of the foreign bod removed from the stomach by operation:

Forks in thirteen cases: hairballs in seven; kni in six; plates with teeth in six; spoons in five; pie of wood in four; pieces of metal wire in four; nail four; buttons in three; needles in three; tooth brus in two; safety-pin in two; peach-stones in two; screws, bar of lead, piece of earthern ware, trach catheter, metal probang, part of sword-blade, clay-p stem, razor, pocket-knives, hair-pins, pieces of gl keys, window latch, piece of graphite, and tacks one case each.

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REMOVAL OF THE STOMACH FOR SARCOMA.

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The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Feb. 12, 1898, contains an article by Hugo Summa, M.D., and A. C. Bernays, M.D., entitled "The History and Diagnosis of a Case of Carcinoma of the Stomach and the first Operation of Excision of the Stomach in America."

In view of this report it may be of interest to recall a case of sarcoma of the stomach for which excision of that organ was performed by me more than four years ago, antedating some years the now famous case of Schatter of Zurich.

The case is well known in Philadelphia among my medical friends and has on several occasions been referred to in discussion on abdominal topics. The patient was examined by Dr. S. Solis-Cohen and I think Drs. T. S. K. Morton and Steinbach of the Polyclinic staff. Dr. John B. Roberts and other members of the staff were present at the operation. I was assisted by Dr. Frank Talley and one of the resident physicians of the hospital.

The case was reported and the specimen shown to the Pathological Society of Philadelphia by Dr. Alfred Stengel and myself. After careful investigation Dr. Stengel pronounced the case one of sarcoma of the stomach, an exceedingly rare condition. He requested the privilege of reporting the details of the case after he had thoroughly looked up the literature of the subject. I handed him the surgical notes to incorporate in his paper, which he informs me is ready for publication and will be shortly forthcoming. I might mention incidentally that he has been able after four years search to find in the literature but nine cases of a similar character (sarcoma of the stomach).

I append the surgical notes of the case which I handed Dr. Stengel four years ago to incorporate in his article and which he has kindly returned to me.

The patient entered the Polyclinic hospital Sept. 29, 1893 complaining of a tumor in his stomach together with great and progressing weakness and loss of flesh.

An examination disclosed an irregular rounded, nodular and solid tumor filling the whole abdomen from the pubes to the ensiform cartilage. The umbilicus protruded and contained a neoplasm which was unattached to the underlying tumor, about the size of a walnut. The pelvis was free and the tumor rested on the pubic bones; the fingers could easily be passed between the tumor and the pubes. As far as could be determined from the history and examination the kidneys were excluded as a possibility of the origin. The urine was normal. The spleen was likewise excluded, as was also the liver. A diagnosis of malignant tumor was easily arrived at from the nodular, irregular feel of the mass, its quick growth, the rapid loss of flesh and weakness and cachexia of the patient and the umbilical growth. By exclusion it was supposed to be a growth of either the mesenteric glands or of the omentum. If of the mesenteric glands operation was hopeless; if of the omentum some hope existed, especially as the tumor was freely movable. The chances were given to the omentum on account of this very movability and because the history showed that it had begun to grow from above downward. It was even at that time easy to determine that its attachment was above. The case was seen in consultation by the medical and surgical staff of the hospital and all agreed that the only chance of life lay in an exploratory operation and further that such exploration was justifiable. The friends of the family were communicated with and the facts placed before them. They were told that no promise could be given that the man would even come off the operating table alive, but that in an operation lay his only chance. They decided for the operation.

The stomach as a possible source of origin of the tumor was never considered for the following reasons. His bowels had to the last remained in good condition. He had never at any time complained of gastric disturbance of any kind; as he expressed it "my stomach has never given me a day's trouble, it is the strongest thing about me." In proof of the truth of his statement it is to be noted that he spent about a week in the hospital prior to his operation, ate voraciously and digested all he ate. At the time of the operation the stomach cavity was found practically empty. He never vomited.

An incision was made from the ensiform cartilage to near the pubes and the abdominal walls drawn apart. They grasped the tumor tightly as they slipped over its sides and contracted again under the tumor as it was delivered. In doing so many vessels in the omentum, which was spread out over the tumor and adherent to it, began to bleed. From this moment to have ended the operation would have been difficult, as the bleeding could only with difficulty have been controlled nor could the tumor have again been returned to the abdominal cavity and the abdominal wound closed; the operation had to be finished at all hazards. The tumor was lifted up from below and found adherent to all the underlying intestines; these adhesions were readily separated; freeing the tumor in all directions but leaving the mesentery infiltrated with masses of malignant growth. The utter hopelessness of the case was at once seen. The separation of the mass was continued as high up as possible, to a point which afterward was found to be the natural attachments of the stomach. What appeared to be the healthy stomach was found high up and in front closely attached to the tumor apparently in much the same way as had been the intestines beneath. At this point the common concensus of opinion of the surgeons operating, assisting and looking on was that the growth arose from behind the stomach; no suspicion as to its being the stomach being entertained by any one. An effort was made to separate the apparent stomach and the tumor at their point of adhesion but was soon desisted from on account of the danger felt of perforating the stomach wall itself if I worked too near it. The determination was then made to break boldly into the tumor several inches below its junction with the stomach, leaving part of it attached to that organ, remove the balance and thus gain room enough to close the abdomen and finish the operation. A favorable point was fixed upon where there was a sulcus and a finger was forced into the mass and swept freely from side to side. After proceeding for the depth of some inches the finger suddenly entered a cavity and in a moment the whole situation flashed upon me. With several fingers in

the cavity a bimanual examination quickly made my suspicions a certainty. The tumor was the stomach. The only healthy part of the organ was the small anterior portion presenting at the upper part of the wound and which had been mistaken for the lower part of the whole organ. This proved to be a portion of the anterior part of the cardiac end. I accepted the inevitable at once, continued my disections, removed all the large mass and quickly ligating bleeding points made an effort to form a pretense of a stomach of the small piece remaining of cardiac end, esophagus and gut, and closed the wounds. The patient lived about thirty-six hours, complaining of both hunger and thirst. He was given morphia hypodermically in sufficient quantity to keep him easy until his death.

All but a small portion of the stomach was involved as was also the mesentery throughout the whole abdomen. A large mass of disease was left high up and involving the esophagus. The omentum was not invaded.

From the manner in which this patient stood the shock of the manipulation I had no doubt at the time and have none now but that had there been sufficient healthy tissue at the esophagus to have allowed of a successful attachment of the gut to that canal the result would have been different. The whole posterior and lateral walls of the stomach up to, and extending some distance up the esophagus were involved. There was about two or three inches of the anterior stomach wall at the end of the esophagus comparatively healthy, but the conditions were such as to render my efforts to form a continuous canal futile.

GONORRHEA.

A Clinical Lecture to Members of the American Medical Association Delivered in the Medico-Chirurgical Hospital of Philadelphia.

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ACUTE GONORRHEA.

This young man has suffered from acute gonorrhea for six days. It is his first attack. The period of inoculation was three days. There is an abundant discharge and intense pain on micturition. The prepuce and scrotum are greatly swollen.

A second man presents analogous symptoms and history. Four days after exposure he was attacked by sharp, stinging pain upon passing urine. A discharge, thin at first but which rapidly became thick and copious, soon developed. The disease has now been fully established for five days. There is some tenderness in both testicles and he has been troubled by chordee.

There need seldom be any difficulty in the diagnosis of gonorrhea. The muco-purulent discharge excited by the presence of a urethral chancre is sometimes sufficiently abundant to simulate gonorrhea. A chancre in that situation, however, can be readily recognized by the induration which it produces. The purulent flow in pyelitis may be so constant and profuse as to resemble a gonorrheal discharge. In pyelitis we have a history of pain in the back, febrile movement, vomiting and attacks of nephritic colic. The escape of pus in pyelitis is unaccompanied by urethral pain.

Gonorrhea is an exceedingly common disease and all are familiar with its ordinary manifestations, complications and consequences. Its rapid extension along the urethra, the inflammatory engorgement and edema, the chordee, phimosis, paraphimosis, balano-posthitis, epididymitis and arthritis by which it may be accompanied, are features presented to our notice every day. There are certain less frequent phenomena which we should bear in mind as regards this disease.

Gonorrhea attacks indifferently any mucous membrane with which its virus comes in contact. We must not allow ourselves to be deceived by the unusual characters of some cases which we are called upon to treat. The victims of gonorrhea, acquired in the usual way, are generally frank to the extreme in their confessions. It is otherwise, however, with those who have participated in unnatural practices. In such cases we are ordinarily compelled to rely upon our own sagacity. If a suppuration of a mucous membrane is abrupt in its onset, virulent in its nature and destructive in its effects, we would be warranted in at least suspecting the influence of gonorrhea. Light may be thrown upon the case also by the occupation and habits of the patient. Gonorrhea of the rectum may occur either from the abundance of the discharge and the transmission of, particularly, a vaginal infection to the anus and rectum or it may result from sodomy or pederasty. The ophthalmia excited by contact with gonorrheal virus in the child during birth or in the adult from gross carelessness, is a not infrequent incident. Gonorrhea of the nose may arise from similar circumstances. Edwards observed a case of a widow 60 years of age, who was affected by blowing her nose in the suspensory of her son who was suffering from gonorrhea. Other cases of nasal infection have been reported. In acute cases the nose becomes enormously swollen and the skin red, shining and painful. The face and upper lip are likewise tumefied. There is an abundant discharge, which causes ulceration of the lip. Ziem and Cozzolino are disposed to admit that the purulent rhinitis of the new-born may, like the purulent ophthalmia, be a manifestation of gonorrheal infection acquired during birth. Gonorrheal infection is sometimes encountered in adults as a result of unnatural vice.

During the second stage, inflammation sometimes spreads from the posterior urethra to the follicular structure of the prostate gland, causing a painful enlargement and obstruction to the outflow of urine. This acute prostatitis usually terminates in resolution though suppuration may occur. At the same time the neck or fundus of the bladder may become involved. In other cases the disease extends to one or both of Cowper's glands, giving rise to much throbbing pain. The deferentia and vesiculæ seminales may likewise be attacked. The former is recognized as a hard, thickened, painful cord, occupying the position of the inguinal canal. The seminal vesicle is swollen and painful.

Since the demonstration of the gonococcus as the active cause of gonorrhea our knowledge has become more exact as regards the constitutional complications which sometimes take place. A formidable list of such occurrences has gradually accumulated. Prior to the discovery of the microbe the septic origin of "gonorrheal rheumatism" had been suspected. This not unusual complication is now brought into more intelligible relation to the primary disease. Suppurative arthritis is occasionally observed in consequence of gonorrhea. In connection with this subject it is of interest to note the study by M. Achard of gonorrh

eal arthritis by means of the Roentgen rays. In a patient who had had several attacks of gonorrhea, each being complicated by articular trouble, considerable deformity of the bones of the toes was found. The periosteum and bone were both affected, and in one spot an osteophyte was observed. Inflammation of the crico-arytenoid articulation of the larynx has been seen as a result of gonorrhea.

Of late years quite a number of cases of endocarditis due to gonorrhea have been reported. Prof. Albert Abrams of San Francisco has related the history of a boy 17, who on the fourteenth day of a gonorrhea was attacked by cardiac manifestations. There was distressing tachycardia with a feeble systolic murmur over the aorta and an increase in the area of superficial cardiac dulness toward the right side. Two days later the patient died. The endocarditis had not been preceded by gonorrheal rheumatism; the previous history of the lad was one of perfect health and absolute integrity of the heart. Dr. Siegheim has recently reported a fatal case of ulcerative gonorrheal endocarditis. Arthur Loxton has placed upon record a case of death, apparently due to acute septicemia in a patient afflicted with gonorrhea, the fatal issue taking place about a month after the venereal disorder had been contracted. Another fatal case was observed by M. Combemale. After gonorrhea had lasted for two months infectious rheumatism of several joints supervened. A few days later nephritis developed and the generalized infection was suddenly terminated by purulent bronchitis and parotiditis.

Pleurisy has been witnessed during the course of gonorrhea. This complication is usually mild, of short duration and may either be dry or attended by effusion.

Myelitis, paraplegia and muscular atrophy have been reported as consequences of acute gonorrhea. Professor Pitres has published an account of a patient suffering from acute gonorrhea who had painful swelling of some joints on the day after admittance to the hospital, and who later in the same day was attacked by right-sided hemiplegia and coma. Six weeks later he was seized with Jacksonian convulsions, in which he died. A very extensive softening was found in the region of the Sylvian artery but no atheroma could be discovered.

In the female, gonorrhea lays the foundation of a series of the gravest ailments of the womb, tubes and ovaries. We should therefore be deeply impressed by the fact that in neither sex is gonorrhea a disease to be lightly esteemed. We have learned that in its immediate and ulterior consequences it is a most prolific source of physical suffering and mental unhappiness.

Returning to the patients, victims of ordinary, every-day clap free from complications, we should wish to direct their treatment in such a manner as to safeguard them as far as we may against the development of possible complications and sequelæ. The more successful our management now the better the outlook for our patients' future. Since the discovery of the gonococcus, the renewed study of the natural history of gonorrhea as an infection and the general adoption of antiseptic methods, we are prompted to ask ourselves whether any improvements upon the older modes of treatment have been devised.

The chief aim of treatment is to destroy or paralyze the bacteria, or at least counteract their virulent products. The time honored blenorrhetics and injections possess a certain degree of germicidal and antiseptic power. Have we gained any new remedies or learned any new procedures by which we shall be able to hasten and perfect a cure? Gonorrhea has been acknowledged a difficult disease to cure permanently, as for a considerable period after all discharge has been suppressed a relapse may occur upon slight provocation.

One drug brought into use in recent years has proved a meritorous addition to our armamentarium, viz., salol. A combination of salicylic and carbolic acid, salol must evidently possess valuable antiseptic properties. In its escape from the system it exerts a beneficial effect upon the urethral mucous membrane. A second drug which acts in a similar manner in these cases is terebene, a derivative of turpentine. I am much in the habit also of prescribing in acute gonorrhea small doses of belladonna, which has a good influence upon the urethral glands.

For the first patient I shall order terebene, to be given in 0.31 c.c. increasing to 0.62 c.c. doses four times a day. On account of the edema he shall also have 0.06 increasing to 0.12 c.c. every two hours, of tincture of aconite. The second patient shall take 0.32 gram of salol, combined with 0.12 c.c. of the tincture of belladonna and 0.31 to 0.62 c.c. oil of sandalwood four times a day. For the erections I shall order a suppository containing 0.016 gram extract of belladonna with 0.32 gram of monobromated camphor. As regards local treatment I shall adopt what is known as Janet's method. This consists in the copious irrigation of the urethra and bladder with a 1 to 1000 or 1 to 2000 solution of potassium permanganate, a quart or more of the fluid being passed in at each sitting and the operation practiced every day for ten days or two weeks. The solution is made to flow by gravity from a large receptacle through a rubber tube connecting with an ordinary urethral syringe. This procedure is much more efficient in removing inflammatory products from the urethral crypts than the old practice of small and repeated injections made by the patient or even by the physician.

In association with the medical treatment I lay great stress on repose of body and mind, abstinence from liquors, highly seasoned foods, etc.

CHRONIC GONORRHEA.

I have likewise present three patients in whom gonorrhea has become chronic. The first man is 28 years of age. He contracted the disease ten months ago, submitted to treatment for about a month and was nearly free from discharge. Becoming impatient of the restrictions imposed upon him he then "threw physic to the dogs" and abandoned himself to a careless life. Since that time he has almost continually been afflicted by some degree of urethral leakage. At times it would almost disappear; then some imprudence in eating or drinking, exposure to cold or venereal excitement would cause a return of the flow. He comes here today in one of these periods of recrudescence. The discharge is moderately abundant and distinctly purulent. There is some pain on passing urine. During his intervals of comparative freedom he sometimes sees no discharge for several days; then he will perceive a few drops of thick pus escape from the meatus in the morning, or he can express it from the urethra when some hours have passed since the act of micturition.

A second man, 27 years of age, had a first attack of gonorrhea five years ago, and eighteen months ago he contracted a fresh case. The latter was undoubtedly

due to re-infection, as it began four days after impure connection, was accompanied by a free discharge, pain in the urethra, swelling of the penis and complicated by epididymitis. Six weeks ago the man again cohabited for the first time since his second attack, and for two weeks indulged freely in intercourse. The result was a return of discharge, which is now rather abundant.

A third patient is 40 years of age. Eight months ago he contracted gonorrhea for the third time. He appeared to recover entirely and was untroubled until a few days ago when a dietetic excess brought back a scanty discharge.

These cases illustrate the difficulty of obtaining a radical cure of gonorrhea, the persistence of a slight discharge and the readiness with which an exacerbation is excited. From the medical point of view there are two features of special interest connected with chronic gonorrhea. One is the danger of communicating the disease, the second is the tendency to the formation of stricture.

We understand the subject of the transmissibility of gonorrhea better now than we did a few years ago. The study of gonococcus has cleared our conceptions. What formerly could be only a suspicion or belief founded upon clinical evidence can now be made an objective demonstration. From bacteriologic study we now know that the microbes long survive in the urethral crypts and cells, that however attenuated they may become they remain susceptible, under favorable circumstances, of reviving into activity. Deposited upon the mucous membrane of the female genital tract they are capable of exciting a gonorrheal catarrh which, though often more insidious than an acute attack, is followed by a more permanent and injurious effect.

It is scarcely possible, under the older and ordinary methods, to wash out thoroughly all the folds of the male urethral mucous membrane and to dislodge effectually the bacteria and inflammatory products. Consequently at one or more points along the canal inflammation lingers and bacteria survive. These spots are, on the one hand, starting points for exacerbations and relapses and, on the other, they are the first steps in the process of formation of strictures. These spots or patches are somewhat rough and often more or less completely denuded of epithelium and hence the name, "granular patches," by which they are known. The urethra at these places is morbidly sensitive, as is proved by the passage of a soft bougie. The low grade inflammation causes proliferation of the subjacent fibrous tissue. With the progress of time this tissue fulfills its law of contraction and the result is a gradual but progressive narrowing of the lumen of the urethra and a corresponding impediment to the exit of urine. Urethral stricture has a literature and surgery of its own and I have no time for comment upon such a broad subject. The prime consideration is that by well directed efforts in the acute stage and by local applications to the granular patches we may minimize the production of strictures.

I find upon examination that each of these three men has at least one granular patch upon the wall of the urethra. The second patient has two such lesions. The first patient is suffering now from what is almost equivalent to an acute clap. In his case I will have carried out a treatment applicable to the acute disorder until the manifestations have subsided, when I shall have recourse to direct medication of the patches in the same manner as in the other two cases. This method employs a syringe which holds 0.92 or 1.23 c.c., attached to a flexible catheter, which terminates in a bulbous nozzle. The solution to be used is placed within the syringe, the granular patch is located by means of the *bougie à boule* and the medicated fluid can then be deposited exactly upon the surface of the lesion. Before performing this operation the bladder of the patient should be evacuated. An application of this kind is made two or three times a week. This is a procedure to which I often resort with very satisfactory results. Various substances may be used. I often apply in this manner a solution of silver nitrate, beginning with a strength of 0.32 to 0.65 gram to 29.5 c.c. water and gradually increasing according as it is tolerated. Copper sulphate also makes an excellent application and this is the remedy which I shall use today, taking first a 5 per cent. solution and increasing the proportion to 10 per cent.

LECTURES ON TUBERCULOSIS OF THE KIDNEY.

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LECTURE I.

Tuberculosis of the kidney occurs in two forms, viz., miliary granulations and tuberculous infiltration of the kidney. The first form is a medical tuberculosis, while the second is more or less surgical.

Durand-Fardel has described a special form of renal tuberculosis. He saw a case in which he found great quantities of bacilli but which had not produced any pathologic change in the kidney; the glomeruli contained Koch's bacillus in their capillary loops, but the organism had not had sufficient time to produce irritative lesions, for all the renal tissue was found normal, even the structure of the glomeruli was healthy. Some vessels which were packed with bacilli to such an extent that under a lower power their cavity appeared like a red speck, were also normal and no trace of cell proliferation could be detected around them. Daunic has reported a similar case. Death occurred with great rapidity and at the autopsy large quantities of bacilli were found in all the organs especially in the kidneys.

Miliary granulations are frequently found in the kidney. Tuffier thinks that they are an epi-phenomena of a general infection. According to Rayer they are found in the cortex, sometimes in the medullary substance. When in the cortex, they are disseminated or form whitish-gray tracts running from the periphery toward the center and following the direction of the renal vessels. Lecorché gives the same description. The granulations are localized in the neighborhood of the arteries which separate the pyramids of Farrein. Following the arteries longitudinal series or groups of tuberculous granulations are to be seen.

Topographically, the granulations predominate in the cortex, because the blood current is slow in the glomeruli and in the intertubal spaces, and for this reason the bacilli find much difficulty in their progress

orward without joining colonies in a region very avorable for their development.

Miliary granulations vary in diameter from 1 to 2 nm. Usually they are isolated, of a white or yellow :olor, easily dissociated and form on a cover glass :mall granular bodies. When in the state of small ubercles they sometimes present the aspect of a small, rregular whitish plaque. With the naked eye the urrounding parenchyma appears normal or as if . slight hyperemia were present. Microscopically, uberculous follicles and elementary nodules with iant cells are found. The bacillus is always to be ound, sometimes in great number. They are seen in roups in the interior of and around the epithelial ells. Often, however, the bacilli are few in number, ne or two being found in each giant cell.

If you examine a preparation you will remark that, ll about, the renal parenchyma has undergone a narked denutrition, the tubes have desquamated and heir flattened epithelium shows that they are inactive. Others only show a decrease in the diameter of heir canal, with sclerosis of their walls; some are ven completely retracted and only contain the emains of their epithelium in the form of granular atty débris. The glomeruli look like rosy spots nd too small for their enveloping capsule. They are nactive and are only simple fibrous cicatrices. A ubercle can become fibrous in the kidney as in any ther organ and is then composed of connective issue elements in a state of hyperplasia. From the ubercle start off fine fibrous bands which extend into he surrounding parenchyma, thus binding it intinately with the tubercle.

In the case of large miliary granulations, the neighoring renal tissue is far more diseased and several ranulations may be distinctly seen in one tubercle. Between the tubercles connective tissue bands alternating with embryonal cells are found while the kidney tissue has completely disappeared. The majority f these granulations are caseous. In their center a nearly homogeneous tissue made up of degenerated ells is found. These granulations are usually grouped round an artery.

This miliary tuberculosis appears during the progess of an acute infection with fever, as is so often een in children. Usually it coincides with a tuberulosis of both kidneys and the spleen. Nevertheless, hese tubercles are found in the adult during a pulonary tuberculosis, but incidentaly only, so that linically they can hardly be taken into consideration.

To sum up it may be said that there is no constant ocalization for tuberculous granulations. They occupy indifferently the peri-vascular tissue, the track of vessel, a glomerulus or a space corresponding to everal renal tubes. The tuberculous tissue has the ame characters in the kidneys as in any other organ. Caseification and the vitreous aspect occur early and he giant cells appear soon after. When the granulaions develop in large numbers in a localized spot or n the entire kidney they rapidly run together, undergo caseous degeneration, and thus give rise to more or ess extensive destruction of the renal tissues.

This leads me to the study of tuberculous cavities nd infiltrating tuberculosis.

Since the writings of Bayle, Roger, Lecorché, uyon, Reclus, Tuffier, Newman and many others, e know the surprising shape, size, etc., that a tuberulous kidney may present. We will divide this form tuberculosis into the four following varieties, viz.: 1, nodular infiltration; 2, tuberculous pyelo-nephritis; 3, massive degeneration of the kidney; 4, tuberculous hydronephrosis.

Nodular infiltration is characterized by round masses of a yellowish-gray color, sometimes projecting above the surface of the organ. The kidney is not entirely invaded, only part of its parenchyma being the seat of disease. Sometimes the disease is seen in the form of a small tumor on the surface of the kidney, whitish-yellow in color and firm in consistency, but when caseification is about to occur it is soft to the touch. At other times the disease occurs as a large mass, deeply seated in the renal tissues, while at the surface of the organ it projects, its surface being more or less irregular. Occasionally a series of smaller confluent nodules are found, hard and white in formation, those undergoing degeneration melt in a granular mass contained in the excavations hollowed out in the parenchyma of the kidney. The nodules are consequently multiple, some being hard, some caseous.

Tuberculous pyelo-nephritis is rather more of an accident due to a peculiarity in evolution than a special form of the disease. These foci of nodular infiltration soften and break down and empty into the pelvis of the kidney. This is consequenty a modification of the nodular variety, or as I might express it, the ultimate stage of nodular infiltration.

It is in these cases that the kidney is destroyed by the irregular cavities with indurated and ragged borders. From these cavities certain products are expelled which give rise to the formation of an enormous amount of pus. The kidney is filled with cavities increased in size and misshapen. It has a whitish, lardaceous aspect and when cut open exposes the numerous cavities which open into each other or communicate with the calices and pelvis of the kidney. The capsule of the organ is very adherent over these cavities and is adherent to the peritoneum and quadratus lumborum as well.

Microscopically, three zones may be distinguished: 1, an internal zone made up of the débris of caseous elements; 2, a middle zone of tuberculous infiltration having a tendency toward sclerosis; 3, an external zone composed of embryonal tissue. If you remove the caseous matter which is often very adherent to the walls of the cavities, you will remark that the walls are smooth, resistant and form true pyogenic membranes, surrounded by a fibrous tissue. The caseous matter does not contain the bacillus and is simply made up of degenerate cells.

The walls of the cavities are formed by a network of connective tissue, which varies greatly in different parts. In some places the connective tissue fibers are close together, while at others a simple mass of embryonal cells is all that can be discovered. It is a pyogenic membrane because it has embryonal cells, giant cells and numerous vessels of new formation.

These foreign and at the same time destructive elements finally reach the neighboring renal tissue, pressing upon the tubes, invading them by means of the agglomeration of embryonal cells and newly formed vessels, which are more highly organized than in the walls of the cavity but whose fragile tissues easily break down. Other parts of the renal tissue may undergo fatty degeneration of the epithelium as well as amyloid degeneration of the glomeruli.

Massive degeneration of the kidney.—In this case, the renal tissues no longer exist; they are only repre-

sented by a thin and transparent membrane which contains a solid thick mass, very similar to putty or to the contents of a dermoid cyst.

This enveloping membrane sends off branches which incompletely divide the tuberculous mass. The caseous matter is sometimes very considerable in amount and may reach such dimensions as to obliterate the ureter. The exit of pus, urine and caseous débris being no longer possible they accumulate and distend the kidney to an extreme degree.

Tuberculous hydronephrosis is the result of this compression of the ureter, and in no way differs from the aseptic dilatation of the kidney. A membrane, sending off incomplete divisions, the contents of which are a yellow transparent liquid, is all that is found. The bacillus of tuberculosis is found in this fluid when inoculated into animals.

The kidney tissue is not so diseased as in the preceding varieties, it being especially distended by obliteration of the ureteral orifice. The ureter is increased in size, its walls thickened and indurated, while its lumen is either filiform or absent.

The process of cure may stop the progress of the lesions and if it declares itself in its various ways a true calcification is seen to take place. The caseous mass becomes thicker and is transformed finally into calcareous masses.

The lesions in the neighboring tissues are perirenal tuberculous abscesses. As a primary lesion they are infrequent but secondarily they often follow a tuberculosis of the kidney. Adhesions may form between the kidney and the intestines, vena cava and other viscera.

The ureter is not always attacked but usually it is somewhat infiltrated or thickened, while the mucous membrane is exfoliated and the lumen of the canal choked with débris.

Such are the principal forms of tuberculosis of the kidney. It may occur in the form of small single, grayish, semi-transparent granulations, forming a confluent or discrete eruption in the entire organ. At other times it forms larger masses, a kind of small caseous tumor whose aspect and consistency varies according to the age of the lesion.

In the acute form, the granulations do not evolute on account of the rapid progress of the disease. In the chronic form, the disease forms large masses which may undergo caseous softening and then form real tumors of various sizes, or it may produce multiple cavities which burrow to such an extent as to render the walls transparent and transforming the kidney into a vast focus of disease.

The capsule often becomes infiltrated and the calices, pelvis and ureter are invaded by the neoplasm. They become thickened in their turn, and finally ulcerated; then they are distended and dilated by the urine which is prevented from flowing through them.

I now call your attention to experimental tuberculosis. In infectious diseases renal lesions are often found, due sometimes to bacteria, at others to the toxins that they secrete. When bacteria become localized in certain tissues they secrete poisons or toxins which, when absorbed and spread throughout the economy by the lymphatics and blood, produce changes in other parts.

As I have already pointed out, the bacillus of tuberculosis may become localized and produce lesions in the kidney. Its toxins also cause lesions of the renal epithelium, and it is this particular point on which I wish to insist. We know the lesions due to the proliferation of this bacillus in the parenchyma of the kidney in man and this knowledge must be completed by experiments on animals.

Experimental tuberculosis of the kidney is realized as follows: *By intravenous injections*, which is not, however, a sure way of producing infection, but if it is secured it is only secondary. The granulations are not primary and demonstrate a recent dissemination of the bacillus; consequently the lungs, which act as a filter, should be avoided.

Direct inoculation of the kidney through the lumbar region has been practiced by Kostenich and Volkow, but as Borel remarks, this method has many defects. In the first place, it differs from the natural ways and it adds to the tuberculous process an intense process of repair which complicates the experiment.

Arterial injections in the carotid and aorta have been performed by Borel.

The question now comes, do the experimental facts confirm the theories established, on the pathologic anatomy of tuberculosis of the kidney? According to Virchow, the renal tubercle is made up of a lymphoid proliferation of connective tissue. The cellular elements of the gland only undergo a simple atrophy or a necrosis, but it is always the connective tissue which forms the soil in which the tubercles develop.

Baumgarten was the first to produce tuberculosis of the kidney experimentally. He injected the bacillus in the veins and studied the renal lesions which were secondary to the pulmonary tuberculosis thus produced. The first phenomenon which provokes the presence of Koch's bacillus is a karyokinesis of the fixed epithelial cells of the uriniferous tubes, of the endothelium of the capillaries and the elements of the wall of the glomeruli.

Later on, epithelioid cells are produced, and with such great rapidity in the uriniferous canals that they become completely obstructed. According to Baumgarten the proliferation of the fixed cells is the principal process of tuberculosis.

Kostenich and Volkow confirmed Baumgarten's results. They directly pricked the kidneys and three hours later found an intense polynuclear leucocythemia. Sometimes the bacilli appeared to be enclosed in the leucocytes, at others they appeared to be on the outside.

After twenty-four hours there was an intense karyokinesis in the cells of the canaliculi, while between them there appeared pale nuclei of various shapes which later resembled renal epithelial cells as well as epithelioid cells. According to these writers the latter were derived from the intercanalicular cells.

Borel obtained different results, for he never found the bacilli in the glandular tubes. From the very first, the bacilli were seized by the polynuclear leucocytes which accumulated in the dilated loops of the glomerular capillaries. Among these leucocytes irregular oval nuclei, surrounded by a granular protoplasm containing the bacilli, appeared on the third day. The nuclei and protoplasma belonged to monocellular elements. The same phenomena occurred in the intercellular tissue; these elements were distinctly different from connective tissue or endothelial cells.

The cells of the tubercle are stationary, movable elements and do not appear to result from a proliferation of pre-existing fixed, connective or endothelial cells. According to Borel, the tuberculous granulation is essentially interstitial and of lymphatic origin

The epithelioid cells are the result of a natural evolution and development of the lymphatic cells localized in a given region of the economy. The tubercle is an accumulation of lymphatic cells.

The epithelium of the kidney plays no active part; it is only irritated by the process of atrophy or necrosis going on in the neighboring tissues. According to Baumgarten on the contrary, the karyokinesis of the fixed cells and renal epithelium is the predominating tuberculous process, while Borel claims the tuberculous granulation is a lymphatic formation, identical in all organs, which confirms Metchnikoff's theory.

The results of experiments differ consequently as to the intimate development, to the histogenesis of the primary elements, but they complete the histologic and pathologic facts that I gave in the beginning of this lecture.

They demonstrate that there is only one primary tuberculosis with a predominating glomerular or cortical localization; that there is only one granular tuberculosis scattered throughout the entire organ with a predominating perivascular localization. In both these cases the processus is always interstitial and the only active elements of the tubercle are the lymphatic tissues. The various elements of the kidney, particularly the renal epithelium, in no way enter into the formation of the tubercle.

Toxins of tuberculosis.—The study of the toxins of tuberculosis leads me to say a few words regarding tuberculous nephritis as well as amyloid degeneration of the kidney.

Bouchard, in 1881, was the first to draw attention to the infectious nephrites that accompany diphtheria, typhoid fever and tuberculosis. Later on Strauss, Cohnheim and Gaucher described the lesions found in the kidney, produced by these toxins. In 1886, Durand-Fardel demonstrated the presence of the bacillus of tuberculosis in the kidney and Coffin described tuberculous nephritis which, according to this writer, presented the characters of an infectious nephritis besides the direct tuberculous lesions.

There are other nephrites which are apparently not tuberculous, in this sense, that the simple tuberculous nodules or masses of caseous material are absent. Now, these nephrites produced by the presence of a tuberculosis are produced by the irritation caused by the elimination of tuberculous toxins. Bartels seems to have foreseen what experimental pathology has demonstrated, and Grancher and Martin when trying to obtain an antituberculous vaccination with old cultures, observed death from nephritis eight times, and they admit that the attenuated tuberculous virus contains a toxin which causes nephritis and paraplegia. Koch's tuberculin has caused nephritis many times.

Tuberculous nephritis.—The kidney presents marked changes in size, color and weight. Rayer described parenchymatous nephritis or the so-called "large white kidney." Siedallu believes that this form of renal disease frequently occurs in tuberculosis.

According to Lancereaux, the contracted kidney of interstitial nephritis is more frequently seen in this disease. Of 281 tuberculous nephrites, Bamberger found the large white kidney 157 times, 47 times an acute nephritis and 77 times the atrophic variety.

Generally the kidney is larger than normal and appears distended from the congestion of which it is the seat. The capsule is soft and is easily decorticated. The kidney is a dark bluish red, its surface being smooth and shiny.

Macroscopically the cortical substance is bluish in color as if it were undergoing fatty degeneration. The pyramids are distinctly seen, while the glomeruli are red and projecting. Microscopically two kinds of lesions are found. The first is a change in the epithelium which is only slight and during life does not produce albuminuria. In the second form albumin has been found in the urine during life and the lesions are far more extensive. Both forms are simply stages of the same processus.

Slight nephritis without albuminuria.—The glomeruli are only slightly diseased; the cells of Bowman's capsule are in proliferation. The endothelium of the vessels of the glomeruli are degenerated with minute drops of fat. Globules are present between the vesicular loops and the cavity of the capsule. In the tubuli contorti the cells are large, cloudy and swollen, while the epithelium is filled with drops of fat. The intertubular connective tissue undergoes a marked hypertrophy in tuberculous patients presenting an arterio-sclerosis.

Severe nephritis with albuminuria.—The microscopic lesions are similar to the preceding nephritis, only they are very much more marked. Degeneration of the collecting tubes is always present, while the caliber of the tubuli contorti is great, the latter are distended and tumefied, their epithelium is swollen and granular while in some parts it has secreted colloid masses which block up the lumen of the tube. Sometimes the epithelium undergoes cloudy swelling and secretes hyaline masses; the former is flattened, only forming a simple layer of cells with granular protoplasma. In the interior of the tubes are yellowish masses, sometimes having the epithelial cells detached; these are the casts.

The endothelial cells of the capsule are in active proliferation, filling the cavity with débris, while the glomeruli are in a stage of congestion, sometimes amyloid.

The description that I have given leads us to suppose that there really exists a tubercular nephritis and that it begins with the tuberculosis. This nephritis is frequent in the rabbit after vaccination with tuberculosis and has been observed by Grancher and Martin. Daunic also has seen them in his experiments.

Thus these lesions are probably due to the toxins of tuberculosis. Their frequency, their characteristic aspect, both of which are always present, is in favor of this opinion. The toxicity of the products of tuberculosis is complex, but from what I have said we may conclude that these nephrites are not always due to the presence of the bacilli in the kidney but are often due to irritation set up by the elimination of their toxins.

Amyloid degeneration.—Many diseases may give rise to this lesion and it has nothing specific about it. There is however an amyloid degeneration following tuberculosis and which has as pathognomonic cause a tuberculous infection. The kidneys present a special anatomo-pathologic aspect.

The glomeruli are semi-transparent and have a shiny waxy aspect which is characteristic. Iodin colors the glomeruli dark brown, while sulphuric acid gives them a dark violet hue.

In the beginning the lesion is almost entirely localized in the capillaries of the glomeruli, the former being thickened, but later the glomeruli are in total-

ity invaded, the lesion then being seated in the walls of the arteries. It is consequently by the vessels that the amyloid infiltration is set up. Weigert, Lecorché and others, think that the coincidence of amyloid degeneration and large white kidney (chronic diffuse subacute nephritis) is generally the rule, and that the amyloid infiltration is always an accessory lesion put into action by a former nephritis.

Although a vast amount has been written regarding this form of degeneration, we are as yet not quite sure to what factor it should be attributed. It was thought that a particular substance formed in abscesses, ulcers, tuberculous cavities, etc., resulting from the oxidizing action of the air on pus. This substance was considered a chemic poison produced by the influence of fermentation and was easily produced experimentally in animals by inoculating other toxins than those found in tuberculosis.

Thus it was that Charrin and Bouchard, by intoxicating an animal with blue pus and filtered cultures of the pyocyanic bacillus, produced amyloid degeneration in the breast and kidneys. The same results were obtained with tuberculosis.

We can thus suppose there is not direct action of the bacteria on the walls of the vessels. Perhaps amyloid degeneration is due to the toxins of tuberculosis in the pus, and the tubercles in different organs are surrounded by a thick layer of connective tissue which always undergoes amyloid degeneration.

I now come to the etiology and pathogenesis of tuberculosis of the kidney, which disease occurs at all ages but is more common in children and old people. Women are more prone to this disease than men. Of forty-three cases seen by Tuffier, twenty-nine were women and fourteen males. Vigneron published statistics of 133 operations for this renal complication, ninety-seven were performed on women and only thirty-six on men.

According to Roberts, the disease is more frequent between the ages of 30 and 40 years, while for Rosenstein it is more common between 15 and 30. Personally, I think that it occurs more frequently between 20 and 35, but Tapret reports a case of the affection in a man aged 97 and Glück removed a tuberculous kidney from a child of 3½ years.

The kidney is very rarely attacked by tuberculosis and Louis only found 5 cases out of 170 autopsies. Of 1317 patients dying from tuberculosis at the hospital at Prague there were 75 tuberculous kidneys. In children, according to Rilliet and Barthez, out of seventy-two autopsies, forty-nine cases of renal tuberlosis were found.

Generally speaking, renal tuberculosis is under the dependence of many influences produced by the general infection, and here as in other affections, we must take into consideration denutrition, contagion, heredity, etc.

The kidney like the lung is under the control of these various etiologic factors, which if they do not directly produce the lesion, admirably prepare the organ for the disease.

The starting point of tuberculosis of the urinary system has been the subject of much discussion. The pathologic anatomy that I have given, demonstrates that the infectious process is produced by Koch's bacillus. Now, the question is: Does the affection begin in the prostate and seminal vesicles, the bacilli attacking the kidney and bladder afterward; or is the bladder the first to be diseased, or is it the kidney?

Each organ of the genito-urinary system has in turn been supposed to be the primary seat of the infection and all ways of propagation have been admitted as possible. There are two principal theories however: the first is that the tubercle forms in the testicle and epididymis, from whence it invades the other organs; while the second is that the infection begins in the kidney and from there attacks the other parts of the excretory system. Both are upheld, but if you closely observe the cases reported it will appear clearly that the disease commences in the kidney, and from this organ it penetrates the urinary tract, invading successively the ureters, bladder, the posterior urethra, the prostate, seminal vesicles, the vas deferens, epididymis and testicle.

If you find at an autopsy a renal tuberculosis of recent date, by that I mean miliary granulations, one is extremely sure to find the lesion farther down in the urinary system. Lecorché and Roger have especially found lesions entirely limited in the kidney; the secondary tubercles were only in the kidney, rarely did they find them in the pelvis or calices and still more infrequently in the ureters and bladder.

Le Dentu says that tuberculosis localized in the kidney is very infrequent, at least it is rarely reported. Now this local tuberculosis, which is a mortal danger becomes generalized because from the kidney the bacilli infect the economy, causing a general infection. For a while this lesion, which is only in the kidney remains local, but soon it invades the system and for this reason a renal tuberculosis is rarely met with at the autopsy. Consequently, Le Dentu admits that localized renal tuberculosis is theoretically explained.

This being admitted, we know that Cayla claims that genito-urinary tuberculosis follows the urinary tract downward; starting from the kidney it first invades the urinary, then the genital system.

Now contrary to Cayla, most writers believe in an ascending infection and it would appear that clinical facts of tuberculous infection, contracted during coitus, would plead in favor of this hypothesis. And do we not see and follow for many years patients with a tubercular prostate or testicle, who never have symptoms of a renal infection?

According to Hallé, the disease begins sometime in the lower genital or urinary organs, the prostate or posterior urethra, afterward invading the bladder and kidneys, thus appearing to be an ascending infection of external origin. But this ascending infection is far from being in accord with the histories of most of the cases reported.

Oftener it is the bladder or the kidneys which are the primary seat of the affection, and other localizations of the disease are only secondary symptoms of a general tuberculous infection.

Daunic does not admit that the bacillus can penetrate into the kidney from coitus, and gives the following reasons, based on the practice of a number of eminent surgeons: Tuberculosis of the uterus is very rare, consequently the male can only be contaminated infrequently. Hillairet and Looten both report a case of tuberculosis of the glans penis, but in both cases the diagnosis was not absolute. Never before has a case of inoculated tuberculosis been reported on the penis, glans or anterior part of the urethra.

The seat of tuberculous lesions in the female genital organs does not seem to be that of one resulting from coitus; if this were the case, the tubercles would first occur in the vagina and cervix, which in reali

is very rare. The bacilli are, consequently, brought by the blood, as is proved by pathologic anatomy when it shows that the bacilli are more often found in the glomeruli, arteries of the kidney and in their walls, and also that the tuberculous granulations are either in the interior or neighborhood of the vessels. Consequently, according to Daunic, a renal, secondary to a genito-urinary tuberculosis, is as yet unexplained as regards its pathogenesis. The bacillus can penetrate the kidney by the blood and by the ureters from below upward, but what appears to be settled, is that the bacillus can not infect the kidney from coitus.

Besides a genito-urinary tuberculosis, there is another form which is diffuse, being pleural, pulmonary, genital, peritoneal, etc. In this case, we have what is termed "the medical tuberculous kidney." This term should not be employed in its exact meaning, for according to the indications, prognosis and progress of the lesions, a medical tuberculous kidney may become surgical.

In this case, in the pathologic point of view, the kidney may have had a primary focus of tuberculosis from which the bacilli penetrate the entire economy through the blood.

But the kidney may only be a secondary focus depending on lesions in the lungs, from which point the bacilli attain the kidney and become localized there, producing a lesion secondary to that in the lungs.

In the first case, we have a local primary tuberculosis of the kidney, producing a general infection; in the second, the primary lesion is in an organ other than the kidney and the latter is infected secondarily; consequently, tuberculosis of the kidney presents two different pathologic conditions, viz., primary and secondary infections.

As to its starting point the majority of reported cases seem to show that the seminal vesicles and prostate with secondary infection of the bladder and kidney is the more frequent manner of infection. Tuberculosis of the kidney *ab coitu* should be rejected as impossible, for the kidney only may be the primary seat of the process and this localized primary tuberculosis of the kidney can progressively infect the ureters and genito-urinary system.

Regarding the way in which the kidney is attacked by tuberculosis, Wesens believes that the bacilli are more frequently present in chronic tuberculosis than in the acute form. Now we know, according to Cornil, Baumgarten and others, that it is precisely in the miliary form, in acute attacks, that the specific organism of the affection is found. Baumgarten found the bacillus in the tubuli contorti and believes that they come from the neighboring capillaries. Durand-Fardel saw them in the glomeruli and interior of the renal vessels. Consequently the transportation of the bacilli is accomplished by the arterial circulation.

Probably the organism invades the glomeruli and also the various parts of the cortical substance. The tubercle extends in size from its periphery, and in this extension the cells of the tubuli contorti play the most important part. The bacillus imitates the cells; the nuclei of the epithelium presents karyokinetic forms; new cells form and accumulate, while the walls of the tubuli contorti give way to this pressure. The neighboring granulations melt together and soon after the epithelioid cells take on the aspect of embryonal elements.

Brault gives the following description: When a uriniferous tube is invaded by the bacilli the cells, after a short irritation, become swollen, caseous, and form a protoplasmic mass, in the center of which Koch's organism is sometimes found.

More often, however, fine granulations in which the lymphatic cells are predominant, fill the intertubular spaces and contain giant cells.

Large tubercles often succeed the elementary ones and it may be admitted that the former arise from microbic emboli. The distribution of these emboli is irregular, as they occur in any part of the kidney and genito-urinary system.

To sum up, we have a primary tuberculosis of the kidney in patients who have never presented any other symptom of bacillosis, the starting point being in the kidney or bladder. The infection occurs by the blood. From the cortex the processus invades the medullary substance, the pelvis of the kidney, ureter and bladder.

The secondary form occurs in subjects presenting tuberculous lesions in full evolution, the primary focus being in the lungs, joints, lymphatic glands, or one of the genital organs of man. The primary lesion is often in the bladder, the lesion of the kidney taking place by ascending infection. In some cases there may be a secondary renal tuberculosis, terminating with a secondary descending tuberculosis of the urinary organs.

(*To be continued.*)

DISEASES OF THE CONJUNCTIVA IN RELATION TO DISEASES OF THE NASAL PASSAGES.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

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PHILADELPHIA, PA.

It is only recently that the relation of cause and effect which exists between nasal affections and those of the conjunctiva have begun to attract attention. That this relation does exist there can be no doubt, but it has not been properly appreciated.

The obstinate and unsatisfactory course which many cases of conjunctivitis pursue is well known; it usually means a long period of suffering and disability to the patient and a wearisome, unresponsive and unsatisfactory treatment on the part of the physician. The practical discovery of the dependence of conjunctival disease on that of the nasal cavities is due perhaps more to the nasal than to the ophthalmic surgeon. This was due not so much to the lack of ability on the part of the oculist as to the immense advances recently made in the domain of nasal surgery. Previous to these, although it was known that the nasal mucous membrane as well as the ocular was affected, still the means of treatment were practically restricted to the former. Until the last decade physicians, as a rule, had comparatively little knowledge as to the treatment of the nasal portion of the diseased tract. In fact so little was known that any existing departure of the nasal cavity from a state of health could not be recognized or diagnosticated. It was not known what constituted health and what disease. As, however, the nasal surgeons began to recognize and master nasal diseases it was found that in so doing they often encountered cases in which an accompanying ocular

inflammation cleared up without any special treatment having been directed to it. This served to attract attention to the causal relation existing between the two affections; also the ophthalmic surgeon seeing the advances made by his nasal colleague, and his success in the treatment of the hitherto rebellious nasal troubles, sought his aid more frequently, particularly in affections of the lachrymal duct and sac where the connection of the two affections were most serious and most evident.

It had long been known that conjunctivitis was often dependent on diseases of the lachrymal duct and sac, and when these had been shown to be often dependent on trouble within the nose, it followed as a matter of course that conjunctivitis could likewise be due to extension of the inflammation from the nasal cavity.

The inquiry once having been raised, the advanced state of nasal surgery was able at once to solve the questions presented by the oculist. It was found that the nasal mucous membrane was a most sensitive structure and rapidily responded to and resented all forms of irritation. Inflammatory evidences in the conjunctiva were preceded by sneezing and swelling of the Schneiderian membrane in acute cases and the nasal symptoms preceded the ocular ones. In chronic cases it was found that the turbinated tissues were hypertrophied, that cartilaginous and bony spurs impeded the free passage of air; that deviations of the septum also acted as an obstruction, and tended to the accumulation of mucus and favored the establishment and aggravation of catarrhal troubles. The proof, however, of the causative action of nasal affections on ocular ones was the disappearance of the latter on the removal or cure of the former. The whole question is one of such recent date that notwithstanding its satisfactory solution, it has not received the attention of ophthalmic surgeons that it deserves.

In our text-books particularly, the references to nasal trouble as a causative factor in conjunctivitis is not sufficiently insisted on nor its action explained. Neither are sufficient details of treatment given to enable the practitioner to relieve those cases of conjunctivitis which can only be cured by properly remedying the coexisting nasal affection on which it depends. It is not to be expected of the oculist that he shall undertake the sole treatment of the nasal troubles, but he should have such a knowledge as will enable him to properly examine and recognize abnormal conditions, and even if circumstances require, to conduct the treatment of the milder forms. In many cases the treatment must be carried out in conjunction with a colleague skilled in nasal surgery, and this will often prove the most efficacious and derirable plan.

The following cases may serve to show the association of nasal and ocular troubles:

A man aged 36 years had a violent inflammation of the left eye associated with discharge from the nostril. The eye was swollen almost shut, and the examination showed the mucous surface of the lids covered with a layer of false membrane which was easily stripped off. The right eye was not affected. The patient had had a traumatic deviation of the nasal septum for which he had been operated on two years previously. While considerable breathing space had been obtained, an ulcerated surface had persisted ever since. He had suffered for three or four years from slight attacks of hay asthma. These followed the injury to the nose and existed previous to the operation. The discharg from the nostril was thick and tenacious and excoriate the lip.

A false membrane covered the entire nasal mucos and extended down into the naso-pharynx. Dr. Kyl examined the membrane bacteriologically but faile to find any Klebs-Loeffler bacilli, only streptococc and staphylococci. It was supposed the disease wa a streptococcus infection, and that the eye had becom secondarily involved through the medium of the nasa duct. The nostril was carefully cleansed with an an tiseptic saline solution, and the ulcerated surfac touched with toluol and sesquichlorid of iron of si parts to a hundred of water. The eye was washe with a boric acid solution and the nostril thoroughl cleansed every two hours with biborate and bicarbon ate of soda, carbolic acid and cinnamon water an glycerin and water. There was a slight re-formatio of the membrane in the eye, but none in the nostri except about the points of ulceration of the septum The condition cleared in forty-eight hours, a mil attack of hay asthma persisted, however, for severa weeks.

Another case was that of a girl aged 16 years. Sh suffered from a flow of tears from the right eye. Sh took cold easily and then the right nostril would sud denly close and a flow from the eye would begin an continue until breathing was re-established. Examina tion of the nose showed enormous thickening of th mucous membrane of the middle turbinate. Thi swollen membrane occluded the nasal duct by pres ure. The condition had existed for three or four year The duct had been probed from above and several ey washes had been used. A portion of the middle tu binate was removed together with the thickened tissu and although a year and a half has elapsed since th operation there has been no return of the form symptoms.

The last case is one of a child aged 3 years. Bot eyes were affected; the lids were red and granular an discharging a fetid pus. There was also a purule rhinitis. Under an anti-strumous treatment of syrup ferri iodi and the hypophosphites with a 0.0027 gra of the double sulphid of arsenic and a local applic tion of boric acid, the eyes cleared up promptly.

1823 Vine Street.

REPORT OF A CASE OF MALIGNANT GROWTH IN THE LARYNX; TOTAL EXTIRPATION, SOLIS-COHEN METHOD.

Presented to the Section on Laryngology and Otology at the For Eighth Annual Meeting of the American Medical Association at Philadelphia, June 1-4, 1897.

BY ROBERT C. MYLES, M.D.

NEW YORK, N. Y.

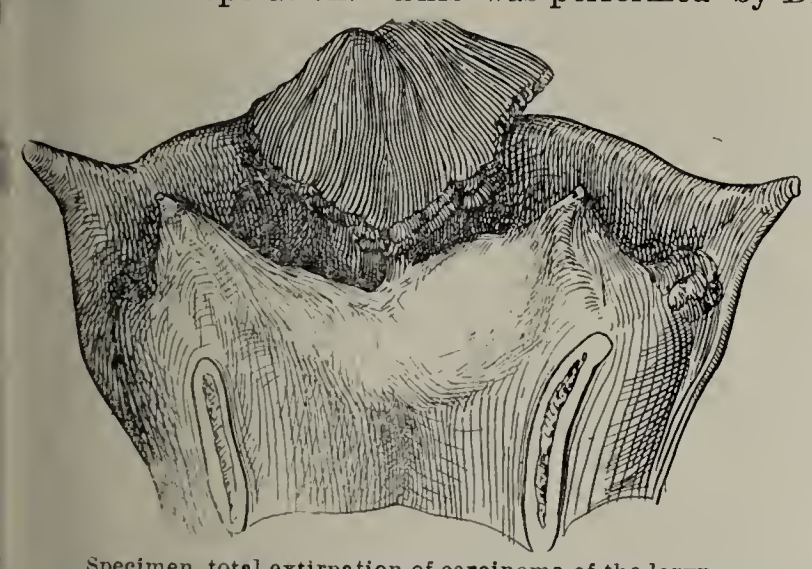
James Eckersley, age 49, machinist, worker in t emery room of a sewing machine factory, was sent me Aug. 7, 1896, for diagnosis and opinion concer ing the condition of his throat. He complained loss of voice, sore throat, sore chest, cough, difficulty breathing, poor appetite, weakness and night swea The cough had troubled him from time to time, f thirteen years. He was able to sing up to thr months since; then he became hoarse, and has remain so up to date. I found a large growth in the laryn which was attached to the right vocal chord and t adjacent anterior and inferior parts, and extend

across the anterior commissure. The larynx was dilated to an extreme degree by the formation. There was a small opening in the respiratory space between the arytenoids, and there were two abrasions on the top of the tumor, apparently caused by forceps in an attempt to obtain specimens for microscopic examination. I reported that the characteristics were those of malignancy, and that I would advise the removal of a deep section of the growth for microscopic examination. This was accomplished with Krause's double curette, it being the opinion of the writer that Mackenzie's cutting and Schroetter's tube forceps are not



Specimen, carcinoma of the larynx.

reliable in making deep sections of laryngeal growths. I also advised that an immediate operation of total extirpation should be performed in the event that the diagnosis was corroborated and confirmed. Dr. Vissman made a microscopic examination and reported that the tumor was a carcinoma. I advocated the Solis-Cohen operation. This was performed by Dr.



Specimen, total extirpation of carcinoma of the larynx.

J. A. Bodine Aug. 17, 1896, preliminary tracheotomy having been performed several days previously. After the patient had been anesthetized an incision was made in the median line from the hyoid bone down to the tracheotomy wound; no cross incision was made. The parts were dissected on either side from the thyroid and cricoid cartilages. The bleeding was slight, and was stopped by compression or ligature; chloroform narcosis was continued through the tracheotomy tube. The trachea was cut through at the point of junction with the cricoid, and was pulled outward and downward, great care being taken to prevent the blood from entering through the severed end. Then the larynx was lifted upward and dissected from the esophagus, constrictor muscles, crico-arytenoidean folds and the epiglottis. The esophageal and epiglottic surfaces were brought together firmly with catgut. The external excision was closed with sutures down to the lower part. The end of the trachea was stitched to the skin above the supra-sternal notch and also on the sides. The patient was fed by mouth for a few days, when the catgut gave way and allowed the milk from the pharynx to enter the wound. He was fed by a tube through the mouth after this for a time. The patient improved gradually; but at times he had attacks of profound nervous depression, with expressions of great fear of suffocation, and an indisposition to take food. The trachea receded and dragged the skin inward and became quite narrow. This was kept open by different forms of tubes; the Simrock nasal speculum was the most feasible. The tracheal walls became dry and abraded, and the patient suffered much from mucous and bloody crusts. A spray of liquid albolene with carbolic acid and eucalyptol gave him great relief. The opening became so tight that it was necessary to excise a part of the tissue where the skin and trachea unite. The communication between the wound and the pharynx gradually closed. Within a few days it was noticed that he could whisper certain words. His speech has made gradual and favorable progress. It would seem that his method of voice production is not exactly like that of Solis-Cohen's famous case. His patient had a pocket in the upper esophageal region and emitted regular puffs of air as is done in ordinary laryngeal speaking. In this case the voice seems to be produced mainly from the air being forced, by pressure of the muscles over the roughened edges of the glosso-pharyngeal region, and in this way producing enough vibration for whispered speech to be made by the tongue, lips, teeth and palate. I can not detect the slightest symptom of recurrence of the growth. He has gained rapidly in weight. The epiglottis has rather a normal appearance and position.

46 W. 38th Street.

DISCUSSION.

Dr. J. Solis-Cohen—My case was operated on six years ago, and was doing well last year. He had a very large external growth, and I had to remove much of the skin with it. I believe that this is the ideal operation for the removal of these growths. Tracheotomy should be done ten or twelve days in advance, enabling the patient to become accustomed to breathing through the neck. This affords time for certain adhesions between the trachea and the skin, and this process, anchoring the trachea, renders the laryngectomy easier. Some few months ago, in reading a report of the Laryngological Association of Great Britain, I was impressed with the large number of successful cases presented at one meeting. I learned that most of these had been performed under chloroform and I think that is the best anesthetic in such operations. With ether there is more or less bronchial irritation and also vomiting after operation, and much of this can be obviated by the use of chloroform.

In my case I concluded that the voice was produced by the horizontal fibers of the inferior constrictor muscle of the pharynx. That patient learned to distend the sac by half swallowing the air, and if this man will learn to do the same, he will probably be able to produce a phonal sound, instead of the labial one. My case seems an example of the old idea that function precedes structure. Here was a man whose larynx had been removed, and who wanted to talk, and in the effort to talk organs connected with a different function were forced into use to accomplish the result. My patient is not able to do hard manual work, for he can not close his glottis, and an expiratory current of air can not get the leverage necessary for hard work. In the act of defecation it is necessary to close the glottis. He

was obliged at one time to occlude the orifice externally, so that this act could be performed easily.

I used no dressing or packing, and I studied the patient to see whether in swallowing there is an actual dilatation of the esophagus or whether it is simply opened like a bag and the food pushed downward. Before the wound closed we were able to see that in swallowing, the esophagus did not dilate to receive the food. My patient does not wear a tracheotomy tube. He wore one for some time, but happened to forget it one day, and finding that he did not need it, has dispensed with its use.

Dr. MACKENZIE—In the debate on malignant disease of the larynx at the Baltimore meeting of the American Laryngological Association, in 1890, I stood alone among my fellow-laryngologists, as I stand alone today, in advocacy of radical operation and by radical operation I mean total extirpation of the larynx with its lymphatics and lymphatic glands, as the only rational method of dealing with this too often fatal malady. Extirpation of the larynx was then, as it is now, denounced as an unjustifiable and ghastly procedure, and we are told that the operation should be abandoned because in malignant disease it has resulted in failure and that life has been shortened thereby. Even if this doubtful assertion be true, better a shorter life of comparative comfort than a prolonged life of hopeless agony. We are, however, dealing not with the past of this operation, but with its future. To the modern surgeon they are sufficiently apparent, but I believe there is one thing that the records of the future will show, namely, the reason so many cases have terminated in failure and death is because the disease has not been radically dealt with. As long as we have lymphatics to carry infection and glands to become infected, so long will our patient be subjected to ultimate danger. The more I investigate the subject and the more I see of the treatment of cancer in general, the more convinced I become that there is only one rational method of dealing with cancer of the larynx. Early total extirpation of the organ with its tributary lymphatics and glands, whether the latter be apparently diseased or not, is the only possible safeguard against recurrence or metastasis. By no other method can we give the patient a reasonable assurance of a permanent lease on life. The surgeon who is abreast of the times does not trifle with cancer in other organs. Why should the larynx be made the exception to the rule? We will have to learn the same lesson here that we are slowly learning in the case of cancer in other parts of the body. No one at the present day thinks of taking out half a breast, half a uterus, or half a kidney for cancer, no matter how circumscribed the growth may be. It is impossible by inspection either with the laryngoscope or after preliminary division of the thyroid, by transillumination or by the sense of touch, to limit the extent of the disease before operation. As I have demonstrated, even after removal of the larynx the disease may be apparent in one side of the organ and not in the other, and yet the microscope show extensive cancerous deposit in the seemingly normal side. This condition is liable to occur in cases in which the epithelioma originates in the deep-seated glands and may not approach the surface until a late stage of the disease. It is also possible that in a more or less advanced stage of cancer of the larynx or even in its early history we may find young cells in the neighboring lymphatics, as Halsted has demonstrated in the case of cancer of the breast. In the presence, therefore, of the fact that it is impossible to limit the disease by inspection and the sense of touch and in the light of the revelations of the microscope it becomes a serious question whether we accomplish any lasting good by any operation short of complete excision of the larynx and the neighboring lymphatics and glands. Certainly if the disease approaches the middle line, the imperative necessity of complete removal must be apparent to the most timid and doubting operator. Confronted by this uncertainty, the position of the surgeon is a most responsible one. Operations of this class should only be undertaken by surgeons of acknowledged skill and experience and with a conscientious recognition of the ethical relations of operator and patient. Thyrotomy with partial removal of the larynx is not up to date surgery, and is a reversion to and resurrection of a method of procedure that was discredited and abandoned half a century ago.

Beside the question of life-saving, all other considerations pale into insignificance. Given a cancer confined to the larynx (even though the entire interior of that organ be involved) in a person in fairly good condition, and offering no absolute contra-indication to operation, I would no more hesitate to recommend excision of the larynx and lymphatics than I would under similar circumstances hesitate to recommend excision of the breast. The conditions surrounding the two operations may be dissimilar and the danger greater in the one than in the other, but to the patient it is the choice between danger and death.

A great deal has been said in recent years about the dangers of thyrotomy and we are told that we must not operate if the lymphatic glands of the neck be involved. The so called dangers of thyrotomy are largely fanciful. If there be any chance of saving life, I believe a preliminary thyrotomy justifiable even in the presence of external glandular enlargement, provided such involvement be not, on its face, too extensive. More than that, if, on thorough exposure of the parts—assuming that there be no serious contra-indication to operation—it be found that the disease can be thoroughly eradicated, even if such eradication should involve more or less deep dissection of the tissues of the neck, it is far better to give the patient that chance of life than to allow him to drift on to certain and possible death.

Dr. RICHARDSON—The extirpation of a larynx containing a growth which has been proved microscopically to be carcinomatous is as justifiable an operation as can be done in the range of surgery. The operation should be done early. It is impossible, from a laryngoscopic examination, to judge of the extent and character of the growth. We get such a foreshortened image that nothing can be ascertained except perhaps the fact of the malignancy of the growth. Operations short of total extirpation are worse than useless. Where tissue of a malignant nature still exists it is sure to lead to a fatal termination of the case. The radical operation is one which can be executed with considerable ease, and can be made almost a bloodless procedure unless some of the veins are severed; and is not attended with any marked degree of shock. The danger and difficulty lie in the post-operative stage, until the wound is healed. It is during this period that most of the cases succumb.

Dr. Cohen's plan of doing the preliminary tracheotomy ten or twelve days in advance is well advised. The tendency with many is to do the extirpation too soon after the tracheotomy. I fear that this was one of the causes of the fatal issue in my case, for I only waited a week, when two would have been better. However, I was forced to go on because of the weakened condition of my patient.

Dr. SWEENY—I would like to question Dr. Myles in reference to the influence on the nasal secretions.

Dr. MYLES—They seem to be in very good condition.

Dr. BRYAN—It seems to me that the patient swallows air and the voice is produced by a vibratory expulsion.

Dr. MAKUEN—Though this man can only whisper, I believe that this whisper is due to the action of the organs of articulation upon the natural column of air. It is clear to my mind that a whisper is not dependent upon the larynx or upon the vocal chords. There are no vibrating surfaces here as in Dr. Cohen's case.

Dr. GIBBONS—Four years ago I registered the voice of Dr. Cohen's patient on the phonographic cylinder, and a year and a half ago I registered it again and found great improvement. Such a test should be made every six months.

Dr. MYLES—These cases should be seen promptly by men competent to examine them, and should then be taken to a general surgeon for operation. I prefer a surgeon in most cases, because the operation does not occur frequently enough to keep the laryngologist's hand active, though I should not hesitate to do it myself if necessary.

REPORT OF TWO CASES OF SUPPURATING MASTOIDITIS.

Presented to the Section on Laryngology and Otology at the Forty eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY J. H. BRYAN, M.D.
WASHINGTON, D. C.

In presenting the following cases of mastoid disease, it is with the object of demonstrating the evil results that are liable to follow acute suppurations of the middle ear, especially when treated with the indiscriminate application of poultices, and the injudicious use of the Politzer air bag. In spite of the advances that have been made within recent years in the treatment of these affections, and the serious results that are almost sure to follow when these cases are badly treated, we still find physicians using the poultice to cause an abscess of the mastoid region to break externally. It has been my misfortune to have had several of these badly managed cases to treat

he histories of two of which are herewith subjoined. I think they are good object lessons and may be a warning to some physicians not to allow their cases o go to the verge of dissolution before operative nterference.

Case 1.—Acute suppurating otitis media, suppurating mas-oiditis, abscess extending into the deeper tissues of the neck. [. M., white, age 56, was admitted to the Garfield hospital, June 24, 1896, stating that about six weeks previously he was suddenly seized with a severe pain in the left ear. He was treated with hot oil applications and poultices and the abscess discharged through the external auditory canal, giving him only slight relief however. The hot applications were continued notwithstanding a large swelling had formed back of the ear, which was excruciatingly painful.

On admission the patient was very much emaciated and weak. His mental faculties were decidedly obtunded, consequently it was not possible to obtain a clear history of his condition, from him. Temperature 100 degrees; pulse 60. There was a profuse discharge of pus from the external auditory canal, and a large swelling back of the ear, over the mastoid, extending upward toward the temporal region and down into the neck. Slight pressure over the swelling was very painful and caused the pus to flow more freely from the external auditory canal.

The patient was freely stimulated with whisky and strychnia and the mastoid region shaved and prepared for operation, which was performed June 25, under ether anesthesia. His condition was not considered favorable for anesthesia, but after the use of stimulants he bore that and the operation well. An incision was made commencing just above the auricle and extending down upon the neck about two and a half inches. This was followed by a discharge of a large quantity of pus, which was found to have burrowed into the deeper tissues of the neck. The cortex of the lower portion of the mastoid was completely destroyed, while the upper portion still remained firm. This was removed with the chisel and rongeur, and the antrum opened; all carious bone was removed with a sharp spoon, and in doing so the lateral sinus was exposed in nearly its full extent. As it was soft to the touch and no evidence of any septic infection, it was not opened. The sloughing tissue in the neck was scraped away with a sharp spoon, and after thoroughly irrigating the wound it was packed with iodoform gauze, and closed with a bandage; 8 P. M. temperature 101 degrees, pulse 120. Owing to the extremely weak condition of the patient he was freely stimulated with whisky.

June 26, 8 A. M. temperature was 98.4 degrees, pulse 96; 8 P. M. temperature 100 degrees, pulse 96, and stronger. Otherwise doing well.

June 27, 8 A. M. temperature 98.4 degrees, pulse 84. The wound was dressed, owing to the dressings being quite moist. In the neck wound there was still considerable sloughing tissue, which was removed. A continuous flow of pus was still observed coming from the external auditory canal.

June 30, temperature and pulse normal. Condition of the mastoid and neck wound very much improved. Large pieces of sloughing tissue removed from the lower portion of the wound. Pus continues to discharge freely through the external auditory canal, although little is observed in the mastoid antrum. The solutions pass freely from the antrum through the external auditory canal. The wound was dressed every other day on account of the free discharge of pus.

July 15, while the general condition of the patient has improved very much as well as that of the wound, pus still continues to flow through the external auditory canal. The patient was placed under ether, and the roof and posterior wall of the auditory canal were found to be in a state of extensive caries. The auricle was freed from its bony attachments and thrown forward, and the carious superior and posterior walls of the auditory canal removed with a sharp spoon. The auricle was then brought back into position and after irrigating the wound it was packed with iodoform gauze, both through the canal and from without. There was a rise of temperature to 99.8 degrees after this operation, but it fell to normal in a few days.

The general condition of the patient continued to improve, with the exception of a marked cerebral irritation amounting at times to decided delirium. This lasted about a week or ten days and then ceased.

September 30, the patient was discharged from the hospital, cured, the wound having closed completely, and with a hearing distance of one inch for the watch.

Case 2.—Acute suppurating otitis media, suppurating mas-oiditis with a commencing infiltration into the neck.

The patient, a young man 19 years of age, consulted me Jan. 11, 1897, giving the following history: December 14 he was seized with a severe pain in the left ear following a slight attack of influenza. In a few hours there was a profuse purulent discharge from the auditory canal which gave him temporary relief, the pain returning, however, with increased severity and extending over the temporal and mastoid regions. Poultices were applied and the air douche used. In a few days a swelling appeared back of the ear, which became intensely painful on pressure. This form of treatment was continued until I saw him January 11.

His condition then was serious, he being exceedingly weak and emaciated. His temperature was 99 degrees.

On examination, a profuse purulent discharge was observed flowing from the external auditory meatus, but owing to the swelling of the canal no view of the membrana tympani could be obtained. The auricle stood out prominently from the side of the head, and back of it ever the mastoid region there was a large swelling extending into the neck. The parts were red and very sensitive, pitting on pressure. The patient was sent to the Garfield hospital and prepared for operation, which was peformed on the following day. The incision was made commencing just above the auricle, continued over the mastoid and terminating about two inches below the apex in the neck. Pus in large quantities was found at the apex of the mastoid, burrowing into the deeper tissues of the neck, but none was found over the upper portion of the process, the tissues being swollen from edematous infiltrations. After elevating the periosteum the cortex of the process was observed to be firm, and no opening communicating with upper cells or antrum could be found, but a probe passed readily through the large cell found on the under surface of the mastoid apex. The antrum was opened and the cortex removed with a chisel, when the cells of the mastoid were found to be in a state of caries, and the pus instead of breaking through the cortex found its exit into the tissues of the neck through the under surface of the apex where there is a large cell with very thin walls usually found.

After all the diseased tissue was removed with a sharp spoon, the wound was irrigated with a solution of bichlorid of mercury (1 to 3000), packed with iodoform gauze and closed with a bandage.

January 13, the patient is free from pain and feels generally comfortable. At 8 A. M. temperature 99.2 degrees; 4 P. M. 100 degrees.

The wound was dressed on the fourth day and very little secretion observed. The temperature was now normal and remained so during the convalescence of the patient. The subsequent dressings were made every third day; the wound continuing to heal rapidly, he was able to leave the hospital, cured, March 1, with a hearing distance of five inches for the watch.

While such cases as the above are not unusual in the experience of most aural surgeons, still they are of value in demonstrating to what extreme conditions patients suffering from suppurative inflammations of the middle ear may arrive, especially when over treated with the ever popular poultice, and subjected to the injudicious use of the Politzer air bag, a most valuable instrument when properly employed, but one capable of doing great injury in the hands of the inexperienced, especially when employed in cases of children with hypertrophy of the post-nasal lymphoid tissue.

818, 17th St., N. W.

AN HISTORICAL SKETCH OF THE OPERATIONS UPON THE MASTOID PROCESS.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY LAURENCE TURNBULL, M.D., PH.D.
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It is now 105 years since a Danish surgeon, Berger of Copenhagen, was suffering from non-suppurative inflammation of the tympanum attended with distressing tinnitus aurium and deafness. To relieve this

condition the operation of perforating the mastoid process was performed. The patient being old and the bones very hard, the injection used would not pass through the opening in the mastoid into the middle ear. Pain, fever, sleeplessness, vomiting and delirium closed the scene and he died eleven days after the operation. The postmortem revealed "suppurative meningitis." Where the bone had been opened it was found to be two lines in thickness, while the perforator had entered much deeper.

A regimental surgeon by the name of Jasser, in 1776, performed the same operation upon the mastoid of a soldier who had suffered for a long period from a chronic middle-ear suppuration, with occasional subacute attacks attended by great pain. The region over the mastoid was swollen and the patient was half insane with pain. Jasser made an incision over the mastoid about an inch long and found a drop of pus. Encouraged by this he cut down upon the whole length of the mastoid bone. He found the surface roughened. He passed a probe quite deeply into the mastoid cells and injected fluid into the opening; it came out of the external auditory meatus, and at the same time a large quantity of pus was discharged from the external meatus. The patient immediately exclaimed that the pain had left his ear. He fell asleep and rested uninterruptedly for ten hours. In three weeks the opening behind the ear had healed, the discharge from the auditory canal had ceased and the patient heard better than before. Stimulated by this, Jasser performed the same operation upon the other ear of the same person, from which there was no discharge, but in which the hearing was impaired. The hearing is said to have also been improved after the operation, but this is very doubtful. There was no caries of the bone.

The operation received its name from "Jasser." The indications were correct in the first case, but were wanting in the second.

This valuable surgical operation lay dormant for over fifty years by this mistake.

Von Troeltsch, in 1861, published a valuable paper in *Virchow's Archiv* upon this subject of perforation of the mastoid, resurrecting and describing the operation in a clear and satisfactory manner. He then reported a case in which he had, in 1858, perforated the mastoid process with a blunt probe. According to Troeltsch's own words, although the indications that opening of the mastoid to remove dead bone and concealed pus and thus secure drainage, were now considered imperative and clear, he opened the softened mastoid with fear and trembling. He says: "I went to work with uncommon care, even with dread." The case was a success.

I now quote my own case, the report of which follows as given by Dr. D. B. St. John Roosa of New York (extract from *Philadelphia Medical and Surgical Reporter*, Vol. vii, p. 463, February, 1862) and published by him in a history of the operation, to be found in his work on "Diseases of the Ear" (1891, p. 540).

"In February, 1862. Laurence Turnbull, M.D., published two cases in which he made an incision down to the bone, and a third in which two months after he had opened the external tissues, he perforated the surface of the bone with a sharp hollow probe and applied nitrate of silver freely. A month later he again broke down part of the bone and nineteen days later he removed a large piece which was found to be movable with a probe. This was an operation simi lar to that of Troeltsch, although the German surgeo waited only a few days before venturing to perforat the cells with a probe, while the American delaye for two months. In spite of its exclusion from som tables, Turnbull's cases belong to the same categor with that of the reviver of the operation." It wa operated upon but three years after Troeltsch's case and only one year after it was published. This lad now a man of 34, made a perfect recovery and is stil well and living.

In confirmation of the above facts, Professor Grube in his text-book "Diseases of the Ear" (Translatio by Drs. Edward Law and Coleman Jewell, Londor 1893, p. 462) states that, "in more recent times th attention of aural surgeons was again turned to thi operative measure by Von Troeltsch, who gave a indications for its performance: Otitis media wit collection of pus in the mastoid cells, which, eve with coexistent perforation of the drum membran can not otherwise be evacuated, and the symptoms ar too urgent to justify waiting for spontaneous openin of the abscess." The operation has been performe on these grounds with more or less good results b Von Troeltsch,[1] Turnbull,[2] Pagenstecher,[3] Follin Schwartze,[5] Gruber,[6] Mayer,[7] Jacoby[8] and others. Th operation first came into more extensive use, how ever, in consequence of Schwartze's[9] zealous advocac

In the table published by Schwartze and Eyse they give the writer credit for his operation in 186

The indications given by Schwartze for performin the mastoid process are:

1. Acute inflammation of the mastoid process wit retention of pus within the mastoid cells, when a pe manent remission of the symptoms have not bee brought about by Wilde's incision. The operatio ought to be performed without waiting for sympton of cerebral irritation or pyemia.

2. Recurrent swelling of the mastoid region, whic has undergone temporary recession; or has led t abscess formation with or without fistulous opening in the integuments, even though no threatenin symptoms exist at the time.

3. When after discharge of an abscess in the ma toid region, examination with the probe reveals a fi tulous passage in the bone. Besides these general recognized indications, the author considers th operation called for—

4. If with inflammatory processes in the ea severe pains which resist all other treatment be pre ent in the corresponding side of the head, even thoug no inflammatory appearance can be detected over th mastoid region.

In certain cases of tedious otorrhea the obstina of which is not sufficiently accounted for by the co dition of the Eustachian tube and tympanum, ar which resist long-continued and approved treatme on the ordinary lines, the discharge being offensi and mixed with cholesteatomatous masses or bon particles, even where no conspicuous changes can discovered in the mastoid region, the author h recourse to operation; experience having taught hi

1 Virchow's Archiv, Bd., xxi, 1861.
2 Med. and Surg. Reporter, Phila., 1862.
3 Archiv für Klinische Chirurgie, 1862, Bd. iv, S. 523 et seq.
4 Gazette des Hôpitaux, 1864.
5 Pracktische Beitraege zur Ohrenheilkunde, 1864.
6 Record of aural patients treated at the Vienna Hospital during t year 1865.
7 Archiv für Ohrenheilkunde, 1. Bd.
8 Ib., 111. Bd.
9 Ib., xiv. Bd. S. 202.

that after removal of the cholesteatomatous masses or granulations which are frequently present in the antrum or mastoid cells, the otorrhea ceases and recovery takes place.

Sometimes, moreover, small circumscribed areas of inflammation exist in the mastoid process, which maintain the otorrhea and are inaccessible to ordinary modes of treatment. These are exposed by the operation and recovery is thus brought about more readily.

In connection with the two last-named indications, the operation acquires an exploratory significance, and under the modern favorable auspices of antiseptic surgical treatment, it may the more readily be undertaken on account of the danger which is always associated with a continuance of the disease.

255 South Seventeenth Street.

DISCUSSION ON THE PAPERS OF DRS. BRYAN AND TURNBULL.

Dr. C. H. BURNETT—I would like to ask Dr. Bryan whether anything had been used beside poultices and the Politzer bag?

Dr. BRYAN—In the first case the man was in a very low condition and could not give much information, but I understood that there had been only poulticing up to the time I saw him. In the other case there had been instillations of peroxid of hydrogen.

Dr. BURNETT—In the histories of all the cases reported as acute otitis media followed by acute mastoiditis I can read between the lines that the mastoiditis is a secondary infection, and in some cases I can see that the ear was over treated and secondary infection followed. I believe that in most instances the secondary inflammation was caused by the use of peroxid of hydrogen. Acute mastoiditis following otitis media has become much more frequent since the introduction of peroxid. You can imagine that erroneous ideas of treatment some people have, by one instance. I once found that a patient of mine, a physician, from whom I had removed the ossicles, had been for a year in the habit of cleansing his ears with his own saliva. I am sorry to say that nearly all the articles on this subject state nothing as to the treatment before the patient was seen by the aurist. I believe that cases of acute mastoiditis, complicating acute otitis media, are artificial results of improper irritative treatment and not the necessary result of the primary disease. They are instances of secondary infection due to the introduction and retention of morbific germs, by the irritative treatment of the primary inflammation and I know of no agent so efficient in forcing pyogenic germs into the inflamed ear as the expansive, energetic hydrogen binoxid.

Dr. J. A. STUCKY—I have seen many cases of acute mastoiditis caused by the use of peroxid of hydrogen in middle ear troubles, especially in acute otitis media. I consider it a dangerous remedy, and it is not right to use it in these chronic cases, unless there is a large opening.

Dr. MYLES—A coagulum of the mucoid substance and the peroxid is formed and is left in the recesses, from which it can not be washed out.

Dr. A. B. RANDALL—My experience has been in absolute conflict with much that has been stated. I must speak a word in defence of the Politzer bag, the syringe and peroxid of hydrogen. They are in constant use in my practice. While I have been reproached with the fact that I have a considerable group of mastoid cases to operate on, I will ask anyone to point out a case of mastoiditis as a primary cause. These cases are almost all taken from the practice of other men. I have never seen any evil results from my vicious habits. The proper employment of the Politzer inflation in the early stages of otitis media is of great value; its abuse has no place whatever. The use of peroxid of hydrogen is limited ordinarily to the acute cases. The perforation is commonly small, especially in children. When the hot douche has not given good results I have taken care that my peroxid should go into the very places where it is said to do so much harm. We have bad results when the peroxid does not penetrate. With the use of the intra-tympanic syringe, carrying the peroxid into the cavity so that it bubbles out at the nose, I have seen these cases go on to rapid recovery. While I do not advocate this as a routine treatment, I have no fear as to the peroxid, and believe that it should be more widely used, especially in Europe where it is hardly known. Cases of the type mentioned by Dr. Bryan sometimes occur with peculiar frequency in the experience of some men. They are by no means as rare as is sometimes supposed. I have had perhaps twenty or twenty-five of them, and my assistant, Dr. Hammond, has had eight or ten. The cases to which we have reference today are acute.

Dr. CLINE—I had a case in which I removed a large polyp from the external auditory canal. Later, when the patient was returning to a neighboring town, he had a chill on the road. He came under the care of a very good aurist, who for a week worked hard to save his life. There was inflammation of the mastoid cells. The doctor, I understood, had washed out the cavity with peroxid and had put something into the ear to stop the discharge suddenly. I believe that we should discriminate in our cases. If we have a large perforation we can use peroxid with more safety than with a small opening, but it must be used carefully.

THE CHAIRMAN—I would ask Dr. Burnett if he objects to the use of peroxid in chronic cases to the same degree.

Dr. BURNETT—I do not use peroxid at all, either in acute or chronic suppuration of the ear on account of its expansive force and the consequent risk of forcing pus into the middle ear cavities. It is perhaps less harmful in chronic than acute cases. We must regard the antrum as part of the middle ear, not the mastoid. Many acute cases will get well without mastoid disease. A natural siphonic action takes place between it and the antrum. When I was a medical student we never heard of mastoid disease occurring as a sequel of otitis media. Why should one man now see 100, 200 or 300 cases in a comparatively short time if it is a necessary result of ear disease? The so-called acute mastoid disease as a sequel is largely an artificial result.

H. D. HATCH, D.D.S.—I once had a lesson as to the explosive force of peroxid of hydrogen. In working on a tooth my instrument slipped up under the tissues, almost to the eye. The wound healed and was apparently all right, but later an abscess formed, well up toward the eye. There was no swelling around the eye, except this small point, and there was no wound in the mouth. I slipped a bistoury into the abscess and injected peroxid of hydrogen. Inside of twelve hours after my injection, which caused intense pain, the face was swollen and the eye black. I have ceased to inject peroxid into any cavity into which there is a small opening, except in some cases where I inject a little at a time and tease out the pus. I have had other cases where the mechanical force of the explosion gave great pain. Members of the dental profession use peroxid of hydrogen largely. I came to to the conclusion last winter that it was unwise to inject it into a bone cavity.

Dr. BRYAN—I have seen serious results from the use of the Politzer bag and from the use of peroxid of hydrygen, but they were at the hands of operators who did not know how to use them. My object was not so much to advise the members of this ASSOCIATION against the use of these things as to urge their cautious use. I have thought it best to present these cases so that they might be an object lesson to those who are not so careful.

PHENOMENA OBSERVED IN TWELVE CASES AT VARIOUS STAGES OF THE OPERATION FOR SECTION OF THE INCUDO-STAPEDIAL ARTICULATION AND MOBILIZATION OF THE STAPES.

Read in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

BY E. B. GLEASON, M.D.

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PHILADELPHIA, PA.

The ear in which the patient's hearing was the more defective was invariably selected for operation. The night before the operation the auditory canal was thoroughly cleansed, syringed gently with a solution of bichlorid, 1 to 1000, and occluded with a piece of iodoform gauze, which was allowed to remain in position over night. The drumhead was soaked for one hour before the operation in a sterilized 4 per cent.

solution of cocain, by means of a pledget of sterilized absorbent cotton, which was saturated in the solution and inserted into the canal in contact with the drumhead. After the primary incision through the membrana, the edges of the wound and the intratympanic membrane was touched from time to time with a sterilized 10 per cent. solution of cocain. All maneuvers subsequent to the primary incision were thus rendered practically painless.

The steps of the operation performed for the relief of tinnitus and improvement of the hearing, in twelve cases of advanced sclerotic catarrh of the middle ear that had not improved as the result of non-operative measures, were as follows: An incision through the clear part of the membrana, as close to the periphery as possible, was made from a point below the level of the malleus tip to the short process, and the flap thus produced was turned forward over the malleus handle. An attempt was made to mobilize the chain of ossicles by traction in various directions upon the lower portion of the long process of the incus. In the last six of the twelve cases operated upon, the tendon of the stapedius muscle was then severed and the attempt renewed to mobilize the chain of ossicles by traction upon the long process of the incus. The incudo-stapedial articulation was next severed and the stapes mobilized if possible by lateral pressure and lever-like movements of a cotton-tipped probe in contact with the head of the stapes. In the last of the series of cases, sufficient force was exerted to fracture the crura of the stapes; but in this case not the slightest improvement of the acuteness of hearing followed the operation. There were however no disagreeable after-effects.

In all but one case the operation was comparatively bloodless. In this instance, however, such a persistent hemorrhage followed the primary incision through the drumhead that the operation was abandoned. Two weeks afterward an opening was made through the membrana over the incudo-stapedial articulation, by means of a cotton-tipped probe dipped in fuming sulphuric acid, the articulation severed, and the stapes mobilized. The slight improvement of the hearing that resulted from this procedure was lost during the course of an otorrhea that persisted for three or four weeks after the operation, but the patient was cured of an annoying tinnitus. Suppuration did not occur in any of the other cases.

Each of the twelve cases operated upon in the manner described above had their hearing carefully tested both with voice and watch at each step of the operation.

In no instance did the slightest improvement of the hearing follow the incision of the drumhead and the turning forward of the flap. Although the evidence of twelve cases is by no means conclusive, yet the writer can not help suspecting that the idea that improvement of hearing in catarrhal cases with patulous Eustachian tubes would follow the mere excision of a portion of the drumhead is a myth, and that the improvement of hearing that was reported to have followed this procedure was due in all probability to incidental mobilization of the chain of ossicles. This suspicion becomes more plausible when it is called to mind that Sir Astley Cooper did his operations with an ordinary trocar, and that up to the time of Wilde, the favorite instrument for performing the operation was that of Fabrizzi, consisting of a small trephine with a cork screw stilet, by means of which not only a section of the membrana, but also a portion of the malleus handle was usually removed. So inadequat was this instrument for the safe perforation of th drumhead that two deaths following the operatio were reported, in London, by Dr. Butcher in 1846, an in these two cases, at least, it is probable that som thing more was accomplished by the operation tha the mere removal of a disc of the drumhead and most thorough mobilization of the ossicular chain.

It also seems probable that in many instances th improvement of hearing and relief of tinnitus re ported as following the modern operation for th removal of the drumhead, malleus and incus, wer the result of the incidental mobilization of the stape The only advantage in catarrhal cases of such a pro cedure over the operation described above, consists i the accessibility of the stapes for purposes of mobil zation, which is probably more than counterbalance by the constant exposure of the intra-tympani mucous membrane to the danger of infection by pyo genic bacteria.

It was found impossible to improve hearing in an of the twelve cases by manipulation of the long pro cess of the incus in the hope of mobilizing the incu

Section of the stapedius muscle was accomplishe in two instances, with an audible snap and an imm diate improvement of the hearing. In both case however, further improvement followed the subs quent incision of the incudo-stapedial articulatio and mobilization of the stapes.

The amount of force used where no improvemen of hearing resulted from the operation, was in a instances sufficient to endanger fracturing the cru of the stapes, which actually occurred in the last ca operated upon. In this and others where no improv ment of the hearing followed manipulation of th stapes, it is probable that ankylosis of the foot pla of the stapes to the oval window existed to such degree as to render it absolutely impossible to brea up the adhesions without fracturing the crura in th attempt. Politzer has proven by his experimen upon the cadaver that when bony ankylosis exists b tween the foot plate of the stapes and the oval wi dow the crura are invariably broken in an endeav to remove the stapes by traction.

The duration of the vertigo which invariably ensu in the cases where improved hearing followed manip lation of the stapes, varied in duration from a fe moments to three days. One case was obliged to l down three times during the manipulation of th stapes because of dizziness and faintness, whic however, lasted only a few moments. In anoth instance the patient staggered almost like a drunke man as he was led away from my office at the concl sion of the operation. His dizziness lasted on twenty-four hours.

In no instance did any permanent injury to th auditory apparatus follow the operation. In all cas where tinnitus existed, it disappeared after the oper tion. There was, however, only in five a noticeab and practical improvement of the hearing. In on improved hearing for the voice did not entirely di appear until three years after the operation. In a cases improved hearing for the watch invariably di appeared within a few months, probably as the resu of the reformation of adhesions. In one or two hea ing notably improved both for watch and spok words for a few weeks subsequent to the operatio It seems more than possible that the hearing mig have been again improved in some at least of t

cases by incising the drumhead and remobilizing the stapes.

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DISCUSSION.

Dr. BURNETT- I have seen several cases of perfectly mobile stapes with total deafness, and total ankylosis of the stapes with very good hearing. I think that so far the operation can claim to relieve chiefly in cases of aural vertigo. These cases can often be treated successfully by intra-tympanic operation, either by Dr. Gleason's method or, as I prefer, by the removal of the incus alone.

Dr. RANDALL—We may properly hope for this operation a place equal in importance to that held by the operation for cataract in the surgery of the eye. There, in a large number of cases, lies the impediment to the betterment of the organ of hearing. More attention should be paid to the proper testing of hearing in these cases. Disappointments will greet us for a long time, as they have done in the past, as in the case of the operation for the removal of the drumhead, which a few years ago was exploited as the new treatment for all ear diseases. Even with great care and proper selection of cases, results will often be very disappointing.

Dr. TURNBULL—I feel as if I had been an advocate of the removal of the malleus. One of my cases was operated on seven years ago and her hearing is still good. She was very deaf indeed. The benefit may have come from the mobilization which attended this operation. In another case I operated on a lady who had suffered greatly with vertigo. The vertigo was entirely relieved and she has fairly good hearing.

Dr. BERNSTEIN—I have removed the incus in three cases, but I shall never do the operation again. In one case, for about three weeks after operation the patient's hearing was decidedly improved, but after that she had to use a trumpet. This has been my experience in the other cases also.

Dr. MYLES—I have rather opposed the removal of the ossicles. When cures from this operation are reported, it is not always stated how long the hearing remains improved. I know one man whom a distinguished aurist persuaded to have his ossicles removed, and for awhile his hearing was improved; but now he can hear nothing. Two young men came to me two years ago, whose hearing had been much impaired for about two months. I found large exostoses and complete nasal stenosis, and one of them had considerable adenoid tissue and subacute otitis media. I advised rest. One of the young men told me that he had come from the office of a distinguished aurist who had been almost violent in his efforts to induce him to have the ossicles removed. I advised them both to wait and try the rest treatment first, which they did. They both hear well today. If the ossicles had been removed, they would have heard better for a time, and would probably have been reported as remarkable cures.

Dr. GLEASON—Until a couple of weeks ago, I supposed the result I obtained in a case operated on two years ago was permanet, but the patient told me that all the improvement had disappeared. I would advocate this operation only after everything else has been tried.

OBSERVATIONS ON SOME PATHOLOGIC CONDITIONS OF THE NASO-PHARYNX.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY EMMA E. MUSSON, M.D.

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Believing that the presentation of cases having either special pathologic features or dependent on unusual causes, or amenable only to special lines of treatment, would be of interest. I have selected from my case book several groups of cases which have come under my observation during the past two years.

The first group comprises a number of cases of hypertrophied lymphoid tissue in the vault of the pharynx, all of which required for their relief operative interference. The points of interest in these cases, relate to the age and the character of the symptoms. Out of the last 230 patients in my case book, 34 had hypertrophy of the third or Luschka's tonsil. Of this number eleven were from 15 to 20 years of age; eleven from 20 to 25; eleven from 25 to 35, and one 40 years of age. The age of the majority of these patients attracted my attention on account of the prevalent belief that these lymphoid vegetations are peculiar to children and disappear at the period of puberty.

Of these thirty-four cases, nine were complicated with profuse post-nasal discharges. In five instances the growth interfered with singing upper notes; in one, with elocutionary work and in one with ordinary school teaching.

Two cases were complicated with hay fever; two with mouth breathing; two were subjects to attacks of acute pharyngitis and tonsillitis, and two were subject to frequent colds.

Twelve cases were complicated with disturbance of the ear. Of these, three had marked deafness; three were moderately deaf; one had purulent otitis media; two acute Eustachian catarrh and three tinnitus and fulness.

The majority of these cases had post-nasal catarrh. catarrh. The hypertrophied lymphoid tissue in at least 95 per cent. of the cases was entirely confined to the vault of the naso-pharynx. The growth varied in appearance and extent, from apparently smooth masses, one quarter of an inch in thickness to vegetations as large as those found in well marked cases in children. A number of these vegetations were connected with the Eustachian tube by synechiæ. Moreover in those cases complicated by diseases of the middle ear, the vegetations were fibrous in character while in those complicated by a profuse muco-purulent secretion, they were soft and friable.

Surgical procedures for complete removal of the growths, were followed by relief if not complete disappearance of all the symptoms except the deafness. There was a disappearance of the post-nasal discharges and of the seeming purulent rhinitis, and the patient was no longer subject to repeated colds and sore throat. The voice became more resonant in speaking and two or three notes were added to the upper register of the voice in singing.

Surgical interference which gives such brilliant results in early childhood, for the relief and cure of deafness, was in my cases followed only by slight if any benefit; not until after a long course of patient treatment of the middle ear disease was any improvement noticed. In those cases however in which the middle ear was but slightly involved and the symptoms present only at intervals a prompt cure was effected upon removal of the growths. Of the cases complicated with naso-pharyngeal secretions, four were of exceeding interest. In two of them the discharge from the nose and naso-pharynx was purulent, profuse and constant. In the two other cases the secretion was excessively profuse, but entirely mucoid in character. Three had a family history of gout and rheumatism, and had not yielded to prolonged treatment for nasal catarrh. In two the amount of lymphoid tissue was so small that I hesitated long before removing it; there was an entire absence of the gross appearance of adenoid growths, the vault of the pharynx showing only a thin sheet of lymphoid tissue. After the lapse of a year, during which there was no recurrence of the discharges, I felt that I had been justified in my operative procedures.

The methods resorted to for the removal of these growths were the forceps followed by curetting in the

larger number of the cases. In two only I employed the galvano-cautery.

In reviewing the literature on this subject I found an article by Dr. Farlow, in which attention is called to the mistake frequently made, that adenoid growths in the post-nasal space are peculiar to childhood and that they disappear at the time of puberty. He also emphasizes the fact that the deafness occurring in adults as a result of adenoid vegetations is but slightly benefited by their removal. Bryson Delavan is quoted in the *Annales des Maladies de l'Oreille* as saying that adenoid growths persist after puberty. Moure makes a similar statement. Chiari, in the *Annales* for 1894, states that out of 233 private cases and 152 clinical, 16 cases between ages of 20 and 30 had lymphoid hypertrophy of the third tonsil.

W. H. Bates of New York, published a history of five cases of deafness in adults due to adenoid vegetations of which the youngest was 24 and the eldest 55 years of age.

This group of cases suggests several queries, to which I have been unable to furnish any definite answers: 1, as to the causes of absorption or non-absorption of adenoid vegetations; 2, what factors determine a variable group of symptoms in cases apparently similar; *e.g.*, why should the middle ear be involved in only a certain percentage of cases?

The second group comprises a number of cases of chronic naso-pharyngitis associated with, if not dependent on, the uric acid diathesis, employing this term in its broadest sense as a disturbance in the equilibrium which should exist between the production and elimination of uric acid.

The feature of this group, to which I ask attention, is a probability of the uric acid diathesis being the underlying and causative agent. It was pointed out by Beverly Robinson, in 1888, that there was apparently a correlation between post-nasal catarrh, gastro-intestinal disorders and lithemia and somewhat later Harrison Allen described the gouty sore throat. At the present time most authorities are united in the opinion that the majority of cases of chronic naso-pharyngitis are either due to some disturbance of the digestive tract or are local manifestations of some constitutional diathesis as lithemia, gout and so forth.

While the obverse of this was demonstrated by Turck of Chicago, who found in the stomach bacteria of the same variety as those in the mucus of the naso-pharynx, these bacteria can set up acid fermentation in the stomach. Believing that many cases of naso-pharyngitis are but local expressions of the uric acid dyscrasia, it has long been my practice, to look beyond the local nasal condition and so treat the patients constitutionally with anti-lithemic remedies. With a view of determining whether there was a defective elimination of uric acid, I had the urine of seventeen patients suffering from nasal and post-nasal disease carefully analyzed, using Haycraft's method for the uric acid test and the hypobromid process with Marshall's apparatus for that of the urea.

The majority showed a marked change in the normal ratio between the uric acid and urea excreted; the disproportion ranging from one of uric acid to seventy-four of urea, to one uric acid to eight of urea. Five cases had two or three analyses made, always showing a disproportion between the amount of uric acid the urea excreted; in Luff's table of fifty daily eliminations of uric acid and urea of a healthy adult man on a mixed diet, the highest percentage of elimination of uric acid was one to twenty-eight, the lowest one to fifty-five.

It was only in exceptional cases that I found any marked gastric disturbances. These analyses seemed to establish the fact that the presence of uric acid salts was the exciting cause of the naso-pharyngeal symptoms.

Most authorities, however much they may differ as to the formation or elimination of uric acid or the proportion which it should bear to the urea, admit that under certain conditions an undue amount is found in the blood; according to Levison and Luff in the form of a quadriurate, and in consequence is apt to be deposited at the point of least resistance. Luff in his Gulstonian Lectures states that uric acid deposits have been found in the mucous follicles of the pharynx. In the words of W. F. Dudley, the uric acid dyscrasia, like other dyscrasias, has localized areas of special selection for its clinical manifestations.

One such area appears to be the vault of the naso-pharynx. This region is rich in lymphoid and glandular tissue and susceptible to uric acid deposition and consequent irritation, with a change in the character of the secretion. This latter change may be the possible cause of the subsequent congestion and hypertrophy of the mucous membrane which, at first, is attended with a profuse secretion of mucous, and later by a blocking up of the gland ducts and an atrophy of the glandular tissue, to be followed by a diminution of water in the secretion, the formation of clots of mucus and adherent crusts.

It is at this stage also that the marked symptoms in cases of chronic middle ear catarrh begin to appear; previous to this time there has been but slight buzzing in the ears with a sensation of fulness lasting a short period of time. These attacks, however, become more frequent until the patient is conscious that hearing is gradually being lost.

The line of treatment was toward the correction of gastro-intestinal irritation or constitutional diathesis, in connection with that of the local condition of the naso-pharynx. It was only in the milder cases or those in the earlier stage of the affection that relief followed non-surgical methods of treatment. In all other cases the hypertrophied and granular mucous membrane of the vault and post-pharyngeal walls was curetted, with excellent results. In those cases where the disease had localized areas, probably due to the blocking up of the gland ducts, the galvano-cautery was used, followed by improvement only. Stazza argues that surgical measures only are applicable.

The third group comprises a number of cases in which acute follicular naso-pharyngitis was a concomitant of acute lacunar tonsillitis. The association of these two states attracted my attention several years ago. Since then it has been my rule to examine the naso-pharynx in all cases of acute tonsillitis, to determine the frequency and extent of the follicular inflammation.

In 50 per cent. there was a congestion and swelling of Luschka's tonsil with distinct points of follicular exudate. In about 40 per cent. of the remaining cases there was a congestion but no exudate.

Bosworth, in his book, refers to this possibility of an acute follicular inflammation of the third tonsil. This involvement of the naso-pharynx in acute follicular tonsillitis affords a ready explanation for the number of cases of acute inflammation of the middle ear which complicate these attacks.

The general practitioner would seldom err if he included the treatment of the naso-pharynx in all cases of acute infectious diseases of the pharynx and tonsils. A further argument in favor of the theory of the participation of the naso-pharynx in acute pharyngeal infections is that frequent cases of chronic post-nasal catarrh follow in the track of these attacks.

Moure, in the *Twentieth Century*, gives a detailed description of acute inflammation of Luschka's tonsil under the name of acute adenoiditis and, judging from the symptoms detailed, probably many so-called "colds in the head" would prove, on post-rhinoscopic examination, to be attacks of acute naso-pharyngitis or adenoiditis. And here I digress for a moment to call attention to two different phases a so-called cold in the head may assume, as the result of a constitutional dyscrasia; in one we have the preliminary stage of dryness and irritation followed by a profuse watery secretion, later becoming muco-purulent; but if the patient be a lithemic subject the stage of serous effusion is followed by a profuse mucoid secretion, tenacious in character, blocking up nose and naso-pharynx but never becoming purulent; resolution is prolonged beyond that of the ordinary cold.

Two cases of this description occurred in children of 14 and 16 years of age; one with marked family history of uric acid on both sides, on whom ordinary treatment for "cold in the head" had no effect, was put on a strict dietary and given potassium bicarbonate; speedy relief followed this treatment, along with marked improvement in the general health and freedom from colds.

I will close this paper with a description of three cases of direct infection of the naso-pharynx. The first, a student in the bacteriologic laboratory, accidentally broke a test tube containing a culture of streptococci, and although strict antiseptic precautions were immediately taken, within twenty-four hours there was an active purulent inflammation of the tissues of the naso-pharynx, and in forty-eight hours, when I first saw her, the mucous membrane of the naso-pharynx was so swollen as to almost entirely cut off the view of that region. The discharge into the pharynx was profuse, purulent and foul, the temperature 102 F., though probably higher during the first twenty-four hours. Culture tube tests of the discharge showed a colony of diffused streptococci. A long time elapsed after the disappearance of the purulent secretion and high temperature before reduction of the swollen mucous membrane took place.

The second case was a patient who, just recovering from an attack of acute rhinitis, superintended the opening of numerous cases of ostrich feathers in the raw state, packed in camphor; she was suddenly seized with a sense of suffocation and fainted. Two hours afterward I found the throat intensely congested; in twelve hours an acute naso-pharyngitis developed, with profuse purulent discharge and a temperature of 100 degrees F.; two days later the temperature was normal and the throat almost well. The patient was sent to Atlantic City; twenty-four hours thereafter there was a sudden rise of temperature and involvement of both frontal sinuses and the left antrum in an acute purulent inflammation. No cultures were taken. Is it possible that these two cases were like Stazza's, that of acute inflammation of Luschka's tonsil during an epidemic of influenza, or were they due to bacterial infection?

The last case is that of a physician who has been treated several times this winter for attacks of acute adenoiditis (Moure) which came on after exposure to cases of diphtheria or acute sore throat; the lymphoid tissue, between the attacks, now remains chronically hypertrophied. The patient is about 30 years of age and still retains in the vault of the naso-pharynx a small amount of hypertrophied lymphoid tissue that was not thoroughly removed in an operation performed six years ago.

258 South 16th Street.

DISCUSSION.

Dr. RICHARDSON—Acute inflammation of the naso-pharynx antedating and occurring with acute inflammation of the tonsils is, I think, a much more common occurrence than we are apt to believe. I have seen a number of such instances and a number of cases in which the inflammatory changes have been limited to the naso-pharynx and the acute inflammation of the tonsil has not appeared at all. I saw one case where the whole vault of the pharynx had almost the appearance of an acute diphtheritic change, and there was no inflammation of the tonsil. I think it would be wise in all cases to examine the naso-pharynx carefully. I have for a long time observed that the uric acid diathesis has much more influence on naso-pharyngitis.

Dr. D. BRADEN KYLE—Luschka's tonsil is really a normal physiologic condition. In many cases inflammation is secondary and not the cause of the enlarged gland structure.

Dr. G. V. WOOLEN—I am not a bacteriologist, but I know that bacteria must be a cause of many of the troubles that we see. A chief function of the nose is to purify the air, and the impurities of the air which are largely bacterial in origin must influence the nasal conditions. Most people escape these troubles, and why? The conditions must be favorable for their development. When these are present the fact is expressed in acute attacks. Such conditions may be brought about by indiscretions of diet, or by the thousand other things that interfere with health. The pendulum has swung to the operative extreme. We must go back to the cleansing processes. Patients, themselves, can do much in this way, by thorough cleansing before meals, especially where there is uric acid trouble. We can not give too much attention to cleanliness, which is very closely akin to antisepsis. With a simple alkaline wash I have done much to prevent trouble.

Dr. CURTIS—In my opinion the uric acid diathesis is far from being a complication of the disease. We should consider that it is due to the waste product of an overworked brain, very possibly due to an enfeebled condition of the body.

Dr. WILSON—Did I understand the last speaker to say that he considered these conditions due to an overworked brain?

Dr. CURTIS—I meant the uric acid diathesis—not the adenoid growths.

Dr. WILSON—We see uric acid conditions in patients in whom the brain does very little work. I think it is reasonable to believe that there is something in the system which manifests itself in many ways, and which admits of bacteria taking effect on the membranes.

Dr. JAQUES—Physical resistance is the important point to be remembered in treating these cases. The uric acid diathesis may be the means of bringing down the general resistance. If so, it is one of the exciting causes. It takes a number of factors to produce these conditions. The mouth is a perfect breeding-place for germs all the time, but only when the physical resistance is reduced do we have the proper conditions for disease. Bring up the vital resistance of your patients to the highest point, then treat the pathologic conditions.

The CHAIRMAN—A constitutional condition which disposes certain individuals to lymphoid enlargements, especially hypertrophy of the faucial and post nasal tonsils, has long been recognized. We are accustomed to call it lymphatism for want of a better term. That this is or may be synonymous with uric acid diathesis seems to me a new idea. I would ask whether the author found uric acid present in cases of chronic enlargement of the lymphoid tissues, or whether it was only in acute inflammation of those already hypertrophied. There is a constitutional tendency to recurrence of these growths after removal. Operators have endeavored to do thorough work; but even then several years after, in certain cases, there has been a recurrenee of the hypertrophy. This is especially apt to take place, however, if a thorough operation is not done. Concerning the effect on the hearing, I have had cases of practical recovery from long continued deafness after operating for adenoids, but there are other instances in which but little improvement takes place. We are apt to look for improvement

too early. Cases which have disappointed me at the end of a week or a month, perhaps, show marked improvement at the end of three months.

Dr. MUSSON—I did not intend to convey the idea that in my first group of cases the trouble was due to uric acid. In the second group I spoke of the uric acid diathesis, sometimes with a certain amount of lymphoid tissue. Where uric acid was present I did not commence curetting at once but tried constitutional treatment first. I feel sure that some of my patients who had uric acid trouble did not overwork their brains. All antiseptic precautions were taken in these cases. In adults I believe that curettement could be carried out without injury to the Eustachian tube or the surrounding tissues.

QUESTIONS REGARDING THE ETIOLOGY OF ADENOID VEGETATIONS AS FOUND IN THE NASO-PHARYNGEAL CAVITIES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY M. C. O'TOOLE, M.D.

SAN FRANCISCO, CAL.

That we possess no positive knowledge regarding the etiology of adenoid vegetations, as found in the naso-pharynx, can be ascertained by a brief study of the opinions expressed by writers on this subject. Scrofula, heredity, the acute exanthems, cold and dampness of climate and whooping cough, have all been mentioned as etiologic factors, while Gruber asserts that neither climate nor occupation appear to influence their development.

In a paper, "Suggestions Regarding Treatment of Diseases of the Ears and Throat in Children," read before the Medical Society of the State of California, April 1894, the following statements appear: "For the past three years, I have lost no opportunity of investigating the etiology of adenoid vegetations, and the results have been in every way confirmatory of former experiences. Five years ago, I removed adenoid vegetations from the pharyngeal vaults of three children, all of the same family; two girls and a boy, aged at the time of operation 3, 5 and $6\frac{1}{2}$ years respectively. The mother incidentally mentioned to me, when speaking of her trouble, that she had suffered considerably with leucorrheal discharges at the time of their birth. She was then six months pregnant. A confrère remedied the abnormal uterine and vaginal secretions. The infant was borne in due time. It is now 3 years old, but has no abnormalities in the pharyngeal vault.

Since this experience, I have invariably questioned mothers, having children with these growths, and have in every instance found that they had been effected with abnormal uterine or vaginal secretions at the time of the birth of the child so affected. From these observations I have formed the opinion that acute suppurative inflammation of the middle ear in infants is, in most cases, the result of contact with gonococci bearing, maternal vaginal secretions during parturition and that catarrhal secretions under like conditions, are responsible for the existence of abnormal lymphatic follicles and adenoid vegetations as found in the pharyngeal vaults of older children.

The writer, being aware that his experience on this subject is as yet too limited to admit of positive conclusions, would nevertheless venture the opinion that obstruction of the nasal passages during infancy and early childhood by the causes and in the manner indicated is the chief etiologic factor in the development of post-nasal growths whether as adenoid vegetations or hypertrophied lymphoid follicles, also that subsequent asymmetrical development of the nasal structures and of the nasal cavities are frequently traceable to the same cause.

6 Eddy Street.

A CASE OF MYXEDEMA WITH PROMINENT NASAL SYMPTOMS.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY A. H. CLEVELAND, M.D.

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PHILADELPHIA, PA.

The fact that the nasal condition was the only reason why this patient sought relief and that this seems to be so entirely dependent upon the general disorder leads me to report the history, which is as follows:

Mrs. I., age 38, was first seen Sept. 9, 1896. She complained of nasal stoppage with attacks of sneezing and watery discharge following an attack of grippe in May and persisting since then. For the past three weeks it had been worse. Examination of the nostrils at this time showed large boggy turbinates on both sides, rather worse on right, with a waxy paleness of the entire mucous membrane of the nostrils. Several constitutional remedies, as well as local applications, were tried in succession without the slightest effect on the condition. Oct. 26, 1896, frost having eliminated a possible hay fever and the hoped-for improvement not having occurred, I examined the nostrils again very carefully and was impressed by the waxiness of the membranes as contrasted with the condition found in ordinary rhinorrhea. It suggested to my mind a general rather than a purely local disease, and close questioning elicited the following more or less confirmatory history.

Family history: On the mother's side two aunts had attacks of asthma. A cousin of the father also had such attacks. No history of tuberculosis or of nervous disease, except rather far back on the father's side there was some consumption. The patient has always enjoyed moderately good health. She is married, the mother of four girls and one boy all living. The oldest is 13 and the youngest 5; all the girls have been more or less troubled with eczema. Since the birth of the last child the patient has had "abdominal trouble," but of what nature I did not learn. She has always had a nervous temperament; quick in action and thought. The bodily functions have always been regular with the exception of occasional bilious attacks and constipation. Menstruation has been and is still entirely normal.

While the nasal stoppage and sneezing were the symptoms which first compelled her to seek relief, she recalls that two years ago her hair, which before had been black and glossy, began rather suddenly to turn gray and become brittle It did not come out to any great extent however. It is at present iron-gray in shade, and dry, but not coarse. The nails are dry and brittle, the teeth in fair condition owing to close attention. Her dentist has told her however, that the teeth were soft and easily broken. There are no fatty tumors, no moles or warts, no swellings in the supra-clavicular region. She has noticed no patches on the skin other than a scaly eczema behind the ear on either side.

The skin seems however generally somewhat thickened. My attention was particularly attracted to the color of the skin of the face. It was markedly white with a bright spot over each cheek. This is not constant nor is the redness of the nose, which she tells me is sometimes present. The lips are full and high colored, the brows and lashes both of good thickness. Except when she has a nervous perspiration the skin is dry. There is frequently a puffiness under the lids although no other signs of edema. The features are neither coarse nor broad. She has never noticed any watery edema either general or local. The abdomen has felt swollen on a few occasions, but that she refers to the abdominal trouble. The thyroid gland is of small size but is distinctly apparent. I have been unable to learn of any nervous symptoms other than an irregular feeling of weakness with coldness of the hands and feet. There is no paralysis, tremor, or inco-ordination. Sight, except for some hypermetropia, is good. Hearing is normal. Smell and taste are both considerably affected by the nasal stoppage. The voice is nasal in quality. Speech is not delayed nor does there seem to be any mental heaviness or slowness.

Examination of the blood showed: red blood corpuscles 5,800,000, leucocytes 4,625, ratio 1 to 1254, hemoglobin 65 per cent.

There have been no hemorrhages from the gums or nose. The urine showed no abnormalities. The temperature is 98.6 degrees. Appetite and digestion are fairly good. Feeling convinced from this history, that there was more than a local condition to contend with and as some of the symptoms of myxedema were present, viz.: dry thickened skin, capillary injection over the cheeks, dryness and brittleness of the nails and hair and possibly the appearance of the mucous membranes, I ordered dessicated thyroids gram 0.32. t.i.d. She was not seen again until Dec. 4, 1896, when she reported that the powders had relieved her very much. I had ordered only enough to last ten days, but she had had no return of the symptoms until two weeks previously. The prescription was renewed. When next seen, Jan. 18, 1897, she reported having taken thirty-two powders between December 4 and January 8. While taking them the nasal symptoms were almost entirely relieved. Examination of the nostrils shows lessening of the puffiness and waxiness. Since this date she has taken powders more or less regularly with considerable relief.

It will be seen that while the general symptoms were not absolutely confirmatory of myxedema they were marked sufficiently to induce me to try the therapeutic test and in view of the happy results attending this trial I think we can safely make the diagnosis,

1423 Walnut Street.

GENERAL AND LOCAL ANESTHESIA IN LARYNGOLOGY AND RHINOLOGY.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY JOSEPH S. GIBB, M.D.

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PHILADELPHIA, PA.

In March, 1889[1], a very interesting discussion on the proper form of anesthesia to employ in nose and throat operations, took place in London. The discussion developed the widest differences of opinion among the eminent gentlemen participating in the debate.

It seems odd that notwithstanding our experience in these operations has so markedly increased since this memorable debate, there should still exist great differences of opinion.

This is to be deplored. While it is of very little moment as to the particular form of anesthesia an individual specialist uses in his practice, it is of vital importance as to the teaching of the great mass of our profession by whom these operations are being performed in increasing numbers year by year. If some order could be brought out of this chaos of opinion; a few plain and safe lines to guide the busy practitioner a good work would be performed.

For convenience of study the subject will be divided into four headings, namely:

1, Intra-nasal operations; 2, naso-pharyngeal operations; 3, pharyngeal operations; 4, laryngeal operations.

Intra-nasal operations. — Intra-nasal surgery has made prodigious strides since the advent of local anesthesia. Nor is this due alone to the fact that the comfort of the patient is less disturbed. By this method, we are enabled to follow each step of an operation deliberately and intelligently, and hence to do better work.

Under general anesthesia the patient is in the worst possible condition to make a satisfactory examination. The recumbent position (the only one tenable in chloroform and ether narcosis) is one unfavorable to proper illumination, an objection which has scarcely been overcome by modern electrical refinements.

The position and the anesthetic, both favor hemorrhage, which covers the field of operation and adds to the difficulties.

General anesthesia, therefore, is indicated in intra-nasal operations; 1, major operations, those in which large growths are to be removed, necessitating a considerable amount of dissection, and possibly involving the external tissues; 2, in large bony deflections of the septum, where it is necessary to break up the septum at its base; 3, in large bony spurs in which the relative position of the outgrowth to the surrounding tissues have been accurately determined; 4, congenital or acquired stenoses; 5, plastic operations.

The number of cases which come under the second and third groups, namely, deflections and spurs, are small, and one finds them growing less year by year as his experience in this work grows. It is seldom we know precisely the operative procedure we will follow in an individual case prior to the operation. For instance, in pronounced cartilaginous deflections, how frequently we find after the cartilage is freed a corresponding bony deflection, with perhaps exostoses and spurs.

We are not all favored with small fingers to enable us to determine by digital examination the extent and nature of deformities, nor are all nares of sufficient dimensions to permit such examinations to those so favored.

While breaking up a deflected bony septum or the removal of bony outgrowths are undoubtedly painful procedures, which pain no amount of local anesthesia can entirely annul, this discomfort is transient, and

[1] Discussion upon the paper of George Stoker on anesthetics in operations on the nose and throat, British Laryngologic Association, Wednesday, March 27, 1889.

the benefits accruing from a method which will enable us to have the field of operation under our view at all times greatly outweigh the haphazard methods we are obliged to pursue in general anesthesia.

There are, however, a number of conditions in which general anesthesia is necessary—which anesthetic shall we employ? In the discussion in London it was developed that chloroform had long been, and was still, in use in work of this nature. Dr. Silk believes that the routine use of chloroform is founded on the assumption that it is safest in children, and from which its use has extended to adults. Lennox Browne prefers the local anesthetic effects of cocain in intra-nasal operations, but gives a general anesthetic if it is indicated or desired.

He with Stoker, Silk, Dundas, Grant, and a number of prominent English laryngologists prefer the use of nitrous oxid in operations requiring but a few seconds. In those requiring a longer time nitrous oxid is given to produce insensibility and to avoid the discomfort of inhaling ether—the latter is then continued as the anesthetic.

In hospital work the plan of the London surgeons is ideal, but in private practice there are many difficulties in the use of nitrous oxid, and especially in operations at the bedside.

Chloroform can not be recommended for reasons which will be more fully discussed under naso-pharyngeal operations. Bromid of ethyl is too transient in its effect for these operations.

Ether then remains alone the safest and most reliable anesthetic.

The obstacles to the management of the patient which general anesthesia presents are in a measure met by care in position. The half-reclining or sitting position is not to be recommended. The one thing that would seem to justify such position in an intra-nasal operation would be that it is the most favorable in which to employ artificial light. Against this, however, is the utter uselessness of any light after the first incision, when the parts are covered with and obscured by blood. Indeed, in these operations one is guided almost entirely by the knowledge he has gained of the parts prior to the operation.

A very cogent argument against this position is its danger—one not to be lightly set aside, especially in the use of chloroform.

The Trendelenburg position, or one with similar objects in view, is without doubt the most satisfactory for the following reasons: 1, with proper electric appliances as good illumination may be obtained in this as in any other position. At our clinic at the Episcopal Hospital an ordinary incandescent light with a reflecting surface back of the globe is placed in the hands of an assistant and the light is thrown upon the field of operation at any desired angle. The various forms of electric head-lights may be employed with equal, perhaps, greater advantage; 2, this position causes the blood to gravitate to the post-nasal and pharyngeal spaces, whence it may be repeatedly removed by a sponge in the hands of an assistant, or, if at any time the blood flows too freely the head may be turned to one side and the blood allowed to escape from the opposite nostril or the angle of the mouth. This gravitation of the blood posteriorly not only lessens the danger of aspiration but it in a large measure frees the anterior portion of the nares, thus enabling the operator to have a clearer view of the field of operation.

General anesthesia in intra-nasal operations is but a sorry substitute for local anesthesia, and should be employed only when the necessities of the case urgently demand it.

We are obliged, at times, to meet the wishes and desires of our patients; some of whom prefer general anesthesia because the operation can be done without their consciousness. At the same time it seems to me a folly to undertake such operations merely to please the patient unless we are reasonably sure we understand beforehand every necessity of the case.

The larger number of intra-nasal operations being best undertaken under local anesthesia, we must now decide which of the few local anesthetics will serve our purposes best, and the manner of its use.

Cocain has held undisputed sway as a local anesthetic for about fifteen years and, in the main, leaves little to be desired. Those who have used it freely, however, have now and then observed effects which have given rise to anxiety, and a few fatal cases have been reported from its use.

It has always been a matter of doubt to me in these cases of cocain poisoning as to the part played by the shock of the operation. A nervous woman cuts her finger and faints at the sight of blood; this same woman should certainly be expected to faint during an operation on her septum. I believe that some of the cases which have been regarded as cocain poisoning are of this nature.

A very few can not be explained in this manner and we are forced to admit that in some subjects an idiosyncrasy exists to the drug.

More recently, eucain has been extolled as the equal of cocain in anesthetic power and, it is asserted, possesses no such tendency as the latter drug to produce intoxication.

Our experience with this new anesthetic is necessarily too limited to assert positively as to the latter claim. There is no doubt in the writer's mind as to the validity of the former.

In an article published in the *Philadelphia Polyclinic*, Jan. 23, 1897, the author gave an experience of six months use of this drug in the clinics of the Episcopal and Polyclinic Hospitals. It was found to have equal anesthetic power with cocain, both as to intensity and duration of anesthesia in the larger number of cases.

Its power to reduce engorged turbinates was also equal to that of cocain. In the pharynx, while it possesses equal anesthetic power to cocain, it lacks those unpleasant suffocative, choking sensations which the latter drug at times induces. It is, therefore, much pleasanter in its effects in this locality. In no case were any symptoms approaching intoxication induced.

These results have been confirmed by a riper experience. Eucain is now used at my clinics in all operations in the nares, naso-pharynx and pharynx, except in those few instances in which cocain seems to have a better effect.

Its use in the larynx has been abandoned because cocain has equal anesthetic power and is slightly less irritating and hence less apt to produce annoying and troublesome spasms.

The pleasantest manner of obtaining anesthesia in the nasal chambers is as follows: First spray both chambers with a 2 per cent. solution of whichever anesthetic we elect, to obtain tolerance for the harsher

methods to follow. After waiting for one minute saturate a small pledget of cotton with a 4 to 10 per cent. solution of the drug and allow it to lie at the site of operation for from five to eight minutes.

Antipyrin in 5 per cent. solution has been found to intensify and prolong the anesthetic effect of cocain or eucain; therefore, if the projected operation promises to be a tedious one after the removal of the tampon of cotton, a spray of antipyrin (5 per cent.) may be passed through the nasal chambers.

Antipyrin also has a decided hemostatic effect and in operations upon the septum or the posterior turbinates, parts that are quite vascular, this drug will prove to be an agent of decided advantage. It is, however, much too irritating for use in the nasal chamber, unless preceded by the free use of eucain or cocain.

With these two reliable local anesthetics the rhinologist is well provided, and intra-nasal surgery is robbed of much of its terrors.

Naso-pharynx.—The most frequent operative procedure the surgeon is called upon to undertake in the naso-pharynx is that for the removal of adenoid vegetations from the vault.

There is great difference of opinion existing among surgeons regarding anesthesia in these cases.

Some viewing the operation as trivial, eschew the use of anesthesia in any form; others advise a local, and still others always employ a general anesthetic.

Probably much of this confusion and difference of opinion arises from an improper selection or arrangement of the class of cases.

In deciding upon the use of an anesthetic we should be influenced by the particular form of operation we are to employ and also by the age of the patient.

In adults and children of riper years who may be properly controlled these growths are best removed by means of the postnasal forceps.

These instruments should never be employed under general anesthesia, save by those thoroughly familiar with work of this nature and then guided by a finger insinuated back of the soft palate; this latter precaution is only possible to those having small digits, and hence the application of this method is limited.

The use of the forceps without the aid of the mirror in a space hidden from view has always seemed an unsurgicial proceeding and especially since we have the means at our command .to bring the parts thoroughly under the eye and to follow every step of the operation.

In those cases, therefore, of hypertrophy of the pharyngeal tonsil in adults or older children, in which it seems preferable to employ the postnasal forceps, the operation should be performed under the local anesthetic influence of eucain or cocain and by the aid of the rhinoscopic mirror. There are many adults and older children either too nervous or with pharynges ill adapted for rhinoscpic work, these then will come under the same rules as those to be presently adverted to in the case of children.

By far the larger number of cases of adenoids occur in young children. The most popular methods employed for their removal are the curette, the fingernail or both combined.

In selecting an anesthetic, or in determining whether or not to use one, the surgeon is inflenced by the estimate he attaches to the operation. In the hurry of life and in oft-repeated successes he is apt to regard this as a trivial operation and one unworthy of much time consumed in the performance. Considering the proximity of important structures and the possibility of injury to the same, does this seem good judgment?

A general surgeon would deem it the height of imprudence to operate on a case and, especially if an anesthetic were considered necessary, dismiss it with little or no directions. He would rather have the patient remain in bed at least for a day to avoid any possible complication by means of chilling the surface, a contingency very possible to a child going into the open air a short time after an operation.

Adenoid operations are of daily occurrence in our clinics with and without the use of anesthesia and patients are dismissed with little instructions. It may be said that few accidents happen as a result of such methods. It is true we see few complications, but can we be certain they do not occur among a class of patients notoriously difficult to keep in view? Have we not seen acute inflammatory troubles of the middle ear follow this operation? Is it not possible that the apparent return of the trouble within a short period of time may be due to inflammatory conditions induced by exposure after the operation?

It has always seemed that the best interests of our little patients would be served were we to regard these operations of sufficient importance to demand at least one day's stay in bed.

These views have been borne out by my experience. At the Episcopal Hospital those cases treated in this manner have been free from complications of any sort and the results have been most satisfactory.

The operation of curettement of the pharyngeal vault is a painful one; slightly less so by the use of eucain or cocain. It is therefore scarcely a humane procedure without an anesthetic in young children. To forcibly hold a nervous, irritable child and subject it even for a few seconds to severe suffering is a great tax to the nervous energies of that child and might lead to serious consequences.

The pain together with the gagging produces such contraction of the phayngeal muscles as to place the parts in the most unfavorable position for good and thorough work.

General anesthesia should be employed in the removal of adenoids for the following reasons: 1. The operation can be performed in a more efficient and satisfactory manner. 2. It is attended with less danger of depressing effects to the nervous system of the child. 3. It serves as an extra inducement to treat these as surgical cases requiring care in the after-treatment and enables the surgeon to keep the patient in bed at least one day and thereby conduces to a successful result.

The operation can be done so quickly that the anesthetic which seems eminently suitable for these cases is nitrous oxid gas, the effects of which are transient.

In the London Throat and other hospitals in Great Britain this is the anesthetic employed, and in the discussion in London, already adverted to, the consensus of opinion was in favor of the use of this gas.

Dr. Silk[2] prefers it because it is pleasant, safe and can be administered in every position of the patient. No previous preparation is necessary and the recovery from it is rapid and perfect and the after-effects *nil*.

Lennox Browne[3] uses no uncertain language in his advocacy of nitrous oxid gas in these operations. He

2 Silk: Journal of Laryngology, London, 1889, iii, p. 177–181; 238–242.
3 Browne: Med. Press and Circular, London, 1893, n. s., lvi, p. 136.

says: "The rapidity with which the patient can be anesthetized by gas, the almost constant absence of any unpleasant after-effects, the exceedingly short interval required for complete recovery of consciousness in addition to the incalculably greater safety on general grounds of its administration over any other agents, not only constitnte strong arguments for its employment where the time required for the completion of the operation does not exceed from forty-five to fifty seconds, but actually renders the use of other agents culpably unjustifiable."

Nitrous oxid has had more or less extensive trial in this country and is well thought of by those familiar with its use. In hospital practice, and especially if care in the after-treatment follows its use, nitrous oxid leaves little to be desired as an efficient and safe anesthetic in the removal of adenoid growth in young children. In private practice, however, the cumbersome nature of the apparatus necessary for the production of this gas renders its use awkward, save in office work and here its use can not be recommended for reasons already stated.

Impressed as the writer is with the advantages of treating these as any other surgical cases, where it is possible to do so, we must needs search for an anesthetic safe and reliable which may be employed at the bedside.

Chloroform has long been use and especially by the English surgeons.

The chief reasons for its use have been that it is pleasant in its effects, was supposed to be harmless in children, quick in its action and free from unpleasant after-effects. Bosworth in the recent edition of his work favors this anesthetic.

When it is considered that no less than nine deaths occurred in England in one year from the use of chloroform, it should cause the surgeon to hesitate before employing it.

Dr. Silk, the anesthetist for the Great Northern Central Hospital clearly and forcibly states the advantages and disadvantages of chloroform in these operations. I quote from his paper: "I believe that the routine use of chloroform is founded upon the assumption that it is safest for children, a general proposition with which I in no way agree, and from which I fancy its use has extended to adults. Other advantages claimed for it are:

1. That it is simple to administer, and the resulting narcosis is easily maintained. It does not come within the scope of this communication to point out that these advantages are much exaggerated, but even if this were not the case I hardly think that the convenience of the operator should be placed above the safety of the patient.

2. That the bleeding and turgesence of the mucous membrane is less than when ether is used; but even if this were true the difference, as I have already pointed out is so slight that this advantage almost sinks into insignificance.

3. That the primary narcosis is more profound. This should I think be classed rather as a disadvantage, inasmuch as the zone maniable, to which I have already referred, is in respect to chloroform very narrow, and therefore even if no respiratory embarrassment prevailed, its use is always attended with a certain amount of risk; much more is this the case when the comparatively pure vapor which accumulates at the back of the throat may be inhaled at any time and is quite beyond our control.

The objections if not numerous are weighty:

1. I can fully endorse the view that chloroform administrations are always a source of anxiety to the anesthetist and in some instances of narrow escapes to the patients, and this is much more the case in naso-pharyngeal operations. On account of the accumulation of the blood at the back of the throat, and consequent interference with the respiratory functions, the heavy chloroform vapor speedily collects above the larynx, in a nearly pure or highly concentrated state. Hence the attacks of syncope and apnea which so commonly occur without the slightest warning, when chloroform is being administered. Its slight diffusibility, too, tends to permit of its accumulation in the lungs, and is accentuated by the respiratory failure. Hence the attacks of syncope and apnea occurring as they frequently do, some time after the administration has been withdrawn.

2. The after-effects of chloroform are often very prolonged. Such immediate effects as nausea, the loss of blood swallowed, are probably no better and no worse than those attendant upon the administration of ether, but profound prostration and digestive disturbance are said to continue for days.

3. Its administration in any but the absolutely recumbent position is quite inadmissible.

Bromid of ethyl is highly thought of both by the German surgeons and a few in this country. So far as the quick action and pleasant effects are concerned, this drug seems peculiarly fitted for these operations.

Morgenthau[4] of Chicago reports the results in 100 cases of adenoids in which bromid of ethyl was the anesthetic employed, and refers to Moritz Schmidt of Frankfurt-on-the-Main as having used it in 200 cases.

Morgenthau thinks that bromid of ethyl should not be used in chronic heart disease, 1.85 c.c. for children and 2.9 to 3.7 c.c. for adults is sufficient. In from forty to sixty seconds breathing becomes stertorous and for two minutes the patient does not feel pain. He operates in the upright position with the head inclined slightly forward so that the blood may flow out of the mouth.

He finds that the anesthesia, operation and recovery takes from five to seven minutes.

In the 100 cases of Morgenthau and 200 of Moritz Schmidt no deaths and but few unpleasant symptoms occurred.

Bromid of ethyl has as advantages, quickness of action, pleasantness both in the administration and the after-effects. The unfortunate result of the first introduction of this drug in Philadelphia by the late Dr. Levis, in which two patients succumbed, has deterred the profession there from its use. It is claimed, however, by those familiar with its use that the drug is nearly as safe as ether and that the early deaths were due to imperfections in the manufacture or in the substitution of bromid of ethylene a much more dangerous product.

The testimony of so many worthy and careful observers would seem to warrant that this drug which has so many advantages, should have a more extended trial.

Ether is the safest and perhaps the most widely useful anesthetic.

It is often unpleasant both in administration and after-effects but these are of slight importance in the security one feels in its use and in hospital work; fol-

[4] Morgenthau: Ethyl Bromid, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1895, xxiv.

lowing along the practice of the London surgeons its use may be preceded by the more pleasant nitrous oxid gas.

In the use of ether in removing adenoid growth from the vault of the pharynx, the anesthetic should be used to complete relaxation.

The writer is not in sympathy with those who use it short of this stage and has many times witnessed operations which have been delayed and complicated by the struggles and cries of the patient.

Once complete relaxation and insensibility have been obtained the anesthetic may be permanently withdrawn and the operation proceeded with, uninterrupted by any movement on the part of the patient. Given in this manner it is quickly recovered from and is much less liable to produce vomiting and other unpleasant effects.

The same method of procedure is applicable in those cases in which it is found necessary to remove both the faucial and pharyngeal tonsils. Here, however, it is best to push the ether a little more thoroughly than is the case where the simple adenoid operation is done, for the reason that after excision of the tonsils some little time is consumed in allowing blood to escape from the mouth before curetting the vault.

Incidentally the position of the patient during these operations is of importance. The most satisfactory results are obtained in operations in the naso-pharynx in that position which places the posterior wall of the pharynx and naso-pharynx in the most dependent position. This is accomplished by the Trendelenburg position or a modification of the same. By this method we are not delayed by gurgling of blood in the pharynx and symptoms of asphyxia and the danger to respiration is at a minimum.

At the house of our patient the true Trendelenburg position is not always feasible. In this case all that is necessary to obtain the same result is to allow the head to hang over the edge of table or bed. The blood is sponged from the pharynx by an assistant, the patient is turned on the side and the blood permitted to escape from the nose or the angle of the mouth.

Pharyngeal operations.—Nearly all the operative measures the laryngologist is called upon to perform in the pharynx can be accomplished under local anesthesia.

Eucain is to be recommended in this locality. It causes less discomfort to the patient and it is also probably less likely to give rise to unpleasant general symptoms.

Hypertrophied tonsils, the most frequent condition calling for surgical interference in the pharynx, when uncomplicated by anenoids at the vault, may readily be excised without the use of a general anesthetic.

This operation is accomplished so quickly, with so little pain (which latter may be annulled by local anesthesia) and the work can be done so effectively that it seems an unnecessary complication to induce general anesthesia.

In nervous, irritable children in whom the shock of operation and the necessary restraint might prove serious to the nervous system of the child, transient anesthesia is to be recommended. Nitrous oxid is eminently useful in cases of this nature.

Hypertrophied tonsils, associated with adenoid vegetations at the vault should be treated in a similar manner to that spoken of in the discussion on the removal of hypertrophied pharyngeal tonsils.

Laryngeal operations.—All intra-laryngeal operations are performed under local anesthesia.

Cocain is preferable in the larynx, because its anesthetic properties are equal to eucain and it is distinctly less irritating and consequently less liable to produce unpleasant spasms. By local anesthesia the modern laryngologist is enabled to remove growths formerly deemed inoperable or only removed by splitting the thyroid cartilage, thus causing subsequent impairment of the voice.

The various major operations, such as laryngectomy, thyrotomy and tracheotomy, are accomplished under general anesthesia. Recently, however, a number of tracheotomies have been done with cocain injected along the line of operation as the only anesthetic employed.

This method may occasionally be possible in adults or in children already narcotized by prolonged dyspnea, but it would be exceedingly unwise to advocate it as of general utility in children, upon whom we are most frequently called upon to do this operation.

1804 Chestnut Street.

TONSIL AND ADENOID OPERATIONS UNDER ANESTHESIA BY NITROUS OXID, AND NITROUS OXID AND OXYGEN: A PRELIMINARY REPORT.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY W. E. CASSELBERRY, M.D., AND F. MENGE, M.D.
CHICAGO, ILL.

The desirability of an anesthetic that would obviate the general objections pertaining to chloroform and ether in operation on tonsils and adenoids has been the source of much research. The chief objection to chloroform lies in its danger; bromid of ethyl has scarcely attained any greater confidence; ether, while reasonably safe, is so prolonged in its effects as to be inconvenient for this purpose. Nitrous oxid alone has been employed by a few operators, notably at the Central London Throat Hospital, but the available operating period from a single administration is almost too brief for the satisfactory removal of both the tonsils and adenoids. Experience has proven this anesthetic, however, to be safer than any other and to possess the advantage of a rapid revival of the patient; therefore following Gardner, Hunt and Hewitt of England, and Van Arsdale of New York, we have sought to modify the action of nitrous oxid by the addition of oxygen in order to render it more available and less objectionable for this operation.

As regards the safety of nitrous oxid, it is estimated by H. C. Wood that it is given in 750,000 cases annually and we have been able to learn of but thirteen deaths fairly attributable to it.

The anesthetic effects of nitrous oxid gas were first noted by Sir Humphrey Davy, about the end of the last century, and it has since, from year to year, come into more general use.

Under nitrous oxid the respiration becomes slower and if the gas be pushed, a complete cessation of respiratory movements eventually takes place. The heart beats quietly, fully and regularly under this gas. The pulsations are somewhat slow in profound narcosis. There is, however, but slight danger from heart failure resulting from the inhalation.

In animals killed by nitrous oxid gas the heart goes on beating even after the respirations have quite stopped. It is therefore less important to watch the pulse than the respiration.

So it will be seen that in the administration of nitrous oxid, the respiratory tract is most involved, the respiration usually rapid from the excited condition of the patient, after a short though variable period of inhalation of from one to two minutes, becomes deep and even snoring, and a complete anesthesia with unconsciousness is produced, lasting from thirty seconds to one and one-half minutes. But accompanying this and keeping pace with it, we have all the phenomena of asphyxia, due to a deficiency of oxygen in the air passages and tissues of the body.

One of the most evident means of avoiding this formidable objection with its cyanosis, stertor and general asphyxiation, was the addition of pure oxygen gas to the nitrous oxid, but, however, in such proportion that its value as an anesthetic should not be impaired.

The question as to whether nitrous oxid is an anesthetic *per se* or depends upon the accompanying asphyxia for its anesthetic effect, has never been definitely determined. From the fact that anesthesia can be produced by the gas with from 5 to 12 per cent. of oxygen it would seem that nitrous oxid is, in itself, an anesthetizing agent, although even then the slight asphyxia usually induced doubtless serves to augment the anesthetic effect.

A number of combinations have been used by different authors with varying success. The late Prof. Paul Bert, by administering under increased atmospheric pressure a mixture of oxygen and nitrous oxid, succeeded in producing a prolonged and profound anesthesia, at the same time maintaining normal oxygenation of the blood. He used 20 per cent. of oxygen, for the reason that the same percentage exists in atmospheric air. He obtained the necessary atmospheric pressure by having built, a large glass operating chamber, in which he together with his assistants and the patient were hermetically sealed, the desired density then being regulated through the medium of an air pump.

Van Arsdale sought to dispense with this chamber by substituting a tight fitting mask, giving the gas with 10 per cent. of oxygen, under pressure, with good results.

Hewitt of London, after experimenting upon a number of cases, found a 12 per cent. oxygen mixture produced anesthesia after an average inhalation of 126 seconds, of 44 seconds duration, while the average quantity of gas used was $8\frac{3}{4}$ gallons.

Having seen a number of anesthesias for dental purposes, we used at first the pure nitrous oxid on several cases and found that the gas, when pushed to its physiologic effects, afforded an anesthesia sufficient for operating purposes of about forty-five seconds duration, so we at first abscised the tonsils, then re-applied the gas and finished the adenoids, practically, with a second anesthesia.

Then we tried a 25 per cent. oxygen mixture but after twelve minutes and no anesthetic effect, we substituted the pure nitrous oxid, the patient being fully under the influence, to loss of eye reflexes, in less than a minute.

After this, some six cases were operated on with an approximate 10 per cent. mixture and with two applications of the gas, the average time of the first administration being about four minutes, while that of the second was about two.

Then we still further reduced the amount of oxygen and anesthetized completely with an approximate 5 per cent. mixture without much cyanosis or asphyxia in an average of two minutes. We also found that this mixture so lengthened the available anesthetic operating time, that we could remove both tonsils and the adenoids with one application of the gas, this complete operation occupying about one minute.

This is essentially a time-saving operation, and to do it every detail must be arranged beforehand; every instrument that could possibly be of use must be within easy reach of the operator. We inserted the mouth gag, using an O'Dwyer gag, before beginning the anesthetic. The patient was then placed in our usual operating position on the lap of an assistant, the head being on the assistant's left shoulder. The operator then turned on the gas from both cylinders, filling the intermediate rubber reservoir, whence the mixture was conveyed to the patient through a rubber tube to a snug-fitting mask, allowing absolutely no air to enter, this mask being held tightly over the nose and wide open mouth of the patient by the operator until the full effect of the anesthetic had been reached, recognized as with other anesthetics, by unconsciousness, loss of eye reflexes, etc.

The mask being removed, the patient is ready for operation. Both tonsils were at first abscised, in half the cases by a Mathieu and the other half with a Casselberry tonsillotome, and the adenoids were then immediately removed by a Gottstein curette. This operation can be performed without undue haste in one minute in the average uncomplicated case, but we do not wish to be understood as advocating such a quick method in every case, for when the tonsils are bound down by adhesions or other complications exist which require time and deliberation during the operating, then nitrous oxid is not a suitable anesthetic.

We have operated on fifteen cases in this manner; all were children, the youngest being $2\frac{1}{2}$, the eldest 11 years of age, five were boys and ten were girls, and all but one case were afflicted with both enlarged tonsils and adenoids. The patients were in all degrees of excitement, but immediately after the first two or three spasmodic inhalations they became calm and the respirations were full and regular.

The appended schedule gives the time of the first inhalation, time of operation on tonsils, the second anesthesia, the "adenoids" and age.

	Anesthetic.	Tonsils.	2d anesthetic.	"Adenoids."	Age.	Gas mixture.
I	2 min.	1 min.	1½ min.	½ min.	4 yrs.	N_2O
II	3 "	1½ "	1 "	½ "	6 "	N_2O
III	11 "	1 "	½ "	¾ "	4½ "	(N_2O 75 O 25) (N_2O)
IV	6 "	1½ "	2 "	½ "	8 "	N_2O 90 O 10
V	2½ "	¾ "	½ "	½ "	5½ "	N_2O 90 O 10
VI	1½ "	½ "	1 "	½ "	4 "	N_2O 90 O 10
VII	5 "	½ "	. . . . .	½ "	5 "	N_2O 95 O 5
VIII	3 "	1 "	. . . . .	½ "	5½ "	N_2O 95 O 5
IX	2 "	½ "	. . . . .	½ "	2½ "	N_2O 95 O 5
X	1 "	¾ "	. . . . .	½ "	4 "	N_2O 95 O 5
XI	2 "	½ "	. . . . .		9 "	N_2O 95 O 5
XII	1½ "	¾ "	. . . . .	¾ "	11 "	N_2O 95 O 5
XIII	4 "	½ "	. . . . .	¼ "	5 "	N_2O 95 O 5
XIV	3 "	1½ "	. . . . .	½ "	4 "	N_2O 95 O 5
XV	1 "	½ "	. . . . .	½ "	3 "	N_2O 95 O 5

The apparatus required is rather cumbersome and heavy and consists of the face piece or mask, the rubber reservoir and the cylinders of oxygen and nitrous oxid. The mask is made of a metal frame which is covered by rubber, which at its edge, at the point of contact with the face, is in two layers and may be inflated. It is fitted with an expiratory valve as well as one whereby the gas may be turned on or off.

The rubber bag or balloon has a capacity of five gallons and serves as an approximate measure of the amount of gas consumed as well as for the mixing of the gases and on it, also, we made the necessary pressure to force the gas to the patient. This apparatus we purpose modifying by the substitution of a cylindric gasometer for the rubber bag.

Nitrous oxid gas is now put into the liquid from under high pressure and keeps in this condition indefinitely, being placed in steel bottles. Oxygen in copper cylinders is now well known, while rubber tubing, with a junction, forms the connection with the bag.

The advantages of this mixture of gases over chloroform and ether are: 1, the absence of danger; 2, no preparation whatever is necessary; 3, the upright position usually desired may be safely assumed; 4, hemorrhage seems in no way to be affected by it; 5, the time of the whole proceeding is greatly lessened, from an hour and a half to as many minutes; 6, the after-effects, the vomiting and retching, are entirely obviated, and the patients may be safely removed to their homes within fifteen minutes.

It would only be fair to state the disadvantages that have occurred to us: 1, somewhat cumbersome apparatus required; 2, greater number of assistants desirable; 3, haste with which it is necessary to operate.

In reference to the haste, after some experience with the method, the operator finds that he has more time at his disposal than he at first thought possible.

We would say in conclusion, that we have in nitrous oxid mixed with a small percentage of oxygen, an anesthetic that is relatively devoid of danger, taking only a few minutes to administer, and giving a sufficiently long narcosis for the ordinary tonsil and adenoid operation and which is particularly suitable for dispensary use.

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DISCUSSION ON PAPERS OF DRS. GIBBS AND MENGE.

Dr. Roe—Some years ago, before cocain was introduced, I used nitrous oxid gas for small operations and particularly cautery operations in the nose, but since cocain was introduced I have abandoned its use altogether. Nitrous oxid gas and bromid of ethyl are serviceable only in operations requiring but a few moments for their performance; whereas in operations that are at all prolonged they are entirely insufficient, and cocain, chloroform, ether or some other less evanescent anesthetic, either local or general, must be resorted to. In some cases the operation for the removal of adenoid growths and also enlarged tonsils can properly be performed in from forty-five to sixty seconds, but in many other instances the conditions are such that it is absolutely impossible to properly perform the operation thus quickly; therefore nitrous oxid gas or bromid of ethyl are adapted only to a limited class of cases. In adults and older children I have found cocain anesthesia quite sufficient for these operations, but in young children I use chloroform only. For hospital and clinical work, nitrous oxid gas and bromid of ethyl simply have the advantage of expediting matters somewhat. I have not only had no trouble from the use of chloroform, but have had most excellent results and have not felt the necessity of using bromid of ethyl, which is sometimes troublesome to procure perfectly pure, or of bothering with the cumbersome apparatus which the use of nitrous oxid gas requires. In children the use of chloroform is very simple and perfectly safe. It affords ample time for the performance of the operation, and with the proper manipulation of the child there is no danger of the inspiration of blood into the trachea, nor are there any other conditions that contraindicate its use.

In adults, the chief danger in the use of chloroform lies in the concentration of the vapor or in the exclusion of sufficient oxygen, and it is to obviate this danger that oxygen gas mixed with chloroform vapor is employed. Three years ago, while in London, I procured a new apparatus for administering chloroform, devised by Krohne & Sesemann, and since that time a similar apparatus has been made by George Tiemann & Co. of New York. The mask in this apparatus is so arranged that there is free ingress through the center for atmospheric air, while the chloroform is propelled into it, in the form of vapor, by passing the air through the bottle containing the chloroform. When there is prospective danger from the use of chloroform, oxygen gas can be substituted for the ordinary atmospheric air forced through the chloroform liquid in the bottle. By the employment of this apparatus, the use of chloroform is not only rendered perfectly safe for children, but also for all adults in whom there is not some physical complication to contraindicate its use.

In Paris they use chloroform entirely as a general anesthetic and it is not considered dangerous. I have in a number of instances seen the Parisian surgeons push the chloroform far beyond the point that we would consider safe and the patients recover all right.

We may reasonably conclude that the use of nitrous oxid gas and bromid of ethyl as anesthetics is of special service in those adenoid, tonsillary and nasal operations in children and nervous and sensitive adults which can be quickly performed, and especially in clinical and hospital work, in which it is necessary or desirable to dispose of the cases quickly; but that in many of these same operations, which can not be so expedited and at the same time properly performed, other anesthetics, as ether or chloroform, must be resorted to.

Dr. Martindale—My knowledge of the use of nitrous oxid has been limited to the observation of 100 cases in the Central Hospital of London. My personal use of nitrous oxid is limited to the external auditory canal and peritonsillar abscess. My adenoid operation requires more time. Dr. Mackenzie has published his impressions as to the use of cocain in the nasal passages in connection with general narcosis. Since then it has been alluded to by Dr. Cohen and others. I have found it a valuable adjunct, and several of my colleagues in Minneapolis have found it useful. I would not undertake an extensive operation on the naso-pharynx without first spraying it with a solution of cocain. The use of the general anesthetic is attended with less danger.

Dr. Roe—Cocain does not seem sufficient to take away the pain. Bromid of ethyl makes the patient half unconscious, so that he is conscious of the operation but feels no pain.

Dr. Scheppegrell—I would use bromid of ethyl where an operation can be done in a short time, as there is comparatively less danger in a shorter anesthesia. If I can not complete the operation with the short anesthetic, I give chloroform. Some nine months ago I substituted eucain for cocain. I have used bromid of ethyl for four or five years in all cases of short anesthesia, without bad effects. Everything should be ready beforehand in these operations. Where children are old enough to have the gag placed in the mouth without exciting them, it should be done beforehand. If this is not possible, give the anesthetic to a slight extent, then apply the gag and complete the operation. I oppose prolonging the anesthesia to operate on both tonsils and adenoids. I have operated in this way on a patient over 18 years old, and have seen severe hemorrhage. In case we have this complication we should limit ourselves to either the adenoids or the tonsils. In using bromid of ethyl it is important to get pure preparations. In one case a druggist sent me nitrite of amyl. I have nothing to say against nitrous oxid except that it requires such complicated apparatus. Unless some good reason can be found against bromid of ethyl, I prefer to use it if the pure article can be obtained. I know of no fatal results.

I think the difficulties of operating in the sitting position have been rather exaggerated. I always operate in that position, with an assistant holding the head of the patient well forward. The advantages over the Trendelenburg position are marked, because the patient sits in front of you, and the relation of the parts is better maintained.

It would be impossible for me to do adenoid operations in forty-five to sixty seconds. I think many of us would require a longer time than was mentioned in the paper.

Dr. Bliss—I say emphatically that adenoid operations on children ought to be done under general anesthesia. In Europe and in many parts of this country it is done without anesthesia, but I consider this almost cruelty. If you do not complete the removal at one operation, you will not induce the child to submit a second time. We may remove adenoid vegetations in a child under 1½ years old without anesthesia, because the

nervous system is not so highly developed, and the child will not remember so well. For general anesthesia in children I prefer chloroform. It is just as safe as ether and more agreeable. Since bromid of ethyl and nitrous oxid have been used, I have tried them in a number of cases. One objection is that we never know exactly when the right moment has come to operate. In some cases when the arm drops there is sufficient anesthesia, but in others there is not. Also you have to introduce the gag before operation. With a timid child the preparations beforehand will make him dread the operation. The reflexes are not abolished and the child may scream. An operation under general anesthesia should be done either in a hospital or at the house of the patient, and not in the office.

As to the nitrous oxid, I operated some years ago on a dental student who had hypertrophy of the turbinal. I did it in the anesthetizing room at the dental college. I was surprised to see how easily it could be done, and I was also alarmed at the almost carelessness with which the dental surgeons produced a case of cyanosis. In the fifteen or sixteen cases in which I have used nitrous oxid, it was given by a dentist. The patient has the disadvantage of seeing the preparations beforehand, and unless he has fortitude he gets frightened. General anesthesia should always be used in adenoid operations, and the method is largely a matter of choice. I think that chloroform with the addition of 5 per cent. of oxygen will be of value.

Dr. MYLES—The shock of giving a child ether I think is as great as that of doing an operation. In regard to the operation, we may make an actual diagram and topographical description of the disease, then line out as much as nature intended us to have of the tonsils. If you operate on children who have fairly good tonsils, you will have very little trouble. If you pass your finger up into the posterior nares and tonsils and the child has adenoid growths, you will also find large hypertrophy of the lingual tonsil and fauces. But to run a curette up there and remove all this tissue takes ten or fifteen minutes. One firm sweep upward and backward will remove a larger amount than you can get by any other process. The instrument must be suited to the case, and must be of proper size and properly sharpened, so that it will engage the tissue and not bounce over it. I do not think it right to subject the child to an anesthetic, especially to ether when the work can be done without it. We should use the simpler methods.

Dr. STUCKY—I am opposed to general anesthesia in operations for adenoids except in very rare cases. There is more shock in giving the child an anesthetic than there is in the operation. Make an application of cocain and then place a sheet around the child, fastening it behind and before, and slip in the mouth gag. After that there will be no more resistance or screaming and you can perform the operation thoroughly and with less shock. Keep the patient quiet for several hours after operation.

Dr. MERRICK—I think there is more danger of hemorrhage with general anesthesia. I operated on a child four years old, and curetted under cocain. There was bleeding from 12 that day until 12 at night. If I had used a general anesthetic I think the child would have died. I have operated in about 100 cases and have used nitrous oxid gas in two and chloroform in one. A very severe hemorrhage followed the use of the anesthetic. I investigated the proceedings of laryngologic bodies for one year. I found five cases of death from tonsillotomy. I did not find a single case where fatal hemorrhage occurred except where a general anesthetic was used. Meyer used no general anesthetic. In my clinic I never think of using one. I have a grooved table upon which the patient is held by an assistant and the operation is completed in one minute. The child may cry. Two minutes after the child is released it is all right. Only in very extensive cases is a general anesthetic justifiable. You can do these operations, certainly in 95 per cent. of cases, without any risk except that of hemorrhage.

Dr. BLISS—I have just left a little patient, five years old, whose throat I have curetted without any anesthetic whatever. He was just as fond of me as though I had not done it. A great deal that is said on this subject is overdrawn.

Much of this adenoid tissue is absolutely physiologic, and the line of demarcation must be drawn with great caution. In the younger cases we can hardly use the visual exploration with any satisfaction. Digital exploration is almost a necessity. In the matter of curettement, the finger is far better than any other instrument. We have the pulp of the finger as a protection and can squeeze out the adenoid tissue with a minimum of bleeding and danger. If a large mass is to be removed, we can do it in nine cases out of ten without an anesthetic. Where we have a large operation to do we must have a general anesthetic, and in Philadelphia this will usually be ether.

Dr. MACKENZIE—Unless indications are strongly to the contrary, and unless the child is rebellious, I prefer to operate on adenoid growths without an anesthetic. It takes longer, but I make a more complete operation. It is sometimes necessary to prevent recurrence, to employ vigorous curettement. If so I sometimes resort to an anesthetic, generally to bromid of ethyl. If a general anesthetic is to be administered to children, I prefer to give chloroform first until comparative quiet is secured, and then keep up the narcosis with ether. I have used bromid of ethyl in these cases for years, and have never had an accident. The drug must be pure, however. It can now be obtained in hermetically sealed tubes. Care must be taken also to exclude the air. If these precautions be taken I think it is perfectly safe. As to the removal of adenoid growths and both tonsils in forty-five to sixty seconds, in my hands the operation would not be complete. It seems to me absolutely impossible in a very short time to reach every nook and cranny of the naso-pharynx and to be sure that the extirpation is complete.

Dr. MARTINDALE—As to using ether in the upright position, I have seen one death from a dentist using ether in his dental chair, and that is enough to deter me from using it in that way. I have used nitrous oxid with very pleasant results. After one becomes accustomed to the alarming appearance of the patient I think there is no danger; and if Dr. Casselberry has added oxygen, which increases the narcosis and lessens the danger, this will be an ideal anesthetic. But the majority of cases which need an anesthetic should be placed under narcosis for a longer time than one minute.

Dr. COBB—I will say a word in the defense of ether in the upright position. In the Massachusetts General Hospital, ether has been used. In the last eight years we averaged over four adenoid operations a week, and there has not been one death. I think that is fairly good evidence of the safety of ether.

Dr. GIBBONS—I would call attention to the necessity for knowledge as to forced respiration, etc. A patient who does not recover from ether or chloroform does not die for some time. We should do something to restore animation, besides the ordinary traction of the tongue. A surgeon is criminally responsible if he has not a regular apparatus for this purpose, or at least a common pair of bellows. If he has a compressed air tank he can resort to that. He should certainly have oxygen. Forced respiration should be kept up for at least six hours. Life will sometimes come back after six hours when it will not after four or five. If you have nothing better, insert the compressed air tube and push it down into the trachea. You may find it convenient to do tracheotomy. At least 90 per cent. of adenoid growths can be removed without a general anesthetic. When a general anesthetic is needed I use chloroform and nitrous oxid.

Dr. GIBB—In Philadelphia we largely use ether. Our experience with bromid of ethyl has been such as to deter us from its use; but I think the bad results were largely due to the impurity of the drug. The same objection may be offered to nitrous oxid and bromid of ethyl, the short period of anesthesia. This is especially true if the combined operation for adenoids and hypertrophied tonsils is undertaken. There are many adenoids that it is not necessary to remove at all, and still others can be removed by so simple an operation that no anesthetic is needed. But in cases of large adenoid, I still believe that ether is the most desirable form of anesthetic. Nitrous oxid and bromid of ethyl give too short a time.

THE CHAIRMAN—The only way of harmonizing the diversity of views is the natural one of making a proper selection of cases. No fixed line of treatment could be laid down for all cases even to the anesthetic preferred. There are adenoids which can not be removed in one, two or three minutes, and there are those which can, or at least which can be sufficiently removed for practical purposes. There are some cases where it is desirable to make the operation on the faucial tonsils and adenoids at different times, but usually it is best to do a combined operation. Complications may arise, but you would find no general surgeon willing to make two bites of a cherry on so small a surgical measure, especially if the operation be done under a general anesthetic. You can treat hemorrhage just as well in the case of a child under anesthesia as without.

Dr. Menge has taken an extreme position in saying that nitrous oxid with oxygen is absolutely free from danger, for that is true of no anesthetic; it is relatively free from danger. There is also slight asphyxia, even with the oxygen. It is only intended for institution and office use, where the apparatus can be kept in readiness. As to operating without anesthesia, in some children it can be done very well and in others it can not. As to the citation relative to dangerous hemorrhage with an anesthetic, I have elsewhere reported a fatal case from the practice of a friend following tonsillotomy without an anes-

thetic. The child swallowed the blood and the hemorrhage was not observed until too late. If there is hemorrhage you can stop it better with an anesthetic than without. With nitrous oxid the anesthesia is so brief that the patient would have to be re-anesthetized by other means in the emergency of a dangerous hemorrhage.

SOCIETY PROCEEDINGS.

The Quarantine Convention of the South Atlantic and Gulf States.

(*Concluded from page 490.*)

FEBRUARY 11—MORNING SESSION.

The convention was called to order at 10 o'clock and the Chair announced that the order of business would be the discussion of the papers on "National Quarantine" and "A National Bureau of Health" (*vide* JOURNAL, February 26, p. 490).

It was ordered that the discussion of the report of the Committee on Resolutions, when made, be coupled with the discussion of the papers.

The report of the special committee on the resolution introduced by Dr. John B. Hamilton, relative to dangerous infected ports, to provide for the maintenance of a medical force at those ports and the calling of an international quarantine conference, was read. The report favored the adoption of the resolution and the drafting of a memorial to Congress to give it effect, and was unanimously adopted.

NATIONAL QUARANTINE.

The following is an abstract of the paper read on Thursday by Dr. H. B. HORLBECK, health officer of Charleston, S. C., and ex president of the American Public Health Association.

The subject of National quarantine is a function affecting the vital interests of the entire Nation, and it is a task which has its peculiar character, viz., the protection of the different States and municipalities, with the privilege of self-government in those States and municipalities unimperiled.

It would appear that this condition is the pivotal point in the adjudication of National quarantine: To have furnished the fullest and amplest assistance and co-operation by the Nation and to permit intelligent and willing work by the State and municipality. The privilege of our self-control in these matters is the very foundation stone of our civilization, and the abrogation of the power of a municipality to be the final arbiter in her government of her health interest would be the destruction of a right which carries with it the most sacred duties pertaining to a congregation of human beings established under the constitution of the United States. *Salus populi suprema est lex*—The health of the people is supreme law, and should be the most absolute right of every municipality.

We therefore, in adding our modicum to "National quarantine," must above all interests have this sacred right and privilege carefully considered, and we say advisedly "considered." It is not our desire to have these privileges so absolute that an improper or inefficient fulfilment of such duties should not be a matter for adjudication. The rights and privileges of the municipalities being established, we are prepared for discussion of the relation of National influences in these matters.

The governing body who may have the control and guidance of National quarantine should ever be on the alert to have such general laws of quarantine as may be passed and of force carried into effect. We say general laws, and it is idle in addressing so intelligent and well informed a body to designate such laws which affect the general health of all collected bodies of human beings. Such laws should ever be of force, and as we understand the situation such federal laws are now and have been of force since the act of Feb. 15, 1893, and they are now dominant. All communities who are recreant to their sacred rights and privileges, should at once be brought to a realization of their shortcomings by the controllers of the National laws.

As I am a life-long resident in a sea-coast city, it is but natural that I should more particularly address you in reference to the requirements of the quarantine of such a city in its relation to National proceedings. As Charleston is affected by National quarantine, so are affected the cities of the South Atlantic and Gulf coasts of the United States. The diseases incident to one are incident to all, and the proceedings for the protection of health and for the non-injury to commerce are the same.

There is something new in the situation that is the threatened additional powers that are embodied in Senator Caffery's bill, known as Senate Bill No. 2680, additional powers to be given to the Federal Government, practically under the control of the Marine-Hospital Service.

This concise and forcible bill of less than two hundred lines sweeps away all privilege of State or municipality of making any laws as to quarantine, and vests this duty in the nominal hands of the Secretary of the Treasury, as it is a matter of fact that this department of the treasury is under the Supervising Surgeon General of the Marine-Hospital Service. They are simple words, these commencing lines of Senate Bill 2680, but they are ruthless as to any further privilege of the governmental bodies thinking what may be best for the interests of a State containing a seaport city.

The act of Feb. 15, 1893, entitled, "An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," is destroyed. In the very initial sentence this bill, No. 2680, condemns all privileges of cities judging for themselves or enacting laws for their procedure, and says of the act of Feb. 15, 1893, that it shall be amended by striking out the following words in Section 1: "And with such rules and regulations of State and municipal health authorities as may be made in pursuance of or consistent with this act."

The rules and regulations deemed wise and efficient, and made at the suggestion of State or municipal boards of health, are swept out of existence, and the Secretary of the Treasury "shall make such rules and regulations as are necessary to prevent the introduction into the United States of any infectious or contagious disease from any foreign port or place, or the spread of such diseases from one domestic port to another," etc., ... "to be enforced by consular quarantine and customs offices of the United States, and the State and local quarantine officers of the United States" . . "with the proviso that they shall not discriminate against any port or place." The laws are to be made by the Secretary of the Treasury and practically carried out under the power of the Supervising Surgeon-General of the National hospital service. Was there ever a law made that was not open to differences of opinion as to its meaning? The State Board of Health of Louisiana were for years trying to enforce their laws as to the collection of dues contracted for quarantine procedures. Is it to be the privilege of the Marine-Hospital Service to take the place of the supreme court of the United States? Who is to adjudicate the proper charges of quarantine procedure, are the same charges to be made in a port of a dozen entries in a year with ports having thousands of vessels entering their harbors, like New York, Boston, Philadelphia or New Orleans? All such matters should surely be in the hands of the ports interested.

On page 3 we find that when the Secretary of the Treasury shall deem it necessary, etc., incoming vessels shall be inspected by a National quarantine officer designated or appointed by the Secretary of the Treasury on recommendation of the Surgeon General of the Marine-Hospital Service, and such vessel can not be admitted to entry without the certificates of said officer that the United States quarantine regulations have been complied with.

The quarantine laws for the great cities of the United States are to be made (practically) by the Marine-Hospital Service, and if not satisfactorily carried out in the opinion of that service, an officer is to be sent, recommended by them, to forbid entry as they see proper. Was ever such power granted? Is it the meaning of this bill that every port must yield to this overwhelming power, and pass over their cities to the Marine-Hospital Service for quarantine government?

On page 6, line 25 says whenever yellow fever, cholera, plague or typhus has passed the quarantines of the United States . . . the quarantine regulations of the United States, prepared under the direction of the Secretary of the Treasury, shall be supreme and have precedence of State or municipal laws, rules or regulations, and the President is authorized to enforce the same."

On page 6, lines 14 and 15, we find, "and to prevent unnecessary restrictions upon interstate commerce." Any person violating a prohibition or a permit from the Federal authorities shall be deemed guilty of misdemeanor and shall be subject to a fine of not more than $1000 or imprisonment for not more than twelve months, or both, at the discretion of the court.

This is the *summum malum*. Therefore, any health officer who shall disregard a permit which he regards dangerous to his community, shall wear stripes in a common prison or penitentiary and pay a fine which may beggar him.

There are two quarantines, one in the interests of health and one in the interests of commerce. The quarantine interests of health and of commerce are ever at variance. It must be so.

The laws governing success in commerce are inexorable. To forbid entrance to or from a city for merchandise means a stagnation which carries with it while it lasts loss to commerce, and so we are able to have this bill to prevent unnecessary restrictions upon interstate commerce. To have the *ipse dixit* or advertisement from any person representing a National service that perfect disinfection has been carried out only should convey with it the fact that it is so stated. The privilege of recognizing whether such procedures are believed to be effective and of avail should belong to the community to whom it is desired to consign such shipment. Are the causes and methods of prevention of yellow fever so well known that we can definitely say this person is harmless, and that package will cause no peril? We believe we can say so with certain procedures thoroughly carried out, but are such procedures possible when the commerce of a great city becomes a factor? We believe not, and with every disposition and inclination to fulfil such requirements we believe the Federal Government has not yet reached a position to perfectly disinfect great train loads of men or merchandise.

We have tried to discuss the bill of Mr. Caffery with all fairness, as it affects National quarantine. We believe it to be a most pernicious bill, wrong in spirit and wrong in letter. The act of Feb. 15, 1893, is, in our opinion, wholly sufficient for our present requirements; it is full as to foreign requirements, and it says as to local procedures:

"Section 3. That the supervising Surgeon-General of the Marine-Hospital Service shall, immediately after this act takes effect, examine the quarantine regulations of all State and municipal boards of health, and shall, under the direction of the Secretary of the Treasury, co-operate with and aid State and municipal boards of health in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, and into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia; and all rules and regulations made by the Secretary of the Treasury shall operate uniformly and in no manner discriminate against any port or place; and at such ports and places within the United States as have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the Secretary of the Treasury, necessary to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia, and at such ports and places within the United States where quarantine regulations exist under the authority of the State or municipality which, in the opinion of the Secretary of the Treasury, are not sufficient to prevent the introduction of such diseases into the United States, or into one State or Territory or the District of Columbia, the Secretary of the Treasury shall, if in his judgment it is necessary and proper, make such additional rules and regulations as are necessary to prevent the introduction of such diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia, and when said rules and regulations have been made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities, where the State or municipal health authorities will undertake to execute and enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations, the President shall execute and enforce the same and adopt such measures as, in his judgment, shall be necessary to prevent the introduction or spread of such disease, and may detail or appoint officers for that purpose."

We regard the protection of a city against the introduction of disease to be a privilege, a great right and a great duty, and we protest against the assumption of such rights, privileges and duties by any branch of National service. It is our conviction that the State and municipal authorities should be built up, not torn down and made subservient. These health authorities should be encouraged in every way to feel their responsibilities, and should be encouraged to take a quick and lively interest in all matters pertaining to the health of the Republic, and they should be encouraged to feel their responsibilities, and as long as they indicate by their labors that they are striving for the public good they should be given the fullest opportunity of carrying out the health laws as they are understood by competent sanitarians. The duties of the Marine-Hospital Service are now vast enough to satisfy the ambition and desires of any body of men. Under the laws they must co-operate with, not entirely supersede.

Such aid in all great epidemics and emergencies as they may give should be actively, generously and thoroughly bestowed. Such a field, although not limitless, is vast, and in it the Marine-Hospital Service may find ample room for honorable service. We re-echo the sentiment that National quarantine should be co-operative, not autocratic.

The discussion on the papers above referred to was opened by Dr. John B. Hamilton of Chicago, who spoke on the subject of "A National Bureau of Health." He spoke of a bill drafted by the AMERICAN MEDICAL ASSOCIATION relative to the establishment of such a bureau and asked the endorsement of that bill by the convention. He said the bill had been drafted for the benefit of the whole country. He read extracts from the provisions of the proposed bill and explained those provisions. He said he would take naught from the powers of the Marine-Hospital Service, and in the bill providing for a commission of public health it was intended that the Marine-Hospital Service should be the executive arm of the proposed commission. This bill, while giving National authority, provided for full co operation by State authorities.

Hon. JOHN E. GRADY of Appalachicola followed. He said that for a long time he had been of the opinion that all matters of quarantine should be under control of the federal government. He said that those States bordering on the Gulf or Atlantic are not the only ones interested in the matter of quarantine, and spoke of the difficulty of explaining to a Norwegian shipmaster the differences of the quarantine regulations of the various ports, and said that the correction for these differences lies in uniformity of quarantine laws. Such uniformity will put each port on an equal footing.

MAJORITY REPORT—COMMITTEE ON RESOLUTIONS.

Dr. HARALSON of Mississippi then read the following report

The Committee on Resolutions respectfully recommend the adoption of the following:

Resolved, That the Quarantine Convention of the South Atlantic and Gulf States invite the attention of the Congress of the United States to the Senate Bill No 2680, introduced by the Hon. Mr. Caffery, as not conducive of the sanitary interests of the country. The convention does not regard the bill as necessary or wise. The powers proposed to be conferred upon the Secretary of the Treasury are extreme and dangerous. We therefore respectfully urge that the said bill do not pass.

Resolved, That the Senate Bill No. 3433, a copy of which is transmitted herewith, introduced by the Hon. John C. Spooner creating a commission of public health prepared by a committee of the AMERICAN MEDICAL ASSOCIATION, endorsed by the American Public Health Association, having the merit of covering the entire sanitary field and providing a uniform system of quarantine of the Federal Government with the co-operation and advice of every State board of health in the Union, would in the opinion of this convention, be wise and satisfactory. We therefore respectfully urge its passage.

The bill providing for the raising of a commission to study and investigate the disease of yellow fever, and providing for an appropriation and emoluments and expenses of that commission was endorsed by the committee.

The resolution for a conference of the health authorities of the South Atlantic and Gulf States to formulate a code of quarantine rules and regulations and promulgate the same was endorsed by the majority and its adoption recommended.

[Signed]—H. B. Horlbeck, B. Smith, J. L. Ludlow, U. O. B Wingate, J. L. Horsey, J. M. Holloway, S. A. Robinson, J. F McShane, A. R. Reynolds, J. C. Egan, H. H. Haralson.

Col. W. E. KAY of Georgia then read a minority report signed by himself and Capt. J. M. Falkner, and moved its substitution for so much of the majority report as refers to the Caffery bill:

MINORITY REPORT OF THE COMMITTEE ON RESOLUTIONS.

Mr. President, we beg to report the following resolution, which we ask to be substituted for the majority report of the Committee on Resolutions:

Resolved, That it is the sense of this convention that the Congress of the United States should immediately enact such legislation as will result in the establishment of a National uniform system of quarantine, relating to the regulation of commerce with foreign nations between the several States, with due regard to the rights of the various States.

Resolved, further, That it is not the purpose of this convention to endorse any plan or criticise any legislation now proposed, but simply to place on record its belief in the necessity for uniformity of such enforcement as is only possible under National supervision, leaving the plan and details to our Representatives in Congress.

[Signed]—W. E. Kay, Georgia; J. M. Falkner, Oklahoma.

Hon. R. H. CLARKE of Mobile then offered the following substitute for both reports:

CLARKE'S SUBSTITUTE.

Resolved, That it is the sense of this convention that Congress should enact laws to provide for an efficient maritime quarantine, to be uniform and impartial in its application to the different commercial ports of this country, so as to give no one or more of them undue commercial advantage over the others, leaving to the States to prescribe and enforce additional reasonable safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.

2. That Congress should aid the several States in establishing and maintaining uniform reasonable and efficient quarantine laws for regulating interstate commerce, leaving to each State adequate power to protect, as it shall deem best, the lives and health of its people.

3. That Congress should leave exclusively to the States the regulation of their internal commerce, and the provision of such quarantine or sanitary laws and regulations as they may deem advisable to that end.

4. That, in the framing of quarantine laws and regulations, and their enforcement, Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible.

Hon. EDGAR H. FARRAR of New Orleans moved the reports be divided and that the last two resolutions as to the appointment of a commission to investigate yellow fever and as to the conference of the States be taken up first; adopted.

That portion of the report relative to a yellow fever commission was adopted without dissent.

That portion of the report relative to a conference between the South Atlantic and Gulf States, to formulate a code of quarantine regulations, was then placed before the convention.

Dr. M. CUNNINGHAM of Birmingham moved its adoption.

There was some discussion as to the limit to be placed on the debate on the reports of the Committee on Resolutions.

On motion of Mr. JOHN B. KNOX of Anniston, after accepting amendments by Colonel W. E. KAY of Georgia, the leaders of the minority and majority reports and substitute were allowed twenty minutes and all others ten minutes, the debate to close at 3 o'clock.

Asked about the provision for the conference of the States, the chairman declared that it had been adopted.

The question then came up on the substitute offered by Hon. R. H. Clarke. He said the question is whether the convention should condemn the Caffery bill and endorse the Spooner bill. He said he had received an official copy of the Caffery bill and the Senate Committee's report, only one member of whom dissents from the recommendation that the substitute for the Caffery bill pass, and condemning the Spooner bill. He said the convention knew the influence of a committee report and if the majority report is adopted it will virtually say to the Senate Committee "you must reverse your action." We are an advisory body and we should not be too dictatorial, and we ought to avoid putting ourselves in the attitude the adoption of that majority report will place us. The Senate Committee has given more careful attention to those two bills than the members of this convention. He continued his argument against the condemnation of the Caffery bill, and said that he supposed the majority report condemned the original Caffery bill, every word, line and punctuation mark of which after the enacting clause, had been stricken out. The original Caffery bill had been condemned by the Senate Committee.

Professor SHANDS of Oxford, Miss., objected to the reservation of time by the leader of the minority report.

The convention voted that the twenty minutes applied at the beginning of the debate.

Colonel KAY then took the floor in support of the minority report. He inveighed against the acceptance of the Spooner bill as a *sine qua non*, and said that its adoption would wipe out the rights of the States in the matters of local quarantine. He said the provisions for a conference with State boards of health by the commission would be impossible of fulfilment. The vote of the Health officer of Maine, where there was never a case of yellow fever, would have the same weight as the vote of the Health Officer of Louisiana, and the adoption of the Spooner bill would be a very unwise step.

Dr. H. B. HORLBECK of Charleston then took the floor in support of the majority report. He said the Caffery bill was condemned because it is autocratic. The Committee had two bills before it, and carefully considered both the original and the amended bill for three hours. He claimed that it sweeps out the rights of the States to manage their own quarantines. It sweeps out the last atom of power that any State may have, and gives the Federal Government absolute control and says the law shall be supreme, and those who do not obey its mandates shall be amenable to a fine. Can a gentleman sitting in Washington manage our quarantines. If I thought the Spooner bill had any such conditions I would vote against it right here on this floor. I am a health officer and my duty is to protect life, and I have nothing to do with commerce. The lives of the people are paramount to business. He characterized the Caffery bill as iniquitous. He endorsed the Spooner bill as earnestly as he condemned the Caffery bill, and discussed the provisions of that bill at length.

Dr. SANDERS moved that Nos. 32 and 33 be the special order for the evening session; adopted. These numbers are: "Epidemics and Quarantine from a Religious Standpoint," by Rev. H. C. SEMPLE of New Orleans, and "Epidemics and Quarantine from the Ethical and Humane Points of View," by Rev. GEORGE B. EAGER, D.D., of Montgomery.

After a discussion, participated in by Dr. Waldauer of Mississippi, Dr. Kohnke of New Orleans, Edgar H. Farrar of New Orleans, John B. Knox of Alabama, the resolution was passed under a suspension of the rules.

The discussion on the report of the Resolutions Committee was resumed, and Hon. E. L. Russell took the floor in support of Mr. Clarke's substitute.

Hon. F. C. ZACHARIE of New Orleans offered an amendment to the first section of Mr. Clarke's substitute, for the purpose of making it clearer, the amendment not altering the sense of the section. He then advocated the adoption of the substitute of Mr. Clarke, and at the conclusion of his remarks the convention took a recess.

AFTERNOON SESSION.

Hon. R. H. CLARKE's amended substitute adopted.

Mr. NORMAN WALKER of New Orleans introduced a resolution providing for the holding of the proposed quarantine conference provided for by the convention at Atlanta, in the week beginning April 25. An amendment fixing the date the first Tuesday in April was accepted by the mover. The motion was then adopted.

Hon. R. H. CLARKE then asked leave to withdraw his substitute and to substitute therefor another substitute. This request was adopted by the convention.

Colonel KAY then withdrew the minority report.

Dr. HORLBECK withdrew the majority report and moved the substitute be adopted; carried amid applause.

The amended substitute is as follows:

Resolved, That it is the sense of this convention:

1. That Congress be requested to provide for a department of public health as soon as practicable.

2. That it is the sense of this convention that Congress should enact laws to provide for an efficient maritime quarantine, to be uniform and impartial in its application to the different commercial ports of this country, so as to give no one or more of them undue commercial advantage over the others, and to be enforced by the several State and municipal quarantine or health boards, if they will undertake so to do, leaving also to the States the power to prescribe and enforce additional reasonable safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.

3. That Congress should aid the several States in establishing and maintaining uniform, reasonable and efficient quarantine laws for affecting, but not regulating interstate commerce, leaving to each State adequate power to protect as it shall deem best the lives and health of its people.

4. That Congress should leave exclusively to the States the regulation of their purely internal commerce and the provision of such quarantine and sanitary laws and regulations as they may deem advisable to that end.

5. That in the framing of quarantine laws and regulations and in their enforcement Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible, and especially by way of an advisory council.

Dr. KOHNKE of New Orleans offered a preamble and resolutions as to popular education in hygiene, endorsing the purposes of the Louisiana State Sanitary Association, and recommending the establishment of similar sanitary associations, was adopted by the convention.

Mr. R. J. LOWE objected to the resolution and made the point of order that the resolution should go to the committee, but was overruled.

Dr. S. R. OLIPHANT, ex-president of the State Board of Health of Louisiana, then read a paper on

SANITARY INSPECTORS OF FOREIGN PORTS; WHAT IS BEING DONE AND WHAT CAN BE DONE IN THIS DIRECTION.

The Doctor outlined the use of inspectors in fruit ports and in other foreign ports on the lookout for cholera, yellow fever and other infectious or contagious diseases. He outlined the

duties of the inspectors in his opinion and said they should deal in facts first and in opinions afterward. He said the quarantine officer should never pass through his lines a shipment he would not receive in his own city. He spoke of the great benefits that had already accrued by reason of a system of medical inspectors.

Mr. ZACHARIE moved that copies of the resolutions adopted by this convention be forwarded to Congress, which was adopted.

A collection was taken up to defray the incidental expenses of sending out circulars and the chair guaranteed to raise by subscription the amount necessary to print the proceedings of the convention, amounting to $63,35.

Hon. D. M. TAYLOR of Mississippi offered a resolution that each of the Spanish-American countries be invited to send one delegate to Atlanta, with a view of having a co-operative international quarantine system; adopted.

Dr. H. H. HARALSON of Biloxi then read a paper on "Medical Inspectors of Coast Towns and Cities, How Best to Provide For."

The Chair appointed the following Committee of Arrangements for the Atlanta convention: Collier of Georgia, Moody of Alabama, Renshaw of Florida, Horlbeck of South Carolina, Ludlow of North Carolina, Smith of Texas, Formento of Louisiana, Griffin of Mississippi. On Publication: Dr. Moody, Hon. Leslie E. Brooks and Erwin Chaighead of Mobile.

Dr. P. E. ARCHINARD of New Orleans then read a paper on "Recent Discovery of a Method of Early Diagnosis of Yellow Fever."

Dr. QUITMAN KOHNKE of New Orleans then read a paper on "What Steps Should be Taken in Dealing with First Case or Cases of Infectious or Contagious Diseases that May Reach our Towns or Cities."

Dr. FELIX FORMENTO of New Orleans then read

THE POLICY OF DEPOPULATING CITIES INFECTED WITH YELLOW FEVER; IF UNDERTAKEN, HOW BEST TO ACCOMPLISH.

He said: *A priori* and on general principles, we would probably all be inclined to admit that the early depopulating of infected cities, if practicable, would be the best and most efficient means of stamping out an epidemic disease at its very birth, by removing the elements necessary to its development. A fire without fuel will soon die out, the disease would soon come to an end for want of subjects. But is such a policy possible? Can it be carried out? Even with the good will and active co-operation of all the citizens of a town or village, is such a general exodus practicable? How and where could we find the physical means, the financial resources necessary, indispensable for the carrying out of such a measure? Who would furnish both the means of escape and of subsistence to thousands of families, and for an indefinite period?

As to a compulsory depopulating, to a forced exodus, even in the smallest of our communities, such a course is not to be thought of, is absolutely impossible in a free country like ours. No authority on earth would have the power, still less the right, to enforce it. The population of the smallest and most insignificant hamlet has natural rights and privileges, which can not be interfered with. In this question, the presence of yellow fever is not the only factor to be considered. The innumerable and varied family, social and commercial interests of modern life can not be overlooked, sacrificed to fear, justifiable or not, of a disease, however dreadful it may be; their ruin would be more of a calamity than the disease itself. I can not here abstain from protesting in the strongest terms against the shameful and humiliating measures inspired by terror and panic which have been witnessed all around us during the last epidemic. These measures of self-protection were as worthless and unscientific as they were cruel and tyrannic. Remnants of the practices of the dark ages, they are unworthy of our age and civilization. I never could understand why our people, so brave, so reckless and indifferent to danger, ready to take all sorts of risks by land and water, should become so timid, so frightened, so demoralized in the presence of a few cases of yellow fever. That disease has the privilege of inspiring more terror than any other, many times more terrible and fatal. This sentiment of fear is degrading and a worse evil than the disease itself, as it tends to lower the moral sense of a whole people.

This terror is entirely unjustifiable. In fact, yellow fever has lost much of its violence since 1853. That year the death rate was enormous, 3 out of 4! In 1878, it was 1 in 5; in 1867 it was 1 in 20, and in 1897 it was about 1 in 200.

General depopulating of a city or town, however desirable from a theoretic point of view, is, I repeat, of impossible realization. It never could apply to a large city. Voluntary exodus, which implies the necessary means to accomplish it, of individuals and families should greatly be encouraged, especially at the very breaking-out of the disease. This depopulating is generally done at once, spontaneously, without waiting for the direction or control of health authorities.

During the existence of an epidemic no persons should be allowed to leave the infected locality for a healthy one, without taking proper sanitary precautions. These consist principally in permitting no baggage, but only scant wearing apparel, and in the thorough washing and disinfecting of the person himself.

Refugees should be brought to a camp of observation established in a convenient and healthy locality on the railroad outside of all contamination; there they would remain during the period of incubation; then a train from the town willing to receive them, and carrying clean, disinfected clothing, etc., would come to convey them to their destination. We could cite several instances in which, under similar precautions, the transfer was effected without any bad results.

There is a method of depopulating which is, perhaps, more productive of good than that of towns and villages. We refer to the early depopulating of the houses in which occur the very first cases of fever. This method applies to all infectious diseases and is the one followed in Germany for the immediate stamping-out of scarlet fever, typhus fever and other infectious diseases. To carry out successfully this plan, all necessary precautions should be taken in advance and be always in readiness, especially in those cities most exposed to infection. Special hospitals for the treatment of yellow fever, established in the outskirts of the town, should at all times be ready for the reception of patients, and camps of observation and isolation, one of the best measures instituted during the recent visitation, should also be fully prepared in advance. On the occurrence of the very first cases the sick should be removed to the hospital, and the well, living in the infected house, at once removed to the camp, and the house thoroughly disinfected. This is particularly urgent in crowded tenement houses and densely populated quarters.

EVENING SESSION.

Rev. GEORGE B. EAGER, D.D., of Montgomery, read a paper on

EPIDEMICS AND QUARANTINE FROM THE ETHICAL AND HUMANE POINTS OF VIEW.

He said: This question of quarantine has its distinctly legal and commercial aspect, which none of us would minimize, and which business men are naturally inclined to think the all-important ones. It has also its international, National and State aspects, and then its sociologic, scientific and sanitary aspects.

Quarantine in our own country is conceded to be very complex, ineffectual and defective. We have had ample illustrations of this fact within late years. Under its operations and abuses we have been called to witness the most humiliating atavistic tendencies of human nature and society. Poor human nature has shown in many cases a most shocking reversion to type. In one way and another our people have been guilty of the most barbarous cruelties. These cruelties have been shown especially in the enforcement of defective, various and unscientific local systems of quarantine that exist in our Gulf States.

With human nature what it is, and society as it is, crude and undeveloped in many of its elements, with much of our civilization proving itself, under stress of fear and selfishness, but a veneering, certain excesses of tyrannies will crop out. There are evils that are incurable at the present stage of our development. "What can not be cured, of course must be endured." But are there not many of the inconsistencies and inhumanities of the existing quarantine system that might be remedied? If so, all principles of justice, right and humanity call on us to address ourselves to this problem with all earnestness and unselfishness.

Admitting all that can justly be said on municipal and State rights and on the legal aspects of quarantine, one fact stands out, the recent conduct of quarantine affairs by local authorities was a scandal and a disgrace to civilization! The dread name of the disease alone seemed sufficient to terrorize the majority of our people and lead to the most brutal encroachment on inherent human rights, to the violation of nearly every law of the decalogue and to unreasonable and inhuman interferences with travel, transportation and trade. As a result of this contagious demoralization, not only was business absolutely paralyzed, but the States of Alabama, Mississippi, Louisiana and Texas, as we all know were almost wholly given over to terror and anarchy, masquerading under the name of "local" quarantine.

Let it be granted that the function of quarantine has to do with health matters, that it is the protection of the public from

n invading disease, that this is primarily the duty of the State; my contention is that all considerations of humanity equire that its enforcement should be as free from complications, delays and harsh exactions as is compatible with efficiency, and that the expense to commerce should be reduced to a minimum. That a pest-ship, for instance, should be obliged o go out of its course a hundred miles or more to be disinfected, is a sufficient evil in itself; but that the sick, often without medical care, and the well, in constant danger of infection, should be penned up in the same vessel, perhaps for several days, is barbarous.

A system of quarantine that is just and humane, at the same time that it is efficient, should not only remove the sick to a hospital, but should provide means for comfortably caring for the well who have been exposed to infection, and should possess the necessary authority, force and apparatus for the speedy disinfection of vessels, baggage, merchandise and clothing.

In conclusion, if the abuses and cruelties and excesses complained of and all ideas can be checked, or in any degree cured, by the establishment of an improved and well adjusted National quarantine system, or by an enlargement of the scope, force and equipment of the Marine Hospital Service, then all principles of justice and humanity require that we should subordinate our local preferences, our too narrow or sentimental ideas of State rights, and our personal ambitions for position or greed for revenue, to the greater interests of the greater number.

Dr. CHARLES A. MOHR of Mobile then read a paper on "Agents and Methods of Disinfecting Houses, Cars, Freights, Baggage, etc., and the Classification of Freights as to their Liability of Conveying Infection." Dr. James M. Holloway of Louisville, on "To What Places may Refugees from Localities Infected with Yellow Fever Go, and how Should they be Managed and Cared For." Dr. Warren E. Anderson of Pensacola, a paper on "Quarantinable Diseases—What they Are and How they should be Dealt With." Dr. George A. Ketchum of Mobile, on "What may be done to Check the Spread of and to Exterminate Yellow Fever after it has Become Prevalent in a City." Surgeon R. D. Murray submitted a paper without reading on "Camps of Refuge and Detention." Dr. Maxime Landry of New Orleans, read a paper on "The Experiences of a Quarantine Officer in the Recent Epidemic."

Dr. SANDERS rose to a question of personal privilege and took occasion to vehemently deny the charge of making an effort to pack this convention with men against National quarantine. He said he sent the paper that originated the charge a 200-word telegram and a letter, which if they had been published would have swept away the charge. Another was the intimation that he had selected a large number of lawyers all on the same side of the question, which he denied, saying that he was entirely ignorant of what side any lawyer would take until he heard them address the convention. He said he appreciated the resolution adopted thanking him for his efforts in getting up the convention, but he feels under no obligations to the presiding officer for courtesies extended during the convention, as he had disassociated him from any part in shaping the policy of the convention.

The convention then adjourned *sine die*.

New Jersey State Sanitary Association.

(*Continued from page 493.*)

On Saturday the chief paper was

PASSAIC VALLEY DRAINAGE,

by W. T. HUNT of Newark, a son of the late secretary of the State Board of Health. The Passaic Valley has long been a source of trouble owing to the great need of some means of drainage for the number of towns which occupy its fertile plains. Many of these are large and important. All have long been urging some relief for the great foulness of the river owing to the escape into it of the sewage of these places, not only destroying the value of the water for drinking, but in many instances causing disease by the foul odors given off in its course. Hence after many efforts the legislature, in 1896, appointed a commission to consider the subject of its pollution and of a general system of sewage-disposal for its relief. Ten thousand dollars were appropriated for the purpose. The report of the Commission is one of great value, well prepared with maps and charts to show the true condition and the plans proposed for its improvement. Mr. Hunt was one of the Commissioners. He said: Passaic Valley sewerage is distinctively a sanitary measure and commands the attention chiefly upon that basis. It is, however, complicated in its engineering, its financial and legal aspects, and it is embarrassed by the diversity of interests affected, the antagonisms all such general measures arouse, and the imperfect knowledge with which the subject must be approached. But when it has been established that this is a sanitary necessity the greatest step has been taken. For through the association of men such as constitute this body, through the individual labors of physician and engineer, and through the wise acceptance of new truths by courts and legislators, it has come to be recognized that sanitation has rights which give it precedence, and that the power which restrains crime and prevents contagion may also be asserted for public works which are necessary to health. If we may isolate the smallpox patient, we may also demand that a source of disease shall be removed; and the time is not distant when the public right to compel the private party to connect his house with a sewer will be followed by measures to require that communities should protect themselves by adequate sewerage systems. The right of self-destruction is no longer respected. The status of the movements for the relief of the polluted Passaic may be briefly mentioned. The commission reported to the legislature in February last, the Governor recommended prompt consideration and a joint committee was appointed to report upon the advisability of legislation at the next session. This committee has begun holding sessions in the cities interested, beginning with Bayonne. Let us look at the problem. The Passaic River becomes the Lower Passaic by going over a precipice at Paterson into the thickly settled district of a city of 100,000 people; its rapid flow is checked after a couple of miles by a dam at the city of Passaic where the sewage of 18,000 people is received: thence it is a tidal river receiving the sewage of Newark with 230,000 inhabitants, besides contributions from partially sewered towns in the distance between. In this drainage district there was a population of 436,423 in 1895, and the growth has since been rapid and gives every indication of continuing at a high ratio, since the facilities of travel have been largely increased. The estimate of the engineers of the Commission was that the population would be 1,458,000 in 1930, and those who have seen the strides made in the last five years will not challenge the figures. Now the Passaic has heretofore taken care of the sewage of this district more by absorption than by the weight and power of its seaward flow. The sewage of Paterson may almost be said not to have below Dundee dam at Passaic, the long stretch of sluggish stream at Dundee lake above the dam precipitating the solids by the mechanical process so generally used. From Passaic down the tide ebbs and flows, the volume of course depending upon the rainfall, but not developing into a continuous current at any time. We have not, therefore, a river which will carry away the deposit of sewage so as to scour its own banks and bottom. Its self purification, in short, depends chiefly upon there being sufficient dilution, and when the extreme limit of the water's absorbing capacity is reached we have a condition which is not so much that of an open sewer as of a cesspool. That the limit has been reached was demonstrated by the dry summer of 1895, and in that year, and at intervals during 1896 and 1897, when the rainfalls were interrupted, the recurrence of the cesspool features of the river was so immediate and so obvious that there could be no questioning the thorough establishment of the fact that the river has become incapable of assimilating additional sewage in its ordinary flow. The consequences are as inevitable as death.

Now, if we are right in assuming that the violation of the laws of health is something which must be checked as we would prevent crime or contagion, and that the Passaic river is an offence which imperils life and property, it seems obvious that creators of such condition should provide the means of removing it and that those who would share the benefit of the remedy should also share in the provision of it. The drainage district has heretofore carried its sewage to the river as a place of final deposit; that place having become dangerous, it is demanded that the rule which removes the cesspool from the city lot should apply to the cesspool which has been created by using the river as a place of sewage deposit. In planning to relieve the river, it was ascertained by the Commission that an arterial sewerage system extending from the Paterson Falls to Newark Bay, which would probably cost $6,500,000 and have a length of nearly twenty-six miles, would accommodate the sewage flow of the population of the cities and towns of that drainage district. It was the compactness of the population which primarily led to the decision in favor of an arterial system. The collection, at one point, of the sewage of the towns and cities of the district was found to be necessary and it was believed that one great interceptor should perform the work for the whole district rather than that there should be several such to collect for parts of this concrete section. The decision was made less difficult by the failure to discover localities fitted for disposal of the sewage of Paterson and Passaic, and by the obstacles which would be encountered in using any place for such a purpose in a thickly settled district. The commission

ers were driven toward an arterial system, with eventual sea disposal below the populated places in the drainage district, and that simplified their work.

Now as to the final disposal. We have a community of half a million souls dependent upon the open river for an outlet for their sewage, and find the river overburdened, depositing its solids as it sluggishly makes its way to the sea, and sending on the contaminated waters to reach the ocean before restored to their pristine purity. We propose the collection of the sewage into a sewer which will relieve the river of its foulness, and we point out that a large part of the work contemplated is a pressing necessity through the absence of local interceptors. We reach the salt meadows between Newark and Elizabeth, opposite Newark Bay, and there the collection work for the Passaic river proper may be said to end. The discharge as recommended by our engineers is to be made into Newark Bay. The engineers suggest a flume a mile and nine-tenths in length, extending from the interceptor's terminus in Newark Bay at Great Island to a point in the bay at deep water. There the discharge is proposed to be made, under such conditions as subsequent developments and investigations may make advisable. Should a nuisance be created there a further extension of the sewer to a point on the lower Bay of New York is recommended by the engineers, but it is believed by them that such danger would be small. We are, however, met by opposition to the discharge at this point from places located on the bay and below it, and from various sources. It has been claimed that the prospective contamination of the Bay only transfers the nuisance to a point lower down the river and that large interests would be injuriously affected. I am not prepared to enter just now into a full defense of this, but I do assert that so far as concerns the collection of the Passaic River drainage district and its conduct to the point indicated, it is a demonstrated necessity, and that the further disposition can be made at no other point so well. It may be further asserted that the practicability of discharging at outgoing tides; of precipitation previous to any discharge; and of the development of still newer methods of treatment before finally releasing the fluids for sea disposal, offers recourses sufficient to meet the objections that have thus far been raised. Should a further extension of the sewer to the larger bodies of water in New York Bay be required, there are other districts which would find the route the best available for them, and thus the cost of extension would be somewhat reduced. It should be mentioned that the island in the salt meadows, indicated in the report as the place of final collection, is comparatively remote from population, and is surrounded by marshes which would prove a barrier to growth in that direction.

It is also to be noted that a sewerage system for South Orange, which will eventually include other places, fixes the place of deposit at the outlet which the engineers of the Commission designated for the main sewer. It is then established that for the lower Passaic sewerage district it is necessary to construct an arterial or trunk-sewer collecting the sewage of the district from the cities and towns now having sewer systems or soon to construct them, and that such trunk system should end for the present at Newark Bay. This is found not only by affirmative fact but by the absence of interceptors in the cities, by the absence of suitable disposal grounds available near the cities and by the objections raised by large suburban population occupying territory which might be made available, as well as by the necessity of providing an outlet for the fluids after disposal and by the superior facilities of the meadows opposite Newark Bay for collecting purposes. Let the final discharge be into lower New York Bay or Newark Bay, and the necessity of conveying sewage to the point indicated remains unassailable. And for the capacity of Newark Bay to receive and dispose of the estimated flow of 70,000,000 gallons daily we have the estimates of our engineers. The desirability of using mechanical precipitation before such discharge has been carefully considered, and the convenience of access for boats to convey the sludge to sea if necessary, is a further advantage of the locality. The difficulties of land disposal in those sections have led to movements favorable to a great extension of the arterial systems.

There are parts of five counties and eighteen or twenty cities, towns and hamlets in the lower Passaic sewerage district. Each has its own interests, purposes and municipal ambitions, and each has much to do and little money to spend. The work is necessarily of a State nature, requiring a broader and higher authority than that granted any of the local branches of government. On the other hand, the constitution of the State denies to the legislature the authority to provide for the payment of such a costly undertaking by the necessary issue of bonds. It is required, therefore, that substantially a new method of exercising the powers of the government should be devised and to warrant such an innovation the necessity should be great. The imperative nature of the demand for the abatement of the Passaic nuisance has been demonstrated elsewhere, and the duty of the State to take action depends upon whether it be agreed by such students of sanitation as are now before us, that an injury to public health must be repaired not merely as a matter of policy but as a duty of government, similar to that of the prevention of crime and its punishment. Upon no other basis should we be willing to advocate measures which the limitations of constitution and existing forms of local government thrust upon the State for the correction of this and similar nuisances. The proposed law would briefly define that when a commission which has been duly appointed to consider the subject reports that any stream has been so befouled by sewage as to become a public nuisance and detrimental to health, the governor may appoint three able and discreet men with power to remedy the nuisance at once. The initiative is in the legislature so far as the preliminary examination is concerned. The governor acts, the commission proceeds with its task. It requires the selection of competent men and gives them very great powers in the raising and spending of money. The local authorities pay for the expense, but do not supervise the expenditures. The three commissioners are State officers, charged with a heavy responsibility, subject only to removal by the governor and to his scrutiny of their accounts. It is an exercise of power absolute, beyond the ordinary, and to which objection might justly be made if it were not founded upon that doctrine that sanitation is a higher law than that which controls the ordinary exercise of government in this State and country and justifies more pronounced measures.

It is the design of the statute as proposed, to meet other needs of the same kind in other parts of the State, and these may be expected in time. The sewerage problem is everywhere, in the remote farmhouse where the well may adjoin the cesspool and the dairy which supplies the city milk may be tainted; in the suburban community desirous of city improvement at a rural rate of expense; in the city struggling to make its sewerage system equal the needs of its rapid growth and requirements of health, on and up to the questions which are involving the collection of sewage from the different municipalities of some great drainage district where the means of local disposal are not available. In our State it compels attention by the evils resulting from its neglect, and we deem ourselves fortunate that the costly problem is pressed upon the State for a solution. These difficulties we find are being encountered all over the country, in other States: In Massachusetts, where action of momentous value has been taken; in Connecticut, where it is now under investigation—wherever there are great cities, narrow rivers being polluted, and an intelligent body of sanitarians to attack the evil. We find it in London, Manchester, Glasgow, countless centers of population grappling with it and guessing their way. There is no established rule, and no all wise sanitarian or engineer. Shall we follow the processes of nature? We find her too prodigal for our small means. Shall we imitate older civilizations? Our conditions are different, and our changes more rapid. We must work out our own salvation as best we may. This should be done by educating the masses through organizations like this. It must ever be borne in mind that there is never a complete and final solution of all difficulty, and crowded communities must be taught that the cost of removing the refuse of the cities bears a large ratio to the cost of supplying such communities. What goes into a community must emerge in some form, and if the transformation reduces it in bulk, it has also made it more difficult to care for safely and healthfully. Kindly critics often referred the Commission to similar problems abroad, and found much to instruct therein, but the work of London, Berlin, etc., is at its best only progressive and as far from perfect as any other branch of human progress. The tax-payers here naturally fear the great increase in the cost of living, but the sound bodies and clear heads which have through invention lightened labor, and so vastly increased the earnings of humanity, may be considered more than an offset for the requirements of the modern sanitation, which not only reduces the death rate but adds to the comfort and efficiency of the living. The Lower Passaic River runs its slow course through one of the fairest valleys in America with a population which it owes to its advantages for residential purposes, and its nearness to the great metropolis. Under healthful conditions the limit of the growth of population can scarcely be defined. Without sanitary provisions, it would be doomed. Education has not merely taught the people to correct bad conditions; it has warned them what to avoid. If the Lower Passaic River has become a nuisance to the public by contamination from sewerage, instead of the attractive and useful stream it was a few years ago, then it

nust be restored by removal of the wrong. A river which ·ields stenches which in the heated air of August sicken many ınd alarm all; from which the pollution has driven fish life; vhich has lost its charm as a public resort and the best of our ›arks; which is driving away population; which, in short, is ıssuming the conditions of a nuisance instead of a benefaction, :ompels remedial action. The legislature should act at once, ınd in time to prevent further injury to the large property nterests involved. We can not trifle with such perils, we must ·egard the interests of the whole body of the people as superior :o those of any individual or single community. The influence ›f this Sanitary Association will aid the project, not only for vhat would be accomplished for the Lower Passaic valley, but for the principles in government for the benefit of sanitation which a work of such a character would establish and perpetuıte in our State.

(To be continued.)

SELECTIONS.

A Case of Tyrotoxicon Poisoning; the Bacteriology of Milk.—At Halifax, England, a case of ptomain poisoning, with a coroner's inquest, has occurred. It is commented upon as follows in the London *Lancet:* "Some interest attaches to an inquest recently held at Halifax on the body of a child, aged 4 years, who was put to bed on November 27, apparently in her usual health, but was taken ill about 7 o'clock the following morning and died in a few hours. A postmortem examination was made by the medical officer, who deposed that death was due to some poisoning the exact nature of which he was unable to specify. It was suggested that the girl might have sucked the coloring from a doll which she took to bed with her, but it was also further mentioned that she had partaken of some ice-cream which might have caused the symptoms. The coroner directed the borough analyst to make an analysis, and he expressed the opinion that the symptoms and postmortem examination pointed to poisoning by tyrotoxicon, a substance derived from unwholesome milk. He examined the ice-cream for tyrotoxicon but found none present. He gave some useful hints, however, that duly found their way into the press, namely, that this substance was destroyed by a temperature of 90 degrees C., and consequently if milk was boiled, should tyrotoxicon be present it would be destroyed. This adds another warning to the community at large against drinking milk that has not been boiled, and points the necessity that farmers and milk dealers should scald out the utensils in which they place milk."

We are reminded by the foregoing of a discussion of the milk supply question that recently took place in the Massachusetts Association of Boards of Health, in the course of which one of the speakers stated that in some places in Boston the milk storekeepers put rotten eggs, cheese, bad molasses and other refuse in the cans to be returned to the dairy. The practice of returning unclean cans and stoppers from the dealer to the producer was condemned. Before so returning them, the dealer should be required to see that they are thoroughly cleansed and sterilized by the use of steam or boiling water. "Inasmuch as milk is one of the best culture media for micro-organisms, and is always liable to become infected with the germs of disease, and further, inasmuch as the process of Pasteurization is known to destroy such organisms, it is recommended by a majority of the committee that, as far as possible, all milk be Pasteurized before it is sold."'

In the course of this same discussion Dr. Sedgwick, the well-known bacteriologist of the Massachusetts State Board of Health, remarked that as for himself he now never drank a glass of raw milk. He advocates not only that all milk should be Pasteurized but that this should be done early. He said: "If you go and buy some milk that already has millions of bacteria in it, and a lot of dirt and all that, and Pasteurize that milk, you will undoubtedly have rather a hard time. Milk ought to be Pasteurized at the latest very soon after it is drawn from the cow, and then it would be much cleaner and better taken care of, and when it is treated in that way it is almost perfect. I really believe the time is coming when it will be regarded as *a very unusual and uncivilized thing to drink unpasteurized milk;* and I think, if I had brought in some Pasteurized milk and passed it around here, and said nothing about it, nine out of ten of those present would not have known but they were drinking ordinary sweet milk, that is, most people, having had no sweet milk in their lives, have got used to a commercially sweet milk, and when they get hold of sweet milk they think something is the matter with it. But anybody who has ever squirted milk into his mouth from the teat of a cow, as all boys have done who live in the country, knows that milk that has been Pasteurized tastes like that he used to get when he was a boy, practically normal milk. I believe in cities especially we have got to come to that sort of thing; and I believe that unless we do come to that, we shall see cholera infantum and epidemics of typhoid from milk. I really believe *if we could get Pasteurized milk into Boston today, and let nothing else go into the tenement-house districts, the number of cases of cholera infantum we should have would be too trifling to mention.* And the moral of all this is that boards of health will not be considered to have done their full duty in respect of the protection of the milk supply if they stop short at their usual chemic analysis.

"I believe that the time will come when every well regulated local board of health will have some one at its laboratory, I mean in every city of any size or large towns, who should make an examination of milk that is sold, not only in respect to the amount of water that it contains, that being probably the least damaging of all things, but in respect to dirt and its age or staleness, and that in such examinations counting the numbers of bacteria and determining the acidity will be of very great value." The remarks of Mr. Nathan Straus, the newly appointed president of the New York City Board of Health, may be put on record in this connection. He says: "There is practically no milk delivered for general consumption in cities that is fit to be fed in its natural state to young children. I think I have fairly demonstrated the proposition that many thousands of infants' lives are annually sacrificed by the neglect to supply for the nutriment of children milk which has been sterilized. I hold that neglect to be criminal." The ice has been broken. We may expect soon to hear that the multitudinous institutions throughout the country for the care of children, have found their account in the abandonment of raw or unpasteurized milk, unless it have the certificate of a bacteriologist.

Thyroid Medication in Diabetes.—The principal feature of thyroid medication is the acceleration of tissue nutrition with the habitual predominance of denutrition. To this is due its effect on obesity. It is accompanied occasionally by a slight glycosuria, amounting in Ewald's case to permanent diabetes. In Georgiewsky's experiments with dogs this glycosuria did not appear when the thyroid was administered in combination with a meat diet, but only when the dogs were fed with soups. He also states the fact that the days when there was sugar in the urine there were less unoxidated substances than on other days, showing that the glycosuria can not be attributed to any lack of oxidating energy. Von Noorden asserts that the internal secretion of the thyroid prevents the formation of fat at the expense of the sugar; in other words, it interferes with one of the mechanisms that regulate the glycohemia, which ingenious hypothesis deserves to be verified. This fact that thyroid medication and hyperthyroidization favor the production of glycosuria renders especially remarkable the case reported by Branthomme of an arthritic diabetic improved by the ingestion of thyroid tablets, until now, a year later, there is no sugar in the urine, and merely traces of albumin. Lépine comments upon this case, remarking that if diabetes results from deficient nutrition, then thyroid medication accelerating tissue nutrition would affect it favorably, similarly to the beneficial effect attained in diabetes by d'Arsonval and Charrin with high frequency currents. De Renzi and Reale, on the other hand, have noted glycosuria follow the use of these currents, showing again the analogy between them and thyroid medication. Both accelerate tissue nutrition and thus might improve a diabetic, but more frequently they are injurious, as they stimulate denutrition to such an extent. Lepine concludes by reporting the case of an obese diabetic he is treating with the thyroid medication. At first the sugar was increased, but in a few days it began to show a constant decrease. Intercurrent erysipelas interrupted the treatment, which he intends to resume later.—*Semaine Méd.*, December 22.

PRACTICAL NOTES.

Injections of Artificial Serum for feeble new-born infants have been found remarkably beneficial by Loviot.—*Presse Méd.*, January 22.

Powder for Varicose Ulcers of the Leg.—Finely pulverized sodium chlorid, 50 grams; pulverized menthol, 5 grams. Mix and pulverize (Simonelli, *Journ. de Med. de P.*, January 9).

For Stings of Insects.—Jacquet proposes the following: Naphthol 10 parts; menthol 1 part; ether q.s; petrolatum, q.s. to make 100 parts. Dissolve the naphthol in ether, add the menthol and finally incorporate the solution with the petrolatum. —*N. O. Med. and Surg. Jour.*

An Ointment for Pruritus.—The *Jour. de Med. de Paris* attributes the following formula to Coover: Yellow oxid of mercury, 1 part; vaselin, 200 parts. The ointment should be applied at bedtime, and also, if necessary, in the morning, by firm and prolonged friction, the affected parts having been previously washed with warm water and soap.

The Lithotomy Position in Partu.—O. Schmidt of Moscow recommends this position whenever the head is engaged in the pelvic cavity or outlet; as the labor pain ceases the feet are replaced on the bed. The increased intra-abdominal pressure and the enlarged pelvic outlet render the birth easier in this position, and it proceeds with remarkable rapidity.—*Cbl. f. Gyn.*, 1897, No. 47.

Gravity of Generalized Pruritus in Pregnancy.—Whenever there is general pruritus sufficient to cause insomnia, the subject is evidently affected with a serious auto-infection. In every case observed by Pinard and Lutaud the pregnancy was not normal; either the fetus died or there was eclampsia, or defective insertion of the placenta. The combination of bromid and chloral seems the best medication, although the immediate termination of the pregnancy has been suggested.—*Journ. de Méd. de P.*, January 16.

Girdle for Sea Sickness.—Galliano of Turin is now patenting a compressing girdle or belt which he claims has absolutely prevented sea sickness even in those most easily affected. It exerts a strong pressure on the gastric region from both front and rear, which has long been known to have a favorable effect in threatening sea sickness, although no special appliance for the purpose has ever been devised before.—*Gaz. d. Osp. e d. Clin.*, January 23.

Orthoform Anesthesia.—Orthoform does not produce anesthesia on sound skin or mucosa, only on open wounds. Hirschbruck recommends the injection of a 3 per cent. mixture of orthoform and water, with which he has obtained excellent results. He precedes it with 0.002 cocain mur. to prevent pain from the injection. The anesthesia thus produced is lasting and the absolute non-toxicity of orthoform adapts it to many of the minor operations.—*Berl. klin. Woch.*, 1897, No. 49.

Moltent's Method of Treating Spina Bifida.—After incision parallel to the axis of the spine, and isolation of the sac, a small quantity of the liquid is evacuated and the tiny hole closed with hemostatic forceps, twisted a little to form a small pedicle below them. This pedicle is then ligated with catgut; the part between the ligature and the forceps resected, and a small compressing bandage applied. The next day the operation is repeated exactly the same, on the opposite side of the sac, avoiding the nerve elements, and so on gradually until scarcely anything is left of the sac, which is finally reduced at last, unless this has occurred spontaneously. The whole is concluded with a Senenko osteoplastic operation, and suture in three planes.—*Gaz. degli Osp. e d. Clin.*, January 23.

Citric Acid in the Prophylaxis of Whooping Cough.—Moncorvo Filho of Rio Janeiro states that the special bacillus of pertussis is destroyed in its chosen home, the larynx, by swabbing the periglottic region with a 10 per cent. solution of citric acid with simple syrup. It also constitutes an effective prophylaxi against infection. He succeeded in preventing the disease i many children living with others infected, by this means, o merely the administration of small quantities of citric lemonad during the day. He considers resorcin and asaprol the mos effective of other remedies.—*Brazil Médico*, December 22. A long article by Gillet in the *Presse Méd.*, January 22, recommends belladonna in progressively large doses as a simple an valuable symptomatic in whooping cough.

Treatment of Mental Strain.—In cases impossible to treat b the only rational means, removing the cause, in which the men tal strain must be kept up, Romme recommends in addition t hydrotherapy and massage, two pills of 1 milligram strychni arseniate each, and one pill of 8 milligrams zinc phosphid dur ing the day, at breakfast or dinner according as the perso retires early or late. This can be kept up during the entir period of intellectual work, suspending it two days each week If the strain is continuous, the pill can be taken from time t time whenever especially fatigued, or a strychnin pill ever other day and a zinc pill every fourth day. Make the latte according to the formula: zinc phosphid, 0.80 centigrams pulv. gum arabic, 1 gram; pulv. licorice, 3 grams; honey q.s to make 100 pills. Coat with silver and keep dry, sheltere from the light. Renew every month.—*Presse Méd.*

The Improved Technique in Trephining now possible with Gigli' wire saw is the subject of an article by E. Braatz in the *Cbl. f Chir.* for January 22. He states that it avoids all jar, and th piece cut out fits in again with remarkable precision. Th edges can be cut straight or slanting as desired. He has in vented an instrument to drill the preliminary holes on the prin ciple of an augur, but very short, 15 cm. the total length which ensures great delicacy and accuracy. The U-shape part usually grasped by the hand is made too narrow to admi the hand. A projecting handle rides loose upon it at righ angles to the shaft, and by this the drill is turned, while th pressure is from the other hand above. He uses an ordinar drill changing to a fraise as the bone is nearly penetrated. H inserts the saw with a sound curved to correspond to the dis tance between the holes; 93 degrees of an arc of 8 cm. diamete for a distance of 4 cm.; 140 degrees of an arc of 5.3 cm. for distance of 3 cm. and a half circle 2.5 cm. in diameter for distance of 2 cm. The drill-holes serve for drainage afterward *Vide* JOURNAL, Vol. xxix, page 504. Gigli is pronounce Jeel-yee.

Methyl-Blue in Malaria.—J. P. Cardamatis of Athens report that he has administered methyl blue in 275 cases of malaria fever during the last three years, and has been amazed at it prompt and effective action. He considers its therapeuti value in malarial fever far superior to that of quinin and "ca not praise it enough." Its efficacy was especially noticeabl in persons so saturated with quinin that they had ceased t react, and in those in which quinin was counterindicated. Th results were undeniably successful in 93 per cent. of the tota cases of acute and chronic malarial fever treated, and it eve confers immunity; only 15 per cent. of the persons continuin to live in extremely malarial districts had relapses within year. The result was negative in 7 per cent. The only incon veniences were the staining of the mouth and clothing whe the liquid form was used (infants). He gives four tablets a da one every two hours. The daily dose for adults is 10 to 1 grains; for older children 8 grains, for younger children grains, infants 1 to 2 grains. It is administered ten to fiftee days and then suspended for two or three days and a purgativ given, resuming for three or four and then suspending fo three to eight days and resumed at intervals, ensuring a tota of seventeen days in twenty-two for acute or chronic quotidia in which the fever disappears in the first five days, sixtee days in forty-eight when the fever reappears in the first fiv days and twenty-eight in sixty days in the tertian and quaterr ian form.—*Deutsche Med. Woch.*, February 3.

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SATURDAY, MARCH 5, 1898.

APYRETIC TYPHOID FEVER.

It is an interesting fact in clinical medicine that every infectious disease which attacks human beings in the vast majority of cases results in producing a more or less constant rise in bodily temperature. One would suppose that the poisons of one infection might irritate the heat centers in such a way as to cause an increased generation of heat, while other poisons would depress them to such an extent, or would so seriously interfere with oxidation processes in the body, that instead of the temperature rising above normal it would fall below it. It is true that in a certain number of cases where the infection is particularly malignant, and where the individual seems peculiarly susceptible, fall of temperature does follow the infection, the patient immediately passing into a condition of profound toxemia with symptoms resembling collapse, but these instances are so rare as to be practically curiosities in medical literature. It is interesting to note, therefore, that from time to time, as our observation of diseases becomes more accurate and our methods of diagnosis more complete, physicians are recording instances in which grave infectious diseases have been attended, if not by a fall in temperature, at least by no pyrexia. Originally, fever was perhaps the most important diagnostic point in connection with the case, but at the present time we regard it merely as a symptom of some prominence, possessing certain indications, and rely upon other physical signs more objective in character before we make a positive diagnosis.

Many years ago a very large number of cases of true typhoid fever were not recognized as such and were classified under the head of gastric fever, or simple continued fever. These cases are today properly recognized and add very largely to the number of cases of typhoid fever which are reported. Some years ago FISK of Denver, reported a series of cases of typhoid fever, in which the temperature ran a typical but nevertheless apyrexial course, and similar instances have been seen in the East, recorded by clinicians, though none of them so far as we are aware have reported them as thoroughly as has Dr. FISK. In this connection it is interesting to note a recent paper by WEILL and PEARY, published in *La Province Médicale* for November, 1897. In this case the temperature was normal or subnormal, practically throughout the entire course of the disease, but the pathologic process was accompanied by the characteristic symptoms of typhoid fever so undoubtedly that no question as to the diagnosis could be admitted. The symptoms began with the usual vague manifestations of general wretchedness, with great fatigue upon attempting any exertion. There was loss of appetite, frontal headache, restless sleep, vertigo, nausea, but there was no epistaxis. There was also pain throughout the limbs. The tongue was characteristic, red on the edges and rough in the center. Constipation was present. There were no rose spots early in the attack. The abdominal walls were soft and pliable. The lungs were normal, there was a slight murmur at the base of the heart. The pulse was quick and small and easily accelerated by excitement. Vomiting was sometimes present, and a restless sleep finally became complete insomnia. Several days later in the case abundant epistaxis came on in the night. There was diarrhea of a non-fetid character, which was persistent and vomiting became a persistent symptom.

WEILL and PEARY go over the case very carefully, present its temperature chart, exclude anemia and other causes of low fever and conclude that this was another instance of apyretic typhoid.

QUANTITATIVE HEREDITY.

The usual views of hereditary transmission of qualities from parent to child have been contentedly vague as to the exact amount derived from either parent or grandparent or more remote ancestor. It has been probably assumed by most of those who have given any thought to the subject that such calculations were impossible or that at least that the laws governing such transmission depended upon so many and so different conditions as yet, and probably long to be, unknown to us, that it was useless to try to seek them out. We know as physicians that certain pathologic heredities are more or less special to one or the other sex, that in some prominent instances a feature or cast of countenance, mental or moral trait seem to be a family characteristic, while in others there is apparently nothing to indicate descent

in the way of family traits or features. Once in a while a known ancestral character makes its appearance, having skipped one or more generations, and to this we give the name of atavism and leave further explanation as useless or impracticable. The hitherto recognized laws of heredity are few and hardly touch the question on its quantitative side; the distribution of ancestral traits has been considered to be too capricious as a rule to afford the data for generalizations in this particular direction, at least in the human species, where all matters involving faculty or capacity are so much more complex than in the lower animals.

Several years ago Mr. FRANCIS GALTON, one of the most active investigators of this subject, published a theory of heredity that takes account especially of the respective portion due to each parent and ancestor. Counting the total of the organism as 100, he held that one-half, or 50 per cent., is derived from the progenitors, one-half of this from each parent. They in turn derive half their traits and features from their respective parents, and so on to the most distant ancestral relative. Any individual may therefore be reckoned as owing one-quarter of his peculiarities to each of his parents, and through them one-sixteenth to each of his four grandparents, one-sixty-fourth to each of his eight great-grandparents, and so on in a continually decreasing ratio to his remotest forefathers. In a more recent publication GALTON has given facts confirming this theory which were derived from a study of a well-known breed of dogs showing certain markings and peculiarities that facilitated this particular line of inquiry, and it may perhaps be accepted as a fairly probable working hypothesis.

What is true of the lower animals is also within certain limits applicable to the higher ones and from this point of view GALTON'S theory is of interest to us as physicians. It will help us to a provisional estimate at least of the possibilities and dangers of intermarriage, of the risks of inherited disease, etc. One consideration, however, must not be overlooked; it must not be assumed, to use a somewhat vulgar comparision, that the cards are thoroughly shuffled at each re-deal, that the transmission of qualities is general rather than special in every individual case. The inheritance transmitted from parent to child may be in large part that which the former received from his ancestor; this is the basal fact of evolution and of the perpetuation of species as well. We see it in the family features transmitted through many generations, of which the Hapsburg lip and the Bourbon nose are historic examples. This fact, however, is perfectly compatible with GALTON'S theory of heredity, though it would probably so complicate the observations that it might sometimes make it the more difficult of confirmation in carrying out the investigation in the higher animals and especially in applying the theory to the heredity of human faculties and traits. It would be of especial interest could we also find some law that governs the apparently so capricious selection of qualities in inheritance, irrespective of the amount derived from either parent, but that is a problem for the future.

GALTON'S theory, if it is capable of being sufficiently demonstrated as a fact, is certainly a valuable addition to our resources for the study of heredity, not only in a general scientific point of view, but also in all appearance and probability in its special application to the facts of hereditary disease.

MALARIA INFECTION.

Perhaps one of the most remarkable facts presenting itself to the student of medical literature, is the swing of the pendulum, as it may be called, upon almost every topic pertaining to the science. This seems to be especially true concerning those subjects of which we seemed or seem to have more than an average knowledge. Histories of medicine teem with examples. The controversies of pathologists as to the formation of infarcts, the etiology of tumors, the changes taking place in inflammatory processes are familiar instances.

To discuss a subject of somewhat more recent date: if there were one disease upon which we could place our scientific finger and say, "It is," or "It is not," that disease is malarial fever. The intermittents were reveled in by our laboratory savants as mere child's play, while every dabster at the microscope was surprised and delighted at the fields of tertian and quartan organisms so easily outlined before him. So we thought. But while burying ourselves in the laboratory, carefully and accurately examining the blood of all patients (not those alone suspected of being malaria infected), always finding, if not at first, after repeated examinations, the specific hematozoon of our search, the clinician has been directing his attention into other lines and after a few cursory peeps through the microscope he exclaims, "Behold, I do not see this much-lauded insect; ergo, it is not here. I have made the diagnosis of my patient's trouble by his chills, fever and sweats, his enlarged spleen, and has he not a labial herpes? The clinician has been under the heel of the pathologist and the bacteriologist too long. I will hie me to my den and there indite an epistle entitled, 'Malaria *sans* Plasmodia.'"

In 1881 the researches of LAVERAN gave to the world the statement that malaria was another of the class of infectious diseases; a disease in which the specific organisms were found within the red corpuscles of the blood and upon which they exerted a parasitic action, growing at the expense of their hosts. A new impetus was given to the study of malaria, and incidentally to the blood, and it was soon developed that

e plasmodium, as the organism was called, was found no other disease. Italian observers, CELLI, GOLGI, ARCHIAFAVA; Prof. KLEBS, and in this ocuntry, EPPER, OSLER, DOCK and others contributed to place e affection upon a firm scientific basis. Three distinct arieties were discovered, the tertian, the quartan and e estivo-autumnal, the difference being in the length maturation, the size of the different varieties and rtain pigmentary changes. One of the most valu- le discoveries of recent years has been the pathog- monic sign of the estivo-autumnal, the presence of escents and ovoids in the blood after the first week. xperts all recognize that almost invariably obscure alarial symptoms occur in this form. The not un- sual enormous difficulty in finding the parasite of this ariety will be appreciated by all who have had any ex- erience in this kind of blood work. The less direct e symptoms pointing to malaria, the more difficulty encountered, as a rule, in finding the parasite. All are miliar with the presence of solitary "malarial" (?) mptoms, headache, neuralgia, chilly sensations, per- aps coming on with some approach to periodicity. hink how comparatively few are the plasmodia quisite to produce such a condition, and then turn our mind to the fact that an exceedingly small pro- ortion of this diminution is found in the peripheral lood. Is it any wonder then that even with the best bservers and most careful and long-continued searches ases occasionally occur that are barren of results as ar as the hematozoon is concerned?

The dictum of THAYER and HEWETSON that the rescent positively indicates estivo-autumnal malaria, as followed by that of OSLER, than whom no one is nore qualified to judge, that malaria is always due to he plasmodium, and secondly, that any fever that esisted the action of quinin, always of course properly dministered, is not malaria. As the scientific aspect f this disease became more and more worked out, nd not every case in which no diagnosis could be nade was labeled "a touch of the malaria," that *ête noire* of every true physician, this latter state- nent has become a recognized law of therapeutics.

Scientifically, in what way is the fever of malaria roduced? In the intermittents, by the reaction on he part of the system against the maturation and nvasion of an immense number of parasites during comparatively short space of time. In the remit- ents, other cycles of growth are completed before the eaction from an immediately preceding cycle has been recovered from. In the continued forms, sporu- ation and invasion by a small number of parasites is f constant occurrence, but as the number is small he reaction on the part of the economy is not great; ence there are no chills and the fever is compara- ively low.

Experiments outside the body have repeatedly lemonstrated that the parasite perishes in a weak solution of quinin, as dilute as 1 to 10,000. If absorbed, 0.3 gram of quinin would make of the humoral fluid a solution of several times this strength. The first indication then to be filled in the treatment of malaria is to be sure that our antiperiodic is administered in a form capable of assimilation by the case at hand. This of course entails in not a few instances a consideration of the stomach mucosa. If we administer a drug, which by its presence in the blood results in death to the malarial parasite (if outside the body, why not within?) it naturally follows that non-assimilation will result in non-cure. Would not atrophy of the gastric mucosa result in diminished or non-assimilation of our quinin? In malaria infected districts the inhabitants, whether suffering from the disease or not, are accustomed to take large doses of quinin more or less regularly, and more regularly immense doses of whisky to ward off a possible infection. In reviewing the etiology of atrophic gastritis, what more constant or more potent factor is present than the ingestion of alcohol. Another point: In the West and Southwest especially quinin is not always administered by a regularly qualified physician. The people themselves know the danger that lurks constantly around them and are always drugging themselves for every ailment of all forms and descriptions as "a touch of the malaria." Very good. Now as to the preparation: The bisulphate of quinin in solution? No indeed. What need when the drug companies turn out yearly millions of their little 0.3 gram pills. Now we have coming together these medical bullets and a mucosa, gastric and intestinal, practically useless for purposes of assimilation. It is curious that an occasional case is not reported of intestinal obstruction due to undissolved quinin pills. The practical result that concerns us, however, is that these chronic cases, always estivo-autumnal, by far the hardest to cure, continue to have fever, and we are where we started. The patient has malaria beyond a doubt; he has been saturated with quinin and his fever is still flourishing in a quiet way. Therefore, the statement "that any fever which will not respond to quinin is not malaria," is false. *Q. E. D.* Make sure of one little point, that your quinin has come in contact with the blood stream, and the case is yours. This is not a story of invention. The writer has himself experienced such cases. The thought occurred to him, "Has my quinin been absorbed?" to be immediately followed by the second, "how to be sure that in any given case it is absorbed." Hypodermic injection! The experiment was tried and the battle was with the dictum of Prof. OSLER. This law was laid down five years ago and thousands of physicians all over the land are ready to vouch for its truth. Those of you who are not, examine the blood repeatedly; see if something else will not account for your "touch of malaria," or give hypodermic injections; 0.3 gram of a solution of the bisulphate injected

every four hours in the deep muscles of the back or in the gluteal region, will transfer your patient's blood into a weak quinin solution, in which death of the parasites will occur as fast they are set free in the blood. The pain is no greater than in the giving of any other hypodermic injection, abscesses are no more common, and you are sure that your drug will be taken into the general system.

The burden of all this is that in a recent number of a large eastern medical journal, a lengthy article was published on malaria, which coming from a man of considerable clinical experience, might tend to weaken in the minds of many men who perhaps have now had the best of luck in finding the plasmodium, the real standing of this organism as regards ague infection. To these let it be said that if we know anything of infectious diseases, we know that a specific microorganism is always the cause of the given disease; that it never enters as a causal relation into any other infectious disease.

The article in question takes the stand that the finding of the plasmodium is by no means essential in the diagnosis of malaria. In the classic intermittents, where the cycle of chill, fever and sweat come on at the same time daily, every other day, or every fourth day, that is of course true; the veriest tyro in medicine would without hesitation make the diagnosis correctly in such instances. And it is in these very cases that the finding of the plasmodium is attended with no difficulty. It is in the cases with obscure symptoms, those as mentioned before, that are due usually to infection by the estivo-autumnal parasite, that the diagnosis both clinically and microscopically becomes a matter of doubt. An affirmative therapeutic test in these obscure cases is not sufficient evidence on which to base a diagnosis. Many affections get well of themselves; quinin is often given as a tonic or as a placebo. Would we call all affections that improved or recovered because they happened to be receiving quinin at the time, indeed often in spite of it, of malarial origin?

The distinguished author brings in support of his arguments, that while in pulmonary tuberculosis the finding of the tubercle bacillus in the sputum is of the highest importance, it is by no means of absolute necessity in making the diagnosis; the physical signs will almost invariably be sufficient. Very true, but what physical signs or even symptoms, barring one or two of the latter which might well belong to one or another of a dozen different diseases, do we have in malaria? To make a diagnosis of ague we must in many cases rely entirely on the microscopic examination. We all admit, in cases of pulmonary tuberculosis, the invariable presence in the lungs of the tubercle bacillus, even if we do not find the latter in the sputum. Why not give the plasmodium an equal chance as regards the blood. Some cases of early tuberculosis have no cough or expectoration hence the sputum is not always accessible for examination. The same can not be pleaded for the blood; it can always be obtained readily. Let not the pendulum swing us again into doubt and obscurity. Let us look upon malaria as an infectious disease, and keeping in mind the nature of this class, allow no one to make his boasts of his great successes in treating "a touch of malaria" without the innocent query, "Did you find the plasmodium in the blood, doctor?"

CONCERNING TUBERCULOUS AORTITIS.

The early opinion that the internal coat of the larger blood vessels of man is immune against tuberculous disease has been abandoned since the well known researches of WEIGERT [1] concerning the origin of general miliary tuberculosis from tuberculous foci in the walls of pulmonary and other veins. It is now generally known that in tuberculous leptomeningitis, for instance, there occurs a marked tuberculous disease of the small arteries.

When the walls of the blood vessels, particularly the larger branches, become tuberculous, then it is due, in the majority of cases, to direct extension of the process from a tuberculous focus in the vicinity of the wall. Independent tuberculous disease of the vessel wall is much rarer; in the majority of the cases it must then be regarded as of hematogenous origin. In the later stages, however, of such foci it is usually impossible to say whether the disease began in the form of a primary tubercle of the intima, that originated from deposition of tubercle bacilli in the blood stream, or whether the disease began as the result of a hematogenous tubercular infection of the vasa vasorum. Examples of both methods of origin have been described quite frequently in the literature.

The veins are much oftener involved in tuberculous disease than are the arteries. Numerous observations of venous tuberculosis, but only a small number of cases of tuberculous disease of the large arteries have been described. In the large branches of the pulmonary arteries MUEGGE,[2] WEIGERT [3] and HERXHEIMER [4] saw tuberculous proliferations projecting into the lumen, which undoubtedly were due to extension from the tuberculous bronchial glands.

Tuberculous proliferations in the aorta belong to the rarer diseases. DITTRICH,[5] KAMEN [6] and SIG [7] have described the extension of tuberculosis from bronchial or posterior mediastinal glands, or from a cavity in the lung, to the aorta, with the production of aneurysm or rupture of that vessel.

Of independent tuberculous disease of the wall of the aorta, not due to extension, there are only a very

1 Virchow's Archiv. lxxvii and lxxxviii.
2 Virch. Arch., lxxvi.
3 Loc. cit.
4 Virch. Arch., cvii.
5 Zeitschr. f. Heilk., ix.
6 Ziegler's Beträge, xvii.
7 Inauguration Dissert., 1896.

ew cases. ZAHN [8] describes a case of multiple nodules n the aorta and the iliac arteries in a tuberculous ndividual with general miliary tuberculosis. While he exact nature of this case, which occurred before he time of discovery of the tubercle bacillus, has not een established, there seems no doubt but that it oncerned a tuberculous proliferation. At any rate, hat is the view which STROEBE [9] has of the case. VEIGERT [5] has also described tubercles in the aorta, nd refers to some similar findings of MARCHAND and IEUBER. MARCHAND [10] states that sometimes in mil- ary tuberculosis one can find small tuberculous case- us nodules on the intima of the aorta, which seem requently directly due to the implantation from the lood stream. These nodules are, therefore, very nuch like the tubercles not so very rarely observed pon the endocardium in miliary tuberculosis. HANOT nd LEVI [11] saw a larger tuberculous mass, with bacilli nd giant cells, underneath the endothelium of the ntima of the thoracic aorta in a man 61 years old, vho died from miliary tuberculosis.

Very recently STROEBE has described an observation nade on the body of a young man 16 years of age, vho died from miliary tuberculosis, which apparently riginated in the bronchial glands. There were very umerous miliary and larger tuberculous nodules in lmost all of the organs. The heart was normal. In he ascending aorta, 2 cm., above ths sinus of Val- alva, there was a small projection about one-third of n inch in height, which was firmly adherent to the vall of the aorta and covered with some fibrin. Other- vise the aorta was normal, and there were no apparent hanges around the outside of the aorta at that point. Microscopically it was found that this nodule con- isted of proliferated endothelial cells, with leucocytic ccumulation, caseation in places, and fibrinous de- osits upon the surfaces. There were no giant cells. The free surface of the nodule had undergone aseation in one or two places. In one place he elastic lamina had been destroyed, and the ells rested directly upon the media. Below the nod- le the elastic tissue of the aorta was found to be omewhat loosened and split up. Otherwise the wall f the aorta was normal. The examination of the pecimen for tubercle bacilli showed that these were ery numerous.

In this case it does not concern a simple miliary ubercle but a larger mass, which in all probability riginated as a miliary intimal tubercle. The case ery much resembles the one already referred to, vhich was described by ZAHN as endarteritis verru- osa, inasmuch as it here also concerns an absolutely ealthy aorta, without any tuberculous foci, without ny disease in the immediate vicinity, and therefore condition that must be regarded as an independent tuberculous aortitis which developed upon a previ- ously healthy wall. This is interesting because many authors, as for instance MARCHAND, deny the existence of an independent acute verrucose aorititis, of any etiology, corresponding to this usual form of endocarditis. Tuberculous aortitis, as described in this case, may be placed parallel with the cases of valvular endocarditis that occur in phthisic patients. Such endocarditis may occur upon previously healthy valves, as well as upon those previously diseased. The essential change in this aortitis consists in a prolifer- ation of the endothelium, due to the action of the tubercle bacillus; the mode of infection with tubercle bacilli in this case may be reduced to two possibilities. Either the tubercle bacilli were implanted upon the wall of the aorta from the blood stream, or they were brought to the intima by the vasa vasorum in the subintimal layer of connective tissue. Perhaps the first possibility is the more likely one, because a large mass of tubercle bacilli in pure culture was found directly upon the place where the healthy endothelium formerly existed. It is also to be remembered that in the thoracic aorta the loops of the vasa vasorum do not reach entirely to the endothelium, but only to the border of the middle and inner thirds of the media, so that the inner third of the media is avascular under normal conditions.

[8] Virch. Arch., lxxxviii.
[9] Centrblt. f. Path. viii, 1898.
[10] Eulenburg's cyclopedia, ii.
[11] Gaz. méd. de Paris, 1895.

THE WEEK IN CONGRESS.

Last week in Congress there were hearings by the Committee on Interstate and Foreign Commerce, of which Mr. W. P. HEPBURN of Iowa is Chairman. Dr. U. O. B. WINGATE, Chairman of the AMERICAN MEDICAL ASSOCIATION COMMITTEE and Secretary of the Wisconsin State Board of Health, appeared in favor of the SPOONER Bill, as did also Dr. H. B. HORLBECK of Charleston, S. C., Health Officer of that city, and Dr. A. H. DOTY, Health Officer of the City of New York. On the other side appeared the Chief of the Marine-Hospital Service, with some officers, and Dr. DRAKE, a railroad surgeon of Atlanta.

Dr. HORLBECK made the principal speech against the CAFFERY-HEPBURN Bill, and in favor of the SPOONER Bill. The points were such as have been summarized in the account of the Mobile meeting, and were sound and well taken. Congressman MAHON of Pennsylvania also appeared before the Committee in favor of his Bill, which is the one for dividing the country up into sanitary districts, each district to be presided over by a commission. He changed his original Bill so that it would be practically under the control of the Marine-Hospital Service.

In addition to an excellent argument on this question, Dr. DOTY presented a telegram showing that the New York Academy of Medicine had endorsed the SPOONER Bill. It should be remembered that the CAFFERY Bill was introduced in the House by Mr.

HEPBURN, and is known as H. R. 4363. This Bill should be killed. The SPOONER Bill was introduced in the House by Mr. OTJEN, and is known as H. R. 8280. The earnest and active support of every member of the ASSOCIATION who favors the creation of a Commission of Public Health, is imperative. Write to your Member of Congress and Senator immediately, if you have not already done so, urging them to oppose the CAFFERY Bill and favor the SPOONER Bill, which is the bill prepared by the Committee of the ASSOCIATION, endorsed by the American Public Health Association and recommended by sanitarians everywhere, with one or two exceptions. These exceptions are, so far as we are aware, certain publishing organs that have books for sale, and a certain sanitary journal, the editor of which long ago survived his usefulness, and is more an object of pity than of any other sentiment. In some of these interesting articles a fling is taken at the Mobile Convention, because, forsooth, the plans of the bureau at Washington were not endorsed by that Convention. It is stated that the Convention was improperly influenced by gentlemen who were not in the interests of this autocratic bureau. Let us see. The bureau sent two surgeons, one passed assistant surgeon and one assistant surgeon, at public expense to attend this meeting, one surgeon being already on the ground as a resident. Every effort was made to bring the individual members of the Convention to suit the views of the bureau, and a great deal of energetic but misdirected effort to that end was made. That they failed is a matter of history, and now because of that failure the Mobile Convention is "of no particular consequence anyhow." The surgeon who acts as the Chief of the Bureau of Publicity and Promotion for the Marine-Hospital Service will have to write more editorials before he succeeds in convincing the people of the United States that the Mobile Convention was composed of any others than gentlemen who were not only in earnest in the cause they advocated, but were guided by the most patriotic sentiments.

Dr. SAUNDERS deserves great credit for his public spirit and the success of the Convention.

CORRESPONDENCE.

Against the Gallinger Bill.

THE DENVER AND ARAPAHOE MEDICAL SOCIETY,
DENVER, COLO., Feb. 3, 1898.

E. Stuver, M.D.— There is a bill now before the United States Senate, action upon which may be had at any time, the provisions of which are inimical to the interests of the medical profession, and to many commercial interests. It is Senate Bill 1063, Calendar No. 136, entitled "A Bill for the further Prevention of Cruelty to Animals in the District of Columbia." In accordance with the usual custom, the bill was referred to the Committee on the District of Columbia, and favorable action thereupon was unanimously recommended by said committee. On Dec. 15, 1897, Senator Gallinger, according to the *Congressional Record*, announced his intention to bring said bill before the Senate for discussion and action. It would, therefore, appear that action upon it may be expected at any time.

This bill, as is well known, is intended to control and restrict the practice of animal experimentation in the District of Columbia. Its principal supporters are the antivivisectionists. All of the principal National, State, and local medical and scientific societies have already protested against the proposed legislation.

At a meeting of the Denver and Arapahoe Medical Society, held at the Brown Palace Hotel, Jan. 25, 1898, the following resolution was unanimously adopted:

"*Resolved*, That it is the spirit of the medical profession of Denver that a strong protest be made against the passage of Senate Bill 1063, Calendar No. 136, entitled 'A Bill for the further Prevention of Cruelty to Animals in the District of Columbia,' and

"*Resolved, further*, That the President and Secretary of the Society be directed to communicate at once with our honorable Senators urging them to do all in their power to defeat a bill that will do untold injury to the advancement of medical science and to the prevention of disease among mankind and animals."

A committee was also appointed to attend the Stock-Growers' Convention, then in session in this city, with the purpose of interesting them in the defeat of the bill. They met with the most courteous reception, and easily succeeded in securing the passage of appropriate resolutions, a copy of which is herewith enclosed.

It has occurred to some of us that as the protests from medical and scientific societies are already practically unanimous, that next to their renewal, our best move is to interest commercial enterprises, such as the stock-growing interests. If it can be shown to the satisfaction of our Senators and Representatives in Congress, that the opposition to the bill is not confined to a certain clique of professional men, whose opposition thereto might be misinterpreted, but that commercial interests will also be affected by such legislation, their active co-operation for the defeat of the bill will be thereby secured.

Knowing your prominence in Wyoming and your large influence with the varied interests there represented, I write to you to enlist your active co-operation. It is desirable, first, that your Senators be written to, protesting strongly against the proposed legislation. Personal letters will probably be of most value. Protests from medical and scientific societies should also be renewed. In writing, give the number and title of the bill, as above. In addition to this, if you can get the stock-growers and agricultural societies, and such other interests as in your judgment are affected by the bill, to forward official protests, and if you can prevail upon prominent stockmen, who know the Senators personally, to write them personal letters, showing in what way such legislation would be detrimental to their interests, it is my opinion that much good may thereby be done.

I believe our best arguments, from a practical standpoint, consist in showing what great good has been accomplished by the investigations of the Bureau of Animal Industry of the Agricultural Department, in investigating diseases of animals, of ascertaining methods of early diagnosis, for instance, the tuberculin diagnosis of tuberculosis, and in providing remedies therefor, as in the recent valuable remedy for the swine plague. Hoping you may see fit to give us active support,

Yours very truly, G. E. TYLER, M.D., Sec'y.

A Rare Accident in Childbirth.

BUTTE, MONT., Feb. 19, 1898.

To the Editor:—The patient, Mrs. G. H. M., aged 26 years, weight about 125 pounds, of medium height, native of Scotland, was married to her second husband seven months previously. She had twice miscarried, her last pregnancy being three years ago. She was taken in labor at full term on July

3, 1897, in the evening. She was having strong pains. Digital examination revealed only sufficient dilatation to admit point of forefinger. The waters had escaped. The presenting part could not be certainly diagnosed by vaginal touch and she was too tender and nervous for an abdominal palpation sufficiently thorough for a satisfactory diagnosis of presentation and position. The os was very rigid. After watching her for some time I noticed no progress whatever in dilatation and that she was bearing her pains very poorly. In the discharges there was not the faintest trace of blood.

The best treatment which I have ever found for rigid os complicated with threatened nervous exhaustion is some form of opium in large doses. Three tablets, each containing morphia sulphate, gr. ¼; atropin sulphate, gr. 1/150, were given hypodermatically. At 4:30 A.M. the pains were regular and strong and the patient had had a good rest. I found signs of a slight hemorrhage in the bed. Examination revealed a breech presenting in the sacro-left-anterior position. The presenting part had passed entirely out of the uterus and was resting under the pubic arch. The labor made slow but steady progress to a complete and safe delivery of a large male child which soon breathed and cried lustily. There was no perineal laceration. The placenta was delivered in fifteen minutes with vigorous contractions of the uterus. After delivery of the placenta I noticed something protruding from the vulva, which, with very gentle traction, separated from a slight internal attachment when it was discovered to be the os tincæ complete and entire torn off from the cervix. Not a half pint of blood was lost during the whole confinement, notwithstanding this accident. No anesthetic was given. No particular pain was complained of.

Had this complication occurred under powerful uterine action, goaded on by ergotic stimulation, it would have been less wonderful, although such an event I believe to be unheard of. But in this instance the tear took place while the patient was under the sedative and eminently relaxing influence of the morphia and atropin as above. Moreover, it happened without her being, apparently, in the slightest degree conscious of it. Her recovery was quite protracted. No hemorrhage. No odor to lochia. She had no milk for the babe, who has thrived vigorously on the bottle. She developed a phlegmasia dolens of moderate severity on one side and was very weak and feeble for three or four weeks. Her temperature would range from 100 to 103 degrees. Tablets of protonuclein and elixir digitalin seemed the most efficient medication. Milk and stimulants were used freely. She has menstruated regularly since, but more profusely than naturally. The uterus was examined a few weeks ago and found to be granulating nicely around the site of the tear.

J. S. HAMMOND, M.D.

The Humane Society Deal in Fiction.

The following is a copy of a letter addressed by the Humane Society to a well-known Senator:

WASHINGTON, D. C., Feb. 19, 1898.

Dear Sir:—I desire to call your attention to the bill now before Congress, "for the further prevention of cruelty to animals in the District of Columbia," and intended for the humane regulation of the practice of vivisection.

It is not, as has been by some erroneously supposed, an "antivivisection bill," but provides only that experiments upon animals shall be performed only by properly qualified persons; that in experiments calculated to give pain, the animal shall be rendered insensible by anesthetics; and it also provides for the appointment of four inspectors, appointed by the President of the United States, to see that these regulations are complied with and to serve without pay.

Ordinary inoculation experiments are expressly excluded from the operation of this law.

We wish to point out to you that, to the certain knowledge of the Humane Society, there are perpetrated in this country, under the name of scientific research, acts of the most revolting cruelty and barbarity; that the young of both sexes are being trained to these practices; that even in the professions of medicine and surgery, whose devotees should be of all men most humane, they are now being educated by these means to an utter indifference to the infliction of pain and the sacredness of human life; that, to our certain knowledge, this rage for experiment, engendered by its unconstrained exercise upon animals, reacts upon human subjects placed, when ill, at the mercy of persons so trained, and especially upon the sick poor in hospitals, of whose abuse by such experiments there are many known instances.

We know that cruel vivisections have been done in the District of Columbia, though to what extent we can not know, owing to the secrecy with which such experiments are surrounded. We wish, however, to provide against them for the future.

Our opponents in the District claim that they now do nothing to which the bill objects. If their conduct is already in conformity with its provisions, their opposition is absolutely without cause, and they should be glad to forward legislation to prevent the hideous abuses known to exist elsewhere from creeping into our institutions.

Indignation has been expressed that anyone should attempt to put medical and scientific men under the control of law, but we submit that there is no reason why persons of this class should be more exempt from law than merchants or bankers or other classes for whose control special laws are framed.

We call your attention to the enclosed cutting, a synopsis of the report made by Senator Gallinger of the Senate "Committee of the District of Columbia," which reported the bill favorably without one dissenting voice; also to the fact that a petition in favor of this bill has been submitted to Congress of which Senator Gallinger, in presenting it, said that "probably no bill was ever presented to Congress which received the endorsement of so distinguished a list of men and women."

We beg that you will carefully consider and vote for this bill.

[Signed] A. S. PRATT.
For the Humane Society.

The Illinois State Board of Health.

SPRINGFIELD, ILL., Feb. 28, 1898.

The 19th and 20th Annual Reports of this board, to be published very shortly, will contain an official register of all licensed physicians practicing in Illinois. As the reports are sent to every State in the Union, and are largely called for by professional and business men interested, I desire that the register be as correct as possible; hence would ask that you kindly accord me space in your journal to ask that every physician who wishes to have his name and address correctly reported will send the information to us on postal card at once, giving number and date of certificate.

In over 70 per cent. of cases the addresses on file in this office are those originally given when the certificates were issued, and as no additional information has been furnished this office, either by the county clerks or the physicians concerned, many physicians are reported from towns from which they moved several years ago.

J. A. EGAN, M.D., Sec'y.

Bismuth Capsules—A New Application for the X-Ray.

BUFFALO, N. Y., Feb. 21, 1898.

To the Editor:—In your issue of February 19, you quote from a report of Boas and Dorn, in the *Deutsche Med. Woch.*, regarding the use of capsules of bismuth for location of lesions in the alimentary tract. As this is an important matter, in

regard to which priority is, naturally, a matter of interest, will you kindly put on record the following data.

Feb. 9, 1897, I used gelatin capsules containing reduced iron for this general purpose, having had the matter in mind for some months. This experiment was a failure, on account of lack of power of X-ray apparatus, so far as the stomach was concerned, though the capsules could be plainly seen in the mouth. July 13, 1897, this method succeeded with three or four patients, using both iron and bismuth in the capsules. These experiments are more fully reported in *Medicine*, February, 1898. Very truly, A. L. BENEDICT, M.D.

Collective Investigation on the Action of Cold in Pneumonia.

PHILADELPHIA, PA., Feb. 26, 1898.

To the Editor:—My three collective reports already published on local cold applications in the treatment of acute pneumonia give a record of 299 cases so treated, with ten deaths, or a mortality rate of 3.35 per cent.

Being desirous of pursuing this investigation still further, I take the liberty of asking those who have tested this measure to kindly give me the result of their experience. Full credit will be given to each correspondent in the report which I hope to publish soon. Blanks for the report of cases will be cheerfully furnished by me, with postage for return of same, on application. THOMAS J. MAYS, M.D.

1829 Spruce Street.

Concerning Squirrels.

SANTA CLARA, CAL., Feb. 19, 1898.

To the Editor:—I wish to add a few observations and facts, regarding squirrels, gathered about the inhabitants of the trees of southwestern Michigan.

During the breeding season squirrels like other quadrupeds are very apt to fight. During this time the males battle violently. Their mode of battle is to chase each other until a favorable opportunity presents itself for one or the other to dart beneath the flank of his adversary and bite off his testicles. Sometimes both males share the same fate at the same time. The chisel-shaped teeth together with the ability to take a large round object into the mouth of the squirrel, makes it an easy matter for this animal to maim his adversary in this way almost instantly.

Instead of gray or fox squirrels castrating their own male young the credit must more often be given the agile little red squirrel who is the hardest fighter of them all. He is much quicker than his larger brothers of the other varieties and being smaller and shorter than they, can dart under them, perform his operation and escape before they can harm him. However, the red squirrels deprive each other of the testes during the breeding season. The chipmonk does the same thing. There is no mistaking a female squirrel for a castrated male, as the penis of the male is located under the belly instead of in the perineum, as in the cat. More than that, like the dog and the raccoon, the squirrel has a small bone in his penis which I have verified by dissection in an old male squirrel. The testicles of any old male of the squirrel are larger than those of the cat and hang in a pendulous manner. It is not strange that they should be bitten off readily by members of their own kind, when we consider the teeth and habits of feeding, etc.

I will conclude by showing that castration of his adversary is the squirrel's customary mode of warfare. I once captured an old male red squirrel alive and unhurt. I put him in a box with a large male ferret, expecting of course that the ferret would make short work of the squirrel. Instead of that the ferret had a very narrow escape from losing his testicles. It was only by backing into a corner and crouching down hard that he managed to protect himself until I came to his rescue with a stick. The squirrel makes no other attempt to bite or harm his adversary in combat than to castrate him. He is an expert at it too, as the very large number of eunuchs among male squirrels will testify. I have seen them fighting many times. Yours truly, E. H. SMITH, M.D.

How Squirrels Become Eunuchs.

CRAIG COLONY, SONYEA, N. Y., Feb. 22, 1898.

To the Editor:—Relative to the discussion now going on in the JOURNAL on the above subject, let me say that many years ago it was my pleasure to spend several weeks each fall for five successive years in squirrel-hunting in the eastern section of middle Alabama. My daily tramps in the sport were made with an elderly companion, a man of 60 years, who all his life had been an ardent lover of the sport, and who loved nothing better than the daily rambles through the great forests where the tallest trees grew and where gray and red squirrels (the latter also known as the fox squirrel) abounded.

One day I shot a young male and on picking him up was surprised to find the entire scrotal sac missing, with evidence of a recent injury to the parts. I called my companion's attention to it. "Castrated," he promptly replied. "How?" I asked. "By an old male squirrel," he said, and added that he had often found the same thing, and that he felt convinced that it was done by the old males before the young males left the nest, and that he had on more than one occasion found two young castrated squirrels in one nest. On asking what he thought the old male's motive was for doing it, he answered like the born philosopher he was: "I don't know; you had better ask the old male squirrel." Very respectfully,

WM. P. SPRATLING, M.D.

Eunuchism of Squirrels.

ELLICOTT CITY, MD., Feb. 25, 1898.

To the Editor:—The theory has been advanced by many hunters I have met that during the absence of the mother squirrel, the young utilize the male appendages as teats and in their kind effort to produce something that is not there, cause in time an atrophy of the organs. Personally, though I have killed many squirrels, I have never seen a male minus his testicles, due, probably to the fact that I have never searched specimens for their presence or absence, save as I skinned them for use on the table. I very much doubt the theory of the older males castrating the younger ones; there is no reason why this should be done, and betrays more sense than the animal's gray matter or habits would warrant. A study of the incisor teeth of the squirrel would also suggest a difficulty in performing the operation in the clean manner suggested by your correspondents, or in a manner that would render the operation anything but fatal.

Could it not be a congenital absence of the organs, or failure of the organs to descend into the scrotum, in many of the reported cases when they are absent?

SAMUEL J. FORT, M.D.

A Coroner's Perquisite.

ELIZABETH, ILL., Feb. 1, 1898.

To the Editor:—One of your "Selections" in which the London *Lancet* is quoted has no doubt found many readers who will profit thereby. And as the medical profession can do much to dispel erroneous ideas, the writer would continue to call attention to errors in the manner of calling a coroner's attention when his services are needed. In my jurisdiction good judgment is not lacking in freeing a body found suspended, etc. Quoting from the article in the JOURNAL of January 29, p. 263, "If life remains a medical man should be sent for and afterward the police." The sending for a medical man while life still exists may at times be forgotten, hence the necessity

calling attention to this matter. If a body is found *dead* ıe finder almost invariably sends for the police, and this officer ay or may not send for the coroner. I do not think any good ıason can be given for this circumlocution. The police usually ıarch the unfortunate's pockets for letters, money, etc. In ıis way, before the arrival of the coroner, the lay press often ets sensational information that should not be published, and ı this manner a genuine clue is often lost sight of and a police ıeory hovers in its place. Dr. E. W. Hoeber when coroner of ew York City, found it necessary to complain to the chief of olice. When the error was pointed out to him he instructed is captains as to the law, and that they must act accordingly nd not search the body. It required a second visit on the art of Dr. Hoeber (several months afterward), when it again ecame apparent that the "chief's" instructions had been forotten. This searching is clearly the duty of the coroner, for ıe reason that a coroner in Illinois is obliged to give a bond of 5000 in each county except Cook, where a bond of $15,000 ı required, so that letters or moneys found will be safely kept or those to whom they rightfully belong. It should be a sacred rust with coroners to guard private affairs disclosed in letters, tc., from the public when they have no bearing in serving the nds of justice.

When a body is found *dead* there is only one proper way. *Send direct* to the coroner. Any man or woman should assume his authority. Medical men often have an opportunity and hould instruct the people (including the police) that they have ıo right to take charge of or search a body *found dead* unless he coroner gives this authority. A prominent attorney who ıad become mentally deranged, took his own life in his office. A doctor and an attorney first discovered the dead body and in lue time the deputy sheriff telephoned me. Later a night oliceman, hearing of the attorney's death by suicide, went to he place and was in the act of making a forced entrance, as he rooms had been locked after the body was discovered. The ayman above mentioned insisted that the night police should lesist, as the coroner had been notified. No forced entrance vas made. It was generally believed that this attorney took ıis own life because of absolute want. At the inquest this was lisproved from the fact that a considerable amount of money vas taken from his pockets. The doctor and attorney who found the dead body would have been justified in sending for he coroner *direct*, instead of serving notice through the deputy sheriff. Much more might be written on the abuse of the coroner's office, and when this matter is properly understood and acted on little more will be heard of the "obsolete coroner system.

PHILIP ARNOLD, M.D.

PUBLIC HEALTH.

Individuality a Factor in Birth Rates.—Dr. D. G. Brinton, once editor of the Philadelphia *Medical and Surgical Reporter*, in a recent article in *Science*, after quoting from the *Journal de la Société de Statistique de Paris*, November, 1897, an article by Arsene Dumont regarding the diminished birth rate of New England, gives his own conclusions. He finds the chief cause in the principle of democracy, which contains a toxic principle. The more intense republican civilization, the more acute becomes individualism, or the overpowering desire to live to the best personal advantage and to get all the good there is going, be it in the sphere of intellect or other gratification. But the numeric increase of the race is and must be inversely to the effort of the individual to develop himself personally. There may, however, be a democracy directed by science which can escape this poison. With this cheering but vague intimation the article closes.

The Results of Immunizing Experiments in Hog Cholera.—Voges and Schutz announce that immunity is only secured when the bacteria circulate in the blood, and that killed rothlauf cultures produce immunity as soon as they are inoculated directly into the blood. The immunizing substances comprised in the cultures are contained within the bodies of the bacterial cells. These cells are protected, however, by a wax-like resistant envelope which it is impossible to destroy by the Koch mechanical process, or by any of the known chemic agents, except lye, which destroys the immunizing substance as well. But the action of one or more of the organs of the organism is able to destroy this protecting shell and liberate the anti-bodies within it and thus induce immunity. The germs in the body are thus naturalized by: 1. The opening up of the bacterial shell by the activity of some organ. 2. The destruction of the bacterial protoplasm by the bactericidal protecting substances then liberated and dissolved in the blood serum.—*Deu. Med. Woch.*, February 3.

Antiseptics in the Preservation of Meats.—M. Duprez has recently presented a report to the Board of Health of the Seine, Paris, in which he calls attention to the increasing use of antiseptics by butchers for preserving meat. The product most generally used is olobar, which is nothing but a solution of bisulphate of calcium, containing 99 grams of sulphurous acid to the liter. Riche claims that the use of this compound is daily increasing and it is now extensively used in beer. It is claimed by the manufacturer of olobar that its use is harmless in that it does not cause the meat to undergo any appreciable change. This, however, hardly seems probable when we consider that we submit our staple food stuffs to the influence of agents as active as sulphurous acid and the sulphites; neither does it seem tenable that their action would be limited to the initial products of fermentation so as to absorb them and counteract their efforts. Experiments have demonstrated that a 1 to 8 solution of calcium bisulphite will penetrate very deeply the meat soaked in it and that the normal structure and muscular fiber does not remain the same, hence the refrigerating process alone should be relied upon for the preservation of meats.

Municipalities not liable for Negligence of Boards of Health.—In the case of Gilboy vs. the city of Detroit, it was alleged that the plaintiff kept a boarding-house; that he received a boarder in the usual course of business; that said boarder had been exposed to smallpox at the Merchant's Hotel in the city of Detroit, and that, through the negligence of the Board of Health, said person was permitted to go at large, instead of being confined; that it was the duty of the Board of Health, under the charter and ordinances of the city, to examine the person at the Merchant's Hotel, determine whether she had smallpox, and, if she had, to remove her to a pest-house or hospital; that the person received into the plaintiff's boarding-house was taken down with smallpox while there, and he, in consequence, suffered loss and damage. The facts were not denied, and thus was presented for adjudication, the sole question of whether a municipality is liable for the negligence of officers of the Board of Health in the performance of their duty? The supreme court of Michigan decides it in the negative, December, 1897. It says that counsel for the plaintiff cited no authorities to support their contrary contention, probably for the very good reason that none could be found. The universal rule is, declares the supreme court, that such boards and officers are not acting for private, but for public purposes; they represent the entire State, through the municipality, a political subdivision of the State; and municipalities, in the absence of express statutes fixing liability, are not liable for the negligence of such officers and boards.

Increasing Ophthalmia and Blindness in New Jersey.—The New Jersey State Board of Health has made public the following statement on the above subject: "The increase of blindness in New Jersey is five times more rapid than the increase in

population, and purulent ophthalmia, an infectious and therefore a preventable disease, is believed to cause not less than 30 per cent. of all cases of blindness." This statement is admitted to be based not on any official statistics, since such are not available, but the information comes direct from the members of the medical profession who have been watching the increase of the disease. The State Medical Society of New Jersey, at its meetings in 1893 and 1894, discussed the subject at great length and drafted the bill that is now on the statute books, which is intended to limit the prevalence of the disease. The neglected law makes it compulsory on any attendant, nurse, midwife or relative of an infant that has inflamed, swollen or reddened eyes to report the fact immediately to the local health officer, who shall at once see that the attendance of a physician is secured and the baby taken care of. It is incumbent on health officers to notify all midwives and others who attend upon births, of the terms of the law, and that a penalty by imprisonment or fine or both may be incurred for neglect to report all cases of inflamed eyes.

BOOK NOTICES.

A Text Book on Surgery, General, Operative and Mechanical. By John A. Wyeth, M.D., Professor of Surgery in, and President of the Faculty of New York Policlinic Medical School and Hospital, etc., etc. Third edition, revised and enlarged. pp. 997. New York: D. Appleton & Co., 1898.

The original edition of this work was published in 1886; a second edition in 1890. The following from the author's preface to the third edition gives the scope of the work: "The introductory section is devoted to surgical pathology, subdivided into six chapters, which treat of inflammation, process of repair in various tissues of the body; specific and non-specific urethritis; erysipelas and actinomycosis; glanders, tetanus, malignant edema, hydrophobia, tuberculosis, syphilis, leprosy, diphtheria, typhoid infection, are also embraced in this portion of the work. Chapters 7 and 8 are devoted to surgical dressings, sterilization, asepsis and antisepsis, and anesthesia. In chapters 9 and 10 much attention is given to hemorrhage, wounds, burns, skin-grafting, frost bite, furuncle, carbuncle, ulcers and gangrene. Bandaging is given in chapter 11. Chapter 12 is devoted to amputations. Chapters 13, 14 and 15 deal with lymphatic vessels, glands, veins, arteries, aneurysm and ligation of vessels. Chapters 16 and 17 give the lesions of the bones and joints and various operative measures for their correction. Chapters 18 to 29 inclusive are devoted to regional surgery, and in that portion of this section in which the abdomen is concerned, many improved changes have been made and much new matter added. Chapter 30 takes up deformities and their correction, while the final chapter, 31 is devoted to the subject of tumors."

Wyeth's Surgery has always been a favorite with students and practitioners. While preserving the features that made the former edition popular, the matter has been brought down to date.

Treatise on the Diseases of Women, for the use of Students and Practitioners. By Alexander J. C. SKENE, M.D., LL.D., Professor of Gynecology in Long Island College Hospital, Brooklyn, N. Y., etc., etc. Third edition, revised and enlarged; 290 engravings, and 4 plates in colors; pp. 991. New York: D. Appleton & Co., 1898.

The former editions of this work were issued in 1888 and in 1892. The great strides that have been made in gynecology since the last edition of this work was issued have made it necessary to issue a new one, and the author has conscientiously made a revision which brings it down to date; consequently we find a fuller discussion of vaginal and abdominal hysterectomy than in any former editions, and the latest improved methods of performing these operations given. The control of hemorrhage by compression and electric heat receives much attention, and in a manner which will interest the general as well as the special surgeon. The electric hemostatic forceps devised by Skene as shown in pages 427 and 431, is clearly a great advan over the ligature in the performance of vaginal hysterectom The degree of heat is not one which will produce an escha but 170 to 190 F., the length of time which the electric hem static forceps are applied should be heated, varies from 30 se onds to 2½ minutes, depending upon the thickness of the tissu compressed between the jaws of the forceps. An excess current for a few seconds before the commencement of its a plication seems to be necessary. These forceps require le electric energy than the average cautery electrode, but tl current from the electric light main can be used, and is pre erable as the care and attention necessary to keep a battery working order are avoided. A "transformer" is necessary.

Twentieth Century Practice; An International Encyclopedia Modern Medical Science, by Leading Authorities of Euro and America; edited by THOMAS L. STEDMAN, M.D., Ne York City; in 20 volumes; Vol. 13, "Infectious Diseases: pp. 621. New York: Wm. Wood & Co., 1898.

The chapters of this volume are by P. Brouardel, M.D., Paris; Jules Comby, M.D., Paris; Harold C. Ernst, M.D Boston; Ernest Hart, D.C.L., London; John Wm. Moor M.D., Dublin; Solomon C. Smith, M.D., London; Victor C Vaughan, M.D., Ann Arbor, and Lawson Williams, M.D London.

The articles are as follows: Ptomains, toxins and leuc mains; infection and immunity; water-borne diseases; tl duration of the period of incubation and infectiousness in tl acute specific diseases, smallpox, vaccinia, mumps. In D Comby's article on mumps, he quotes Catrin's observations c Val de Grâce in 1892. He says: "Of ninety-five cases mumps, which formed the basis of our studies, we obtaine positive results in sixty-seven. Thirty-nine out of fifty-s times we obtained pure cultures by puncture of the paroti glands; twice the cultures were impure, and fifteen times r result was obtained. These negatives may be explained by th occasional absence of any fluid in the organ, so that the plat were sown merely with sterilized water contained in the needl In most cases the amount of fluid extracted did not exceed few drops. The testicular fluid, on the other hand, almo constantly gave positive results, that is, in twelve out of si teen experiments the fluid removed from points of localize edema gave a positive result in all cases examined (three), an the same was true in the two cases in which fluid from th swollen knee-joint was examined. In ten out of fifteen exami ations of the blood while fever was present, the same micr organisms were found as in the fluid removed from the variou organs. We found microbes two, and even three, weeks aft apparent recovery from mumps, a fact which serves to explai the rare instances of contagion during convalescence. After month elapsed our researches were always negative in the results. . . . The organisms found by us were micrococc usually arranged in pairs, sometimes in fours, and rarely i zooglea masses. These cocci measured from one to one-and half micromillimeters in diameter; they were mobile, but nc markedly so. They were colored readily with the ordinar stains, but unlike streptococci and staphylococci, they did nc receive Gram's staining. The bouillon, kept in an oven at 3 degrees C., showed changes at the end of from 20 to 24 hour and these increased markedly later. Colonies on gelatin plate did not appear until the expiration of 48 hours; they wer punctiform, white in color, grew slowly, and liquified also ver slowly and tardily. In stab cultures the colonies developed a very minute pearls along the track of the puncture; liquefac tion began at the surface and proceeded very slowly. On potat the whitish culture was scarcely apparent, but it was more s on carrot."

Inoculation experiments were unsatisfactory, since no know animal, except perhaps the horse, is susceptible to mumps. I white mice four out of twenty inoculations were followed b

eath, and on examination the spleen was enlarged. Four of hese inoculations were made in the peritoneum, and in three f them death occurred. In all fatal cases the diplococcus was ound in the blood removed from the heart cavity with all the sual precautions. Busquet and Ferré found a similar diplo- occus in seventeen cases in the blood taken from the pulp of he finger and lobe of the ear and in the fluid from the parotid land. Mecran and Walsh also isolated and cultivated this iplococcus in cultures made from the contents of Steno's duct uring the height of the disease. Michaelis also found this iplococcus. Notwithstanding these reports, Comby is of opin- on that the final experimental proof is wanting, that is, the eproduction of the disease in animals by inoculation.

he American Year-Book of Medicine and Surgery. Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery drawn from Journals, Monographs and Text-books by the Leading Foreign Authors and Investigators; Collected and Arranged with Critical Editorial Comments by Twenty-seven Authors, under the General Editorial Charge of GEORGE M. GOULD, M.D. Illustrated, pp. 1077. Philadelphia: W. B. Saunders. 1898. Price, cloth, $6.50; half-morocco, $7.50. For sale by subscription.

Dr. Gould says: "The largely increased demand for the 897 Year-book leaves no doubt as to the usefulness of our vork and of appreciation on the part of the profession. These acts have increased the endeavor of all concerned in the prep- aration of the volume for 1898 to bring it more nearly to our deal of perfection. With the growing clearness of conception on the part of the editors of the exact nature of the profes- sional need, there has been a corresponding recognition of the necessity of keeping the epitomization within the limits allotted to previous issues. The vast and increasing literature has this year rendered the task of the editors of especial difficulty; but we believe it has been more thoroughly carried out than ever before, despite the protests of most of the editors that any possible sins of omission must be charged to 'insufficient space,' and not to neglect."

This volume has a copious index. No library is complete without Gould's Year-book.

Aids to Aseptic Technique. By A. D. WHITING, M.D., Assistant Surgeon to the German Hospital, Philadelphia. Pp. 157. Philadelphia: J. B. Lippincott Co. 1898. Price $1.00.

The object of this book is to aid those whose duty it is to prepare materials for an operation. It is divided into six admirably written chapters, and will be found very useful for the purposes for which it is intended.

Transactions of the Royal Academy of Medicine of Ireland. Volume X. Edited by JOHN B. STORY, M.D., F.R.C.S., General Secretary; Surgeon to St. Mark's Ophthalmic Hospital, Dublin. Pp. 477. Dublin: Fannin & Co. 1897.

The contents of this volume includes a list of officers, fellows, members, etc., as well as an address by Prof. Wilhelm His upon the Development of the Brain, and the papers and discussions in the section of medicine, section of surgery, section of obstetrics, section of pathology, section of state medicine, section of anatomy and physiology. The number and variety of illustrations in the volume are remarkable, and the papers are of a high order of merit.

Transactions of the American Microscopical Society. Vol. xix. Paper. Pp. 207. Buffalo: 1897.

This volume contains the proceedings of the twentieth annual meeting, held at Toledo, Ohio, Aug. 5, 6 and 7, 1897. The following papers, with numerous colored plates, are noted, among others: "Micro-structural characteristics of steel," "The rotifera of Sandusky Bay," "The comparative histology of the digestive tract," "A comparison of the phagocytic action of leucocytes in amphibia and mammalia," "A comparative study of hair for the medico-legal expert," "A study of the organs of taste," "Development of methods in microscopic technique," "Notes on the isolation of tissue elements," "Dahlia as a stain for bacteria in sections cut by the collodion method," "Two very simple microtomes."

Eleventh Annual Report of the State Board of Health of Ohio for the year ending Oct. 31, 1896. Cloth. Pp. 376. 1897.

This volume contains the general report of the State Board, annual reports of local boards for the year ending Dec. 31, 1896, additions to the library of the State Board, a list of cities and villages having boards of health with name of health officer, a report of infectious diseases for the year ending Jan. 2, 1897, reports of deaths and their causes for year ending Dec. 31, 1896, and an eighty-page appendix covering the proceedings of the seventh annual meeting of the State Board and local boards, held in Columbus, Jan. 21 and 22, 1897.

Transactions of the Medical Society of Virginia. Paper. Pp. 290. Richmond: 1897.

This volume covers the proceedings of the twenty-eighth annual meeting of the Society, held at Hot Springs, Va., Aug. 31 and Sept. 1 and 2, 1897, and contains twenty-two papers presented to the Society, general discussions, obituaries, list of presidents and vice-presidents, with statistic data of value to the physician. An appendix contains a biographic register of Fellows of the Society.

Transactions of the Medical Association of Georgia. Cloth. Pp. 535. Atlanta: 1897.

The volume is on excellent paper and of good typography and workmanship. The contents comprise the proceedings of the forty-eighth annual session, held at Macon, Ga., April, 1897. Among the forty-four papers printed we notice: "Entero-colitis of infancy," "Blue pyoktanin in the treatment of inoperable malignant growths," "Morphin and its effects," "Atropin poisoning," "Eucain, with report of a case," "Dermoid cyst of bladder," "Meddlesome instrumentation in urethral disease."

Sir James Young Simpson. By H. LAING GORDON. New York: Longmans, Green & Co. 1897.

This is the third volume of the series of "Masters of Medicine," and the subject is in every way a worthy one. Sir James Simpson's works have always been read with admiration in America, and the older members of the profession owe much to those unrivaled "Lectures on the Diseases of Women," published by Blanchard and Lea in 1863, which had such a wide circulation here. The enumerated list of titles of his works in the Surgeon-General's "Index Catalogue" is prodigious in number and scope. Dr. Gordon has given us a faithful biography of this remarkable man, and it is one of the most interesting volumes of the series so far printed.

NECROLOGY.

EDWARD CONSTANT SEGUIN, M.D., who died at his home in New York City, February 19, was the only child of the late Edward O. Seguin, M.D., whose brother, father and several relatives of the same name were physicians, chemists, engineers and architects. Born in Paris, France, in 1843, he was brought to America with his father, who in 1850 took up his residence in Cleveland, Ohio, at which city and in Portsmouth, of the same State, he received both a public and high school education. In 1861, then living at Mount Vernon, N. Y., he began the study of medicine with his father, and after a three years course at the College of Physicians and Surgeons, New York, was graduated in 1864. During this time he acted as dresser in the hospital steamship of the United States Sanitary Commission in the Pamunkey and James Rivers and served as a medical cadet of the regular army until 1864. From September, 1864, to June, 1865, he was an acting assistant surgeon, U. S. A., and during the last two months an assistant surgeon, U. S. V. Afterward he became a member of the house staff of the New York Hospital for the usual term of

two years. In consequence of the development of pulmonary trouble, he was by courtesy of the then Surgeon-General assigned to New Mexico and there served as post surgeon at Forts Craig and Selden. In the summer of 1869 he returned to New York with his health apparently completely restored. Soon after the opening of the Connecticut Hospital for the Insane, Dr. Seguin was appointed pathologist for the same and so continued for about ten years. The winter of 1869-70 was spent by him in Paris under Brown-Séquard, Charcot, Ranvier and Cornil, but upon his return to New York he took up general practice instead of his intended specialty. From 1871 to 1885 Dr. Seguin was a lecturer on diseases of the spinal cord, and in 1873 founded the Clinic for Nervous Diseases in the College of Physicians and Surgeons, New York. Between 1882 and 1893 he was in Europe several times, but resumed the practice of his specialty whenever he was in New York. His popularity was great and his fees ample. His literary work was limited to monographs of more or less excellence, but compensation was had in the acuteness of his diagnosis and the felicity of his diction. He was a member of many societies in both hemispheres and often spoke with satisfaction of his relations with the various neurologic societies. He leaves a second wife but no children. His death was due to cirrhosis of the liver.

WILLIAM T. ELMORE, M.D., Dartmouth, 1888, died from pneumonia in New York City, February 12, aged 44 years. His birth-place was Montgomery, Ala. He went to New York fifteen years ago.

CONANT SAWYER, M.D., Albany, N. Y., 1865, died at his home in Auburn, N. Y., February 21, after a week's illness from pneumonia. He was physician of Auburn Prison for ten years, having come from Ausable Forks. Besides being a member of several organizations he was identified with the AMERICAN MEDICAL ASSOCIATION and a founder of the New York State Medical Association.

GAMALIEL GILLIS, M.D., N. Y. University Medical College, 1885, of Montague Bridge, Prince Edward Island, Canada, died January 4, aged 45 years.

ENNIS I. GERAGHTY, M.D., formerly a house physician of St. Vincent's Hospital, died at his home in New York, February 18, aged 23 years.

LEWIS FRENCH, M.D., N. Y. University Medical College, 1883, died January 27, at his home in Noroton, Conn., where he was a member of the hospital staff of the Soldiers' Home.

DANIEL CAMPBELL, M.D., died at Saxton's River, Vt., Feb. 3, aged 77 years. He was graduated from the Vermont Medical College at Woodstock in 1842, and from the Berkshire Medical College, Pittsfield, Mass., in 1843. He practiced in Pittsfield, was in Westminster ten years, and since 1854 had lived at Saxton's River. He was a member of the Legislature in 1864, and was a nominee for Congress in the Second District, in 1880.

JOHN S. ISHAM, M.D., Bellevue, N. Y., 1874, died in Cleveland, O., February 10, aged 50 years.——Montague L. Boyd, M.D., Savannah, Ga., of blood poisoning contracted in performing an operation, February 9, aged 48 years.——D. B. Collins, M.D., St. Peter, Minn., February 14.——T. P. Crutcher, M.D., Nashville, Tenn., February 13, aged 68 years.——Frederick B. Gould, M.D., Kent, N. Y., February 13, aged 38 years.——John P. Hillegas, M.D., Philadelphia, February 12.——T. P. McCullough, M.D., Fort Wayne, Ind., February 18, aged 75 years.——Oscar A. Menocal, M.D., Washington, D.C., February 9, aged 28 years.——Hiram L. Spicer, M.D., Baltimore, Md., February 12.——Jonathan S. Whitaker, M.D., Millville, N. J., February 14, aged 75 years.——Lewis R. Hurlbutt, M.D., Yale, 1850, of Stamford, Conn., February 14, aged 78 years.——James Wilkinson, M.D., College of Physicians and Surgeons, N. Y., 1858, died in Jersey City, N. J., February 17, aged 61 years.——Heinrich N. Hahn, M.D., St. Paul, Minn., February 22. He was graduated from the University of Marburg, Germany, in 1874.——Sylvester C. Ham, M.D., Auburn, Ill., February 22, aged 46 years.

JOHN G. TRUAX (*vide* JOURNAL, p. 507).

WHEREAS, We the members of the Medical Board of the Harlem Hospital, have learned with deep regret of the death of our late associate, Dr. John G. Truax,

Resolved, That we record our recognition of the value of his services in the establishment, due largely to his untiring energy, of the Harlem Hospital, the organization of which was his work.

Resolved, That we hereby desire to express our appreciation of his manliness and decision of character, his high sense of professional honor, and the zeal and ability shown by him in the practice of the profession which he loved.

Resolved, That a copy of these resolutions be sent for publication to the *New York Medical Record*, *New York Medical Journal*, to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and to the widow of Dr. Truax.

[Signed] J. T. JOSEPH BIRD, M.D., Sec.

DEATHS IN THE PROFESSION ABROAD.—Dr. P. di Pietra Santa, aged 77. A notable and picturesque figure in Paris, founder of the Société d'Hygiène and editor of its journal, prominent in every phase of the progress of hygiene, author of numerous studies on climatology, influence of warm climates on tuberculosis, etc., and one of the earliest partisans of cremation. "Born in Corsica, he was related to Bonaparte, and when he first settled in Paris was physician and secretary to the old king, Jerome of Westphalia, and later to his son, Prince Napoleon." He had many friends in America and the *Journal d'Hygiène*, under his able editorship, was greatly respected and admired.

SOCIETY NEWS.

Chicago Medical Society.—A clinical meeting was held Feb. 23, 1898, with the President, Dr. Fernand Henrotin, in the Chair. Dr. Daniel R. Brower exhibited four cases of exophthalmic goiter in a family of six children. The four children had tachycardia, pulsating goiters, and one of them marked exophthalmus. Dr. G. W. Johnson exhibited a case of tabes dorsalis with Charcot's ankle joint. The man was 45 years of age, single, and a sail-maker by occupation. He gave a history of having had a chancre sixteen years ago, also of a second syphilitic infection seven years ago. He also exhibited a case of syringomyelia. The patient was a Swede, 39 years of age, unmarried, and a molder by occupation. Dr. L. D. Baldwin showed a Chinaman with an ulcerative syphilitic process on the face. Dr. N. Senn presented two cases in which transcapular amputation was performed for periosteal sarcoma. Dr. E. E. Ochsner showed a case of compound comminuted fracture of patella because of the good result obtained by the use of chromicized catgut sutures. Dr. Moreau R. Brown exhibited an apparatus for washing instruments and heating sprays. Dr. Elbert Wing showed specimens from a case of intussusception. Dr. A. J. Ochsner showed a specimen illustrating the condition of appendicitis obliterans. He also exhibited multiple fibroids of the uterus. Dr. F. E. Chandler exhibited a monstrosity.

Illinois State Medical Society.—The forty-eighth annual meeting will be held in Galesburg, May 17, 18 and 19, 1898. The preliminary program announces addresses by Drs. J. H. Etheridge and N. Senn of Chicago, and J. W. Pettit of Ottawa. The following papers are also announced:

"Malnutrition in Infants," Frank P. Norbury of Jacksonville; "Infantile Scurvy," Isaac A. Abt of Chicago; "Tumor of Lung," Frank Billings of Chicago; "Diagnosis of Pleurisy with Effusion," Jas. B. Herrick of Chicago; "Etiology and Pathology of Pleurisy with Effusion," Ludvig Hektoen of Chicago; "Treatment of Pleurisy with Effusion," T. J. Pitner of Jacksonville and L. T. Taylor of Springfield; "Case of Patent Ductus Botalli," Frank S. Johnson of Chicago; "Chelidonium Majus in Inoperable Carcinoma," C. C. Hunt of Dixon; "Acute Tonsillitis," P. C. Thompson of Jacksonville; "The Presence of the Smegma Bacillus in the Urine and its Staining Qualities," J. L. Miller of Chicago; "Case of Brain

sease," W. M. Friend of Sumner; "A Positive Antidote for rychnia," L. R. Ryan of Galesburg; "Epileptics," J. B. axwell of Mt. Carmel; "Remarks on the Treatment of Neu- sthenia," Hugh T. Patrick of Chicago; "Diabetic Gan- ene," N. S. Davis, Jr., of Chicago; "Significance of the iastolic Murmur in Diagnosis of Aortic Insufficiency," B. W. ppy of Chicago; "A Pharmacologic Study of the Action of igitalis on the Mammalian Heart and Circulation," S. A. athews of Chicago; "Modified Milk," J. S. Churchill of hicago; "Summary of Laws Governing Medical Practice in her States," Julius Kohl of Belleville; "Defects of the Laws this State Governing Medical Practice," G. N. Kreider of pringfield; "What Should be the Law in this State?" H. N. oyer of Chicago; "Advantages of Separating the State Board Health from the Licensing Board," L. R. Ryan of Gales- urg; "Summary of Laws Governing Expert Testimony in other tates and Countries," J. O. DeCourcy of St. Libory; "De- cts of Laws Governing Expert Testimony in this State," anger Brown of Chicago and F. P. Norbury of Jacksonville; The Outlines of a Law that would Remedy the Defect," . W. Graham of Chicago; "The Legislation Necessary to romote Better Sanitation Throughout the State," J. A. Egan f Springfield; "Labor in Fat Women," J. B. DeLee of Chi- ago; "Repair of Bones," H. C. Fairbrother of East St. Louis; Surgical Treatment of Cavities in Pulm. Tub." H. M. homas of Chicago; "Straits of Early Life," J. O. DeCourcy f St. Libory; "A Contribution to the Surgery of Accidental Vounds of the Knee Joint," D. A. K. Steele of Chicago; Cynovitis; Remarks on Treatment," C. W. Sibley of Fair- eld; "Treatment of Minor Surgical Injuries with Especial eference to Bandaging," J. J. Connor of Pana; "Laminec- omy in Pott's Disease," A. H. Ferguson of Chicago; "Urin- ry Fistulæ," Wm. Cato of Decatur; "Early Operation for Uterine Cancer," F. H. Martin of Chicago; "Congenital Phy- nosis and Some of its Effects," Ed. C. Lemen of Alton; "A Substitute Operation for Resection in Certain Extensive Inju- ies to Intestinal Wall," E. C. Dudley of Chicago; "My Name is Appendicitis," Emma B. Standley of Alexis; "Path. Histology of Intestinal Anastomosis," J. Frank of Chicago; "Atrophic Rhinitis," E. T. Dickerman of Chicago; "A Case of Extra-Uterine Pregnancy," O. B. Will of Peoria; "Diagnosis of Pulmonary Cavi- ies with Special Reference to their Sur- gical Treatment." R. H. Babcock of Chi- cago; "Surgical Shock," Robert A. Kerr of Peoria; "Interesting Cases of Mastoid Disease," Norval H. Pierce of Chicago; "Report of Cases of Cæsarean Section," A. McDiarmid of Chi- cago; "Toxemia of Pregnancy," J. T. McAnally of Carbon- dale; and papers by W. R. McLaughlin of Jacksonville and A. C. Corr of Carlinville.

American Laryngological, Rhinological and Otological Society.—The meeting of the Southern Section of the American Laryngo- logical, Rhinological and Otological Society will be held in Atlanta, Ga., March 28, 1898.

Preliminary Program: Address by the Chairman, A. W. Calhoun of Atlanta; "Labyrinthine Vertigo," John Hey Wil- liams of Asheville, N. C.; "Chromatic Audition," J. L. Minor of Memphis; "Report of a Case of Hemorrhage after the Removal of Adenoid Vegetations," Ross P. Cox of Rome, Ga.; "Hypertrophy of the Lingual Tonsil, its Symptoms and its Treatment," D. A. Kuyk of Richmond, Va.; "Thrombosis of the Lateral Sinus, Dependent upon Suppurative Otitis Media," E. B. Dench of New York; "Othematoma and Perichondritis of the Auricle," John O. McReynolds of Dallas, Texas; "Tracheotomy for Foreign Bodies in the Air-passages, Report of Twenty-seven Successful Cases," Willis F. Westmoreland of Atlanta; "Empyema of the Accessory Nasal Cavities," Ruffin A. Wright of Mobile; "The Influence on Development of the Nervous System of the Child by Adenoid Vegetations in the Nasopharynx," E. P. Sale of Memphis; "Nasal Fibro- mata, with Report of Cases," L. M. Crichton of Atlanta; "A Form of Primary Nasal Diphtheria," E. C. Ellett of Memphis; "The Importance of Examining the Nose in Troublesome Coughs," A. C. Palmer of Richmond, Va.; "Intubation of the Larynx for Membranous Stenosis," Bernard Wollf of Atlanta; "Mouth Breathing," Norburne B. Jenkins of Knoxville, Tenn.; "Mental Disturbance in Turbinate Hypertrophies or Nasal Stenosis," John F. Woodward of Norfolk, Va.; "A Discovery in the Physiology of the Ear," W. F. Cole of Waco, Texas; "Middle Ear Catarrh, Some Original Deductions," Maury B. Stapler of Macon, Ga.; "Ethmoiditis and Report of Case." B. F. Travis of Chattanooga; "Mastoid Inflammation, with a Report of Two Interesting Cases," T. E. Mitchell of Colum- bus, Ga.; "Mouth Breathing in Children, Particularly as a Result of Adenoids," Arthur G. Hobbs of Atlanta; "The Nasopharynx in Laryngeal Diseases," N. C. Steel of Chatta- nooga; "Cholesteatoma of the Mastoid Antrum," S. L. Led- better of Birmingham, Ala.; "Diseases of the Accessory Sinuses," Alex. W. Stirling of Atlanta; "Clinical Miscellanies from Private Practice," Frank M. Mullins of Fort Worth, Texas; "Empyema of the Accessory Sinuses of the Nose," Frank M. Hanger of Staunton, Va.; "A Good Hemostatic after Nasal Operations," L. B. Grandy of Atlanta; "Hyper- trophic Rhinitis and its Treatment," F. J. Hill of Memphis; "The Serum Treatment of Ozena," W. E. Campbell of At- lanta; "Peritonsillar Abscess," Dunbar Roy of Atlanta.

All the hotels have given reduced rates and a large meeting is expected. The profession is cordially invited.

DUNBAR ROY, M.D., Secretary.

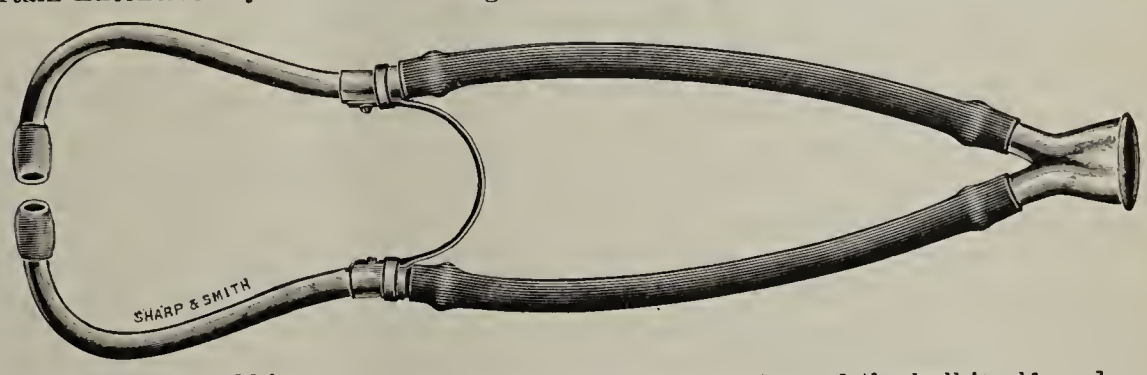
NEW INSTRUMENTS.

AN IMPROVED STETHOSCOPE.

BY F. W. MERCER, M.D.

CHICAGO.

In the stethoscope here illustrated an attempt has been made to combine the desirable features of a number now in use. The advantages claimed are increased clearness and distinct- ness of sounds transmitted; its lightness and the ease by which the whole instrument can be made aseptic. In its construction only thin and hard German silver tubing should be used, the chest piece being of the same material. The bell, or chest piece, differs to a degree from existing forms in having the bifurcation



carried down rather close to the rim and the bell itself made as short as possible. The mouth of the bell has a diameter of 25 mm. and each bifurcation has an internal diameter of 8 mm. The pure gum, antimony tubing connecting the chest piece with the ear tubes should have extra thick walls, with an internal diameter of 8 mm. The metal ear tubes made per- fectly smooth within, not having screw points or rivets pene- trating, to be 8 mm. internal diameter. The ear tubes are bent with the usual curve, somewhat shortened, and ear tips and all finished entirely in one continuous piece of metal, the margin of the openings turned down and inward, making a perfectly smooth surface to openings of 6 mm. diameter. The tips may, as shown in the drawing, be finished with a thin coating of celluloid. The spring is split longitudinally, giving increased elasticity. All the metal parts are finished in dead black or silver. Soft rubber hoods can be drawn over the mouth of the bell, increasing its size as desired.

MISCELLANY.

Dr. R. Harvey Reed, of Rock Springs, Wyo., has been appointed Surgeon General of the National Guard of that State, with rank of Colonel.

Skiagraphic Photometry.—With a light-proof, black paper box Biesalski determines at a glance the exact time required for radiographic exposure, by gauging the potency of the rays. The box is shaped like a cryptoscope and fits close to the eyes, with an opening at the other end for the Crookes tube. A fluorescent screen is divided into thirty-six spaces and on each

space a certain number of sheets of tin-foil are fastened, also a wire figure showing the number of sheets in each space: 1 for one; 2 for two, etc., up to thirty-six. The potency of the light is thus indicated at a glance by the figure on the last space through which it passes.—*Deu. Med. Woch.*, February 3.

Personal.—Dr. T. D. Crothers of Hartford, Conn., read a paper on "The Medical Side of the Alcoholic Problem" before the Alleghany County Medical Society at Pittsburg, Pa., Feb. 15, 1898.——Dr. John H. Noland of New Haven, Conn., has gone to Cuba to join the insurgents. It is understood that he is associated with two other medical men and they are supplied with a full hospital outfit to give modern aid to the modern patriots.

Vegetables a Fighting Diet.—A writer in the *London Vegetarian* evidently with a bias, says that "99 per cent. of the world's fighting has been done on farinacious food." "The Tipperary peasant of the potatoes and butter-milk days" he pits against "the modern gentleman who gorges himself with murdered cow. The Tipperary man never read bloody-minded novels or cheered patriotic music hall tableaux, but he fought recklessly and wantonly. Your carnivorous gentleman is afraid of everything, including doctors, dogs, disease, death and truth-telling."

Pay of Professional Men in France.—In France, according to *Paris Eclair*, there are from 12,000 to 13,000 doctors, of whom 2500 are found in Paris and about 10,000 in the provinces. Of this number five or six only make incomes of from $40,000 to $50,000 a year, ten to fifteen make from $20,000 to $30,000 a year, 100 make, say, $10,000, 300 make from $3000 to $5000, 800 make from $1500 to $3000, while 1200 earn less than $1500 a year. Coming to the lawyers, of whom there are 3000 in Paris alone, there are not 400 of them who make as much as $2000 a year. A couple of score make incomes of $10,000 a year. It appears that when one of these advocates is made a magistrate his salary is only from $600 to $800 a year, while for the justices of the peace, all fully qualified legal practitioners, the salaries range from $400 to $600 a year. A college professor is paid from $200 to $300 a year, a lycée professor from $700 to $1000 a year. The explanation is that in France there are too many doctors, lawyers, professors and engineers turned out.

Medical Works Not Affirmative Evidence except when used for the cross-examination of experts.—In a case decided by the appellate division of the supreme court in Brooklyn, N. Y., regarding the nature of the injury received by the plaintiff, who claimed that it was progressive in tendency, the counsel was allowed to read from Professor Gross's work the statement concerning the prognosis of nerve contusions. The justice tersely ruled that "the weight of authority on that subject is to the effect that books of inductive science, within which are standard medical works, are not admissible as affirmative evidence. Otherwise, as to those which by the courts are deemed works of exact science. The Northampton tables fall within this class." There is an old case in the superior court, where the plaintiff sued for injuries to a horse, in which it was held that the well-known work called "Youatt on the Horse" was erroneously received in evidence, and in a comparatively recent case the general term of the fourth department reversed a judgment because extracts from medical books were read to the jury. There are not many cases, however, in the law reports of New York State bearing directly on this point, as the consensus of opinion is that there have been too many erroneous dogmas of both law and medicine to establish the justice of any decision.

New Periodicals; A Protest.—Nine new German medical periodicals were announced in the last months of 1897, and medical literature in other countries is almost equally prolific. Von Düring writes to the *Deut. Med. Woch.* protesting against this multiplication of professional organs and a waste of energy time and money, rendering it impossible for any one to keep an intelligent oversight of medical literature. "Each new journal," he says, "contains possibly one or two important articles during the year, but these might just as well have been contributed to some established journal. The rest of the contents: news, abstracts, etc., are found almost simultaneously in all the leading established journals." He therefore appeals to his confrères not to allow themselves to be cajoled into lending their name and prestige or contributing to these sprouting journals. If they will take Punch's advice to those about to marry: "Don't!" they will save the rest of the profession much time and money, while maintaining the dignity of science, which will inevitably be impaired by the "*Vielschreiberei*" necessitated by a host of new periodicals. And the new publications, refused the name and support of prominent members of the profession, would "die a-borning."

Rush Monument Fund.—Dr. William H. Humiston, president of the Ohio State Medical Society, has appointed the following special committee to raise Ohio's promised contribution to the Rush Monument Fund: Drs. William E. Bruner of Cleveland, E. W. Mitchell of Cincinnati, S. S. Halderman of Portsmouth. N. R. Coleman of Columbus, C. N. Smith of Toledo. This divides the State into five natural districts, and it is hoped that funds will promptly be forthcoming to show that Ohio will be second to no other State in honoring the great American physician of a century ago, who was a signer of our Declaration of Independence. Subscription lists will be promptly opened and the profession at large will be appealed to directly. Those who feel disposed to subscribe even a little to this worthy object should at once communicate with the nearest member of the committee. It should be borne in mind that our homeopathic brethren have raised between $75,000 and $100,000 for the monument to Hahnemann in Washington. Shall we publicly say we can not do as much?—*Cleveland Jour. of Med.*, February.

Effects of Modern Projectiles in Warfare.—The *Medical Press and Circular* (January 19), commenting on "Gunshot Injuries in the late Greco-Turkish War," a paper published in the *West London Medical Journal*, by Henry J. Davis, says: "Practically, only three kinds of rifle bullets were employed in the war. The Greeks used the Le Gras French rifle, with a Chassepôt lever action, and the Turks were armed chiefly with the Martini Henri, while some of the Turkish brigades had the German Mauser magazine rifle. But Mr. Davis never came across a single wound in which a Mauser bullet had become lodged. He accounts for this by stating that the terrific velocity of this bullet—it is effective at 4000 yards—is such that it passes through everything, soft parts and bones, and does not remain in the body. In consequence of this the wounds which it inflicts are much less severe than those caused by the Martini bullet, which, on the other hand, usually splinters a bone in all directions. The use of X-rays was found of service in detecting the presence of bullets. . . . In reflecting upon the facts to which attention is drawn in this paper, it would seem fair to assume that modern projectiles tend more to disable a soldier than to kill him; that is to say, he runs more chance of receiving a slight disabling wound than of being killed by a more severe one. Again, in taking into consideration the chances of life after even a severe injury, it should be remembered that these are much greater than has ever been the case before. The resources of modern surgery are such that if a man be not killed outright, the chances for the most part are all in his favor that his life will be saved. However, it would not be possible to make any forecast of the results of the killed and wounded in the next great European war; the probability, perhaps, is that the proportion of wounded would be very high, but this would doubtless largely depend upon how the troops were maneuvered, and the nature of the work which they were called upon to carry out. But with such weapons of precision now forming the 'slaying machines' of modern armies, everyone with humane feelings will earnestly hope that it will be long before the opportunity for testing these machines will arise."

Societies.

The following recent meetings are noted:

Illinois.—Chicago Medical Society, February 23 and March 2.

Iowa.—Scott County Medical Society, Davenport, February 14.

Maryland.—Baltimore County Medical Society, Baltimore, February 17.

Michigan.—Wayne County Medical Society, Detroit, February 17.

Missouri.—St. Louis Medical Society of Missouri, February 26.

Ohio.—Belmont County Medical Society, Bellaire; Lucas County Medical Society, Toledo, February 18; Muskingum County Medical Society, Signal, February 23.

Wisconsin.—Kenosha County Medical Association, Racine, February 18.

Louisville.

Jas. F. W. Ross of Toronto was the guest of Dr. L. S. McMurtry recently. A dinner was given in his honor by his host, to meet a number of the local profession. With the following he has gone to New Orleans for a brief visit: Drs. C. A. L. Reed of Cincinnati; J. M. Mathews, H. Horace Grant, Thos. Hunt Stucky and L. S. McMurtry. While in New Orleans the party will be specially entertained at Tulane University.

Smallpox.—In the southeastern part of the State at Middlesboro, there has been a severe epidemic of smallpox, affecting mostly, however, the negroes and poorer whites. There have been a number of cases and the epidemic does not seem in the least abated. The Secretary of the State Board of Health has submitted a report of a personal observation to the Board and to the Governor. The Board has issued a circular of instructions requesting that everybody be vaccinated at an early day.

Detroit.

At the Detroit Medical and Library Association, February 21, Dr. A. M. Phelps of New York, held a clinic under the auspices of the Association at Harper Hospital before the members of the medical profession of this city, and demonstrated the technique of the Phelp's operation. Three cases of club-foot were treated. The first case was that of talipes varus in a child of 5 years. The second was that of a young lady of 16 years suffering from double talipes equinovarus. She had been operated on four or five times by multiple tenotomies. The tendo Achillis had been cut across at the usual point twice, and a high tenotomy had been made close up to the commencement of that tendon. There were scars on the inner side of the foot showing other tenotomies. The third case was that of a child only two months old with double talipes varus. The doctor laid great stress on the importance of thorough division and open incision. He pointed out that the inner side of the foot was much shorter than the outer side, and advised manipulation of the foot to bring the tendo Achillis upon the stretch and quite tense, then the puncture should be made with a sharp-pointed tenotome and the section completed with a blunt instrument; then with the force required bring the heel on a level, or preferably below the level of the sole of the foot; then put the fascia, the muscles and tendons all upon the stretch and make an incision from a little in front of the internal malleolus obliquely downward, making the division of sufficient length and depth to bring the foot into the normal position. The doctor does not stop at the division of the abductor pollicis, flexor brevis, internal lateral ligament, or even artery and nerve if impossible to avoid. Dr. Phelps claims that while his operation is radical, it is the only operation after which relapses do not occur; that he has not had gangrene or sloughing from any of the 700 and more operations he has performed, and he has operated on patients all the way from a few days old to up to those of 58 years.

At the regular meeting of the Wayne County Medical Society held on the evening of February 24, Dr. J. A. Clark read a paper on "Anomalies of Albuminuria," presenting the theory that not only are there numerous cases of Bright's disease without albuminuria, but that there are examples of cases of albuminuria who even have a few casts in the urine, and are yet free from renal disease. The Doctor cited the histories of several cases in his own practice to bear out his proposition.

Washington.

Report of the Health Officer.—The report of the health officer for the week ended February 19 shows the number of deaths to have been 125, of which number 73 were white and 52 colored. The principal causes of death were: Diseases of the nervous system, 15; circulatory, 14; respiratory, 47. There were 2 fatal cases of diphtheria, 3 of typhoid fever, 2 of whooping cough and 1 from la grippe. At the close of the week there were 45 cases of diphtheria and 42 cases of scarlet fever under treatment.

Medical Society.—At a meeting of the society held on the 21st inst., the Committee on Public Health made a report on "The Water-Supply and Sewerage of Washington and Reclamation of the Anacostia Flats." The meeting was called to order by the president, Dr. S. C. Busey, who gave a résumé of the work done by the society and his Committee of the Board of Trade toward securing legislation for purification of water and sewage disposal; he also referred to the valuable scientific work done by the society in this connection. In closing he said: "All these efforts have been futile and the city remains today the prey to a single preventable disease which has cost its citizens in loss of life and actual outlay in the last ten years more than would have been required to complete the systems of water extension and purification and sewage disposal." Dr. G. W. Johnston, the present chairman of the Committee on Public Health, submitted a partial report of the work done by his committee. He discussed water-supply and filtration from a scientific and financial point of view. Among other things he said: "The Potomac River, above the take-in, is one vast sewer for the reception of all sorts of industrial waste, and the offal and sewage of comparatively large communities. The distance is such that it is to some extent diminishing these dangers. We find that in the past seventeen years 2539 persons died in Washington from typhoid fever, making an average of 145.35 per year." The discussion was made further valuable and instructive by the remarks of Drs. George M. Kober and Kinyoun. The subject was continued for discussion at the next weekly meeting of the society.

Cincinnati.

The Mortality Report for the week shows: Stillbirths, 7; zymotic diseases, 10; phthisis pulmonalis, 14; other constitutional, 13: local, 63; developmental, 7; violence, 5; total, all causes, 112; annual rate per thousand 14.38; preceding week, 122; under one year, 23; between one and five, 10; corresponding week, 1897, 101; 1896, 148; 1895, 128.

The damage suit against Dr. C. D. Palmer as the result of his leaving a part of a broken needle in the abdominal cavity of a woman was last week decided in favor of the Doctor. The defense was that Dr. Palmer exerted every effort to find the broken point of the needle and only gave up the search when the anesthetizer warned him that the patient was in such a condition that it was not safe to further prolong the administration of the anesthetic. The needle, when found by another operator some time after, was completely encysted.

At the Academy of Medicine Dr. B. F. Lyle presented a paper entitled "What Treatment Shall we Adopt for Pulmonary Tuberculosis?" The author reviewed the various methods of treatment and as to the prognosis said that as a general rule patients who improve in weight and whose temperature is never above 100, offer hope of recovery, while in those whose temperature never exceeds 99, we may feel almost positive of success. The author has failed to obtain satisfactory results from either tuberculin or a solution of nuclein, and he claims that the nutrition is the foundation of the reparative process. The indispensable value of the open-air life is shown by

the experiments of Trudeau, who successfully inoculated rabbits with bacillary matter. Some were allowed their freedom and others confined. The former recovered without any trace of the disease remaining while all the latter died. In thirty-eight cloisters in France, of 2099 deaths 1320 were from tuberculosis, a percentage of 62.88. In the Alabama Insane Asylum, 28 per cent. of the whites and 42 per cent. of the blacks succumbed. Of the persons confined the prisons of Austria, 60 per cent. died from tuberculosis, while but 15 per cent. of those living without perished from the same. In Denver, in 1896, sixty-four unimported consumptives who were living in unfavorable hygienic surroundings died. The importance of having the air-passages free and unobstructed was emphasized. The food selected should be rich in nitrogen, hence meats should be the staple article of diet. Alcohol is avoided, as its rapidity of oxidation leads us to suppose that the same criticism might be made of it as of cod-liver oil, viz., that its affinity for oxygen would result in deficient oxidation of the by-products of tissue metamorphosis. In large quantities its use is condemned as positively injurious, as it forms with the hemoglobin of the red blood corpuscles, a compound which takes up and parts with oxygen less readily than normal hemoglobin, thus leading to a general diminution of the metabolism of the body. It also exerts an inhibitory action on the formation and functions of the leucocytes and other corpuscular elements of the blood and tissues. The elimination of alcohol by the lungs also increases the bronchial catarrh; the heart's action is weakened through fatty degeneration; the nervous system is benumbed, and the numerous other functional and pathologic conditions produced antagonistic to the well-being of the patient. Of the medicinal agents usually employed, the author has found creosote of benefit in some cases, when it undoubtedly lessened the cough, diminished the secretion and aided in increasing the general nutrition. Iron, quinin and strychnia (the dose of the latter pushed to the physiologic limit) is recommended, while sponge baths, phenacetin and quinin should be resorted to as antipyretics. Bromid of potash in ten grain doses every two hours will often be found efficacious in controlling the harassing cough. Intratracheal injections have been very satisfactory and the following formula is recommended:

℞.	Mentholi	3.00
	Camphoræ	2.00
	Ol. eucalypti	3.00
	Guaiacoli	0.50
	Liq. alboleni.	100.00

About 5 drams or 20 c.c. of this should be used. For troublesome night sweats agaricin in 1-10 grain doses is efficient.

HEALTH OFFICER WITHROW has presented his annual report in which he gives the total number of deaths during the year, 5,565. The annual rate per thousand being 13.7. As a result of the establishment of a city laboratory and more active quarantine and supervision of cases of diphtheria, the mortality has fallen from 23.8 in 1896 to 15.9 in 1897. The public markets have been much improved in their sanitary condition. The number of deaths from tuberculosis, 675, is a decrease of 62 over that of last year and is the lowest mortality of any year since 1878. This reduction is in a large measure due to the wider dissemination among the people of the belief in the contagiousness of the disease and the recent commendable practice of sending all tubercular patients from the Cincinnati Hospital to the branch hospital. The excellent work done in the milk department is detailed at length. A list of the houses in which infectious and contagious diseases are reported is sent each day to the Public Library in order that the books coming from such houses can be properly disinfected. As to the fumigation and disinfection of houses the Trillat autoclave apparatus for the generation of dry formaldehyde gas has been adopted and found the most satisfactory. The number of deaths from typhoid fever is 101, the lowest since 1879. The strongest plea is made by Dr. Withrow for the erection of an isolation hospital for contagious and infectious diseases of children, the boiling and filtering of all water used for cooking or drinking purposes; the instruction of the school teachers in the use of the clinical thermometer and the first symptoms of infectious diseases in order that they may be able to detect cases before they have progressed far enough to compel the child to remain home; the close supervision of the public dumps, and a greater number of parks or breathing spaces for the poorer classes.

CHANGE OF ADDRESS.

Chase, A. F. From Philadelphia, Pa., to Perryton, Ohio.

Diemert, J. A. From 109 Ontario Street, to cor. St. Clair and Wilson Avenue, Cleveland, Ohio.

Halvarson, K. K. From Minneapolis to Audubon, Minn.

Magivit, L. From 1280 Lincoln Avenue to cor. Southport and Belmont Avenue, Chicago.

Payne, A. F. From 441 North 13th Street to 208 North Sixth Street, Terre Haute, Ind.

Searle, C. H. From 166 North Avenue to 39 Roslyn Place, Chicago, Ill.

Stone, W. C. From 482 Bowen Avenue to 615 56th Place, Chicago, Ill.

Westlake, J. A. From 913 New York Avenue to 515 F. Street, N. W. Washington, D. C.; Woodward, A. P. From 11 Powell to 1220 Sutter, San Francisco, Cal.

LETTERS RECEIVED.

Anderson, Warren E., Pensacola, Fla.; American Therapeutic Co., New York, N. Y.; Atkinson, W. B., Philadelphia, Pa.

Brumbaugh, G. M., Washington, D. C.; Brothers, S. F., New York, N.

Castle & Co., Wilmot, Rochester, N. Y; Cokenower, J. W., Des Moines Iowa; Cobb, F. C., Boston, Mass.; Cossitt, W., South Milwaukee, Wis. Connor, Leartus, Detroit, Mich.; Castleman, A. L., Mercur, Utah.; Collins, G. L., Providence, R. I.

Drake & Mueller, Chicago, Ill.

Earles, W. H., Milwaukee, Wis.

Hare, H. A., (2) Philadelphia, Pa.

Johnston, Collins H., Grand Rapids, Mich.; Jayne, W. A., Denver, Colo.; Johnson & Johnson, New York, N. Y.

Kitzmiller, J. E., Kansas City. Mo.; Klebs, Edwin, Chicago, Ill.

Lamb, D. S., Washington, D. C.

Mastin, C. H., Mobile, Ala.; Mills, H. B., Philadelphia, Pa.; McDaniel, E. D., Coy, Ala.; Mills, Chas. K., Philadelphia, Pa.; McEwen, P. C., Detroit, Mich.; Morehouse, George, Sparta, Ohio; Milliken, Jno. T. & Co. (2) St. Louis, Mo.; May, W. H., Syracuse, N. Y.; Montgomery, E. F. Philadelphia, Pa.

Norwich Pharmacal Co., Norwich, N. Y.

Ohmann-Dumesnil, A. H., (2) St. Louis, Mo.

Porter, D. R., Kansas, City, Mo.; Putnam, H. C., Providence, R. I. Pheniqne Chemical Co., St. Louis, Mo.; Parkinson, W. B., Logan, Utah. Pilling, Geo. P. & Son, Philadelphia, Pa.

Reed, R. Harvey, Rock Springs. Wyo.

Sweet, C. L., Boise, Idaho; Sauer, Anton, Tipton, Mo.; Stevens, S., Coloma, Mich.; Sternberg, Geo. M., Washington, D. C.

Tiffin Book Bindery, (2) Tiffin, Ohio; The Welch Grape Juice Co. Watkins, N. Y.

Union Pacific System, St. Louis, Mo.

Voje, J. H., Oconomowoc, Wis.; Van Houten & Ten Broeck, New York.

White Rock Mineral Spring Co., Waukesha, Wis.; Wescott, C. D. Chicago, Ill.; Waxham, F. E., Denver, Col.; Wedding, S. J., Sulphur Springs Ky.; Washburn, W. H., Milwaukee, Wis.; Whelan, J. M., Birmingham Ala.

PAMPHLETS RECEIVED.

Antitoxin Treatment of Tuberculosis; Microscopic Proof of a Curative Process in Tuberculosis, or the Reaction to Tuberculin Evidenced by Blood Changes Hitherto Unrecognized; Favorable Results of Koch's Tuberculin Treatment in Tubercular Affections that are not Pulmonary. By Charles Denison, Denver, Colo. Reprints.

Barber Shop, Dangers of the. By Henry A. Robbins, Washington, D. C. Reprinted from Maryland Med. Jour.

Cholera, Arsenization Method of Treating. Senate Document, No. 111, 2d Session 55th Congress.

Coma, Difficulties in Determining the Causes of. By J. T. Eskridge, Denver, Colo. Reprinted from Annual Report of Colo. State Med. Society.

Mushroom Poisoning, Observation on Recent Cases in the District of Columbia. Circular No. 13, U. S. Dep't of Agriculture, Division of Botany.

Lumbar Nephropexy Without Suturing; A New Incision for Arthectomy, Resection and for reduction of Irreducible Dislocation of the Shoulder Joint; A New Method of Nerve Resection for Amputation Neuroma; Treatment of Chronic Empyema of the Antrum of Highmore. By N. Senn, Chicago. Reprints.

Report of Allegheny County (Pa.) Prison for 1897. Paper. Pp. 3. Pittsburg. 1898.

Report of St. Mary's Hospital, Rochester, Minn., for 1897. Paper. Pp. 24. Illustrated.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from February 19 to 25 1898.

Capt. Paul F. Straub, Asst. Surgeon, ordered to accompany Companies F and G, Fourteenth Infantry, to Skagway, Alaska, and there take station.

First Lieut. John S. Kulp, Asst. Surgeon, ordered to accompany Companies B and H, Fourteenth Infantry, to Dyea, Alaska, and there take station.

Major Henry S. Kilbourne, Surgeon (Madison Bks., New York), is granted leave of absence for two months with permission to go beyond sea, to take effect on or about March 1, 1898.

Capt. Charles B. Ewing, Asst. Surgeon (Jefferson Bks., Mo.), is granted leave of absence for one month, to take effect on or about March 1, 1898.

Major William W. Gray, Surgeon, is relieved from duty at Ft. Apache, Ariz., to take effect upon the expiration of his present leave of absence, and ordered to Ft. Huachuca, Ariz for duty.

Lieut.-Col. William D. Wolverton, Deputy Surgeon-General, chief surgeon Hdqrs. Dept. of the Columbia, is granted leave of absence for four months with permission to go beyond sea, to take effect on or about March 15, 1898.

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ORIGINAL ARTICLES.

AUTO-INTOXICATION IN ITS RELATIONS TO THE DISEASES OF THE NERVOUS SYSTEM.

Read before the Illinois State Medical Society.

BY DANIEL R. BROWER, M.A., M.D.

rofessor of Mental Diseases and Therapeutics, Rush Medical College; Professor of Mental and Nervous Diseases, Woman's Medical School, and Post-Graduate School, Chicago, Ill.

We are at the beginning of a new era in the pathoenesis and treatment of the neural diseases. The iscovery of the neuron has resulted in making clear ome of the dark passages in physiology and pathoenesis, and the dynamic changes produced in these eurons by alcohol and other extrinsic poisons, that ave been so marvelously demonstrated by Andriezen, 'an Gieson and others, and the reasonable inference hat intrinsic poisons are equally powerful in estabshing pathologic conditions, open up a new line of mportant therapeutic investigation.

The primary form of the psychoses from the beinning has been called melancholia, "black bile," ecause of the relation ever recognized between menal depression and perverted action of the great viscus f the abdominal cavity, and in more modern times uaint old Abernethy emphasized the same etiologic nought when he gave utterance to the aphorism that ne best medicine for the "blues" is the blue pill. 'hat various nervous diseases are produced by alcohol, ead and other extrinsic poisons, and by the toxins of arious infectious diseases, by uremia, by sunstroke nd by experimental thyropravia is universally acepted, and moreover, the neuro-cellular lesions that re produced by some of these poisons have been emonstrated. Auto-intoxication includes the results f toxins that are produced within the body by norial and abnormal chemic activity, and those that folow from the suppression or disturbance in the nctions of such organs as the thyroid and other lands that produce constituents necessary to healthy utrition, and those toxins that are produced by erms in the gastro-intestinal tract and elsewhere bout the body.

Albu suggests the following general classification f auto-intoxication:

1. Auto-intoxications from the suppression or disrbance of the functions of an organ, *i.e.*, auto-intoxation of thyroid gland, pancreas, liver, supra-renal psules, producing myxedema, diabetes, acute yellow rophy and Addison's disease, respectively.

2. Auto-intoxications which occur from anomalies general metabolism without definite localization, ch as rheumatism, gout and oxaluria.

3. Auto-intoxications which are caused by the rention of the physiologic products of metabolism in fferent organs, such as poisoning due to extensive destruction of the skin by burning, carbonic acid poisoning, uremia and eclampsia.

4. Auto-intoxications due to the over-production of physiologic and pathologic products of the organism, such as ammonemia, acetonuria, diaceturia, diabetic coma, Basedow's disease, etc. The most frequent source of this intoxication is the gastro-intestinal tract.

In normal digestion we have ultimately elaborated absorbable products, soluble albuminoids, emulsified fat, glucose and maltose. In indigestion we have numerous aromatic, nitrogenous and acid compounds produced that are poisonous. In the stomach the absence or diminution of free hydrochloric acid results in putrefaction, and in this viscus and in the intestines the presence of micro-organisms result in decomposition, and among the resultant toxic products thus produced we have lactic, acetic, succinic, carbonic, the aromatic and the volatile fatty acids, indol, skatol, phenol, peptinatoxin, ammonia, methan, sulphuretted hydrogen, methyl, mercaptan, etc.

The liver acts as a barrier to guard the organism against the invasion of these various poisons and may transform them into innocuous substances or eliminate them by the bile as non-absorbable chemic combinations. The skin, kidneys, bowels and lungs assist the liver in eliminating these products.

Bouchard[1] has demonstrated that the normal man manufactures enough of these several poisons each day to destroy the body if retained within it; he has separated from the urine of such a man, seven toxic substances, two of which will produce convulsions, one myosis, while one is antipyretic, one is narcotic, one is diuretic, and one is a sialagogue. The toxicity of the urine in the healthy man varies according to numerous circumstances, such as cerebral and muscular activity, sleep, diet, etc. The urines of sleep are usually less toxic than those of the waking state. The urotoxic co-efficient varies with disease; the urine of a uremic patient is not toxic, because the poisons which should be eliminated are retained. The urine in mania is less toxic and in melancholia more toxic than normal. The urine from a maniacal patient when injected into an animal will give rise to excitement and convulsions; that from a melancholiac to depression, restlessness and stupor.

Morgan[2] found abnormalties in the urine in 70.6 per cent. of the cases of insanity; such a high specific gravity, albumin, excess of phosphates, urates, uric acid and oxalates.

Agrotini[3] noticed the gastric disturbances, the hyperchloridity and the urinary toxicity with the epileptic attacks, and very wisely concludes that autointoxication from altered tissue change and digestive disorder has an important part in the mechanism of the attack.

Somers[4] concludes that in all cases of insanity there is a deterioration of the blood, showing a diminution

of red corpuscles, an increase in white corpuscles, and a low percentage of hemoglobin; that cases of melancholia show the lowest amount of hemoglobin; the eosinophilic cells are absent in the majority of the cases, and that poikilocytosis is characteristic of this disease. That the eosinophilic cells are increased in mania, and that there is an intimate relation between an hypertrophied heart, sclerosed arteries, lowered blood nutrition and the course of mental diseases, and asks this important question, "Is it possible by the use of some drug where you increase metabolism to also increase the number of eosinophilic cells and thus free the system of the toxic influences which are supposed to be the cause of melancholia?"

Contributing to this toxemia of the brain is doubtless the peculiar arrangement of lymph channels around the blood vessels; the blocking of these channels, a pathologic condition not unreasonable, would result in auto-intoxication of this organ. The psychoses that are probably of auto-toxic origin are the manias, primary melancholias, whether acute, subacute, or chronic. The nervous diseases that have probably the same origin are neurasthenia, epilepsy, tetany, chorea, exophthalmic goiter, disorders growing out of rheumatism and gout, and probably many others.

Van Gieson [5] has demonstrated, in these toxemias, an acute parenchymatous degeneration of the neuron from which recovery, both of structure and function, may take place, provided the poison acts only for a brief period, but if the action continues, the degenerative changes eventuate in the irreparable destruction of the cell.

The gastro-intestinal tract is the theater of the most important of the operations of auto-intoxications, and the first important factor is dilatation of the stomach. Bouchard [6] has most graphically described the consequences of this pathologic condition, and it is unfortunate that our means of diagnosis in these cases are so meager. The second important factor is intestinal indigestion, and the third is coprostasis. The urine will often give important aid to diagnosis, and it should be tested for indican and the total sulphates, and will show increased ratio of the former and diminished ratio of the latter, although ethereal sulphates will be increased in auto-intoxication.

The treatment of these cases must consist in the treatment of the pathologic condition associated with it. First to be considered is the treatment of gastrectasis, and, in this, diet is of the first importance. The food must be very digestible, concentrated, so as to give least taxation to the motility of the stomach. The meals should be taken three times a day with the longest possible interval. It is necessary to avoid, as much as possible, everything that can have a tendency to undergo fermentation. Alcohol, which furnishes acetic acid, especially red wines, beers, tea, coffee, carbohydrates and fat are objectionable. The best diet would be a predigested one, peptonized milk, malted milk, somatose, especially the combinations of malted milk and somatose. The best dietary is an animal one, tender beef, mutton, fowl free from fat, eggs, fish, the smallest possible allowance of bread, peas, asparagus, tomatoes, peaches, grapes, apples and but very little water, and this should be taken hot before meals. If hydrochloric acid is deficient in the stomach contents, as it usually is, then hydrochloric acid may be administered after eating. It is without doubt the best of the stomach antiseptics; with this may be administered the simple bitters. Strychnia is also a drug of great value, because of its power to restore tone to the debilitated muscular fiber. The intragastric application of faradism, the cutaneous use of faradism and of static electricity, all alike stimulate peristalsis and promote the nutrition of the muscular coats of the stomach. Abdominal massage is also of service. Lavage is necessary in all of these cases, and it should be used daily; it can best be performed a half hour before breakfast, or dinner. The red-gum soft-rubber tube, with funnel attached, is the simplest and best apparatus; the patient can soon be taught to use it himself. The water should be warm, and with some mild antiseptic, such as sodium borate, sodium salicylate, or such as may be preferred. About a pint should be introduced at a time, and then this should be siphoned out and followed by another and another until it returns clear. It may be necessary to change the climate; a high altitude for some, a sea level for others, with freedom from care, distraction by travel, or some pleasurable occupation.

The treatment of intestinal dyspepsia calls first for purgatives, and the salines meet the indications best. The combination of sodium sulphate with sodium phosphate, four parts of the first to one part of the second, is an admirable one. The best intestinal antiseptics are beta-naphthol, benzo-naphthol, bismuth salicylate and guaiacol carbonate. Of this valuable series benzo-naphthol is probably the best, because it is but little toxic and does not irritate the kidneys. It should be administered in ½ gram doses, four times a day.

Colonic impaction is a very frequent condition in chronic invalids and is very frequently overlooked. For its relief cathartics are not sufficient. Colonic flushing, in the knee-breast position, with normal saline solution at body temperature, with abdominal massage, must be used. The flushing will frequently have to be repeated several times before the accumulations are removed. It should be followed with aloetic laxatives and intestinal antiseptics. As a rule all of these cases of auto-intoxication will require hematinics, Blaud's mass, freshly prepared, combined with extract nux vomica and arsenic, have given me the best results.

The treatment of Albu's first class of auto-intoxications, of those due to the suppression or diminution of the secretions of some gland, suggests the question of organo-therapy, and I think we may say that the great expectations of this new therapy have not been realized. Spermin, cerebrin, medullain, cardain and all such have failed to produce the results promised; but thyroid, bone marrow and nuclein have in some cases given results that are surprising. No one can dispute the value of thyroid extracts in myxedema, cretinism, acromegaly, obesity, tetany, rosacea, ichthyosis, scleroderma, some forms of syphilis and some forms of insanity, especially the adolescent, climacteric and puerperal cases. The value of red bone marrow in certain cases of anemia seems well established, and the nucleins seem to have the power of increasing the bactericidal capacity of the blood and in anemia following infectious diseases; in gonorrhea and in tuberculosis, benefit has sometimes been obtained.

CONCLUSIONS.

1. Some of the nervous diseases are the product of auto-intoxication.

2. This autotoxis produces a parenchymatous

degeneration of the nervous system, acute or chronic, that may result in the destruction of the structure and function of the nerve cells. (Van Gieson and Andriezen.)

3. The peculiar arrangement of the lymph channels in the nervous system makes auto-intoxication of the brain possible by the blocking of these channels.

4. The principal factor in this autotoxis is a disordered gastro-intestinal tract.

5. Gastrectasis, intestinal dyspepsia and coprostasis are ordinary conditions producing gastro-intestinal intoxication

6. The diagnosis is to be made; *a*, by a regional examination; *b*, by examination of the gastric contents, and *c*, by examination of the urine.

7. The urines will show increased amounts of indican, diminished total sulphates, and an increase in the amount of ethereal or conjugate sulphates.

8. There will also be found, usually in consequence of this autotoxis, a diminished hemoglobin record and a diminished number of red blood corpuscles.

9. The treatment should consist of lavage, enteroclysis, gastric and intestinal antiseptics, laxatives and hematinics.

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1 Auto-intoxications in disease.
2 State Hospital Bulletin, Vol. 1, No. 1, pp. 128 to 131.
3 Rev. Speremental, xxii, 1896.
4 State Hospital Bulletin, Vol. 1, No. 1, p. 82.
5 State Hospital Bulletin, Vol. 1, No. 4.
6 Auto-intoxications, Lectnres on, p. 150 at seq.

SURGICAL TREATMENT OF GASTRIC ULCER.

Read before the Iowa State Medical Society, 1897.

BY VAN BUREN KNOTT, M.D.
SIOUX CITY, IOWA.

Surgical interference for the relief of the ulcer of the stomach and its complications, although of comparatively recent date, has by the brilliancy of its results become a well established procedure and promises much for the future. In considering its applicability I shall be as brief as possible, dwelling only on those conditions in which it has been proven of unquestionable value. Although the radical cure of gastric ulcer has been advocated, and attempted by excision of the ulcer itself, the results have not as yet justified the adoption of this measure as the routine treatment for this condition, nor is it warranted by statistics, as according to Welch about 85 per cent. of all cases of ulcer of the stomach heal spontaneously. Therefore, I shall in this paper consider the value of surgical interference in those cases of gastric ulcer complicated by one or more of the following conditions: Perforation, hemorrhage, cicatricial contraction and adhesions to neighboring viscera or the abdominal wall.

Perforation of a gastric ulcer is always a very serious accident and in the majority of cases the only hope for the recovery of the patient is offered by surgery. If the perforation occurs rapidly and into the general peritoneal cavity, no time having been afforded for the formation of limiting adhesions, the patient unless relieved by surgical intervention rapidly succumbs to acute septic peritonitis.

In these cases the surgeon should never hesitate, as experience has demonstrated that the successful cases are those in which the operation was performed within a few hours following perforation. Delay can mean nothing but a rapidly fatal infection.

An incision should be made in the median line between the umbilicus and the sternum, and if the stomach is not then readily accessible another incision at right angles to the first will render it so. First, locate the position of the perforation and effect its closure before attempting to remove the extravasated gastric contents.

In by far the greater number of cases closure may be best affected by turning in the peritoneal edges and retaining them in position with Lembert sutures. In some cases, owing to the diseased condition of the stomach wall, a large portion of it may require inversion. Again, a portion may be resected and the opening closed. It is extremely fortunate that perforation of ulcers of the anterior wall of the stomach is much more common than of those situated on the posterior, as in the latter case the perforation is accessible only with the greatest difficulty, if at all.

As soon as the perforation has been closed, the peritoneal cavity must be carefully cleansed of all extravasated matter, first, by dry gauze sponging and then by irrigation with large quantities of normal saline solution. Irrigation, as frequently practiced, employing three or four quarts of fluid, is worse than useless, as with such a small quantity the extravasated particles are only disseminated throughout the peritoneal cavity and not washed out. In all cases, gallons of hot normal salt solution should be used.

Following the irrigation, the peritoneal cavity should again be sponged dry and ample gauze drainage provided. If evidences of general peritonitis are already present it is well to supplement the ordinary drainage with gauze wicks placed at the most dependent portions of the cavity and carried out through incisions in the loin.

M. H. Richardson [1] has collected forty-four cases of operation for this condition, with ten recoveries. When we consider that all these would have died without operation, these results are gratifying. The same observer also states that the percentage of recoveries during the last two years was much larger than in those cases operated on before that time, indicating that the results are improving with experience.

Sometimes perforation of a gastric ulcer occurs so slowly that time is allowed for the formation of limiting adhesions and we have a localized abscess resulting. This abscess may be superficial deep or subdiaphragmatic. Weir [2] urges that left-sided pyoneumothorax with a previous history of gastric symptoms should be suspected as due to a perforated ulcer of the stomach. These abscesses should be freely opened and drained, following the technique employed in pelvic or abdominal abscesses due to other causes, and the perforation closed in the usual manner. Cases have been reported in which perforation was followed by neither general peritonitis nor localized abscess, and a complete spontaneous recovery was made, but such a fortunate termination is extremely rare.

Again, adhesion has occurred between the stomach wall and a neighboring viscus or the abdominal wall before perforation has occurred, the ulcer being thus provided with a new floor and infection prevented. The resulting adhesion, however, may occasion so much functional disturbance and pain as to necessitate an operation for its relief.

The abdomen should be opened, the adhesion found and separated and the opening into the stomach closed

1 Dennis' System of Surgery, Vol. iv.
2 Annals of Univ. Med. Science, 1893.

as indicated above. The following case illustrates this condition and is interesting from the fact that the adhesion was separated without re-opening the ulcer.

Case.—E. J., a female aged 32 years consulted me regarding severe gastralgia and digestive disturbance of about one year's duration. She complained of very acute abdominal pain coming on soon after eating, which was frequently attended with vomiting. Coughing, sneezing, etc., were attended by the most excruciating pain. She had been constantly under treatment for one year, her ailment being diagnosed as dyspepsia, and was almost discouraged concerning her condition. Owing to the difficulty with which food was retained in the stomach, she was extremely emaciated. Temperature was 100, pulse 85. An examination of the abdomen revealed, upon palpation, a tender indurated spot about one-half an inch above and the same distance to the left of the umbilicus. This, together with the symptoms above enumerated, led to the diagnosis of an adhesion between the stomach and the abdominal wall, with possibly the formation of an abscess. In addition to the usual preparations for the celiotomy, the stomach was thoroughly washed out. The abdomen was opened in the median line and the adhesion existing between the anterior surface of the stomach and the abdominal wall was readily found. This point was walled off from the surrounding tissues with gauze sponges and the adhesion separated, keeping close to the abdominal wall. No pus was present and the stomach wall at this point was found to be intact, the ulcer having apparently healed. The ulcerated area, however, was folded in and retained by close suturing. As no abscess existed and the stomach had not been opened the abdominal incision was closed without drainage. The troublesome symptoms immediately disappeared and, fifteen months after operation, had not recurred. The patient rapidly regained her lost weight and has since been in perfect health.

The interesting features of this case are:

1. That the ulcer should have occasioned such extreme functional disturbance and established so firm an adhesion without being attended with hemorrhage and more of the classic symptoms.

2. That after so active an ulcerative process the lesion should undergo such complete spontaneous healing that the operation revealed practically no trace of it except the adhesion and a slight induration of the stomach wall.

3. That the condition was easy of diagnosis owing to the induration which could be plainly felt and the typical disturbance of function. (Most authorities state the existence of adhesions between the stomach and contiguous structure can only be surmised without an exploratory incision.)

If, during the course of a gastric ulceration, alarming hemorrhage should occur and death seems imminent from this cause, the abdomen should be opened, the ulcerated area excised and closure effected by suturing. If for any reason this can not be accomplished the stomach must be opened and the bleeding vessel ligated.

Cicatrical contraction accompanying the healing of a gastric ulcer does not usually occasion enough trouble to demand operative relief unless the ulcer is situated at the pylorus. Contraction and cicatrization occurring at this point may, by occluding the pyloric orifice, occasion the troublesome train of symptoms consequent upon the dilatation of the stomach which ensues.

Should this occur surgical intervention is imperative. Several procedures have been advocated for the relief of this condition, but I think we may adopt pyloroplasty, as performed by Heinecke, as the operation of election and I can not conceive of a pyloric stenosis due to the above cause in which it would not be applicable.

In all operations on the stomach strict adherence to the following points is essential.

If the case be one demanding immediate interfer ence, the feeding of the patient should be so regulate that at the time of operation the stomach will be empt and by copious irrigation the intestine rendered a free as possible from fecal matter.

Just before operating, the stomach should be thor oughly washed out. After the stomach is exposed, i perforation exists, and extravasation has occurred, be fore attempting to remove the extravasated materia the opening in the stomach must be found and closed The escaped stomach contents may be best remove from the peritoneal cavity by dry gauze sponging fol lowed by copious irrigation with normal salt solutio and the cavity again sponged dry.

If extravasation has not occurred such an acciden must be prevented by immediately surrounding th operative field with sponges walling off the genera cavity of the peritoneum.

In those cases where the perforation occurs upo the posterior wall of the stomach and is inaccessibl for suturing, further extravasation must be prevente by carefully placed gauze packing. The writer ha encountered such a condition twice in gunshot wound of the abdomen.

In all cases where extravasation has occurred ampl gauze drainage must be provided and if evidence c general peritonitis is present, counter openings fo drainage in the loin are indicated.

Drainage must be maintained according to the re quirements of individual cases. There can be n fixed rule regulating its withdrawal.

Great care must be exercised during the evacuatio of a localized abscess following perforation, that i limiting walls be not broken and a general infectio invited. It is recommended that these cavities b cleansed by dry sponging, as the force of an irrigatin stream is dangerous.

In separating adhesions between the stomach ar neighboring parts by dissection, strive to avoid ope ing into the stomach cavity.

If after separation the adherent area of the gastr wall appears weak, turn it in and suture.

For stomach wounds in general, the best suture, an interrupted Lembert of fine silk. In these oper tions time is an important consideration and th should be rapidly performed, every detail being car fully arranged before making the incision. The afte treatment of all operations upon the stomach is great importance. Nothing should be allowed by t mouth until the third or fourth day, all nourishme being administered by rectum. Mouth feeding wh begun should be done with great care for some tim soups and broths being first given.

THE CONSERVATIVE AGENCY OF SHOC

Read at the meeting of the Western Surgical and Gynecological As ciation, at Denver, Colo., Dec. 28 and 29, 1897.

BY H. G. WETHERILL, M.D.

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Until recently, the old notions and teachings of t cause and modus operandi of surgical shock have be little modified, notwithstanding the vague and unc tain theories upon which they were based. Literal the term surgical shock has been applied to the co dition of the body which is induced by severe injuri operating through the nervous system, not attend with or produced by hemorrhage. Profound depr sion and even death may be so caused, but not co

nonly, and even when so produced, that it is serious ɔecause of the nervous disturbance alone can not be .dmitted, as the secondary circulatory disarrangement s the prominent symptom presented and is also the ymptom which must be combatted with the greatest igor if the life of the patient is to be saved.

Few serious injuries or surgical operations, which re followed by so-called shock, are unattended by emorrhage, external or concealed. The symptoms hich such patients present are due to the conjoined ffects of the hemorrhage and "shock" combined.

For many years it was taught that penetrating ounds of the abdomen and amputations through he hip joint were ordinarily fatal because of the rofound shock which accompanied them, but later xperiences have taught that with perfect hemostasis heir mortality may be greatly reduced. This indiates that hemorrhage is a far more important factor the production of what we have heretofore called hock than has been believed.

It has been usual to attribute the death of patients, pon whom abdominal operations have been perrmed, to the "shock" of the operation, while the utopsy has ultimately shown that the patient had ied of concealed hemorrhage.

A small concealed hemorrhage may go on so slowly nd insidiously as to give rise to none of the symptms which are characteristic of hemorrhage as in ontra-distinction to "shock." In such cases it will e difficult to say that the state is not one of literal hock.

The tendency now is to regard surgical shock, a condition which follows such operations or vere injuries as exhaust the nerve force of the patent and reduce his blood pressure, through the true hock and the reflex action of the hemorrhage, the tter being considered the more important factor.

The present status is unsatisfactory and confusing nd the definition and meaning of the term shock should e applied to the condition as it is now known and its ouble origin recognized; or if it be preferred to tain this term for its original and literal use it should e limited strictly to this meaning and some new word hosen for the description of the mixed condition hich comes after injuries and operations, the genesis which is due to both shock and hemorrhage.

The term traumatic asthenia is well suited to the scription of this mixed condition and also indicates s origin.

This mixed shock has heretofore been regarded as a rious and unfavorable complication of injuries and erations. This view should also be reconsidered d modified as it is now believed, by some, that the ndition is essentially conservative in its agency, that it were not for this lowering of the vital action rough and by the intervention of the reflexes the ffering of the patient would be far greater and his e more quickly sacrificed.

Recall the picture of profound shock often seen in e emergency operating room after injuries received the railroad or in the factory. The patient is pale, th pupils dilated but with eyes closed, his skin is d and clammy, he is pulseless or nearly so, his temature is subnormal and he desires to be left alone l allowed to rest. He is not suffering in proportion the severe character of his injury and is bleeding y little, not because he has no blood to lose but bese it is not circulating with its usual force. Is it evident that the conservative efforts of all nature's agents are being exercised to render his suffering and the consequent exhaustion as little as possible, and prolong his life to the full limit by lowering his blood pressure and storing the vital fluid in his dilated and relaxed blood vessels? His very condition of perfect relaxation, inability and disinclination to make exertion is his salvation.

In all diseases, under all circumstances, the tendency of the natural processes is to resist death and destruction as long as possible and by every means.

The successful treatment of disease must take into consideration the indication nature gives as to the best way to proceed. Success depends upon following these indications and supporting the resisting powers in the fight for life, for death comes not by nature's consent or assistance but always in spite of her strongest antagonism.

I believe it has not been proved by the experimental physiologist that the reflex effect of hemorrhage is to lower blood pressure and so save blood volume. That this result is attained every surgeon knows, but to what extent it is accomplished through reflex action we can not say.

The experience of every surgeon who has carefully observed the condition of his patient under and after operation will lead him to believe that there is some controlling influence exercised over the heart and the circulation of the blood by a persistent arterial hemorrhage however small in amount. The influence upon the circulation is out of all proportion to the amount of blood lost as is also the profound effect in general upon the patient, who becomes cold, pulseless and is evidently near death, perhaps to be perfectly revived, with a full bounding pulse, when the hemorrhage is arrested. Such phenomena are sometimes seen in cases of ruptured ectopic pregnancy, the patient's condition becoming decidedly better or worse with each arrest or fresh attack of hemorrhage. It hardly seems rational to doubt that these remarkable effects are the results of reflex action, or that even a small but persistent hemorrhage may induce them.

Gynecologists and abdominal surgeons are peculiarly interested in having this matter thoroughly understood, for to them the question must often come for solution whether a patient is suffering from shock or it be traumatic asthenia, with the possibility that hemorrhage is still persisting and so maintaining through its reflex effects the state of lowered vitality. The importance of this question in its bearing upon treatment is evident. If the case be one of uncomplicated shock cardiac and other stimulants are indicated, transfusion and infusion may be employed and all the vital forces be quickly brought into normal activity; whereas if concealed hemorrhage continues these remedies are contra-indicated and opposed to the conservative efforts of nature, for the more the circulation is increased in force and volume the greater must be the hemorrhage till all bleeding points are controlled.

That the balance should be in every case so nicely adjusted as to give exactly the required amount of protection is too much to expect. It must be clear that the shock or traumatic asthenia may under certain circumstances be so severe and profound that the patient can not react and recover.

Here as in other branches of medicine the personality and condition of the patient bear directly upon the result. The nervous, anemic, exhausted, old, or very young person will not withstand a degree of trau-

matism that would make little impression on one in the full vigor of youth.

The degree of surgical anesthesia and the length of time it is maintained must also affect the result through the obliteration of the reflexes and the consequent paralysis of nature's conservative mechanism.

The conclusions I deduce from the foregoing are:

1. Surgical shock entirely unassociated with hemorrhage is a condition rarely seen and one which may usually be successfully treated in persons who are otherwise in good health.

2. Hemorrhage though small in amount is a far more important factor in the production of surgical shock (as it is seen clinically) than we have been accustomed to think it.

3. This mixed shock (traumatic asthenia) should be designated by some distinctive title, or the term shock be construed to comprehend all the factors in its genesis.

4. While not proven it seems probable, that the effects of even a small continuous arterial hemorrhage is to produce through its reflex action lower blood pressure and in general a condition so like true shock as to be very difficult of differentiation, particularly if the hemorrhage is concealed; as in ruptured ectopic pregnancy.

5. Surgical shock, with or without hemorrhage, must be construed as primarily conservative in its tendencies. The incident prevention of rapid exhaustion, of acute suffering, or great blood loss when the blood vessels are opened, all tend to the ultimate saving of life.

6. Premature stimulation in the treatment of traumatic asthenia may defeat this conservative effort of nature. Bleeding should be stopped and proper provision made for the comfort and welfare of the patient before strong stimulation is resorted to, unless there is imminent danger of death.

7. Anesthetics must be sparingly and carefully given to patients suffering from surgical shock (traumatic asthenia), chiefly because they completely obliterate the reflexes. The saturation of the patient with an anesthetic may turn the scale against him even though the direct effect of the anesthetic be stimulant. The same rule holds good in regard to the employment of alcoholic stimulants if too freely used.

8. We should co-operate with and supplement nature's conservative efforts. They are always exercised in behalf of the patient, never against him.

212 McPhee Building.

LUPUS VULGARIS—EPITHELIOMA—ACNE—ALOPECIA CIRCUMSCRIPTA—TINEA VERSICOLOR.

A Clinical Lecture to Members of the American Medical Association, delivered in the Medico-Chirurgical Hospital of Philadelphia, June, 1897.

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LUPUS VULGARIS.

The patient is 40 years of age. The disease from which she suffers began about three years ago upon the right cheek, whence it has spread toward the upper lip. There is much infiltration in the affected part, and exterior to the edges of the main patch are a number of tubercles of glutinous appearance. These tubercles project slightly above the general surface. The extensive and continuous patch upon the che is the result of the coalescence of many tubercl Most of the cheek has been invaded in this mann Upon the seat of disease are many fine scales. T development of these lesions has, from the first, be accompanied by considerable pain

But the disease is not in active progress in all pa Upon the cheek are several cicatricial spots. I kn therefore, that however chronic, disfiguring or de this ulceration, it can not be of malignant charact Epithelioma never exhibits these cicatricial sp intermingled with slow, progressive ulcers. Th features, in connection with the intact tubercles alo the principal lesion are characteristic of lupus v garis. In other words, in lupus vulgaris we usua perceive coincidently different stages of the mala The primary lesion is a papule or tubercle, dee imbedded in the corium and visible at first as reddi brownish or yellowish spots. The lesions are due an infiltration of small cells, which in time unde fatty degeneration and may be absorbed. In ot spots ulceration occurs and may continue indefinit or may cicatrize in certain spots. Now, all this p cess of evolution, involution, ulceration and cicatr tion constitutes a totally different clinical pict from that of epithelioma. Upon an attentive st of cases we should rarely err in diagnosis. This typical case of lupus, but there are inveterate case which ulceration penetrates to or even involves bone and such are very apt to be mistaken for can

In this patient the butterfly arrangement of lesions is absent, as indeed it generally is in lu vulgaris. That symmetry of outline is far more i cative of lupus erythematosus. The age at which patient was attacked is also exceptional.

In some cases the infiltration involves the pap of the skin, which become immensely enlarged sprout forth as wart-like elevations. This form of affection is known as lupus verrucosus. Lupus erally attacks the face, though it sometimes app upon other parts of the body.

The etiology of this disease has been the them much discussion. It is now looked upon by som an attenuated form of cutaneous tuberculosis, altho it is admittedly of a different clinical type from c forms of tuberculosis and the lesions contain bacilli. As a general rule, the subjects of lupus e fairly good health. In some instances they dev pulmonary tuberculosis.

Lupus vulgaris is liable to be mistaken for tubercular or some of the ulcerative lesions of syphilis. The former, however, is usually limit the face. The tubercles of syphilis appear upon ous parts of the body and display a characteristic pery color. The ulcers of lupus have a tenden coalesce; those of syphilis are most often isol Syphilitic ulcers are attended by abundant foul puration and covered by greenish crusts. Syph ulcers are more rapid in their course than th lupus and the cicatrices of syphilis are white smooth. Lupus scars are an unsightly disfigure

The treatment of lupus depends much upo general condition of the patient. The food shou digestible and nutritious. If scrofulous or tub lous manifestations are present appropriate rem should be ordered. Other impairment of the s must be treated upon general principles. Cod oil is an excellent remedy and shall be given in case. The patient feels weak although she ha

st much flesh. She shall also be placed upon senic in the form of sulphid, beginning with 0.006 $^1_0$ grain) and running up to 0.016 gram ($\frac{1}{4}$ grain) ree or four times a day.

I do not favor harsh local measures, as I have own them to be followed by systemic implication. n effective application to the lesions is pure lique- d carbolic acid, used twice a week. In the interim weak carbolic acid ointment may be kept upon the rts.

EPITHELIOMA.

Our next patient is a man, aged 68 years. He also as an ulcer upon the cheek. This lesion is about e size of a five cent piece, of a nearly circular out- ne with hard, everted edges, of dark red and granu- r surface. It is the seat of much pain and bleeds on slight provocation. Some thick, yellowish secre- on covers its surface. It has been in existence for ven months and in the beginning had the appear- nce of an innocent wart, as far as the patient could dge.

These seeming warts, these dry fissures surrounded a thickened and hardened nodule, are always sus- cious matters in people above 60 years of age. We ave here an epithelioma. It is of the utmost impor- nce to recognize this disease at an early moment. allowed to progress it will infallibly contaminate e blood and proceed to a fatal termination. Yet, of l the forms of cancer, cutaneous epithelioma is the ost amenable to early and judicious treatment. We ay excise the growth *in toto*, together with a large rrounding area of healthy tissue; we may destroy it y chemicals or electricity. We may seek to attain e same object by the interstitial injection of alcohol, e application of methyl blue, etc. If the disease as caused deep ulceration before coming under our re and if adjacent lymphatic glands are involved we e often powerless to do more than alleviate symp- ms as they arise. Total excision with a plastic peration to replace tissue removed succeeds in a cer- in proportion of cases. Nevertheless, there are any patients on whom, for some reason we may not ractice radical surgery. The one before us is a case point. The man absolutely refuses to submit to e knife. I propose, accordingly, to pursue a course hich has sometimes given me a favorable result and hich is always worth a trial in selected cases. This, think, may be considered appropriate for the exper- nent. I refer to the topical use of abrus, jequirity wild liquorice. This substance, if I may judge om recorded literature, is chiefly employed by the culists in granular lids or trachoma. It is an ener- tic irritant, the virtue of which seems to depend pon the presence of a special ferment. An infusion r emulsion of jequirity is a most vigorous stimulant old and sluggish ulcers. From this fact I was led make use of it in certan cases of epithelioma. lthough the ulcer in this case is rather large and eep there is no decided glandular enlargement and seems possible that it may prove amenable to this ethod. The application causes excessive inflamma- on in from ten to forty-eight hours. There is enor- ous swelling with formation of a hard crust and free ppuration. In the course of a week or less the dis- harge decreases, the crust loosens or falls, and the xposed surface is seen to be the seat of healthy gran- lations. In some cases of epithelioma the use of is substance has been followed by complete recov- ery. In the hope that so happy a result will occur in the present case I will make the application.

ACNE.

The next two patients exemplify two phases of an exceedingly common disease, especially among young people, and one which is often very unamenable to treatment.

The first case is that of a lad, 19 years of age, upon whose forehead and cheeks are scattered red, isolated papules. A few pustules are also present and come- dones abound. The eruption has been in existence for two years. It is limited to the face. The hair is dry, and the scalp is covered with greasy scales. The appetite is deficient and there is constipation. Diges- tion and assimilation are poor, the integument as a whole irrespective of the actual eruption, has an unhealthy aspect; the pulse is feeble, the heart is weak and irritable.

The disease upon the face is acne, and as comedones and papules predominate it is described as acne papu- losa or papular acne. As in addition to the come- dones the summit of many of the papules is marked by a blackish spot corresponding to the orifice of the duct, it is also known as acne punctata. Comedones and acne are often found in association or juxtaposi- tion. Both are affections of the sabaceous glands or ducts. It is not strange that, as concerning the same glands, the functional disorder called seborrhea should frequently, as in this case, co-exist with comedo and acne. Their coincident presence points to a profound morbid impression made upon the sebaceous glandu- lar system. The seborrhea here is of the dry variety, seborrhea sicca.

The three disorders to which I have alluded depend upon perversions of nutrition and in many, if not most, instances this malnutrition is of systemic rather than of local origin. In weakly young persons you will often observe the orifices of the follicles dilated and conspicuous. In some instances they are free; in others they are choked by a mass of impure sebum, *i. e.*, comedones have developed. Acne is but an advanced stage of comedo. The plug of sebum creates inflammation of the duct and the gland. The result is acne papules, and these, under the influence of microbes of suppuration, may become transformed into pustules. These pathologic sequences are often reflex. They occur at the age of puberty, they may be caused by genito-urinary disease, by digestive disor- ders, in diathetic conditions and a depressed or irrita- ble state of the nervous system. They may also be produced by local irritation.

In this case we have no external cause. Unlike a girl of his age he is not tempted to paint or powder his face. He has never been unduly exposed to atmospheric vicissitudes, nor has his occupation been of such a nature as to provoke irritation.

We must, therefore, as in so many diseases of the skin, look beyond that tissue and interrogate other organs. In so doing I have traced the nervous and cardiac debility to the excessive use of cigarettes. He has been addicted for three years or more to the habit of smoking and of late has indulged at every oppor- tunity. There is no doubt that an immoderate use of tobacco has caused in this youth, scarcely more than a boy, an impairment of nerve force, manifested in deficient digestive power, debility of striped and unstriped muscular tissue, anemia, disturbance of general and capillary circulation with, finally, that

morbid state of the sebaceous glandular apparatus for which he seeks relief. It seems rather strange that he should ask medical advice on account of some papules, insignificant in themselves, but magnified in importance by their situation, and apparently ignore far more serious manifestations. I regard this as an interesting example of nicotinism. As a first step in the treatment the patient must totally abandon the use of cigarettes. We shall then aim to strengthen his nervous system and improve his general nutrition. This object can be best accomplished by the use of iron. The stomach, I think, is not too irritable to bear one of the more palatable forms, such as the pyrophosphate. Some of the organic ferruginous preparations lately introduced answer a very good purpose. I will prescribe:

℞ Ferri pyrophosphatis . . . . . ℥ i 3 7
Acidi phosphorici diluti . . . . . ℥ iij 11 09
Elixir. simplicis. . . . . ℥ j 29 57
Aquæ . . . . . q. s. ad ℥ ij 59 14
M. ft. sol. Sig.—Teaspoonful in water three times a day.

Locally, he shall be directed to bathe the face with hot water night and morning, and after having dried the surface to apply the following lotion:

℞ Pulveris sodii boratis. . . . . ℥ iss 5 82
Aquæ hamamelidis dest . . . . . ℥ iij 88 71
Aquæ rosæ . . . . . ℥ iij 88 71 M.

Boro-glycerid solution may often be used with advantage instead of the borax. After the above preparation has been used for a week or ten days the borax may be replaced by 0.65 gram of resorcin, which stimulates the parts and aids in restoring them to a normal condition.

The boro-glycerid solution is also useful in dry seborrhea. It is necessary in that affection to clear the scalp of scales and stimulate the local circulation. The oil of ergot is an efficient application, and is often beneficially combined with the boro-glycerid or fluid oleate of mercury. Shampooing the scalp every few days is a serviceable practice. In some cases lotions are more beneficial than ointments or oils.

Another patient troubled by acne is a 17 year old girl, upon whose cheeks, chin and neck are seen a number of pustules intermixed with papules, the former being predominant, and the case being for that reason, properly described as pustular acne. The disease has been in existence for five years. At times the condition is improved and again it is aggravated. The skin is seldom if ever entirely free from lesions. The appetite is said to be good and the bowels regular. The tongue is clean. This is a well developed and physically precocious girl. The case may be viewed as one of those dependent upon the establishment of the menstrual function. Although the eruption antedated by some months the first appearance of catamenial flow, it received a new impetus from that period. In the absence of other cause, therefore, it is reasonable to look for the origin of the disease in the physiologic changes which take place at that time of life. The eruption is generally more abundant at each monthly epoch. When once established the disease may, and often does, persist for several years.

In this case I shall order the face to be sponged every day with hot water, and subsequently the following ointment to be used:

℞ Resorcini . . . . . ℥ j 39
Camphoræ . . . . . gr. x 65
Unguenti aquæ rosæ . . . . . .
Unguenti zinci oxidi . . . . . āā ℥ij 7 8
M. ft. unguent. Sig.—For external use.

Internally, in order to influence favorably the liver and sebaceous glands, the patient shall have:

℞ Sulphuris sublimati . . . . . gr. iij 2
Potassii bitartratis . . . . . gr. j 065
M. ft. capsul. No. j. Mitte tales No. xi.
Sig.—Three or four capsules to be taken daily.

At the end of four or five weeks the dose of sulphur may be increased to 0.26 or 0.32 grams, and thus continued until an impression is made upon the glands.

ALOPECIA CIRCUMSCRIPTA.

The next patient, a man of 24, has circumscribed patches of baldness upon the occiput and each side of the head. The hair of the beard and eyebrows has also fallen in certain spots. This gives to the whiskers a very shaggy and ragged appearance. There is also partial canities, the hair being whitened here and there in spots. We have searched but failed to find a distinctive parasite. This fact demonstrates that the disease is not a variety of tinea. Ringworm of the scalp usually occurs in children. The denuded patches are generally of a pale red color, though they may be grayish and are covered with fine scales. In tinea tonsurans the appearance of the hairs is characteristic. They do not all fall out and leave a completely bald surface. Some, indeed, are shed completely, but many break off near their points of emergence, giving a peculiar, ragged, stubbly or nibbled aspect. The patches in the present case, however, are entirely denuded. The baldness is only in spots, but it is complete. The affected places are white and smooth. There is a total absence of scales. The disease is alopecia circumscripta or areata.

In those places where the beard is involved there is some resemblance to tinea sycosis. I have described the whiskers as ragged, but this appearance results from the irregularity of the hairy covering, and there are no pustules and tubercles denotive of barber's itch. It is necessary to differentiate closely here, but the absence of the trichophyton fungus excludes tinea. The bald patches are of the same nature as those upon the scalp and eyebrows. In extreme cases distinct patches spread and coalesce until the entire scalp and face are deprived of hair. In exceptional instances the axillæ and pubes are attacked.

It is necessary in a given case to distinguish between circumscribed and syphilitic alopecia. The latter, however, is but a single manifestation of a constitutional infection and other concomitant and undoubted evidences of syphilis can always be found. The obligation to eliminate syphilis is very pointed here, as this patient gives a direct history of a wild life, of alcoholic and venereal excess and consequent frequent exposure.

Circumscribed alopecia is of interest as it occurs in children as well as adults, sometimes spreads epidemically in asylums and barracks, occasionally developing with remarkable rapidity; the discussions concerning its etiology are also of interest. It would seem that there is a class of cases dependent upon disturbed innervation, which in its turn may be due to some definite disease of the nervous system, depression from dissipation or emotional causes as shock. To this variety the present case undoubtedly belongs. The man has undermined his nerve force by vicious habits of self-indulgence. The corresponding circumscribed canities is another evidence of nervous exhaustion. In a second well marked class we believe that a parasitic element must be present because of the spread of

ıe disease from one person to others until a considrable number are involved.

The researches of Sabouraud are important and uggestive in this connection. Others had given much tudy to the flora of the scalp and the integument, but abouraud's conclusions if accepted unite seborrhea, lopecia circumscripta and alopecia as different stages f one malady, dependent upon the activity of the ıme micro-organism. He regards diffuse alopecia s due to the coalescence of different patches of circumscribed alopecia. There is not time to offer critiisms upon these comprehensive doctrines. I can nly question whether the views of Sabouraud serve) explain those cases in which circumscribed alopecia ttacks an individual by sudden onslaught.

At all events clinical facts remain stable, and in this atient, debilitated by excess, our aim must be to uild up his nervous power and stimulate the periheral nerves and circulation of the scalp. The first bject is attained by enjoining abstinence and contience, by the use of electricity, massage, and such rugs as phosphorus, silver, iron, nux vomica or oang-nan, camphor, cinchona or kola, etc. This atient shall be given:

℞	Tincturæ nucis vomicæ	ʒ ij ss.	10
	Extract. hydrastis fluid	ʒ ss.	16
	Tincturæ gentianæ comp. . . q. s. ad	ʒ iv.	128

M. Sig.—Teaspoonful in water three times a day.

Stimulation of the scalp is effected by mercurous leate, resorcin, naphthol, turpentine, etc.

TINEA VERSICOLOR.

This man, 45 years of age, is annoyed by the presnce upon his chest, back and abdomen of yellowish-rown or fawn-colored spots and patches. The eruption has been in existence for about four months. 'he lesions are slightly elevated and covered with ranny scales, which are easily removed.

The appearance is almost pathognomonic. These igmented, finely scaling spots denote tinea versicolor, r chromophytosis, a parasitic disease caused by the ıicrosporon furfur. Fawn is the usual color, but the ue may vary and in tropical countries may be nearly r quite black. Its general aspect is more like that f chloasma than of any other cutaneous disease. 'hloasma, however, is an abnormal concentration of igment in the mucous layer of the epiderm; tinea ersicolor affects the horny layer. The lesions of hloasma are not raised and do not scale; those of hromophytosis are slightly elevated and furfuraceous. 'inea versicolor generally avoids, but chloasma often ttacks the face. In vitiligo, or leucoderma, we find a arrangement of pigment, a transfer of granules from ıe center to the border of the patch.

The scales of tinea versicolor are easily removed by iction. A mild parasiticide in the form of lotion or intment usually suffices to destroy the fungus. Boric id, borax, sulphur, thymol and mercuric nitrate are ome of the agents which have been used with success. reliable remedy is copper oleate diluted with oleic id or made into a 10 or 20 per cent. ointment. It antiseptic and parasiticide; moreover, it possesses ecided penetrative powers.

The use of water upon the affected parts is to be precated. Water feeds the parasite and contributes the prolongation of the disease.

Let us defeat the Antivivisection Bill!

LECTURES ON TUBERCULOSIS OF THE KIDNEY.

BY CHARLES GREENE CUMSTON, B.M.S., M.D.
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BOSTON, MASS.

(*Concluded from page 531.*)

LECTURE II.

We will first consider the symptoms to which a tuberculosis of the kidney may give rise. There are two stages to be considered, viz.: The initial stage and the stage of full development, but before discussing these, I will say a few words regarding acute renal tuberculosis, which is not a clinical disease.

It is an accident occurring during the progress of a general infection, and the symptoms of the renal lesion are hidden by those of the lungs, pleura, etc., produced by acute tuberculosis. Two symptoms indicate that the affection has attacked the urinary gland; these are hematuria, be it repeated or simply occurring once, and albuminuria, although this symptom has less importance because it is common in all infectious diseases.

We now come to the symptoms of chronic tuberculosis of the kidney, which are more complete. In the initial stage it may be said that the majority of cases are latent and are consequently overlooked and the progress of the renal lesions is not noticed until the disease is quite advanced, and from a medical tuberculous kidney it has become a surgical one.

The hereditary antecedents occupy here an important place, and the condition of the parents, the bacillosis and genito-urinary antecedents of the patient.

The disease manifests itself by a clear polyuria and frequent micturition, which symptom is the only one present for quite a long time. Clear polyuria, in attacks, is most important. To this symptom we must add hematuria. Smith considers this a symptom of the initial stage, while Guyon compares it to the hemoptysis due to the invasion of tuberculosis in the lungs.

Vigneron found it as the first symptom of the renal trouble and thinks that it would be more often noted if the history of the patient were more carefully inquired into.

Considering now the symptoms of the stage of full development we find that they are more complex, and in order to render them clearer I will divide them into functional and physical. Now the latter may be made out from the appearance of a renal tumor or one developing in the lumbar region, by an edema of the lumbar region, while the functional symptoms are localized, or multiple pains, hematuria, the condition of the urine, the general condition, etc.

Pain, according to Le Dentu, is the most important of symptoms. It may be localized in the kidney or shoot into the neighboring region. Pain has been considered as an initial symptom. In one case reported by Vigneron, the pains had been present for five years, and of six years duration in several cases reported by Palaillon, Tuffier and Bardenhauer; nine years in a case due to Czerny, and twelve in another reported by Monod. But it may be that the pains were produced by small calculi, as in the case published by Burguerolle.

Pain produced by tuberculosis of the kidney is caused by the invasion of the pelvis of the organ and to lesions of the nerves it contains. In many cases, however, pain is completely absent.

The characters of the pains are very varied. Sometimes they occur like a lameness of short duration; sometimes like a feeling of weight in the lumbar region, at others it is acute, very sharp and intermittent; in other patients it will be described as lancing and continuous.

Generally it occurs in attacks like nephritic colic and radiates from the lumbar to the hypogastric region, thighs and genital organs. Walking, pressure, lying on the side sometimes increase it, at others, produce no influence whatever. All things considered, the shooting pains are frequent and the same in intensity as those localized in the kidney. It only appears at a very advanced stage of the affection, when the tubercles are softened and obstruct the ureter. The radiating pains only last a few seconds generally, but they are so sharp that they cause the patient to cry out. They radiate from above downward, from right to left and left to right, but only exceptionally from below upward.

The pain increases during the periods of retention and stops as soon as the urine, pus and caseous collection passes. When the disease is far advanced, a pain similar to nephritic colic occurs, due to the stopping up of the ureter by masses of broken down tuberculous tissues. The same pain may occur when small blood clots are passed, or it may persist after an abscess of the kidney.

Hematuria.—I have said that in the initial stage of the disease a hematuria could occur. When the affection is fully developed, this symptom becomes important if it presents certain characters besides those of an ordinary hematuria. Those due to tuberculosis of the kidney are spontaneous, intermittent, and of short duration, often only slightly tinting the urine, but the blood is always intimately mixed with the urine. The quantity of blood is sometimes so small as to require a microscopic examination in order to find it. The hematuria of tuberculous kidney occurs without regard to walking or riding and may occur during rest.

The urine.—The characters of the urine are of the utmost importance. In the beginning of the affection it is perfectly clear, but later becomes very purulent and pyuria is generally a constant symptom. The urine is cloudy when passed and remains so. When left in a glass tube a whitish or grayish chalk-like deposit is seen at the bottom; it is sticky and may measure several centimeters in thickness. This large amount of pus is alone enough to indicate the renal nature of the disease The deposit may also be streaked with blood, the urine above is cloudy and thick. The density is normal and the reaction is acid. There is probably albumin in these urines, although the pus and blood may deceive you in this respect.

Urea usually decreased according to the amount of destruction of the renal parenchyma; sugar is absent, but there is an excess of the phosphates and sometimes of the urates. The phosphates are more particularly ammonio-magnesia.

Microscopically, pus is found as well as leucocytes, fat globules and red blood corpuscles. Deformed and shrunken epithelial cells abound.

Bacteriologically, we find a multitude of bacteria. They abound in the products of excretion and the urinary system, but as soon as there is a lesion in the latter the bacterium coli is often found. The bacillus of tuberculosis may also be discovered and will then settle the nature of the lesion, although it does not permit us to say which organ is the seat of the disease. The examination for Koch's bacillus should never be omitted and if the first examination should be negative it should be attempted several days in succession until its presence in the urine is demonstrated.

Of all the characters of the urine the most important is the presence of pus. This pyuria presents three characteristics, viz., it is spontaneous, constant and lasting. It may be very abundant and there is a direct relation between this abundance and an increase of the tuberculous lesions. The quantity of pus may be intermittent, sometimes being passed in large quantities, at others in small amount. It is always accompanied by sharp pain, either local or general, anorexia and fever, because the renal pocket contains the infectious material, thus infecting the entire organism, but when the pus passes out with the urine these symptoms subside. When the blood clots contain small grumous particles the size of a pinhead, it is pathognomonic of a tuberculous ulceration of the kidney, according to Vogel, Chopart and Lebert.

I shall now consider the general symptoms as well as those observed in the healthy kidney on the opposite side, the bladder and digestive tract. Guyon has described painful symptoms occurring in the healthy kidney and rectum that he calls reno-renal and recto-renal reflexes and are very curious to study. The healthy kidney without any pathologic change, is the seat of quite sharp pains, similar to those felt in the diseased organ. Generally the ablation of the diseased kidney causes the reflex pain to disappear in the healthy organ.

While the reno-renal reflex is often absent, the reno-vesical is hardly ever wanting and is even an early sign of tuberculous involvement. According to Beal, this reflex is characterized especially by pain in the bladder without any pathologic change in the organ, while Lecorché believes that there is a lesion in the bladder, the pain indicating a tuberculous lesion there. Besides the pain, inflammation of the kidney may produce a frequency of micturition. These three symptoms produced by vesical reflex, frequent, painful and imperious micturition, play an important part according to Beal, Clarke, Roberts and Newman.

This pain is very variable and changing, sometimes only amounting to an abnormal sensitiveness in the hypogastrium. Other patients complain of a very severe pain in the urethra while passing water, which may last after the act, but usually stops when the last drops are expelled. These pains are accompanied by a violent anal tenesmus and even the prostate may become painful.

The micturition besides being painful is frequent, and Tuffier says this condition is sufficient to distinguish tuberculosis of the kidney from a renal neoplasm or a simple pyelo-nephritis. The patient may pass his water seven or eight times in the day and four or six times in the night, sometimes as often as every fifteen minutes or oftener. This frequent and painful micturition is imperious, the patient can not pass his water, but the bladder suddenly contracts and empties itself instantaneously. Incontinence and retention are infrequent in tuberculosis.

For certain English surgeons these reflex symptoms are sufficient to make a diagnosis. Other surgeons believe that they are more than reflex. In Morris' case, who passed water 160 times daily, the autopsy showed a few recent granulations in the bladder. In a case of very painful renal tuberculosis in a woman, with frequent micturition, Tuffier performed a nephrectomy. The patient recovered, but the desire to urinate was in no way lessened by the operation and it was found that there was a commencing tuberculosis of the bladder. Consequently, when there are frequency and pain in urinating in cases of tuberculosis of the kidney, the bladder has also been invaded by the disease and the reflex theory should not be considered.

The coincidence of inflammation of the bladder, especially tuberculous cystitis with tuberculous degeneration of the kidney and ureter, explains, according to Rogers, the reason why we sometimes see cases in which there is an abnormal sensitiveness in the hypogastric region and more or less sharp pain before, during and after the passage of the urine, the emission of which is often repeated and the quantity passed very small, as well as several other symptoms common to all kinds of cystitis. The symptoms given us by the general condition of the patient have nothing characteristic. At the beginning they are not at all marked and a tuberculosis of the kidney may even get entirely well at this period if properly treated medically.

Infection by retention of the poisonous débris in the kidney and the toxins secreted by the pathogenic bacteria is often added to the tuberculous infection. In this case we have anorexia, vomiting, insomnia, chills alternating with sweating, a dry, red tongue, exaggerated thermometric oscillations; in fact, all the symptoms of pyemia or septicemia. These symptoms are not necessarily present in every case, but when they do exist the indications for action are more clearly defined.

According to Dickenson, a tuberculous kidney rarely gets so large as to form a tumor. On the contrary, Newman thinks that there is soon a slight increase in the size of the organ, but which can not be made out by palpation. Le Dentu believes that in the beginning the kidney is hardly increased in size, but soon acquires a considerable volume. The truth is that the kidney may be increased in size in some cases, while in others the organ is not much larger than normal and consequently can not be palpated. Tuffier had a case of an enormous tuberculous kidney which developed upward toward the diaphragm and was objectively inaccessible. When the kidney is sufficiently large, bimanual palpation and rectal examination will reveal a tumor. By inspection a tumor or swelling will be seen in the lumbar region, sometimes extending to or reaching even above the umbilicus and extending into the iliac fossa. It will also be noticed that this tumor projects under the soft parts from the last ribs to the iliac crest and may be either distended or decreased in size after micturition. Edema from compression is sometimes present. Bimanual palpation must be carefully practiced and will give you a more precise idea of the condition of affairs than will percussion, although the latter should not be omitted in your examination.

You will feel in the lumbar region, sometimes in the anterior abdominal region, a solid, resistant or fluctuating tumor, usually painful on pressure and in many ways similar to simple pyonephritis. The indurated ureter, which is sometimes deviated, will be felt, like a hard cord, containing bosses and running through the iliac fossa. Rectal examination will complete the physical signs but you must examine the urethra, the prostate, seminal vesicles and bladder in order to ascertain if they contain foci of tuberculosis.

We now come to the diagnosis, and I shall first consider the premonitory stage. For many surgeons, the diagnosis can not be made or it is of extreme difficulty. We must be guided by the etiologic facts of the given case. Slight or vague pains, the initial lameness, must be differentiated from lumbago following a strain or sudden movement, as well as from lumbo-abdominal neuralgia, which may be recognized by its well defined points. But the symptom pain does not signify much until a hematuria appears. When this occurs you must make a differential diagnosis between a hematuria due to tuberculosis of the kidney and that due to hypertrophy of the prostate, acute cystitis, nephrolithiasis and vesical bacilliosis.

Calculus of the bladder.—After a long walk or riding in a carriage or on horseback or bicycle the patient passes blood from the bladder and the hematuria may last all night and in the morning the urine is only slightly colored or may even be clear. If these exercises are again indulged in the hematuria returns.

Hematuria due to vesical calculus has consequently this pathognomonic sign produced by movement and ceases when the patient remains quiet. Under other circumstances, without excessive fatigue, after passing water a sharp pain causes the urethra to violently contract and with the last drops of urine a few drops of blood are expelled, or there may be a jet of blood. There are never any clots indicating a considerable hemorrhage.

Tumors of the bladder.—The hematuria is unique and exists alone as a functional trouble. It is spontaneous, occurring in the morning when the patient awakes after a night's sleep; or in the day, without having worked or exercised the patient may pass a certain amount of blood. The passage of a catheter or washing the bladder causes the passage of blood whether the patient be seated or standing and lasts several days, weeks or even months, the hematuria occurring by attacks usually without cause. The attacks occur at nearer intervals as the disease increases.

The urine is more colored at the end than at the commencement of micturition and much blood is passed. Clots may be expelled or may be arrested in the urethra, producing a serious retention.

Tuberculosis of the bladder.—In the early stage, hematuria is a true hemoptysis, spontaneous and small in amount. It occurs at the end of micturition, disappears without notice, as in tumor of the bladder, but is different from the hematuria occurring in the latter by its very small amount.

Renal calculus.—Hematuria is frequent but not a constant symptom. It is of short duration and small in amount, and does not contain clots. Hematic casts are found in the urine formed by strings of red blood corpuscles and are pathognomonic of a renal origin.

It is characterized by its appearance and increase during walking, efforts and exploration of the kidney as well as during digestion. The attacks are painful, often accompanied by hemorrhages either before during or after.

Contusion of the kidney.—Hematuria immediately

follows a traumatism of the kidney, rarely appearing as late as a week after the accident. What is particularly characteristic of renal hemorrhage is its sudden arrest and reappearing soon again. (Guyon.)

Considering now the diagnosis of a renal tuberculosis in full development, I may say that it makes its presence known by a pyuria following a pyelo-nephritis, by a tumefaction of the kidney and by the symptoms that have already been given.

Pyuria.—A cloudy pyuria is characteristic of a tumor of the kidney. The color of the urine varies from a milky grayish white to green. On the contrary a cystitis shows a purulent deposit at the bottom of the tube with clear urine above after it has been allowed to stand.

Wounds of the kidney.—Superficial wounds do not give vent to hematuria, but if the laceration is deep there is slight hemorrhage.

Pyelo-nephritis.— Hematuria is infrequent, and when it is present is only seen in the form of streaks of blood.

Malignant tumors of the kidney.—Hematuria is absent in almost 25 per cent of cases of cancer of the kidney, in 50 of sarcoma, and in 75 per cent. of renal neoplasms in children.

It is absolutely spontaneous, quiet or movement have no influence in its production. Its appearance is preceded by a sensation of weight, and after the blood has been passed there is relief. The blood is mixed with the urine, which varies in color from red to brown. The mixture is equal and may contain long cylindrical clots and casts of the ureter, which are passed without pain. Pieces of the neoplasm may sometimes be found in these clots. There are attacks of pain which occur at long intervals.

Tuberculosis of the kidney.—I have already described the hematuria occurring in this affection; how when a patient has passed blood from the urethra, and you suspect a lesion of the kidney you must ask yourselves: From what organ does the blood come? What is the nature of the kidney lesion? Which is the diseased kidney?

Now we can localize the hemorrhage from the kidney, although many are the hemorrhages coming from the prostate and bladder. The anterior and posterior urethra can also give rise to a temporary passage of blood at the beginning and end of micturition, but digital examination of the prostate, cystoscopic examination and catheterization of the bladder will eliminate prostatic and vesical lesions.

In vesical tuberculosis as in neoplasms of the kidney, the hemorrhage is spontaneous, intermittent, temporary and small in quantity. The prostate and testicle are usually the seat of tuberculosis when this affection exists in the bladder. In order to differentiate a renal from a vesical tumor hemorrhage you should distend the bladder with an antiseptic solution and wash it out. If after this has been carefully done the last part of the solution withdrawn is deeply tinted with blood you may conclude that it comes from the bladder. The same is the case if the blood appears after forced distention or recto-abdominal palpation.

As a patient passes pus and then this disappears from the urine and is followed by a painful sensation in the lumbar region, nephritic colic and then a sudden reappearance of the pyuria with disappearance of the lumbar pain, you may be sure that the pyuria comes from the kidney. You must also examine the urine microscopically, and by adding ammonia it will give the urine a gelatinous aspect if it contains pus.

Pyelo-nephritis.— Microscopic examination alone is capable of allowing you to make a diagnosis of tuberculous pyelo-nephritis. Besides the pus you will find single epithelial cells, hyalin casts and cells from the pelvis of the kidney. There are also pieces of renal tissue, phosphates, streptococci, bacterium coli, micrococci and sometimes the bacillus of tuberculosis. The diagnosis is consequently very difficult because it is only a pyelo-nephritis produced by a specific infection.

A simple pyelo-nephritis may become tuberculous, and a gonorrheal cystitis may be the starting point of a tuberculous infection. A dirty catheter may be the cause of a secondary infection on a beginning tuberculosis.

Chronic cystitis.—Polyuria is not marked. The urine after standing separates into two layers, the upper being clear. When during the process of a vesical disease the patient commences to lose strength you should suspect tuberculosis and search for it.

Pus is constantly present during cystitis, and you know the classical experiment with the three glasses which shows that it is above all present at the beginning and end of micturition.

Vesical calculus.—A stone in the bladder creates a particular condition, most favorable for the development of cystitis.

I will now proceed to discuss the diagnosis of a urine containing pus. The principal point is to make a diagnosis of the nature of the infection. Bacteriologic examinations and experimental inoculations are of little value as regards the urine.

You should particularly endeavor to make a differential diagnosis of tuberculous pyelo-nephritis, and pyelo-nephritis produced by a calculus. It is quite easy to make a diagnosis of a pyelo-nephritis produced by a cystitis, prostatitis or stricture of the urethra Be guided also by the acute progress of the lesion on the disease presented by your patient in order to diagnose a pyelo-nephritis of an infectious disease such as osteo-myelitis, measles, etc.

Your diagnosis consequently is made by three factors, viz.: The general condition, the presence of a tuberculous lesion and absence of an antecedent infection. Hematuria, pyuria being two prominent symptoms of tuberculosis of the kidney. There remains a third, tumor of the kidney, which I shall now discuss.

Tumor resulting from contusion of the kidney.—Sometimes there is a diffuse tumefaction filling the entire lumbar fossa, which is rather hard and adheres to the surrounding parts; this is a peri-renal infiltration. Hemato-nephrosis consists of a distinctly limited, rounded movable tumor with a history of contusion.

Tumor in renal lithiasis.—A history of former lithiasic trouble and pain when the patient moves, will clear up the diagnosis.

Tumor in pyelo-nephritis.—Here we find symptoms of renal neoplasms as projecting abdomen, anterior sonority and renal ballottement. The tumor is round, hard, spontaneously painful or becomes so on pressure the pain is intermittent.

Tumor in peri-nephritis and peri-nephritic phlegmon.—Palpation always reveals a doughyness, resistance and deep induration localized in the lumbar region. The tumor does not follow the movements of the diaphragm. Peri-nephritis is a lumbar tumefac

tion, while pyelo-nephritis forms an abdominal tumor.

Hydronephrosis is entirely abdominal and fluctuating, and may be mistaken for an ovarian cyst. It is only by its lumbar situation, and descending and lateral evolution that will lead you to make a diagnosis of hydronephrosis.

Malignant tumors of the kidney.—Tumors of the abdominal wall are immobilized by contraction of the muscles, and their dulness is superficial. Neoplasms of the liver have a sharp border continuing with the liver. Tumors of the spleen have the shape of a cake, the percussion dulness extending upward on the right with a well marked left-sided sonority.

Cancers of the colon cause intestinal obstruction and intestinal hemorrhage, which complications are not met with in tumors of the kidney.

Tumors of the mesentery are median, very movable and extend from above downward.

The clinical diagnosis of tumors of the supra-renal capsule is impossible, while tumors of the ovary and uterus will cause no difficulty in diagnosis.

Consequently when there is renal tumefaction the diagnosis is very difficult. The physical signs are not alone sufficient to indicate the nature of the tumor. and you must take into consideration the functional and general symptoms and age of your patient as well. Do not forget that syphilis of the kidney may produce an enormous tumefaction of the organ, and where this diathesis is suspected try an antisyphilitic treatment before resorting to surgical measures. Examination of the ureter and bladder of the supposed healthy kidney will also contribute to render the diagnosis more precise.

Tuffier reports two exceptional cases of tuberculous kidney. The first presented the symptoms of renal colic. There were no physical signs, pyuria or hematuria, perfect integrity of the pelvis of the kidney and ureter. The attacks were sharp, without lumbar pains. Pains shot down the thighs and spermatic cord; frequent micturition; in fact nothing was wanting excepting the appearance of gravel in the urine.

The kidney was not increased in size and painless. It proved to be a renal tuberculosis with pain, but without retention.

The second case was a woman, aged 42 years, who presented abundant hematuria, no renal tumor, no pyuria. Endoscopic diagnosis showed blood oozing from the ureter. Nephrectomy followed by cure.

When you have a young patient presenting frequent hematuria without any precise renal or vesical symptoms you should suspect tuberculosis of the kidney. If besides, your patient has an early limpid polyuria without any particular marked symptoms in the urinary system, you should be guarded in your diagnosis and prognosis.

In a case reported by Tuffier he found a tumor on the right, but a most careful palpation under chloroform did not reveal the slightest increase in size of the left kidney. Now the left kidney was larger than its mate, but had developed upward toward the diaphragm and was thus concealed.

As a pyelo-nephritis appears without any cause, and nothing can be elicited from the history of your patient, you can as a last resort aspirate the pus from the kidney and make a bacteriologic diagnosis.

The most important point is to distinguish those cases requiring surgical treatment and those that are inoperable. In the female we can easily come to a conclusion by the use of Kelly's and Garceau's instruments.

As to the diagnostic value of the bacillus of tuberculosis, let me warn you that in about 40 per cent. of cases it is not in the urine, while if you resort to experimental inoculation, you will have no result before four or five weeks, and sometimes these are negative.

Now, how shall we make a diagnosis? By observance of former infection which could explain the pyuria, on the general condition of the patient and the presence of another focus of tuberculosis in some other organ.

Which is the diseased organ? Swelling and pain are the two symptoms by which to be guided, but they may deceive you. And in closing let me say that a nephrotomy will allow you to assure yourselves of the character of the urine secreted by the kidney. Sometimes a peri-nephritic abscess will call for incision and you can at the same time ascertain the lesion of the kidney and act as you deem proper.

COCAIN IN OTOLOGY AND LARYNGOLOGY.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY LEDRU P. SMOCK, AM., M.D.

AURIST AND LARYNGOLOGIST TO ST. AGNES HOSPITAL. PHILADELPHIA.

In 1855 Geadeke isolated a crystalline alkaloid from coca leaves, which he called erythroxylin. Five years later Albert Niemann further investigated this alkaloid and gave it the name cocain.

The power of cocain to produce anesthesia was first called attention to by Fronmueller in 1863, but its practical use became more fully known in 1884 through the investigation and experiments of Freud and Koller.

It was then first used in ophthalmic surgery. Cocain, like all new or rejuvenated remedies, quickly became a panacea "for all earthly woes." While it is still largely used for many external and internal lesions, the aurist, laryngologist and gynecologist probably use it with the greater satisfaction, owing to its anesthetic effect upon the mucous membrane.

Cocain hydrochlorate, when pure, is found in colorless prisms of strong alkaline reaction. giving an astringent, bitter, burning taste followed by a numbness of the mouth and lips.

The folowing are the tests for the determination of the presence of allied dangerous alkaloids:

Test 1.—Dissolve one-tenth gram cocain hydrochlorate in five cubic centimeters of water (making a 2 per cent. solution) in a clean, glass-stoppered vial, adding three drops diluted sulphuric acid; then add one drop of a 1 per cent. solution potassium permanganate, which produces a pink or violent tint. This tint will not visibly decrease within half an hour if the cocain is free from cinnamyl-cocain and other dangerous impurities.

Contamination with isatroply-cocain (a violent cardiac poison, which is stable toward the permanganate test) and other basic impurities may be detected by MacLagan's ammonia test, viz:

Test 2.—Dissolve one-tenth gram cocain hydrochlorate in eighty-seven cubic centimeters of water, and then add three drops of ammonia; for a few minutes the solution will remain clear, but a rapid stirring with a glass rod will cause a prompt crystallization.

The most useful solutions I have found are a 2, 4 and 10 per cent. in a saturate solution of boric acid. Where it is desirable to have a longer or an anesthetic

action upon the deeper tissues, the 2 per cent. is the most efficient; as the stronger the solution of cocain the greater the superficial contraction and the less absorption of the drug.

My usual procedure is to spray the parts with a 2 per cent. solution, followed in five minutes by a pledget of cotton, saturated in the same solution; after five minutes apply a 4 or 10 per cent. solution on cotton; in five minutes after the last application the parts will be as thoroughly anesthetized as the idiosyncrasy of the patient will permit.

The use of cocain outside of minor operations, where I believe it will be in most instances superceded by eucain, are many and exceedingly valuable.

The purpose of this paper is to give the personal experience of the writer in the use of cocain on the following acute diseases:

In acute rhinitis, where the nasal mucous membrane is swollen and sensitive, the nasal passages more or less occluded by the intensity of the congestion, the use of a 2 per cent. solution in the form of a spray gives the patient the greatest possible relief and affords the physician an opportunity to cleanse the inflamed membrane.

If the treatment is followed by a 4 per cent. solution spray of antipyrin, then by albolene or blandin in spray form the relief and effect of the treatment will be greatly prolonged, sometimes rendering the nasal passages clear for hours. Many cases will be aborted by two or three such applications at intervals of a few hours.

I have found a pledget of cotton saturated with a 4 per cent. solution of cocain exceedingly efficient in epistaxis, usually no bleeding following the removal of the cotton, which should be left in the nasal passage several hours.

Acute tonsillitis, if treated in its incipiency, will frequently be aborted by prompt and persistent use of cocain sprayed or applied to the tonsil and surrounding parts with a brush or cotton covered probe. The only unpleasant effect I have noticed from this treatment is slight nausea, which is promptly relieved by one or two 0.65 to 1.3 gram doses of potassium bromid, and any depressing effects upon the heart's action is rendered unnoticeable by 10 to 15 drop doses of tincture digitalis previously administered.

I have used eucain in similar cases with but fair results; so far in my experience cocain seems much more efficient, causing greater contraction of tissue, while eucain produces greater anesthesia with slight congestion of the mucous membrane as well.

I have frequently used cocain spray in the nasal passages and larynx of patients suffering from an acute attack of laryngeal asthma, the relief being almost instantaneous; also in spasmodic laryngitis, or false croup in children, cocain spray has almost always afforded immediate relief, a second attack rarely recurring, that night at least.

I do not remember a single instance of nausea or depressed heart's action following the use of cocain in either of these affections.

In the treatment of acute otitis, furuncle and acute otitis media suppurations, the most gratifying results have been noticed after the use of a 4 per cent solution.

Saturate a pledget of cotton, warm it over the lamp and gently insert in the canal of the ear and the pain of acute otitis, in many instances, will be quickly and permanently relieved or greatly modified.

Furuncle, if noticed in its incipiency, will in most cases be aborted by keeping the canal of the ear packed loosely with cotton saturated with cocain; if not aborted, it will run a rapid, almost painless course.

In cases of acute suppurating ear with a tendency to hemorrhage, the action of the cocain and boric acid solution is most gratifying to the patient and yields as speedy a cure as any treatment I have used.

In no aural case have I seen or known of unpleasant or toxic effect from the use of cocain, its action probably being purely local with at least but a very slight absorption.

I have, in this paper, avoided the consideration of the use of cocain in operations upon the throat, nose or ear, believing that eucain is a more desirable anesthetic in most cases.

Exception might be taken to this view in the use of the electro-cautery in operations for anterior or middle hypertrophy of the mucous membrane on the turbinate bone; cocain in this case, by more fully contracting the tissue gives a better opportunity for the use of the electric knife.

In the removal of the posterior nasal growths with the Jarvis snare or an electric snare eucain is much more desirable, as the contractile power of cocain frequently renders it impossible to grasp the growth with either instrument.

The abusive use of cocain and the cocain habit, I believe in most cases, follows the use of pills or tablets containing the drug combined with other medicine for the relief of laryngeal and pharyngeal irritation, or taken internally for the relief of some forms of dyspepsia.

I have never seen a case in the medical profession, but am told that many are unfortunately addicted to the habit.

The greatest care should be observed by the physician in all cases where there is necessity for the use of the drug in prescriptions, less the patient, by indiscriminate use, should form a habit more deleterious than either that of alcohol or opium.

I would suggest that all prescriptions be marked: "Not to be renewed without a written order from the physician."

3330 Chestnut Street.

DISCUSSION.

Dr. WILSON—I have never been able to relieve acute otitis media with cocain 4 per cent. I have obtained much more benefit from heat. Does not Dr. Smock think the heated pledget of cotton may have given relief?

Dr. SMOCK—I think the cocain has much effect. Heated applications in otitis are always grateful.

FRACTURES OF THE NASAL BONES.

Presented in the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY FREDERICK C. COBB, M.D.

BOSTON, MASS.

Neither in the works on surgery, nor in the special works on the nose and throat is there much information about this subject, and yet any injury deflecting the nasal bones causes a deformity very apparent and disagreeable throughout life, besides often obstructing one of the nostrils. Probably many of these cases occur in childhood, due to falls or blows, and the injury to the nasal bones is so masked by the swelling resulting from the accident that fracture is not diagnosticated. As the swelling disappears, it is noticed that the nose is no longer quite straight, and

that one nostril is somewhat obstructed. These cases often come, in adult life, with a request that the nose may be straightened or the nostril cleared for respiration.

To replace the nasal bones is not as a rule difficult, but to keep them in place has been found to be almost impossible. After fracture, splints have usually been applied to the inside and must be worn two or three weeks. Although the lower meatus is very tolerant of tubes or splints, as shown by their use in the correction of septal deviation, the middle meatus and the upper portion of the nasal cavity is not so accommodating. Pain, sneezing and swelling of the conjunctiva on the affected side usually follow the introduction of splints high up in the nose, and the patient is unable to bear the treatment. Therefore, after correcting the nasal deformity as well as possible at the time by etherizing, and straightening the nose, the surgeon is usually obliged to content himself with the hope that the nasal bones will remain as he has left them, a hope which is frequently disappointed. It may be asked, what is there to deflect the nasal bones after they have been placed in proper position, and I believe the answer can be found, first, in the spring-like elasticity of the cartilaginous septum which is often thrown out of its normal conditions by



Figure 1.

the accident; and secondly, in the fact that an organ so exposed as the nose can not be well protected against slight pressure, during sleep especially. When a very slight impulse will alter the position of a fractured nasal bone, we can not wonder that they so rarely stay in place. The elasticity of the septum, if its normal attachments were unaltered, would tend to keep them in their position after the nasal bones had been restored to their normal position. I believe many, if not most, fractures of the nasal bones alter the usual attachments of the septum to its neighbors, and the co-existence of dislocation of the cartilage from its attachment to the maxillary process and the superior maxilla is often found with a long standing deviation of the nasal bones. Other septal deformities, also, are usually present in such cases, but whether as the result or cause of the misplaced nasal bones is a more doubtful question. My view is that the blow which fractures the nasal bones also dislocates the septum more or less from its bony attachment, thus altering its normal direction of spring and prevents its exerting that pressure to keep the nasal bones in their mal-position. In one of the cases I cite, the septum could be seen, on pressing on the bridge of the nose, to alter its position from a deflection partially obstructing one nostril, to one giving almost perfect symmetry to both nostrils; yet when the nasal bones were released the septum returned to its old position. This case illustrates the fact that the replacing of the nasal bones without splints can not always be trusted to keep them in position. For some time we have made attempts to keep a pressure on the bridge of the nose by the use of the band of a head mirror, but it was found that no matter how tightly the strap was pulled, the looseness of the scalp allowed so much movement of the apparatus that it



Figure 2.

was practically inefficient in holding the nasal bones in place. Noting the difficulty of turning one's hat on one's head suggested the idea of having a band made of steel shaped to the head by some similar method. This plan has seemed to do so well that I suggest it for your consideration. The band is shaped to the head by the use of the hatter's form, by which the shape of the head is accurately marked on a sheet of paper; but this method required an enlargement of the paper model and more complicated apparatus than was necessary. It was found also that as it corresponded to the head in only one plane, the steel band being wider than that plane could not be so well shaped to fit the head. For patients accessible to an instrument-maker, a strip of lead was used, fitted to the head at the level desired, and then a steel ring

was made to correspond with it. For physicians living at a distance from an instrument-maker, the following plan is suggested: A strip of oiled silk is wrapped about the patient's head at the level desired for the band, and a few turns of a roller bandage of plaster of Paris being moistened, are applied around it, and allowed to harden in position. When the plaster is removed, a cast of the inside may be made by oiling it and filling it with plaster, or the hardened bandage may be sent direct to the instrument-maker, who can shape a steel band to correspond with it. The head-band is prevented from sliding downward by a strap passing over the head, and from sliding upward by a chin-strap. It should be broad enough to allow very little lateral twist, but the effect of such twisting can be neutralized by the screw attachment as well as by the spring. The nose being unbandaged, its position can be clearly seen by the patient, and the pressure of the spring on the nasal bones may be increased or diminished as may be necessary. If there is a depression as well as a lateral motion of the nasal bones the depressed fragment should be first pried up into position from the inside of the nose, under ether, and then packing applied high up in the nostril, if possible. The discomfort and conjunctivitis resulting are the main objections to this plan, but there seems to be no other way if the fracture be a depressed one. If the pressure of the pad against the nasal bones produces any irritation of the skin, the pad may be moved slightly higher or lower without altering its efficiency. I have seen no inconvenience except a slight reddening of the skin follow the use of this splint. The following cases and cuts illustrate the use of the splint:



Figure 3.

Case 1.—J. L. K., age 25, entered the Massachusetts General Hospital, February 8, with the following history: Three days before, he was assaulted by a man with a club, and received several violent blows on the bridge of the nose. Examination showed ecchymosis of the upper left eyelid and under both eyes. The nasal bones were deviated to the right side, and the bridge of the nose was easily movable. The left nasal bone was somewhat depressed; the tip of the nose was deflected to the left, while the nasal bones inclined to the right. On examination of the nostrils the septum was found to be deviated anteriorly into the right nostril at about the junction of the bony and cartilaginous septum. On pressing the nasal bones to the left, the septum straightened itself, but not completely. The nasal bones were movable, the fracture appearing to be at their junction with the frontal and superior maxillary articulation. The fracture was compound, for bleeding occurred from the right nostril on moving the bridge of the nose laterally. The nasal bone on the left side was depressed from an old fracture, dating back several years. The splint, as shown in Fig. 2, was applied, and at the same time the depressed nasal bone was pushed into place from the inside and held there by a pledget of antiseptic wool. This had, however, to be removed within ten days on account of pain and discomfort, as the patient was unable to bear it. The splint caused no discomfort, and the septum and nasal bones under its pressure returned to their normal position. The splint was kept on twenty-five days, and the nasal bones were found to be firmly fixed in position. The only inconvenience resulting from the splint was a slight reddening of the skin at the point of pressure of the pad. Figs. 1 and 3 show condition of nose before and after treatment.



Figure 4.

Case 2.—H. C., a girl, aged 8, entered the hospital with the following history: She was accidentally struck on the right side of the bridge of the nose by a base-ball bat. The physician in attendance writes me that the nose was so much deviated that a probe was with difficulty introduced into the left nostril. He, however, replaced the nasal bones as well as possible, and she entered the hospital for further treatment. Examination showed a marked deviation of the nasal bones to the left. On gently pushing the bridge of the nose it was found to yield easily, while on rhinoscopic examination, the septum was seen to alter its position from a considerable deviation to a nearly vertical position. The nasal bones were dislocated from the nasal process of the superior maxilla, and were movable upon each other. The splint was applied, as shown in Fig. 4, and kept on two weeks, leaving a nose apparently perfectly straight externally, and showing internally a nearly vertical septum without any obstruction of either nostril. No discomfort resulted from the splint, nor were there any marks of pressure on the skin except a very slight reddening.

11 Marlborough st.

DISCUSSION.

Dr. Roe—The apparatus devised by Dr. Cobb for the treatment of fracture of the nasal bones is an ingenious one, but he has evidently made it without previous knowledge of a similar instrument that was devised several years ago by Adams of London, called Adams' nasal truss, which is figured in Watson on "Diseases of the Nose." Longitudinal fractures of the bones of the nose, as a rule, require little or no retentive apparatus, for the bones almost always remain in place after the fracture is reduced; but transverse fractures of the nasal bones will not remain in place and therefore require retentive apparatus. In these cases I use both an external and internal support. I fit a metallic shield, usually made of aluminum on account of its lightness, cut and bent so as to conform to the size and shape of the nose before the injury. This is placed on the outside of the nose and held there by adhesive plaster. For the inside support, after the bones are replaced, I pack the vault of the nostril lightly with antiseptic gauze. Below this I insert a spring made of light brass spring wire, nickel plated. One arm of the spring passes up under the dressing, while the other rests on the nose. To guard against irritating the tissues, the arms of the spring are covered with rubber tubing. The tension of the spring can be so regulated as to give the exact pressure required. The pressure in these cases should always be light, for the reason that very little is required to retain the bones in place, there being no muscular action to displace them. Moreover, if there is undue pressure the dressing at once becomes irritating and unbearable. In some cases Adams' truss or Dr. Cobb's apparatus might be of special service, but I have found no cases in which the plan I have described has not given most excellent results.



Codman & Shurtleff,
Boston.

Dr. Stucky—I have tried Dr. Roe's method and I find that the cotton or gauze produces considerable irritation. I now use a modification of Asch's tube, and get very good support. I tried sheet lead outside, but found it heavy, and now use dental rubber. I bend it and hold it with rubber adhesive strips. I put the Asch tube in hot water until it becomes pliable and then apply it.

The Chairman—I have used satisfactorily a plaster of Paris dressing. It is not always possible to get a splint such as has been described, and in two cases I have had difficulty in keeping splints from slipping. I have the patient lie down and adjust a plaster of Paris mask. This is made quite thick over the nose and in the angles between the nose and cheek; curvatures in the upper contour are left for the orbits, and it then spreads out over the cheeks to the ears. It should be lined with thin rubber cloth. The fragments should be previously adjusted and maintained in the right place by pressure during the "setting" of the plaster. Tie the mask by a couple of tapes, one over and one under the ear, coming together behind the head. The results have been very good. If you wish to get additional pressure, take a bit of cotton and put it within the mask where pressure is desired, when you dress the case, every day or two, adding cotton as you require pressure. An intra-nasal tube or splint is sometimes necessary in addition. The only objection to this method is the temporary disfigurement.

Dr. Roe—I have never found any bad results from internal support if there is not too much pressure. Pack with cotton lightly, not too firmly.

Dr. Cobb—We have tried the plaster mask in the Massachusetts Hospital and it did not seem strong enough. Masks of metal, though they kept the relative position of the nasal bones, did not keep the whole bridge from deviating one way or the other. Possibly a combination of splint and bandage might do well.

CERTAIN CONDITIONS OF THE TONSILS WHICH LIMIT THE USEFULNESS OF THE TONSILLOTOME.

Presented to the Section of Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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It seems a safe assertion to say that the tonsillotome is the instrument most frequently selected by the surgeon in the performance of tonsillotomy. In most instances, however, I think that excision would be more effectually done by other means than by the guillotine-knife.

This opinion may appear easier of acceptance or denial, if we think for a moment why we should excise a tonsil at all. The operation is done either for the removal of a mass from the fauces which occludes the respiratory tract and interferes with phonation, or for the purpose of freeing the throat from the presence of tissue already so abnormal that it readily becomes infected by any micro-organisms which produce an inflammatory process. In either event, unless the work of excision is done thoroughly, the end sought is not attained, and the instrument depended upon has failed in its work. Why should the tonsillotome be an instrument peculiarly well adapted by its size, shape and action to fail in its work? This question may be answered by considering the conditions usually presented by the class of tonsils where the operation of excision is justifiable.

The text-books of anatomy tell us that the tonsils are almond-shaped masses of lymphoid tissue placed within the somewhat triangular-shaped space between the palato-glossus and the palato-pharyngeus muscles; that they are about one-third of an inch wide by three-fourths of an inch long, the vertical being the longer diameter. There are many such tonsils, yet, even within normal limits, there are such enormous variations from this standard that such divergences can not always be considered evidence of disease. The tonsils lie at a point where in embryonic life a very complex development is in progress. Between that anterior end of the fetal fore-gut which pushes itself upward beneath the hind-brain, and the invagination of the epiblast which forms the stomodeum, lies the "primitive velum," separating the fore-gut from the anterior region of the future mouth. This hypo-epiblastic membrane will soon disappear, and the mouth will be formed part from the hypoblastic element of the fore-gut, part from the epiblastic element of the stomodeum. Both of these elements enter into

the formation of the tonsils; while, in the meantime, nose and mouth are as yet unseparated, and all the possibilities of arrested or asymmetric development lie in the immediate future. In other words, in no part of the body are variations in growth, arrest or unsymmetric development more common than in this naso-faucial region. This complexity of development may account for that great variation in the tonsils which render them an exceedingly difficult structure to classify under a distinct standard of normality.

I think that within a strictly normal condition the upper extremities of the tonsils should appear, when the mouth is opened and the tongue slightly depressed, about on a level with the dorsum of the tongue at the plane of the fauces. The posterior faucial pillars above this point should not be concealed by an extension upward of the tonsils, nor should the latter be prominent at the sides of the base of the tongue. The free surface of the tonsils should not project into the faucial space beyond, or but very slightly beyond, the level of the free margins of the anterior and posterior faucial pillars, nor should these pillars be attached to the tonsils of their respective sides.

I think that this rather negative description of the tonsils will include that great variety of shapes and sizes which these lymphoid masses assume, even within limits that are not essentially pathologic. I believe, too, that a tonsil which transgresses my rather broad limits will do one of two things—possibly both. It will narrow the caliber of the oro-pharynx, thus interfering with proper respiration and deglutition, or it will press upon the base of the tongue or upon the velum palati, so as to interfere with the proper movements of these parts in phonation.

Two varieties of tonsils will do these things, the simple overgrowth, or simple hypertrophy, and the tonsil enlarged as the result of inflammatory processes, either now quiescent or still active. The tonsil simply overgrown stands out clearly defined from the sides of the fauces; is soft in consistence; is free from adhesion to surrounding parts, and is covered by the pale pink mucous membrane of the mouth.

The second variety of enlarged tonsil, however, presents most varied degrees of distortion. It is generally crossed by a wide band of connective tissue, commonly sweeping backward and downward from the anterior faucial pillar. Instead of such a simply formed capsule, the covering membrane may assume the form of bands lacing in different directions, like the meshes of a net or the intercellular walls of a honeycomb. In either variety the capsule renders the tonsil a hard, rubber-like mass, adherent to the anterior pillars, and often concealing the posterior pillars—to which it may also be attached—and extending upward almost to the base of the uvula. Such a tonsil may be smooth on its free surface, if the tissue has not been subject to frequent attacks of inflammation which have resulted in the formation of abscesses. It is apt to lie, much as the eye does between its lids, the capsule simulating the latter and producing a large, firm, smooth, rounded mass, whose margins are not sharply defined, but lose themselves in the surrounding tissues of the velum, faucial pillars and pharyngeal wall. If abscesses have occurred, the smooth surface will be broken by masses of irregular ragged projecting tissue, separated from one another perhaps by deep recessions or pockets, in many of which lie large masses of cholesteatomatous material.

There is still another form of tonsil which requires excision, an especially vicious variety. I refer to the hard nodular sclerosed tonsil, diffused irregularly over the space between the faucial pillars, usually adherent to them, and yet appearing to be small in size. Such a tonsil is almost entirely enveloped by a fibrous capsule, extending usually from the anterior pillar and enshrouding the free surface of the lymphoid tissue. By contraction of the capsule, perhaps, or from some other cause, the tonsil appears to be rotated backward, so that its free lateral surface presents backward and inward toward the posterior wall of the pharynx. By means of a blunt hook passed around its posterior margin, such a tonsil can usually be drawn forward, so that traces of an exposed lymphoid surface can be seen. This variety of tonsil readily takes on an inflammatory process, and even when not flaming out in vicious attacks of tonsillitis, is apt to maintain a condition of irritation or even inflammation in the pharynx and larynx.

Now the tonsillotome can excise only such masses of tissue as will engage within the ring-frame of its guillotine-knife. It can be of no service whatever for the sclerosed and contracted tonsil. It can not grasp the large diffuse encapsulated tonsil, because its frame can not embrace such a growth, whose bulk is not clearly defined, but which merges into the surrounding tissues, while its free surface is covered by a smooth hard slippery capsule. By firm pressure against the free surface of such a mass, a small amount of tissue may be squeezed through the frame of the tonsillotome, and when this shaving is gashed off the instrument has performed all that it can do.

In the case of the large simple hypertrophy, there is a limited field of usefulness for this instrument. The caliber of the ring-knife's frame varies from three-quarters of an inch to one inch in its long diameter; its width is seldom more than three-quarters of an inch. Its long diameter is usually parallel with the shank of the instrument, while, as shown long ago by Dr. Carl Seiler and others, it should always be set at a right angle to the shank, thus corresponding with the position at which the tonsils lie in the fauces. Even when so set, however, it will serve only for instances where the enlarged tonsils do not exceed the limits of its ring, while in not a few instances we see these simple hypertrophies so large as to extend from the base of the uvula almost to the free upper margin of the epiglottis. Yet in those cases in which the tonsillotome will surround and excise the bulk of the growth, it fails to remove those portions of the mass which very often are most productive of irritation. I mean the extreme lateral portions, in cases where the tonsil has so filled the tonsillar space as to press upward against the velum palati and outward against the faucial pillars. The free projecting mass may have been removed, but these offending portions remain, still causing pressure and irritation and ready to become inflamed. Now, I believe that an operation even so comparatively simple as tonsillotomy had better not be attempted unless it is performed thoroughly and effectively. It seems apparent that the tonsillotome—that most generally used agent for excision—can be relied upon to do effective work only in that very limited proportion of cases which I have indicated. I can not but think that its imperfect work has done much to bring a certain discredit upon the operation of tonsil excision and may account for the not infrequent reports among the laity that the tonsils

have "grown again" after an excision has been performed.

In place of the tonsillotome I prefer an instrument which permits of a dissection of the parts to be removed from the surrounding tissues, a method of precision which does not leave the amount to be removed to the chance of engagement or non-engagement of the ring-knife. This result is attained by the use of a small firm crocodile forceps (Farnham's forceps) held in one hand and by means of which masses of the tonsil tissue are grasped. The parts thus held are excised by means of stout-bladed scissors whose handles are set at an angle from the blades so that the field of operation is not hidden by the operator's hands. The bulk of the tonsil mass is quickly cut away, and then the parts lying between the faucial pillars are carefully drawn out and excised. In adults this work can be done under cocain. In children it is more frequently necessary to employ general anesthesia by ether, and use a mouth-gag. This is held by an assistant, who also holds the patient in a sitting position, thus permitting the blood to escape freely from the mouth. As in children hypertrophied tonsils are so commonly associated with hypertrophied adenoid tissue in the naso-pharynx, this method enables us also to combine the operation for the removal of this latter mass and the tonsillotomy under the one etherization. Dr. John Farlow of Boston, has devised a powerful cutting forceps for the tonsils, which he calls the "tonsil punch." It is a useful instrument in cases where the size of the patient's mouth permits of its employment. I have not found it of use in the mouths of children, owing to its large size. The operative procedures briefly indicated can be modified by the use of a great variety of instruments. Reference is simply made to this general method of operation as being in the great majority of cases vastly more effective than the action of the tonsillotome.

THE TREATMENT OF CHRONIC INFLAMMATION OF THE TONSILS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY J. A. ELLEGOOD, M.D.
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The brevity of this paper will preclude the consideration of inflammation of the tonsils due to syphilis, tuberculosis, lupus and malignant disease. Chronic amygdalitis is primarily and essentially a chronic disease of the tonsillar crypts, and rational treatment must aim at their destruction or removal. While usually attended with hypertrophy, such is not always the case. The enlargement is often so slight as to be hardly appreciable, and the morbid process is of so low a grade as to present, except at occasional intervals, but few of the usual features of inflammation. Knight has divided hypertrophied tonsils into three groups: 1, those that are decidedly increased in volume and constantly project beyond the palatine arches; 2, flat diffuse tonsils which project but slightly into the fauces except during the act of retching; 3, those that encroach upon the pharyngeal space and yet do not appear beyond the free margin of the half-arches, for the reason that in consequence of repeated attacks of inflammation the interior pillar has become firmly adherent. In process of enlargement the tonsil carries with it the palato-glossal fold, which may be much thicker than normal or may be spread out over the surface of the tonsil in a thin veil of mucous membrane. In chronic inflammation much of the stroma may have degenerated into cicatricial tissue enclosing some infected crypts which may be partially or entirely closed. Such tonsils, although presenting an atrophic appearance, are in a state of chronic inflammation. The development of cicatricial tissue is usually the result of repeated acute attacks. Hypertrophied tonsils may be hard or fibrous, and soft or adenoid. As a rule, the older the patient and the longer the disease has existed the more dense, fibrous and highly organized the tissue; whereas the younger the patient and the more recent the hypertrophy the softer and more spongy the tonsil. While tonsillar hypertrophy tends to disappear with puberty, its ill effects upon the general health and permanent injury to neighboring organs before that age is attained may be very marked and are well known. The marked improvement which almost invariably follows its removal is a striking confirmation of its harmfulness. The treatment of chronic tonsillitis must be adapted to the age and general condition of the patient and to the condition of the inflamed tissue. The removal or destruction of the diseased follicles being indicated we have to consider the best means of accomplishing this end. But little can, at best, be expected of constitutional treatment, since whatever constitutional defects or weaknesses that are associated with chronic inflammation of these organs are rather the result than the cause of the tonsillar trouble. Local applications of iodin and astringents brushed over the surface of the tonsil for the purpose of causing their resorption are of questionable utility. Of still less use is the absurd practice of application of iodin or its compounds to the skin over the region of the tonsils. We will first consider the treatment of that class of chronic tonsillitis characterized by decided increase in volume and encroachment upon the faucial space. This form of hypertrophy is most frequently found in young children and is spongy in consistence. The surface of the tonsil is usually comparatively smooth and the growth more or less pedunculated. In some cases, however, the surface is irregular or lobulated, the irregularity being usually the result of repeated acute attacks of inflammation or to distended crypts. The best and most expeditious method of treating the majority of such cases is by excision with the guillotine. The choice of instrument must be left to the individual operator. The operator must select his cases in using the knife. He must assure himself that there is no tendency to hemophilia. The operation should not be done on acutely inflamed tonsils, for a lacunar tonsillitis is often diphtheritic. Neither should it be done during a general febrile condition of the patient nor during an epidemic of croup or diphtheria. It should be done with extreme caution on patients past the age of puberty. Every facility should be at hand in all cases for arresting hemorrhage. The tonsils of patients who have arrived at the age of puberty are likely to be more fibrous and it is in such cases that excessive bleeding is liable to occur. In fact, at that age, unless such growths are decidedly soft or pedunculated, the knife should be used with great caution. The best time for operating is in the morning, as it is well to have as long a time as possible to elapse before the patient assumes the recumbent posture. The use of general anesthesia is

seldom necessary. The operation is not a very painful one and a little tact will, in most cases, obviate the necessity of general anesthesia. Any child that will quietly submit to etherization will as quietly submit to tonsillotomy, for the distress of the former exceeds the pain of the latter. When force becomes necessary to overcome the objections of the patient the shock of an anesthetic is no less than when the operation is performed without it. Besides requiring more time general anesthesia adds its own danger and increases the tendency to hemorrhage. When used, the choice of an anesthetic must be left to the operator. The writer prefers nitrous oxid. In using the guillotine without general anesthesia, on tractable patients with fairly large tonsils, a weak (2 to 4 per cent.) solution of cocain may be brushed about the base of the tonsil a few seconds before the operation is performed. In intractable patients its use may be well dispensed with. A strong solution or the prolonged use of cocain increases the tendency to hemorrhage. As much of the tonsil should be removed as projects beyond the half-arches. It is true that in many instances the removal of a thin slice from the surface will be followed by atrophy. This is explained by the fact that the constricted orifices of many of the diseased and distended crypts are removed, giving an opportunity for free drainage. Hemorrhage usually ceases spontaneously in a few minutes. When moderately excessive, cold water, ice and the gallo-tannic acid mixture will usually succeed in arresting it. The prejudice that exists against the use of the knife is not confined to the laity and the specialist will frequently be confronted by the necessity of resorting to other means of reducing the hypertrophy. Next to the knife the galvano-cautery is unquestionably the best agent. Its application is painful, even when cocain is used within the limit of safety. Few small children can be induced to submit quietly to its use. Before being used the lacunæ should be carefully sought and cleansed, and in some cases curetted. To sear the orifice of a dilated crypt filled with infectious material is but to intensify the condition it is intended to remove. A cherry red electrode should be well introduced into the crypt and retained for a few seconds. It should be made to burn its way out through the constricted orifice. As only a few crypts can be treated at one sitting, several treatments at intervals of from one to two weeks will usually be required. The reaction is usually not very great. Thorough curetting and cleansing of the crypts, followed by the application of tincture of iodin, or a bead of nitrate of silver or chromic acid fused on a probe, will in most instances be followed by good results. This treatment though protracted has the advantage of practicability. Few parents or patients will object to it. Cocain can be used and the operation made painless. The cocain solution should be carried well into the crypts by means of a cotton wrapped probe. More prompt results can be had if after cleansing and curetting, the tonsil knives devised by Dr. Leland of Boston are used. The olive-shaped tip of the knife is introduced into a crypt in the upper part of the tonsil and then turned downward and inward and made to come out by another in the lower part. The substance of the organ between these two holes is then cut through. This can be repeated from three to ten times at a sitting, until the surface of the tonsil presents the appearance of being full of slits. There is usually not much bleeding and this knife can oftentimes be introduced to its fullest extent without danger. Nitrate of silver, chromic acid, trichloracetic acid or tincture of iodin may be applied to the slits as well as to the crypts. This treatment will be followed by a satisfactory result in those cases in which from lack of consent or contraindication against the use of the knife, cleansing and applications of caustics alone can be used. Myles nasal curettes with malleable shanks are very satisfactory for curetting the crypts. The writer has not had satisfactory results from the application of hydrochloric acid as suggested by Kendall. The cold wire snare causes great pain. The galvano-cautery snare is sometimes useful in fibrous tonsillitis. In many instances the guillotine can be successfully used on the flat diffused tonsils by having an assistant press over the region of the tonsils, causing them to project into the pharynx. Only a small or thin portion may be removed, but the thin slice will contain the constricted orifices of several crypts. Many of the methods suggested for the treatment of the first group of hypertrophies will be applicable in the treatment of the second and third. The writer has obtained most satisfactory results from galvano-puncture in flat diffuse tonsils. If after the destruction of as many crypts as can be found there still remains a considerable portion of hypertrophied tissue, its reduction can be speedily accomplished by puncturing the stroma with a galvano-cautery wire. About half a dozen punctures distributed at about equal distances and extending to a depth of from one-fourth to one-third of an inch should be made at a sitting, and repeated in from ten days to two weeks. Dr. Arthur A. Bliss has devised a pair of scissors for the removal of this class of hypertrophies. Leland's curved tonsil knives are especially adapted to separating the adhesions of the tonsil from the anterior pillars of the fauces, after which it is usually possible to remove the hypertrophy by means of the guillotine. A great variety of reflex phenomena results in adults from chronic inflammation of the lacunæ. There may be little or no appreciable hypertrophy of the tonsillar tissue and the disease may be limited to a few crypts. These will often require careful search and be found, as a rule, at the upper part of the tonsil, the orifices being hidden behind the palatine folds. These diseased crypts contain decomposing cheesy material made up largely of leptothrix elements. They may contain chalky material. They should be emptied, cleansed, curetted and slit down to the lowest part. The thorough use of the galvano-cautery point will make the cure more certain. Fibroid degeneration of the stroma probably causes little trouble other than constricting the orifices of the crypts and preventing the escape of their contents. Chronic abscess, though undoubtedly having its origin in infectious material that has gained entrance through the crypts, is largely confined to the peri-tonsillar tissue. As much of the abscess wall should be removed as possible, the surface thoroughly cleansed and curetted, and brushed with pure carbolic acid.

Equitable Building.

Gelatin as a Hemostatic.—Carnot states that a solution of gelatin with a little sodium chlorid applied locally acts promptly as a hemostatic, healing by first intention being favored. The solution employed contained 5 per cent. of sodium chlorid. It was sterilized before use and brought to the temperature of the body at the time of application.—*La Presse Médicale.*

PERITONSILLITIS—ITS ETIOLOGY AND TREATMENT.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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PHILADELPHIA, PA.

Peritonsillitis, quinsy, phlegmonous pharyngitis, pharyngitis abscedens, peritonsillar abscess, parenchymatous tonsillitis and the other names under which this condition is described matter little, but to find the cause and relief of this frequent and most painful throat affection is of immense importance to those suffering from it. Schech classes it, next to tuberculosis, the most painful.

It is without doubt of bacterial origin. Cold, rheumatism, gout, trauma, in fact anything which lessens the resistance of the tissues, may predispose to, but not act as the exciting cause. Rheumatism, cold, trauma, etc., do not go on to suppuration unless accompanied by some member of the great family of bacteria; here we probably have a streptococcus. The tissues involved have been by many writers very loosely considered. Some state that the glandular tissue is primarily involved, the inflammation extending to the surrounding tissue. It is even described as parenchymatous tonsillitis. Others claim that it commences in the surrounding tissue and that the tonsil is only secondarily, if at all, involved. It may, and not infrequently does, follow an acute lacunar tonsillitis; however, quinsy proper is a peritonsillitis and should not be confounded with tonsillitis, a much less painful and less dangerous condition.

The locality is called by Chiari the spatium pharyngo-maxillare; and is bounded by the tonsil, the internal pterygoid muscle and the palatine arches. The swelling may extend into the post-nasal space, causing complete obstruction between the nose and throat and may also descend toward the larynx producing edema of the latter and threatening dyspnea.

Untreated the disease usually goes on to suppuration, every day adding to the pain and all other symptoms, until the pus is evacuated, which usually occurs within fourteen days, through the anterior palatine arch, but may be through the posterior palatine arch or below the tonsil. The pus may burrow into the cellular tissue of the throat, into the esophagus, into the mediastinum, the submaxillary gland or the muscles of the tongue. There may be erosion of the carotid artery, or general septicemia may follow. In one case recorded as quinsy, there were repeated hemorrhages, causing the death of a patient. Even in untreated cases the prognosis is good, exceptional cases however occur. Much suffering may be avoided by painstaking and thorough treatment, and it is to this that I wish to call special attention.

Many remedies have been suggested for the treatment of this painful affection, but from none have I seen the good results that come from the use of the spirits of turpentine. I do not find it mentioned in the books, but claim no originality in its use for the treatment of quinsy, it having been suggested to me by Dr. ————, who some five years ago was doing special work at the Philadelphia Polyclinic, he having learned of it through a German physician. There being an abundance of material at the Polyclinic, Dr. Freeman was quite glad to have me test its efficacy, and kindly turned over to me all the cases that presented.

For several years I have treated all cases coming under my observation, both private and dispensary, in the following manner. Thorough cleansing of the throat and nose with a mild alkaline solution, followed by the application of the spirit of turpentine, equal parts with the compound spirit of lavender, disguising the taste of the turpentine by the addition of a few drops of the oil of anise or gaultheria. In some cases I use the turpentine full strength. This is applied to all the inflamed tissue, as thoroughly as possible, with cotton on a fine applicator, behind the soft palate, into the crypts of the tonsil and where possible between the tonsil and the pillars of the fauces. For use between visits, I order the patient to apply the above mixture every one to three hours. A mercurial followed by a saline laxative is usually indicated—in the rheumatic or gouty subject appropriate constitutional treatment must be instituted. In other cases I use codein to control the pain. As much nourishment as can be taken, either hot or cold as most comforting to the patient. If seen early, this treatment will abort an attack; later, will prevent the formation of pus and the involvment of the opposite side. It will, in nearly all cases prevent involvment of the opposite side even though pus be already present on the one affected. From a number of physicians, using this plan of treatment, I have had most favorable reports, one reporting equally good results from its use in tonsillitis.

Without detailing special cases I will say that all I have thus treated testify in favor of this over all other methods of treatment, many of these patients having had repeated attacks and treatment by many different methods. After the turpentine treatment some have never had a second attack, others, who were accustomed to attacks of peritonsillitis every two, three or four months have gone two or three years without any recurrence. In advanced cases where the mouth can be but slightly opened, it will require skill in the use of light and instruments to thoroughly treat a case. After the acute attack has subsided the throat and nose should be put in as good condition as possible, great care being taken to remove all adhesions between the tonsil and the surrounding tissue. Instruct the patient to report at once upon recurrence of symptoms pointing to another attack.

As a germicide Koch reports: "Oil of turpentine destroys anthrax spores in five days but failed to do so in one day. The development of anthrax spores is prevented by 1-75,000."

Rudling states that the addition of 1-200 to nutrient gelatin prevents the development of bacteria.

I have said nothing of symptoms, they being so characteristic that once recognized can scarcely be mistaken. The position of the head, and the peculiar contortions of the face with every attempt at swallowing, with more or less fixation of the jaw, is quite sufficient for a diagnosis, in the majority of cases, without even inspecting the throat.

DISCUSSION ON PAPERS OF DRS. BLISS, ELLEGOOD AND BALDWIN.

Dr. Seiss—The tonsil exists in all the higher mammals and is recognized by all comparative anatomists. I like Dr. Bliss's scissors very much. In connection with the use of turpentine mentioned in Dr. Baldwin's paper, it occurred to me that I get the best results in such cases from pine-needle oil, used in an atomizer.

Dr. Myles—Follicular tonsillitis has given me more trouble than any other form. I have found that this condition in early childhood will spread and extend upward into the soft palate

very deeply. I have never been able to use the scissors and knife in these cases as deeply as I would like, because when I seized the tonsil with the forceps it would break loose. I have used the punch forceps to take out quite large pieces. You must work quickly. My experience is that peritonsillar abscess is a certain form of cold abscess which is likely to recur. Two or three times a year the locality undergoes a rapid suppuration for several days. As to the turpentine treatment, I remember a queer experience I had in the South. An old farmer asked me why doctors spent so much time on a little thing like the throat, and added: "When any of my niggers have sore throat, I mix turpentine, sulphur and lard and rub it in, and they get well."

Dr. COULTER—I apprehend that no one instrument will be satisfactory in the hands of all operators. We become accustomed to a certain form of instrument, and each can do better work with his instrument than any other man can, and vice versa. I understood a statement in Dr. Bliss's paper, that he said the top of the tonsil should be a little above the level of the tongue.

Dr. BLISS—That is when the mouth is open.

Dr. COULTER—I have found that the larger part of the tonsil was buried almost under the pharyngeal aponeurosis, often being completely enveloped in the pillars. I am satisfied that the tonsil extends higher up than we have ordinarily thought and that it is almond shaped rather than olive shaped. Dr. Ellegood says that in all these cases the tonsils should be destroyed. I contend that destroying the tissue and leaving it to cicatrize is not necessary, though it may be proper in a certain number of cases. Theoretically it may be all right, but practically it is not. You can not tell how deep into the crypts you are going, and, especially in singers, you leave a cicatricial tissue that makes the case worse than it was.

Dr. BLISS—Dr. Seiss was quite correct in thinking that I did not mean to remove every large tonsil simply because it was large. I referred only to the class of tonsils indicated in my paper, which was on the use of the tonsillotome. I have used the tonsil punch, and it is an excellent instrument, but rather a clumsy one. I think that if Dr. Myles would use the crocodile forceps he would have no trouble in holding the tonsil. These will grasp the tonsil so firmly that it can not slip away. As to the high distribution of the tonsils, I have not found that as a normal condition; it is more a pathologic condition. Such tonsils are more likely to contain material in their crypts. There are many such tonsils as the result of a pathologic process.

Dr. ELLEGOOD—I have never had any difficulty in applying the cold snare to the crypts. I prefer not to use galvanopuncture, except in cases of flat tonsil where the orifices of the crypts are difficult to find. The galvano cautery merely destroys the surface.

MUNICIPAL CONTROL OF DIPHTHERIA.

Presented in the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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CHICAGO, ILL.

The prevention of disease is the province of the municipal health department. The treatment of disease is in the hands of the medical profession whose members have spent time and money to acquire the necessary knowledge, and who stand within that sacred circle of domestic confidence essential in the treatment of disease.

The only tenable ground the munipal health department can take is that of assisting the family physician and there should be no friction between them. The health officer should be careful not to infringe upon the prerogatives of the family physician, who should be high-minded and generous enough to commend the enforcement of public hygiene and respect a power that is greater and broader than his for the prevention of disease.

The improvement of a race or species can only be accomplished during its period of development. No scientific mind can study the effect of ptomain poisoning on the growing child and fail to appreciate the importance of preventing contagious diseases in childhood.

No child can reach the same mental and physical development after severe ptomain poisoning. The intellect demands for its symmetrical development the perfect transmission of accurate impressions from the outer world. These come through the five senses. The partial closing of one of these avenues means a lessened power of acquisition and a one-sided mental growth.

No one, not so afflicted, can appreciate the disadvantages of impaired hearing. A child with this defect has a tendency to become slow and morose; is misjudged and misjudges others. Many men and women, who otherwise would have been useful members of society, have been miserable failures because of impaired hearing.

The results of diphtheria ptomain poisoning are not so well known as those of scarlet fever, because that portion of the economy most susceptible to the poison is the vital centers. Hence the difficulty of definitely estimating the insidious and far-reaching effects of the poison. The malignant type of diphtheria may some times be followed, sooner or later, by impaired kidneys, paralysis of the recti muscles causing strabismus, partial nerve destruction, paralysis of the larynx, or a partial arrest of general development. Complete restoration to normal health following any of these conditions depends upon the extent and severity of the injury. As before stated, it is improbable, most often impossible, that these effects may ever be effaced.

Carlo Ceni[1] and Robert J. Berkley have made studies of the lesions induced by the action of diphtheria poison on the nerve cells. Both made the same conclusions. Dr. Berkley says: "From the studies conducted on the cerebra of diphtheritic guinea pigs, it would appear that all severe infections were followed by brain cell degeneration, a degenerative process unaccompanied by inflammatory reaction and a tendency to atrophy and necrosis."[2]

During 1896 I administered antitoxin to a large number of children in various stages of profound ptomain poisoning with 75 per cent. recoveries; but I noted that quite a number of these died during the following six months. The family physicians diagnosed the causes as Bright's disease, inanition, marasmus, appendicitis, summer complaint, etc. Some of these deaths were no doubt due to gradual brain cell degeneration and necrosis induced by the Klebs-Loeffler toxin.

Diphtheria is both a preventable and a curable disease. A death from diphtheria is now considered by the best physicians in the same light as puerperal fever, namely, the result of ignorance in the physician, or attendant, or both. Could every child have the fullest scientific protection, there need not be a death from Klebs-Loeffler diphtheria. Our duty to the race demands that every precaution should be taken to prevent contagious diseases among children. As long as the child remains at home, the responsibility of giving this protection rests upon the parent. As soon as the child is sent to the school, the store or the factory, it becomes a ward of the State and should have its protection. The prevention of diphtheria then divides itself into, the protection of laboring

[1] Carlo Ceni, Riforma Medica, Vol. I, 1896.
[2] Johns Hopkins Hospital Bulletin, Feb., 1897.

children, the protection of school children and the children at home.

Over thirty-five thousand children are working for wages in the city of Chicago. In the crowded cars, department stores, and factories they are constantly subjected to contagion and become one of the most prolific means of its spread. They carry the germs home and infect the other members of the family, who may be attending school or kindergarten. These in turn infect their playmates. The doors of our public schools are open to children from any home whether over a stable or on the boulevard, whether it be composed of one room or twenty; whether it be as healthy as sanitary science can make it or filthy as the abode of savages. The public school room below the grammar grade is a perfect clearing-house for the exchange of mouth germs. The average child is not troubled by the niceties of older people, who, however generously inclined, do not exchange eatables and personal effects with such freedom as is done in school. Children at home are usually infected by those members of the family who are at work or in school; hence the prevention of the spread of contagion in the school and factory is one of the most efficient ways of protecting the home.

Competent medical supervision and inspection of schools and every place where there is child labor, offers a great field for work the benefits of which will extend beyond those directly affected. There are many pupils in our public schools with defective sight and hearing that could easily be remedied if discovered early and properly treated, while child labor is employed under conditions the heathen nations would not tolerate.

The State has every right to throw rigid restrictions around child labor for her own protection. Unless done in harmony with the laws of mental and physical development, it works a two-fold injury; first to the child itself, and second, to the coming generations.

Medical inspection should be done with the organized system that characterizes scientific work. The services of the best specialists should be obtained to direct the efforts of the medical inspector, for the most valuable results await the adoption of scientific methods in the formulation of laws governing child life.

However valuable it would be in other diseases, medical inspection would derive its most brilliant results in the prevention of diphtheria. During the winter season when it is most prevalent, the inspector should instruct teachers and employers in the symptoms of infection. He should make cultures from the throats of those who have been exposed to contagion as well as from returning convalescents before permitting them to re-enter school.

Some of our cities are a long way from the adoption of scientific medical inspection and until municipal authorities see the feasibility of such methods, we must control diphtheria with the best means we have at hand.

During the winter of 1895–96 the southern half of the city was put in my care by the Chicago Health Department, to assist in controlling a threatened epidemic of diphtheria.

Having given ten years of special study to the disease, and tried faithfully every remedy that my judgment approved, or the experience of others recommended, I was well prepared to judge of the value of antitoxin. The experience of that epidemic taught me two things: The value of antitoxin as a curative agent, and the importance of an early bacteriologic diagnosis as the most important measure for the prevention of the disease.

If within a few hours of the first call of the physician to see an inflamed throat, the infectious nature of the disease is known and the child isolated, the spread of the infection may be stopped. Those who have seen families, schools and whole communities infected before the malignant nature of the disease was discovered, will appreciate the importance of having infection stopped at the first case.

The bacteriology of diphtheria demonstrates the great rapidity with which the Klebs-Loeffler bacilli multiply under favorable conditions. The microscope has enlarged our vision and enabled us to see these germs, while scientific methods have formulated laws governing their existence. It is the application of these laws that gives us control of this disease; hence the successful prevention of diphtheria depends upon a thorough knowledge of the bacteriology of anginas.

All anginas manifesting membrane should properly be described as diphtheria, since its derivation is from the Greek word meaning membrane. However, since the Klebs-Loeffler bacillus has been found to be the chief cause of mortality in anginas, only those cases where it is present are usually called diphtheria.

The germ or germs which are the chief causative factors in producing this disease are most sensitive to environment, by which is meant all the conditions influencing the life of the germ as well as that of the patient who furnishes the soil for invasion.

Environment is continually changing. No two consecutive days have the same amount of sunshine, heat or moisture. Each season brings conditions which have their influence on the germs of the membranous anginas. With a knowledge of these facts it is readily comprehensible why the anginas of one year, or of one season, should differ from those of another. If the conditions are favorable to the virulence of a certain germ, it will prove the causative factor of the anginas of that year, subsiding into a secondary position with new conditions which favor the virulence of another germ.

The bacteriology of the anginas of 1896–7 has presented many interesting differences from those of last year. At that time, nearly 75 per cent. of all inflammations, including those causing stenosis of the larynx, were due to the Klebs-Loeffler bacilli. At the close of this year, it is some member of the streptococci family that most often causes the invasion.

Following its invasion, each germ has a definite train of clinical symptoms characteristic of itself, and were it not for the fact that there are so many mixed infections, there would be little difficulty in making a diagnosis without the microscope. But it is seldom the case that a culture reveals only one germ; others are nearly always present, it may be as accessories in a minor degree to one germ causing the lesion.

In every mouth there are a number of pathogenic germs which are impotent except when favorable conditions are presented for multiplication. If constitutional resistance becomes weakened toward any one of the germs present, that one may become the exciting cause of inflammation.

This fact must be kept in mind when examining cultures microscopically, namely, to determine the invading germ and treat the case accordingly. The malignancy of a germ is usually determined by the

rapidity of its multiplication. When a germ acquires this malignancy, it is probably because the patient's antitoxic power is reduced. For instance: The case of a child was diagnosed as Klebs-Loeffler diphtheria and antitoxin administered followed by typical reaction and recovery. Three weeks later a second inflammation occurred, culture showing mixed infection with Klebs-Loeffler bacilli present. Antitoxin was again injected with no reaction. The case followed the usual course of a streptococcic angina. The patient was already antitoxinized against the Klebs-Loeffler bacilli, and although the germ was present, it had but little influence in the inflammation.

In laryngeal inflammations the staphylococcus causes simple spasmodic laryngitis; the streptococcus a stenosis of long duration, sometimes requiring reintubation or the substitution of tracheotomy. If the Klebs-Loeffler bacillus causes the stenosis, it is possible to be as positive of the action of antitoxin as of morphin; while the ratio of mortality becomes 15 to 20 per cent. instead of 80 to 90 per cent.

The staphylococcus is nearly always present in the fauces, and is always present in slight inflammation of the tonsils. The crypts of enlarged tonsils contain them and a slight cold causing congestion of the mucous membrane produces the necessary condition for disease.

Occasionally the staphylococcus takes on considerable malignancy, the temperature rising to 104 and 105, causing considerable constitutional disturbance. It is the invasion of this germ that results in simple spasmodic laryngitis. One of the chief characteristics is the short duration of the inflammation.

The streptococcus is the next germ in malignance, and has a wide range of virulence depending upon the conditions under which the invasion takes place. The point of invasion may be in the tonsils, but the entire tissues of the fauces are more likely to be involved, producing a dark red appearance with little or no membrane for thirty-six or forty-eight hours. The membrane is always small in proportion to the amount of inflammation. There is a tendency for the inflammation to spread back of the tonsils up into the posterior pharynx, invading the Eustachian tube, causing great difficulty in swallowing, also impairing the hearing. This is the most painful of all anginas, the most difficult to relieve and the slowest to recover. While the temperature in staphylococcus infection is high in the beginning and reaches a maximum in twelve or twenty-four hours, the temperature in streptococcus infection gradually increases to 102 and 103, remaining stationary for two or three days until influenced by treatment.

Symptoms are neither so apparent nor so alarming in the invasion of the Klebs-Loeffler bacillus. The germ seems to have an anesthetic action locally, and acts as a constitutional depressant. There may be little or no pain. The patient will be quiet, gradually going into a stupor. On examination of the fauces, membrane will be present either following primary inflammation or at first inspection. True Klebs-Loeffler diphtheria is the least painful of all anginas. The invasion usually takes place in the fauces, spreading to those parts of the mucous membrane which are susceptible, such as the nasal passages, the posterior fauces and the trachea.

During the past year the pseudo-bacillus has frequently appeared in the cultures. My observation leads me to think this germ is the Klebs-Loeffler bacillus changed in its morphology owing to the soil upon which it grows. My reasons are as follows:

1. Cases have resulted fatally with this bacillus as the invading germ, giving every clinical evidence that death was caused by ptomain poisoning.

2. The genuine Klebs-Loeffler diphtheria has been contracted directly from cases of pseudo-diphtheria.

3. The morphologic change between the pseudo- and the Klebs-Loeffler bacilli is no greater than is seen by growing the Klebs-Loeffler bacilli on blood serum and agar agar; or the change which the Klebs-Loeffler bacillus undergoes from the beginning to the end of a case of true diphtheria.

For these reasons, I advise the administration of antitoxin in cases where the pseudo-bacilli appear, and in most of these cases typical reaction follows.

Temperature is considered an important indication of the gravity of a disease. This rule must not strictly govern anginas, as the highest temperature is caused by a germ of the least malignancy, namely, the staphylococcus. In the worst form of Klebs-Loeffler diphtheria there may be not only an absence of increased temperature, but it is sometimes sub-normal.

The accompanying tables of the clinical symptoms of diphtheritic diseases during the first, second and third thirty-six hour periods are not assumed to be perfect, as they are compiled from a limited number of years' experience; but it is hoped they will form a substantial basis for further observation.

CLINICAL SYMPTOMS.

First Thirty-six Hours.

Diphtheritic diseases.	Temperature.	Local condition.	Mental.	Urine.	Bowels.
I.—Staphylo-diphtheria.	Rises rapidly to 103, 105.	Swoll'n tonsils with membrane appearing around follicles. Headache; pain.	Bright.	Diminished; highly colored.	Constipated.
II.—Strepto-diphtheria.	Rises gradually to 101, 103.	Invasion usually extended to large part of pharynx, posterior nares; membrane does not form rapidly; mucous membrane congested; covered with thick mucus; more pain than I.	Fretful and easily irritated.	Diminished; highly colored.	Constipated.
III.—Klebs-Löffler Diphtheria. 1. Mild.	99 to 101.	Redness with little or no swelling; small amount of white membrane; slight pain.	Normal.	. . . .	Constipated.
III.—Klebs-Löffler Diphtheria. 2. Moderate.	99 to 101.	Redness over more extended area than I; any part of pharynx, larynx and trachea.	Normal.	Norm'l or less in quantity.	Constipated.
III.—Klebs-Löffler Diphtheria. 3. Malignant.	99 to 101.	Redness, but not painful as strepto-infection; may be large or small amount of membrane in sight.	Dull; careless.	Normal.	Constipated.

Second Thirty-six Hours.

I.—Staphylo-diphtheria.	Decreasing, 101.	Membrane white with definite edges; less congestion.	Normal.	Normal.	Open; resp'nded to cathartics or enema.
II.—Strepto-diphtheria.	Stationary, 102, 103.	No improvement; thin membrane; tonsils will be covered if large; much pain in swall'wing.	Fretf'l. loss of sleep.	Dark Color.	Inactive.
III.—Klebs-Löffler Diphtheria. 1. Mild.	Stationary, 100, 101.	No improvement unless antitoxin has been given; membrane formed.	Normal.	Normal.	Active.
III.—Klebs-Löffler Diphtheria. 2. Moderate.	Stationary, 100, 101.	No improvement; membrane formed. Process stationary.	Normal.	Albumin.(?)	Constipated.
III.—Klebs-Löffler Diphtheria. 3. Malignant.	Stationary, 100, 101.	Membrane extending, glands may be involved.	Stupor.	Albumin. Less.	Normal or inactive.

Third Thirty-six Hours.

I.—Staphylo-diphtheria.		Normal.	Nearly normal.	Normal.	Normal.	Normal.
II.—Strepto-diphtheria.		Decreasing.	Beginning to improve if no abscess has formed.	Norm'l if no pus formation	Normal.	Normal.
III.—Klebs-Löffler Diphtheria.	1. Mild.	Decreasing.	Improvem't; membrane disappearing	. . . .	. . . .	. . . .
	2. Moderate.	. . . . .	May change to 1 or 3 (III).	. . . .	. . . .	. . . .
	3. Malignant.	Stationary or decreasing.	Membrane extending or glands enlarged; bleeding at nose; heart irregular; fetor from membrane.	Stupor, can be roused.	Albumin; anuria.	Paralyzed.

It may be observed from these tables that the symptoms which are most likely to attract the parent's attention to the child's throat, namely, pain and fever, are produced by the most common and least harmful germs. The Klebs-Loeffler bacilli may be present without any modification of clinical symptoms until the system is permeated with ptomain, and evidence of ptomain poisoning appears. If the nature of the disease has not been discovered and antitoxin given before this stage is reached, the chances for recovery are greatly reduced—if not entirely shut off—for, as before stated, the action of diphtheria poison is destructive. Antitoxin can not restore destroyed kidney tubules, blood corpuscles or nerve centers. It must be given in time to prevent this destruction. A culture from the throat will show in a few hours if the germs are present, and upon the proper use of the culture, more than anything else, depends the control of diphtheria. With it, we can tell not only the presence of the germ in those who are sick, but can estimate the exact limit of infection in those who have been exposed to the contagion.

The earlier the diagnosis the greater its value. To get an early diagnosis without infringing on the rights of the family physician is the problem which the health department must solve.

In the City of Chicago, and I presume it is more or less true elsewhere, the major part of practice is in the hands of physicians who graduated in medicine before there was a department of bacteriology. These physicians are the first to see cases and they are the proper ones to take cultures. If they have to call in an expert to make the culture, or have it done at an extra expense, the occasions when they find they were needlessly alarmed will cause them to neglect this important measure.

I have found that physicians are influenced in making a culture by the convenience with which they can have it done. The introduction into the culture outfits of the Chicago Health Department of the small metal boxes for culture media has had much to do with the large number of cultures obtained by the department. They were devised by me to meet the requirements of the general practitioner. Properly prepared, they will keep indefinitely. They are strong, light and small, so that several can be carried in the pocket or bag without taking valuable space. After inoculation the box can be placed in the watch pocket near the body and incubation begins at once.

What is of greatest importance, these boxes may be examined many times during the development of the culture without affecting its progress. This is done by the Klatsch method—the pressing of a clean cover glass on the surface of the serum. A sufficient number of the germs will adhere to be fixed and stained, at the same time preserving their characteristic arrangement. Thus the rapidity of the growth can be noted and something of the malignancy ascertained. A diagnosis can often be made as soon as the box can be examined. When this can be done it is of importance in indicating malignancy.

During the past year I have made an immediate diagnosis in about one-third of the diphtheria cultures; another third required six hours incubation, and the remaining third ten hours.

A physician can carry one of these boxes in his pocket and when called to a suspected case of diphtheria, with a little absorbent cotton on a probe, he can inoculate the box and prescribe treatment. Diphtheria or the health department need not be mentioned. By his next visit he is fortified with a positive diagnosis. If he has to send to a station for a cumbersome outfit, inoculate and send it to a distant laboratory and wait eighteen to twenty-four hours for a diagnosis he is placed in an embarrassing position. His procedure has alarmed the parents and his uncertainty will not inspire confidence. If the report shows no necessity for the alarm, confidence in his judgment will not be strengthened and he will naturally avoid a repetition of the occurrence.

To test the efficacy of convenient methods, a sub-laboratory was established at my office by the health department during the past winter for the use of the physicians on the South Side.

Until December 15 there was only now and then a sporadic case of Klebs-Loeffler bacilli among the numerous cultures showing streptococci infections. Then in three days I had nineteen rapidly growing cultures of the Klebs-Loeffler bacilli taken from patients among the wealthy families of Kenwood. The family physicians in these cases received their diagnoses, some of them in two, all of them within six hours; the patients were immediately isolated and given antitoxin. All recovered and there was not a second infection from any of the cases as far as could be learned. Several deaths occurred in the practice of those physicsans who did not use a microscope to make a diagnosis.

During the past season I have made nearly five hundred bacteriologic examinations. About 30 per cent. of these revealed the Klebs-Loeffler bacilli. The records show that those physicians who availed themselves of the bacterial diagnosis had no deaths from diphtheria.

No small part of this excellent result was due to the high quality of the antitoxin that was used.

The health department renders the physician valuable assistance when it places within his reach a reliable grade of serum. Not having the government guarantee possessed by the European physician the next best thing is to possess the guarantee of our municipal health department, who conserves its own interests in protecting the interests of the people. The health authorities can acquaint themselves with reliable manufacturers of antitoxin and in the laboratory they have the means of testing its quality. Antitoxin should be furnished to physicians at as low a rate as possible. Diphtheria is emphatically a disease of the poor. To avoid delay and not endanger life a physician must often furnish the antitoxin and wait for his compensation, if he gets it at all.

The injection of serum by health officers should be avoided in all cases where it can be done by the family physician. Free dispensaries, hospitals and medical colleges do enough to depreciate the value of a

doctor's work without the health department contributing its services.

Some producers of antitoxin advise its administration without waiting for the bacteriologic diagnosis. This may be justifiable in laryngeal cases, but in not one case out of a hundred will the interests of the patient suffer if a culture can be made in four hours. Antitoxin is a highly organized product of unknown properties requiring the highest skill in its manufacture, and can only be produced by carefully followed rules requiring months of work and involving large expense. The failure of a single step in the long process will affect the product. This remedy is injected directly into the tissues and is absorbed by the blood. The action is so rapid that if unfavorable one patient is beyond hope before any known means can counteract the effects. These facts make it imperative that the utmost consideration should be given the subject of when and how to administer antitoxin. I have taken the serum myself and know its immediate effects are painful. I have also seen most alarming symptoms follow its administration. Hence the indiscriminate injection of antitoxin in cases of angina is dangerous, unjustifiable and unscientific.

Every city has its own problems to solve. In evolving a plan for controlling diphtheria all conditions of municipal life must be considered. Grades of diphtheria differ in New York, Paris, London and Chicago, as the environment of those cities differ. If the mortality of diphtheria in Chicago is lower than that in New York it is only fair to say that it is probably due more to the less crowded condition than to superior equipment.

Our position of health commissioner is a political one with a term of but two years. This is a short time to institute and carry out any elaborate scheme of hygienic reform. But it is long enough to set in motion plans of work whose beneficial effects will not permit them to be dropped by the next administration.

The municipal control of diphtheria then means: 1. The enforcement of those hygienic laws which will increase physiologic resistance and thus remove predisposition to the disease. 2. It must protect children from contagion by competent medical inspection in schools and public places of work. 3. It should furnish physicians convenient means for early bacteriologic diagnosis. 4. It should obtain and furnish the best possible quality of antitoxin.

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DISCUSSION.

Dr. REYNOLDS—It seems to me that the logical result of all this antitoxin and germ study is that every physician who visits families and comes in contact with them should be able to make a diagnosis in from two to four hours. It is the function of the department of health to prevent disease.

Dr. ROOT—This very important subject concerns not only ourselves as specialists, but the general practitioner as well. One point has not been touched upon, and that is the necessity of having these cultures made and the bacteriologic examinations continued after the apparent symptoms have cleared up. The difficulty is that after the case is apparently well the children are allowed to go to school and about the streets while they are perfectly capable of infecting others. In Hartford we insist that every case shall be reported at once to the health board. Test tubes are kept, on ice, in the leading drug stores. When a physician sees a suspicious case he can drive to the nearest drug store, get a test tube, make his culture and have it sent at once to the health board. A record of the case is made and kept, and is inspected by the health inspector, and before the child is allowed to go out it must be demonstrated that there are no more bacilli in the throat. When the throat is apparently well he may still infect others by expectoration, etc.

Dr. VANSANT—I do not think that any such discussion should proceed without a protest against a diagnosis of diphtheria based solely on the presence of the Klebs-Loeffler bacillus. It is not a simple thing to diagnose a case as diphtheria, and we should proceed carefully. A diagnosis based on the presence of this bacillus alone is not necessarily correct. I made a series of cultures from 100 patients last winter, and with the aid of our bacteriologic department examined the secretions in chronic nasal catarrh. I excluded every case that had any clinical signs of diphtheria. One of the first cases I sent was rhinitis. A report came back that typical Klebs-Loeffler bacilli had been found and the case must be isolated at once. The case was a true atrophic rhinitis, but every time I examined I got a beautiful culture of the bacillus. There was no sign of diphtheria whatever. From 25 to 50 per cent. of the cases of chronic nasal catarrh contain the bacillus. I protest against isolating cases simply on the bacteriologic examination. We should also have well-marked clinical signs.

Dr. JURIST—In a town not many miles from here two police surgeons made cultures from each other's throats and sent them to the city bacteriologist. They were promptly quarantined the next day, though there was no sign of sickness. When physicians depend on one point in any diagnosis they fall in error. We have also in laryngology attached too much importance to bacteriologic investigation. I believe that in 95 out of 100 cases the disease can be determined without bacteriologic investigation. Isolate your patient for a day or two and you will often see that a case can appear like diphtheria and not be diphtheria.

Dr. RANDALL—The nasal cases are not so apt to convey infection, and yet I know of many a case that has originated in this way. I know a resident who had such a condition in his nasopharynx, and he was responsible for several cases of diphtheria in the hospital and finally had a plain case of the disease himself. Cases are certainly infectious in that stage and call for recognition. The difference between faucial and nasal cases must be borne in mind.

Dr. JAQUES—The Klebs-Loeffler bacillus may be in many throats without producing diphtheria. Physical resistance is what prevents children from taking diphtheria. About this time of year most children have the bacillus in their throats without producing diphtheria. In winter the conditions are more favorable for its occurrence. Great care is necessary. A person who has the bacillus in his throat may not have diphtheria, but he may come in contact with a child who is susceptible and cause the death of the child. I have known mothers who had this condition of the throat to inoculate their children and cause their death. For the protection of the physician, he should know the origin of every case of angina that comes under his care. He can then put the bacteriologic diagnosis with the clinical symptoms and know what the disease is.

REMARKS UPON THE SURGICAL TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY D. BRYSON DELAVAN, M.D.
NEW YORK.

While operations for the cure of malignant diseases of the larynx have generally resulted in shortening rather than lengthening the lives of patients so operated upon, the experience of the past few years in certain parts of the world has been somewhat encouraging. Indications are beginning to appear which suggest that for this class of patients there exists a not entirely unpromising future.

Within the past two years several papers have been published in which the proportion of successful operations has been unusually large, and while the actual number of patients operated upon has been too small to establish any positive conclusions, and the dates of most of the operations have been too recent to admit of a complete study of the cases themselves, there can be no question that the work recorded in them is, on the whole, worthy of careful consideration. The varieties of operation which have lately challenged atten-

tion by reason of the improvements which they have offered may be divided into three groups: 1, thyrotomy, with or without partial laryngectomy; 2, complete laryngectomy by the method adopted in Solis-Cohen's case; 3, complete laryngectomy in cases of extensive laryngeal disease with glandular involvement. Examples of all three are beginning to multiply to such an extent that it will not be long before we shall have a collection of details sufficient to afford a fairly positive knowledge of their real value, together with a fund of technical knowledge relating to the subject which can not fail to be of material aid for future guidance.

A short consideration of these methods may not be without interest. The first variety, while advocated by many surgeons here and abroad, has been studied and practiced in this country chiefly by Prof. Clinton Wagner of New York, and by Mr. H. T. Butlin and Dr. Semon in London. It consists in performing thyrotomy and removing as much of the diseased tissues as may be necessary. Mr. Butlin, in the main agreeing with many of the best surgeons of the day, has advanced the following propositions:

1. Every malignant growth of the larynx of intrinsic origin which can be dealt with should be treated by an operation in the absence of a decided indication to the contrary, and the operation should be performed with the least possible delay.

2. Every tumor of the larynx suspected to be malignant, of intrinsic origin, of limited extent and apparently within reach of free removal, justifies an exploratory thyrotomy in a suitable patient, in the absence of infiltration of the surrounding structures and of affection of the lymphatic glands.

The method of operating pursued by Butlin and Semon has been described in their published writings. It applies distinctly to cases in which the disease is absolutely confined to the interior of the larynx. Preliminary tracheotomy is done with the insertion of the tampon canula and its careful adjustment. The anterior part of the thyroid cartilage is laid bare with scalpel and raspatory, it is opened exactly in the median line, and the two sides of the larynx are held apart, preferably with two strands of strong silk inserted through the anterior parts of the lateral wings of the thyroid. After the latter has been split open, undue violence in holding the halves apart must be strictly avoided. At this stage it will generally be necessary to protect the parts from mucus and saliva by packing the lower part of the pharynx with a large septic sponge secured by a string and passed through the laryngeal wound upward. There are two recommendations upon which Semon lays special stress; 1, the surgeon should be provided with a forehead reflector and a good light, and as has already been suggested by the writer for deep operations in the pharynx, he should if possible have at hand a small two- to four-candle power electric lamp, to be used for the purpose of securing the best possible illumination of the interior of the larynx for the detection of every possible bit of diseased tissue; 2, before he begins the removal of the growth the whole side of the larynx to be operated on should have applied to it a 5 per cent. solution of cocain, for the purpose of contracting the capillaries on that side and preventing parenchymatous bleeding, which otherwise is sure to interfere with and greatly prolong the removal of the growth proper, while at the same time it may allow suspicious portions to remain behind. The importance of the two above mentioned measures is strongly insisted upon. The field of operation having been thus prepared, the diseased soft tissues are thoroughly removed to at least half an inch from the periphery of the growth, and if necessary the underlying cartilage is scraped or even removed, the base being firmly scraped with a sharp spoon. The use of the galvano-cautery will seldom be required. Every source of bleeding having been stopped, the whole interior of the wound is dusted with pulverized iodoform, or with iodoform and boric acid in equal parts, and the tampon canula is immediately removed. The whole of the wound is then covered with cyanid or iodoform gauze.

In cases where the more extensive resection of the thyroid or even extirpation of one-half of the larynx is contemplated, the parts of cartilage to be removed should be freed from their perichondrium and from the surrounding soft parts by means of an elevator. In other respects the operation is the same, only more extensive than mere thyrotomy with removal of soft parts. It is generally not necessary to prophylactically ligate the laryngeal arteries. Where the epiglottis or the aryteno-epiglottidean folds are diseased, the best means of access to them is sub-hyoidean pharyngotomy.

For after-treatment, both Wagner and Butlin immediately remove the tampon canula, and from that time use no tracheal canula whatever, and the wound having been dressed as above described the patient is not propped up in bed, but is placed horizontally on the side corresponding to the half of the larynx operated on with one small pillow under the head. Instead of plugging the wound with gauze as formerly, Mr. Butlin dusts it at least twice daily for the first few days with the antiseptic powder by means of a powder insufflator. The application can be made to the best advantage when the patient is swallowing, as during the act of deglutition the wound in the neck is separated sufficiently to admit the end of the powder-blower, so that the powder may be thrown directly against the raw surfaces, which should be thoroughly covered by it. The external covering of cyanid or iodoform gauze should be removed as often as wet by secretion. Although nutrient enemata may be required for the first few days, the experiment may be tried on the day of the operation or soon thereafter, of allowing the patient to attempt to drink a little water while leaning with the upper part of the body well over the edge of the bed. In case of any impediment to the closure of the larynx during this act, the water will run directly out of the wound and no harm result; should the experiment succeed milk may at once be taken in the same way, and the necessity for rectal feeding avoided. The external wound gradually closes by granulations, which may have to be stimulated by applications of nitrate of silver.

Turning now to the method of operation classified as number two, we find that a distinct advance has been made in the treatment of cases requiring complete extirpation. It was first proposed and practiced by Prof. J. Solis-Cohen of Philadelphia. The patient upon whom he originally employed it in 1892, is still living and well. In this operation, as in several similar to it, the larynx was completely removed and the severed end of the trachea brought to the external edges of the cervical incision and there retained, communication between the lungs and the pharynx being thus totally and absolutely cut off. The great advantages of this plan over the usual methods are:

1. The danger to life from inspiration pneumonia is greatly lessened, owing to the shutting off of the mouth from the trachea.

2. Swallowing is accomplished with great ease and as freely as under ordinary circumstances.

3. In at least three cases thus operated upon, the power of phonation has been acquired with a voice fully as satisfactory as that produced by any artificial appliance, and without either the inconvenience and discomfort of an artificial larynx or the danger to the adjacent parts from the irritation of its presence. The mechanism by which phonation is accomplished in these extraordinary cases has not been explained. Cohen's patient is able to make his voice distinctly heard from one end to the other of the great hall of the New York Academy of Medicine.

4. The comfort of the patient is greatly increased, and the disfigurement of the other operation and the wearing of the artificial larynx largely done away with. It is entirely probable that under certain conditions, this method will prove to be the most satisfactory for complete laryngectomy of any yet proposed, and it is to be hoped that it may be given a sufficient trial to prove whether or not the cases already reported have been but the result of a happy accident rather than the first illustrations of a definite rule.

As to the third variety of operation it has often been insisted that in order to insure success, malignant disease of the larynx must be treated as early in its history as possible, and at least before involvement of the neighboring glands has taken place. Unfortunately in the history of the past early operation has not always saved life, but on the other hand several eminently successful cases have been in patients who suffered from a tolerably extensive condition of disease. The management of cases of extensive laryngeal disease, therefore, becomes a matter not only of great importance but of lively interest, especially when it is remembered that perhaps a majority of patients are not seen by the specialist or surgeon until the disease has made considerable progress, and the time most favorable for operation has passed.

Several years ago operations were attempted upon such patients with only here and there an exception to the inevitably and immediately bad result. Subsequently they were generally left to their fate. Of late, under the influence of improved methods and increasing knowledge, a hope, a small hope indeed, but worthy of all encouragement, has been aroused by the excellent work of several men. Prominent among these may be mentioned Mr. Watson Cheyne of King's College Hospital, London, whose efforts in this direction are now attracting much attention, and who in his admirable Lettsonian Lectures (*Lancet*, February 15 and 22 and March 14, 1896,) upon "The Objects and Limits of Operations for Cancer," delivered before the Medical Society of London last February, says: "As compared with cancer in the breast, the disease in the throat is in some ways more favorable for cure; in other ways less so. Primary disease of the breast is by far the more favorable of the two, for there it is fully exposed to view, and there is plenty of room for its free removal without endangering important structures. In the mouth and throat, on the other hand, the disease is close to if not involving many important parts, the space in which one has to work is very limited, any considerable margin of healthy tissue can not be obtained, and the early spread of the cancer to muscle, tends to distribute it over a considerable area. In the throat, moreover, the disease is much less favorable for operation, because the septic elements comes into play, and thus instead of having to do with an operation in the breast where the mortality is practically nil, we have to face very considerable risk of death from septic disease. On the other hand, cancer of the mouth and throat is more favorable as regards the glandular deposits, for in the neck we have an extensive glandular area exposed to view which can be much more thoroughly dealt with than in the case of the breast. It is true that many surgeons look on the glandular trouble as a most serious part of the disease. With this I do not agree. In another respect cancer in the throat is more favorable than in the breast, namely, that in it metastatic deposits are infrequent."

As to the neighboring lymphatics, Cheyne believes that they should be removed as in cancer of the breast It is seldom that no enlarged lymphatic glands can be felt in these cases, and usually they are of considerable size. Whether they can be felt or not, the lymphatic area should be cleaned out. Unless the lymphatic enlargement is very extensive or adherent to a variety of structures in the neck, and not merely to the sheaths of the vessels the operation will be more thoroughly done and the patient will have a better chance of recovery and cure if enlarged glands are already present.

With regard to preliminary tracheotomy, Cheyne, agreeing with many other excellent authorities, does not believe in the insertion of the tube several days prior to the performance of the main operation. Personally I do not think his ground upon this question well taken, the objection being that in three or four days after the insertion of the tube there will be a collection of septic matter around it which may get into the trachea after the performance of the main operation. Such an accident could probably be avoided by extending the time between the two operations to ten days or more. It is desirable, however, that this question, namely, when preliminary tracheotomy should be performed, should receive more careful attention than has hitherto been accorded it, as it is without doubt an important factor in the patient's welfare.

These three varieties of operation just described may be said to finally represent the most recent additions to our present resources for the surgical relief of malignant disease of the larynx.

Turning now to the statistics of these and similar operations performed upon the larynx, we find according to a recent valuable article published by Schmiegelow of Copenhagen, in *Gouguenheim's Annales* for April, 1897, that during the past six years the mortality resulting from extirpation of the larynx has been materially diminished. Thus up to 1880, according to Holmer, the mortality was 42 per cent. Tauber reports a rate of 60 per cent., following total extirpation of the larynx between 1866 and 1890. Between 1880 and 1888 Schier found that the rate had fallen to 34 per cent. Since 1890, however, the reports are much more hopeful, for the same observer finds that the rate during that period has been reduced to 22 per cent. Schmiegelow, carrying the reports up to the present time, finds that the percentage of cures since 1890 has been 13.5 per cent., and of immediate mortality 18.7 per cent.

I earnestly wish that these flattering statements as to the improved statistics of this class of operations could be accepted as accurate and reliable. Undoubt-

edly in the cases of certain individual operators, who like Hahn, Butlin, Schmiegelow and some others, have faithfully and without reserve reported all of their cases good and bad alike, we are able to gain from their reports deductions of genuine value. It is both discreditable and unfortunate, however, that many operators have failed to publish their unsuccessful cases and have only reported such as have resulted well. This, I am sorry to say, has been particularly the case in our own country. Two years ago, the writer in the course of preparing an article upon this subject, wrote to the principal surgeons of the United States asking for a statement of their results. The answers were so incomplete and unsatisfactory that he abandoned the attempt. One surgeon who had operated four times with three speedy deaths, entirely omitted to mention his failures, while the successful case was reported in full.

Time and again the operation has been attempted under unfavorable conditions and by unskilled but venturesome men, whose rashness has quickly robbed the patient of what little hope belonged to him, and who having nothing creditable to report, have avoided publicity. If the whole story were to be told it is probable that the statistics in this country would be discouragingly bad.

It can not be insisted upon too urgently that carcinomatous cases requiring laryngectomy are desperate at the best, both as to immediate and ultimate results, and that with our present limited knowledge of the subject, no amount of caution, however great, will avail in preventing a high percentage of failures. With the sources of danger so numerous, constant and subtle, it is impossible that too great foresight or experience be brought to bear against them, or that the urgency of this demand be over-stated. Doubtless the best preparation for the work on the part of the surgeon would be a thorough knowledge of operations upon the tongue, neck and lower jaw in general. In the after-care of the patient also it is not by any means enough that the watchers should be ordinarily qualified in the care of severe surgical cases. Nothing short of special fitness in the department of this particular class of cases will yield the best results.

Next, such accidents as the entrance of septic or foreign matters into the air passages must be carefully guarded against. The use of the esophageal tube when entrusted to inexperienced hands has often been the cause of disaster. This part of the management as proved by the records of failure, requires most careful handling. Another dangerous and preventable accident is the poisoning of the patient by the antiseptic dressings, among which iodoform has been the principal offender. The substitution for it of a mixture of equal parts of powdered iodoform and boric acid, or of the compound tincture of benzoin has been attended with success.

In reviewing the recent progress in the treatment of malignant disease of the larynx, and in studying the manner in which these advances have been made, it must be apparent that nearly all have been the result of long and close study of the subject by accomplished surgeons, whose opportunities for clinical study have been unusually great. The time has long passed when an unsuccessful attempt at laryngectomy by one not fitted for the work can bring anything but reproach to the operator and discredit to the operation.

I am strongly of the opinion that, for a time at least, both the welfare of the patients operated upon and the interests of science demand that the indiscriminate performance of capital operations upon the larynx should cease. In most great centers there are individual surgeons or groups of operators who are especially well fitted both by personal qualifications and hospital facilities for the successful performance of this work, as has been proved in many cases by the records which they have already made. Let such men surround themselves with the proper assistants, let them systematize their efforts and use all the diligence in the perfection of appliances and methods and in the study of the cases under them, and keep careful and accurate record of everything pertaining to the history of their work. Then resign to them temporarily the care of as many cases of laryngeal cancer as possible. When a sufficient amount of material has been collected, we shall learn whether the radical extirpation of laryngeal epithelioma is unjustifiable, or whether, as we have the best reasons for hoping, it is likely to establish for us a reliable means of cure.

Finally, with the best results obtainable, it should not be forgotten that in this disease surgery is, and probably always will be, a forlorn hope, and that until we have discovered some better method of dealing with it, the results of operation, even under the best conditions, will fall far short of a perfect means of cure.

DISCUSSION.

Dr. COHEN—In my opinion much of the success of the case depends upon the attention given to the patient after operation. Operation is of course very important, but the best operation will fail if the patient does not receive the proper after-treatment. I am certain that a number of the cases I have seen could have been saved with proper care. The patient requires not only to have the surgeon within immediate call, but also the laryngologist. The great mistake is made when the laryngologist abandons the case to the surgeon, for the surgeon is not always familiar with the emergencies that may occur in such cases. Even if the laryngologist is not able to perform the operation, he should be in constant attendance with the surgeon until the patient is out of danger.

Dr. MACKENZIE—The surgical treatment of laryngeal cancer has resulted in failure in the past because the methods employed have not been sufficiently radical. Thyrotomy, partial and complete extirpation of the larynx have fallen far short of success simply because they have not completely removed the disease. There is but one rational treatment for cancer of the larynx. Early total extirpation of the organ together with its neighboring lymphatics and glands whether the latter be apparently diseased or not, is the only possible safeguard against local recurrence and metastasis. By no other method can we give the patient a reasonable assurance of a permanent lease of life.

The time will surely come when the conscientious surgeon will consider that he has fallen far short of his duty to his patient and himself if he does not in the treatment of cancer of the larynx, no matter how circumscribed the growth may be, remove not only the entire organ, but also the neighboring lymphatic area. Then and not until then will we have more favorable statistics and prognosis in cancer of the larynx. Then, and not until then, will the medical historian chronicle a *real* advance in the management of this terrible disease.

Dr. MYLES—I think the high death-rate is because the general surgeon does not know enough about the after-treatment of these cases. We have our laws as to laryngeal trouble and things germane thereto, but we should have the assistance of the general surgeon and let him do the cutting. In a case which Dr. Mackenzie and Dr. Halsted had, after the larynx was extirpated there was no recurrence at all. They decided to take out the whole larynx and found by the microscope, cancer on the opposite side which had not been evident before the operation.

Itching of Urticaria.—Distilled water 450 parts; cherry-laurel water, 50 parts; chloral hydrate, 5 parts; cocain hydrochlorate, 3 parts.—*La Provence Médicale.*

SOME DEFECTS OF SPEECH; THEIR CAUSE AND TREATMENT, WITH EXHIBITION OF CASES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY G. HUDSON MAKUEN, M.D.

PROFESSOR OF DEFECTS OF SPEECH IN THE PHILADELPHIA POLYCLINIC AND LARYNGOLOGIST TO ST. MARY'S HOSPITAL.

PHILADELPHIA, PA.

The first case is one of defective speech due to a cleft palate. The boy, J. C., was born in Ireland eleven years ago with a cleft running back through the lip, alveolar arch, hard palate and soft palate. The hare-lip was beautifully closed by Dr. Hamilton of Dublin, when the child was 7 months old. He always had great difficulty in swallowing and his speech was entirely unintelligible. When he was 9 years of age Dr. John B. Roberts of this city did a very successful operation for closing the palatal cleft. This made the boy comfortable in every way, but it did not improve his speech to any appreciable extent. Even had he been given a perfect palate and perfect lips his speech would still have been defective, because for nine years the other organs of speech had been trying to adapt themselves to very imperfect conditions, and in so doing had developed abnormally and formed certain faulty habits of action. The cleft palate operation therefore should be done as early in life as possible, before these habits of faulty speech are formed. Even then we do not obtain good speech because under the most favorable circumstances and with the most skilful operation we do not secure a palate of suitable dimensions and normal functional activity. Nature as a rule has failed to give us sufficient tissue here and some of it must be sacrificed in our efforts to unite the parts, and the muscular control of the palate after the operation is always very deficient.

The velum palati, that portion of the palate which is so essential to good speech, is too short. There is not enough material to make a veil sufficient to close what I have called the palato-pharyngeal chink, and the result is that the sounding breath which should be directed through the oral cavity in the articulation of many sounds, is allowed to pass up through the nasal cavities instead, and this deflection makes the utterance of certain consonant sounds quite impossible.

Training will improve this condition to some extent but not very much unless at the same time we are able to increase the effectiveness of the soft palate and uvula. The palate is too short and tense. It is stretched across midway between the tongue and pharyngeal wall and held down by the palato-glossi muscles, which are also too short. In addition to this the pillars of the palate are usually bound together by old tonsillar adhesions, which assist in preventing the normal action of the palate. The uvula is either absent altogether or very deficient in size and useless so far as its natural functions are concerned. The indications here have been to secure greater freedom in the movements of the palate and for this purpose I have separated the adhesions between the pillars and divided some of the fibers of the palato-glossi muscles, and then by frequent stretching of the parts and massage with the finger placed in the mouth, I have been able to give him a more useful palate and his speech is already quite intelligible, although we have only nicely begun his training and these other methods for the improvement of speech. My next step will probably be to divide some of the fibers of the palato-pharyngei muscles. His speech is far better now, I think, than that which we could have secured with an artificial obturator and it is always a pity I think to put an obturator in the mouth of a boy of this age.

The next case is the only one of its kind so far as I know. This young man is 15 years of age, born in this city of American parentage, and is next to the youngest of five children, the other four being strong and healthy, although two of them are said to have had some slight derangement of speech in childhood from which they recovered without special treatment. The family physician informs me that the mother had frequent uterine hemorrhages during the time she was carrying this child, and after delivery both mother and child were very weak and anemic. The child's heart action was feeble and the foramen ovale was late in closing. He was what is known as a blue baby and had occasional spells of what was called suspended breathing. At the age of 1 year he had a severe attack of broncho-pneumonia, from which he recovered slowly, and he was extremely delicate until the age of 7 years, since which time he has been in fairly good health. His spech developed very slowly and imperfectly and he was brought to my clinic about the first of the present year. He could talk glibly, but not a single word was at all intelligible. I asked him his name and address and he said "Tháhti Thóu, púrti thah tháti páhthi," meaning Alfred Lawrence, 3918 Parrish. I asked him to say the days of the week and he said "Túrdi, Tháhdi, Túdi, Thádi, Bódi, Báhdi, Táhdidā."

We found that he had been attending school regularly, where he had easily kept abreast of his mates in his studies and shown himself to be rather above the average in intelligence. This is very unusual. In fact I know of no other case with such a history. Even though the brain be in perfect physical condition and the defective speech be due entirely to imperfections in the peripheral organs, cerebral action is usually very much impaired.

In a case which I reported two years ago the mental growth was checked to such an extent as to actually suggest idiocy, but just as soon as we opened up the avenues for oral expression his mentality increased with most wonderful rapidity.

Usually defective speech is a great hindrance to mental development and this is especially true as the patient gradually merges into adult life. It is then that he begins to feel the need of effective speech, and unless he can exchange with his fellows the products of the mind these products will soon cease to materialize. This boy has gotten along very well up to this point. He is almost ready for the high school, but I believe he had about reached his limit of normal mental development and the next few years would have witnessed a retrograde action. Even now he has a kind of hang-dog expression as if he were sorry that he is living, but that is not so marked as it was four months ago and it would have increased enormously in the next few years, for his defect was beginning to weigh heavily upon his mind.

Now, what was the cause of this defective speech? Peripherally there were no structural irregularities in the organs except some bad incisor teeth and a slight enlargement of the faucial tonsils with some adhesions between the pillars, which I removed, although they could have but little bearing upon the trouble.

There was really nothing in his mental or physical condition to account for his defect and therefore I think we must conclude that the cause probably began in intra-uterine life and existed all through the formative speech period up until about the seventh year. Before birth the blood which should have gone to nourish the fetus passed off in frequent hemorrhages, and for several years after birth the child's own circulatory apparatus was entirely inadequate, and as a result of this faulty circulation and anemic condition all the mental and physical processes were greatly retarded and speech being one of the most complicated of these processes suffered most and improved least with his improvement in general health. A careful study and analysis of the action of the peripheral organs during his attempts at speech revealed the fact that only the simplest movements and combinations of these organs were made. The anterior stop positions alone were used, that is, the one between the lips and the one between the tip of the tongue and the teeth, or what remained of three very bad teeth, in front. The consonant sounds which he used were, of the labials p, b, m, of the linguo-dentals, th as in thou, and of the linguo-palatals t, d, n and occasionally l and r in the middle of a word. The voiced th was his favorite sound for the beginning of words, and the voiceless th (as in thin) he did not use at all, but changed it to p. For instance, he would say "pirty" for thirty.

I will now describe some of our methods of treatment and their results. Our task was not so much to develop the speech center I think, but rather to train the motor track and the various peripheral muscles and organs of speech into right action.

The center for word concepts was intact, as was the motor track supplying the muscles of the arm for writing; for he did his thinking in the words that he uses now and he wrote a good hand and spelled very well indeed.

We began with exercises to develop the various muscles of the lips, the tongue and the palate. He could not even open his mouth properly and it was some days before we could get a satisfactory view of his tongue and palate. In trying to open his mouth the orbicularis oris would close sphincter-like and he could not relax it, and I am convinced that he never knew what it was to smile. Various exercises were given him to correct these faulty muscular actions and he was carefully shown day after day how to make the elementary sounds of the language, where to place the tongue, how to shape the lips, etc., etc., much after the manner that we teach deaf mutes to speak, and we have found that there are no sounds that he can not master, and I may say that he has not mastered, although he needs further practice to acquire greater facility of speech.

In conjunction with this case I present a somewhat similar one, although they differ in some important points. This boy comes from Virginia and is 10 years old. His trouble is simply that of arrested speech development, such as we very commonly meet with in children. His speech not only did not improve but it was actually deteriorating. There is the history of a fall at the age of 7 months, in which he received a severe injury to the nose, although there appear to be no special external evidences of such injury. There is no intra-nasal pressure and there are no oral or pharyngeal lesions of any kind to account for the trouble. He has had measles, whooping cough and malaria of a very severe type, and he had convulsions when teething. His father and mother are second cousins and still living. His grandfathers were first cousins and both died at the age of 45 years. There was consumption in both families and a history of various kinds of nervous affections and backward speech in many of the children. The mother of this child had defective speech and her brother had some form of paralysis and used to stammer at times, and died at the age of 38.

And so this boy springs from a race of defectives, and as is the history of so many of these cases, the tendency toward defective speech seems to be inherited. His defect may be characterized as the mutilation of words with what Mr. S. S. Buckman has called decapitation and decaudation. He cuts off nearly all the initial consonants. For moon he says "oon," for Sunday he says "unday," for cat he says "at." And there is also some decaudation or the cutting off of the final consonant; as for chair he says "a," for three he says "e," for four he says "o."

The treatment of these two cases has been along the lines of physiologic principles. The various organs of speech, viz., the lips, tongue and palate, have been trained to take the proper positions for the articulation of each sound, and as these positions are constantly changing and interchanging, this is no easy task; and yet the results in these cases have been immediate and most satisfactory.

The speech of neither of these boys was at all intelligible and that of the first one did not even resemble or approach the normal, while the speech of the second was mutilated, decapitated and decaudated.

The first boy has been under treatment about four months and the younger boy came to my clinic April 6. The first boy can now read and speak very well and can articulate very clearly any word with which he is at all familiar. The second boy can enunciate perfectly a long list of words which he has learned. These are both dispensary cases and have not received the regular and systematic treatment which they might otherwise have had. I would say further in reference to the treatment of all these cases that careful attention has been given to the proper methods of breathing, and they all breathe alike and in a certain definite manner. This is most important in the treatment of stammering.

NOTE.—In addition to the above three cases, Dr. Makuen exhibited three cases of stammering, in two of which the defect had been entirely eradicated and the third was in process of treatment. Methods of breathing, etc., were freely demonstrated.

DISCUSSION.

Dr. VANSANT—It is perhaps proper to exclude the psychic causes of speech and consider for a moment the effect on speech of the various abnormalities of the throat and nose. The recognition of such local conditions and their removal in early life seems very important. We are familiar with the thick speech in cases of nasal obstruction, and I have noticed a want of co-ordination between thought and speech in patients suffering from these local lesions. A man with hypertrophy and enlarged glands about the throat may think one word and speak another. That being the case, a certain defect of speech naturally arises. He becomes embarrassed, seeks for the word he is thinking of, and stammers. We know how young children, who want some object whose name is unfamiliar, will stammer before bringing out the word. Elocution is simply for the purpose of voice culture. I think it is a mistake to send a stammerer to an elocutionist before a careful examination of the nose and throat has been made. Remove the abnormal conditions and afterward employ proper teaching to improve the speech. Many methods are pursued by teachers for the cure of stammering. Dr. Makuen's brings under

more perfect control the various muscles used in the production of voice.

Dr. SCHEPPEGRELL—I will ask Dr. Makuen whether he ever heard of the method of a man who traveled over the country a few years ago and made a great deal of money. After insuring his fee, he gave only the direction, "lower your voice." For instance, if the patient used his throat register, he was told to use his chest register. The result really seemed to be to stop the stammering, but I do not know anything as to the permanent result of the treatment.

Dr. DELAVAN—In no subject has there been so much quackery and deception as in the cure of stammering. For a man to take up the matter in a scientific, broad-minded and humane way, as Dr. Makuen has done, is quite rare. The mass of literature on the subject does not give a single practical idea. Attention should be given first to the proper management of the breath and the organs of articulation, the proper development of the physical state of the patient, and the careful study of the throat and the removal of any local pathologic defects, adenoid tissue, etc.

Dr. RICHARDS—In the manufacturing community in which I live I find many speech defects among the children. The mothers work in the mills too long previous to the birth of the children and the children themselves are put into the mills very young. These defects are often associated with deficient intelligence, but I have one patient who aside from this trouble is a fairly bright child. The boy can not protrude his tongue and can pronounce no word except his own name, "Elmer," which he can speak intelligibly. At the Massachusetts General Hospital the trouble was regarded as central in origin. There is certainly some hypoglossal paralysis. I would like to know what Dr. Makuen would suggest in a case of this kind.

Dr. COHEN—In the training of the muscles of the palate the great difficulty is that the soft palate can not occlude the pharynx, and thus it is very rare to see much improvement in speech after operation. For this reason many advisers prefer some artificial appliance. If you ask a patient to choose between an imperfect throat and imperfect speech, he will usually want his speech restored at almost any cost. It is a very great achievement to get as good results as shown in the first case. The great difficulty in operation is that we have to shorten an already short palate. In 1874 (see Transactions AMERICAN MEDICAL ASSOCIATION, 1874) I devised an operation for cleft palate, in a girl of 15. I simply split the edges on each side and spread them out, uniting the two halves. This is the only case where I have seen good speech after operation. I have never performed an operation for cleft palate since, but have invariably advised obturators, and with excellent results. A surgeon once brought me a case on which he had operated for cleft palate, with good results, and he was about to take away the enlarged tonsils. I advised against this procedure, because these tonsils occluded the pharynx and aided speech and their removal would have reproduced the imperfections in speech.

Dr. WOOLEN—I would ask whether there is a method of securing adhesion of the two sides of the uvula. In a case I have, strong adhesions of the soft palate were secured, but a bifid uvula remained. Speech has been wonderfully improved, which I think is largely due to the elocutionist to whom I sent the patient after operation, but there are still certain defects in her speech.

Dr. COHEN—You can get union by putting a drop of nitric acid in the apex of the cleft, and when that spot has united, putting on another drop just below it, and so on.

Dr. MAKUEN—The average elocutionist does not know what to do with these cases. He has no idea of the proper method of breathing, which is the first thing that has to be taught. I have some assistants in my clinic who understand this subject very well. My elocution teacher in school taught me a method which was entirely wrong. Elocutionists are mainly skilled in teaching the refinements of speech to those who can already speak fairly well. The defective must be shown how to place and use the tongue, lips and palate and the respiratory and buccal muscles, and must be drilled into it. In regard to the various tricks for the cure of stammering, I am sure that I have heard of 500 of them. Few of those who treat stammering will tell you the method used. Dr. Richards mentioned a case of his, a boy who can not protrude his tongue properly. The case I have shown you from Wilmington was one of that kind. The cutting of the anterior fibers of the genio-hyo-glossus muscle relieved him. The operation seems to loosen up the tongue so that the patient can be taught to speak. With reference to the mental condition in these cases, Dr. Daniel G. Brinton says that the genio-hyo-glossus muscle is supposed to have some special connection with the brain, and those who have defective tongue muscles are likely to have a defective brain. I had a case which had been given up as idiotic. I did this operation and the boy is now one of the brightest in his school. It is better to operate under general anesthesia. In stammerers quite a large percentage have bifid uvula.

CHRONIC STENOSIS OF THE LARYNX WITH FIVE ILLUSTRATIVE CASES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

BY WILLIAM S. JONES, M.D.

CLINICAL PROFESSOR OF LARYNGOLOGY IN THE JEFFERSON MEDICAL COLLEGE HOSPITAL.

CAMDEN, N. J.

I reported a case of prolapse of the laryngeal ventricle in the *Medical News*, Feb. 2, 1895, which presented at intervals marked symptoms of stenosis, the dyspnea at such times being very severe. Since that time, a number of cases of chronic stenosis, due to different causes, have come under my care, and I hope that a short history of some of these may prove both interesting and instructive.

Any cause acting either from within or from without which lessens the lumen of the larynx, will produce the symptoms of stricture, and so long as the cause is active there will be actual constriction. The condition may be acute or chronic, according to the length of time the process has been present and active, but the ultimate symptoms of the two varieties are the same, and the gravity of the symptoms is always dependent upon the severity of the lesion and the extent to which function is interfered with.

The symptomatology is characteristic. Dyspnea is always the most urgent symptom but there may also be present dysphonia, dysphagia, pain, cyanosis from improper aeration of the blood, forced respiration bringing into action the accessory respiratory muscles, anxiety of countenance, engorgement of the venous system and increased breath-sounds in the larynx. In the chronic cases, probably the most frequent initial symptom is dysphonia or hoarseness, which is sooner or later followed by the other characteristic signs.

Case 1.—R. S., aged 35 years, while attending a ball game three years ago, cheered very loudly the success of his favorites. He at once experienced a hoarseness which, however, lasted but a few minutes, and no further attention was given the condition. Two weeks later, hoarseness again developed and gradually increased in severity. After this condition had progressed several weeks, he began to have interference with the breathing which was at times very marked. Four months after the first onset I saw him and found a large mass, of light red color, situated just above the left vocal band and resting upon it. The history of the violent straining of the larynx at the ball game, the immediate hoarseness, probably due to a local congestion, the gradual onset of dysphonia and dyspnea were, in part, characteristic of a prolapsed ventricle, and the appearance of the mass confirmed the diagnosis.

We would state that the diagnosis is by no means easy, and but a very few cases have been reported. The color and smooth surface excluded angioma and papilloma, and the sessile attachment was against myxoma. Its position, shape, color and the absence of surrounding inflammation or infiltration excluded a malignant or tuberculous lesion.

Replacement of the prolapse was performed several times but it returned as soon as pressure was removed, so I resorted to the galvano-cautery to accomplish complete removal. The knife used had a shield to protect the ventricular band. At each visit several applications were made with the knife at a dull-red heat, and after the application of a 20 per cent. solution of

cocain. The parts healed nicely after complete removal was effected and there are now no appreciable symptoms indicative of any trouble having existed in his larynx. The parts are normal in appearance.

While this case might not be considered one of true stenosis because of the absence of new growth or constricting tissue, it seems to be proper to classify it as such because of the presence of the characteristic symptoms of that condition.

Case 2.—Mr. H. H. A., aged 52 years. The patient was first seen in September, 1896, and the following facts were elicited: The family history and the patient's early record are very good, there being no tuberculous or other constitutional disease present. He has always had good health, the only sickness having been an indefinite venereal trouble thirty years ago from which, however, he quickly recovered. During all these years, he has been engaged in hard labor and exposed to all kinds of weather. He refers the beginning of his present trouble to a bad cold contracted in August, 1895. Dyspnea began in September, 1896, and grew steadily worse until October 12. I first saw him early in September. At that time he had slight hoarseness, and examination showed a small mass, the color of the normal larynx, beneath the left vocal cord. He was placed upon specific treatment tentatively. He grew steadily worse. Marked dyspnea developed and almost complete aphonia, and all the usual symptoms of advanced stenosis. October 12, examination of the larynx showed marked thickening of the left ventricular band and bulging of the left cord, caused apparently by a swelling back of it. The swelling was so great that breathing was almost impossible. The right side was normal. Tracheotomy was performed at once.

The operation was done under eucain anesthesia and the third, fourth and fifth rings cut. Three days after the operation he contracted an acute bronchitis, which however subsided in a few weeks and he left the hospital at the end of a month. One month later he began to breathe through the mouth, also to speak, and in two months his voice was perfectly normal and his breathing free. He still wears his tube but keeps it plugged all the time.

The cause of the stenosis in this case was obscure. There was no ulceration and no pulmonary involvement, which, together with his recovery without medication, exclude tubercular laryngitis, and syphilis was excluded by the week's trial treatment. The probable cause was a localized chondritis which subsided after the irritation by breathing, coughing and talking was removed. This also seems probable from the fact that at present the larynx is normal in every respect.

Case 3.—W. W., aged 42 years. His family history is negative excepting that one brother died at the age of 21 of acute miliary tuberculosis. His personal history reveals that he had three chancroids (so-called) in 1872, which were about three months in healing. He, however, never saw any secondary symptoms of syphilis, but as he is colored they may have been present and unnoticed. In 1891, he was kicked by a horse in the right side of the face. The malar and superior maxillary bones were fractured, and a portion of the latter was removed by the surgeon in attendance. About three weeks after this injury, according to his statement, a sore throat developed and has continued more or less ever since. In 1893, an abscess formed in the left side of his neck and was opened. This probably came from broken down cervical glands, as a number of them in that region are still enlarged. About the middle of July, 1896, he began to have dyspnea and difficulty in swallowing solid foods, with occasional attacks of vomiting. These symptoms gradually increased until the middle of October when I saw him. For a week previous to this time dyspnea was very marked, and he had some pain in both tonsillar regions.

October 25, I performed tracheotomy under eucain anesthesia. He made a slow recovery from the operation, having much inflammatory reaction about the wound. He was given 1.3 grams of potassium iodid three times a day immediately after the operation, and this has been kept up until the present time. The condition of the larynx remained unchanged for four months in spite of the administration of the iodid, but then the obstruction began to disappear and at present (May 1) his larynx is almost normal and his voice is completely restored.

This case was undoubtedly one of syphilis of the larynx and the favorable result is due in part to the early operation, removing a fertile source of irritation by turning the current of air aside and preventing coughing, and in part to the steady use of the iodid before the new tissue was thoroughly organized, as were organization complete, a contracting stricture would undoubtedly have resulted.

Case 4.—P. B., aged 53 years. His family history was very good, also his personal history, he having had no sickness except the grip three years ago. His present trouble began about Sept. 1, 1896, with slight dyspnea which gradually increased, but he continued his work as a laborer until October 8. As his difficulty of breathing became more severe he developed a cough, but had no pain or difficulty in swallowing. He lost flesh rapidly during this time. He first came to the clinic October 27 and an examination then revealed a growth involving the right side of the larynx and pushing the vocal band to and beyond the middle line. The diagnosis of carcinoma was made and immediate tracheotomy advised, with a probable resort to laryngectomy later. The first operation was done the next day under eucain anesthesia. He recovered quickly from the operation but continued to lose flesh. The laryngeal swelling subsided somewhat after the operation but the growth increased steadily in size. He refused laryngectomy and went to his home in a neighboring city, where he is still living, but in the last stages of malignant disease.

Case 5.—W. C., aged 30 years, a laborer. Nov. 12, 1896, in a fit of despondency, he attempted suicide by making a large cut in his throat with a penknife. He penetrated the trachea about the second or third ring, twisted the blade about and cut up and down for an inch or more. He was taken to a hospital, where the wound was dressed but not closed, nor was there a tube inserted. One week later, it was noticed that he could not breathe through the mouth when the wound was closed by pressure. It was deemed necessary to introduce a tracheotomy tube, an anesthetic was given him, a tube inserted and the wound stitched around it. Two weeks later, the surgeon attempted to pass a tube through the trachea and larynx from the tracheal wound but did not succeed, the part being shut off. He was then sent home to allow the wound to heal before further operative interference was instituted. Nothing further, however, was done and he was sent to me. The condition of his larynx at present is as follows: The right side is drawn slightly downward, the right vocal band is in the median line and immovable, being fixed by scar tissue beneath it; the left side is normal in situation, the cord is freely movable and can be brought to the middle line perfectly. The entire left side is free for three-fourths of an inch below the vocal band, while the right side has a band of cicatricial tissue just below the cord, which extends downward for three-fourths of an inch and then spreads out to the other sides, completely occluding the trachea. The surface of this membrane is smooth and the lowest point is near the center. From below, the trachea is entirely closed above the tube and the cicatrix is about one-half an inch in thickness.

I have made no attempt at opening the trachea but think it can be done comparatively easily from above. The method of procedure will be to make an incision through the scar tissue with a long knife and enlarge this opening by graduated bougies until the entire lumen is established, and then keep it open by a tube attached to the one now in the tracheal wound until the surrounding parts are healed. He might even always wear an intratracheal tube, as it is too low to interfere with his voice, yet will insure an open passage for air.

201 Broadway.

SOCIETY PROCEEDINGS.

New York Academy of Medicine—Section in Orthopedic Surgery.

Meeting of December 17, 1897.

Dr. A. M. Phelps read a paper entitled:

A CONSIDERATION OF SOME OF THE PATHOLOGIC AND MECHANICAL PROBLEMS OF HIP DISEASE.

He presented the view that nature attempted to repair the lesion producing hip disease by inflammatory action which was a normal process of repair until the inoculation of germ life which marked the beginning of disease in the area of inflammation. The absence of inoculation gave rise to the ephem-

eral cases of hip disease which rapidly recovered without deformity or disabilty, but inoculation gave rise to the ordinary type of the diseasc. If the phagocytes were weakened by the strumous condition of the patient, they failed to destroy the germs. If, however, germ life was destroyed, repair went on and the parts were restored to their normal condition. Cavities and foci produced in the course of hip disease by the slow growth of the bacilli of tuberculosis might be inoculated by the rapidly growing pyogenic cocci when a hot and possibly painful abscess appeared and called for the knife and drainage. The adduction, flexion and inward rotation attending the third stage found a mechanical explanation in the fact that when the limb passed twenty-five degrees of flexion the adductors became internal rotators, the external rotators became abductors and the tensor vaginae femoris became a powerful inward rotator. In the application of mechanical treatment it should be remembered that the powerful groups of muscles acting upon the thigh did not act on an axis with the shaft but nearly on a line parallel with the axis of the neck of the femur. Lateral traction, therefore, should be made in the line of the axis of the femoral neck and not of the shaft.

Dr. G. R. ELLIOTT said that in hip disease we had a depraved process. The whole system was at a low ebb that tended to favor the development of the disease. He thought that this condition of inactivity required the use of some form of apparatus which did not, as all the instruments now in use did, subject every part of the child's body to great expense for the sake of the hip. The ideal splint of the future would not lock up so much of the body by apparatus but would fix only the diseased joint.

Dr. R. H. SAYRE advocated the use of traction to fix the joint, give it physiologic rest and relieve the pressure to which the diseased bone was subjected. He thought that it was difficult to apply lateral traction by a splint, but in bed, lateral traction was easily applied and added to the patient's comfort. In children, however, in whom the neck was nearer in line with the shaft of the femur than in the adult, he believed that longitudinal traction was sufficient. He thought it well to apply massage to overcomc the muscular atrophy of disease, but it took a great deal of care to limit the application to the sound part and not interfere with the inflamed joint.

Dr. T. H. MANLEY held that all pus accumulations about a joint should be evacuated early and thoroughly. He asked Dr. Phelps's opinion of the intra-articular injection of solutions of iodoform.

Dr. PHELPS said that filling a joint with an insoluble compound did more harm than good. If he found a joint in which there was fluid, he evacuated it.

Dr. A. B. JUDSON said that the destruction of the head and acetabulum was often cited as an evidence of the bad effects of muscular contraction and of the necessity of making traction. He thought that this destruction was rather an evidence of the bad effects of the pressure made by the weight of the body, as patients with hip disease, if unmolested, were in all except the most advanced stages on their feet as much as well children. He believed that traction was the best method of promoting fixation and in painful stages it was indispensible, but that removing the weight of the body from the joint was also an indispensible part of the treatment and useful through far longer periods than traction.

Dr. T. H. MYERS had made a careful study of the ephemeral cases and believed that the lesion, of whatever nature it might be, was in the bone itself. He would make a distinction between these cases and rheumatic, gonorrheal or other affections of the joint cavity and ligaments. He could not recall any acute case of hip disease which had not been relieved by longitudinal traction alone.

Dr. R. WHITMAN said that the breaking down of bone appeared to be the effect of a destructive process, aggravated by the friction of the diseased surfaces upon one another, by the weight and strain of use in the attitudes of deformity and by the muscular spasm which forced the diseased parts together. The intensity of the spasm was in inverse proportion to the fixation and rest that could be assured. When the patient was recumbent the most important means of fixing the joint was traction. The ambulatory brace should remove the weight of the body from the weakened part, but it was so ineffective in fixation that its use should be combined with splinting of the joint. He had always insisted that the hip should be slightly abducted.

Dr. PHELPS said that abduction should be avoided. It was one of the difficult conditions to correct in the first and second stages.

Dr. JUDSON said that in recovery with anchylosis abduction was desirable. It gave a factitious length to a limb which was probably really shortened, and saved the use of a high sole or reduced its height.

Dr. SAYRE thought that the limb should be in as nearly normal position as possible, neither abducted nor adducted.

Dr. H. L. TAYLOR thought that about five degrees of abduction would compensate for some of the shortening and make the limb more useful.

Dr. PHELPS said that anchylosis was due to the severity of the inflammation, the character of the disease, the destruction of bone and contraction of cicatricial tissue about the joint. It was prevented by the use of an apparatus which seized the pelvis and fixed the joint from the commencement of the treatment until the patient was cured. The joint being thus held at perfect rest, nature went on in her effort to cure, uninterrupted by the trauma of motion. The splint was not used to overcome deformity, but merely to hold the limb in a perfectly straight position after the deformity was corrected by bed treatment.

Meeting of January 21, 1898.

CONGENITAL ABSENCE OF PECTORAL MUSCLE.

Dr. TAYLOR presented a patient who had been brought to him because of asymmetry of the upper part of the chest in front. The patient was a boy six weeks old. There was normal fulness of the right side, while the left side where the pectoralis major should have been was much depressed. This was the fifth child of the mother, the others being healthy. Labor was normal. The child moved both arms equally well.

Dr. WHITMAN presented a boy 16 years old with a similar condition. When five years old he had pigeon-breast. On account of round shoulders and projecting scapulæ he had been brought to Dr. Whitman, who had found a defect of the right pectoralis major due, apparently, to congenital malformation from which the boy had suffered but little inconvenience although he was left-handed. The muscular deficiency had never been recognized. The clavicular part of the muscle was normal, but the sternal part was represented simply by a fold of fibrous tissue which could be brought into prominence by certain motions of the arm. He had considered the possibility of poliomyelitis as a cause, but after seeing Dr. Taylor's patient, he thought the trouble was due to congenital malformation. He had seen a somewhat similar case in which absence of the right pectoral muscle had been accompanied by defective ribs, slight lateral curvature and webbed fingers.

Dr. MYERS had the day before seen a patient affected with wry-neck from general shortening of the muscles of the right side. There was also on both sides a very marked depression between the inner border of the deltoid and outer border of the pectoralis major, apparently due to absence or defect of the clavicular part of the large pectoral muscle.

Dr. SAYRE said that in a boy who had been brought to him for pigeon-breast he had found the scapulæ very prominent and an almost complete absence of the right pectoralis major. The disability was not serious. He had referred the condition to an attack of poliomyelitis at the age of three, of which he had obtained what seemed to be a creditable history. The case might have been, however, an instance of congenital defect of the muscle.

Dr. ELLIOTT did not think that it was possible to exclude poliomyelitis in either of the patients shown. He had seen patients in whom a muscular defect in other parts of the body, at first thought to be congenital, had been found to be the result of poliomyelitis. He thought cases were not uncommon in which the effects of the disease were limited to a single muscle or even to a part of a muscle.

Dr. TAYLOR said that in the case of the baby it would be necessary to assume that the disease had been *in utero* as the condition of the muscle had been present from birth and the atrophy was so complete that it suggested the absence of development rather than paralysis. If there had been paralysis it must have been at the very beginning of the development of the muscle since paralyzed muscles retained their fulness for a considerable time.

DEFORMITIES FOLLOWING TYPHOID FEVER.

Dr. W. R. TOWNSEND presented a male 19 years of age who had complained of spinal pain and stiffness since recovery from typhoid fever last February. The vertebral column was very rigid with a slight curve toward the right in the lower dorsal region and a posterior curve of the lower dorsal and the entire lumbar rigion. There were also a number of swellings distinctly connected with the bone in different parts of the body resembling cold abscesses of tubercular subjects and syphilitic nodes. They were not very soft and there was no fluctuation. The general health had been poor since the fever. Parsons of Johns Hopkins University, had described such swellings as

appearing several months after typhoid fever. He had found in them the typhoid bacillus, the staphylococcus and the bacillus coli communis and had advocated total extirpation of these foci.

Dr. SAYRE thought the boy might be suffering from hereditary syphilis which had first made its appearance when his health was broken down by the attack of typhoid fever. If local treatment was necessary the foci might be incised and scraped and packed from the bottom. As the epiphysis is involved in several instances enucleation would endanger the usefulness of the joints. He called attention to the girdle-mark, which is a pathognomonic sign of disease of the spine and advised treatment as of an ordinary case of tuberculous disease of the spine.

Dr. V. P. GIBNEY advised that a trial of antisyphilitic treatment be followed by general constitutional treatment, the administration of cod-liver oil, etc. He could see no advantage likely to follow cutting out the foci. Spinal rigidity after typhoid fever was due to a mild periostitis about the points of exit of the nerves. He thought forcible correction with anesthesia would be excellent treatment in this case. He had seen a number of typhoid hips. One of them was under treatment by repeated forcible motion under anesthesia followed by massage.

Dr. WHITMAN thought that the spinal deformity was the most important feature of the case and that it required immediate correction. He said that the girdle-wrinkle was not caused by muscular spasm but was simply a fold in the abdominal wall answering to the projection backward which had taken the place of the normal lumbar lordosis.

Dr. SAYRE said that he had noticed the girdle-wrinkle in many cases. It would be higher or lower according to the location of the disease. It was due to muscular spasm which accompanied any muscle subject to irritation and joint inflammation. It was diagnostic of Pott's disease and was present even when there was no appreciable projection.

Dr. TOWNSEND said taking the foci out would, in nearly every instance in the patient in question, involve opening into a neighboring joint. He would put the patient on antisyphilitic treatment and later consider the other suggestions made.

Chicago Ophthalmological and Otological Society.

Regular meeting held Jan. 11, 1898, in the Stewart Building.

Dr. MONTGOMERY in the chair.

There were eighteen members and visitors in attendance.

The minutes of the previous meeting were read and approved.

Dr. W. F. Coleman was elected president; Dr. H. M. Starkey, vice-president; Dr. C. P. Pinckard, secretary, and Drs. Hotz, Montgomery and Wilder the Committee on Membership for the ensuing year.

The treasurer's report was read and adopted.

Dr. WOOD reported a case of

PRIMARY SARCOMA OF THE LID.

Baby A., aged 7 months, an only child, was born a healthy and well-developed infant, and although nursed on the bottle has always been vigorous and to all appearances free from any hereditary disease. There is no history of malignant neoplasms affecting immediate ancestors. When she was 6 weeks old the mother noticed a slight elevation on the right upper lid. It was firm to the touch, rolled about under the finger, and was not surrounded by a red or swollen area, on the skin surface, at least. On consulting an oculist in the neighborhood, he advised her to watch the little tumor, and if it increased in size it might be safely removed later on. It remained in *statu quo* until the child was 3 months old, and then the mother believed it to be growing and consulted a well-known ophthalmologist in Boston. He would not give a positive opinion, but kept the patient under observation for about a month longer before advising its immediate removal. As the family was about to remove to Chicago, nothing was done. The condition of affairs was about this when I first saw her, two months ago: The right upper lid is slightly swollen throughout and of a darker pink than the corresponding left lid; there is a rounded prominence occupying the junction of the middle and inner third of the lid. On palpation an irregular oval, apparently movable body of rather firm consistence and of the size of a white bean is felt, not unlike the ordinary chalazion. The dermal vessels are slightly more numerous and larger than are those of the opposite side. On everting the lid the body seems to project somewhat on the conjunctival aspect of the lid, and corresponding to the projection is a round mass covered with red and thickened mucosa. The vascular supply is decidedly greater than in the ordinary non-suppurating chalazion. The mass appeared to involve the tarsus. There is apparently no pain in the eye and no increased conjunctival secretion.

The tumor was removed completely, under chloroform narcosis, from the conjunctival surface, using a fenestrated forceps. There was free hemorrhage and the tumor appeared to be imperfectly encapsulated. It involved the tarsus, part of which was removed at the time of operation. Macroscopically it resembled a small piece of muscular tissue. Dr. Evans of the Columbia Medical Laboratory, examined the growth and gives the following report: "Fresh specimen, 6x4x2 mm. No epithelial covering. Microscope shows it to be composed of round and spindle cells, more of former, with considerable intercellular substance, some pre-existing fibrous tissue, an artery with unusually thick walls. The growth is sarcoma."

The sections exhibited showed as naked vessels communicating directly with the cells. So far there has been no recurrence of the growth.

In reply to Dr. Pinckard, Dr. Wood stated that the clinical diagnosis rested on the question of the injection both of the conjunctiva and the skin, it being more marked than in an ordinary chalazion.

Dr. ALLPORT showed a case of

TUMOR OF THE FUNDUS,

suspected to be a beginning leucosarcoma of the choroid. The patient a woman 28 years of age, with a vision of 20–20 in each eye. On the right side she has ophthalmic goiter with classic symptoms, the fundus of the eye being normal except for the enlarged veins. In the left eye a small round grayish white elevation, just to the macular side of the disc, which it apparently joins. The tumor is about half the size of a nerve head and looks like a mass of clouds, the elevation being about 1 D. A retinal vessel courses over the surface and some pigment on the surface would seem to indicate that it originated in the choroid. Forming a semicircle around it may be seen many pigmented choroidal splashes. The peripheral field for white is perfect, but a small scotoma for red and green close to the physiologic blind spot was found.

Dr. HENRY GRADLE reported a case of

TARSITIS

and reviewed the literature. There are on record only twenty cases of this rare affection, but from the similarity of all a well defined type of disease results. The affection is always of syphilitic origin. Four cases with acute onset are reported as early manifestations, while all the others presented a chronic course and occurred late after the infection. It appears in the form of a diffuse, hard swelling of the tarsal plate of the lid. With two exceptions it was limited always to one lid of one side. There is neither pain nor tenderness. As a rule, the skin is not altered; in some instances it is described as livid. In the speaker's case there was intense inflammatory congestion and edema of the skin of the upper lid as long as the case remained under observation. The conjunctiva is generally not involved. In some instances, like the present one, there was catarrhal conjunctivitis with some hypertrophy. In the present case a high grade of congestion and chemosis was observed in the ocular conjunctiva, and the cornea was temporarily clouded. In all cases on record the disease was controlled by specific treatment, but invariably lasted months, several times a number of months. In the speaker's case the patient, a girl of 24 years, did not admit or present evidences of syphilis, but was put first upon mixed treatment, subsequently upon large doses of iodid of potassium without any visible influence. Swelling increased during the observation in spite of the treatment. The accompanying catarrhal conjunctivitis was temporarily aggravated by the patient's improper use of the bandage, but healed on proper management and the use of nitrate of silver applications. This, however, did not lessen the tarsal swelling and influenced but little the inflammatory edema of the skin. A decided control over the tarsal swelling was finally obtained by an ointment of 10 per cent. of pyrogallic acid. The influence of this salve was studied advantageously on account of several interruptions in the treatment with a standstill of the tarsal swelling. The patient was lost from observation before a complete cure was obtained.

Dr. STARKEY said: This case is the only one of the kind I have ever seen. I ascribed the same cause as did Dr. Gradle, and gave her the mixed treatment in moderately full doses, but did not check the inflammatory condition at all.

Dr. ROBERTSON of Davenport, Iowa, showed

A POST-ORBITAL TUMOR

taken from a boy about 10 years of age, in whom exophthalmus

of the right eye had existed for two years, it being so marked that the lids could not cover the cornea. The resistance was so great that the diagnosis of solid tumor was made. The motion of the globe was *nil*, as also the visual power. Immediate removal was done, and specimen shows that the tumor originated in the optic nerve some little distance behind the eyeball as there is apparently healthy looking nerve between the tumor and the eyeball. It was attached to the periosteum just external to the edge of the optic foramen. The tumor was removed in August, 1896, and since that time the boy has been wearing an artificial eye with no return.

In reply to Dr. Pinckard, Dr. Robertson said that there was no evidence inside of the eyeball except for atrophy of the optic nerve fibers.

Dr. ROBERTSON showed some Texas screw worms removed from the brain of a man postmortem, they having entered through the nose and pierced the ethmoidal plate.

On motion, the Society adjourned.

C. P. PINCKARD, Secretary.

Chicago Gynecological Society.

A regular meeting was held Feb. 18, 1898, in the Stewart Building, with the President, Dr. HENRY P. NEWMAN in the Chair.

The Society entertained the Trustees of the AMERICAN MEDICAL ASSOCIATION. The guests of honor were Drs. Alonzo Garcelon, G. C. Savage, I. N. Love, E. E. Montgomery, J. M. Mathews, C. A. L. Reed, Joseph Eastman, J. T. Priestley, Truman W. Miller and John B. Hamilton.

Dr. FRANKLIN H. MARTIN exhibited two specimens of fibroid tumor of the uterus removed by hysterectomy. The specimens showed how difficult it would be to apply myomectomy to all cases. He thought it would be impossible to have removed these growths without, at the same time, removing the uterus.

Dr. J. FRANK exhibited specimens of dermoid cyst which he brought with him from Vienna when abroad last summer.

President NEWMAN extended a cordial invitation to those whose names did not appear upon the program as essayists to participate in the discussion.

Dr. JOSEPH EASTMAN of Indianapolis, Ind., then read a paper entitled

VAGINAL HYSTERECTOMY AND IGNI-EXTIRPATION.

The essayist said that the Eastman method for vaginal hysterectomy as devised and followed by him for ten years, was described as long ago as 1890, and its advantages over many other methods of procedure appealed so strongly to those who practiced it, that he hoped he would be pardoned for again rehearsing its details and emphasizing its advantages.

Dr. Eastman then described his method of performing vaginal hysterectomy in detail.

Dr. FERNAND HENROTIN had seen Dr. Eastman do the operation he had described, very skilfully and beautifully, and considered it at the time a very ingenious method of bringing the uterus into view. Relative to the use of the cautery, he had employed it in every instance of malignant disease of the uterus for several years, believing there was always an advantage in feeling that the tissues were burnt out in this way.

Dr. EMIL RIES thought the time for vaginal extirpation of the uterus had passed if the organ was carcinomatous, for the reason that the surgeon by removing this organ alone could not entirely get rid of the carcinomatous process.

The discussion was closed by Dr. Eastman.

Dr. E. E. MONTGOMERY of Philadelphia followed with a paper entitled

REMOVAL OF FIBROID TUMORS OF THE UTERUS WITHOUT HYSTERECTOMY.

He said that in presenting this subject he did not claim to reveal a new surgical device; for, the removal of such growths, without the sacrifice of the uterus, had been done by many operators a number of years since. In view of the hesitancy of many women to undergo a sacrificial operation and of the prolonged and unpleasant phenomena consequent upon a premature establishment of the menopause, he emphasized the employment of the procedure under consideration as an alternative for hysterectomy. There were, he believed, at the present day, but few operators who preferred hysterectomy to myomectomy for distinctly pedunculated subperitoneal or submucous fibroids, but there was a large number of cases in which the organ was occupied by an interstitial or a sessile submucous fibroid, or by many growths of all varieties, as classified by situation, where a healthy functionating organ could still be retained after the removal of the growths. Such practice with proper aseptic precautions was in his opinion attended with less shock and discomfort to the patient than the apparently more simple operation of extirpation of the diseased organ.

The choice of route, whether vaginal or abdominal, depends upon the situation and size of the growth. All pedunculated or sessile submucous and interstitial fibroids, not too large to pass through the pelvis, should be attacked through the vagina. When the growth is so large that it rests above the brim of the pelvis, or the uterus is occupied by a large number of growths, possibly comprising every variety, the abdominal route was preferable. Of course, it could not be questioned that there were cases in which the uterine structure was so occupied by growths as to preclude the possibility of their removal with any hope of the subsequent retention of the uterus, nor would the retention of the uterus be good practice where the presence of growths was complicated by the existence of irrecoverable double tubal or ovarian disease. By either the vaginal or abdominal route, in the majority of cases, the procedure was mainly a process of enucleation in which a blunt dissector and not the fingers should play the important rôle. The enucleation can thus be accomplished through a minimum incision with less danger of infection. Small sized growths of the submucous variety which have partially or completely dilated the cervix, present but little difficulty in either diagnosis or treatment. If the cervix is insufficiently dilated to permit its investigation and exit, a bilateral incision can be made and the tumor removed. It is when the growth is situated within the body with the cervix long and undilated that the difficulty presents. Here a careful investigation of the situation and relation of the growth is an important perequisite to any operative procedure. Such an investigation is only secured by a dilatation of the canal that will permit of digital exploration. This may be accomplished by repeated packing with gauze (Vulliet's method), dilatation with bougies (Hegar's), the use of tents, or bilateral incision of the cervix to or beyond the internal os (Pean's). The latter procedure seems too severe a measure for mere diagnostic purposes; will prove unnecessary for the removal of some growths, and the situation of the incision will prove impracticable or embarrassing in the treatment of others. Dilatation by gauze packing is generally slow, frequently ineffective. Bougies will result in tearing before the canal is open sufficiently to admit the finger. Dilatation by tents is the most satisfactory. Sponge tents accomplish the dilatation most rapidly, but are so difficult to render aseptic, and so easily infected, that their employment is dangerous. The hollow laminaria tent of good size will in the course of twelve hours in the majority of cases render digital exploration possible. Where the dilatation is incomplete it may then be safely effected by the use of bougies. If the surgeon is not prepared for operation at the time of investigation, the dilatation secured may be maintained twenty-four hours by gauze packing. It must be understood, however, that in all these procedures the most rigid asepsis must be practiced.

Having rendered the tumor accessible to the touch, further procedure must depend upon its situation, size and relation. A small pedunculated tumor will in this manner be rendered almost as accessible to manipulation as if situated in the cervix. Dr. Montgomery then reported cases illustrating the use of myomectomy without the removal of the uterus.

Dr. FRANKLIN H. MARTIN thought that in tumors involving the uterus to the extent of some of those described by the operator a hysterectomy would be a much easier and better procedure.

Dr. ALBERT GOLDSPOHN reported the case of a woman, 37 years of age, recently married, three months pregnant, who had a single fibroid tumor in the left wall of the uterus, so low down as to act a barrier to pregnancy. He did a panhysterectomy. If this was not the right course to pursue in such a case, he would like to know it.

Dr. N. SENN stated that it was important in transperitoneal myomectomy to make the incision very small, using the knife as little as possible, the enucleation being done largely by the director. The more he had resorted to this method the better he liked it and believes it to be an ideal way to treat by operative procedure uterine myofibromata in all cases in which such a method was possible anatomically or pathologically. He had made it a rule recently to invariably make the incision transversely, for the reason that it minimized one of the dangers attending this operation—hemorrhage.

Dr. C. A. L. REED of Cincinnati said that with the French treatment of *morcellement*, with the American practice of myomectomy, he believes we are saving organs today which a few years ago were sacrificed, not to unwarranted zeal, but to the fact that our knowledge had not yet attained that precision and accuracy which enabled us to deal with these cases as we deal with them today. The trend of operative gynecology was in the direction of practical conservatism.

Dr. E. C. Dudley had no doubt whatever that a large number of cases of uterine myomata could be treated satisfactorily and safely by the method described by the essayist. In all of his operations during the past ten or twelve years, he should say that more than one-half of the tumors had been removed by myomectomy and the uterus retained.

Dr. Fernand Henrotin spoke in favor of vaginal enucleation of fibroids, whether intramural or submucous. He does not think there is any operation in gynecology so satisfactory as the morcellation of a growth sufficiently large to indicate it, or the enucleation of fibroid tumors through the vagina. It was folly, in his opinion, for any surgeon to attempt to enucleate a subperitoneal growth by the vagina which was situated well up in the abdomen.

Dr. C. S. Bacon emphasized the method of enucleating uterine myomata through the vagina, and directed attention to the indications for it. He asked Dr. Montgomery whether any of the cases operated on by him had become pregnant and what was the course of pregnancy.

Dr. T. J. Watkins referred to the disadvantages of myomectomy. The first of these was the presence of small nodules which later developed and caused trouble. The second disadvantage was the presence of soft fibroids, which had so much of the consistency of the uterus as to make it impossible to palpate them and remove them.

Dr. Joseph B. Bacon reported a case in which he did a myomectomy and left the uterus intact. All things considered, he is satisfied that the woman would have had a better show and her life would have been saved had he performed hysterectomy. He hoped the essayist would keep track of the cases in which he had enucleated so many tumors, and at some future time inform the profession whether the women became pregnant, and as to the course of pregnancy.

Dr. A. H. Ferguson cited a case in which he removed nine myomatous growths through the vagina, the woman being nine weeks pregnant. Most of the tumors were intramural.

Dr. Frank A. Stahl asked Dr. Montgomery whether he found the use of tupelo tents exposed women to any particular danger.

Dr. Montgomery, in closing, said he did not present a method of treatment which would save the uterus in every case. There were cases in which the uterus was involved to such an extent that hysterectomy would be preferable to myomectomy. In the case of Dr. Goldspohn, he thought a hysterectomy would be the preferable procedure. None of the cases operated on had thus far become pregnant. Replying to the question of Dr. Stahl, he said before a tent was introduced it should be placed a few minutes in a saturated solution of iodoform and ether, inserted into the canal, introducing iodoform upon the tent and keeping it in place. In those cases where he desired to explore the cavity to determine the condition, where he had used tents, he had not seen a single case of sepsis as a result. He would not use a tent in a case that had previously suffered from some inflammatory condition of the uterine or pelvic structures, parametric adhesions, etc., as he would be afraid to do so.

Dr. Joseph M. Mathews of Louisville followed with impromptu remarks, in which he made an eloquent

PLEA FOR EXAMINATION OF THE RECTUM IN OPERATIVE GYNECOLOGY.

He believes that all pathologic conditions involving the rectum could be made out by the touch without the use of instruments. Syphilis of the rectum was a disease that manifested but few symptoms. He had met cases where the only symptom complained of was constipation, but upon examination he had found the rectum blocked with a deposit. A lady consulted a gynecologist, who removed her ovaries. A few months after she consulted Dr. Mathews, and upon examination he found cancer of the rectum. He performed a Kraske operation. The point he desired to draw attention to was whether the rectum was examined by the gynecologist. He did not think so. He had reported five fatal cases of disease of the rectum that had been operated upon by gynecologists, and yet it was the rectal disease that ended life. The gynecologist, before doing any operation in the abdomen, should always make a careful examination of the rectum.

Association of American Anatomists.

Upon the invitation of Cornell University, the Association met at Ithaca, N. Y., Dec. 28-30, 1897. Morning and afternoon sessions were held on each of the three days excepting Wednesday, when all the affiliated societies met in the afternoon with the American Society of Naturalists. Notwithstanding the small attendance the sessions were fully occupied with reports, papers and discussions, and several papers were read by title for lack of time. After a brief introductory by the President, Dr. Frank Baker, Dr. B. G. Wilder read an obituary notice of Dr. Harrison Allen, one of the founders and presidents of the Association. The report of the Secretary-treasurer, Dr. Lamb, showed that there were 105 active and 4 honorary members. Dr. Allen and Dr. Wm. Laurence Dana of Portland, Me., had died and Dr. P. J. McCourt of New York City had resigned. Beginning with the present year the annual dues are $3. The circular and blanks in reference to the anatomic peculiarities of the negro race were ordered to be modified and copies sent out for report of cases. The Association adopted the report of the majority of the Committee on Anatomic Nomenclature and ordered it to be published and distributed as soon as practicable, accompanied by the objections of the minority of the Committee, and comments thereon by the Secretary of the Committee. Of the neural terms recommended, more than one hundred were identical with those adopted in 1895 by the Anatomische Gesellschaft.

The following papers were read and discussed; they were illustrated by specimens, photographs and diagrams:

P. A. Fish of Ithaca, N. Y., "A fluid for the retention of the natural colors of anatomic specimens," and "Mummification of small anatomic specimens." George S. Huntington of New York City, "Comparative anatomy and embryology as aids to the teaching of human anatomy in the medical course." Dr. Wilder, "An adult and healthy living cat, lacking the left arm, excepting the scapula, and having the heart apparently at the epigastrium." Woods Hutchinson of Buffalo, "Relative diameters of the human thorax." D. S. Lamb of Washington, D. C., "Pre-Columbian syphilis." Charles H. Ward of Rochester, N. Y., "A cranio-mandibular index." Prof. Howard Ayers of the University of Missouri, "The membrana basilaris, membrana tectoria and nerve endings in the human ear"; read by Dr. Hopkins. Dr. Wilder, "Certain resemblances and peculiarities of the human brain." B. B. Stroud of Ithaca, N. Y., "The ape cerebellum." Dr. Fish, "The brain of the fur seal, *Callorhinus ursinus*." Dr. Huntington, "The eparterial bronchial system of mammalia." J. A. Blake of New York City, "The relation of the bronchi to the thoracic wall." Thomas Dwight of Boston, "The distribution of the superior mesenteric artery." D. W. Montgomery, University of California, San Francisco, "Sebaceous glands in the mucous membrane of the mouth"; read by Dr. Lamb. Dr. Stroud, "Notes on the appendix." Prof. S. H. Gage of Ithaca, "On the relation of the ureters in the cat to the great veins; with variations." Dr. Wilder, "A number of specimens of either unusual or specially instructive character." H. A. Surface, Fellow in Cornell University, "Notes on the fish fauna of Cayuga Lake."

The following papers were read by title: Prof. George A. Dorsey of Chicago, "Description of two Koutenay skeletons," and "Two examples of unusual ossification of the first costal cartilages." E. R. Hodge of Washington, D. C., "Relation of sex to the size of the articular surfaces of the long bones." J. T. Duncan of Toronto, "Anus vulvalis." Woods Hutchinson, "A skin-heart?"

The following officers were elected for the ensuing term: B. G. Wilder of Ithaca, president; Geo. A. Piersol of Philadelphia, first vice-president; William Keiller of Galveston, Texas, second vice-president; D. S. Lamb, of Washington, D. C., secretary and treasurer; F. J. Brockway of New York City delegate, and R. W. Shufeldt of Washington alternate to Executive Committee of Congress of American Physicians and Surgeons; F. J. Shepherd of Montreal member of the Executive Committee of the Association, in place of Dr. Huntington, term expired.

The following candidates were elected active members of the Association: Frank Irving Brown, A.M., M.D., of South Portland, Me., instructor of anatomy, Portland School for Medical Instruction. George Amos Dorsey, A.B., Ph.D., acting curator of anthropology, Field Columbian Museum, Chicago. Grant Sherman Hopkins, D.Sc., assistant professor of anatomy, Cornell University. G. Carl Huber, M.D., assistant professor of histology, University of Michigan. A. T. Kerr, M.D., acting professor of anatomy, Medical Department, University of Buffalo. Alfred King, A.B,, M.D., demonstrator of anatomy, Bowdoin College. Edward James McDonough, A.B,, M.D., demonstrator of histology, Bowdoin College. John Anderson Springle, M.D., C.M., lecturer on anatomy, McGill University. Robert J. Terry, M.D., demonstrator of anatomy, Missouri Medical College, St. Louis. Prof. Albert H. Tuttle, D.Sc., University of Virginia.

The following eminent anatomists of the Old World were elected honorary members: Dr. Mathias Duval, Paris; Dr. Carl Gegenbaur, Heidelberg; Dr. Wilhelm His, Leipzig; Dr.

Albert von Kölliker, Wurzburg; Dr. Alexander Macalister, Cambridge; Dr. L. Ranvier, Paris.

It is understood that the next meeting will be held in New York, during the Christmas holidays, in conjunction with the Society of Naturalists and other affiliated societies.

New Jersey State Sanitary Association.

(*Concluded from page 557.*)

Dr. B. MEADE BOLTON of Princeton read a paper on

VITALITY OF PATHOGENIC GERMS IN DRINKING WATER.

One of the most striking features of the bacteria is variability. These organisms are subject to variability of shape, of all these vital manifestations, such as fermentation, production of disease and of pigment, in the capacity of living in various media. They possess no characteristic not subject to variation. The anthrax bacillus, ordinarily a short sharply cut rod forming spores or resistant bodies under favorable conditions and capable of producing a virulent infectious disease in man and animals, sometimes becomes so distorted in shape as to be unrecognizable under the microscope. It may be made to lose its power of forming spores and of producing disease. The diphtheria bacillus is sometimes a fine uniformly stained rod; at others it appears as a large irregular nodular rod. Sometimes both ends are swollen and apparently distorted, sometimes one end alone. Again, the rod stains irregularly; the protoplasm is collected into clumps and granules in the cell membrane. The bacillus prodigiosus frequently resembles a coccus, and at others appears as a distinct rod or even a short thread. This organism which ordinarily forms a deep red mass on the nutrient medium, frequently loses its power of producing pigment. Percy Franklin has found out that with certain bacteria it is possible to force them to produce certain products of growth by gradually introducing certain substances into the nutrient medium. The speaker had found that the bacteria may be accustomed gradually to the presence of substances in the nutrient medium that would be sure to destroy or inhibit the growth. There is even evidence that the bacteria may be finally stimulated to increased growth by the gradual introduction of substances classed as germicides. But it is useless to multiply examples. The variability of the bacteria under the influence of external conditions is well recognized, and the sensibility of these to environment has been abundantly shown. This property must be ever borne in mind. It must not be forgotten that the bacteria are living cells, and not chemic compounds. All cells have more or less individuality, and all agglomerations of cells have variable characteristics. This can be illustrated by any series of experiments with disinfectants. The use of a certain amount of the disinfectant may destroy many of the organisms, and yet leave many more unaffected. The same amount of the disinfectant may kill more of the organisms in one culture than in another. Hence we can not wonder at the vitality of the bacteria in water. The typhoid fever bacillus has been found to live for thirty days in water into which it was introduced intentionally, and yet it is frequently found to die out much sooner than this in water. In many experiments he had endeavored to arrest the vitality of various pathogenic bacteria and the discrepancy in results was a surprise and a disappointment. Sometimes they diminished and disappeared much more quickly than at others. Yet this is not to be wondered at. There are many factors that determine how long they are likely to remain. The number introduced, the special adaptability to water of those that are introduced, the temperature of the water, the number of other kinds of bacilli present, all are factors in the play. Again, the amount of organic matter that could furnish a supply of nutrition might be a factor. He always found that pathogenic bacteria introduced into water disappear sooner or later. They do not multiply even in foul water from a shallow well, and fail even when this water was freed from other bacteria that is sterilized. He was able to obtain a multiplication in water only after he had added a certain amount of peptonized beef broth. It was necessary to add an amount of broth estimated to contain 67 milligrams of organic matter to a liter of water before any growth could be obtained of typhoid bacillus, and the equivalent of 400 milligrams of organic matter before any multiplication of the cholera organism could be obtained. This amount of organic matter is never found in the most contaminated water, and not only this, but the kind of organic matter used in the experiments is not found. What is found ordinarily would be less suitable for the typhoid and cholera bacilli than the carefully prepared peptonized broth used in the experiments, and it may safely be stated that where water becomes contaminated with pathogenic bacteria these will disappear rapidly, owing to lack of proper nutrition and to the conflict of other bacteria, the saprophytes, found always in contaminated water. There are bacteria that multiply even in distilled water, and these are the aquatic bacteria which quickly make the pathogenic form disappear. The latter are very choice in their food. We must prepare the media for their cultivation with great care, and they stand no chance in competition with the hardy saprophytes found in water. The pathogenic must be given conditions closely resembling those of the animal body to grow and multiply; the saprophytes, on the other hand, flourish at a lower temperature and with less elaborate food. This is the reason why the examination of water shipped to the laboratory is of no use. In a few hours it is changed as to its flora, some abundant at first are less so; others, few at the start, increase often enormously. It is an interesting experiment to examine water freshly caught, let it stand and examine at intervals. About two forms usually survive and increase very rapidly. One is a bacillus fluorescent, non-liquefacient, and a micrococcus, to which he gave the name micrococcus aqualilis. For this reason it is never worth while to attempt an analysis of shipped water.

Results are misleading. The danger from contaminated water arises from the use of the water very shortly after contamination. Of course, if there is a source of continuous contamination, then the water is dangerous at all times, and the organisms are easily found, as during the cholera epidemic of Hamburg and Altona. In case of typhoid the matter is peculiarly difficult and time-consuming. Again, another difficulty is the want of definite characteristics of typhoid bacilli themselves. The matter of contamination of water with this form is of more importance to us in this latitude, and it would be of the greatest value to be able easily to recognize this organism. Satisfactory results are not obtainable without the expenditure of a great amount of work and many precautions in the collection of samples, and immediately making cultures. He questioned the utility of one examination. A well may be free and contaminated at different times. The chief if not the only danger arises from surface contamination. If water filters through a soil it is purified. Now, during a dry season, there is little danger from the surface drainage. Only in case there is a crack or crevice leading from a privy vault or other source of contamination is there great danger of infection. Esmarch has shown that pathogenic bacteria rapidly die out in the soil within one or two days, so that it would be a difficult matter really to make the bacteria pass from a privy vault to a well through soil in which there are no crevices. Flugge is of opinion that infection of water is more apt to take place indirectly than directly. He does not deny any more than others that what the Germans call "massen infection" takes place from drinking water. In the case of typhoid fever Dr. Bolton always believed that danger of spreading the disease arises as much from indirect contact of food and vessels, for food and drink, with the typhoid excreta as from contaminated water. Finally, pathogenic bacteria usually have a brief life in water; under ordinary conditions multiplication and growth are not favored; the danger of the spread of the disease in this way is transitory unless the source of contamination is continuous as from a channel leading from a privy vault. Water is probably infected frequently after it is drawn and carried into the house for use just as food probably is.

Mr. H. B. BALDWIN, chemist of the Newark Board of Health, said we may search for a long time in the literature of the subject and not get such definite information. It is well to know what conditions favor or destroy the growth of bacteria in open supplies. In the case of surface water it is important to know definitely what conditions affect the vitality of pathogenic germs, as it is supplies of this character that usually cause the most serious epidemics. It is also in such areas usually impossible to find the germ on account of dilution or to the fact of the absence when looked for; in the case of ground water the action of the soil on the vitality of the bacteria is most important. In London, a few years ago, the relation of cholera spirillum and typhoid bacillus was discussed. Experiments were made in sterilized soils of white sand, yellow and garden earth, and peat under various conditions of moisture. It was found that the cholera germ in dry soil did not live more than two or three days; in ordinary dry soil, about three days; in moist white sand, seven days; in moist yellow sand and garden earth, thirty-three days; and under certain conditions of moisture and evaporation, the germs were alive at the end of 174 days, the life-supporting power of white sand being the least. In peat, death always occurred in about twenty-four hours, notwithstanding the amount of moisture. The typhoid bacilli in ordinary dry soil were found up to the ninth day in the white sand; to the eighteenth in yellow and to the fourteenth in garden earth. In moist white sand they were alive on the

twenty-third day; in yellow sand and garden earth on the forty-second day. Peat caused death in twenty-four hours. Now, in view of the destructive action of peat it seems reasonable to suppose that peaty waters, so plentiful in this State, would excite an unfavorable action on the growth of bacteria contained therein. Miquel says when samples of various waters, pure and impure, are maintained at a constant temperature of 68 degrees F., they vary differently in the matter of the increase of their bacterial contents. With pure water the increase is rapid and temporary, while with impure water it is slow and lasting. The decrease of bacteria when intentionally introduced into water is due no doubt to the presence of toxins produced either by these or other bacteria. These toxins are very volatile and the following interesting experiments by Prof. Martin furnish, in a striking manner, the deadly effect of the toxins on bacteria. Some water slowly distilled in a special apparatus at a temperature between 86 and 95 degrees, was inoculated with the germs from 1650 liters of air. The number of bacteria found in the water were: immediately 75 per cent.; six days later, 7 per cent.; sixteen days later, 1.5 per cent. Note the difference between this and the next experiment. River water sterilized in the ordinary manner was inoculated with germs from twenty liters of air. The number of bacteria per cubic centimeter was then 6.5 per cent.; seven days later, 750,000 per cent.; ten days, 900,000 per cent.; thirty-one days, 16,750,000 per cent.; ninety days, 62,500 per cent.; 273 days, 48,000 per cent. In a paper read before the American Chemical Society by Dr. Dunham, he states: The chief aim of the examination of water with reference to its fitness for drinking, is to learn whether it contains, or is likely to contain, any poisonous substances or the contagion of disease. The detection of mineral poison falls within the domain of chemistry. The actual isolation of specific bacteria can only be done by bacteriologic methods; true so far as it goes, but he only stated the smaller part for the chemist; leaving out the question as to the possible extent to which the bacteriologic examination may be pushed, the practical and usual examination consists of counting the number of bacteria per cubic centimeter, and searching for the typhoid bacillus and the bacillus coli communis. The latter as a constant quantity in feces, indicates sewage pollution. The typhoid bacillus is rarely found in drinking water, although most positively known to be present. This leaves the colon bacillus as the main evidence of the bacteriologist of sewage contamination. As he does not find the pathogenic germ he can not do more than class the water as dangerous.

It should be remembered that the bacteriologist looks for something that is in suspension, while the chemist determines substances in solution. The bacillus may, in the case of well water, be temporarily filtered, while other soluble matters are not affected. On the other hand, the polluting matter may be so largely diluted that chemic tests will fail to reveal it, and yet there may be enough coli bacilli to give a positive indication. As an illustration, a few days ago he had examined some water from a well situated within a few feet of a cesspool and found it grossly polluted. A bacteriologic examination failed to reveal any coli bacilli, and pronounced the water safe. Here the bacilli had been filtered out by the soil. But who knows what day they may come again, or rather through the soil filter? The city supply of Newark furnishes an example of the other condition. Any one who has seen the water shed can not doubt the presence of coli bacilli constantly in that water, as it has been for years; yet chemically, the water is of excellent quality. This is not the fault of the bacteriologist; there simply did not happen to be any germs in the few drops he examined. Do not understand me to belittle the work of the bacteriologist, said Dr. Baldwin; his aid is of the highest advantage, but it will readily be seen that there may be many cases where either form of examination would give positive results, and hence for safety, in all cases both must be employed, as each supplements the other.

Dr. N. L. Wilson of Elizabeth read a paper on

NOTIFICATION OF MEASLES AND WHOOPING COUGH.

He said: There were 275 deaths from whooping cough in New Jersey and 390 of measles during 1896. The first carried off more than the average of persons during the last eighteen years. Measles gave 2907 deaths, a low estimate because cases of both are not always properly recognized, and in many instances the primary cause of death is not given. In the last eight years there were 2223 of whooping cough and 1354 of measles. The majority of the profession are of the belief that we can not restrict the spread of either disease, because of their communicability at such an early period. The question is simply one of expense. Notification of measles without corresponding disinfection, isolation, etc., is useless. They could be limited if properly cared for and the work carried out. Great success attended the work in this way in Birmingham. He mentioned a case where a child had measles, recovered, the family removed. In two weeks a child of the new family who moved in had measles and died from bronchial pneumonia. Here, isolation in one room and prompt disinfection would have saved the last child. Disinfection can not be done unless notification is insisted upon. While we acknowledge the difficulties in the case, yet it is worth an effort. Measles respects nothing but sanitation. This muzzles it and makes the epidemic milder. The etiology of measles shows it to be intensely contagious all the time, most at full efflorescence, less in the period of incubation and least or not at all after desquamation. It is not believed that we have found the specific organism of either. Whittaker says, "prophylaxis is almost impossible, but sickly, debilitated children should be removed from the house where it exists." All know how an epidemic will run through schools. One hundred and twenty cases were confined to the pupils of one parochial school. When asked how this was, the reply was: It is a simple matter; the teachers were required each morning to ask the scholars as to the presence of sickness at home or in the neighborhood. In case of an affirmative, the scholar was not to come in the afternoon. The names and addresses were sent to the chief teacher, who investigated the case, and thus the spread was prevented. The public schools of Elizabeth are connected by telephone; the health inspector communicated with the superintendent of schools each morning; he notified the principals of the various schools, so that they are familiar with the number and cause of disease in their respective schools. If the physician or parents fail to report either of these diseases we can not attempt to check them. He was heartily in favor of notification. It is the duty of the parents and of the physician to do this whenever they can. There may be difficulties in the way of inhibition of the two diseases, but we should at least establish the practice, and undoubtedly the death rate would be reduced and life among children prolonged.

In the discussion two or three opposed notification, but this appeared to come from those not of advanced ideas as to etiology of disease, while the consensus of opinion, though not expressed by the continuation of the discussion, was decidedly in favor. As there were several matters of business demanding the attention of the Association prior to closing the session, these gentlemen did not care to spend the time when, as one very prominent member remarked, such views were utterly in opposition to all sanitary knowledge.

The officers elected for the next year were: President, Dr. John C. Smock of Trenton; vice-presidents, V. L. Davey of East Orange; Dr. Daniel Strock of Camden and G. W. Howell, C. E., of Morristown; recording secretary, Dr. James A. Exton of Arlington; corresponding secretary, W. G. Hoopes of Atlantic City; treasurer, Geo. C. Olcott, C. E., of East Orange.

SELECTIONS.

Hygiene of Degeneracy as Illustrated by Charles and Mary Lamb.—Dr. Kiernan recently presented to the Chicago Academy of Medicine, a paper on this subject. He pointed out that the paternal branch of the Lamb family came from the fens of Lincolnshire where laudanum using is rife, albeit with comparative immunity from the usual effects of opiophagism. In these districts, where degeneracy of type is frequent but ascribed to malaria, John Lamb, the father of Charles, was born. While still a child John Lamb's family removed to Lincoln so poverty-stricken because of the insanity of its head that he had to be made a foot-boy. The fact that he subsequently became barrister's clerk indicates gentler early nurture than this early thrusting into the fierce struggle for existence would seem to imply. John Lamb grew up gay, inflexibly upright, with a dash of chivalry in his nature and a poetic tendency. At the age of 50 years he became insane and died demented. His sister was an uncanny old soul, whose silent ways and odder witch-like mutterings and mumblings, coupled with a wild look in her eyes as she peered out from under her spectacles made her an object of dread. The maternal ancestry was neuropathic. The mother exhibited the capricious affection often present in the degenerate. The maternal grandmother had that moral anesthesia toward mental suffer-

ing which is an offspring of degeneracy. Elizabeth Field, many years younger than John Lamb, her husband, was a handsome, dignified, pleasure-seeking hysteric, lacking insight into child character. Toward Mary and Charles she never manifested maternal tenderness. Mary, a shy, sensitive, nervous, affectionate child, who early evinced liability to brain disorder, peculiarly needed judicious care. The mother always loved John, the eldest, a handsome, lively boy, who became what favoritism was sure to make of an egotist; treated with indulgence by brother and sister who exempted him from any share of the family burden even when he was prosperous. Mary Anne Lamb, born Dec. 3, 1764, was the third, while Charles was the youngest of seven children. All died in infancy save John, Mary and Charles. Mary Lamb was brought up in a lower middle-class home relieved alike from the stress of poverty and speculative wealth. She received her education in a day school. The best of her education was the library of her father's employer. Here she was early left to browse without prohibition on the principle advocated by Ruskin. The degenerate absence of that finer sympathy of human nature in its most alluring aspect eminently unfitted Mary's mother and grandmother for the training of a neurotic child. The primary *ego* so prominent in degenerates while decidedly obtrusive in John, Mrs. Lamb and Mrs. Field, was wonderfully subordinate in Mary and Charles Lamb for children of such heredity. Charles, a weakly child, had frequent night terrors, learned to speak with difficulty and stammered throughout life. The pleasure-seeking nature of his mother, whose maternal tenderness like that of most hysterics had been exhausted on her first-born, devolved his care upon Mary, who mothered him. This outlet for her affection naturally dispelled her loneliness. In after life she warmly described the wholesome influence upon her troubled mind which devotion to Charles brought. As his mind unfolded he still found in her that genial care which had cherished his frame into health. With his hand in hers he first trod the Temple Gardens, spelled out the inscriptions on the sun-dial and on the tombstones in the old burying ground and wondered, finding only the virtuous, "where all the naughty people were buried." The familiar features of the neurotic child appear in the autobiographical sketch Charles Lamb contributed to "Mrs. Leicester's School."

In the Lamb household the domestic outlook grew dark as soon as Mary was grown up. Her father's faculties received a shock and her mother became a paralytic hysteric. At 15 years of age Charles left Christ's Hospital to take up the burdens of an adult. Mary had not only to make head against sickness, helplessness and old age, but to support the family by millinery. She employed herself thus from the age of 21 to 32. When Mary was 30 and Charles 20, the father fallen into dementia had been pensioned off by his employers. Charles, under the stress of puberty, of an unfortunate love affair, and of his struggles to support the family neglected by John, became so insane as to require hospital care. He was able to resume his usual labors as clerk in the India house after six weeks treatment. The psychosis was that unstable type of melancholia so frequent in degenerates, in which flashes of exultation through the emotional gloom are remembered with keen rapture. No sooner was Charles recovered than John met with a serious accident. Whilst in health he had spent his earnings on himself; he did not hesitate to demand home nursing, causing renewed anxiety to his brother and sister. This was the last ounce. Mary, worn out with years of nightly and daily attendance upon a demented father and a hysterically paraplegic mother, harassed by a close application to millinery, was strained beyond physical endurance. About Sept. 15, 1796, the family observed mental symptoms which had so increased by September 21 that Charles early in the morning sought but failed to find Dr. Pitcairn. That afternoon Mary, seized with a sudden frenzy, snatched a knife from the table, pursued the apprentice, when her mother interposing was stabbed, dying instantly. Mary was placed in a private insane hospital where she in a short time recovered, but subsequently became a cyclothymiac. Such a combination of depressing factors constituting a proper etiologic moment would suffice, even in an organization with little or no morbid heredity, to produce a serious transitory frenzy without consciousness of the violent act. The two careers of Mary and Charles Lamb illustrate how, even under the burden of inherited degeneracy and the no less terrible strain of an environment entailing a fierce struggle for existence, a large amount of soundness of intellect and morality may survive. They also illustrate the beneficence of physiologic atavism causing continual attempts to regain a normal type lost for some generations. In Charles Lamb's career there is much to indicate that had dietetics been as well understood then as today, much of his sufferings and so-called eccentricities might have been avoided. The childhood of both Mary and John Lamb demonstrates how readily, in minds of degenerates or of persons at a certain state of culture, the germs of unwholesome atavistic beliefs are created to form the basis of much that proved absurd and even dangerous in after life, despite careful education subsequent to puberty. The two cases also illustrate very fully, since both Charles and his sister were ardent students of the older English dramatists and the older English literature, how much unwholesomness there lies in this as contrasted with works on emotional religion or dogmatic theology. Charles and Mary were both unquestionably devout but with a certain largeness of view which proved a source of mental hygiene in place of a poison like most dogmatic theology and religiosity. Undoubtedly Mary's religious views tended to comfort her when she discovered that she had slain her mother during a fit of insanity. Her mental state, however, differed decidedly from that moral anesthesia produced in certain insane by a hospital sojourn, which makes them so delightfully altruistic within the walls and so brutally egotistic without. Charles Lamb's mental breakdown, which occurred at the decidedly critical period of puberty, illustrates the benefit of hospital care and the folly of home treatment.

The Abuse of Medical Charity; A Critical Review of Recent Literature.—Dr. Frederick Holme Wiggin of New York read a paper with this title before the New York State Medical Association, Oct. 12, 1897. His object was not so much to present individual views as to cull from recent literature, both lay and medical, the opinions of many writers. He said that it was easy to demonstrate conclusively that as at present administered medical charity is demoralizing to both the recipients and the donor. Some idea of the alarming growth and extent of this evil might be obtained from the carefully prepared report of Dr. Stephen Smith to the State Board of Charity. Here it was shown that during the year 1895, 837,971 persons applied for and received free medical treatment at 105 dispensaries in that city; that 1,418,847 free visits were made by these applicants to these dispensaries; and that 78,000 persons received free board, lodging, nursing, drugs, surgical dressings and treatment; in other words, that something more than 49 per cent. of all who live within our borders had claimed in one year to be unable to care for themselves. This should be contrasted with another statement by Dr. Smith to the effect that during the period from 1791, when the first dispensary was established in New York, to about 1870, the applicants for charity bore a ratio to the total population of 1.5 per cent. Dr. Wiggin then went on to quote from an editorial in the *New York Herald* to show that Greater New York spent fifty millions of dollars every year on charities, and that according to a conservative estimate fully 50 per cent. of the donors' money was diverted from the purpose for which it was intended and was practically filched from the poor to whom it rightfully

belonged. Again, according to one author, Dr. J. B. Huber, one might find in large numbers at dispensaries such people as actors, opera singers, gamblers, bartenders, policemen, farmers from out of town, prosperous business men and those owning houses, lawyers, and perhaps even a street railway president. According to another author, Dr. George F. Shrady, fully 50 per cent. of the applicants in the reception room of a well-known institution, which he dubs "the diamond dispensary," were well dressed, 10 per cent. were finely dressed, more than half of the men bore no evidence of poverty, and among the women there was an attractive display of fine millinery; yet all obtained the free treatment supposed to be given only to poor persons. A reporter on one of the daily papers, in describing what he saw at a well-known "clinic," stated that not more than one in fifty was at all shabbily dressed, a large majority were fairly well dressed, one-third of them were quite presentably dressed, and perhaps one-fifth were positively well dressed. The reader of the paper said that he knew of a man who paid an enormous rent in a fashionable apartment house near Central Park, and who spent many thousand dollars a year on living expenses, yet he went to what Dr. Shrady had so aptly termed "the diamond dispensary" on the plea that his expenses were so heavy that he could not afford to pay a fee to a doctor. Surely, the author continues, these instances "certainly show the spirit in which charity is asked for and accepted; it is largely a desire to save money, without apparently thinking that self-respect is lost in the effort, or that a wrong is done to the really poor and to the physician, who is certainly as much entitled to his hire as the clergyman, or other members of the community, as he too has social obligations to fulfill." More than this, as Dr. Schweck had well said, in the *Philadelphia Press*: "People of means who go to charity dispensaries and receive treatment free of charge, representing themselves to be too poor to pay for medical services, commit a criminal act, for they obtain what they are not entitled to and do it under false pretenses." Another and important aspect of this subject had been revealed in a communication from Dr. G. M. Roe, Medical Superintendent of the Boston City Hospital, to the *Boston Herald*. He says: "It is a generally accepted fact among people who have had large experience in doing charitable work that the first thing that a man or woman will accept as charity is medical attendance. They will accept free service of the doctor when you could not prevail upon them to accept rent or fuel or anything of the kind as a gift. The acceptance of gratuitous medical attendance is the first step toward pauperism. There is already a tendency toward what is generally known as 'nationalism,' a belief among the common people that the city and State owe them a living, and that medical attendance, among other things, should be furnished them by common taxation, regardless of their financial standing as individuals." Again, as Dr. J. J. Stevenson has expressed it in the *Mail and Express:* "If recovery from disease be secured at the expense of self-denial, the memory of the cost will lead, in ordinary cases, to care that a recurrence of disease and attendant expenses may be prevented. But if the careless feel that treatment, medicine and even diet can be had simply for the asking, there can be no reason for resisting the natural tendency to neglect the laws of health. . . . It is not surprising that the reckless poor see in such careless giving an acknowledgement of the unequal distribution of wealth and believe that it is founded on injustice; nor is it strange that the anarchist's cry is not for opportunity to earn by labor, but for such distribution of wealth as may enable all to enjoy the luxury of idleness." The following are the conclusions arrived at by Dr. Wiggin after a critical review of the subject: 1, that medical charity as at present administered is an unqualified evil, and is seriously menacing our existing social conditions; 2, that the application for free treatment of those able to pay the physician a moderate fee for his services robs the really poor; 3, that all medical charitable institutions should be under the direction and control of State and local boards of charities, who should have the power to enforce their rules; 4, that all applicants for medical charity should be investigated by local charity boards and the unworthy excluded; 5, that no medical charitable institution should be allowed to charge nominal sums for medical or surgical service, nor should they be allowed to charge for medicines or appliances; 6, that all physicians connected with charitable institutions should be paid for the service which they render; 7, that it should be made a misdemeanor, punishable by fine for any person to receive free medical treatment by reason of false representations as to financial condition, and 8, that State or city aid should not be granted to private medical charities.

PRACTICAL NOTES.

Therapy of Sulphate of Duboisin.—This preparation may be used both by the mouth and hypodermatically; preferably by the latter. Among the indications for and against its use are the following: Cases of excitement due to hallucinations and delusions give excellent results. In all forms of chronic insanity with excitement, and in occasional cases of epilepsy, it may be used as a sedative with good results. The author concludes that duboisin should be used only in physically healthy persons. It should never be used, or only very carefully in debilitated persons. It is not suited to acute mania, and is distinctly injurious in melancholia. Duboisin is preferable to hyoscin or hyoscyamin, as the quiescent state established by its use is of longer duration, and there is less prostration during or after its use than is the case with those drugs. The after-effects are not so marked, and few serious cases occur. Its action in some of the worst cases is described by the patients as soothing rather than prostrating, and it does not interfere with the recovery of those treated with it.—*British Medical Journal.*

Surgical Treatment of Hematemesis.—Cazin recently operated on two cases of fulminating hematemesis, one caused by a gunshot wound into the stomach, the bullet passing out through the intestines, the other by a few slight erosions on the posterior wall of the stomach, from which the blood was pouring in sheets. Dieulafoy reports a similar case and is inclined to consider these slight superficial erosions the incipient stage of an ulcer, proposing the name "exulceratio simplex." In both of Cazin's cases recovery was prompt and complete after the stomach had been opened up largely and a few stitches taken in the bleeding points. He ascribes his success to the intravenous injection of one and one-half liters of artificial serum during the operation and again in the evening, as the patients were exsanguinated and ready to collapse. Roux has also had a similar experience in the case of an ulcer which he resected. Marion in his thesis collected six observations, three fatal. Fournier relates several cases of copious and repeated hematemesis in syphilitics, promptly cured with specific treatment after all other medical means had failed. He claims a place for syphilis in the etiology of ulcus rotundum.—*Bull. de l'Acad. de Méd.*, January 18–25.

Glycerin Condoms for Artificial Abortion.—The experience that intra-uterine injections of glycerin were followed by intoxication, injury to the renal parenchyma, destruction of the red corpuscles, chills, dyspnea, etc., has caused them to be rejected by many, although the fact is universally recognized that glycerin is the most prompt and reliable of all means to induce contractions of the gravid uterus. H. Saft of Breslau announces that this power is due to the hygroscopic properties of glycerin. It draws the water out of the tissues and out of the nerves and ganglia, thus stimulating the latter to induce contractions. As the glycerin is absorbed by the blood it draws the water out of the corpuscles; they shrivel, die and dissolve. He has devised a means to use glycerin without allowing it to be absorbed, introducing it in an ordinary fish-bladder condom, sterilized by the Schimmelbusch process of sterilizing catgut (ether, sublimate, alcohol). The condom does not interfere in the least with the hygroscopic action of the glycerin through its membrane walls, but it prevents the absorption of any considerable amount of glycerin into the organism. The condom is inserted empty on a bougie to which it is fastened, the end projecting 2 cm. to avoid tearing. It is then filled through the bougie with 100 cm. glycerin and the mouth tied with an elastic cord to pre-

vent the escape of the glycerin. The bougie is cut to the right length to ensure its correct position between the fetal membranes and the uterus, the outer end just reaching to the entrance of the vagina, which is closed with a cotton pad. The glycerin condom acts as a foreign body while the glycerin exerts its peculiar properties safely through its walls. The condom must be tested and water-tight membranes rejected. Saft is now testing other substances with high endosmotic power to find one equally efficient and absolutely harmless, to substitute for the glycerin, such as sodium sulphate.—*Deu. Med. Woch.*, January 20.

The Grippe and its Therapeutics.—All our European exchanges refer to the prevailing epidemic of grippe, which is raising the death rate everywhere. Maragliano notes the indirect action of the grippe in cases of existing disease, usually manifested in disturbances of the nervous system, especially in disturbed cerebral functions. He has thus observed meningitic manifestations in broncho-pulmonitis, in intestinal catarrh or simple sciatica, in which they are an unusual complication. Another remarkable fact is the tendency of the pyogenic cocci to locate wherever there is a favorable soil starting at once into virulent action; for instance he notes pleuritis commencing pyogenic from the start, broncho-pulmonitis with streptococcic infection and lobar pneumonitis with notable pyogenic manifestations. The rapid appearance of congestive or hemorrhagic phenomena in affections usually free from them, is another feature of the epidemic. Quinin in sufficient doses, he adds, constitutes an almost specific remedy.—*Gazetta d. Osp. e d. Clin.*, January 23.

Re-education of the Muscles and Nerves in Tabes is justly considered a great advance in the therapeutics of this affection. E. Frenkel's system is now supplemented by others seeking to educate the muscles of the inferior members. Goldscheider and Leyden have devised various apparatuses for restoring the disturbed co-ordination by exercises that establish compensation. Some of them are described and illustrated in the *Deu. Med. Woch.*, of January 27 and February 3, which seem destined to accomplish remarkable results in this line, requiring sufficient attention to divert the mind and render the exercise interesting. The influence of suggestion is also important. One is a row of shallow wooden goblets on a sloping shelf, with a similar shelf above and below, in front of which the patient sits, and touches with the tip of his foot the various goblets in turn or alternately from shelf to shelf. Balls in the goblets are to be touched without pushing them out. Another is a narrow platform with hand rails and triangular slabs set upright in the floor at intervals, over which the patient steps. Their position can be altered at will. Another is a spiral marked on the floor, along which the patient walks, supporting himself by a rope from above. Another is a small ladder; the patient seated, inserts the tip of his foot between the rounds in turn. The patient's leg is assisted by an attendant whenever necessary. Simpler exercises are accomplished reclining, with a frame from which the leg is suspended. They urge the advantages to be derived from simple exercises of the limbs in a bath, when they are buoyed up by the water salts. Goldscheider is now experimenting with a bath for the purpose in which the patient can stand erect with his body under water. Leyden by the way, rejects the syphilitic etiology of tabes, which he has always ascribed to "sensibility disturbances." Gutzmann has recently called attention to the great benefit to be derived from the mirror in re educating the muscles, controlling their work by the eye. He separates the muscular act into its component parts and has it performed thus in sections, before a mirror.

Asphyxia Neonatorum.—Richard Hogner, M.D., Boston, Mass., thus describes his method of treatment: The operator seats himself on a high chair; has a tub of lukewarm water placed on the floor at his right hand, with vessels of both hot and cold water within easy reaching distance. He holds his legs together—somewhat bent at the knees—and in an inclined plane; lays his left arm (if he be right-handed) with the "palma manus" turned upward upon the "femores," so that the wrist rests between his knees, and the open hand, with the fingers spread, is free in the air. The child is laid head downward on its back along the operator's left arm, so that the head and shoulders can be supported by the fingers and the infant securely held. The child's body must be sufficiently inclined downward so that the phlegm, edema, etc., can easily run out through the nostrils, and its arms must be outstretched and hanging backward and downward sufficiently to hold the pectoral muscles in the greatest tension, bringing the chest into the maximal position of inspiration. The operator now lays his right hand, with fingers extended, down over the child's breast and abdomen, so the tip of the middle finger rests on the throat, the index and the ring finger on the subclavicular regions, and the thumb and little finger in the armpits. By pressing with the fingers of the right hand on the chest and with the palm on the abdomen, artificial expiration is induced, followed, as soon as the pressure is removed, by an automatic inspiratory movement, which is caused solely by the above described wide-open, over-hanging position. If the operator now continues in right *tempo* (preferably too slowly than too rapidly) to alternate with the pressure and non-pressure of the hand, he can induce artificial respiration of whatever rapidity or depth required.

The frothy substance, often bloody phlegm, etc., which will escape from the child's nose, can be removed as it appears, or one can leave it to itself, because the position the child occupies, with head downward, prevents these secretions from being drawn into the windpipe.

Between the breathing movements, I am accustomed to try to stimulate the tone of the heart by means of delicate percussions on the precordial region in rhythm with the heart beats, which are most easily made by means of the middle and and ring fingers, without otherwise changing the position of the right hand. There is a similar movement employed in Swedish medical gymnastics to great advantage in cases of heart failure, a movement which has proven its mechanically reflective influence on the action of the heart, which becomes stronger, also slower, or more rapid, according to the *tempo* of the movement.

The position of the child is now and then changed to an upright one, partly to empty the bronchi, which has not become drained by the child's downward position, and partly to relieve the auriculi of the heart, at which time, if it seems advisable, the operator dips the child into the bathtub beside him, into the hot water, and then cold water is sprinkled on its breast, etc.

In employing this method the position of the physician is so comfortable that he can continue the operation uninterruptedly for more than two hours, which should be, according to authorities, the shortest length of time generally to devote in efforts for resuscitation of the infant before hope is abandoned. During the process the child undergoes a drainage of most of the respiratory tubes. All necessary manipulations can easily be made, and at the same time the parents or friends are not distressed by methods that seem cruel, such as the swinging of the child in the air, the holding of it by the feet head downward, etc.

For subcutaneous injections as stimulants to the heart action of the new-born child, alcohol, ether and oil of camphor, have been recommended. I prefer the physiologic (or even stronger, 0.6 to 2 per cent.) salt solution, from a few drops to one-half c. cm. at a time. Equally good is perhaps an injection of nitroglycerin, recommended by Dr. J. R. Scott of Clay Center, Kansas, in the *Western Medical Journal* for March, 1897.

This is about the rule he follows: Take a tablet of 1-100 m., put it into a syringe which holds 60 m., expell one-half of the solution and fill the syringe again with water. Of this solution he used 5 m., which equaled 1-2400 of the drug.

I have never made use of nitroglycerin injections either in adults or children. On the other hand, I have often used injections of salt solutions and always with instantaneous effect.

Every time the above described method of treatment by artificial respiration, heart percussion and use of water of different temperatures has been employed the result was a happy one, with a single exception, where even Schultze's swinging was added, and all treatment failed.—*Times and Register*, Jan. 29, 1898.

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SATURDAY, MARCH 12, 1898.

THE RELATION OF GLYCOSURIA TO DIABETES.

In the midst of the very conflicting statements which have been made by physicians and physiologists in regard to the etiology and pathology of this disease, the increasing frequency of which we have already called attention to in the JOURNAL, it may not be out of place to call attention to some of the facts which are known to exist in regard to the pathology of this malady. It is but a few years since we have been taught that the constant presence of albumin in the urine was a pathognomonic sign of parenchymatous nephritis, and indeed the temporary presence of albuminuria from time to time was thought to possess equal significance. Now we know that albuminuria in itself is not a pathognomonic indication of a renal lesion of a serious character, however indicative it may be of nephritic changes. So, too, some years ago it was generally considered that the presence of sugar in the urine was an indication of diabetes mellitus, but today those who know most about this condition recognize two states: one that of glycosuria; the other, true diabetes mellitus. In the former the presence of sugar in the urine is due to the excessive ingestion of carbohydrates or sugars; in the other the moderate ingestion of those foodstuffs are, to the individual who has diabetic tendencies, excessive, even though the quantities actually taken up are small, for while one individual may be able to assimilate large quantities of carbohydrate material, another individual fails to utilize even a smaller quantity of such substances; and while individuals who readily develop glycosuria when their powers of assimilation are slightly strained, may be considered as having a tendency to diabetes, they certainly can not be considered as diabetics. They are simply leaky vessels unable to contain all the carbohydrate material which they ingest. That glycosuria can be produced experimentally in any individual by the ingestion of sugar has been proved by a number of investigations. Recently LINOISSIER and ROQUE have recorded, in *L'Union Médicale*, experiments which they have carried out upon nineteen persons in good health or with disorders of the digestive apparatus. They gave to these patients cane sugar, glucose and lactose in varying quantities, but always in large amounts, so much as to indicate that the resultant glycosuria was a true overflow or an effort upon the part of the economy to get rid of material which it could not utilize. In 29 per cent. of the cases 750 grains of cane sugar produced saccharinuria, and in all of the cases glycosuria ensued when as much as 5,200 grains were administered. As a result of their studies they conclude, as have a number of others before them, that for each person and for each sugar there is an individual co-efficient of utilization, and they have pointed out the fact that as the ingestion of comparatively small quantities of sugar may be followed by glycosuria we should be cautious in making a diagnosis of pathologic glycosuria until we are sure that the sugar in the urine is not an evidence of what might be called overflow. In the *Berliner Klinische Wochenschrift*, for November, 1896, STRUEMPELL, it will be remembered, made a contribution to the study of dietetic glycosuria in which he points out that if the amount of carbohydrate food is sufficiently great, and oxidation processes are imperfect, this failure in oxidation will result in sugar appearing in the urine, and in chronic alcoholics particularly those who drink an excessive quantity of beer, he found that this dietetic glycosuria was readily produced. It is evident, therefore, that we must have in association with glucose in the urine the characteristic symptom group of true diabetes mellitus before we can make a diagnosis of this disease. There must be a tendency to loss of weight, showing that the overflow is in reality a leak. There must be excessive thirst, itching of the skin, excessive hunger, indicating that there is an attempt on the part of the system to make up for the leak, and a tendency to polyuria before the physician has a right to make a definite diagnosis that the patient is suffering from diabetes mellitus. In other words, the presence of sugar in the urine does not indicate diabetes mellitus with its resulting pathologic changes throughout the body, is not a condition requiring so grave a prognosis and is one which simply requires watching by the physician, and avoidance on the part of the patient of excessive quantities of those foodstuffs which the glycosuria indicates he can not readily deal with.

Recently a writer in one of the medical journals of the Atlantic coast, endeavored to prove, first, that gly-

cosuria is pathognomonic of diabetes, and second, that glycosuria would inevitably follow the taking of glucose into the stomach, since under these circumstances it would be absorbed directly into the general circulation without passing to the liver and as a result the patient would become diabetic. Such a woful ignorance of the distribution of the portal vein and of the fact that substances absorbed from the stomach go to the liver through the portal vein in the same manner as do substances absorbed from the intestine, seems to us inexplicable, and the assertion that the entrance of sugar into the stomach would result in diabetes because of its direct absorption, if true, would render most of the population of the United States sufferers from this disease; for, by this theory the conversion of starch into sugar will always result in diabetes, or at least in glycosuria, unless this conversion takes place in the small intestine. Such statements made by one who pretends to a knowledge of the physiology of digestion and assimilation in connection with the carbohydrates would not be worthy of attention were it not that they were presented to the medical profession in a journal of high repute and may serve to befog the minds of those who without careful thought accept views as stated by a writer without carefully analysing the physiologic and anatomic basis for his dogmatic assertions.

SUBPERIOSTEAL HEMATOMA IN RICKETS.

Under this name, and under the name of MÖLLER-BARLOW'S disease, a condition has been described in which a hemorrhagic effusion takes place under the periosteum, which is quite rare, but nevertheless interesting. Six cases of this rare disease have recently been recorded by BRUN and RENAULT, of Paris, in *La Presse Médicale*, Jan. 12, 1898. These six cases were observed in the Hospital for Children's Diseases during the past two years. The first case was that of a girl of three months. The father and mother were healthy, but a younger brother had died in convulsions. The child was born at term after a normal labor and had been nursed for six months. It was brought to the Hospital because of the swelling of the right thigh. The general appearance of the child was good. The fontanelle, however, was wide open, but there was no cranial tabes, no thoracic deformity and the belly was not particularly bulging; perspiration was, however, abundant and the skin pale. The liver and spleen were not hypertrophied nor were there any signs of syphilis. The right thigh was greatly increased in size, the swelling being that of a large orange surrounding the femur and commencing just above the knee. The tumor was hard, but the subcutaneous tissues were movable. The skin had its normal color. There was no crepitation. Palpitation of the femur did not reveal much pain. There were no lesions of the gums, no cutaneous hemorrhages and no ocular symptoms, nor was there any fever. The child did not suffer from either constipation, vomiting or diarrhea and the lungs were clear. In the absence of joint phenomena it was evident that the case was not one of osteomyelitis, and fracture was readily excluded by the absence of crepitation and abnormal mobility and by the size of the tumor. Syphilis and osteosarcoma were also excluded. BRUN and RENAULT also decided on a preliminary puncture and then found that the contents of the tumor was pure blood. The child was placed upon antisyphilitic treatment, without result, and shortly afterward suffered from measles, but recovered from the acute attack only to succumb to a bronchopneumonia.

At the autopsy the ordinary lesions of rickets were discovered and the right femur was found surrounded by a considerable effusion and was enlarged with a somewhat spongy material.

The second presented symptoms very similar in character. It occurred in a child of ten months.

The third case occurred in a child of twenty-eight months. The swelling was found in the left thigh, which was also painful. There was, however, no vomiting, nor diarrhea. The general condition was pretty good, although the skin was pale and the belly was enlarged. There were no subcutaneous hemorrhages. There were, however, other evidences of rickets which were quite marked, such as deformity of the long bones.

The other cases occurred in children aged fifteen months and two years. In one of them an examination by means of the radioscope failed to show any distinct abnormality about the femur, although it was practically impossible to keep the child quiet long enough for a proper radiographic picture to be taken.

In the sixth case, also that of a child of two years, a successful radiographic picture presented a femur apparently perfectly normal, without any deformity or fracture, the X rays passing readily through the effusion. For this reason the radiographic picture was without result.

These cases are, we think, of interest in that they might so readily mislead one into the view that there had been a traumatism, or that an osteomyelitis was developing; or again, that an osteosarcoma or a osteotuberculosis was present. Even advanced syphilitic disease might be thought to be the cause of the lesion. It is only when we remember the studies which have been made by MÖLLER, by BARLOW and by CHEADLE, who so well describe acute rickets manifesting itself in hemorrhagic tendencies, and scorbutus in infants, that such cases would appear to us to be not due to a grave cause, but to a diathetic condition generally known as rhachitis. The sudden onset of the malady might often mislead us into the belief that there had been severe traumatism. As pointed out by BARLOW and others, it is entirely possible for the periosteal

hemorrhage to occur in other parts than the surfaces of the long bones, and in MÖLLER'S cases it occurred in the neighborhood of the orbit. The subperiosteal effusion gave the appearance of great swelling and ecchymosis of the forehead.

HIRSCHPRUNG, who has seen ten cases, found the lesions distributed as follows: On one femur in three cases; on both tibias in two cases; on the left tibia and right humerus, one case; on both tibias and one humerus, one case; on the right scapula, left femur and right tibia, one case; on both tibias and both forearms and extremities, one case; on the right humerus and right forearm in one case.

In the paper by BRUN and RENAULT, which we have quoted, the hemorrhage occurred five times in the femur and once in the humerus. It is a noteworthy fact that these subperiosteal hemorrhages are not usually accompanied by hemorrhages into other organs, but such hemorrhages may occur. In four of HIRSCHPRUNG'S cases there were swelling and redness of the gums, but no ecchymosis, and in the six cases reported by BRUN and RENAULT there were no lesions of the gums. Fever in such cases is usually very moderate and a cure usually results. Pain is also not severe. As the swelling is absorbed the movements of the limb becomes more easily performed and finally recovery takes place. Death is usually very rare, unless there be in association with the attack general purpura, albuminuria or bronchopneumonia.

From a study of their six cases BRUN and RENAULT conclude that the disease is a different one from that which is usually considered as scorbutus or acute rickets. The chief and typic symptom is the subperiosteal hematoma, which is without the accompaniment of other symptoms. The hematoma appears without there being any fracture, complete or incomplete, to the bone, although in rare instances some traumatism may be responsible for it.

Predisposing influences, such as a tendency to hemorrhagic diathesis, or scorbutus, may, of course, lead to the development of such hematomata.

SOME PUZZLING FACTS OF IMMUNITY.

Our knowledge of the causes of disease has unquestionably been greatly enlarged by the bacteriologic investigations of the past fifteen or twenty years, and we are constantly acquiring new information that is of the highest theoretical and practical importance. With the positive data, however, thus gained, there are others the signification of which is a puzzling problem, and that sometimes appear to contradict or overthrow the conclusions deduced from what have appeared to be well established pathologic acquisitions. Thus we find that even the more virulent pathogenic microbes do not always behave in the same way and there still remains a certain degree of indefiniteness in our knowledge of the behavior of any germ disease analogous to if not quite as extensive as that which formerly existed when bacteria were unknown and the causes of contagious and infectious diseases were yet an unsolved mystery. The natural history of these lowest forms of plant life has not been by any means thoroughly worked out, and as pathologists we are perhaps not exactly on the right road to this result. We do not study them as naturalists; our aim is to follow them in their pathologic relations to learn to use their microscopic characters and behavior in cultures for diagnostic purposes, and we do not apply to these investigations the critical observation of the systematic naturalist who studies the life history and development with a taxonomonic skill derived from long experience and sharpened by competition and criticism. The specific characters of a simple rod or dot of matter visible only under a high-powered lens are not very marked or numerous, nor are they very adequately supplemented by their behavior to coloring reagents or in coloring cultures. These facts leave us in a certain condition of uncertainty in regard to many often mooted points and there are at least a few so-called pathogenic bacteria that tried by the ordinary laws of evidence might escape on the ground of a reasonable doubt from conviction for the homicides of which they are accused, and for which according to accepted pathologic usage they are considered entirely responsible.

The bio-chemistry of the products of these organisms is also rich in puzzling problems and the whole subject of immunity is a riddle the solution of which seems still very far in the future, if indeed it is ever to be satisfactorily solved. No generally applicable and satisfactory law of immunity has yet been formulated, or at least the exceptions are too numerous to exactly prove the rule. In a general way we may say perhaps that custom and familiarity with organic or infective toxins seem to breed a pathologic contempt, but this is only partially true. Why scarlatina for example, which was reckoned as a trivial affection in SYDENHAM'S time, should still exist now for years at a time one of the most fatal of children's maladies and then again apparently and without reason taking on a milder type, while always with us in one form or the other, is not very clear, and other similar instances might easily be adduced. We know as little the laws that govern this apparently capricious behavior of pathogenic organisms in the human subject as we know the reasons why certain other warm blooded animals are habitually immune to their maleficent action, so fatal often to our own species.

One of the most striking examples of apparent immunity to an especially virulent pathogenic microbe has been lately reported by two Italian observers, MONTESANO and MONTESSORI, in the *Centralblatt f. Bacteriologie* of December 22, last. They were studying the bacteriologic contents of the cerebro-rachidian

fluid, and made the surprising discovery of the existence of NICOLAIER'S tetanus bacillus in the fluid drawn by lumbar puncture from a paretic dement in the later stages of paresis. According to the report given, the puncture was made with due antiseptic and aseptic precautions, and the immediate injection into a guinea pig of the derived fluid caused death from tetanus in five days. Similar results followed injections from pure and mixed cultures from the fluid.

In order to test the observation, a second lumbar puncture was made four weeks after the first one and the same results were obtained. After the patient's death, which occurred in the natural course of his disorder some weeks later, postmortem cultures of the cerebro-spinal fluid made by MINGAZZINI revealed the same organisms as did the punctures during life, nonvirulent streptococci and tetanus bacilli, together with another form supposed to be *bacillus oleaceus*.

This observation, which we are not justified in discrediting *a priori*, almost completely overturns our generally accepted notions as to the pathogenic virulence of the tetanus bacillus. If an organism that, elaborating its toxin in a distant peripheral wound, can poison the whole central nervous system and render it directly toxic to other individuals, can live and flourish in the cerebro-spinal fluid itself, without apparent injury to its host but still preserving all its virulence for control experiments, we shall have to remodel some of our ideas as to its invariably pathogenic qualities to a very considerable extent. Is it possible to suppose that there is a rival toxin in paresis that immunizes the paretic to that of NICOLAIER'S bacillus? The Italian investigators suggest that the existence of this organism in their patient may have had some connection with the congestive and epileptic attacks, but this seems on the whole a somewhat gratuitous assumption, as the case does not appear to have been especially remarkable in this respect. The cerebro-spinal fluid appears to have furnished here a specially favorable culture medium, with conditions as regards temperature, association with other organisms, etc., altogether suitable to the development of the pathogenic peculiarities of the germ and yet the patient, so far as could be shown, was not materially worse for their presence.

The report, as far as it goes, adds another puzzling fact to the literature of immunity, and one that is not quite as readily disposed of or accounted for as some others of its kind. To the well known facts that men can exist in apparent health with diphtheria bacilli in their throats, pneumococci in the blood, tubercle bacilli constantly in the lungs and digestive tracts, and other pathogenic species distributed throughout the organism, we have now to add, according to this latest evidence, that under certain conditions they can also carry the tetanus bacillus and toxins in their nerve centers, without there producing their characteristic lethal effects. The conclusion from all the data is that immunity is elastic, that we have by no means yet learned its limits and that in the whole subject of poisoning by bacteria and their products there are likely to be revealed many things as yet not dreamed of in our philosophy. To accept this as true does not in any way detract from the importance and value of the genuine acquisition to our knowledge of the pathologic relation of these organisms. The facts of infection and its possibilities and of the means of preventing them are too well established to be overthrown. But it may be that in these anomalous discoveries and observations we may find something yet that will reveal new methods of protection against even those agencies that seem at present most formidable.

SURGERY AS A SPECIALTY.

At present there is a delusive kind of fascination in making surgery a special study. Most of the recent graduates aspire to eminence in this field. The apparent certainty of diagnoses, treatment and results seem so clear and tangible, that the practice is sought for as the shortest road to fame and fortune. In a graduating class of one hundred and forty, sixty expressed their intention of pursuing surgery as a specialty. It is the common observation that among the large number of well trained surgeons, who are also teachers in large cities, few ever attain more than a narrow local reputation. Fewer still ever do any original work, or advance the boundaries of the known. Our readers will recall many very active surgeons who have an immense experience and practice, who have never published a new fact or new method of procedure. They will also recall a number of volumes which are absolutely without any new facts, and in some cases are weaker and more feeble statements of truths already well known. It was a source of wonderment to many persons that a most accomplished surgeon and teacher never contributed a single new fact to surgery, although he wrote well and voluminously. The literal explanation is that surgeons are born not made, and no amount of training and experience can make one who will do original advanced work unless he has some natural fitness for it.

Modern surgery calls more and more for first-class mechanical talent; it calls for natural machinists with a strong mathematical brain, full of resources and capable of using the present means to the fullest extent. Such men are resourceful, inventive and reasoning; their observation and judgment are clear and independent. Every great surgeon would have made a leading mechanic or inventor, or great business operator, and every great surgeon is original in his work although it may be confined to small details. The mere mechanics of surgery may be acquired in a

degree by nearly every one, but a knowledge of the higher mechanics of the chemico-physiologic work of the organism can only be understood by a natural born inventor and mechanic. The dexterity of operating is not comparable with the reason and judgment of when and how to do it. A noted New York surgeon while riding in the country broke a wheel of his carriage; he soon repaired it with such skill that he was able to continue on his journey as if nothing had happened. Another surgeon broke his carriage in the same way and left it, continuing his journey in another vehicle. One had the mechanic sense developed, the other was without it.

Every physician should be able to act in emergency cases, but the man who aspires to be a specialist in this field should have strongly marked inventive genius. This specialty is a very poor field of practice to one who is not especially adapted for it.

Unfortunately in medicine, as in other professions, there are many ill trained and ill adapted persons for the work required, but the aspirant for surgical honors without natural mechanical and surgical capacity, is literally more unfortunate than others.

CORRESPONDENCE.

The Free Medical and Surgical Treatment of the Well-to-do in Michigan University.

ANN ARBOR, MICH , March 2, 1898.

To the Editor:—I do not know what authority you have for the editorial that appeared in your issue of February 26, under the above heading. This editorial contains some truth mixed with much error, and you will please allow me to separate the truth from the error. You state: "Since their establishment, the Clinic and University Hospital at Ann Arbor have, as a rule, treated all who applied. Occasionally a particular professor would object to treating a notoriously rich person, but no rule has been adopted. Moved, doubtless, by the protests of the profession and their own sense of equity, the medical faculty requested the Board of Regents, at a late meeting, to exclude all well-to-do people seeking admission to the university hospital. The Board has the matter under consideration. It is reported in the public press that the majority are opposed to such exclusion of the rich. They hold that the hospital is for teaching students of the Medical Department, and that a millionaire makes just as good a subject for teaching as a pauper; that he pays taxes to the support of the hospital, and so has a right to the free services of the university hospital staff."

The truth of the matter is that in 1883 the Board of Regents adopted a by-law authorizing the faculty to exclude from the hospital and clinic all patients who were able to pay for medical services. I have no doubt that some people have imposed upon the faculty, but this rule has been adhered to as closely as possible and is still in force today. A few months ago, a man known to have a sufficiency of this world's goods to enable him to pay a fair doctor's bill, applied for admission to the hospital. In accordance with the rule already mentioned, he was refused admission. He appealed to the Board of Regents on the ground that he was a tax-payer and helped to support the University and the hospital. The Board of Regents ignored his appeal and refused to make any change in the rule adopted in 1883 and in effect since that time.

In the editorial you speak of a doctor living in western Michigan who for years has been able to keep his cases of cataract only by figuring out the railway fare to and from Ann Arbor and the cost of two weeks board at three dollars per week, and by offering to do the operation for the resulting sum. Please allow me, through your columns, to inform this physician that he can increase his price. The cheapest board in university hospital is $5 per week, and when the individual occupies a room alone, the charge is $9 per week. I am sorry that this physician has been losing, as a result of his figuring out the cost of an operation at the University. Furthermore, if any doctor in the State of Michigan will inform the medical faculty that any individual coming to the hospital is able to pay a reasonable fee for the operation to be performed, such applicant will be refused admission to the hospital. Of course, it is quite impossible for the medical faculty to always ascertain the financial standing of patients applying for admission, but both the faculty and the regents have always endeavored, and I think that I may say always will endeavor, to act for the best interests of the medical profession. It would be very unwise for the Board of Regents to educate and graduate physicians and then take from them the means by which they are to make their living. Respectfully,

V. C. VAUGHAN, M.D., *Dean.*

"Oxytuberculin."

SAN FRANCISCO, CAL., Feb. 24, 1898.

To the Editor:—In the JOURNAL of February 5 (p. 336) it is noted that the Audiffred Prize of 100,000 francs for the cure of consumption was not granted to me by the French Academy of Medicine on account of not being sufficiently established by experiments upon animals. I was very much surprised to find my name mentioned in this connection at all, as I had neither applied for a prize, nor did I know of its existence. My work, together, with an official translation, had been presented by the minister of foreign affairs to the Academy and to the Pasteur Institute of Paris for investigation, and it is pleasant to me that it was favorably commented upon by the Academy.

It was and is my desire that the doctrine of the curative effect of oxidized toxins should be most skeptically investigated in order that its truth should be established by others as it has been by me. As stated in the presentation to Cooper Medical College (published in the JOURNAL of February 5), I had not entered at all upon the field of animal experimentation, but had limited my work entirely to the clinical and bacteriologic sphere, in both of which the evidence was indubitable. In the JOURNAL of February 19 a Dr. Smith criticises the evidence presented in rather an acrimonious manner. His feeling toward Cooper Medical College may be explained by the fact that he has had an unpleaeant correspondence with another member of the faculty, which assumed such a character that Dr. Smith's last letter to the gentleman was returned to him unopened. I am not acquainted with Dr. Smith, who lives in a small village some fifty miles from here, and he certainly knows nothing whatever about my cases. He has had some unpleasantness with a medical gentleman, who is using oxytuberculin with most excellent success, in Santa Clara.

With regard to the cases of cured and improved tuberculosis as stated in my published lecture, I have reported a large number that had been examined before, during and after treatment by various medical men, and the sputum slides were presented in evidence before the investigating committee, who likewise examined my culture experiments in the laboratory from time to time. The hygienic condition of the patients treated were absolutely unchanged, nor were other remedial agencies employed. A number of the cases were treated at our City and

County Hospital, where the conditions are notably unfavorable; so bad, indeed, that the city will shortly be compelled to tear down the buildings and erect new ones. The patients are kept on the poorest possible diet, thirteen cents per day being allowed for feeding. These cases (among them the cured miliary tuberculosis reported), have been watched by physicians and students, so that there can be no doubt of the facts.

I am sorry that any personal feeling should actuate discussion upon so serious a subject as a cure for tuberculosis, for there should be no mud-throwing in the temple of science.

It gives me pleasure to state that a large number of medical men throughout the United States have confirmed my favorable statements, in spite of the fact that most of the cases reported have been far advanced. I have distinctly stated that I made claims for the curative action of oxytuberculin only in the early stages of tuberculosis, where it will certainly be found to be a specific. Respectfully,

433 Geary Street. J. O. HIRSCHFELDER, M.D.

Appendicitis.

NEW YORK CITY, March 1, 1898.

To the Editor:—I will undertake to refute the arguments of any correspondents who maintain that we should not make it a rule to operate upon cases of appendicitis as soon as the diagnosis is made. The matter is one of grave importance because the deaths from appendicitis in the United States alone have been estimated, from safe data, to amount to more than fifty thousand annually. Physicians carry into practice the ideas which they believe to be right, and patients are practically helpless in the matter because they must abide by the decisions of the physicians in whom they have placed confidence. Some physicians are wrong; some are right. The ones who are wrong treat as many patients as the ones who are right. Patients do not know the difference and they do not realize that deaths from appendicitis are usually unnecessary deaths. Most of the physicians who are in the wrong on appendicitis questions are more than willing to be set right, but they are apt to become confused unless they are surrounded by an environment which allows them to take judicial positions, instead of the positions of advocates.

I will be brief in my part of discussions, and correspondents can state their points briefly, so that not much space will be required in the JOURNAL. The editor can finally sum up the evidence and can render an important decision upon the subject which directly involves the lives of thousands of individuals.

My proposition is that we must make it a rule to subject our appendicitis patients to operation as soon as a diagnosis has been made. The reasons for my proposition are:

1. No physician will ever be able to prejudicate upon the extent of bacterial ravages in any given case of appendicitis.

2. If we wait to see whether a mild case is to remain a mild case, the cases that are not mild become complicated cases before operation is done and we then have an unnecessary death rate, an unnecessary suffering rate, an unnecessary loss of time rate.

3. Operations properly performed at the outset of infective appendicitis have a smaller loss of time rate, a smaller suffering rate and a smaller death rate than can be given by any sort of medical treatment.

4. Operations performed properly by the surgeon when bacteria are causing progressive destruction of tissues outside of the appendix, are less dangerous than the operations that the bacteria perform.

5. Operations performed properly when patients are apparently convalescing from acute appendicitis, avoid the surprises that appear in the form of infective phlebitis, portal embolism and other metastatic complications which are so often observed by those of us who are engaged in appendicitis work.

6. Operations performed properly, in the interval between attacks of appendicitis, give results similar to those performed in the early infection stage.

I believe that it will be an easy matter to refute any arguments to the contrary of my proposition, but I would like very much to have the matter discussed very promptly because patients are hourly dying unnecessarily from appendicitis, and and it is high time that a preventable death rate be prevented.

49 West Thirty-ninth St. ROBERT T. MORRIS, M.D.

Staphylococcus Infection Not Tuberculosis.

OCONOMOWOC, WIS., Feb. 28, 1898.

To the Editor:—Miss B. applied for treatment at Sanatorium Waldheim, Nov. 21, 1897, on account of a hacking cough, bloody expectoration, general emaciation and night sweats. The patient is single, a servant, 21 years of age. Both parents are dead; father died of tuberculosis; cause of mother's death unknown. Patient says she has always been well up to May, 1897, when she took a severe cold, causing a cough which lasted through the summer and increased toward autumn. She weighs 104 pounds, is anemic, cheeks slightly flushed and gives the impression of one in the second stage of tuberculosis. She coughs mostly toward night, expectorates (with difficulty) a small amount of blood-stained sputum and often vomits after a severe attack of coughing. She has anorexia, night sweats, and does not sleep well. Expansion of chest is fair, with slight dulness over both apices, harsh breathing and some hoarseness. Pulse 100 and an evening temperature of 100 to 101 degrees. I had not much doubt that the case was one of tuberculosis and that tubercle bacilli would be found in the sputum.

A tonic mixture of muriatic acid, quinin, etc., was prescribed to create an appetite and improve digestion, cold packs ordered to be given late in the afternoon daily and the diet was strictly attended to, but the patient's condition, especially the cough, grew rather worse during the first week. In the meantime Dr. Folsom made several microscopic examinations of the sputum without finding any tubercle bacilli, only staphylococci and a few other bacteria being found. A larger quantity of sputum was now collected and centrifuged, after which we obtained several slides of almost a pure culture of staphylococci in endless numbers, but not tubercle bacilli. The cold packs, a yet more nourishing and substantial diet, and the tonic mixture were continued, and in addition, general massage and moderate exercise ordered. There was given besides this, alternate inhalations of a 1 per cent. solution of argenti lactas and a 5 per cent. solution of guaiacol; the first solution A. M. and the last P. M., for five minutes by means of a multiple comminutor (in my mind the only inhaler which is efficacious). Soon the improvement in the condition of the patient was apparent. At the end of the second week she had very little evening temperature, had a better appetite, complained much less and had gained three pounds in weight.

The improvement continued uninterrupted until the end of the fourth week when she was discharged practically well. Had no cough nor expectoration, natural respiratory murmur, no temperature, a normal pulse and general feeling of well being. Her weight when discharged was 114 pounds. She has reported a few times since, always being well and gaining in weight, weighing now over 120 pounds.

I wish to put this case on record as an example of the importance of a microscopic examination of the sputum of such patients. It is quite possible, had the ulcerative bronchitis and staphylococcus infection not been detected, that this patient would have eventually, and probably during the winter, succumbed, with or without an additional infection of the tubercle bacillus, which later would have found a properly prepared soil for its implantation. J. H. VOJE, M.D.

The Manufacture of Antitoxins.

CHICAGO, ILL., March 2, 1898.

To the Editor:—I have just read the paragraph entitled "The New York City Board of Health" that appeared on page 506 of your issue of February 26.

Permit me to point out that ever since January, 1895, diphtheria antitoxin . . . could have been purchased in New York City at a cost never exceeding $2 per vial of 10 c.c., representing 1500 units, or approximately $6 per ounce. The pretension, therefore, of the Board of Health, that the cost of diphtheria antitoxin at the drug store was $12 per ounce, and therefore excessive, is absolutely without foundation. Please note that diphtheria antitoxin . . . is recognized all over the country as a standard product. Practically none has been sold for consumption in New York City itself owing to the competition of the Board of Health. But that does not alter the fact that our diphtheria antitoxin has always been obtainable in New York City at the price named, and in fresh and serviceable condition. The New York City Board of Health must be in a very precarious condition to resort to such unfortunate misstatements in its attempt to retain its power to manufacture medicinal or other preparations in competition with private parties. I do not believe that the spirit of paternalism which now pervades certain public bodies is a correct echo of public sentiment, and appearances indicate that it will be nipped in the bud. A sign of the times is the reduction by the Senate, to $25,000, of the appropriation of $100,000 applied for by the Department of Agriculture for the manufacture and supply of hog cholera vaccine, the reduced appropriation being made with the stipulation that the serum manufactured should be utilized exclusively for official experiments, and none of it should be gratuitously distributed. We enclose herewith copy of an extract taken from the *Oil, Paint and Drug Reporter* of New York City, which may possibly be of interest to you.

Yours very truly, HAROLD SORBY,
Manager Pasteur Vaccine Co.

THE SENATE DISAPPROVES THE DISTRIBUTION OF SERUM.

Readers of the *Reporter* will be pleased to learn that the strong protests made by the manufacturers of pharmaceutic preparations and others against the proposition of the Secretary of Agriculture to spend $100,000 in the manufacture and gratuitous distribution of 2,000,000 doses of hog serum has been disapproved by the Senate. Unless the House fails to agree with the Senate's action, which is not likely, this effort at paternalism will come to naught.

The Secretary of Agriculture has been making a series of experiments through the Bureau of Animal Industry which has resulted in demonstrating to the satisfaction of the experts that a serum can be produced which is very effective against hog cholera. The Bureau officials became so enthusiastic over the results achieved that they induced the Secretary to appear before the Senate Committee on Appropriations, and request an appropriation of $100,000 for the manufacture of serum to be gratuitously distributed through the medium of the agricultural experiment stations and colleges. The editorial comment upon this action which appeared in the *Reporter* last week greatly stimulated protests against this action, and such a flood of remonstrances reached the chairman of the committee and his colleagues in the Senate as to convince the framers of the agricultural appropriation bill that public sentiment was strongly opposed to the Secretary's project. After several conferences Senator Allison, who is chairman of the Appropriation Committee, decided to reduce the sum requested by the Secretary to $25,000, and to concede it only with the distinct understanding that but a limited quantity of the serum should be manufactured and that it should be utilized exclusively for official experiments and none of it should be gratuitously distributed.

The officials of the Bureau of Animal Industry are greatly disappointed at the failure of their plan to distribute the serum widely, but Senator Allison is confident that the real function of the Bureau, which is to determine by experiment the efficacy of remedies for animal diseases, will not be circumscribed as the result of the reduction, while at the same time the Department will be relieved of the criticisms which have been directed against a proposed invasion of a legitimate field of private enterprise.

The victory of the trade is of far greater significance than the mere prevention of the gratuitous distribution of hog serum. It is in effect a recognition on the part of the Senate of the impropriety of the Government's entering into competition with private firms in any line of industry, and there is no doubt that the precedent thus established will be of great value to the business community hereafter.—(From *Oil, Paint and Drug Reporter*, Feb. 14, 1898.)

Opinions Differ.

MINNEAPOLIS, MINN., Feb. 21, 1898.

To the Editor:—I notice in the JOURNAL of January 15 what I consider a very unfair criticism of the excellent work on surgical diagnosis and treatment by J. W. MacDonald, M.D.

1. The reviewer states that "the book might be compressed into two-thirds its size" and that "the author has lost the art of condensation." In the face of the fact that the author is a speaker and a writer of rare ability both on medical and other subjects, the statement raises a question in the mind of the reader as to whether the assertion is not biased by selfish motives.

2. That "it is foggy in regard to tumors." If there is any fog about tumors it must exist in the mind of the reviewer, as many able authors entertain the same views as set forth in this work.

3. That "gas and the electric headlight has superseded the student's lamp as a means of examining the larynx." The idea of the student's lamp may appear ridiculous to a resident of Chicago but there are doctors outside of the Windy City who are not prejudiced by the lantern and cow who are where electricity and gas are not obtainable.

4. The typographic error on page 579 in regard to the word Adams is admitted. The author is not the only one suffering from a "deviated" letter, as I notice the reviewer has a new way of spelling W. B. Saunders.

A MEMBER OF THE ASSOCIATION.

A Prescription Corrected.

PHILADELPHIA, PA., March 3, 1898.

To the Editor:—By an inadvertency an error has found its way into the report of my clinical lecture published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Feb. 26, 1898. On page 464, in the second column, the second prescription should read as follows:

℞ Pepsini glyceriti . . . . . ℥v. 147|85
Acidi hydrochlorici diluti. . . . . m. cc. 12|32
Sig.—Two teaspoonfuls after each meal.

In reading the proof furnished me that portion which contained the above prescription was missing. I have been informed by your printer that two galley slips had stuck together and that the prescription, together with the adjoining portion of text was concealed. JOHN V. SHOEMAKER, M.D.

Wants Statistics of Homeopathy.

CHICAGO, March 1, 1898.

To the Editor:—It would be interesting and valuable to know, according to reliable statistics, the number of homeopathic physicians, colleges and hospitals in the United States at the present time as compared to the number ten, twenty and thirty years ago.

If it seems wise to the editor, I think a statement of such statistics would be very generally appreciated.

Very respectfully, R. S. PORTER, M.D.

ASSOCIATION NEWS.

Prospective Attendance at the Denver Meeting.

DENVER, COL., Feb. 28, 1898.

To the Editor:—I send you this communication in the way of a preliminary report relative to the prospective attendance

at the forthcoming Denver Meeting, thinking that it may be of interest to the members of the AMERICAN MEDICAL ASSOCIATION. As Chairman of the Local Committee upon State Medical Societies, I have opened a correspondence with the officers of all the State socicties with a view to awakening a degree of interest, thercby securing as large and enthusiastic delegations as possible, and to ascertaining in reply an approximatc cstimate of the probable attendance from each State. The answcrs thus far received have been, upon the whole, extrcmely gratifying, and from the assurances contained indicate the development of a decidcd general interest with a growing spirit of enthusiasm relative to the next annual meeting. The exhibition of this feeling may be reasonably expected to result in a large and representative gathering of medical men in Denver next June. That the meeting will be a brilliant success in point of numbers and character of attendance is already practically assured by the expressions received from all parts of the country. The larger number of replies have been necessarily of a purely general nature. The fact that a majority of the State societies do not hold their annual meetings until April or May renders it impossible for their officers to form any adequate estimate as to the size of the delegations from the respective States. In but few instances have delegates been appointed as yet. Those whose names I have been able to secure have been corresponded with. Some have replied, signifying their intention to come and bring others. Nearly all the officers of the various State societies are taking energetic measures to create an active interest among their fellows, and predict in behalf of their local organizations a generous representation. The names of the many delegates will be furnished me as soon as the appointments havc been made, and they will be communicated at once. Thus far general estimates have been received from thirteen States, representing a total of 618. While from the rcmaining States no official information has been received upon which to base provisional opinions as to the relative size of delegations, still sufficient data of a general nature havc been secured to justify the conclusion that the estimate quoted for the thirteen States will be a fair proportionate index of the whole. From this it seems safe to assume that the attendance at the next meeting will equal that of any previous year. If the voluntary expressions of those in authority in the various States may be considered as reflecting to any degree the sentiments of the individual members it is apparent that a strong feeling of interest and hearty enthusiasm is already aroused. Did space permit I would quote brief extracts from the many letters received, evincing the most earnest sympathy and active co-operation. The earnest work undertaken in some of the societics should stimulate all to renewed efforts toward insuring the success of the next annual meeting. Very sincerely yours, S. G. BONNEY, M.D.

NECROLOGY.

THOMAS B. BAILEY, M.D., appointed to the U. S. Navy from New York in 1889, and made a Passed Assistant Surgeon in 1892, died in Washington, D. C., February 24, aged 34 years. He had been on the China Station but was lately ordered home and to duty at the Washington Navy Yard.

WILLIAM S. TORREY, M.D., New York University, 1884, died in Brooklyn, N. Y., after a long illncss, in his 36th year, on March 4. His remains were interred at his former home in Honesdale, Pa.

JOHN C. SHERMAN, M.D., in charge of the U. S. Marine Hospital at Ogdensburg, N. Y., died in New York city March 2, aged 48 years.

DEATHS ABROAD.—Dr. Jennie Taylor Gordon, wife of a missionary in Africa and niece of Bishop William Taylor of the M. E. Church, died at Malangc Angola, West Africa, December 29. She was known as "Dr. Jennie" in the forcign missions and during her long service abroad acquired an enviable reputation for skill. Her parents are residents of Mechanicsburg, Pa.

JAMES J. STEPHENS, M.D., College of Physicians and Surgeons, New York, 1846, died from apoplexy at his home in Tappan, N. Y., March 3, in his 75th year. He was born in New York city but came to Tappan forty-three years ago and for forty of these he was owner of the Major André prison house, from which he religiously excluded the public. After this structure was blown down in part on November 2 last, the ncxt owner rebuilt it and made its inspection free. Many stories are told of Dr. Stephens' skill and eccentricity.

WILEY H. WILSON, M.D., Lake Geneva, Wis., February 27, of cerebral hemorrhage. He was born at La Grange, Ga., Jan. 6, 1812, and when the war broke out he was a student at the University of Athcns, which he left at the age of 19 to join the Southern army in West Virginia, where he served on General Rhodes' staff in Stonewall Jackson's brigade. He was with General Lee at the surrender at Appomattox courthouse. After the war he studied medicine in Louisville, Ky. In 1880 he moved to Chicago, where he practiced his profession five years, and then moved to Lake Geneva.

ROBERT A. WHEATON, M.D., St. Paul, Minn., February 25, aged 30 years. Thc Doctor was graduated from Harvard in 1889, clinical instructor in surgery at the University of Minnesota, a member of the AMERICAN MEDICAL ASSOCIATION, the Minnesota State Medical Society, Massachusetts Medical Society and Association of Militarv Surgeons of the National Guard.

THOMAS JEFFERSON MOORE, M.D., Richmond, Va., February 24, aged 58 years. Dr. Moore was a native of North Carolina, served as a member of the Senate of that State, was for four years a member of the Virginia State Medical Examining Board, a member of the AMERICAN MEDICAL ASSOCIATION and honorary member of the North Carolina Medical Society, and filled the chair of clinical medicine in the University College of Medicine at Richmond.

FRANCIS G. HENRY, M.D., Kansas City, Mo., February 26. He was born in Paris, Ky., in 1828, and about 1860 moved to Missouri. He entered the Confederate army and accompanied Price in his first raid. He also served under General Shelby. During Governor Crittenden's administration, Dr. Henry was appointed superintendent of the asylum for criminal insane at Fulton, Mo., he being the first to hold that position.

JOHN PARKER MAYNARD, M.D., Harvard, 1848, of Dedham, Mass., February 26, aged 72 years. He was born in Boston, Mass., was a graduate of Yale and in 1847 the discoverer of collodion, which he soon utilized in surgery.

JOHN YALE, M.D., Yale 1841, died in Beloit, Kan., February 26. He was a descendant of the founder of Yale College and born in New Hartford, Conn., April 2, 1820. Most of his life was passed in Ware, Mass.

SAMUEL AUGDEN HILLS, M.D., Yale 1846, died at his residence in New York city after a long illness, Fcbruary 26, aged 76 years. During his professional life he was an apothecary, a coroner, lumber merchant and a realty investor, having accumulated considerable wealth.

A. RUSSELL STRACHAN, M.D., died at the St. Cloud Hotel, New York city, March 1, as the result of injuries received a week before in an effort to save a woman and child from being run over by a Broadway cable car. Both were rescued. He however thought but little of his hurt and did not immediately take to his bed. He was born in Scotland, was graduated from the Victoria University, Ontario, 1861, and long ago was connectcd with Luke's Hospital New York. An obituary note credits him with being the author of various medical works and of many magazine contributions.

CLARENCE LEWIS, M.D., agcd 24 years died in San Francisco,

Cal., February 20.——W. H. Hill, M.D., South Onandago, N. Y., February 26.——William Coe Holmes, M.D., College of Physicians and Surgeons, New York, 1880, died in Waterbury, Conn., February 24.——Hiram Lake, M.D., Holliston, Mass., aged 79 years.——W. H. Parkhurst, M.D., Dunbar, Neb., February 25.——Frank W. Root, M.D., Kent, Ohio, February 26.——Samuel D. Seelye, M.D., Montgomery, Ala., February 23.——Alexander Fulton, M.D., Philadelphia, March 1, aged 43 years.

PUBLIC HEALTH.

Proposed "Practical" Medical Legislation for New York State.—Legislation intended to build up the profession's "practical interest" in New York, will not be wanting this year. Free vaccination is to be opposed as inimic to the best (financial) welfare of young medical men. The production of diphtheria antitoxin by official laboratories and its administration free of charge by boards of health, also the attempt officially to repress that "filth disease, pulmonary phthisis," will be legislated against. If the promoters of the "practical interests" bill will also attack the bacterial diagnosis of diphtheria, tuberculosis and typhoid fever in our official laboratories, they will have well done their part toward closing up those branches of work that have hitherto been regarded as objects of congratulation by our more wide-awake boards of health. When New York City began the work which is now proposed to abolish, antitoxin was selling for $12, but in consequence of the Health Board's production it is now sold for $1.50. The city's bacteriologic bureau has attracted attention in Berlin, Vienna, England and Scotland, where its method has been copied, as well as in several American cities. An appropriation of $30,000 a year is made for it by the city, and as much more is realized by the sale of antitoxin and vaccine, which is said to be the purest made in this country. It supplies the city of Chicago. The receipts are applied to the work of the bureau. Last year 9641 visits were made to tuberculous patients, 5000 to disinfect rooms in which patients had died, and 4641 to teach patients not to communicate their disease. There were 968 persons treated with 1400 injections of lymph in 1896, and 1214 were immunized. The number of persons treated last year was 1174, to whom 1600 injections were given and 1714 persons were immunized. Much of this work was done among the poor. If this newly proposed legislation is carried out there must be a very general closing up of important lines of laboratory work. Will the best interests of the medical profession be advanced thereby? One effect we can foresee as possible is that there may be attracted into the medical student class numbers of young men who are looking out for a good "practical" money-making profession; and if this effect shall be produced, some of these legislation promoters may have occasion for sorrow. Is "practical" legislation a two-edged sword?

MISCELLANY.

Carbolized Camphor is strongly recommended for suppurating and inflammatory processes by Ordin, a Russian confrère.—*Cbl. f. Chir.*, November 13.

Surgical Intervention in Perforating Peritonitis from Typhoid Fever.—Monod reports a case in which he performed laparotomy, but the patient died three days later, as the peritonitis continued its ravages. He has had five recover out of thirty-two operated on in these conditions, and considers an operation indicated and justified as a last resort. Routier, Brun and Lejars have each a record of one or two cases thus treated, but none recovered.—*Cbl. f. Chir.*, January 22.

Permeability of the Placenta.—Recent tests with methylene blue to determine the permeability of the placenta, similar to the tests with the kidneys, resulted in the appearance of the blue in the urine of the infant by the end of an hour and a half, as the minimum. The tests were made on sixteen maternity cases three minutes to twenty-two hours before the expulsion of the fetus. The blue could not be detected in the milk nor in the amniotic fluid.—*Progrès Méd.*, January 22.

A Peculiar Case of Abnormal Genitalia is related by E. Tornu in the *Anales del Circ. med. Argentino* for November. The vagina and uterus were rudimentary; the former without an opening, and one ovary was absent. Menstruation was accomplished through the bladder although no communication between it and the genitalia could be discovered. During menstruation there was absolute anuria for three days, even during the corresponding periods when the menses failed to appear, as happened occasionally.

Experimentation with Combined Coli Bacillus and Pyogenic Cocci in the Etiology of Gastro-Intestinal Fever.—A. M. Coco asserts as the results of research in this line: 1. That the coli bacilli become virulent in the presence of the pyogenic strepto- or staphylococcus. 2. The coli bacilli alone produce no thermic elevation or merely a slight and momentary rise in temperature. 3. The simultaneous ingestion of the coli bacilli and the pyogenic staphylococcus determines an appreciable elevation of the temperature and rapid loss of weight. 4. Cultures of the coli bacilli and pyogenic strepto- or staphylococcus ingested simultaneously, established an intense gastro-intestinal catarrh.—*Gazetta d. Osp. e d. Clin.*, January 23.

Non-diphtheritic Laryngitis Fibrinosa.—A case is described by A. Rosenberg in *Therap. Woch.* of December 19, in which a fibrinous growth appears constantly on the larynx, the patient, a man of 67, otherwise in good health. It has persisted a year and a half, in spite of treatment of all kinds. The patches require about a week for their appearance, development and final disappearance, when others appear at other points, all tenaciously adherent, the membrane very much inflamed under and around them. Cicatricial growths in the pharynx indicate old syphilitic infection, denied by the patient.

Recurring Appendicitis.—A review of 346 cases of appendicitis treated in the Bathanien Hospital at Berlin shows that in 65 the affection had returned. It recurred once in 37 cases; twice in 10; three times in 6; four times in 1; five times in 1. The interval between the recurrences was one year in 39; two years in 10; three years in 4; four years in 4; five years in 1; seven to ten years in 2, and eight, nine and eleven years in 1. In 5 cases the relapse led to generalized peritonitis. The usual proportion between sexes was observed: 38 children, 211 male adults and 97 female.—*Cbl. f. Chir.*, January 22.

Surgery of the Stomach for Malignant Neoplasms.—C. A. Ewald reports a mortality of 54 to 69 per cent. in sixty-eight operations, although the operative result was faultless in all but three. He considers gastrostomy a kind of euthanasia, but notwithstanding it must be performed for humane, if for no other reasons. He adds in conclusion, that the prognosis is dubious in every case; it is impossible for the surgeon to know the outcome beforehand, even in the most apparently favorable cases; still surgical intervention should be proposed in all cases that indicate it, and the operation should follow with the least possible delay. Lactic acid is no longer considered a specific symptom of gastric carcinoma, as the palpable neoplasm usually precedes it.—*Cbl. f. Chir.*, January 22.

Death from Inhibition.—Cases are known of sudden death from a very slight blow in certain regions of the body, not severe enough to produce even an ecchymosis. Brown-Séquard explains them by inhibition, arresting by reflex action the heart and the circulation, the exact reverse of the co-ordinated phenomena of reflex motor excitation of which the sneeze is the type. Three phenomena are characteristic of death from

this cause: The absence of agony, the *extreme silence*, no convulsions or foam on the lips; there is no change in the color of the blood, as in asphyxia, and the temperature falls rapidly. But the expert is seldom summoned until these characteristics have passed away, and such cases are apt to be puzzling. The impressionability varies with the age, sex and morbid circumstances. Children are more subject to death from inhibition than adults, and women than men.—*Jour. de Méd. de Paris*, December 19.

Dissecting Aneurysm of the Heart.—A. Vestberg has collected sixty observations of aneurysm of the heart, corresponding to the conception of dissecting aneurysm of the vessels. In most cases it was consecutive to an endocarditis, abscess or rupture of an ordinary aneurysm. In two, to traumatism. The interparietal form is most common. There is no independent wall at first, but a secondary wall forms later, in chronic cases. Rupture occurred in more than half of the cases, but only once outward. In two cases the valves of the aorta were involved; in two others the septal fold of the tricuspid valve, and in four the anterior mitral fold. His communication in the *Nordiskt Med. Ark.* is copiously illustrated.—January 10.

Resection of Renal Tissue for Diagnostic Purposes.—Macroscopic examination of the kidney is not sufficient in many cases to disclose the true nature of an affection, and conservative treatment is much promoted by supplementing the usual means of diagnosing with the resection of a small piece of the parenchyma. Several convincing observations related by O. Bloch confirm the wisdom of the procedure and its absolute innocuousness. He even asserts that the mere opening up of the kidney, freeing adherences, aspirating fluids, etc., will frequently cure existing troubles, and the resection of a thin slice will confirm the non-malignant character, although to the eye the organ seemed seriously involved and removal urgently indicated. The urine afterward returns to normal with astonishing rapidity. The value to histology of thus obtaining sections of living tissue for study is apparent.—*Nordiskt Méd. Ark.*, January 10; eight cases.

The Infestation of Dwellings by Fleas.—The Department of Agriculture, in a recent entomologic circular of information says that it is the *pulex serraticeps*, not the *pulex irritans*, that is more frequently concerned in the infestation of domiciles. As to the removal of the pest the following advice is given: "Every house where a pet dog or cat is kept may become seriously infested with fleas if the proper conditions of moisture and freedom from disturbance exist. Infestation, however, is not likely to occur if the (bare) floors can be frequently and thoroughly swept. When an outbreak of fleas comes, however, the easiest remedy to apply is a free sprinkling of pyrethrum powder in the infested rooms. This failing, benzine may be tried, a thorough spraying of carpets and floors being undertaken with the exercise of due precaution in seeing that no light or fires are in the house at the time of the application, or for some hours afterward. Finally, if the plague is not thus abated, all floor coverings must be removed and the floors washed with hot soap-sods. This is a useful precaution to take in any house which it is proposed to close for the summer, since even a thorough sweeping may leave behind some few flea eggs from which an all-pervading swarm may develop before the house is reopened."

A Vesicant Acarus.—Meguin (*Bulletin de l'Acad. de Méd.*) dwells on the remarkable disease observed in China among the poor, who eat a kind of purslane or arroche (atriplex). The skin on exposed parts becomes edematous and itches severely. The symptom has been attributed to an acarus which is found on this kind of atriplex. But the parasite has not been actually found in any patient. Meguin, however, believes that the theory about the Chinese disease is correct, for in Mauritius there is an acarus known as *holothyrus coccinella* (Gervais), which abounds in moss in the cold and damp highlands of the island. Poultry can not be reared in those districts, as the acarus causes fatal pharyngitis. Native children suffer in the same manner. Some specimens of holothyrus were sent to Meguin. They were all dead. He fixed them by strapping to his forearm. In a few hours they set up severe irritation, edema and prurigo. The live holothyrus must be a powerful irritant to mucous membranes. It measures under one-fifth of an inch in length.—*British Medical Journal.*

Improved Sutures in Operations for Inguinal Hernia.—Prof. S. Duplay and M. Cazin, both of the Faculty of Medicine at Paris, dispense with buried sutures in the Bassini and other operations for inguinal hernia by using temporary silver wires. The under row of three U-shaped stitches brings the deep tissues together, beneath the spermatic cord. The ends are twisted tight over a roll of gauze. When coaptation is perfect the cord is replaced and seven wires passed through the superficial tissues, reconstituting the anterior wall of the canal, suturing the pillars and closing the cutaneous wound at the same time, with a few additional stitches of the skin if necessary, with very fine wire. The cord has ample space between the two layers of stitches. The superficial threads are removed in seven to eight days. The lower row is not disturbed for twelve to fifteen, and they have been left for eighteen to twenty days without inconvenience. The split ends of the sac are tied together beforehand, to assist in reducing the hernia, by the method described in the JOURNAL (Vol. 27, page 1348). They consider silver wire much better for these operations than catgut, which is absorbed too rapidly to ensure solidity, and their tests with kangaroo tail tendons, showed that they also were absorbed in fifteen days.—*Semaine Méd.*, December 22.

Medical Representation in Congress.—The editor of the *Texas Medical News* would have a better and fuller medical representation at Washington, and to that end nominates Dr. Stanford E. Chaillé of New Orleans for duty in Congress. He says that his nominee's long experience in matters sanitary will be timely in the pending and impending discussions regarding quarantine and national organization, for in order to secure the benefits to be derived from a department of public health for the United States Government and State health boards, legislation is indispensable, and the needed legislation can never be secured unless the medical profession is represented in the United States Congress and State legislatures by able members of the profession. These great reforms can never be accomplished in any other way, and to this end we earnestly suggest, as a beginning, to the people of New Orleans and Louisiana, the name of Stanford E. Chaillé as a suitable member for Congress from the district of his residence. In sending Dr. Chaillé to Congress the people of his district would not only confer a benefit upon themselves, but, in our judgment, upon the entire people of the United States.

Surgical Intervention in Purulent Peritonitis.—Korte has grouped all the cases of generalised peritonitis from internal causes observed since 1890, excluding all traumatic, gangrenous hernia and other cases in which the peritonitis was secondary to general infection. They number ninety-nine. Seventy-one were operated on, with twenty-five recoveries (32.5 per cent.), and forty-six deaths. Twenty-eight were not operated on; six recovered (21.4 per cent.) and twenty-two died. Although these results are modest, still those who recovered would have undoubtedly succumbed without the intervention, which aims to remove the peritoneal exudate, thus preventing the ulterior absorption of the toxins and freeing the intestines, the abnormal walls and especially the diaphragm, from the extreme pressure. The best results were attained in perforations of the appendix (33 per cent. cured). The earlier the operation

the brighter the prospects of success. If twenty-four hours have elapsed since perforation of the alimentary canal, the chances are reduced to the minimum. The exudate is diagnosed by percussion, palpation in various positions and rectal and vaginal examination. Exploratory punctures are dangerous and should never be attempted unless prepared to follow immediately with the laparotomy. He notes that as the case advances to a fatal termination the general symptoms overshadow the local, and as long as the latter preponderate, no matter how severe, there is still hope.—*Mitth. a. d. Grenzb. d. Med. u. Chir., ii, 1, 2.*

Sanitation is the Chief Glory of Modern Times.—Dr. L. Parkes of London has lately given a discourse upon the progress of sanitary operations in the last half century. He gave it as his opinion that it is not too much to say that the chief glory of the closing epoch has been the growth of exact knoweldge as to the causes of many of the diseases and adoption of measures, State, municipal and private, that science had indicated as necessary to counteract the diseases and the disease tendencies by which the community was continually assailed. At the present time public health acts and sanitary authorities have revolutionized the lives of the poor. The mortality from smallpox has diminished by 96 per cent. in 1891–95 as compared with the mortality in 1838–42. In the same period the deaths from fever have declined 82 per cent., while since 1871–75 there has been a decrease of 95 per cent. in the mortality from typhus and of 60 per cent from enteric fever. Since 1861–65 the mortality from scarlet fever has fallen 81 per cent., although that from diphtheria has risen in recent years and is now very much the same as it was thirty years ago. In phthisis the mortality has fallen 46 per cent. though it is still high. Cancerous diseases, on the other hand, appear to have increased, nor is the whole of the increase, Dr. Parkes considered, due to more precise diagnosis. Ague, which was extremely prevalent, has been nearly eradicated. Only those who died from acute alcoholism were returned as having died from the effects of drink, yet, notwithstanding the more temperate habits of the people, the deaths from this cause were as numerous as they were thirty years ago. The general effect of improvement in sanitation is that 600,000 persons reach the age of 21 years, who sixty years ago would have died.

Not Held to Standard of Infallibility.—The law does not require of a physician or surgeon absolute accuracy, either in his practice or his judgment. The law does not hold physicians and surgeons to the standard of infallibility, nor does it require of them the utmost degree of care or skill of which the human mind is capable, but that, while in the practice of their vocation, they shall exercise that degree of knowledge and skill ordinarily possessed by members of their profession. This is the declaration made by the supreme court of Nebraska, in the case of Van Skike vs. Potter, December, 1897, which was an action brought to recover damages from Drs. Potter and Reynolds for alleged negligent treatment of a knee-cap fractured in a baseball game. The trial resulted in a verdict and judgment in favor of the doctors, which the supreme court affirms. The evidence, the supreme court holds, sustained the finding of the jury that the defendants did not contract with the plaintiff to effect for him a permanent cure, and did not contract to visit and treat him until he was cured. As to whether they had pursued the proper method in setting his knee cap, by wiring the fractured portions together, the supreme court says, "as is usual, the experts for the plaintiff agreed with his contention, and the experts on behalf of the defendants agreed with their contention," and it decides that they were not guilty of negligence in the treatment given the plaintiff, including the leaving the point of a drill in the bone, when broken off in drilling a hole in one of the pieces of the knee-cap, owing to a movement of the plaintiff's leg. Upon the issue, made by the pleadings, as to whether the defendants agreed to visit and treat the plaintiff until he recovered, the court holds that they were properly permitted to testify that at the date of their last visit to him, they informed him that they should not return unless they should be requested so to do. It also holds that in such a case, text-books on surgery, though standard authority on the subject, could not be read to the jury as independent evidence of the opinions and theories therein expressed or advocated.

Conjugal Diabetes.—Dr. Schram, before the Harvard Medical Society of New York City, is reported in *Medical News*, January 1, as saying that in a series of 5,000 cases Boisumeau found 1.8 per cent. of conjugal diabetes. Most investigators agree that the development of the disease in both husband and wife is not accidental, but that an etiologic relation exists. The facts thus far published do not shed much light on the two theories of causation now held, viz: That the ordinarily accepted causes of diabetes are active in both husband and wife, and that the disease is contagious. Cases have been reported with almost conclusive evidence of contagion, but the nature of the contagium and how it is conveyed are mysteries. In regard to the doubt which has been expressed as to contagion in diabetes, I would like to mention some recently reported cases in which laundresses apparently contracted the disease by washing the clothing of diabetes. However, the question is still an open one. The authorities differ very much, but the French school is inclined to believe that diabetes is contagious. Dr. Schram reports the case of a woman, aged 76 years. She first came under observation seven years ago, and had been married forty-eight years. Sugar was constantly found in the urine in amounts varying from less than 1 to 4 per cent. She refused to submit to rigorous diet in July, 1897, in diabetic coma. Thirst and pruritus had been the most troublesome symptoms. An extensive ischiorectal abscess developed two weeks before death. One week later the husband's urine was found to contain 3 per cent. of sugar. Symptoms of the disease sufficient to attract his attention antedated his wife's death by about two weeks. Sugar is now found in his urine in abundance, but disappears for a time under diet and opium. He is now 76 years of age and apparently contracted the disease seven years after it was first discovered in the wife, and after nearly fifty-three years of married life. The couple had eleven children, seven of whom are alive and well.

Chief Surgeon Has no Implied Authority to Employ Assistants.—In the absence of expressed authority, there is no implied authority for the chief surgeon to employ assistants. So holds the supreme court of Michigan, in Burke against the Chicago and West Michigan Railway Company, Nov. 17, 1897. This was an action brought to recover for medical attendance upon a former employe of the defendant company named Radke, who had received injuries while working on one of its trains. After the employe received his injuries he was first treated by a local assistant surgeon of the company; but on a certain occasion he was taken worse, sent for that assistant, who could not be found, and then the plaintiff was summoned and continued to treat the patient for some weeks. During this time the chief surgeon of the railway company wrote to the plaintiff: "I am informed that you are now attending Herman Radke, an employe of the C. & W. M. Ry. Co., who was injured a few weeks ago. Will you be kind enough to inform me as to his present condition? Has he completely recovered? I would like a history of the case since you took charge of it. Please send your bill for services, itemized, to me if you are through with the case." This letter, the supreme court declares, contains no express authority to attend Radke at the expense of the company. Moreover, it intimates that the company acted prudently in limiting the chief surgeon's authority

in respect to the treatment of injured employes to the employment of regularly appointed local surgeons of the company under contract relations, except in emergencies for temporary services only, because the plaintiff first rendered his bill against Radke at $2 for reducing fracture and the subsequent items at $1 each, but charged the railway company at $50 for the first item and $3 for each subsequent visit. But on its merits the court holds that a verdict should have been directed for the defendant in this case.

Are Second Attacks of Measles Infectious?—Dr. A. Kebbell writes to the London *Lancet* regarding the question above written, saying: "My attention was first drawn to the subject by a case which occurred in my practice some fourteen years ago. *Case 1.*—A middle-aged farmer with a large family of children had what was diagnosed as a well-marked attack of measles. I quite expected that some others of the family would be attacked, but to my surprise no one else took it, and I concluded that I had made a wrong diagnosis. I am not certain that he had had it before, but from the cases I have seen since I am of the opinion that he had. *Case 2.*—In 1895 a farmer, middle-aged, had a well-marked attack of measles. He had had measles before. He had five children and, his being a small house, no effort was made to isolate the case, but no other member of the family took it. In 1896 there was an epidemic of measles in the village; all his five children were attacked, and he again took it in a severe form. *Case 3.*—A boy, aged 14 years, was ill in the same epidemic with his second attack and a child, aged 6 years, played with him, but did not take it; but six weeks after she contracted it from another child. *Case 4.*—This occurred in my practice in September last. A laborer had a well-marked second attack of measles. He had five children; two of them had not had measles, and although no extra precautions were taken, neither was attacked. I am not aware that this subject has been noticed before, but if my surmise should be correct, it would be very satisfactory to be able to assure patients with second attacks that no isolation would be necessary, and that there would be no risk to any other persons.

Arthritic Basis of Basedow's Disease.—Vigouroux asserts that an arthritic tendency is the general condition, and hepatic insufficiency the immediate cause of Basedow's disease. This assumption explains the arthritic manifestations which so frequently accompany the affection and maintain their independent course. Infective diseases also prepare the soil. Certain symptoms hitherto attributed to the disease, such as alterations in the myocardium and valves should be ascribed to the pre-existing diathesis. This conception that it is a diathesic intoxication with its principal localization in the thyroid gland, on which is superposed the thyroid intoxication, indicates general treatment, hygienic, etc., with special regard to the varying and opposite nutrition shown by the urine, alternating between the arthritic and the opposite characteristics of exaggerated dissimilation. The general treatment is supplemented by faradization of the gland and carotid arteries, including contractility, and reducing both gland and arteries to normal size. With frequent repetition an improvement is obtained equivalent to cure. He considers surgical intervention irrational, dangerous, useless and only allowable as a last resort when all medical means have been tried in vain. Poncet of Lyons, also denounces surgical intervention now, after having advocated it for a while.—*Bull. de l'Acad. de Méd.*, January 11.

Proceedings of the Mobile Convention.—The Committee on Publication appointed by the Chairman of the Quarantine Convention of the South Atlantic and Gulf States, submits the following report:

Copies of the resolution offered by the Hon. R. H. Clarke of Alabama, and unanimously adopted by the Convention, together with copies of all other resolutions germane thereto, were forwarded to each Senator and Representative in Congress, to all members of the Convention and to all persons invited to attend. The cost of printing, stationery, postage, clerk hire, etc., to date, is $25.55, which subtracted from the amount collected, $53.75, leaves $28.20 on hand. From this remainder the expenses of this circular and of further correspondence must be deducted. Manuscripts aggregating 106,000 words have been received for publication, and more are to come. It is estimated that the entire material will make a book of some 350 pages. The lowest estimate for its publication yet received, including binding, wrapping, freight, postage, etc., is, for one edition, $577.50. If 200 members of the Convention, or others interested in quarantine matters, will subscribe for three copies each at one dollar per copy, the amount will pay for the entire work. The book will be unique and valuable. It will contain a mass of information concerning epidemics, quarantines, camps of detention and refuge, management of refugees; management of railway trains, mails and freights during an epidemic; principles and application of disinfection; theory and forms of pratique and health certificates; proper methods of establishing local, State, and interstate quarantines; and the broad legal principles upon which all these measures must be founded to be lawful and effectual. No such a compilation of facts and authorities upon this subject has ever before been undertaken. All shades of opinion will appear therein as expressed by their ablest exponents. But one edition will be published and the copies will soon be worth far more than their proposed cost. Your Committee makes this report and invites subscriptions to the work. No money is asked for now. As soon as enough subscriptions are received to pay for the cost of the book subscribers will be notified to send in their contributions. If not enough is promised no money will be received, and the manuscripts will be returned to their writers. Your prompt attention to the above is respectfully requested. Write to the Chairman of Committee, Dr. H. A. Moody, Mobile, Ala., stating amount of money you will subscribe and the number of copies you want.

Respectfully submitted,

H. A. Moody, L. E. Brooks, Erwin Craighead, Committee.
MOBILE, ALA., Feb. 24, 1898.

A Peculiar Transaction.—In our issue of Feb. 5 we published an article entitled "Five Years' Successful Experience with a Special Mode of Treating Pulmonary Tuberculosis," by Charles Wilson Ingraham of Binghamton, N. Y. We were not aware that it had any commercial value to the Doctor, but it seems that there was an "African in the woodpile," and we hereby apologize to our readers and other advertisers for having published it. It is only simple justice to say that nothing in the original suggested that it was an advertisement under cover. The following is the reply to a reader who wrote the Doctor in regard to his "special method":

Dr. . . . . , Madison, Wis.—*Dear Doctor:*—Your recent communication was duly received and I take pleasure in responding to the same. I thank you for words of appreciation you have expressed concerning the practical aspect of the mode of treating tuberculosis as advocated in my article recently published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. In your letter you requested that I forward you a supply of the compound iodine solution as prepared by myself, and if necessary a hypodermic syringe for the administration of the injections. I would much have preferred to quote you terms and later forward you a definite order, but thinking that the delay would be perhaps disappointing, I have already sent to you the "Introductory Order," which nine out of ten physicians order, and which gives you benefits which do not come with an order made under different conditions. In the 32-page circular which has been mailed you is a list of special hypodermic instruments (p. 28) which are required in order to properly administer the compound. The cost of these instruments almost invariably falls to the attending physician, and commencing with the current year, in response to a large number of requests for better introductory terms, the Bromine-Iodine Chemical Company of this city (Binghamton, N. Y.), general agents for the sale of the compound, decided to send with each introductory order of ten ounces, involving a cost of $15, the complete hypodermic instrument outfit gratis. I should have stated first that the compound is put up for sale only in one-ounce bottles, and is sold at $1.50 per ounce. Ten ounces is the average amount required in the treatment of either pulmonary or laryngeal tuberculosis. The average length of treatment is four months, and this creates a cost of less than $1 per week for the remedy, which is within the reach of all invalids.

The *injections* are *administered once daily.* The maximum daily dose is one dram. The injections, as stated in the article in the JOURNAL, are attended with no pain, excepting the puncture of the hypodermic needle, and the most delicate and sensitive invalids can take the treatments.

Since the publication of my first article descriptive of the treatment of tuberculosis with bromine-iodine compound, which appeared in the *Amer. Med.-Surg. Bull.*, March 15, 1895, nearly three years ago, the compound has been widely used in every State of the Union, and the results which I have reported have been repeatedly duplicated and better by general practitioners. I have every confidence that you will secure very pleasing results from the treatment, both as concerns percentages of recoveries and permanency of recovery. I shall be very glad to correspond with you further at any future time, and to advise with you by correspondence whenever my advice can be of service. As you have requested, I enclose bill herewith. Fraternally yours,

CHARLES WILSON INGRAHAM, M.D.

Dr. . . . . , Madison, Wis.,

To Dr. Charles Wilson Ingraham, Binghamton, N. Y., Dr.

Ten ounce bromine-iodine compound at $1.50.	$15.00
Special hypodermic instruments, complete	5.00
	$20.00
Credit special introductory discount on 10 oz. orders . .	5.00
Balance	$15.00

It is needless to add that the physician to whom this was sent promptly returned the "compound."

Malarial Hemoglobinuria.—Bastianelli, in *Annali di Medicina*, has recently contributed an excellent article upon malarial hemoglobinuria, based not only upon the cases observed in Rome, but upon the careful analysis of the work of others. He asserts that it is practically proved that hemoglobinuria occurs only in infections with the estivo-autumnal parasite. An interesting point is that hemoglobinuria following quinin is extremely rare in Italy, no case having ever been reported from the Campagna. The frequency with which these cases occurs increases, just as in cases of spontaneous hemoglobinuria, as one passes south. Hemoglobinuria due to quinin never occurs excepting in patients who are suffering or who have recently suffered from malarial fever. Spontaneous hemoglobinuria may be at times intermittent, or, as is more common, in single paroxysms. He divides the spontaneous hemoglobinurias into three classes: 1. In the blood there are found estivo-autumnal parasites of the pyrogenic cycle, that is, young hyaline forms. Here the hemoglobinuria occurs regularly in association with the segmentation of a group of parasites, that is, at the time of the ordinary paroxysm. This he terms the paroxysmal hemoglobinuria. 2. In the blood there are found only crescentic or ovoid bodies and pigmented leucocytes, or possibly pigmented leucocytes alone. Sometimes at postmortem the blood is quite negative as regard parasites. They may also be wanting in the internal organs, but from the intravascular melanosis it may be seen that the parasites have disappeared quite recently. In this class the paroxysm of hemoglobinuria is caused by the segmentation of a group of parasites which disappear spontaneously during the attack. The changes left in the blood and internal organs, however, are so great that the paroxysm continues for hours after the organisms have disappeared from the blood. 3. The blood examination is entirely negative, and the only evidence of there having been a malarial infection is the presence of an endothelial, perilobular, perivascular melanosis. The malarial process has come to an end some time previously. Here the attack of spontaneous hemoglobinuria does not depend upon the presence of parasites, but starts without apparent cause. Such paroxysms may be intermittent and repeated at short intervals, but are more commonly single, of long duration and very severe. This form is especially grave and is the "pernicious hemoglobinuria" of Marchiafava, while Bastianelli calls it the post-malarial hemoglobinuria. In all probability the parasites which produce the febrile paroxysm play an important causative part in some cases. An anemic condition of the blood, however, seems to be indispensable for the production of the phenomenon, as hemoglobinuria does not occur with the first paroxysm, either in the initial attack or in a relapse. It is rare under any circumstances in the first attack, usually occurring with the first relapse or after repeated relapses. There is also in some cases an individual pre-disposition. Hemoglobinuria does not occur in the most chronic cases of malaria, in those cases where a certain equilibrium is established between the needs of the organism and the function of the hematopoietic organs, but in those cases where the organism is yet freeing itself from the residue of the infection and anemia and melanosis still exist. Bastianelli finally takes up the hemoglobinuria due to quinin. He asserts that: 1. It occurs only in individuals in whom a malarial infection has preceded. 2. The attack is produced constantly every time that quinin is administered, whether it is given while the malarial attack is in progress, or whether it is given while the malarial infection has run its course. 3. Extremely small doses are capable of bringing on an attack. 4. It has been seen in patients who have already suffered from spontaneous hemoglobinuria. It is rare, excepting in the tropics. No doubt there exist cases of hemoglobinuria due distinctly to the administration of quinin.—*Amer. Jour. Med. Science.*

Pittsburg.—It is a matter of some surprise to the general reader to find that Pittsburg is one of the most prominent medical centers, outside the great seaboard towns of the country. This city has a population of over six hundred thousand, and with the towns and villages tributary to it, within a circle of thirty or forty miles, there are nearly a million and a half of people. As a large number of these people are engaged in mining, iron and glass manufacturing, railroading, and water navigation, the surgical work required is immense. In Pittsburg there are fifteen hospitals for the care of acute and emergency cases alone, beside the usual homes for old chronic incurable cases. Only five dispensaries are giving free service to the poor. Of the hospitals the surgical wards are the most prominent. In the West Pennsylvania Hospital, over twelve hundred of two thousand cases were surgical. In the other hospitals the proportion is still larger. The medical cases do not differ from those in other sections, except perhaps in the number of persons of foreign birth, who either display very low vitality or unusual vigor and strength. The air of the vicinity charged with carbon seems not to make any marked difference in the progress of disease. Formerly, Pittsburg was nearly all the time enveloped in a gray cloud of carbon smoke, from the furnaces and mills burning bituminous coal. The use of natural gas changed this, but recently the decline of the gas brings back the old carbon clouds. The postmortems reveal dark discolored lungs in all persons who are residents of the city. It is the opinion of many physicians that this carbon dust is antiseptic, and destructive to many forms of dangerous bacteria. The specialists do not think any marked influence comes from this smoke dust. All of these hospitals have large surgical staffs, and the variety and magnitude of the operations are not exceeded in any city of this country. The Western Pennsylvania Medical College is near the West Pennsylvania Hospital, and the students have rare opportunities to see these cases. This college has a graded three years' course, with a high standard for admission, and averages over three hundred students, with a faculty of professors and assistants, numbering nearly fifty. The building and appointments are modern and the laboratories seem to be well equipped and popular. An outdoor clinic and free dispensary connected with the college, is said to have over ten thousand patients a year. This college is a part of the Western University, and the good judgment of the profession is commendable in most loyally supporting it, rather than organizing rival colleges. The numerous hospitals are many of them sectarian, although the medical staffs are

liberal and generous to each other. Important operations are performed and witnessed by all the hospital staffs, without rivalry or feeling. The West Pennsylvania Hospital is the largest and the South Side Hospital the most modern. The others are good and well managed. The Alleghany County Medical Society is the largest, having a membership of over three hundred. The Academy of Medicine is select and follows the same course as the New York Academy of Medicine or the College of Physicians and Surgeons in Philadelphia, requiring a paper or thesis from all proposed members. The South Side Medical Society is popular and has a large membership.

The mania for medical journals has concentrated in the *Pennsylvania State Medical Journal*, edited by a committee with much ability. This city seems not to be particularly overcrowded. Six hundred physicians of all schools are able to do the medical work. Many of these physicians are well-known members and writers of excellent papers read at the AMERICAN MEDICAL ASSOCIATION meetings. Of these, Drs. Duff, Thomas and others are well known for their surgical studies. Drs. Daley, Lang, Davis and many others are well known as contributors of excellent papers on medicine. Of the specialists, Drs. Ayers, Barham, Diller, McKennan, and others equally noted are prominent. Probably no city in the Union has more practical capable surgeons who are doing all-round surgical work, day after day in a quiet unassuming way, almost unknown to the world abroad. The modern operating-rooms of all the hospitals and the equipments for the best medical and surgical work prove this. In medicine the same thing may be said, the exceedingly practical suggestions and opinions expressed in the discussions of papers at the society meetings, indicate wide reading and intimate acquaintance with the progress of science.

The Academy of Medicine has accumulated a very respectable library and reading-room, which is growing rapidly. The South Side Medical Society has also the beginning of a library and many physicians have large and very valuable collection of books. It is a pleasure to note that while Pittsburg has many local pecularities, differing from other cities, the profession are loyal to each other, and united on broad principles of science and act together with great harmony. It is also a pleasure to note the absence of low commercial rivalry, which fosters free dispensaries, medical colleges, and advertising journals, dividing the profession into hostile factions. It may also be said by way of criticism, that a body of medical men, whose culture and experience is equal to that of any other city should be more widely known, not only in the literature of medicine, but by a larger representation in the AMERICAN MEDICAL ASSOCIATION.

Illinois Diploma Mills.—The following correspondence by the Secretary of the Illinois State Board of Health is self-explanatory:

OFFICE OF THE SECRETARY,
SPRINGFIELD, ILL., Dec. 28, 1897.

Hon. E. C. AKIN, Attorney-General, Springfield, Ill.

Dear Sir:—For several months past inquiries have been received almost daily by the Secretary of State and this Board relative to the Independent Medical College of Chicago, and from all information obtainable it appeared that the concern was sending its so-called diplomas over the country to all who applied and tendered the necessary fee. Further inquiry and investigation developed the fact that its methods were almost identical with those of the Illinois Health University, a diploma mill, the charter of which was revoked by the Supreme Court early during the present year, on account of fraud, and furthermore that the "faculty" of both institutions was one and the same person. It seems that after the Circuit Court of Cook County entered a judgment of ouster against the Illinois Health University, the President of that concern, who was also one of the incorporators, with two other "professors" in the corps of teachers, obtained another charter enabling them to carry on a business which the Circuit Court had just determined fraudulent, which decision was afterward affirmed by the Supreme Court. This charter permitted them to grant to students and applicants any degree whatsoever, and it is unnecessary to add that they have vigorously availed themselves of the privilege. "Degrees" of Doctor of Medicine have been granted to incompetent and unqualified persons ignorant of the rudiments of medicine and the same degrees have made these ignorant and frequently unscrupulous persons lawful practitioners of medicine in several States in the Union, where registering a diploma from a "legally chartered medical college" was the only legal qualification. This obnoxious graduation of quackery into full-fledged doctors of medicine, breathing death and destruction wherever they go, and doing no good to any class of people on earth, except grave-diggers and undertakers, robbing boats of good roustabouts, livery stables of hostlers and barber shops of barbers, to use the words of a former Attorney-General in regard to the Illinois Health University, has brought deep reproach upon the State among others of the Union, and particularly abroad, where the infamous proceedings of this and a few other legally chartered institutions of the same ilk, have lowered the standard of diplomas issued by Illinois medical colleges of good standing, and has caused even those from institutions of the highest grade in the State, which are justly classed among the leading colleges of the country, to be regarded with suspicion.

I deem it unnecessary to add that neither the "professors" or promoters in either the Independent or the parent concern, are legally qualified physicians, or physicians even, to the knowledge of this Board. The President is understood to have a diploma dated 1892 from a college in Indiana which became extinct in 1890, but Polk's Directory, the authority on such matters in the United States, is silent on the subject of his alma mater.

As an illustration of how the "college" grants diplomas to "applicants," I desire to call your attention to one issued to A. H. Neiss, a hostler to a physician in Williamsport, Pennsylvania, which with the entire correspondence and Mr. Neiss' affidavit is enclosed herewith. As you can easily see, Mr. Neiss' entire qualifications were a prescription for tetter and one for piles, and $25 in cash. Incredible as it may seem Doctor Neiss, for he is a doctor from a legally chartered medical college in Illinois, and according to the privileges granted by this said charter should have the right to practice medicine in Illinois—can register his diploma and legally and lawfully practice medicine, perform surgical operations of all kinds in the neighboring State of Michigan (in Wisconsin also up to July 1, 1897), and in several States and Territories of the Union, where licenses are issued to graduates of legally chartered medical colleges, notwithstanding that he has no further knowledge of medicine and surgery than that which can be obtained after an attendance of two years in a physician's stable.

I have heard it said that graduates from these so-called medical colleges are legally authorized to commit murder, and while the remark may not have full justification, I very much doubt whether the people of the States and Territories in which persons having no knowledge whatever of the science of medicine, or of the human body in disease, can practice and trifle with the lives and health of the community, by the grace of a charter issued under the authority of the State of Illinois, will feel disposed to dispute the correctness of the statement. In either case, there is every reason to believe that these people, who are now helpless against the invasion of this horde of quacks, will be inclined to regard such charter in the nature of a burlesque, equivalent in effect to one which would empower a lunatic to don a uniform, equip himself with a revolver and club, and act as an officer of the law.

If there be no law in the State providing for the cancellation of the charter of a corporation which is transacting fraudulent business, I would respectfully recommend that you at once take whatever steps are necessary to have the charter of the Independent Medical College revoked by the Courts.

Very respectfully,
(Signed) J. A. EGAN, M.D., Secretary.

Enclosures: Diploma, affidavit, two letters from Independent Medical College, with envelopes, copies of two letters written by Neiss, translation of diploma, circulars, etc., from College (one of these formerly used by the Illinois Health University).

OFFICE OF THE SECRETARY.
SPRINGFIELD, ILL., Dec. 27, 1897.

HON. JAMES A. ROSE, Secretary of State, Springfield, Ill.

Dear Sir:—For years past this State has been disgraced by the presence of diploma mills masquerading under the designation of colleges, universities, academies, etc., which openly and brazenly have conferred almost every degree obtainable in reputable colleges and universities, to all who applied either in person at the institutions, or by letter from wheresoever on the inhabitable globe the applicant might abide, the only requisite qualification being the possession of the necessary

fees. Degrees of Doctor of Medicine have been conferred on ignorant and frequently unscrupulous persons entirely unacquainted with even the rudiments of medicine, many of whom never saw a medical college or heard a medical term, and these same persons, have become legally qualified physicians in several States of the Union, by simply registering their diplomas with the County Clerk, and in others, on obtaining a certificate from the State Board of Health, the issuance of which was mandatory, the applicants being from "legally chartered medical colleges."

This obnoxious graduation of quackery into full fledged Doctors of Medicine, breathing death and destruction wherever they go, and doing no good to any class of people upon earth excepting grave-diggers and undertakers, to use the words of the former Attorney General, to the deep reproach of this State, has been legal, each and every institution concerned and this fraud in law and fact having a charter from the State, and incredible as it may seem, even the degree of Doctor of Medicine granted by many of these corporations (some of which have not even one physician among their incorporators) to persons in Germany, Japan and Australia, who have never left their native soil, are technically as valid as those issued at the college after an attendance and compliance with certain requirements, for many charters permitted degrees of all kinds to be conferred in presence or in absence.

To illustrate the laxity with which charters have been issued, and with what facility individuals convicted of a crime are able to obtain legal authority to go forth and commit the identical crime over again, I will call your attention to the case of Illinois Health University, an institution now happily defunct. During its existence, it was a diploma mill of the most flagrant character and one that caused the utmost disgrace to the State throughout the Union. The Attorney General of the State proceeded against the concern for revocation of its charter. The Circuit Court of Cook County, after considering the evidence, entered the judgment of ouster, and the "university" thereupon appealed to the Supreme Court. Pending the decision of this body, the president of the so-called university, who was one of the incorporators, with two members of the "faculty," procured from the Secretary of State another charter, which in short permitted them to reopen the now practically closed institution, under another name, The Independent Medical College, for almost precisely the same purpose, but however, with greater power, the college now being lawfully entitled to confer any degree, which degrees in medicine, pharmacy, etc., entitled the holders "to all rights and privlleges in this and other States to which students and graduates are entitled who receive diplomas from other medical colleges, universities and institutions, in the State of Illinois." Comment on this outrageous privilege is unnecessary.

The Independent Medical College is a worthy successor of its sire. If such were possible it is a ranker diploma mill. "Degrees" are sent broadcast over the world to all who apply.

The Attorney General having cognizance of these unlawful proceedings is about to take steps to have the concern's charter revoked, and order that the promotors of this and the parent institution, may not re-open the concern under a new name and a new charter, conferring even additional powers, I would respectfully ask that you issue no further charters conferring upon any person or persons the right to conduct a medical college, or to grant the degree of Doctor of Medicine, or any miscellaneous degree, without first permitting this Board to give an opinion on the application.

Very respectfully,
J. A. EGAN, M.D., Secretary.

OFFICE OF THE SECRETARY,
SPRINGFIELD, ILL., Dec. 27, 1897.

Hon. JAMES A. ROSE, Secretary of State, Springfield, Ill.

Dear Sir:—I have the honor to request that you will not issue any further charters to persons or corporations for the purpose of treating disease or the prescribing of medicine, until a Court of competent jurisdiction decides that it is lawful for persons not possessing the qualifications required by the Act to Regulate the Practice of Medicine in the State, to prescribe for and treat others.

In this connection I will respectfully invite your attention to a communication from the Attorney General to your office under date of Aug. 24, 1893, in relation to the protest of this Board against the incorporation of certain companies, in which the following remarks occur:

. . . . . "We are of the opinion that the incorporation of companies for the treatment of diseases, etc., and the prescribing and the dispensing of medicines are of doubtful expediency and should not be encouraged. We advise you, therefore, to withhold the license until you are compelled to issue it by the judgment and order of a competent Court.

"Our reasons for these conclusions are that for the treatment of diseases and practice of surgery, none but persons learned in these professions and licensed under the law are permitted to act. The same applies to the prescribing and dispensing of medicines. This appertains expressly to the profession of the physician, of the surgeon and of the apothecary, which are classified among the learned professions. Under the law we fail to see how a corporation can be licensed to practice one of these professions in the State of Illinois, and to grant a franchise for this purpose we regard equivalent to granting a license."

At present there are several companies in the State legally chartered for the purpose of dispensing and prescribing medicine and treating disease, among the incorporators of which not a legally qualified physician appears. Comment on this state of affairs is unnecessary. Even if the names of licensed physicians appeared in the list of incorporators, there would seem little justification for issuing the charter, as it clothes others not qualified with equal power.

Very respectfully,
(Signed), J. A. EGAN, M.D., Sec'y.

Societies.

The following meetings are noted:

Illinois.—Chicago Medical Society, March 9.

Michigan.—Saginaw County Medical Society, Saginaw, March 11.

Missouri.—City Hospital Medical Society, March 3; St. Louis Medical Society of Missouri, March 5.

New York.—Chemung County Medical Society, Elmira, February 22; New York County Medical Society, New York City, February 28.

Ohio.—Cleveland Medical Society, February 25.

Tennessee.—Dickson County Medical Association, Dickson, March 1.

Texas.—The Lavoca County Medical Society was organized, Halletsville, March 8.

Virginia.—Richmond Academy of Medicine and Surgery, February 23.

Louisville.

SMALLPOX.—Smallpox has been raging in Middlesboro, in the southern portion of the State, and at Jellico. The epidemic has been very mild in character, and almost exclusively confined to the very poorest classes. Dr. J. N. McCormack, Secretary of the State Board of Health, has been on the field in person, assisted by Dr. Arthur McCormack of Bowling Green, and Dr. B. W. Smock of Louisville. General vaccination has been performed under compulsion, a number of cases being found by the officers, in the rounds of house to house vaccinations, which had not been reported at all. Latest advices show that the worst is over, there having been erected detention hospitals and pest-houses which had not been in use before the State Board of Health were notified.

OSTEOPATHS.—Once more Kentucky has come to the front with legislation looking toward the prevention of quackery in the State by passing in both houses of the Legislature a bill which is an amendment to the practice act now in force which will make all applicants to practice osteopathy stand an examination before the State Board. There was a bitter fight in the House against the bill and a whole day was spent in speech making, but the bill was passed by a safe majority and will go to the Governor, who will promptly sign it. The opponents of the bill recognize the fact, that practice in the State will be prohibited graduates of the Still college under this law.

FEBRUARY DEATHS.—There was a total death-rate of 255 against 267 for the corresponding month last year. Consumption caused 33, typhoid fever 12, pneumonia 46, old age 14.

LICENSE.—A bill has just been passed by both boards of the common council taxing physicians a yearly license of $10. This bill also includes midwives who will have to pay their license fee before being allowed to practice, at the same rate, $10.

Washington.

HEALTH OF THE DISTRICT.—Report of the Health Officer for the week ended February 26, shows the total number of deaths to have been 105, of which number 66 were white and 39 colored. The principal causes of death were: Diseases of the nervous system, 13; circulatory, 13, respiratory, 24. There were 2

fatal cases of diphtheria, 3 of la grippe, 1 of typhoid fever and 1 of measles. At the close of the week there were 52 cases of scarlet fever in 36 premises and 34 cases of diphtheria in 32 premises, under treatment and isolation.

COLUMBIAN UNIVERSITY HOSPITAL.—The "Columbian Women" held a special meeting at the University building on the 28th instant, to meet the faculty of the medical department for the purpose of organizing a plan for raising funds to furnish the new hospital of the University. Plans were advanced and discussed by Drs. A. F. A. King, W. P. Carr, D. K. Shute, President Whitman and Dr. S. H. Green. A special committee for that purpose was appointed, consisting of Mrs. D. C. W. Richardson, Mrs. President Whitman, Mrs. D. Shute and others.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 277th meeting of the Society was held on the 4th instant at the residence of Rev. Dr. Cuthbert. The essay of the evening was read by Dr. Bovee, entitled "Permeability of Salpingectomy Stumps." The subject was discussed by Drs. Fry and Stone.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the recent meeting of the Attending Staff, the following report was presented for the month of February: New cases, 797; total visits, 2213; prescriptions, 2674; deaths, 3; postmortems, 2; emergency cases, 142; operations, 142; ambulance calls, 33. It was announced that the Senate Committee on appropriations had recommended the usual appropriation of $15,000 for maintenance, and $2,000 additional for improvements and repairs.

Cincinnati.

DR. LUDWIG BREMER of St. Louis was the guest of the Academy of Medicine, February 21. The Doctor demonstrated his interesting discoveries of the reaction of the blood of diabetic patients to aniline colors, which discovery by the way only brought the discoverer his well-earned fame years after when it was taken up and substantiated by German authorities. In addition to his experiments with methylene blue, which have been extensively printed, he also showed that Congo red and methyl violet are equally efficacious in proving the presence or absence of the disease; indeed, the essayist stated a personal preference for the Congo red. His experiments are made with dried blood obtained from the finger, smeared on glass slides, which are then heated to 135 degrees C. Macroscopic examination after several minutes staining, shows almost entire absence of color in the diabetic specimen, while with normal blood, control experiments being made simultaneously, a color is produced comparable to that of the eosin stain.

G. A. R.—In view of the great G. A. R. encampment to be held in this city during next September, the medical profession has already organized, under the directorship of Dr. J. C. Culbertson, editor of the *Lancet-Clinic*, for the care of such old soldiers as may be medically or surgically disabled during that week. The organization is of a strict military character, with a director general, medical inspectors, surgeons and assistant surgeons, and numbers in all fully three hundred of the representative physicians of the city. The medical inspectors are composed of those who acted in a medical capacity during the late war; the surgeons from the older, the assistant surgeons from the younger men of the profession. Every man is to be commissioned regularly from the board controlling, and all orders are given in regulation style directly from the medical director. At the various camps reliefs will be constantly stationed, as also at the different depots. Ambulance and emergency corps have been provided. The entire corps will be uniformed while on duty. At various points, drug stores for the most part, near which large crowds are expected to congregate, surgeons will be in waiting, and a yellow flag, the sign of medical attendance the world over, will be conspicuously displayed. Daily sick calls will be paid and records kept of such as require medical attention. A record will be made of this, as well as of all other work done, and it is the intention of the corps to publish as complete a report as possible of their transactions during encampment week. The woman's relief corps have expressed their willingness to cooperate with the medical profession and will be commissioned as nurses. The apothecaries have also volunteered their services as hospital stewards.

AT THE regular monthly meeting of the Original Research Society, held February 10, Dr. Horace Whitacre demonstrated, by microscopic sections and photo micrographs, the identity of clinically diagnosed gliomata of the retina with sarcomata. The slides showed conclusively the endothelial origin and sarcomatous nature of the tumors presented. The essayist stated that the new growths were sent to him with the clinical diagnosis of glioma made by skilled oculists. The discussion which followed brought the general concurrence of the society with the speaker.

THE TRUSTEES of the Cincinnati Hospital held an adjourned meeting the afternoon of February 14, in which it was decided to at once draft a bill and present it to the legislature, asking privilege to issue $250,000 in bonds, the same to be used in buying land and erecting an isolated hospital for contagious diseases. The matter was brought up before the Cincinnati Academy of Medicine that evening and met with the heartiest endorsement.

BY THE ORDERS of the city health officer, the consumptive patients at the city infirmary, for the most part cases of fibroid phthisis, are to be removed to the branch consumptive hospital on proving their citizenship to Cincinnati.

THE BOARD OF ADMINISTRATION of Cincinnati has passed an ordinance empowering the health officer to make all the necessary investigations for the purpose of detecting the presence of tuberculosis in dairy cows, with a view to eventually stamping out the disease. With the completion of these investigations, it is the intention of the health officer to introduce a bill in the legislature providing for the removal of all tuberculous cows from dairies.

CHANGE OF ADDRESS.

Brown, E. J., from 69 Syndicate Block to 3027 Pleasant Ave., Minneapolis, Minn.
Eisendrath, D. N., from 3035 to 3125 Indiana Ave., Chicago, Ill.
Hansen, C. C., from Mosul, Turkey, to Chieng Mai, Laos, Siam.
Jensen, P. C., Manistee, Mich. to 100 Washington St., Chicago, Ill.; Jones, C. H., from 25 W. Saratoga St. to 211 W. Franklin St., Baltimore.
Kirkpatrick, W. L., from Crab Tree, N. C. to Jameson, Texas.
Lathrop, W., from Miners Mills to Hazelton, Pa.; Luebbers, A., from 2001 N. Market to 1636 N. 19th St., St. Louis, Mo.
Nywall, A. G., from Batavia, Ill., to 87 N. 48th Ave, Chicago, Ill.
Perry, T. B., from Buffalo, N. Y. to San Francisco, Cal.
Wenzlick, W., from Chicago, Ill. to 3630 Flad Ave, St. Louis, Mo.; Warner, A. L., from Hospital to Penfield, Ill.

LETTERS RECEIVED.

Alexander, L. C., Philadelphia, Pa.; Allen, J. B., Cambridge City, Ind.; Arsdale, W. J., Pittsburg, Pa.
Bradstreet, E. C., Gold Hill, Colo.; Brewster, Quincy E., Boston, Mass.; Burnett, J. A., Lewiston, O. T.
Chamberlain, C. L., Kinsman, Ohio; Chesman & Co., (2) Nelson, St. Louis, Mo.; Coe, Henry Waldo, Portland, Ore.; Cokenower, J. W., Des Moines, Iowa; Cryer, M. H., Philadelphia, Pa.
Daniel, R. P., Jacksonville, Fla.; Deems, B. B., St. Louis, Mo.; Denison, Chas, Denver, Colo.; Dunlap, P. G., Adger, Ala.
Ehrhardt, H., St. Louis, Mo.
Fairchild Bros. & Foster, New York, N. Y.; Fankboner, A. V., Indianapolis, Ind.
Graham, John W., Denver, Colo.
Herold, J., New York, N. Y.; Horlbeck, H. B., Charleston, S. C.; Horwitz, Orville, Philadelphia, Pa.; Howle, W. P., Oran, Mo.
Larimer, W. T., Allegheny, Pa.; Lehn & Fink, New York, N. Y,
Mackin, M. C., Independence, Iowa; Martin, Harry H., Ashland, Ky.; McCormick, J. H., Gaithersburg, Md.
Newberry Library, The, Chicago, Ill.; New York Pharmacal Ass'n, Yonkers, N. Y.
Parke, Davis & Co., Detroit, Mich.; Polk, R. L. & Co., Detroit, Mich.
Sangree, E. B., Nashville, Tenn.; Schering & Glatz, New York, N. Y.; Shoemaker, John V., Philadelphia, Pa.; Starkey, Horace M., Chicago, Ill.; Stover, G. H., Denver, Colo.
Therapist, The, London, England; Thomas, C. P., Spokane. Wash.; Tyrec, J. S., Washington, D. C.
United States and Canada Mercantile Agency, Chicago, Ill.
Wampole & Co., H. K., Philadelphia, Pa.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from February 26 to March 4, 1898.

Major William C. Shannon, Surgeon, will upon the expiration of his present sick leave of absence, report in person to the president of the Army retiring board at San Francisco, Cal., for examination by the board. By direction of the President.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending March 5, 1898.

Surgeon F. W. F. Wieber, detached from naval hospital, Norfolk, Va., and ordered to the "Miantonomoh" March 10.
Surgeon G. P. Lumsden, detached from special duty at Norfolk, Va., and ordered to the "Franklin."
P. A. Surgeon B. R. Ward, ordered to the "Katahdin" March 1.
P. A. Surgeon I. W. Kite, detached from the "Franklin" and ordered to the naval hospital, Norfolk, Va.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY R. R. ANDREWS, D.D.S., A.M.

CAMBRIDGE, MASS.

It is the usual duty of the Chairman of Sections of this ASSOCIATION to give, in an annual address, a review of all matters new and important that have a special interest touching the scientific character of the work of the Section to which he may belong. It has been thought best to modify to some extent the nature of the subject on this, the occasion of the Golden Anniversary of the AMERICAN MEDICAL ASSOCIATION, and to give in place a brief history of the work of the Section in the past. The history of our Section is one of which we may well be proud. Our meetings have been full to overflowing with interesting and valuable papers and discussions, and there have been many brilliant lantern exhibits. The work has been in the main along the line of higher themes in the realms of scientific research, and we may rest assured that by comparison with the programs of similar organizations, the work of this Section does not suffer. This statement needs no defense. It is, I believe, already conceded.

In the year 1880 the men who largely represented the brain and sinew of our profession, believing that dental surgery then held a position beneath that to which it was entitled, and believing that such a condition should be remedied, felt it their duty to devote a portion of their time and energies to bring about a change for the better. These men earnestly believed that dentistry was a specialty of the healing art, and as such should have representation in the sessions of the National medical organization. They were actuated by no narrow views. Their sole purpose was the up-building of their profession. Presenting themselves at the meeting of the AMERICAN MEDICAL ASSOCIATION, held at Richmond, Va., in 1881, as delegates from local medical societies, they proposed the organization in the ASSOCIATION of a separate Section on Oral and Dental Surgery. These delegates were Drs. W. W. Allport, T. W. Brophy and Eugene S. Talbot of Chicago; Dr. J. L. Williams of Boston; Dr. G. L. Goodwillie of New York; Dr. Hauxhurst of Grand Rapids, Mich., and Dr. G. L. Parmlee of Hartford, Conn.; all practitioners of dentistry holding medical degrees. Each gentleman constituted himself a committee of one to champion the movement among the members of the ASSOCIATION who were in attendance. They found no opposition whatever; on the contrary the oldest members, and especially the ex-president of the ASSOCIATION, were heartily in sympathy with the movement and anxious to assist in bringing it about. At the morning session on Thursday, May 5, Dr. Samuel D. Gross of this city, addressing the ASSOCIATION, asked for a suspension of the regular order of business. This motion was granted. He then moved that the by-laws of the ASSOCIATION be so amended as to create another Section, to be known as Section VII, entitled "Dentistry." The motion was favored by Dr. Sayre of New York and Dr. N. S. Davis of Chicago, and was adopted. The object of suspending the rules at this time was for the purpose of creating the Section that it might commence work at that session, the members who were to constitute the Section being prepared with papers for that purpose. Dr. Toner of Washington objected, saying that he was not opposed to the Section organizing and commencing work that year, but he did not wish to make a precedent for future Sections. It was therefore decided that it could not go into operation until the next year, when according to the Constitution and By-laws of the ASSOCIATION, dentistry was officially recognized by the AMERICAN MEDICAL ASSOCIATION.

The Dental Section has met with the ASSOCIATION every year since its formation. The quality of the papers presented, from a scientific standpoint, has been of the highest order. Our place is now here where it seems to me it ought to be, among the specialists of the great guild of physicians, a part of the body of scientific men whose life work is the amelioration of human suffering.

In the annual address delivered before this Section at its last meeting, I gave the result of my investigation of the development and structure of the dental enamel, and in a friendly way criticised some of the views of another writer, who had recently written on the same subject. I have given considerable time to the further investigation of this subject, preparing a paper which I read before the Institute of Stomatology of New York, in February last. This paper was discussed by some of the more eminent biologists of that city, who substantially agreed with me in every point presented to you at our last meeting. The only important point on this subject I have to present as new matter, is the fact, unnoticed before, that some of the globular bodies that have been deposited by the ameloblasts to form the enamel rods, are not homogeneous masses of substance, but are globules having within their substance aggregations of minute spheres (calco-spherites) which for some reason have not coalesced into a mass. These minute globular bodies are held together by what appears to be an envelope or membrane, the whole forming a globule of the same size of what I may call the normal enamel globule at its point of calcification. In some of my sections I have found these enamel globules containing the minute spheres covering quite an area of forming enamel, and they are shown in this condition as they are drawn down into the calcifying rod. They are more than likely calcified in this condition.

It would appear as though it were a fault of structure, perhaps some arrest in the developed mental process. Of this I can not be positive, but the appearance would seem to account for the minute globular structure seen within the rods of the calcified enamel as shown in some of Dr. Williams' illustrations.

A very valuable contribution to the study of the pathology of the enamel, by Dr. J. Leon Williams of London, has recently appeared in the pages of the *Dental Cosmos*. While the subject matter of the text is not altogether new to those familiar with this line of investigation, the lucid way in which the subject is presented, and the very thorough descriptions of the minute pathologic conditions of the tissues involved, together with the great beauty of the large number of illustrations, make it the most notable contribution to the literature of this subject that has yet been presented to the dental profession. He has given a large mass of evidence and the labor must have been enormous. Being familiar with the extreme difficulty of preparing sections of enamel for photo-micrography, and knowing something of the time required, I can fully appreciate the great work Dr. Williams has accomplished. This series of papers follows along the line of investigation given in one I read before this Section in the year 1890, on "A Study in Dental Pathology, Including Pits and Fissures of the Enamel," but is much more complete. I can heartily agree with Dr. Williams in most of the conclusions advanced, and trust we may have this work published by itself in a more permanent form, for reference and for the use of students in our educational institutions.

The year that has passed has pretty conclusively proven that the use of dental cataphoresis may no longer be considered as in its experimental stage, in so far as its investigations relate to the obtunding of extremely sensitive dentine, and its value in bleaching badly discolored teeth. There are a few still doubtful about its future effect upon the life and health of the dental pulp, but the majority of cases reported have been remarkably successful and attest to its undoubted value. The method has also been found to be certain in its action, in fully obtunding exposed pulps prior to their removal. Investigations are being made by this method which promise success in the treatment for the relief and cure of chronic cases of pericementitis by a perfect system of sterilizing root canals at the time of filling. It has been found that almost any good kind of antiseptic can be used; oil of cassia, hydrogen dioxid, chlorid of zinc and silver nitrate have all been tried with success, the method of using being somewhat like that used for obtunding sensitive dentine. This treatment is said to allay the pain in a short time and to place the tooth at once in a condition for immediate root filling. The results obtained by using silver nitrate are significant. Sections made from teeth which had been treated by a solution of silver nitrate by Dr. Bethel of Kent, Ohio, were sent to me for microscopic examination. The higher powers of the microscope revealed the fact that the silver salt had been forced by the current a very considerable distance into the dentinal canals, and each canal had been completely sealed up by it. As the dentine of the root is almost always infected by a putrescent pulp, which sends its organisms into the canals of the root, we can clearly see the importance of this perfect method of sterilization. In the treatment of pyorrhea, the cataphoric method of medication has been found to be a valuable acquisition, and in some cases it has been claimed to have been used with considerable success in facial neuralgia. The very considerable value of the application of the X-ray as an assistance in diagnosis in our specialty, has been repeatedly demonstrated during the year that has passed. It is now possible to make sciagraphs, or shadow pictures, of any part of the mouth and jaws, showing the teeth in proper relation with their alveolar sockets. The roots of the teeth being denser than the bone which surrounds them, show clearly throughout their whole length, and we are thus enabled to note any peculiarity that may exist. In the city of Boston there is one of our profession who has made a special study of this work. He has succeeded in making some very remarkable demonstrations. Many of his pictures are of unerupted teeth deep within the tissues of the jaw. It is possible to show fragments of roots that are the source of obscure troubles. One picture shows a broken pulp canal drill just beyond the apex of the roots that for months had been the cause of a most troublesome abscess. The broken drill was removed, resulting in a perfect cure. It is yet doubtful if we shall be able to determine diseases of the tooth pulp by the X-ray, but authorities assure us that by it it is possible to diagnose necrosis, tuberculosis and exostosis. They claim that diseased conditions cast a shadow differing from normal tissue, and thus the disease is readily demonstrated.

The question regarding the endowment for dental research has recently been brought to our attention by a letter to the *Dental Cosmos* from Dr. C. E. Kells, Jr. He believes that an incalculable amount of good would result to our profession from such compensation for original investigation. The importance of the matter presents itself to us at this time largely on account of the recent magnificent work of Dr. Black and Dr. Williams, and it is earnestly hoped that a fund sufficient to continue these investigations may be appropriated by individuals and societies, that this important work may continue. To quote in part an editorial from the April *Cosmos:* "Nature reveals her hidden secrets to those only who have learned how to question her and who are able to interpret her answers; she demands of her devotees absolute fidelity, uncompromising honesty, unflinching accuracy, absolute self-abnegation and never-flagging enthusiasm in her cause. To meet these conditions requires the expenditure of much time and energy, and just so far as the time of the investigator is occupied with matters foreign to his calling, will his results be curtailed. It would be well to utilize his abilities for the general good by placing him beyond the demands which the necessity for maintenance imposes, thus securing for all those advantages which the entire devotion of his abilities to scientific research would entail."

This matter is a subject that merits our earnest consideration. Within the past year there has been a movement on the part of some of the dentists of the city of Baltimore to bring about the enactment of a law that shall require the examination of the condition of the mouths and teeth of the children of the public schools. The importance of this movement may not at first thought seem to be as serious as it really is, but if we consider it carefully it will be found grave enough to enlist our most careful consideration, fraught as it is with serious consequences, both to the present and future, and a law of this kind

should be enforced in every city in our country. The time of life that the school years cover is very important to the child from the dental standpoint. If the teeth are cared for during this period, the chances favor their permanent retention and for this reason, if for no other, this movement should be urged and encouraged by every intelligent dentist.

The connection between bacterial growths in the oral cavity and severe disturbance of the general health is today well known. There are those who carry more filth in their mouths than they would tolerate on their skin. And this is the condition of the mouths of many of our school children. There are those whose teeth receive very little, if any, care; on inspection they will be found to be covered with a thick deposit in an active state of fermentation. In these mouths we shall find the gums inflamed, suppurating and decayed roots with chronic abscesses continually discharging their putrefactive products into the mouth. The fact that such mouths may be the source of disease and even death has been very much underrated. It is known that pulmonary diseases are brought about by the "inspiration" of germs from the oral cavity. The mouth is a veritable breeding place for the infection of the digestive apparatus.

Prof. W. H. Miller of Berlin by experimentation with cultures, estimates the number of cultivable bacteria in a very unclean mouth at over a billion. Many of these, he thought, were carried to the stomach at every meal, to be replaced by others developing between meals and over night.

I doubt if there is a better culture medium to be found for the growth and multplication of the pathogenic bacteria than the exposed decaying dentine of the human teeth after the enamel has been destroyed and the dentine decalcified. In it we have a substance perhaps more favorable for the growth and development of these organisms than any other tissue. This in itself is a very significant fact of which we should not lose sight while considering this subject. There should be special care on the part of those who of necessity are brought into close contact with persons suffering from contagious diseases. Many children in our public schools inherit a tendency favoring a development of these troubles. In our crowded, hot and insufficiently ventilated schoolrooms the inhalation of micro-organisms and the cultivation of these organisms in decaying dentine may be, and probably is, the cause of disease and death. Of all the ills that man is heir to the most appalling in its dire results is tuberculosis. Today it is known to be communicated by infection alone, the infecting agent being the bacillus of the disease. It blights all who come within its grasp, sapping the life blood and making the life a wreck followed by misery and death. The children of the poor, especially the immature and sickly, are most susceptible to this disease. In a paper recently published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION on tuberculosis infection from food the author, Dr. Charles E. Winslow, tells us that there is an increasing anxiety among thinking medical men due to the resistance of tuberculosis to the advanced curative remedies. All come far short in checking this most formidable of all diseases. The most advanced investigators believe that the colonization of Koch's bacilli in the animal tissue is the cause of the disease. If this be true, and there can be little doubt of it, it gives ground upon which we can work out our own salvation by controlling the spread of the disease. Our children are fed largely on milk, and the most common disease of the cow from which the milk comes is tuberculosis. Very little milk reaches our city free from a mixture with milk from tuberculous animals. The close relation that exists between the cow and the human family renders it possible for the spread of this frightful malady and for the child's best friend to become his worst enemy.

In an article on carious teeth and tuberculous cervical glands Stark, in the *Revue de la Tuberculeuse*, July, 1896, notes the frequent association between carious teeth and enlargement of the cervical lymph glands. He examined 113 children with the enlargement of lymph glands and found that 1 per cent. had carious teeth. Not being able to find any other apparent cause for the condition, he concluded that the swollen glands resulted from the defective teeth. They correspond in situation, in time of development and in the degree of enlargement with the condition of the teeth.

The involved glands were situated on the same side as the diseased teeth, the anterior glands being enlarged if the incisors were carious, and those at the angle of the jaw when the molars were involved. Toothache frequently preceded the enlargement of the glands. Stark is of the opinion that the enlarged glands are tuberculous in quite a number of these cases. He reports two in which he was able to demonstrate pretty conclusively that the carious teeth had been the point of entrance of the tubercle bacilli. One, a boy aged 18 years, who had always been healthy and without a family history of tuberculosis, had caries of the molar teeth on both sides with enlargement of the cervical glands. The glands were excised and the teeth extracted. The former proved to be tuberculous and tubercle bacilli were found on cover slip preparations from two of the decayed teeth. The second was a girl of 14 years, with excellent personal history and without a history of tuberculosis in the family. The first inferior molar tooth on the left side was carious and there was an enlarged gland below the ramus of the jaw. The gland was removed and showed definite tuberculous disease. Between the diseased molar and the adjacent tooth and also forming the floor of the cavity in the tooth were characteristic tuberculous nodules with typic giant cells. This latter case is especially interesting as it seems to show that a carious tooth may be the seat of a primary tuberculous focus. With regard to treatment, the glands should at once be removed and the carious teeth be either properly filled or extracted. As a prophylactic, the teeth should be better cared for, and Stark advocates, with Röse, the placing of all school children under supervision.

An interesting case has just been reported to me by a dentist. A boy, about 16 years of age, who was an invalid and whose teeth were so extremely sensitive that he could not or would not have them filled when they were decayed, had trouble with his cervical glands and had them operated on, with relief for a number of years. Afterward it was found that other glands were infected with tuberculous disease and the patient was taken to New York for treatment. The surgeon who performed the operation of excising the infected glands, insisted that all the decayed teeth in his mouth should be at once removed, giving as his reason that the decayed teeth were largely the cause of the infection.

Another case was reported to me, in Cambridge, of

an immature child, who having trouble with the cervical glands, had them operated on by a local surgeon. Some little time afterward symptoms of tuberculosis set in and the surgeon who performed the second operation thought it might be probable that the child had been infected by instruments used in the first operation, the family history showing no signs of tuberculosis. It was stated to me that the molar teeth of this little patient were very largely decayed, and with our present knowledge it seems more than probable that this terrible infection was brought about by the organisms of this disease, which were cultured in the decaying dentine of the molar teeth.

The importance of dealing with this subject must commend itself to us. In many of our States there are commissioners whose duty it is to make examination of cattle suspected of having this disease. The cattle found infected are destroyed. Does it seem less reasonable that we should try to prevent our school children becoming infected? It is a matter that should come home to every family, who would surely desire such supervision after understanding the importance of the subject, if by any possibility it would shield their children from this terrible infection. For this reason they should support a law directing such examinations to be made in our public schools.

The important question we have to consider is: How are these examinations to be brought about? One correspondent states, "if your board of school commissioners is the same as ours, a request of this nature would be looked upon as an unwarrantable piece of interference, a bid to obtain practice." This same writer, however, acknowledges the true charity and philanthropy of the movement. Another says, "if the dental societies are sufficiently in earnest and sufficiently united to pledge themselves to furnish competent members of their bodies at regular periods of each year, a committee from those societies could petition the board of education to appoint an examining dentist to each school." This suggestion, it seems to me, is a most excellent one. Our profession should do more in the way of public charity than it does. We do very little compared to the gratuitous services rendered by the medical profession. The first move should be through the State board of education by the State dental organization. All school children under the care of the family dentist should be required to present to the masters of each school a certificate signed by their dentist. This should be considered sufficient evidence of the healthy condition of the child's mouth. All other children should pass the required examination. An expert could make an examination of each scholar in from three to five minutes. In most of the large cities there are one or more dental colleges with infirmaries for the treatment of all such cases. In these cities the children of the poorer classes should be sent for proper treatment. In cities where there are no colleges, dentists can be appointed by the dental societies to attend to this charity work. The boards of school commissioners in the various States are men of culture and liberal education. They can not fail to see the necessity for such dental supervision, if the matter is presented to them in the proper manner. It will be apparent that such examinations are for the real interest of the children, and an act of real charity and philanthropy, guarding the common welfare and safety of those under their care.

The matter is of such vital importance, that we should seek the co-operation of every dental organization in this country to aid us in our efforts to bring about the examinations and treatment of the mouths of the children in our public schools; who better than they can recognize the justice and importance of this matter. It will save the children from sorrow and suffering, and in many cases such supervision will triumph over disease and death.

LECTURE.

THE MEDICAL PROFESSION.

A Lecture to the Students of Shurtleff College.

BY JOHN B. HAMILTON, M.D., LL.D.
CHICAGO, ILL.

It is with pleasure that I respond to the polite request of the energetic and distinguished President of Shurtleff College and speak to you at this time and place. The subject assigned was part of your annual series, and one naturally congenial to me. I feel, however, very deeply my sense of responsibility of inadequately treating so vast a subject and of doing justice to a profession which is only junior to that of the priesthood itself, and has proceeded from such an early period of time that its records blend with the legends of mythology and the Vedas, Vagas and Charakas of oriental lore. The friends of Shurtleff College should take a deep interest in matters pertaining to the medical profession; for, its name is due to a member of that profession, Dr. Benjamin Shurtleff, of Chelsea, Mass., its founder.

As to the origin of the profession of medicine, modern investigation has shown that the most ancient traditions and records of the nations of the West refer to the "learning and wisdom of the East," and that a study of the origin of the medical art is not finished when the Greek and Latin classics have been explored; but it even goes back beyond the time of the most ancient Egyptian physicians and embalmers. The great school of the Hindu physicians was known to the ancient Greeks, and "when Alexander, after having conquered Persia, was approached, Taxiles endeavored to conciliate the great envoy by presents, saying I shall send to the Great Conqueror, your master, my beautiful daughter, a goblet made of ruby that miraculously replenishes itself with liquid, a philosopher of great knowledge of the sciences, and a physician who has such skill that he can restore the dead." (Malcolm, Hist. Persia.)

The Charaka Samhita, now being republished and translated into English in Calcutta by the learned Pundit Avinash, shows an intimate knowledge of dietary preparations and of the means of preserving health, which is remarkable, considering as we now understand it, that most of their knowledge of anatomy was derived from dissection of the lower animals, although the rule that there is nothing new under the sun doubtless applies to most things, it does not appear from the records that there were any antivivisectionists in those days. It is known that the ancient Hindus carried their knowledge of astronomy back to the year B. C., 1181 according to Archdeacon Pratt 1168, B. C., according to Rev. R. Main's calculation and it is said that the ancient Brahmins, who devoted their entire lives to the cultivation of an education of poetry, astronomy, medicine and religion, excelled in geometry and algebra, which antedated the Greeks perhaps Euclid himself.

Wise, in his review of the history of medicine among the Asiatics, considers that the Charaka and Susruta were prepared at a very early age, probably from the third to the ninth or tenth century before the Christian era. This conclusion is arrived at from the following considerations:

"1. They were written in the most ancient form of construction of the Sanscrit language.

"2. They were considered to be the production of divine beings, and mentioned by ancient authors.

"3. These medical works must have been written at a time when there was no prejudice of caste, and looking at the sun or stroking a cow was considered sufficient to purify a person who had touched a human bone.

"4. In Charaka the names of the Munis were mentioned, who flourished before mythology was introduced into the Hindu system of religion. They subsequently had in connection with the names all their gods who were afterward most probably introduced by degrees as the various objects and operations of nature were defined and named.

"5. The authors or compilers of these two systematic works on medicine appeared to have flourished in an heroic age, or previous to that in which the Mahabharata, the great epic poem, was written, as they are mentioned in several places of that work, which, according to Wilson, was composed about the second century before the Christian era."

These works are to be regarded as summaries of the knowledge of medicine which was possessed at the time and were probably compiled from medical works previously existing, as the names of various ancient physicians are mentioned. The Hindus made many researches into the chemistry of medicine, and they had a long list of medical plants with the properties thereof, natural salts, and knew of the composition of various alkalies and sulphuric, nitric, and muriatic acids. That Hippocrates derived assistance from the Hindus is evident; that he was a great traveler, is mentioned by Galen and Mercurial. In fact, the very names of the medicines used by the Greeks of the Hippocratic era showed their Oriental origin. The practice of the medical art by the Egyptians, at first undoubtedly connected with embalming, is certainly derived from Brahministic lore, and from them in turn it extended to Greece. The Greeks evidently regarded the Egyptians as the first instructors of mankind, notwithstanding they gave themselves due credit for improving and perfecting the knowledge derived from them. Plato says, that "whatever we Greeks receive from the barbarians we improve and perfect." In the Book of Genesis we read that Joseph commanded the *physicians* in his service to embalm the body of his father," which they executed according to the order in the space of forty days.

I referred a few moments ago to the fact that the Ayur-veda, from which the Charaka and Susruta were compiled, were believed to be of divine origin, but we must remember that all ancient countries had faith in the divine origin of the medical art. "The art of medicine," said Cicero, "has been consecrated by the invention of the immortal gods," and we find in the works of Galen a statement that the Greeks attribute the invention of the art to the sons of the gods, who had been instructed by the gods themselves.

The first Egyptian author is said to be Hamon, who was believed to be Hamon the First, of the first Egyptian dynasty. Zoroaster was the next. Pliny, on the authority of Aristotle, says that Zoroaster lived six thousand years before Plato. After Zoroaster came Thot or Thouth, whom the Greeks placed among the gods and named Hermes, and the Latins Mercurius, and who is the same, according to some authors, as Shem, the son of Noah. Thot, or Taautus as he was sometimes called, was allowed to be one of the counsellors of Saturn, and M. Bouchart has endeavored to prove that Chronos or Saturn was the same as the Jewish Noah. But however uncertain the ancient chroniclers may be on this subject, they agree that Hermes or Mercurius was the author of medicine among the Egyptians, a superstition which has been disproved by the fact that a knowledge of medicine existed, as has been already stated, for many centuries among the Hindus. But I have no desire to confuse you by passing into a discussion of Egyptian and Greek mythology whereby Osiris and Isis were said to have originated medicine, and that Mercury was nothing more than secretary to Osiris and Isis. Indeed, if we undertook to mention seriatim all of the ancient gods and goddesses to whom have been attributed the invention of medicine, the entire time of this lecture would be taken up on account of mythology rather than the profession of medicine. It is somewhat unfortunate that the ancient medical authors, such as Diodorus and others, following the customs of the time, attributed to various gods the introduction of various medicines. It is not astonishing that the poets, with that license which they have been allowed in all ages, should have done so, but the authors of scientific treatises seem also to have been overcome with the spirit of the time. It is probable that Æsculapius, whom the Greeks placed among the gods, was a real personage, although there were several of that name, and confusion might easily result. Cicero said that there were three Æsculapii, of which the first, he said (that one which the Archadeans worshipped) was the son of Apollo. This is the one who invented the probe to probe wounds and apply bandages. The second was the brother of the second Mercury, who was killed by Jupiter. The third was Arsippus, who invented purging and was the first to pull teeth. Neither shall we enter into speculation as to whether Machaon and Podalirus, the two sons of Æsculapius, were respectable physicians and surgeons, and whether Machaon was the older of the two brothers. It is certain, however, that Homer always mentions Podalirus first, nevertheless Machaon, who treated Menelaus, was the more esteemed.

Passing this heroic age we come to the age of Hippocrates, and here it is that the science of medicine became established as a science, and especially the everlasting principles upon which a knowledge of disease is founded, namely, on the observation of actual cases. Although it is not at all probable that the Greek temples were the first hospitals, yet it is to be remembered that in the Æsclepion Hippocrates on the Island of Cos examined the recorded observations of his predecessors and placed in enduring form his own immortal observations. There was reason why at this time the science of medicine should reach a high state of development in the latter part of the fifth century ante-Christus. This was one of the most remarkable epochs in the intellectual development of the human race. "The contemporaries of Hippocrates were Pericles, a famous statesman; Æschylus, the tragic poet, Sophocles, Euripides, Aristophanes, Pindar, the philosopher Socrates with

his distinguished disciples, Plato and Xenophen, the venerable father of history, Herodotus, and his young rival, Thucydides. In beautiful statuary, there was Phidias, with his illustrious pupils, and many other distinguished names who have conferred immortal honor on the age in which they lived and exalted the dignity of human nature." (Adams.) Both Strabo and Pliny assert that Hippocrates obtained the rudiments of his knowledge from the reports of cases collected in the Æsclepion of Cos.

I shall not at this time and before this audience attempt to give an eulogy of the life and character of Hippocrates, as that has been attested by all succeeding time, but his influence on medicine, it must be confessed, is unsurpassed, and it is admitted today by the best medical philosophers that medical practice at the close of the nineteenth century more closely approaches that of the Hippocratic period than at any previous time. Why, indeed, should not the practice of the art have its standard placed at the same time, as the standard of statuary and eloquence and poetry have been established? As no poet in modern times exceeds Homer, no sculptor of modern times surpasses Phidias; and as no orator of modern times surpasses Demosthenes or Pericles, so no physician of modern times surpasses Hippocrates in his deep knowledge of the philosophy and general principles of the understanding of the medical art. I admit, however, that I myself would rather be treated by one of our hospital internes of the present day than by the prescriptions of Hippocrates; but I speak of the principles which were developed by that great mind who wrote that magnificent series of aphorisms which commence, "Life is short, and the art is long; the occasion fleeting; experience fallacious, and judgment difficult."

The physician of the time of Hippocrates treated his patients on the field of battle, but mostly in hospitals; all chronic diseases were carried to the hospital, and this custom was not abolished until in the time of Augustus, when by a decree, the Greek physicians were made slaves and subject to the caprices and whims of their masters.

We may trace the first education of physicians from the earliest times in a direct line from the Hippocratic temples to the school of Alexandria, and thence to Italy; and under the bright skies of Greece, Asia Minor, Alexandria, and Southern Italy, learning was greatly encouraged and wisdom much increased; but the tyranny of the Romans became fatal to further advancement, and it is seen that absolutely no progress in medical science was made from the time of Galen in the second century down to the medical schools of Salernum in the eleventh, Padua and Bologna in the twelfth, and Montpelier in the thirteenth centuries. The greatest latitude was given to the study of anatomy at the old Alexandrian school under the wise reign of the Ptolemies. Erasistratus, who had dissected animals almost without number for the purpose of establishing his anatomic discoveries, was finally given direction by Ptolemy-Soter to dissect the bodies of living criminals condemned to death, and it is said that over two thousand were dissected under this rule by him and his coadjutors. This was barbarous, but it established certain truths. It was the foundation of the true science of anatomy as at present understood, and the nomenclature given at that time still exists. The science has progressed; the world has generally progressed in wisdom from that until this time; but there always have been obstructionists, that we are not exempt from the general rule is evident when we see grave and reverend gentlemen straining every effort to prevent the march of science and arrest its development by the stopping of experimentations on guinea pigs or white mice. History will again repeat itself. If the law of our country put its strong hand to stop the physiologic laboratory, to stop experimentation, to stop further progress, what our more ancient brethren in Rome experienced when their scientific studies were stopped and themselves made slaves, mere body servants, will be repeated if the proper members of the profession shall not be allowed to prosecute those needful investigations even at the expense of some of the lower animals and reptilians.

To return, however, to our theme, the profession of medicine was practically suppressed during the long period from the second to the twelfth centuries, a knowledge of the subject being confined to the cloisters, and the priests themselves scarcely daring to exercise it except as a part of religious ceremony in their clerical ministrations. The establishment of the universities in Southern Italy, followed by those of Padua, Bologna and Montpelier, inaugurated a new era, but it may be truly said, however, that it was not until the middle of the fifteenth century that a real revival took place, and even then physicians were not recognized as such for a considerable period. A practitioner of the art was either a specialist devoting himself to cures of hernia, or cutting for stone, or else he was a priest and used the medical art as an adjunct to his office, or a barber-surgeon, and as such obliged *nolens volens* to accompany armies in the field. Nor has there been at any time since, a single period when it may be said that the profession of medicine has jumped at a single bound into distinction and a clearly defined position. On the contrary, its growth has been gradual and its recognition likewise gradual. The great discovery by Harvey of the circulation of the blood; the discovery of the use of the microscope; the increase of knowledge of the operations of the organs of the body; the increased knowledge brought about by geographical discoveries and bringing into view certain herbs and chemicals; the discovery of the laws of generation, of animal life; the discovery of the science of bacteriology, or rather its completion, for it too, has come about by degrees, have each, as they have come to the knowledge of the laity, served to place medicine on a firm and enduring basis as a distinct profession.

Quacks have existed from time immemorial; sects have sprung up from time to time, but there have ever remained solid truths, unshaken by the waves of popular clamor, unchanged by the lapse of time, and this has served to maintain a system of medicine practically unbroken from the Hippocratic age down to the present time. Of the quacks that have flourished, there needs little to be said. Some of the most monstrous propositions have been eagerly swallowed by a public ever thirsting for novelty and sensation; and when one has served its turn as a confidence scheme, it is soon succeeded by some other. The same may be said about the sects in medicine which are based on one idea. Each may have some isolated fact as its underlying basis, but having no connection with the broad science itself and therefore generally useless.

I may refer, first of all, to a new sect denominated

Christian Science, which I believe to be unchristian because it is not humanitarian; nor is it scientific, because it is opposed to the known laws of nature. It has an isolated fact, which is the power of mental influence over disease. It is well known that by hypnotism or mental influence we may exert sometimes a salutary, sometimes a harmful effect on a human mind throughout the body, whereby changes more or less permanent in character may occur. That it may do so in those cases where a delicate balance exists between life and death is extremely doubtful. In the presence of those poisonous agencies which destroy life, such as the venom from reptiles, vegetable poisons such as strychnia, animal bacteria such as from malignant diphtheria, we know that no mental effect whatever can be of sufficient force to arrest the fatal process by which life is destroyed. So then in elevating such a sect to the system of medicine we are committing even a greater folly than our predecessors did when they attempted the apotheosis of Hahnemann and his pellets, or "dilute moonshine," as Oliver Wendell Holmes was wont to call them. I do not appeal here to prejudice, but simply to reason and common sense. It is a fact that the more a substance is diluted the weaker it becomes, the Hahnemannic teachings to the contrary, notwithstanding. If it were otherwise, you had as well shut your eyes to all that occurs in the chemic laboratory; as well admit that an alkali is an acid, or say that no new compound would result on placing a basic metal in contact with an acid.

The newest fad of all, without that connection which enables it to be called a science, is the doctrine called osteopathy. It teaches in brief, according to what I have read concerning it, that all diseases originate in the bones. So far as osteopathy is concerned, the liver is a myth, the gall bladder a toy balloon and the existence of the heart itself a fiction. All known facts in physiology are of no use to the modern practitioner of the art of osteopathy, for by manipulation of the bones and joints he can cure all ills and remedy all diseases to which human flesh is heir. The little morsel of fact contained in this doctrine is that relating to muscular movement, stimulation of the circulation of the skin; in a word, *massage*, a well-known remedy handed down by the ancients from the earliest times. A single remedy, a single method may be adapted for certain affections; may be admirably suited for certain conditions of the body and should be used under appropriate conditions. So, some of the followers of this sect have begun to formulate rules, imbued with the belief that it is the one idea alone which constitutes the sum total of medical science, and its followers have petitioned the legislature of this State to be excluded from the laws governing other practitioners in medicine and surgery, that they may escape that examination which all other practitioners of medicine, including the sectarians, are obliged to submit. I say it in all kindness, I speak it in all sincerity, when I say in this presence and before these young men here assembled, that we should never recognize any sect in medicine as a distinct and separate branch that refuses to accept the established facts governing the generation, the growth, development and life of the human body. Our idea of life itself involves an idea of change. The juices that flow in plants, the blood that courses through our veins, the fluids in the lymph spaces and lymph channels, all these must circulate, all these must change, or else the plant or body becomes dead and sinks into decay. A knowledge of the forces governing these changes, the laws by which the fluids themselves are formed, the process by which the tissues are regenerated and changed must be known, must be understood, and that knowledge is essential in the understanding of disease. "How can anyone," says Celsus in the second century, "cure a disease when he knows not its cause." "He who understands the cause of disease is best able to cure it." If this statement was true in the time of Celsus, it is true at the close of the nineteenth century and the principle is the same.

Specialism in medicine.—I would not have you understand that anything which I have said in relation to sects in medicine applies in any degree to the practice of well recognized specialists. It is understood that the field of medical science is now so broad, so vast, that no one person can grasp it in its entirety and keep in perfect touch with the advancing knowledge of the time in these several departments; and so in our days the specialist has sprung up again, although it must be remembered, that in the brighter days of the ancients, in the days of the Alexandrian school, specialism had developed to an unprecedented extent, and to a degree which worked its own self-destruction. A man in those days had to have about thirty physicians, one for each class of ailments from which he might suppose himself to be suffering. That was specialism run mad. In our day we may say that there are a few defined and distinct specialties having a legitimate right to exist. It is, however, a fact that the specialists are those who have devoted a period of years (say five or six as the minimum period) to general practice, as without the knowledge which comes from experience the specialist is apt to fall into error. He will examine some particular symptom, but in the range of his specialty he will forget all about the man himself. It is, as a politician once said, that he knew a man whose vision was so acute that he could see a fly upon the barn door but could not see the barn door itself.

Seriously, in order to make a perfect specialist one must be able to make a diagnosis of any of the diseases of the body. Having a knowledge of the whole, he can give each symptom its due weight, and then with the special knowledge which he possesses as to the treatment of the particular organ under observation he will accomplish the most satisfactory results. It is demoralising for a young man to take up a specialty immediately after leaving college. It makes him narrow and untrustworthy. The family practitioner, that is, the general practitioner, has a love and close friendship with his clientèle which, perhaps, while not altogether denied him, are still quite foreign to the specialist. The family consult a special practitioner because they are obliged to, whereas they often go to the family physician as they would go to a friend about matters perhaps which are only semi-professional, and the loss or absence of friendship—I mean close friendship—is a great loss to any man, and especially to a young man just making his start in the world.

Let me refer briefly to the status of the profession at the present day with regard to medical education. It is known to most of you no doubt that a great change has taken place in the last ten years. Ten years ago but a few of the medical colleges in this country required an examination as preliminary to the study of medicine. They trusted entirely to the

doctrine of the survival of the fittest, and expected that a man's success after leaving college depended entirely upon his industry, his energy, natural ability, not less than upon his special knowledge. This state of things no longer exists. All of the best schools in America require a preliminary entrance examination. Some of them extend this requirement to an examination equal to the requirements of admission to the sophomore year of the academic department of a literary school, and others have extended it to the junior year. At the same time there has been a lengthening of the courses of study until now from seven to eight months are required in most of the schools, and some of them have extended the course to nine months. All this extension means additional expense to the medical student; additional expense means the limiting of the numbers in the classes, so that the overgrown classes of a few years ago are not to be expected in the future until we begin to draw students from Europe. Besides that, the profession itself has been overcrowded until the opportunities for remunerative employment have become more and limited; hence the interest of the profession, not less than the scientific interest, required the raising of the standard. Not every man has the mental make-up, the courage, the industry and the peculiar temperament to make a successful physician, even if he is imbued with the high ideals I have set forth. On this point it would be well if our young men took some unprejudiced advice before engaging in a business for which they may find their entire inadaptability when it is too late and thus become professional misfits. Tact, gentleness of manner and amiability of temper with just enough firmness of purpose are characteristics of the successful physician and these seldom come to a man in full measure unless natural to him. They can not be acquired and suddenly put on as one would put on a new suit of clothes. These characteristics must be part of the man himself and a careful study of the character of the many successful physicians shows it. When a young man is found corresponding with this ideal he should be encouraged to study medicine.

But what will become of the physician in the country, away from the larger towns and villages? It is easily seen that his preliminary and regular medical education will cost a vast sum, let us say a thousand dollars a year at a moderate estimate. If now we add to the cost of the collegiate education four thousand dollars, we will see that even at a moderate rate of interest the capital invested will not justify a man in studying for practice in a place where his income will be limited, so that if one enters the profession from this time on, it must be with the distinct understanding that he enters it for his own sake, and not for the sake of pecuniary reward or profit, as the same amount of capital otherwise invested would bring much greater returns. It is natural, then, that we shall expect the physician of the future to be farther removed from the commercial elements which enter into his choice of a profession; that he will be more spirituelle, actuated perhaps by a higher sense of humanity, although it must be said in favor of our profession that, as a rule, they have always been actuated, in the past, by the highest regard for their profession. In fact this sentiment has come to be an abuse, has grown to such a degree that other ranks of society are becoming pauperized. I refer particularly to the so-called dispensary evil.

The dispensaries were originally founded for the benefit of the suffering poor, a worthy charity. Today they are being utilized by not only the suffering poor, who are entitled to them, but by the avaricious and greedy and persons whose pecuniary circumstances in no wise render it necessary for them to seek gratuitous advice, and a reaction is now coming on which will certainly lead to the limitation of these abuses, if it does not go further. In one State the aid of the law is sought to be invoked to prevent persons who are not entitled to the benefits of public charity from receiving it. No other profession is called upon for so much gratuitous service to the poor as the medical profession, and as a rule the service is given cheerfully and promptly. I would like the laity to pause for a moment and ask themselves if they know a single profession whose members regularly and persistently from week to week, give their services gratuitously to hospitals and dispensaries, or to institutions of a similar character. As a rule, the doctor in any community is fully abreast, in general information, with the best citizens of that community, and in America he has no reason, at the present time, to complain of his social status. So far as worldly goods are concerned, any practitioner of ordinary ability may be able to live respectably and attain a moderate income. He must never expect to be rich. The rich practitioners as a rule are those who have become so by fortunate marriage relations or lucky investments. Few of them have become rich from incomes derived from their practice. There are many who have acquired a moderate competence, and there are some exceptions to the general rule. This may seem an unpoetic view of the situation, but it is the truth. I had rather picture to you a doctor passing out among the people on his rounds with a shining, smiling face, beloved of everybody, respected of everybody, the admired of a few and the companion of the wealthy, but truth in this manner is inelastic; it is inexorable.

Even a physician in the public service does not receive the same credit as his brother officers in the line. Although the records show that the mortality in the medical department is as great as that in any other branches of the service, and it is known that more men are destroyed by climatic diseases in time of war than are destroyed by the bullets of the enemy, and that the most important means of preserving the strength of the command is to preserve the health of the troops engaged; yet the medical man, not being responsible for any of the miliary movements, can have attached to himself but a modicum of that military halo which surrounds the officer of the line. This is inherent to his profession, and as it is a true statement it may as well be recognized in making up your minds to enter this branch of the profession.

We have eccentric characters in our profession, and perhaps more than our share of them, but it is scarcely fair to gauge the entire profession by the Sangrados of La Sage, the characters of Molière, or the Abernethys of real life. Our profession is not exempt from a few wolves in sheep's clothing, who are treacherous and tyrannical, unkind to their fellows and assassins of character, but these are exceptional and I believe we have less than our proportion of them as the professions go, but my earnest desire is to see the time when only those study medicine who have *natural* fitness for its practice.

In this cursory view which I have given of the medical profession as it was and as it is, I have kept

away from entering too far certain by-paths which, however pleasant and amusing, are less instructive. I have given you these views as being appropriate truths to spread before any gentleman about to enter the world with the choice of a profession yet before them, and to reiterate the words of old Burton, as true today as when they were written over two hundred years ago, that among the professions "the clergy has the most honor, physicians the most learning and lawyers the most money." I might add, and I think it will be admitted, that of the three professions, that of the physician is the most laborious and the most exacting. If, then, with these facts before you, you choose to become medical pupils and enter the temple devoted to medical science with a view of giving your life to it, let it be understood that you are entering it from pure love of science, for love of humanity, and for the effects upon yourselves of a life of self-abnegation. You may forego visions of wealth and cease to dream of political power or prominence, for these seldom come to the practitioner of medicine. Indeed, in the metropolis of this country at the present day there is a law on the statute books excluding a physician from occupying the position of president of the board of health, the very place one would think a practitioner of medicine would be most useful and perform the greatest service. Let the medical man be content within his appropriate sphere to devote himself to that proper study of mankind, which is man made in the image of his Creator, and you will have the knowledge that although your life may be well spent, characterized all your days by uprightness and virtue, yet the pomp and panoply of circumstance will never be accorded to you, and when you sink to rest, your bier may be surrounded by the weeping faces and falling tears of the poor whom you have aided in your lifetime, but the great bulk of mankind will pass on as if you had never existed. Perhaps this is true of men in general; but if the student be ambitious, it is well that he pause and reflect and face matters as they exist, rather than start out with too roseate visions of what life has in store for him. If he adopt the humble yet noble profession of medicine, he adopts a laborious profession. With all its disadvantages, if they are disadvantages, it may be said that the profession of medicine is eminently respectable; its practitioners rarely suffer from want; they are rarely compelled to beg for bread, and they are treated with reasonable respect by their fellows, for as few of them know how soon they will be called upon to require their services, that anticipatory gratitude born of a lively sense of favors to come is extended to the physician.

But there *are* pleasures connected with the physician's life; at times real happiness when a distinct triumph is made over the arch enemy of mankind—disease; and to increase these triumphs is the constant aim and life study of the physician.

Combined Ileus.—Hochenegg has observed four cases in which the occlusion was caused by several constrictions from adherences involving the small intestines complicating a cancerous stricture of the transverse colon. As the removal of one did not bring relief, the others were sought and found. In one case there was an ectopic testis; the patient recovered after the fourth operation. In all, the transverse colon was much thickened, while the rest of the walls of the large intestines were normal. In operating the obstruction in the small intestine must first be removed and colostomy established, proceeding later to the ablation of the carcinomatous tumor of the large intestine.—*Wien. Klin. Woch.*, December 23.

ORIGINAL ARTICLES.

THE DIAGNOSIS AND TREATMENT OF URETHRAL STRICTURE.

BY EVERT E. TRACY, M.D.
CHICAGO, ILL.

For convenience of classification, urethral strictures are considered as being of large, medium or small caliber; either plastic-exudative or fibrous in in character, and may at any time become spasmodic. Within the folds of the urethral mucous membrane at the point of stricture will generally be found gonococci, and sometimes at this point there will also be found one or more pockets of pus, which, when situated in the deep urethra, may cause chronic prostatorrhea, or prostatic abscess.

A stricture of large caliber may be defined as any size larger than 29 F. situated either in the deep or pendulous portion of the urethra. This form of stricture will often be overlooked, from the fact that the urethra seems to be of normal caliber, the act of urination being performed without difficulty, and the presence of a stricture only suspected from the slight discharge of glairy mucus observed by the patient, principally in the morning, though sometimes during the day, and often accompanied by pain in the lumbar region, for which he seeks medical aid.

By examination with sounds, in such cases, it will be found that they are passed with but little difficulty until about 28 or 29 F. is reached, when a distinct resistance will be felt, which is caused by contact with the stricture, after the passing of which and upon withdrawal of the sound a few drops of pus or mucus will follow; and upon microscopic examination these will often be found to contain gonococci. The same symptoms which accompany stricture of large are also found in stricture of medium and small caliber, although more pronounced.

Upon examination with the endoscope, which I always make without the use of a local anesthetic (as cocain causes discoloration of the membrane so that the examination is unsatisfactory. I prefer glycerin as a lubricant, as any other substance will obstruct the view so that a perfect picture can not be had). The mucous membrane of the urethra will appear about normal until the point of stricture is reached, when a decided difference in its appearance will be observed. The mucous membrane is now found to be very red or granular at the point of obstruction, showing a plastic exudative secreting pus (plastic-exudative stricture), or thence fibrous bands secreting mucus (organic stricture).

By means of the sound and endoscope any abnormality of the urethra can be detected.

I have always considered Otis' metallic bulbous bougies excellent for locating a stricture, as they can always be rendered sterile.

I never use the ordinary flexible linen boule, as it is impossible to render it aseptic. All other diagnostic instruments are only auxiliary to the sound and endoscope, as with the sound, if properly passed and manipulated, the slightest resistance can be felt and the stricture located as easily in the membranous as in the pendulous portion of the canal, and then by the endoscope the diagnosis can be confirmed, as to the character of the stricture, whether simple plastic-exudative or fibrous organic.

After having made a diagnosis as to the size and

character of a stricture it is easy to decide on a plan of treatment. From a pathologic standpoint, stricture varies. It begins as a thickening of the mucous membrane with a deposit of plastic exudate on the deep connective tissue; later, it develops into a fibrous mass which occupies the submucous tissue and extends into the underlying tissue beyond, thereby becoming the dense fibrous organic stricture.

Some plan of treatment should be devised to cause absorption of this mass.

That form of stricture made up of plastic exudate, either of large, medium or small caliber, I divide into two stages: 1. That which easily yields to the sound and secretes a small amount of pus or blood, when the sound is withdrawn, may be considered the first stage of plastic-exudative stricture. 2. The more organized this plastic material becomes the greater is the sensation of resistance to the sound, and as this material is becoming partially organized, instead of clear pus following the withdrawal of the sound there will be pus mixed with mucus, or clear mucus, in which the gonococci will invariably be found. The same may be called the second stage of plastic-exudative stricture.

In several cases at this stage of the disease, I have found, after introducing a sound and breaking through this formation, that from fifteen to thirty drops of pus followed its withdrawal. When this form of stricture is located in the membranous portion of the urethra the gonococci which lie in the submucous tissue just behind the stricture easily find their way into the prostate, setting up a chronic prostatorrhea or prostatic abscess. In these cases, by introducing the sound into the urethra and making thorough digital examination of the prostate by the rectum, the size and hardness of the prostate can be felt and mapped out, and any fluctuations easily perceived, if pus be present. The prostate lying between the finger and sound can be firmly compressed, and any pus or mucus contained in the ducts of this organ forced out.

Organic stricture of any size, when examined by the sound gives a distinct sensation, to the touch, of dense unyielding resistance. In this form of stricture, after having passed the largest sound which the stricture will admit, it will be found that the next size will meet with a distinct resistance and can not be passed without a great amount of force, which should never be employed.

In the last few years I have adopted a special line of treatment for stricture, especially the plastic exudative. After having located the stricture, and decided as to its character, the urethra is anesthetized with a 20 per cent. solution of cocain containing 5 per cent. of carbolic acid. The object of adding the acid is, 1, to preserve the solution of cocain, and prevent its decomposition by standing, and this is effected so thoroughly that a solution six months old is fully as efficient as a solution freshly made; 2, to further asepticize the proposed point of operation; 3, the acid is a local anesthetic and its addition thus intensifies and prolongs the anesthetic effect; 4, the addition of the acid seems to assist in limiting the local anesthetic action of the cocain, in other words, it diminishes the systemic effect.

The solution is applied directly to the mucous membrane in the following manner: A probe about five inches long and thoroughly roughened is tightly wrapped with cotton for about two inches and is then saturated with cocain carbolic solution, but care must be taken that no excess is allowed to remain. An endoscope is then introduced to or a little beyond the point to be anesthetized. The cocain carbolic probe is then introduced through the endoscope and held in position, while the endoscope is removed. It is allowed to remain for ten or fifteen minutes, when it is removed by turning to the right as the probe is withdrawn, that is, it is turned in a direction to wind the cotton tighter. If this method be followed and the end of the probe be sufficiently rough, there will no danger in losing the cotton. In this way anesthesia will be produced which will last a sufficient length of time to allow any ordinary urethral operation.

Under this form of urethral anesthesia a complete examination can be made with the sound, or any other instrument necessary for diagnosis, or a complete internal urethrotomy performed without giving any pain to the patient. In the use of this method, regardless of the strong percentage of cocain introduced into the urethra, I have never had any bad results.

However, knowing the susceptibility of some patients to cocain, it is always well to watch the pulse for any untoward effects. The good results obtained in the use of this method should certainly give it a standing far above the old method of injection, which is not only dangerous but does not always give complete anesthesia.

Allowing that five drops of this solution be used, which would contain one grain of cocain, at least one-half of this amount would remain in the meshes of the cotton. Of the remainder, but one-half could possibly be absorbed in the system, which would be but one-quarter grain.

In the treatment of plastic structure of the first and second stages, I have confined myself to the sound and urethral irrigations with hot water. The patient is supplied with a No. 8 F. soft rubber catheter, in a 5 per cent. solution of carbolic acid, and after instructing him in the aseptic method of using hot irrigations, he is directed to take one irrigation morning and night.

Every two days, sounds should be passed at the physician's office, beginning with two sizes F. smaller than the stricture and carrying them if possible one size above the stricture. When the sound is in the urethra external massage is made over the diseased portion. If after sounding there is a discharge of pus, particularly if it contains gonococci, an injection should be used of 1 to 5 per cent. nitrate of silver.

When stricture is situated deep down in the membranous portion, I not only employ deep irrigations, injections and sounding, but also massage of the prostate by rectum, either with or without the sound in the urethra, in order to force out any mucus or pus liable to collect there.

After this treatment has been carried out for some time a decided improvement will result, and after a few months the patient will be discharged with a normal urethra.

In old organic strictures, however, this line of treatment will not produce such good results, unless carried out for a long time, and even then an internal urethrotomy is often necessary.

Internal urethrotomy simply converts a circular into a linear stricture, and although it gives the urethra a normal caliber, the stricture still remains in

another form, and the normal columnar is changed into pavement epithelium; for this reason this operation should never be performed until other means have failed.

In that form of tight stricture in which we are not able to pass even the smallest sound and the stricture can only be passed by a filiform bougie, I have had good results by the method advocated by Sir Henry Thompson, namely, passing a filiform bougie and allowing it to remain until by its constant presence, pressure atrophy is produced, whereupon a large instrument, a gum elastic bougie, can be introduced. In one case of the kind, by the use of this method I was finally able to introduce a number 16 F., after which by gradual dilatation and hot irrigations I gave the patient a healthy urethra.

In any form of stricture this method of treatment has always given good results. The less organized the exudate the more easy it will yield to treatment, and even in the dense fibrous form of stricture, if the treatment be continued long enough, a healthy urethra can often be obtained without internal urethrotomy.

82 Maple Street.

REPORT OF CASES OF TUBERCULOSIS TREATED WITH ANTIPHTHISIC SERUM T.R. (FISCH).

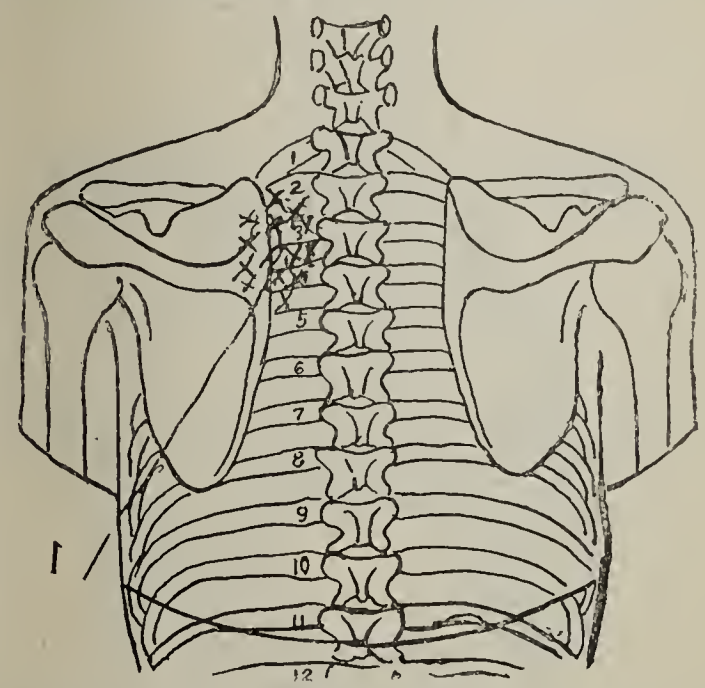
BY F. E. WAXHAM, M.D.
DENVER, COLO.

The attention of the profession having been quite generally called, of late, to the serum treatment of tuberculosis and some rather glowing reports having been made I desire to add my conclusions. drawn from a limited number of cases. Through the courtesy of the John T. Milliken Co., I was early provided with their antiphthisic serum T.R. (Fisch), which has been described in previous papers published in the JOURNAL. I confess to have entered upon the treatment of tuberculosis with this serum with much confidence. The great value of antitoxin in the treatment of diphtheria inspired the hope that a serum for tuberculosis would prove equally effective. How well this confidence was placed must be judged from the following cases:

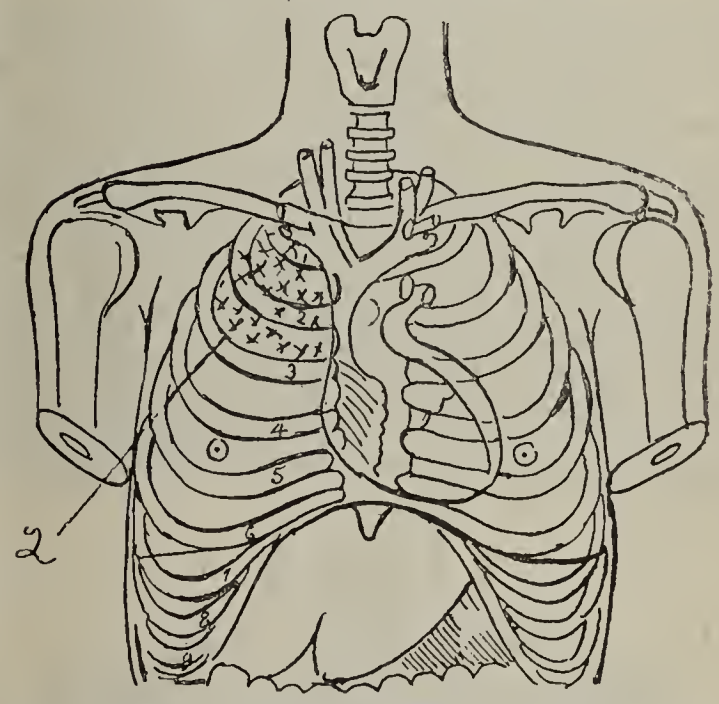
Cass 1.—C. E. M.. aged 40, first consulted me Oct. 26, 1895, and gave the following history: He had la grippe in 1894, after which his cough, which had troubled him somewhat, became much worse. Tuberculosis of upper portion of right lung was discovered in June following, and bacilli at that time were present in the sputum. He was at once sent to Colorado, where he arrived June 29. At the date of his visit to me his cough was dry, harsh and frequent, with very little expectoration; voice husky. Upon examination tubercular infiltration was found in the upper part of the right lung anteriorly, and slignt infiltration of left lung posteriorly. There was tubercular thickening and slight ulceration of right side of the larynx involving right vocal band. Under lactic acid treatment and climatic influence the tubercular laryngitis improved and the slight ulceration healed.

Nov. 17, 1897, he again consulted me for examination and treatment. At this date there is tubercular infiltration (fibroid) in right lung as low as third rib; also considerable fibroid degeneration in left lung. Cough dry, harsh and troublesome, with but little expectoration. Bacilli present in sputum, which is very small in quantity; voice husky. Weight 131 pounds, which is 17 pounds less than one year ago.

Treatment and results.—He was placed upon antiphthisic serum T.R. and for five weeks was given daily injections. Commencing with ½ c.c. it was gradually increased to the full dose. About four days after commencing treatment he suffered from a serum eruption upon the back about the points of injection. which caused much annoyance from the itching which it produced. This however lasted but a few days. For some days he seemed brighter and stronger and, as he expressed it, "had more nerve," but at the end of five weeks daily treatment his appetite had entirely disappeared, he had lost decidedly in weight, was nervous and despondent, could not sleep at night and his cough was much more frequent and troublesome. I had no opportunity of examining his sputum as he left suddenly, hoping that a change of scene and climate might help him. The result of the treatment was highly unsatisfactory. The patient steadily lost ground in every respect.

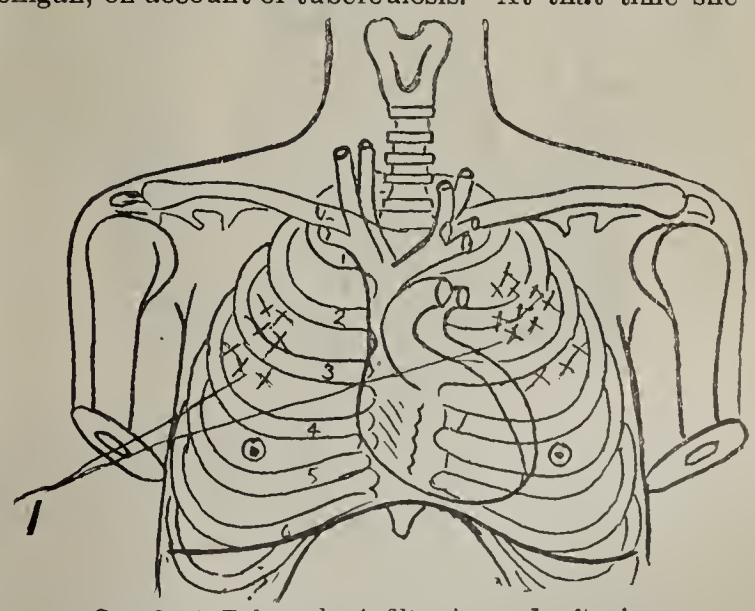


Case 1.—1, Tubercular infiltration.



Case 1.—2, Tubercular infiltration (fibroid).

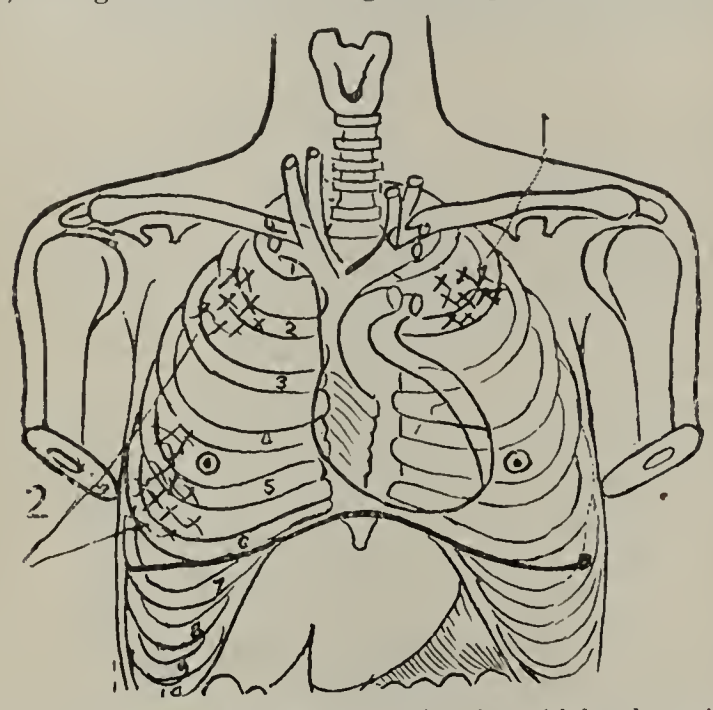
Case 2.—Miss C. age 27, consulted me Nov. 20, 1897, giving the following history. She came to Colorado two years ago from Michigan, on account of tuberculosis. At that time she was coughing badly and had lost ten pounds in weight. She rap-



Case 2.—1, Tubercular infiltration and softening.

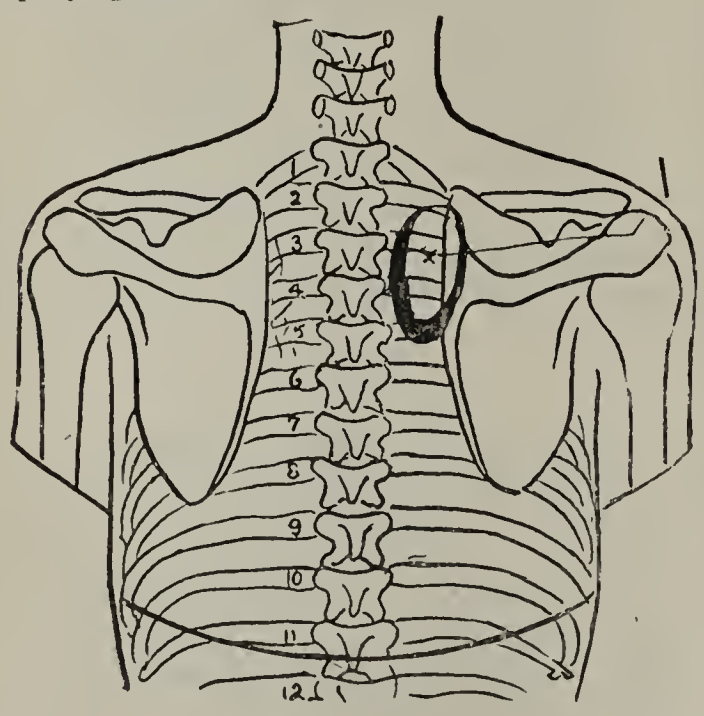
idly improved after coming here and believed that she had fully recovered. The last few weeks however she has been coughing and expectorating much and losing rapidly in weight. Bacilli are present in the sputum.

Treatment and results.—She was placed upon antiseptic serum T.R., commencing with moderate doses and gradually increasing the amount. For two months the remedy was given daily, during which time the cough and expectoration increased; the strength rapidly failed; chills and fever developed and appetite failed. After two months the treatment was abandoned and the following entry is found in the record book. "After two months daily treatment the patient is much worse. She now weighs but 121 pounds having lost 6 pounds during this time. The cough and expectoration is much worse. Appetite is poor. Sweats at night. Pulse rapid and feeble. Has an occasional chill followed by high fever. Bacilli are present in sputum. Physical condition is much worse in every way."



Case 3.—1, Old cavity; 2, Tubercular infiltration with harsh respiration.

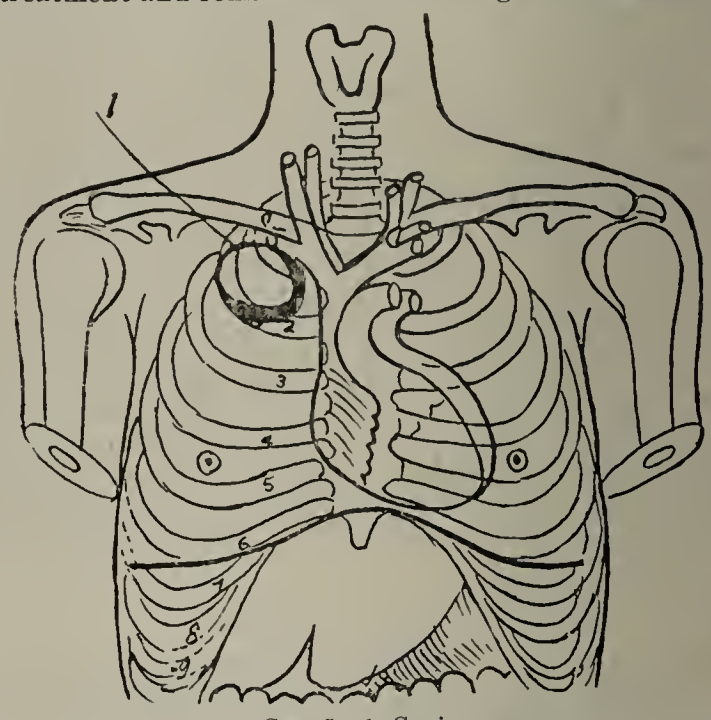
Case 3.—Miss E. O. S. age 27, consulted me Dec. 1, 1897, giving the following history. She has had a cough for eight years and came to Colorado four years ago. She has been failing for the past two months; looks emaciated, and coughs and raises much. The sputum is heavy and bacilli are abundant. At present there is no fever, no chills, no sweats, appetite is fair. She is losing in weight and strength, and suffers much dyspnea upon exercising. Condition of lungs as represented in accompanying cut 3.



Case 4.—1, Cavity.

Treatment and results.—Antiphthisic serum T.R. was given regularly and daily for two months together with heart tonics, inhalations of compressed air and greatly increased nourishment. Condition at the end of two months as follows: Dyspnea not as great; sleeps better; appetite somewhat improved and cough not so bad. She still raises much heavy sputum in which the bacilli are as numerous as at the beginning of treatment. The condition of the lungs remains unchanged. She has however gained four pounds in weight. Later: At the end of three months' treatment the patient has failed decidedly. The cough and expectoration much worse, much loss of strength and weight.

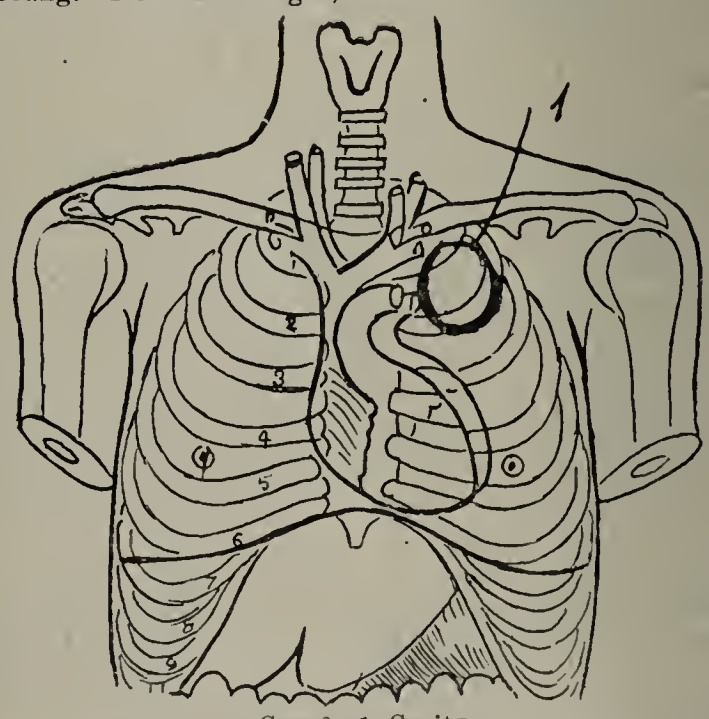
Case 4.—Age 42, came to Colorado five and a half years ago, with well developed tuberculosis and in very feeble health. Patient improved decidedly under climatic influence and general treatment and remained in fair strength and health until



Case 5.—1, Cavity.

two months since. Of late has been losing ground, coughing more and losing in weight and strength. Examination reveals a large cavity in right lung posteriorly. Jan. 20, 1898, she was given ½ c.c. antiphthisic serum which was repeated daily for four days. A diffuse serum eruption then occurred on the back causing much itching and discomfort, associated with severe pain through the lungs and in the limbs and attended with much prostration, from which the patient did not fully recuperate for several weeks. At the patients request the treatment was abandoned. Result of treatment decidedly bad.

Case 5.—P. D. G., age 40, consulted me December 6. He came to Colorado nine years ago on account of tuberculosis. He so fully recovered as a result of the change and climate that he soon engaged in active business, which he still pursues. The last few months he has been losing strength and weight and the cough has become very troublesome and expectoration has increased. Sputum contains bacilli. Cavity is present in upper right lung. No hemorrhages, no fever or sweats.

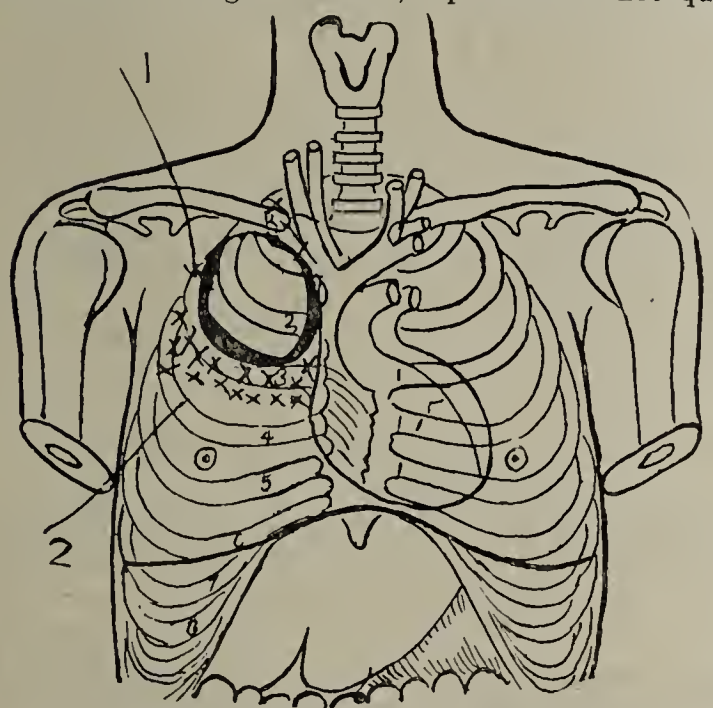


Case 6.—1, Cavity.

Treatment.—Antiphthisic serum T. R. was given in increasing doses daily, with inhalations of compressed air and increased nourishment. At the end of two and a half months no change is perceptible. Patient has not lost ground but the cough and expectoration still remain and bacilli are still present in the sputum. Antiphthisic serum is still continued in increasing doses. Later: Patient losing ground; has some fever, cough worse and strength much less.

Case 6.—J. M. C., age 35, came to me for examination and treatment December 28. He gives the history of hemorrhages twelve and eight years ago. He came to Colorado eleven years since; improved rapidly and did well for seven years, when he removed to Pasadena, Cal. Here he remained for three and a half years, but his health again failing he was obliged to return to Colorado. He is now coughing and expectorating freely. Bacilli are present in the sputum, which is heavy and often colored slightly with blood. Cavity in upper left lung. No chills, fever or sweats. Has of late lost seven pounds.

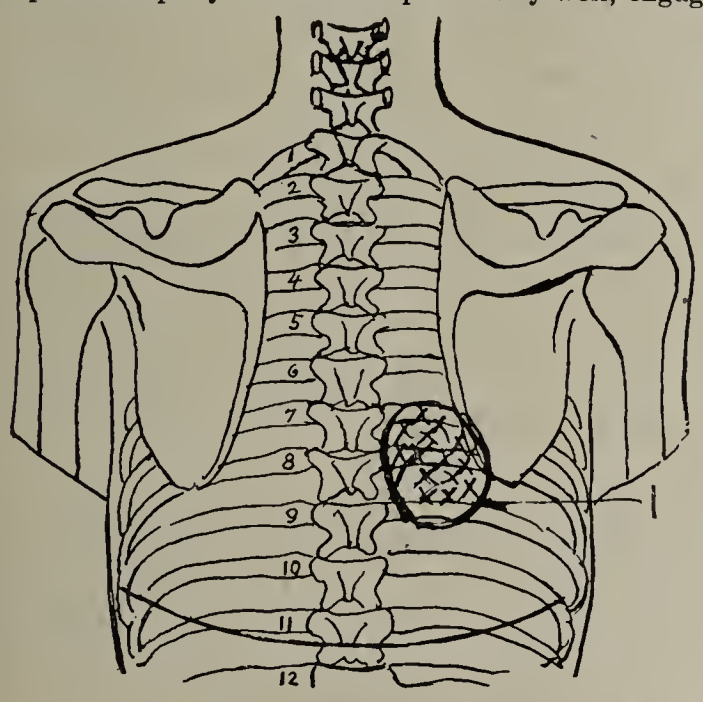
Treatment and result.—Antiphthisic serum T. R. was given daily, increased gradually to full doses, and in addition inhalations of compressed air, careful exercise and full diet. Within two weeks he began to show improvement. Appetite and general vigor improved and at the end of six weeks he had gained seven pounds. Cough is better, expectoration not quite so



Case 7.—1, Cavity; 2, Tubercular infiltration.

copious but still heavy and containing bacilli although apparently not quite so numerous as before treatment. Treatment continued. Later: The patient has had a suppurative inflammation of the right middle ear. Cough and expectoration worse again.

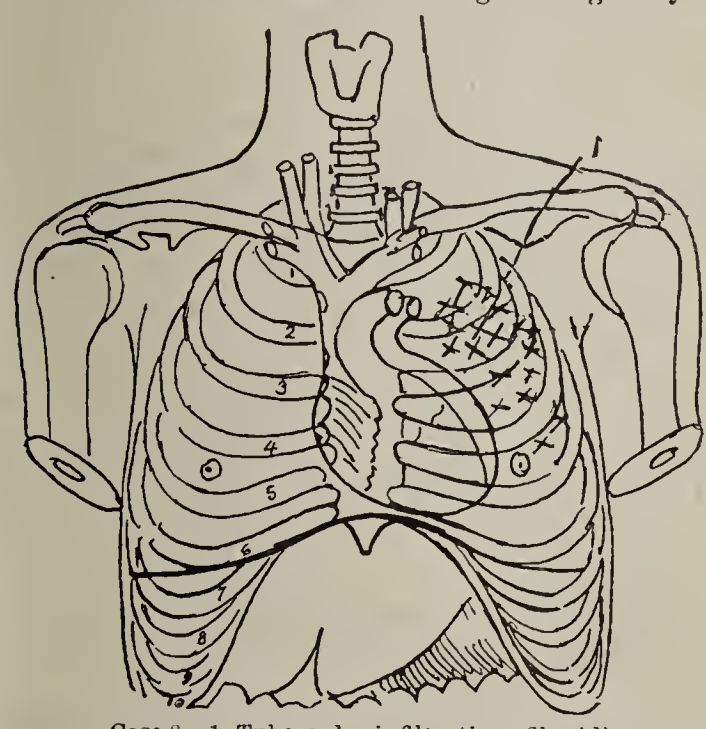
Case 7.—I was called December 15 to see M. T., who gave the following history: He came to Colorado ten years ago a very sick man, having had frequent hemorrhages while in the East. He improved rapidly and became practically well, engaging in



Case 8.—1, Area of consolidation.

active and arduous business. Eight months since he began to fail. Business cares, anxiety and overwork began to have their effect. During the summer of 1897 he had quite a free hemorrhage, followed by hectic fever, and was confined to bed for a number of weeks, during which time he lost twenty pounds. By careful treatment, greatly improved environment and rest from business cares he improved and gained fifteen pounds. At the date of consultation he had again had a hemorrhage and, although not severe, he was confined to the bed and seemed very weak. Upon examination, a very large cavity was found in the upper right lung, with considerable tubercular infiltration all about it. There was much dyspnea upon exertion and the heart's action was rapid and weak. Bacilli present in sputum.

Treatment—He was given strophanthus, strychnia and antiphthisic serum T. R. The latter was given regularly for two

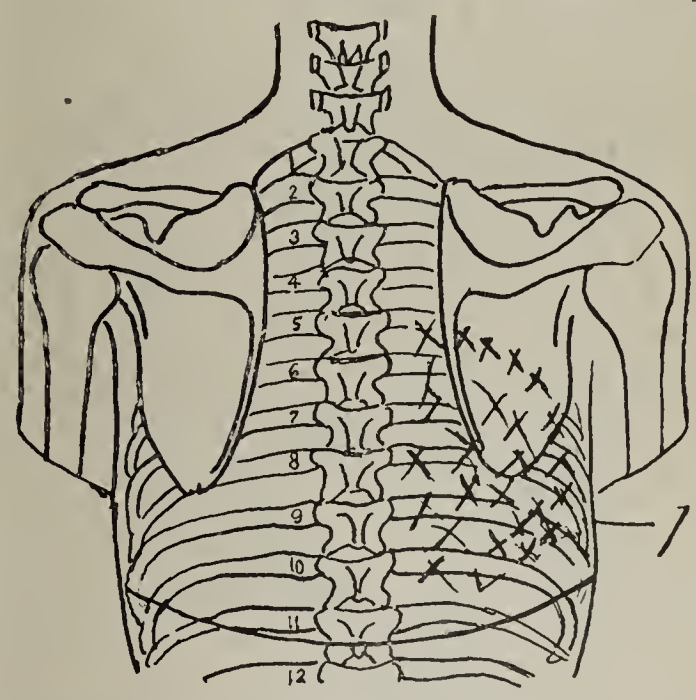


Case 8.—1, Tubercular infiltration (fibroid).

months in full and daily doses. The patient gradually improved, gaining five pounds, the dyspnea became much less and the appetite, vigor and strength also improved. At the end of two months, however, another slight hemorrhage occurred and examination of the sputum showed immense numbers of bacilli. Treatment continued.

Case 8.—Mrs. E. W. S. came to me Jan. 12, 1898. Had a slight hemorrhage three years ago. She then came to Colorado, where she improved and remained in good health until four weeks ago, when she was taken with a hemorrhage which confined her to bed for three weeks. Upon examination, find considerable disseminated tubercular infiltration (fibroid) in left lung, and an area of consolidation in lower right lung posteriorly. Cough dry with but little expectoration. No bacilli could be found in the sputum. Present weight 122 pounds; weight in health 142.

Treatment.—Full diet of meat, eggs and milk with daily

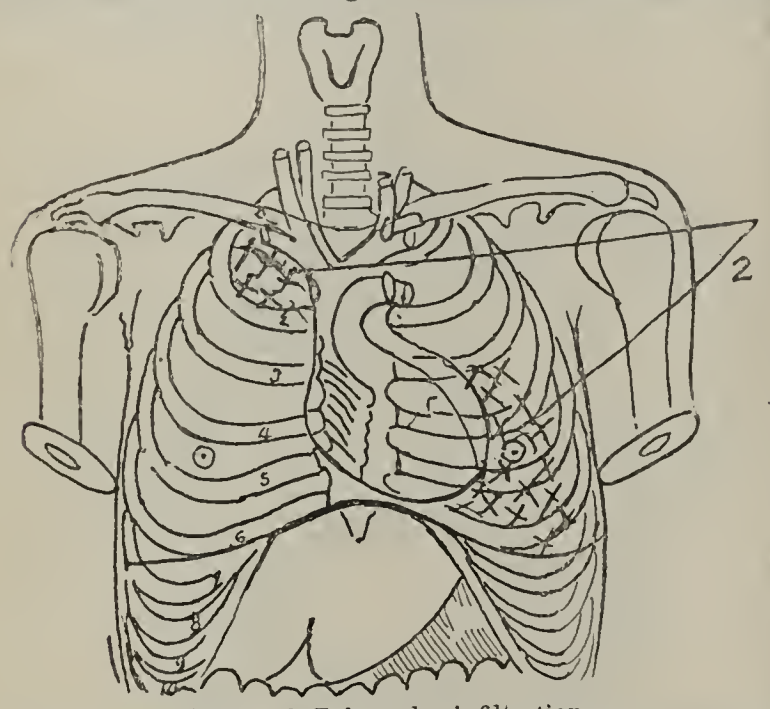


Case 9.—1, Tubercular infiltration.

injections of antiphthisic serum T. R. Under this treatment patient decidedly improved in spirit, vigor and strength, and in six weeks increased in weight eight pounds. Treatment continued.

Case 9.—C. P. M., age 34, came for examination and treatment Jan. 27, 1898. He has been coughing for one year, but was very well before that, with the exception of an attack of pleurisy three years ago. He came to Colorado December 7

and at that time had lost thirteen pounds. He is coughing much and expectorating heavy sputum. Bacilli present. Had night sweats before coming to Colorado. Heart's action is weak and rapid and there is much dyspnea upon slight exertion. Examination reveals tubercular infiltration in apex of right and lower lobe of left lung anteriorly and lower lobe of right posteriorly. For three weeks the patient did remarkably well as a result of the change to Colorado and under heart

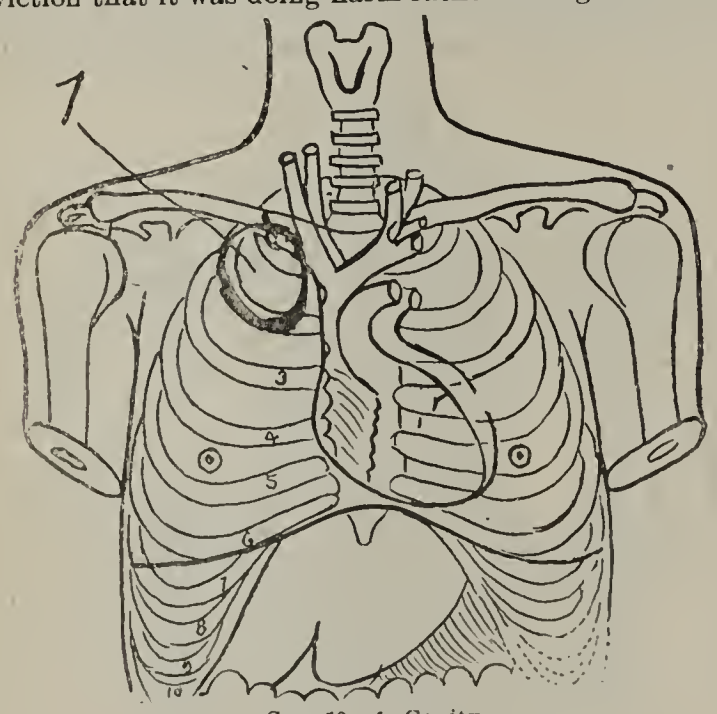


Case 9.—2, Tubercular infiltration.

tonics and increased nourishment. As improvement failed to continue, he was placed upon antiphthisic serum. After one month's treatment no improvement has been noted and no change in the condition of the lungs. Bacilli are even more numerous in the sputum than at the commencement of the treatment. Two weeks later: Has lost three pounds.

Case 10.—Mrs. M. C. came from Canada and arrived in Colorado in November, 1897. Has had chronic bronchitis for a number of years. Respiratory sounds harsh and rasping throughout both lungs. Cavity in apex of right lung. Bacilli are present in sputum. Much dyspnea on exercising.

Treatment.—Strychnia, strophanthus, increased nourishment and antiphthisic serum were given. After three weeks' daily treatment, under the most favorable circumstances, with steady failure, the serum treatment was discontinued with the conviction that it was doing harm rather than good.



Case 10.—1, Cavity.

CONCLUSIONS.

Number of cases treated, 10; cured, 0; improved, 3; worse, 7; bacilli present, 9; bacilli disappeared, 0.

In considering the value of any line of treatment in tuberculosis many factors must be considered. If the patients are pretubercular and the diagnosis is based upon the examination of the blood alone, rapid improvement should be expected from a change of climate and environment, and too much credit should not be claimed for any specific treatment. When patients with tuberculosis come to Colorado, unless too far advanced, they almost invariably improve and often remain in a fair degree of health for years, if they do not entirely recover. The cases reported would seem fair ones with which to judge the value of treatment. All were long standing cases and, with the exception of two cases which did poorly, all had been in Colorado from two to six years. We may therefore exclude any gain due to climatic influence. Judging from the above cases we may say that antiphthisic serum T.R. does not cure chronic cases of tuberculosis. It does not cause the disappearance of the bacilli. The psychologic effect of daily treatments however even in these cases inspires hope and courage that leads to temporary improvement. It is possible that in incipient cases antiphthisic serum may overcome the disease. If it can be proven to be effective in early cases, thus preventing the necessity of a change of climate, it will indeed be a blessing to mankind. Such proof must come from our eastern confrères, with the careful records of a large number of cases.

RESECTION AND REPRODUCTION OF THE MAXILLÆ.

Presented to the Section on Stomatology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY G. LENOX CURTIS, M.D.

NEW YORK, N. Y.

FORMERLY PROFESSOR OF ORAL AND FACIAL SURGERY, NEW YORK DENTAL SCHOOL; AND INSTRUCTOR IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

The purpose of this paper is to show to the profession the importance of special study and instruction in oral and facial diseases, and that these are worthy of the same consideration as is given to any of the fully recognized specialties in medicine. Until they do appear in the curriculum of the medical school, the faculty will not have done its duty toward the student. The field covered by the general surgeon is too great for a careful consideration of any part where such minuteness is required to save and assist nature in doing her work. The surgeon most capable of successful teaching in this line is he who has been a thorough and conservative dentist.

Like produces like; this applies to every department in nature. The periosteum under favorable conditions will reproduce the substance it covered. That of the ramus of the jaw will only make the thin lamina of bone which nature has originally placed there, while that of the malar and the body of the jaw reproduces a dense structure differing materially in texture.

If the function of a part be permanently lost reproduction is not a necessity, nature supplying only that part which is required. If the teeth have been extracted, to remain out, the portion of the jaw which is required to nourish them is not reproduced, but where the teeth are replaced and retained all or sufficient of the bone is reproduced and reattaches them to the jaw. I have seen such in active use for years.

The only condition I can ascribe for the removal of the periosteum is where it is attacked by disease, such as cancer, and the entire structure destroyed. When the bone alone is destroyed, as in necrosis, cystic tumors, or from pressure by resistance of a growth, as tumor of the antrum, I see not the slightest necessity

for removing this natural sheath, but on the contrary every reason for retaining it. I have seen Billroth, Von Burgman, Agnew, Ashhurst, Garretson and other great surgeons resect the jaw, but they invariably employed Huyfelder's, Fergusson's or Langenbeck's method, except in cases of necrosis where but small sections were involved. Liston, Tait, Barton, Mütter and Gross also followed on these lines.

My method to obtain the best results in the preservation of the contour of the jaw is by retaining the necrosed bone in position until the periosteum has been so strengthened by the reproduction as to allow nature's outlines to be maintained, employing it as an interosseous splint. Where it is necessary to remove the bone I retain the contour of the face by gauze packing and change from time to time until the bone is sufficiently reproduced to resume its shape. This requires frequent dressing, so that the amount of pus may be kept at the minimum. The teeth are retained in position by means of interdental splints or ligatures. Where the teeth are lost I place other teeth in the opening when the wound is nearly closed, maintaining them by artificial support and allowing the bone to form around them. Where the destruction of the bone has been great and the periosteum too weak to retain the jaw in position during the process of reproduction I use an interdental splint (as employed by Liston over fifty years ago) in which the upper and lower teeth properly occlude. By hastening slowly the danger of wounding the dental nerve is materially lessened.

In 1886 I operated on a young woman, aged 23, with the following history. Four years previous, after suffering much pain in the face, which was swollen, a fistula appeared in the lower jaw and was diagnosed as being from an abscessed tooth. The gums around the tooth were swollen and inflamed; the molars and second bicuspid were extracted and the pus continued to flow. Her health rapidly diminished, menses ceased and had not returned, although constantly under medical and surgical treatment.

Examination revealed the emaciated condition of the patient. She was suffering from blood poisoning, was highly nervous and hysteric, had no desire for food and had lost the sympathy of her doctors and family. In the left inferior maxilla where the tooth had been extracted, there were granulations. A boggy condition of the mucous membrane extended all along that side of the jaw. Over the ramus it was particularly inflamed. The probe readily passed beneath the periosteum and far up along the ramus. The patient was then too sick for an operation, with a view to best results. The wound was cleansed daily to lessen the amount of pus, and for one month the patient was placed under most rigid restorative treatment with good results. I found that under the local stimulating treatment, bone had been sufficiently reproduced to strengthen the periosteum so that when I removed the dead jaw the contour was preserved. The cause of the trouble I found to be a wisdom tooth lying transversely at the neck of the jaw immediately under the condyle. This, along with the granulations and débris, was removed. The wound was packed continually until healthy granulations filled in the periosteum; the jaw, minus the teeth, was reproduced with all its usefulness. Complete restoration to health and a gain of twenty pounds in weight followed this work. The nerves and vessels in the jaw were not injured and no paralysis resulted.

Before my class at the New York Post-Graduate Medical School and Hospital, on March 25, 1893, I operated on a lad 15 years of age who gave the following history:

Three years before, while at play, he ran against a lamp post, striking the left side of his face and bruising it severely. A year later there appeared on the face, over the malar bone, a hard lump which continued to increase until it was the size of a hen's egg, preventing the boy from seeing, with that eye, objects on the ground near by without bending his head. He had not realized any special pain or discomfort from the tumor. Thinking the trouble arose from the abscessed teeth, his dentist extracted the upper, left, first bicuspid, which showed no evidence of being diseased. I diagnosed an osseous tumor of the antrum, and found that the malar and superior maxillary bones were completely destroyed by the direct pressure against them, only the periosteum remaining. Not only was the tumor directed outward, but downward, depressing the roof of the mouth and extending beyond the alveolar process against the buccinator muscle. An incision was made through the periosteum encircling the teeth, and only a small part of the alveolar process remained intact. This with the teeth was removed, the entire side of the face falling into the cavity made by their absence. so completely was the malar and the superior maxillary bones destroyed. The inferior orbital ridge and zygoma alone resisted the pressure of the tumor. A profuse hemorrhage followed its removal, but was readily checked by hot water. The wound was packed with aristol and gauze, and the contour of the face secured. The periosteum was united by sutures. Through this opening the wound was dressed until the shape of the face was permanently restored. Time of operation was twenty-five minutes.

The following day there was considerable edema which readily subsided. From day to day the dressing was changed until the periosteum could support itself, and in two weeks the case was discharged from the hospital. The antrum was douched daily until restoration was complete. An artificial denture was made to replace those lost, to give the normal fullness to the mouth. In this operation there was no external wound, consequently no necessity for ligature and no scarring of the face, which would necessarily follow had the operation been done on the lines drawn in general surgery. The wound completely healed in six weeks with no deformity of the face. I have seen the case from time to time and it is eminently satisfactory in every way.

On Feb. 3, 1893, I operated on a gentleman 73 years of age who, up to the year prior to that date, was in robust health, never needing a physician in forty years. He stated that he applied to a dentist to have the left superior wisdom tooth, which was loose, removed, it having elongated, owing to the loss of its antagonist. As the dentist was using the forceps, the patient noticed they were covered with blood, but before he could rebel against this outrage, a tooth had been extracted, which was found firmly attached and resistant. He saw that a sound and healthy tooth had been taken out by mistake. The dentist then removed the loose tooth with slight inconvenience. The wound made by the extraction of the teeth did not heal, the gums around it became swollen and inflamed and the remaining teeth on that side were soon loose and sore. In three weeks they were so troublesome that with his

fingers he removed the first molar. He then noticed an opening into the antrum and granulations protruding.

About two months after, the bicuspid was extracted in a similar manner, and in two weeks later the cuspid. The entire side of the jaw became very painful; the patient was unable to sleep or take proper nourishment and had rapidly diminished in strength and health, until at this time, February 3, he was extremely emaciated, not having taken solid food for weeks, and for the past three days only water, because of the great pain in the effort to swallow.

Examination revealed that the entire left half of the jaw and cheek was infiltrated. The microscope showed epithelioma. The characteristic cancerous odor prevailed. An incision was made anterior to the right cuspid and extended back and across the soft palate to the condyle, down the ramus, and forward along the buccal surface of the jaw to cuspid upward and forward until all the mucous membrane to the median line was removed. The entire enclosed area was then resected, leaving only the external portion of the malar bone and the orbital ridge of the superior maxillary in position.

In operating, I removed a portion of the anterior lobe of the parotid gland, along with the duct. The hemorrhage was profuse, but in a moment was completely checked by hot water. The wound was dried, packed with aristol and gauze, no ligatures being employed. Time of operation twenty minutes. The patient made a splendid recovery, slept comfortably much of that night and had but slight rise of temperature. There was some edema of the face, which lasted three days. Patient received most nourishing diet and was sitting up in three days. On the seventh day following the operation, the case was for the first time dressed, no untoward symptoms arising in the meantime. The packing was perfectly dried and scarcely blood-stained; not a drop of pus was present. The wound was repacked loosely, and redressed every third day without a single complication. February 17, the patient was discharged from the hospital with instruction to douche the wound frequently. The wound made rapid progress in healing and on March 13 had almost completely closed, leaving but a single opening into the antrum, so that on March 30, the impression for an artificial denture was taken.

The patient's health had wonderfully improved, he being free from pain and sleeping soundly. He was able to resume the management of his affairs and was again in good health, continuing so until August, 1894, when he contracted pneumonia, from which he died. Two months prior to his death, the cancerous granulations appeared in the old wound. There was no disfigurement of the face from the operation, and the only inconvenience was the loss of his natural teeth, as he was unable to wear the artificial substitute.

A lad 13 years of age was brought to me in March, 1893, giving a history of complete nasal stenosis of some years' standing and a clear history of adenoids. He had been under medical care for years, the physicians failing to recognize the cause of his trouble. I have never operated on a more lifeless and waxy-looking creature. The odor from his breath and body, which was steeped in pus, was most sickening. All of the upper oral and bicuspid teeth were so loose that but for the periosteal attachment, they would have dropped out. There were large sinuses under the lips and the roof of the mouth through which pus exuded. The periosteum of the roof of the mouth was so filled with pus, that it bagged. All the bone of the superior maxilla anterior to the first molar, including the palatal plate, was necrosed, likewise the palatal bones and the inferior turbinates. The adenoids completely filled the nares and crowded into the antrum of Highmore, breaking down the walls, and advanced until the process of destruction was complete. Pus oozed from all the loose teeth and through the sinuses, nose, mouth, and out through the lachrymal ducts into the eyes. The throat was so plugged up that breathing was very difficult and ptyalism extreme. At this operation I removed what I could of the adenoids, opening the nasal passage and partially cleansing the antrums, which was done with great difficulty, as the boy took chloroform badly, owing to extreme anemia; the loss of blood was not so very great. The loose teeth were supported by ligatures until held by the new bone.

The patient made a very good recovery from the operation and in forty-eight hours the improvement was noticeable. The wounds were dressed daily and, through the sinuses, douched every hour. Recovery was so rapid that in four weeks I was again able to operate, this time removing all of the necrosed bone and thoroughly curetting the antrums.

The boy made rapid strides toward recovery and by May 1 I was able to perform the final operation, when I removed the remaining adenoids. Here occurred a profuse hemorrhage, but with peroxid and hot water it was quickly checked. Most stimulating tonics and nourishing diet were prescribed from this on. Recovery was marvelous, and in two weeks the patient was able to walk to my office for treatment. By June 1 he was dismissed cured, having gained forty pounds in weight, having regained his normal color, good appetite and usual strength. He then went to his country home. I saw him again in one year. There was no occasion for treatment; with the exception of a slight imperfection in the alveolar process, where there had been a deep sinus, the gums did not unite and a few adenoids had appeared. The only additional opening, through which I operated, was made where I extracted the left superior molar, this being badly diseased, and through which I was better able to reach the antrum.

To facilitate cleansing of the wound and destruction of the pus, I found electrozone the best of all agents for this purpose.

I have done many cases similar to those stated, and without deformity in any instance. All of them are accompanied by blood poisoning and have usually been treated for rheumatism, malaria and typhoid fever for months and even years, before the error is discovered.

This conservative method is not conducive to a fine collection of pathologic specimens, as a recovery of a part without blemish leaves only the history of the case and the statement of the patient as proof of the malady.

The student should have a chance to see in practice the methods he wishes to adopt. In this city, only recently, at our great university, no end of strife resulted from a determined and successful effort of the dental department to make a place in the hospital for their oral surgeon, with equal right to operate. This was the beginning of the end when all such institutions must of necessity adopt the same course. Why confine this work to so-called major operations,

when they can be simplified to the minor class by annexing such men, skilled in dentistry and medicine alike, to the medical faculty. Let us hope that the controllers of such faculties will appreciate that "knowledge is power" and that new methods are a necessity.

7 West Fifty-eighth Street.

A CASE OF PSEUDO-MEMBRANOUS (DIPHTHEROID) STOMATITIS, CAUSED BY THE STREPTOCOCCUS PYOGENES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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Although diphtheria and diphtheroid diseases are of very frequent occurrence, the mouth and tongue are but rarely affected, in spite of their exposed position and liability to injury. The micro-organisms which are responsible for the deadly group of pseudo-membranous inflammations must traverse the mouth in order to gain access to those structures in which they most commonly develop their nefarious activity, yet the oral mucous membrane, where the conditions in general are very similar to those at the points of selection, is practically immune to the influence of the micro-organisms in question.

It is the great rarity of oral diphtheria that has led a number of authors to deny its existence as a primary disease, while admitting its possible, but very infrequent occurrence as a secondary manifestation.

While the case I report is, etiologically, not one of true diphtheria, since it was not caused by the Klebs-Loeffler bacillus, the invariable producer of the disease, it yet presents the clinical features of diphtheria, and but for the bacteriologic examination, would have passed as an unusual example of that dreaded malady, just as many instances of pseudo-membranous throat affections are termed diphtheritic, when in reality they are not due to the bacillus of diphtheria.

The history of my case is as follows: Late at night, July 22, 1893, I was called to Maggie M., age 20. The alarm of the family and the statement of my summoner that she was choking to death, seemed well founded. Sitting in a chair, the tongue enormously swollen and protruding as a thick mass from the mouth, the facial expression one of anxiety and suffering, the young woman presented a most distressing aspect. It was learned that some days previously the patient had had an attack of vomiting and diarrhea, which had yielded to treatment. Shortly thereafter the tongue began to swell and the present condition supervened.

The floor of the mouth and the under surface of the tongue were covered by a thick grayish membrane. The tongue was swollen and rigid; its dorsal aspect somewhat coated, but free from false membrane. There was a repulsive odor of the breath. An examination of the pharynx was rendered impossible by the intumescence of the tongue. The skin was moist and cool, pulse rapid and feeble, temperature 101 degrees.

During the next two weeks the general condition remained about the same; the membrane gradually spread to the upper and lower lip, confining itself to their inner surface, and also crept along the cheek, being particularly limited to that portion in contact with the upper and lower teeth. Frequent slight hemorrhages occurred, becoming freer if portions of the membrane were forcibly detached. During the height of the disease the submaxillary lymphatic glands were enlarged, while a well marked edema involved the entire face and neck, extending from ear to ear. Deglutition, the diet naturally being restricted to fluids, was accomplished fairly well, when the head was thrown back and the liquid poured into the oropharynx.

As the patient slowly improved, an examination of the pharynx became possible. Two oval, distinctly outlined patches were noticed on the hard palate, close to the last molars of each side, and extending toward the median line, but without coming in contact. There was no membrane on the soft palate, the uvula, the tonsils, or the palatal arches.

After a time the membrane ceased to form, the tongue diminished in size and eventually regained its normal proportions and contour.

The internal treatment was supporting. Locally, the use of hydrogen dioxid, followed by corrosive sublimate, was instituted. Steam inhalations of sodium benzoate were employed. As improvement did not follow, the inhalations were, after a few days, superseded by applications of electrozone. After thorough cleansing of the parts, pledgets of absorbent cotton saturated with this liquid were placed against the affected areas and frequently changed.

Upon my return to the city after an absence of several days, I received the following letter from Dr. Kinnier, who had charge of the case:

> I thought perhaps it might be of interest to you to know what has been the line of treatment in the case of Maggie M., since you last saw her.
>
> I believe the electrozone did good, but unfortunately there was not enough to give it a thorough trial. After its discontinuance the mouth became much worse, the peroxid, full strength, making very little impression.
>
> As the case seemed extremely urgent, I resorted to argenti nitras (grams 1.3 to c.c. 30) applied three times a week, and potassium chlorate, gram 0.32, every two hours, night and day. The result was magical.
>
> There was quite copious bleeding on two occasions, due to the ulceration on the left side of the tongue extending into a small vessel. The bleeding was of decided benefit, as the inflammation immediately subsided. There remains now only a small patch about the size of a three cent piece on the buccal surface of the right side, near the angle of the jaw.

One year later there was a distinct scar which prevented protusion of the tongue.

Regarding the course of infection it was impossible to obtain any precise data. All that could be learned was that the patient had come in daily contact, in her workshop, with a young woman in whose family there had been two recent deaths from diphtheria. The patient's teeth were wretchedly kept and the majority carious.

In order if possible to determine the ultimate nature of the case, a piece of membrane was sent to Dr. Eshner, who submitted it to Dr. A. C. Abbott of the Department of Hygiene, University of Pennsylvania, for bacteriologic study. The following is Dr. Abbott's report:

> Dr. Almstead, our assistant, has gone over carefully, under my supervision, the piece of membrane from Dr. Jurist's case of supposed diphtheria of the tongue, and we fail to find anything either in the way of bacteria or tissue changes, to justify the opinion that it is of a diphtheritic nature.
>
> The only bacteria that are present in conspicuous numbers are streptococci, and I feel reasonably sure that they played the etiologic role in the production of the trouble. There are often exudative inflammations on and about the pharynx of this origin that can not be differentiated from diphtheria

except by bacteriologic methods, and this is very probably one of them.

In view of the foregoing report the case can not be considered one of diphtheria of the mouth, but must be classed among the so-called diphtheroid affections. In examining the literature on the subject of diphtheritic inflammations of the mouth (using here the adjective in its widest or anatomic sense, that in which Virchow employed it), we find the earliest reference in the work of Aretæus.[1] The remarkable passage in the *Syrian Ulcers* in which Aretæus portrays the essential features of diphtheria in a wonderfully complete manner, contains this reference to the mouth: "When this (the ulceration of the tonsils) eats outward toward the mouth, it reaches the uvula and destroys it. Likewise it may involve the tongue, the gums and the alveoli, until the teeth become loose and turn black. The phlegmon may also extend to the throat. Such patients die in a few days from the inflammation, the fever, the fetid odor and the hunger. If, however, the disease passes through the windpipe into the thorax, it then kills on the same day, for the lungs and the heart can not endure such an odor, nor the ulcers, nor the ichor, but cough and dyspnea are developed." Van Swieten,[2] the commentator of Boerhaave, observed the occurrence of diphtheria of the mouth during an epidemic at Leyden, in 1738.

In the present century we find that Bretonneau[3] was the first to give a clear description of the disease, but he, as well as the earlier writers did not distinguish the ordinary ulcerative stomatitis, so common on the gums at the roots of the teeth, from the rarer diphtheritic form. That Bretonneau, however, did see cases of the latter is evident from one of his papers, in which he says that toward the end of the epidemic at Tours he observed eight children in the same ward seized with "*gangrene scorbutique*" of the gums of the right side. On the second day three had membranes on the corresponding tonsil, with enlargement of the submaxillary glands. In all, the borders of the tongue and the internal parts of the cheek were covered with membrane. In some cases, he adds, the disease may extend into the pharynx and larynx, a calamity which he believes to have been averted in the eight cases by the vigorous local use of hydrochloric acid.

Trousseau[4] shares the views of Bretonneau, but seems to consider extension from the mouth to the pharynx and even to the larynx as quite common. Among contemporary writers we note that Butlin[5] doubts the existence of primary diphtheria of the tongue, admitting, however, as a rare possibility the occurrence of diphtheritic inflammations upon accidental or operative wounds of the tongue. The liability of the tongue to secondary diphtheria is also small. According to Jacobi,[6] the disease may be primary.

Forchheimer,[7] in his excellent series of papers on stomatitis in the *Archives of Pediatrics*, treats of a croupus and diphtheritic form. The first is never primary, but "is always a complication of angina crouposa. The second occurs rather frequently in birds and calves, and has occasionally been observed in man." The distinction which Dr. Forchheimer makes brings up the much discussed question of the identity of croupous and diphtheritic inflammations. I have no desire to dwell upon this subject except so far as to say that there seems no longer to be any justification for the separation of those conditions into two autochthonous diseases.

J. Lewis Smith[8] states that the diphtheritic pellicle sometimes forms in the cavity of the mouth, generally in small patches except upon the tongue, where the the pellicle extends more deeply.

An interesting case, one of true primary diphtheria, is reported by Thiercelin.[9] The patient, a woman aged 30 years, complained of pain in opening the mouth, had anorexia and a little fever. On examination the lower surface of the tongue and the floor of the mouth were covered with a whitish-gray membrane. The tongue was not swollen, its dorsal surface bore a thick coat but no membrane. The internal aspect of the cheeks and the external surface of the gums, especially the lower, presented false membranes. There were also two patches on the lower lip, vestibular surface; none on the upper. At the base of the teeth there was some ulceration, but apparently not of a diphtheritic nature. The disease did not extend beyond the pillars of the fauces; the pharynx was perfectly free. The submaxillary lymphatic glands were swollen, mastication was impossible; an intense fetor and salivation were present. An examination of the membrane revealed the presence of an abundance of Klebs-Löffler bacilli, which were also demonstrable in serum cultures at the end of twenty-four hours. There were no streptococci, no staphylococci. The patient recovered.

Sevestre and Gaston[10] conjointly report a series of cases of membranous stomatitis, the features of which, according to the authors, entitle it to be considered a new clinical entity, and they give it the name of *stomatitis impetiginosa*. It attacks debilitated children, especially those recovering from measles or whooping cough. A whitish, adherent membrane, very similar to the true diphtheritic exudation, forms in the mouth, on the gums, the internal surface of the cheeks and lips. On the tongue the formation of pseudo-membrane is rare and occurs in small, elongated patches, particularly on the borders and tip. In their series of ten cases the involvement of the tongue was noted but once, in a child of 21 months. The lymphatic glands are only slightly tumefied. In nearly all instances the disease is associated with impetigo of the face. Bacteriologic study demonstrated the presence in every case of the staphylococcus pyogenes aureus.

At the suggestion of Rendu, Sevestre[11] tested the reaction of the saliva in a case and found it acid. A very curious disease, also characterized in part by the formation of a false membrane, is described by Siegel,[12] who observed it in epidemic form in the neighborhood of Berlin during a period of three years, from 1888 to 1891. The membrane is found upon the swollen and edematous tongue in the form of a yellowish, often deep black or even inky, firmly adherent layer. The gums are swollen and the teeth are loosened. Eruptions petechial or vesicular are frequently present on the legs and arms; constitutional symptoms are grave. Not rarely the disease is fatal. Siegel, who terms it *stomatitis epidemica*, regards the affection as identical with the foot and mouth disease of cattle. Owing to its rarity the proper nosologic position of *stomatitis epidemica* remains still somewhat obscure. It probably bears no relation to diphtheria.

Wharton's[13] case, a boy aged 6, had the tongue much enlarged, partly protruding from the mouth, covered with a thickened epithelium which could be stripped

off without much difficulty; there was a patch of white membrane upon the inner surface of the right lip and inner surface of the right cheek, the neck was swollen, submaxillary lymphatic glands much enlarged. Bacteriologic examination revealed the Klebs-Löffler bacillus, the guinea pig succumbing to subcutaneous inoculation in seventy-three hours.

The chief points in the present paper may be summarized as follows:

1. True diphtheria, *i. e.*, a disease caused by the Klebs-Löffler bacillus, may occur in the mouth both as a primary and as a secondary manifestation.

2. Pseudo-membranous inflammations, clinically indistinguishable from diphtheria of the mouth, may be produced by other micro-organisms.

3. As far as the cases reported go, we must accord this ability to the streptococcus pyogenes and to the staphylococcus pyogenes aureus.

4. Grave septic states have not been observed in those cases where the disease remained limited to the mouth.

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ACUTE MYRINGITIS.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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The subject of acute myringitis is usually disposed of in a page or two in most text-books, and one of the most popular modern treatises does not even mention it, yet its widely dissimilar course in different patients, its tendency to produce serious lesions, and its painful character render the disease worthy of most careful study. Acute myringitis differs much in type, each having its own pathology, symptomatology and treatment; it is therefore convenient to divide it into simple, desquamative, hemorrhagic and suppurative varieties.

Simple inflammation of the drum membrane is caused by disease of the external auditory canal, of the Eustachian tube and middle ear, or by direct injury from foreign bodies, irritating fluids, cold water, etc. It is one of the commonest of aural maladies, the ordinary cases of slight earache being usually examples of this disease. The symptoms are usually pain, slight deafness and throbbing tinnitus. Pathologically the condition is one of active hyperemia, with serous infiltration of the layer of the cutis. On inspection the drum shows intense congestion of its upper and central portions, and the malleus may be more or less obscured by swelling. This condition usually promptly subsides under appropriate treatment, or in some cases even spontaneously, or it may progress into the desquamative form.

The symptoms in the latter case are always much more marked than in the earlier stage, pain is often great and boring in character, and deafness may be nearly complete from combined swelling and mechanical obstruction by the large epithelial masses. The epidermis macerates, becomes loose and is finally shed off in large flakes, occasionally representing the whole outer surface of the drum, and the raw corium is thus exposed; the swelling is marked from both serous and cellular infiltration, and the whole membrane becomes friable and soft. Examination may be impossible until the external canal is cleared of the shed epithelia; when the drum is brought into view the position of the manubrium is recognized only by the red lines of engorged blood vessels, and the whole fundus may have a raw beef-like appearance.

The prognosis is recovery in a few days under properly applied therapeutics, but perforations and permanent thickening are exceedingly apt to occur if the case is neglected, or the acute condition with pain and deafness may continue even for weeks. The amount of desquamated skin thrown off is often surprising, the fundus sometimes being found completely blocked with it every two or three days for a considerable period. This is one of the ways that the large dermoid masses, occasionally found in the external auditory canal, are formed.

Hemorrhagic myringitis Politzer considers a rare disease and the writer has not seen above 20 examples in his last 2000 ear cases. It seems to occur only in ears which have been previously damaged by chronic disease—sclerosis, cicatrices, dense impacted cerumen plugs, etc. The blood vessels appear to give way at one or many weak points, and myringial apoplexies result. The symptoms do not differ from those of the desquamative form, but there appears to be more tendency to constitutional involvment—fever, malaise and weakness—and deafness is more apt to be extreme.

The diagnosis is easy on inspection, the dark purple blebs, varying in size from a No. 8 to a No. 1 shot, standing freely out from the generally congested surface of the drum, or from the canal adjoining. Hemorrhagic myringitis is especially apt to run a somewhat chronic course, successive crops of blebs appearing; even under treatment the duration is apt to extend to at least a fortnight. In one case treated by the writer about eighteen consecutive blood blisters formed and were cut, and the treatment had to be continued for about a month. This case occurred as a sequel of epidemic influenza and chronic aural catarrh, and was characterized by constitutional depression quite out of proportion to the severity of the general disease; the drum finally cleared up completely without any permanent injury to hearing.

Suppurative inflammation of the membrana tympani may occur from septic disease of the middle ear or the external auditory canal, or in rare cases is purely primary, such instances not being very uncommon from sea-bathing. In the primary cases a true abscess occurs between the layers of the drum, which may break outwardly, with or without complete perforation of the membrane. Inspection may show the bulging abscess in addition to intense engorgement, or an ulcer the result of its rupture or perforation may have occurred. The symptoms are generally quite severe, the pain being more like that of general suppurative otitis in character. The prognosis is often more favorable than in either the desquamative or hemorrhagic types, a single treatment often effecting a cure.

The therapeutic management of acute myringitis is most important, as the tendency of the disease to produce permanent lesions can nearly always be obviated by proper care and the pain and discomfort promptly reduced to a minimum. In the simple acute type syringe irrigation with a warm boric or carbolic acid solution has a most happy effect; at least a pint of fluid should be used, great care being taken to cause no pain or traumatic injury. The surplus fluid should be lightly mopped from the canal with a soft cotton tuft, and the meatus loosely plugged with gauze or cotton. If the engorgement is intense and desquamation or suppuration is feared, it is my habit to lightly dust the drum with the calendulated boric acid formula of Sexton; this often appears to give great comfort and seems free from objections.

If the Eustachian tube and the middle ear are involved their treatment is most important. This should consist of sedative sprays applied to the nasopharynx, preceded, if much swelling exists, by the very cautious use of a weak cocain solution.

When engorgement is largely limited to the tube and post-nasal region—an acute Eustachian salpingitis of which the myringitis is a sequel—the cocain solution and also the subsequent wash is best applied by the syringe catheter, the utmost gentleness being used. Inflation of the middle ear by Politzer's or other method has never had any but an unfortunate effect, in my experience, when used in this disease; many cases that would have recovered without any treatment are by it converted into examples of acute middle-otitis, and it is only mentioned here in order to condemn it absolutely in true myringitis.

Desquamative inflammation of the drum is a much more serious affection than the preceding, as actual destruction of tissue has necessarily occurred, and calls for very careful management. It is of the utmost importance to entirely clear the aural fundus of the decomposing irritating masses, as their presence is a fruitful source of further mischief. Syringing should be employed as above suggested, but owing to the insolubility of the epithelial masses, their removal can seldom be perfectly accomplished by this means alone. Burnett's double-pointed screw or the writer's L-shaped hook are the most satisfactory instruments for its removal in trained hands; Sexton's or some similar forceps may be employed by the somewhat less dextrous. After thorough antiseptic irrigation and cleansing, the fundus should be thoroughly dried and very lightly dusted with dermatol or the calendulated boric acid. The nose, throat and Eustachian tubes should also receive appropriate treatment if at fault; even the cases due to local traumatism are benefited by relieving a coexistant nasal or pharyngeal congestion; the naso-laryngeal tract should therefore always be subjected to close scrutiny. Rest within doors and tonic treatment are often indicated in desquamative myringitis, and if the symptoms do not at once subside the patient should receive local treatment daily. Persistent thickening may subsequently call for massage, Eustachian catheterization or judicious applications of iodin ointments to the drum after all the acute symptoms have subsided.

The hemorrhagic form of myringeal inflammation has been best treated, in my experience, by freely incising the blebs as they appear, gently syringing out the blood clots and insufflating a boric powder containing from 5 to 10 per cent. of alum, a light coating only being applied to the fundus. The naso-tubal tract always needs attention, and tonic treatment is generally urgently needed. these cases occuring only in persons of poor vitality with weak vaso-motor nerves and vulnerable vascular systems. As the disease has a strong tendency to recur, any existent chronic affection of the ear should be removed as thoroughly as possible and the general system brought up to its highest tone. The writer has seen several cases in which glaucoma occurred in patients who were the subjects of recurrent hemorrhagic myringitis, which may perhaps be regarded as corroborative evidence of the general blood vessel weakness.

Suppurative myringitis is more often a primary disease than is sometimes taught, being not very uncommon from various forms of external injury. If the purulent exudation be only superficial, syringing with carbolized solution, lightly drying the fundus and slightly dusting with powdered acetanilid, is often sufficient to at once arrest the attack. If interstitial suppuration has occurred the minute abscess should be opened, but only when the whole middle ear is known to be involved is it necessary to cut completely through the drum. While probably the mucous membrane of the tympanum is always congested in suppurative myringitis, it is quite common for cases to at once subside without any discharge from the middle ear or perforation of the drum, even though the swelling of the latter may have been extreme and the external purulent exudation considerable. In a few cases the irrigation and acetanilid may have to be continued for several days, or in rare cases the whole middle ear may become involved and perforation occur; the latter is, however, a most unusual accident under modern treatment.

The object of the writer in this brief sketch has been to call attention to an apparent want in modern otologic literature, and to further specialize the somewhat too generally treated subject of acute otitis. The classification suggested is believed to be new, and to be founded upon perfectly definite pathologic facts.

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DISCUSSION.

Dr. HERMAN KNAPP—In some cases I have not been sure whether myringitis or middle-ear disease existed. Such are the cases where after sea-bathing there is earache, and on looking into the ear we find that the drumhead is softened and reddened, as is also the adjacent portion of the canal. For treatment I have advised rest for several days, with the result that the redness has disappeared without any other treatment. I think that parasitic myringitis should come under this head. It occurs almost exclusively in the drumhead and is not very frequent. It is remarkable that these cases of parasitic myringitis occur more often among the wealthy than the poor. I have treated these cases successfully by 4 per cent. of salicylic acid in alcohol. If this is put into the ear three times a day the parasite is very soon destroyed. I have used the same solution also in parasitic troubles of the throat.

Dr. HEFFNER—Is there any irritation from the instillations of alcohol?

Dr. KNAPP—As I have used it, it does not produce any irritation, and cures these cases more quickly than any other remedy.

Dr. J. A. STUCKY—I am disappointed in the treatment of these troubles of the membrana tympani with the Politzer bag and syringe. The bag should be used cautiously, if at all. I question the use of large quantities of water in cleaning the canal. It rather increases than diminishes the pain. Patients will endure gentle syringing to the extent of two or three ounces of water very well, but it should not be carried to the point of dizziness or discomfort. I have the best results from keeping the patient in the recumbent position for a day or two. Where this could not be done I have had excellent results by administering salicylate of soda in 0.65 gram doses, every two or three hours, and applying locally 10 per cent. of

cocain and resorcin in aqueous solution. The action of the cocain is intensified and prolonged by the resorcin and rendered more readily absorbed.

Dr. SCHEPPEGRELL—As to parasitic myringitis being more a disease of the wealthy than of the poor, my experience has been to the contrary. In hospital work I find many cases, but in private practice they are very rare.

Dr. FREEMAN—Under what head does Dr. Seiss place these cases of myringitis where there is a form of bleb on the membrane?

Dr. SEISS—Hemorrhagic. As to the pain of syringing, I have a large clinic with eight assistants, and when these cases come in two of these assistants attend to them. These two gentlemen can use a syringe with a quart of solution and give relief to the patients; my other six assistants will make the ears of the patients ache. The way the syringe is handled makes the difference. As to the use of cocain, the general surgeon and the ophthalmologist have decided that even moderate solutions in inflammatory conditions are wrong. To use it in active inflammation has made these cases worse.

ACUTE AND CHRONIC CARIES AND NECROSIS OF THE MASTOID; PACHYMENINGITIS EXTERNA; EPIDURAL ABSCESS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY HERMAN KNAPP, M.D.
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Of all the ear diseases, I know none that are, on the one hand, so important and dangerous, and on the other, so gratifying and manageable as the group comprehended in the title of this communication. If left alone they prove fatal in a large percentage of cases; if treated understandingly, they nearly all recover. The grippe has made us familiar with acute mastoid caries. In the first or second week of an attack of acute otitis media there is intense pain in ear and head; tympanic membrane red and bulging; in a few days otorrhea, with or without paracentesis of the drumhead; relief of pain for a few days, then return of it with tenderness and swelling of the mastoid, membrana tympani bulging in upper-posterior part, slight fever, loss of appetite, headache, mental depression; hearing greatly impaired. The further course varies greatly. The discharge may be free for a time, then diminish and disappear together with the other symptoms—natural recovery in the first stage. Or the swelling over the mastoid and the other symptoms become more pronounced, the outer table of the bone is perforated, a post-aural abscess forms, breaks, and the patient gets well—recovery in the second stage.

In the third stage a perforation through the medial table takes place, either outside the skull into the digastric fossa, or into the cranial cavity, more frequently the posterior cranial fossa than the middle. Exceptionally the pus travels through the fenestræ into the inner ear and farther through the internal auditory meatus into the cerebellar cavity. The two varieties are frequently combined and terminate fatally by meningitis and sinus thrombosis, rarely by abscess.

After this brief sketch I will illustrate the chief features of the affection by abstracts of some case histories.

Case 1.—Tympano-mastoiditis from grippe. Acute caries of the mastoid. Extensive operation. Rapid and perfect recovery. End of February, 1896, Mr. G. A. St., a healthy, strong man, was attacked with grippe. In the second week, ear and headache; paracentesis of drumhead; copious otorrhea; relief for a few days. Then symptoms were aggravated; fever; no particular swelling of upper-posterior end of ear canal; drumhead white, moist, perforated. Mastoid slightly swollen and tender, particularly at the tip and posterior border. Gland over the tip swollen. Temperature 100.2 degrees; pulse 64. Two days later symptoms more pronounced; posterior-upper part of canal slightly bulging.

Operation under ether. Large incision down to bone from tip to above the auricle; periosteum scraped aside; bone over antrum discolored. Chiseling at the antrum pit soon gave vent to thin pus. The interior of the mastoid was one mass of brittle bone, pus and granulation tissue. The outer table and the whole tip removed, laying bare the digastric fossa. The head of the muscle was not infiltrated. The mastoid cavity was most carefully scraped with sharp spoon, until the wall appeared clean and glistening. The inner table was not corroded, the operation being done as early as seven or eight days after the onset of the ear affection. The patient's neck felt stiff for a few days, after that he made a rapid and complete recovery, with hearing as good as before, and with a surprisingly small indrawn scar.

The most remarkable feature in this case is the rapid destruction of the interior of the mastoid and the caries of the whole tip, tables and interior. The total removal of the tip in such cases is the best guarantee of a quick, undisturbed and permanent recovery. If the tip is left, the improvement after the operation is only temporary; relapses with headache and other ominous cerebral symptoms are apt to follow until the tip is removed. This was exemplified by a case I published several years ago, and, I fear, by a recent case which terminated fatally. Its history is as follows:

Case 2.—Acute tympano-mastoiditis. Extensive caries. Recovery delayed until necrosed tip was removed. Well three months, then died of typhoid fever. Frank Steinbrugger, aged 59, contracted a cold, end of March, 1896; ear and headache; paracentesis; otorrhea. First seen May 4, 1896. Upper-posterior part depressed; mastoid tender and swollen.

Operation. Large opening of mastoid, striking pus in a depth of three millimeters, through ivory-like hard bone over antrum. Extensive cavity filled with brittle bone, pus and granulation tissue, which was cleanly removed. Left hospital in twelve days; treated at office, occasionally. Went to business. At the last visit he paid me, about two months after the operation, the remnant of the tip of the mastoid was necrosed, yet still immovable. His family physician extracted it a few days later. Patient felt well for three months; attended overzealously to his business, and died of what his family physician declared to be a case of typhoid fever. I have no reason to doubt this diagnosis, yet the differential diagnosis between typhoid fever and the intracranial complications of mastoid empyema is not always easy.

Case 3.—Acute tympano-mastoiditis, not operated on. Death from epidural abscess and meningitis. In the *Archives of Otology*, 1895, p. 263, I published a similar case under the title: "A healthy man, of 44 years, had an acute purulent otitis media, after the grippe. Under treatment with paracentesis and topical remedies, rapid improvement, so that he resumed his business (piano-teaching). Relapse of otitis with sevère cerebral symptoms; no operation; death. Autopsy: suppuration of mastoid, with perforation into posterior cranial and digastric fossæ; meningitis." Two days before the patient's death, the family physician told me that two weeks previously the patient had had great pain in his left ear and head; was unconscious four days; then dragged his right leg; let fall things held with his right hand, and could not speak. Then there was a complete intermission, during which I saw him. He had had similar attacks, with convulsions, before he contracted his ear trouble, and his father had suffered from the same disease. His younger brother was a drunkard and died a few years previously, and our patient also indulged freely. This family history and the complete intermission might well have clouded the diagnosis, yet I felt so sure of the aural origin of the brain symptoms that I told the physician that I had the greatest misgivings, and that an operation should be done as soon as there was the slightest aggravation of the symptoms. The second night there was a sudden, rapid relapse and the patient died in twenty-four hours. We made an autopsy in the afternoon of the same day. The very instructive, well-preserved specimen of the temporal bone shows a small Bezold perforation and a large perforation of the medial table of the mastoid process, through both of

which the pus from the mastoid had made its way into the digastric fossa and the cranial cavity, inducing meningitis, the immediate cause of death.

These cases may suffice to support my statement that acute caries of the mastoid is an important and, if left alone, a dangerous disease. Let me now prove by actual experience that it is a manageable affection. This I shall endeavor to demonstrate by examples in which the onward course of the disease was stopped by the hand of the surgeon.

Case 4.—Acute caries of mastoid, pachymeningitis. Operation. Recovery. Annie Parker, 35 years old, came to me January 6, 1897. Acute purulent otitis media R.; the usual symptoms; temperature 101 to 102 degrees; mastoid tender, especially at tip and posterior border.

Operation. Large opening of the mastoid; outer table removed. The whole cavity, filled with pus, decaying bone and granulations, was cleansed. The medial table, soft, brittle, and granulating, was removed, laying bare the pulsating dura and sigmoid sinus (perisinuitis). Communication with the tympanum was established. Speedy and complete recovery.

Case 5.—Acute mastoid empyema perisinuitis with cerebral symptoms. Operation. Recovery. Louise Lefebre, age 25. Came to clinic March 7, 1897. *Operation:* Incision the whole length of mastoid; large opening down into the tip; pus, brittle bone, and granulation tissue removed. After the scraping-off of the granulations the lateral sinus lay bare one and one-fourth inch in length; healthy and pulsating. Rapid and complete recovery.

These observations which I have only sketched, may suffice to show how beneficial thorough operations in these cases may be. Thorough, means the removal of all dead material, pus, carious and necrosed bone, and granulation tissue, the constant accompaniment of dead tissue, especially bone. Care must be taken in doing these operations not to injure the lateral sinus, which accident has happened to me five times. It may happen with the chisel, especially one that has sharp angles, but also with a sharp spoon. The accident is mostly without serious consequences, but there are some fatal cases on record (for instance, Kuhn, by entrance of air, Milligan, after an exploratory operation).

Case 6.—Operated on five years ago for mastoid disease. Pain and tenderness in mastoid. Opening. No pus. Injury of sinus. Recovery. Becky Liebermann, came to me March 26, 1897. Five years ago, was operated on in Vienna. Has of late suffered considerably from pain starting from mastoid. Tenderness on pressure, especially on posterior border. No discharge. No swelling or redness of mastoid. Diagnosis: mastoid neuralgia from ossifying mastoiditis. Opening of mastoid; careful chiseling of the hardened and exceedingly vascular mastoid. Finding no pus, I chiseled backward toward the sinus. In scraping the inner table, suddenly a large stream of dark red blood escaped. The wound was tamponed and dressed. The patient made an undisturbed recovery and has lost her pain.

Case 7.—Acute mastoid caries. Pachymeningitis externa. Operation. Recovery. L. Mandelstein, age 50, came to me May 21, 1897. Earache followed by discharge in a few days, ten days ago; mastoid region gradually swollen; doughy, soft over antrum pit.

Operation: Incision from tip to base; the bone, stripped of periosteum, was blackish in the antrum region, from which place pus escaped. Large opening into outer table and tip; very careful scraping removed all dead tissue; the walls of the cavity were hard and shining everywhere except straight backward, where on palpation soft tissue only could be detected. The soft tissue consisted of rather hardened granulations. With the sharp spoon the latter were removed gradually and a gap exposed in the inner mastoid table, which was bordered with the pinkish-white dura mater. Although the dura filled the gap it was possible with the sharp spoon to remove all granulations from it without injury. The wound was tamponed as usual, and May 21, the patient left the hospital to be treated as an out-patient.

In some cases the cerebral symptoms complicating middle-ear disease are so marked that we have to abide by our diagnosis, although on opening the mastoid we find neither pus nor a fistula to guide us. In such cases we should make an exploratory opening into the cranial cavity. In support of this proposition I will briefly relate a case which I detailed at the meeting of the American Otological Society in 1896.[1]

Case 8.—Mastoiditis, epidural abscess, beginning leptomeningitis. Opening of mastoid and cranium. Recovery. Mrs. J., age 52. Chill May 4, temperature, 103 degrees; pulse 106. May 13, chill; severe pain in left ear; great dizziness; temperature 104 degrees; drumhead red and bulging; serous oozing from ear; relief. May 16, discharge suddenly stopped; pulse 84; temperature 103 degrees; projectile vomiting. May 26, nausea, vomiting, delirium; discharge suddenly stopped again; mastoid tender. May 27, cerebral symptoms more pronounced: 6 P.M. decided delirium; great pain in ear; tenderness of mastoid; vomited several times; irrational; muttering delirium.

Operation at 6:30 P.M., ether. I penetrated into the antrum, then the tip; cells lined with thickened mucous membrane; no pus; bone substance very vascular, soft and brittle. The dura mater of the posterior cranial fossa was laid bare two cm. in diameter. No pus being found, I exposed a small patch (7 mm. in diameter) of healthy looking dura mater at the base of the middle cranial fossa, by chiseling forward and upward, directly behind the attic. Then I chiseled from the antrum straight inward and slightly upward, till the probe penetrated into the attic. No pus anywhere, nor a fistula to guide us. Having in this way opened all the cavities which in suppurative inflammations are most liable to transfer infective material into the cranial cavity, I stopped. The patient rapidly improved. Two days after the operation the family physician who conducted the after-treatment, found the dressing soiled with abundant, foul smelling, slightly greenish, purulent secretion which filled the wound completely. This secretion, which in other cases also has been observed to make its appearance one or several days after the operation, must have originated in an epidural abscess, and beginning leptomeningitis.[2] The patient made an uninterrupted and permanent recovery.

What ravages chronic caries and necrosis in the temporal bone may work, can be seen in a specimen which I exhibit. The whole mastoid and the external half of the petrous bone are honey-combed with caries. The disease must have lasted a long time, with free exit of pus outwardly. I have operated on several persons who had this condition and recovered. In the winter of 1896–7 I operated on a scrofulous child whose ear was in the same condition.

Case 9.—Extensive chronic caries and necrosis in the left temporal bone (the petrous portion included) of a scrofulous girl. Pachymeningitis. Perisinuitis. Operation. Recovery. Flossie Heissenbuettel, 3 years old, admitted Nov. 3, 1896. Had measles February 1896; broncho-pneumonia; mumps; suppurating glands of neck; empyema; caries and necrosis of mastoid; fistula. Offensive discharge from left ear; mastoid swollen; fistula in which dead bone is visible. Scrofulous glands of neck discharging pus from long fistulæ.

Operation.—Ether; incision from tip up beyond base; periosteum scraped off; dead bone, pus and granulation tissue removed; chiseled the whole osseous wall away, removing all necrosed bone and granulations; at the posterior wall dense, dark granulation tissue, which was carefully removed with a spoon; the dura mater and sinus were extensively laid bare; above and behind the external auditory canal a large mass of carious bone, cheesy pus, and granulation tissue was scooped out; the attic and atrium were gently but carefully scraped till ear-canal, middle-ear, mastoid and adjacent parts of the petrous bone were converted into one large cavity. The child stood the operation well. The ear and glands were dressed with gauze daily for five months, after that more rarely, now every three weeks. There is scarcely any discharge; the cavity is conspicuous, though not half the size as when she was operated upon; it is nicely cuticized; the child has wonderfully improved in general health and can now, seven months after the operation, be considered cured.

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1 Sec. Trans. Am. Otol. Soc., Vol. vi., part iii, p. 290.

2 In June 1897, the patient presented herself again. She was in perfect health, but *completely* deaf in that ear, and complained of a tendency to dizziness which accompanied her ear disease and had never left her. I found the drum membrane totally destroyed, the medial wall of the drum cavity consisting of hard glassy bone, with an irregular surface. All this makes it probable that the inner ear was involved in the suppuration, and the pus which escaped two days after the operation, may have come from the petrous bone.

These nine cases, which I selected from my recent practice, constitute a series of progressive, acute and chronic destruction with extension into the cranial cavity. One case which received no surgical treatment, ended in death by epidural abscess, the other cases, in which timely and sufficient operations were performed, recovered.

THREE CASES OF SUPPURATIVE OTITIS MEDIA; SEVERE SYSTEMIC AND REMOTE DISTURBANCES; RECOVERY AFTER MASTOID OPERATION AND REMOVAL OF POLYPI.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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Certain local changes are admitted as indicating need of the mastoid operation. If one or more of the so-called vital indications be present, the demand is emphasized. Apart from these, cases are observed where there is room for legitimate doubt before and after operation; before, because there are no distinctive local signs of pent-up secretion, and yet we see phenomena most easily accounted for by assuming that such a condition exists; after, because no pus is found, and even if the patient recovers, doubt intrudes if operation were really needed to effect cure. The following cases illustrate this fairly well:

Case 1.—John S., age 30, a white laborer, was admitted to the Maryland University Hospital, February 19, 1896. He had been injured the same day by the falling of an embankment. A fractured pelvis was found. He made an uninterrupted recovery for four weeks, when, the evening temperature, normal for three weeks, rose to 102.5 degrees. He had no pain. The next morning, March 11, temperature was 100 degrees. About noon, after a slight chill, there was another rise. Examination did not reveal any cause for the condition observed. During Thursday and Friday the diagnosis of sepsis became clearer, by the occurrence of frequent chilly sensations, fever, increased pulse rate, sweating, loss of appetite, etc. There were no aural symptoms. On Saturday morning the nurse noticed discharge from the right ear. Temperature was 102 degrees; pulse 96. My attention was called to the man about 1 o'clock. There was no history of previous ear disease. I found pus in the canal, large perforation in the lower anterior quadrant of the drum membrane, Eustachian pervious to both the Valsalvan experiment and to Politzerization, and entire absence of pain. The mastoid was neither red, swollen, nor tender. In view of the apparently good drainage from the ear, I decided against operation, believing that it was a case of painless perforation, and the symptoms would now disappear. Treatment consisted in effecting and maintaining cleanliness. For two days, Sunday and Monday, temperature varied from 99 to 101 degrees. Tuesday evening the man had a chill, followed by a temperature of 103.5 degrees, sweat and prostration. Wednesday the same condition persisted, with the addition of a little redness over the tip of the mastoid. The same afternoon, with temperature 102 degrees, pulse 116, I opened the mastoid under chloroform. The cortex was healthy. The cells were deeply injected, but not more than a drop of pus was found though the opening was continued into the tympanic attic, and a stream of water would pass either way from the ear or mastoid to the other. Recovery was immediate and complete. Temperature reached 101 degrees the day following the operation; but this was the only rise, and the man left the hospital well, May 2.

Case 2.—On January 9, 1897, I saw Josephine N., 6 years old, in consultation with Dr. Thomas McCormick of Baltimore. The child had recovered from scarlet fever three weeks previously. There was a history of acute right otorrhea in infancy. Early in the late illness pain had appeared in the right ear, and had been more or less persistent, though not severe. There had been no discharge. Within the past few days, temperature had become high, after several days of freedom from fever. There was some earache; no more than there had been. Temperature was 100 degrees. The appearance of the canal walls and mastoid was normal. In the drumhead there was the scarred perforation of the former attack. There was, however, no evidence of a tympanic inflammation. Heat was applied for two days, and otorrhea, slight in amount, appeared on the morning of January 11. I did not see the child from the 11th to the 14th. The attending physician noted scant discharge; elevation of temperature; unrelieved pain. On the 15th I found the canal walls edematous, so that a view of the drumhead was impossible. A little inoffensive pus was brought out by the cotton pencil. The mastoid was slightly reddened; more, I thought, from heat than any other cause. Temperature was 101 degrees. I thought we had all necessary indications for operation, and so advised. It was declined, and heat, peroxid of hydrogen and syringing continued until the 17th, when, with temperature 101.6 degrees, pulse 130, local conditions unchanged, operation was accepted. After free incision of the edematous canal walls, and the mastoid periosteum, without finding either pus or a carious point in the cortex, the process was opened, and the opening continued into the attic. No pus was found. Pain was relieved at once; temperature fell to normal, and once during convalescence reached 100 degrees. Otorrhea lasted a few days. The ear hears the watch $^{1}\!/_{8}$s.

In Case 1 there were septic symptoms for five days, when a painless otorrhea called attention to the ear. In Case 2 there was pain in a formerly diseased ear from the commencement of scarlatina four weeks previous. After some days of normal temperature, fever returned, without increase in the aural symptoms. In both the appearance of otorrhea failed to relieve. Both recovered immediately after the mastoid was opened, and nothing short of this helped. Yet no pus was found, certainly in Case 2, and only a drop, if that, in Case 1. Similar constitutional symptoms occur in the cellulitis of general surgery, and disappear when the infected area is drained, without the presence of pus. The existence of a like primary infection in the mastoids of these patients seems the most plausable explanation of their symptoms.

Case 3.—Prof. Samuel C. Chew of Baltimore, called me in consultation on Nov. 4, 1896, in the case of Mr. P., 27 years of age. For a week Mr. P. had suffered from left frontal headache, with slight elevation of temperature. There was a history of old intermittent otorrhea, and it was to determine a possible connection between the head pain and this, that I was called in. The man was in bed, complaining of agonizing left frontal pain; temperature 100.8; pulse 96. History showed suppurative otitis dating back to infancy. No systematic treatment had ever been employed. Occasionally Mr. P. washed the ear himself. For five years these attacks of headache had occurred. They were described as sudden, severe, prostrating, and lasting from a few hours to several days. The ear was free from pain, and neither tapping nor firm pressure of the mastoid was resented. The canal walls showed nothing abnormal. A little pus, bad smelling, was found in the tympanum. The drumhead was destroyed, the malleus standing out prominently, thickened, while, apparently attached to the posterior tympanic wall, small polypoid masses could be made out. The patient's family would not consent to operation of any kind. From the 4th to the 7th the ear was kept as clean as possible by syringing, and the use of peroxid. There was no increase in the discharge, and little decrease in the pain. Temperature ranged from 99 to 101 degrees. On the afternoon of the 7th the condition grew worse. Pain was agonizing, requiring large doses of morphin to keep the man quiet. I now had doubts concerning the adequacy of any operation about the ear. Pain was absolutely localized in the left frontal region. From the beginning nothing had pointed directly to the ear. True, there was a chronic otorrhea, and inspection showed a state of things commonly observed in old suppurating ears; but this was all. That the ear was the primary cause, I had no doubt. That the disturbing factor, whatever it was, had passed beyond the line separating aural from general surgery, I was beginning to believe. Apart from waiting for localizing brain symptoms, two procedures suggested themselves, removal of the polypoid growths, and mastoid operation. I had little faith in the ability of the first to relieve the

symptoms. Not only might the second prove inadequate and leave the patient still in need of cerebral surgery, but such meager indications as there were, pointed to the front, rather than to the rear brain as the seat of disease. I therefere decided to remove the tympanic growths, and if symptoms did not abate, seek a general surgeon's opinion regarding the need of intra-cranial exploration. On Sunday morning, 8th, under unsatisfactory cocain anesthesia, I removed the polyps with Buck's curette. Giddiness, profuse sweating, weakness of pulse, and prostration, were the immediate results. Operation was done at 11 A. M., with temperature 99 degrees; pulse 96. At 4 P. M., temperature was 102; highest during illness; pulse 120. During the evening respiration assumed a character strongly suggestive, if not actually, of the "Cheyne-Stokes" variety. At first shallow, it became deeper, and passing again in reverse order, ceased altogether for a few seconds, returning and passing through like a cycle. Pulse rate increased to 140. It looked as though the end was not far off. The ear condition, however, underwent a change. There was a freer discharge of pus. Arrangements were made for operation in the morning, and an early consultation secured with Prof. Tiffany. We found the man still in pain, but his general condition was better than the previous night. Fetid pus discharged freely, and he complained of nausea. Pulse was 76, and temperature 97.2.

Prof. Tiffany expressed the opinion that this subnormal temperature threw a new doubt into the case. It might mean cerebral abscess. He advised further delay. It proved to be the beginning of convalescence. Within twenty-four hours pain subsided, and the patient was out in a week. Since, the tympanic condition has been treated. In March the ear was dry, and the man apparently as well as ever. There is not much chance of his staying so. Sooner or later he will have another stormy experience. His history indicates that there is a gradual change of some kind going on in his mastoid, probably an accumulation of pus, until a certain point is reached. when the storm breaks. It seems equally clear that there is no organic brain disease. In his case, another attack would call for the mastoid operation, even if it should not be done before; but so remote, and apparently serious condition as existed here, is not, so far as my knowledge goes, a frequent consequence of mastoid stagnation.

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DISCUSSION ON PAPERS OF DRS. KNAPP AND WOODS.

Dr. SEISS—Out of my last 4300 cases, only 85 were mastoid. Out of these there was only one death, and that was the only case where any more extensive operation was done than removal of the outer table.

Dr. RANDALL—To know what constitutes disease of the mastoid is essential. Where we have decided swelling, redness and pain over the mastoid region with tenderness to pressure, together with acute inflammation of the middle ear, I call it acute inflammation of the mastoid. I see many cases brought to a successful issue after operation. I have seen quite 100 of these cases every year, and but a small proportion come to operation. I have done as high as thirty mastoid operations in a year, all with pus freely present over the mastoid. In at least one-half of my recent cases the inner table has been broken down, pus was present on the dura, and pachymeningitis more or less present. In the last Stacke operation which I did, I found it impossible to determine where the dura lay. It was covered with flabby granulations, and in removing these with a curette I stopped short because I found I was removing brain tissue. The patient was not hurt by this blunder, so far as I could discover, but it shows that we must be careful. In these cases I can not feel as a general thing that I have done too much. I can not always get complete healing by radical measures, and it is perfectly fitting for those who hold more conservative views to hold them in spite of all that I can say. The majority of mastoid cases can get well without operation and not be in the slightest degree worse for the delay. Last year I had 500 cases; others might say that they were not mastoid cases at all. I can not give only one death in 85 cases, but I have but one death due to operation in 135 cases. One or two died of pneumonia or brain disease, absolutely uninfluenced by the operation.

Dr. WOODS—I am aware that the first two cases I reported are open to criticism as to whether they would not have done just as well without operation. The knowledge of that fact led me to report them. There were no local symptoms of mastoid disease, save the slight redness mentioned; and yet, with a history of acute otorrhea in the first, old suppurative otitis in the second, and temperature characteristic of sepsis in both, operation seems to me the safest treatment.

Dr. LAURENCE TURNBULL—I would like to ask Dr. Knapp as to neuralgia of the mastoid. I know of a case where a young girl passed a bead into the mastoid. It gave no uneasiness at first, but later there was discharge and pain. She came to the Jefferson Hospital with this peculiar neuralgic pain gravitating toward the mastoid, and after cleansing the ear we opened the mastoid and left the bone clean and white. She seemed to be improving for a time, but later returned several times with the intense pain. The mastoid was finally opened a second time; but she still has the pain.

Dr. KNAPP—I have found mastoid neuralgia in cases where a chronically inflamed mastoid is undergoing conversion from the pneumatic and diploic varieties into the sclerosed. When we operate for this condition we mostly find the mastoid compact and, in some layers at least, usually the medial ones, congested. These cases get well by operation, and in time, also spontaneously, I think by destruction of the nerve either by the operation or by compression during the sclerosing process.

WHAT CAN BE ACCOMPLISHED BY TREATMENT OF EUSTACHIAN TUBE,

WITH SPECIAL CONSIDERATION OF THE TREATMENT OF CHRONIC STENOSIS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY GEORGE MORLEY MARSHALL, M.D.

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Let us briefly recall the anatomy and function of the Eustachian tube, in so far as it concerns the measures advocated in this paper. The Eustachian tube is the passage between the naso-pharynx and tympanic cavity—in length thirty-three to forty millimeters. From its relatively large pharyngeal mouth it extends twenty-five millimeters with walls formed by an incomplete furrow of fibro-cartilage, consisting of a posterior and anterior plate, the anterior being movable. This portion of the tube where not cartilaginous is membranous, which with its lining mucous membrane has considerable thickness. This cartilaginous portion of the tube unites with the remaining ten to fifteen millimeters of the osseous portion of the tube, forming with it an obtuse somewhat circular angle of 135 degrees. At this angle the lumen of the tube is smallest; that is two to three millimeters.

The walls of the Eustachian tube are lined by glandular mucous membrane, with ciliated cylindric epithelia, whose ciliary movement is directed toward the pharyngeal opening which has a lower level than the tympanic opening. The lining of the osseous portion is smooth and closely incorporated with the periosteum. With surrounding conditions normal, the normal Eustachian tube allows the passage of air not with absolute freedom, for the tube at rest has its sides in contact, but yet with sufficient freedom to establish an approximate equality of atmospheric equilibrium, allowing the secretions of lining membrane of the tube and tympanum to escape or evaporate. But if atmospheric pressure is not approximately equal the air in the tympanum is absorbed by surrounding liquids through the walls of blood and lymph vessels, obeying the law that liquids absorb their own volumn of associated gas, and thus the air not being renewed in the tympanum, there follow the

well-known symptoms—deafness, feeling of fullness, a probable tinnitus, autophonia, but especially that decisive sign, the appearance of the retracted tympanic membrane itself.

But with retracted membrane the alert aurist would not, necessarily, diagnose at once an obstructive Eustachian tube, as turgesence or hypertrophy of the turbinated bodies alone might account for the rarefied air to a considerable degree. Still more will the pressure be out of equilibrium if the opening between pharynx and naso-pharynx be occluded.

Two cases presented themselves to me which will illustrate this condition to an extreme degree.

M. S., age 40, had periods of great deafness, and in one such period came to me for relief. The tympanic membranes were strongly retracted, the turbinated bodies were very turgescent, the patient being evidently in the midst of an attack of acute coryza. The communication, in this case between the pharynx and naso-pharynx, was totally shut off by a smooth impervious membrane. The history of this condition was as follows: When a schoolgirl at Heidelberg she was bending over her desk with a long sharpened slate pencil in her mouth, the teacher coming behind to rebuke her for idleness, gave the child a blow upon the head with a book. The head was driven down upon the unyielding pencil, whose other end was supported by the desk. Its point was thus driven into the pharyngeal wall. Although attended by one of the able professors of the university, extensive ulceration occurred and doubtless the final condition failed to be presented to him. At least, her condition had remained from childhood as she presented herself to me. At once, on opening this tough membrane with an instrument I had devised for somewhat similar cases her hearing was restored and she was enabled to blow her nose for the first time in thirty years.

Another case, B. S., 4 years old, had scarlet fever a year previous, resulting in great deafness, which was worse at times of coryza. Adhesion had resulted between the pharyngeal wall and the soft palate, producing complete occlusion of the passage. The child was operated on with the above-mentioned instrument, which aided much in the facility of the operation, as it is extremely difficult to manipulate a cutting instrument back of the palate without danger to the carotid arteries. The hearing at once improved and although the sclerosed tissues at the seat of the old ulceration again closed, the operation was repeated a third time after intervening periods of considerable length, when the opening became permanent.

Many cases of lesser degree of obstruction at this point (the naso-pharyngeal opening), would still have the effect of disturbing the equilibrium of atmospheric pressure in the tympanum, and the above cases are only cited because of the absolute demonstration of the effects of rarefied air in the naso-pharynx. Other lesser impediments, as adenoid growths, which I believe directly arise from a previous nasal obstruction, although possibly a temporary one, and which producing this rarefied condition of atmospheric pressure will, with its continuous, yet slight suction power, so affect the yielding tissues of the infant as to cause venous congestion favorable to the growth of adenoid tissue. Retained secretions, bacterial growth therein and consequent irritation likewise favor the growth of lymphoid tissue, conditions that must also be attributed to nasal and naso-pharyngeal obstruction. Thus I believe this tissue instead of being responsible for venous congestion, as is maintained by prominent authorities, is one of the sequelæ of the congestion. The continued pressue of lymphoid growths also favors the continued congestion and obstruction, and likewise hypertrophies of the turbinated bodies, deflected septi, nasal polypi, and nasal spurs, may interfere with the ingress and egress of air and the resulting equilibrium of atmospheric pressure, and they must therefore be removed by appropriate operation or treatment before attention is directed exclusively to the Eustachian tube.

Now, if obstruction of nasal passages or naso-pharynx produces this want of equilibrium in the tympanum, so much more will stenosis or occlusion of the tube itself, and will lead to that venous congestion of the tympanum which I believe is responsible for a very large majority of cases of chronic tinnitus aurium, as well as chronic deafness resulting from sclerosis of tympanic membrane and associated structures, for not only is the circulation of the blood abnormal, but the reverberating sound waves of the blood currents have no longer their normal exit, but are as in the closed seashell, which confines the sound in unbroken walls. I have noticed this tinnitus to be removed for several days after the relief of the venous congestion following the removal of a nasal spur, with free hemorrhage, and so I could explain the relief after depletive measures, as by catharsis and pilocarpin, which give temporary relief. But the belief that free ingress of air into the tympanum will at least relieve the congestion, and therefore the tinnitus, has been borne upon me, especially during the last two years, by the results of a more systematic use of bougies in the Eustachian tube where stenosis of the tube or retraction of the tympanic membrane existed. I have tabulated a series of thirty cases which had long become chronic and which will therefore be of more interest because of their usually intractable nature. Seventeen were chronic cases of tinnitus and all chronically deaf, with one exception which although marked chronic tinnitus, exhibited no degree of diminished hearing, yet was (I think) in the first stage of venous congestion. After systematic use of bougies the results in these seventeen cases was, seven were made entirely free, five improved to such a degree that it became no longer troublesome, while in five there was no reported change. But, with one exception, those not improved had but few treatments. In two of the favorable cases, although the tinnitus had been constant for six or more years, it was removed only after six months of treatment. In the twenty-nine cases of chronically deaf, one only was restored to normal hearing; seven were very much improved; five slightly improved; one heard better in one ear, but worse in the other, while in nine there was no change. One of these cases was of deafness without tinnitus, which was decidedly improved by the bougie, although the air douche had previously failed to relieve to the same extent; yet in this case there was relapse to nearly the first condition, although bougies were used for quite a year. In no case was there any unfavorable result, unless it were in one case, who six weeks after her last treatment was taken with an acute middle-ear trouble, which soon subsided. but the patient had been perfectly free from pain in the interval, in fact relieved in a degree from deafness, and she attributed the inflammation to a severe cold. I speak of this as a possible sequel, as I have been particularly watchful for any possible bad effects from the use of the bougies. Thirty may seem too small a number of cases from which to draw any sweeping conclusions, yet the good results in these few may have been due to the method used in its performance. Appropriate cases, viz., those with retracted membrane and which are given temporary relief by air douche or massage, should be selected.

My rules are as follows:

1. Never delegate the work to another.

2. Never do it hurriedly (several times I have broken this rule and failure resulted), but always

count upon having, if necessary, one-half hour for the operation. Usually it may be done in a minute or less, but difficult cases arise, but if done leisurely an apparently difficult case becomes easy.

3. Have proper fitting, well-shaped Eustachian catheters. Those from Reiner in Vienna have given me perfect satisfaction.

4. Have antiseptically clean catheters and bougies.

5. Prepare the mucous membrane of the nasal passages, especially the pharyngeal mouth of the Eustachian tube, with an application of a 10 per cent. solution of cocain.

6. Smear the bougie with a 3 per cent. ointment made of lanolin and nitrate of silver. This measure is, as far as I know, original, and to it I attribute largely the good results. Unlike other fats lanolin clings tenaciously to the bougie, shields it and makes its passage more easy; and with the argentum nitrate is antiseptic and alterative in effect locally. I have it prepared from the aqueous solution of silver nitrate so that it becomes a stiff emulsion. It is only after long exposure that the ointment undergoes a chemic change, becoming black on the surface but apparently unchanged beneath.

7. Observe that the bougies are in perfect condition. Celluloid may become brittle and therefore highly dangerous, and whalebone may become rough or thready and therefore irritating.

8. Let the bougie rest in place twenty minutes to half an hour in the Eustachian tube.

9. Use the bougie not oftener than twice per week.

10. Measure the bougie and see that it does not advance more than thirty-three millimeters.

After making sure of nasal and naso-pharyngeal freedom, the above treatment seems a rational one, and directed to the securing of equilibrium of atmospheric pressure in the tympanum. To secure this condition I believe should be the foundation effort. Where equilibrium is wanting, air douching, either by catheter, Politzer's method or otherwise, and massage of the ossicles and membranes, can be but of temporary effect.

The analogy of chronic stenosis of the tear duct and of the male urethra is sufficiently suggestive. It would be a timid surgeon that in stenosis of either of those passages would rely upon applications of a vapor or a liquid. If gradual dilatation in those passages is indicated and an accepted measure, I believe it to be in the Eustachian tube. That stenosis may at some time return is no argument that the treatment should not be adopted, but because of the delicate nature of the Eustachian tube it should never be treated by careless or unskilled hands.

1819 Spruce Street.

NATURAL GAS AND EUSTACHIAN INFLAMMATION.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1–4, 1897.

BY JOHN JOHNSON KYLE, M.D.

MARION, IND.

Some few weeks ago it was my pleasure to read a paper before the Western Ophthalmological, Otological, Laryngological and Rhinological Association, calling attention to the effect of natural gas upon the conjunctiva. I now desire, in a general way, to show wherein the natural gas from the Indiana field is a potent factor in causing catarrhal inflammation of the whole pneumatic system, with special reference to the Eustachian tube.

The gas from Indiana differs from that of the New York or Pennsylvania field, in that it contains sulphuretted hydrogen, and in burning the process of combustion is not so complete. Eighty-five per cent. of the natural gas is marsh gas, which is composed of 75 per cent. by weight of carbon and 25 per cent. of hydrogen. The products of combustion, which differ in every case, are carbon dioxid, water vapor, sulphur dioxid, trioxid, nitrogen oxids and ammonia sulphate. The sulphur oxids soon became sulphuric acid, collecting as such upon chandeliers and smoke shades. As a result of the combustion, the greatest irritant to the mucous membrane is produced. This is more noticeable in winter than in summer, and results from imperfect ventilation, thus allowing excessive accumulation of burnt gas, which is constantly thrown off from jets, open fires and stoves. In consequence we have a marked increase of nose, throat and bronchial affections.

The Indiana gas belt covers a territory of 2500 square miles, with a very large population made up of immigrants and foreigners. Where jets are used for illuminating, patients suffering from phthisis, hay fever, asthma, catarrhal pneumonia, diphtheria and scarlet fever, especially suffer from this irritation. Where every effort is made to subdue abnormal cough or throat irritation the substitution of lamps brings relief. The gas is very destructive to carpets, draperies, gold and silverware and surgical instruments. Public speakers, actors, singers, and especially those who are accustomed to moist sea air suffer from this poison.

We consider systemic diseases, climatic conditions, unhygienic surroundings, malarial poisoning, sewer gas and etc., causes of middle ear diseases, and that inflammation of the Eustachian tube is an extension of a diseased condition of the nose and throat. The tissues of the tube are virtually the same as those of the throat, containing lymphatics, a plexus of nerve fibers and nerve cells; within the stroma of the cartilage are numerous mucous glands lessening as we reach the osseous portion. The tube is covered with ciliated epithelium, which are in constant motion, moving like fields of grain. The glandular system of the tube plays the important part in acute inflammation due to natural gas, coincident with similar change in nose and throat. In the prodromal stage all victims suffer more or less alike, complaining of dryness and fulness of nose and throat. The sensation of dryness is not unlike that from cocain anesthesia. If exposed to burnt gas with this we have huskiness of voice and an exceedingly annoying cough. Within twenty-four to thirty-six hours the inflammatory stage, differing in every case, is ushered in by slight elevation of temperature, general malaise, tinnitus aurium and headache. If apartments are illuminated with jets we will have constant cough from the sulphur oxids, and an abnormal desire for sleep, which results from excessive inhalation of carbonic acid gas. On examination in acute cases, we find the mucous membrane of the nose and throat swollen and of a dry glistening appearance. The dryness is so excessive as to cause the mucous membrane of the cartilaginous septum, throat and gums to crack open, which allows exudation of the fluid elements of the blood. This dries in the form of bloody crusts along the septum and is with difficulty

removed, reforming, however, very rapidly. The accumulation of thick mucus tinged with blood is excessive in the vault of the pharynx.

With the exception of the vestibule, it is asserted that the nose and throat is an aseptic cavity! Hugenschmidt (*Annales de l'Institut Pasteur*) asserts that "in the pharynx there are true lymphatic sacs containing various kinds of phagocytes under the epithelial layer, which are constantly being passed on to the mucous surface between the epithelial layer." The gas destructive to the epithelial covering of the pharynx and to that of the anterior septum, most naturally perverts the function of the leucocytes; thus readjustment of the tissues may be slow on account of the constant reinfection.

The tendency of patients in acute cases, due to the swollen and inflamed condition of the nose, is to breathe through the mouth during sleep. As a result of the lessened chemostatic power of the saliva during sleep, we have with the marked local effect in the oral cavity and especially in the throat, elevation of temperature and general malaise, following the invasion of bacteria. The tube when affected, on account of the venous congestion, is swollen and filled with viscid secretion, which is demonstrated by the peculiar sound caused by the current of air being forced into the ear, as in acute cases from colds, etc. Dilatation is not easily accomplished, since on account of the venous congestion, we are compelled to rely solely upon the Politzer method. In cases involving the middle ear, patient complains of fulness, slight diminution of hearing and pain extending to middle ear. We find this especially conspicuous in glass blowers suffering from the disease. On examination we find the drum hyperemic along the short process and handle and always retracted, due evidently to the swollen condition of the cartilaginous portion of the tube. The ear symptoms are not those typically of acute catarrhal inflammation, rather those of the sub-acute form. In from five to six weeks the acute inflammatory symptoms gradually disappear and tissues become readjusted, further proof of the singular function of the adaptation of the mucous membrane to irritating cases. The disease is, however, passive in character and may develop rapidly into chronic inflammation. Chronic catarrhal deafness is such a prevalent disease that it is purely hypothetical to say that natural gas, or any other gas to which the patient is exposed, may alone cause the disease, though we are safe in concluding that in a patient susceptible to such a disease, all the symptoms will be aggravated. In the cases attributed to natural gas the disease was in no wise dependent upon the hypertrophic change in the nose, but upon the diseased condition of the pharynx. The ease with which patency of the tube and mobility of the drum are restored differentiates it, I believe, from so-called catarrhal deafness. The mucous membrane of the anterior septum will in chronic cases be found covered with superficial blood vessels and crusts, which cause frequent septal hemorrhages, a condition closely allied to rhinitis sicca anterior, a disease first described by Siebemann in 1889. The throat symptoms now resemble chronic pharyngitis or clergyman's sore throat, membranes more or less covered with follicles varying in shape and color; superficial veins always in great numbers; the secretion from posterior nares thick and tenacious. In the acute stage the treatment is necessarily palliative and sedative. Unless in the treatment all lights from jets are condemned and oil and electric lights substituted, little result is secured. The mucous membrane of the nose and throat is cleansed with Seiler's or Dobell's solution, followed by a spray of albolin, menthol and camphor solution. In the treatment of tubal and middle ear affections we rely upon the inflation with the Politzer method, condemning the canula and relying upon hot applications and massage, which relieves the congestion and promotes the absorption of any serous exudation within the middle ear. Frequently a change of surroundings is absolutely necessary, as no other form of treatment brings relief. The acute stage usually passes off quickly, and prophylactic and palliative treatment is all that is necessary.

In the chronic stage the treatment of the pharynx with its enlarged follicles and superficial veins, our absolute reliance is upon the galvano-cautery. The stenosis of the Eustachian tube is treated by inflation through a No. 2 or 3 German silver canula with injections of, preferably, menthol camphor in albolin, and massage the drum. The septal hemorrhage from the crust formation and habit of picking the nose, is relieved by the destruction of the superficial blood vessels with the actual cautery or strong solution of nitrate of silver. The crusts are softened, and healing stimulated by yellow oxid of mercury ointment or ichthyol, 3 per cent. in lanolin.

The normal ciliated epithelium is now replaced by cicatricial tissue. In conclusion we assert:

1. Natural gas is an important factor in relation to public health.

2. The elements of combustion are active irritants to the exposed mucous membrane.

3. It is an exciting cause of catarrhal inflammation of the nose, throat and middle ear.

TINNITUS IN ITS RELATION TO NASAL AND AURAL AFFECTIONS.

Discussion in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

OPENED BY B. ALEXANDER RANDALL, M.D.
PHILADELPHIA, PA.

This is a topic which appeals to all of us and it is important that clear views should be obtained of it so far as possible. The division into the objective and subjective forms is hardly worth mentioning, and yet we should remember that there is a large amount of objective tinnitus present in aneurysm, etc. Several cases bring clearly to my mind how easy it is to ignore this matter. It is inevitable that we should have a large bruit ever present, and if an anemic condition gives rise to anemic heart-sounds it may result in similar murmurs in the ear.

It is important in turning to the subjective symptoms, to remember that there are at least five points where this condition may arise, marking the cerebral, the labyrinthine, the tympanic, the tubal and the purely nasal forms. With this distinction it is clear that we are all interested in the question of what we generally call aural tinnitus. The conditions are largely vascular and there may be a local lesion which determines the exact exciting cause. It is of wide spread character, and I suppose there are few who are more prone to tinnitus than the overworked physician. We will find that the proper use of rest, or some of those substitutes that we employ, such as strychnia, will be of distinct value. This will do more for the relief of

these conditions, where there is vasomotor trouble, than the bromids and sedatives. As to the labyrinthine cases we must guess rather than speak with certainty. The tympanic cases are many, and the effect of pneumatic massage will promptly demonstrate that the trouble is located in the tympanic cavity. A little mobilization will account for much of the trouble and give great relief. In all cases I use the pneumatic massage to a great extent. I employ finger-tip massage in this way: Instead of using the mere pressure, I insert the finger into the auditory canal as deeply as possible, and then with a piston movement I can secure a decided amount of suction as well as pressure. This measure I have found harmless as far as tested, and it is always within the power of the patient. I have often found it very effective. In these cases, tubal or otherwise, where we have to resort to other measures, it is often possible that with the best employment of those measures we get only moderate relief, which is for a time trebled or quadrupled by the pneumatic massage.

The manner of tubal relief has been discussed by Dr. Marshall, and I cordially accord with what he has said. Great relief can be had with the use of the bougie, but it is so delicate a procedure that I employ it very little, especially in the dispensary. The employment of silver followed by the vapor of iodin in the tube, is also valuable. It is certainly a potent method, potent for evil as well as good, and should be used with the greatest caution. The element of pressure is an essential and valuable factor in many cases.

The nasal causation of tinnitus is well known. It is well to remember that these are complex matters, and that in some cases the incautious cauterization of the turbinal has been followed by intracranial thrombosis.

Dr. MARTINDALE—In a large number of cases you will find that you are dealing with objective instead of subjective tinnitus. We have tinnitus because there is a slight and often unrecognized lesion in the middle ear or the Eustachian tube, which is sufficient to determine the symptoms to that point rather than to the eye or some other organ. As to the value of the otoscope, I have given up its use almost altogether. It does relieve tinnitus for a short time, but it comes back. I am glad to learn that the results are sometimes permanent. I do think that harm can be done to the canal by the inflammation. Passive motion of the ossicular chain will cause the condition to increase. If the patient is suffering from progressive inflammation, this treatment is like trying to walk with a sprained ankle. If you increase the blood supply by inserting the finger into the canal and manipulating the parts, it may cause an increase of the trouble.

I use the Eustachian bougie a great deal and do not think it is dangerous. I employ a very simple form of instrument made by taking a No. 5 piano wire and bending a hook in one end. This is passed through a Eustachian catheter, and will protrude from the mouth of the catheter about an inch and a half. Wrap the hook with sterilized cotton, to any size you please, according to the amount of stenosis. The advantage is that the cotton can not slip off, and that carried rapidly through the tube into the stricture and allowed to remain a few moments, the cotton increases in size, and you have increased dilatation. You avoid the friction of celluloid, whalebone or other bougies in passing through the cavity. When insertion is made an inch and a half you must continue with great caution. I have used silver, but not for a long time. Nasal tinnitus is often due to labyrinthine conditions.

Dr. MAX THORNER—Often cases of tinnitus aurium have suddenly disappeared after the removal of obstructions in the nasal passages, but we can not promise relief in all cases. I have seen cases where the nose was perfectly normal, with very little trouble in the naso-pharynx or the Eustachian tube. In such cases the result of any treatment depends entirely upon the intra-aural condition. The worst cases are those where we have sclerosis in the middle ear and a patulous tube.

I have removed the ossicles and made multiple incision through the drumhead as recommended a number of years ago, and have seen occasionally some improvement, but this did not last more than two, three or four months. I have used the pressure probe of Lucae, and have given treatment by the exhaustion of air, but no more than temporary improvement has followed in the majority of cases. I have found inflation of temporary benefit. If we would examine in every case, we might find adenoids, or nests of adenoids in a large number, although their removal does not always cure the tinnitus. I have used iodid of ethyl in acute and chronic cases; and frequently have found it give relief, where nothing else would benefit the patient even temporarily.

Dr. MARTINDALE—One objection to the cotton plug is that it only touches one point of stenosis. If an attempt is made to make pressure to a considerable extent, it is hard to get an equal caliber. I also believe that cotton is more irritating than the smooth surfaces of celluloid or whalebone. We need only compare it to the use of the steel sound in the urethra; no matter how small the sound, we find that cotton is more irritating.

THE SURGICAL TREATMENT OF ACUTE INFLAMMATIONS OF THE MIDDLE EAR.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

BY EDWARD B. DENCH, M.D.

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NEW YORK, N. Y.

Up to a comparatively recent date an acute inflammatory process within the tympanum was scarcely considered worthy of consideration, from a surgical point of view, unless it was of so severe a type as to involve the osseous structures in immediate relation with the tympanum. The general practitioner, and quite frequently the otologist, advised what was then the "conservative treatment" of these cases. The patient was allowed to suffer pain until spontaneous evacuation of the inflammatory products occurred.

It is hardly necessary for me to point out that this plan was erroneous. It was, perhaps, excusable for the reason that only within the last few years has much been written upon the special anatomy of the middle ear. Thanks to the investigations of Blake and Bryant of Boston we no longer consider the middle ear as a single cavity, but divide it into two portions, the atrium and the vault, by a horizontal line drawn through the short process of the malleus, the former portion lying below this line, the latter above

it. On account of this division, we recognize two forms of inflammation of the middle ear, one affecting primarily the atrium, and the other the vault of the tympanum. An inflammation of the atrium is characterized by symptoms common to a catarrhal inflammation in any other portion of the body, that is by an effusion of a fluid. This is due both to an increased quantity of normal secretion from the glandular structures and also to a serous transudation from the blood vessels. Owing to the small amount of connective tissue within this space, suppurative inflammation is practically impossible. On the other hand, an inflammation in the tympanic vault invariably leads to connective tissue necrosis and the formation of pus. The process follows exactly the same course as an inflammation involving connective tissue in any other portion of the body; that is, it constitutes a true cellulitis. The proximity of the tympanic vault to the mastoid antrum, of which it really forms a continuation, and to the middle cranial fossa, from which it is separated by a thin lamella of bone, renders it evident that a purulent inflammation within this space is always a condition of considerable gravity.

I would not have it understood that a purulent discharge from the middle ear can only result from infection of the tympanic vault. In an acute catarrhal otitis, with rupture of the membrana tympani, the discharge which at first is muco-serous in character, is easily infected if allowed to remain in the external auditory canal, and in this way may become purulent. In this event subsequent infection of the vault of the tympanum is common, but is not the invariable rule. The parts within the upper portion of the middle ear may also suffer from an acute congestion. If the inflammatory process extends no further a certain amount of serous transudation will drain along the long process of the incus into the atrium. In this way the engorged vessels are relieved and suppuration and tissue necrosis is avoided.

An acute catarrhal otitis is characterized by a uniform injection of the entire drum membrane. While the membrana flaccida is red and turgid, the entire membrana tensa is also reddened. If the process has continued for a few hours the posterior portion of the membrana tensa will bulge into the canal, particularly in the posterior segment. In direct contrast with this is the otoscopic appearance presented by an inflammation of the tympanic vault. In the very early stages the membrana flaccida appears greatly reddened and swollen, while the membrana tensa remains perfectly normal in color. Only rarely do we find the vessels of the manubrial plexus slightly engorged. After a few hours the upper and posterior portion of the drum membrane appears to sink downward into the canal, so as to narrow the fundus and partially obscure and hide the upper part of the membrana tensa, the portion of this structure visible still preserving its normal color. In the severe cases the displacement of the upper portion of the drum membrane, that is, of the membrana flaccida, may be so extensive as to allow a view of the lower and anterior segment of the membrana tensa only, this appearing bright and glistening and showing no evidence of inflammation.

The treatment of these conditions differs in that, while an acute catarrhal inflammation may be frequently aborted by local blood-letting in the early stages or relieved by surgical measures, if seen later, operative treatment is imperative, even in the incipiency of an inflammation of the tympanic vault. For a number of years I made an attempt to abort both forms of the disease by local blood-letting, either by means of the natural or artificial leech. At the present time I seldom resort to either of these methods, and am more and more convinced that the only safety lies in making a free incision into the inflamed tissues. If the case is one of acute catarrhal otitis where the membrana tensa is involved, except in the very earliest stage, I incise not only the membrana tympani but the tissue covering the internal tympanic wall in order to secure a complete depletion of the engorged vessels. I am not speaking of cases in which there has been an effusion of fluid into the tympanum. Here, there is no doubt as to the advisability of incision. But even before this has occurred better results will be obtained by the free use of the knife than by any milder measure. In the catarrhal form of the disease this incision should lie in the posterior segment of the drum membrane, close to its periphery, and should extend from just above the inferior pole upward to the posterior fold. As the puncture is made the knife should be carried inward until its point impinges upon the bony wall of the middle ear. It should then be carried rapidly upward to just below the posterior fold. In this way the drum membrane is freely incised for about one-fourth of its circumference. As the upward cut is made care should be taken to keep the point of the knife against the internal tympanic wall, so as to incise the overlying mucous membrane.

In the severe form of the middle ear inflammation the knife should be directed upward, backward and inward, the puncture being made just behind the short process of the malleus. The incision is then carried backward to the periphery of the bony ring, care being taken to divide the reduplications of the mucous membrane filling the tympanic vault. As the edge of the knife touches the bony ring it should be turned upward and the instrument withdrawn, the knife being kept in contact with the bone so as to incise the periosteum of the upper wall of the canal for a considerable distance. By making first a horizontal and then a vertical incision, a triangular flap is formed, allowing free drainage from the tympanic vault. Copious hemorrhage immediately follows the incision and may continue for several minutes. Frequently, after the hemorrhage has ceased, there will be a sero-sanguinolent discharge for one or two days, until the engorged vessels have unloaded themselves and resumed their normal tone. Suppuration is thus prevented, and extension to the mastoid process seldom occurs.

While the incision of the drum membrane is an operation of no great importance, a certain amount of care must be taken in performing this simple procedure. In the first place, it is absolutly necessary that the canal and membrana tympani should be thoroughly sterilized before operation. The field of operation can be rendered almost absolutely aseptic if the canal is first syringed with a warm solution of bichlorid of mercury, 1–5000. The parts are then dried with a pledget of sterilized cotton, and the walls of the meatus and the drum membrane are mopped thoroughly and as vigorously as possible by means of the cotton pledget, with an alcoholic solution of the same drug, 1–3000. As the strong alcohol of the pharmacopeia causes considerable pain when applied to the inflamed drum membrane, I usually make this solution as follows: one part of an aqueous solution of bichlorid of

mercury (1–1000) is diluted with twice its volume of alcohol. I have found that the desired asepsis can be secured by the use of this mixture, and that the pain consequent upon its application is slight.

No instrument should be introduced into the canal before it has been perfectly sterilized. This is best effected by boiling the specula, cotton holders, forceps, etc., in a 2 per cent. solution of sodium carbonate. As prolonged boiling takes the "temper" out of the delicate knives used in the operation, these should be immersed in the fluid only a short time, one minute being usually sufficient, if they have been thoroughly cleansed mechanically, before being subjected to boiling. The cotton used should also be surgically clean. Of late, I have adopted the following plan for the sterilization of the cotton mops. An ordinary wooden toothpick is dipped in liquid glue, and is then wound with surgical cotton in the ordinary manner. A large number of these cotton-tipped probes are prepared, and sterilized in the Arnold sterilizer for half an hour. After this they are wrapped up in a piece of sterilized gauze until they are required for use.

As to the knife best adapted to this operation. The old form of myringotome is practically worthless. The name myringotome is well chosen to designate the instrument. It simply makes a puncture in the membrane instead of a free incision. It is utterly impossible to secure a sharp cutting edge in a small instrument of this shape, and in many cases the point of the knife is so dull that it can only be forced through the drum membrane with difficulty. This not only increases the pain of the procedure, but renders it imperfect. I invariably use a small knife resembling, in shape, a sharp tenotome, the blade being about three-quarters of an inch in length. I always insist that these instruments shall be brought to so keen an edge that they will pass through a test drum merely by their own weight. Where the incision is to be carried outward along the superior wall of the canal, as in cases of suppuration in the tympanic vault, a rather stronger knife should be used. Here it is also more convenient to have the blade curved like the ordinary curved sharp bistoury, the length of the blade being about the same as in the instrument already described. Proper attention to the instruments renders incision of the drum membrane much less painful than it has usually been considered. In the majority of patients, general anesthesia is unnecessary.

Regarding the after-treatment of these cases, I still favor the old plan of frequent syringing. Drainage by a strip of aseptic gauze, is the ideal procedure. When the discharge is very profuse, the dressing needs to be renewed every few hours, and this is naturally, impracticable, both in hospital and private practice. I have used both methods, and find that better results are obtained if the canal is kept free from secretion by a frequent use of the syringe. The fluid employed should be either sterilized water or a weak antiseptic solution; such as a solution of bichlorid of mercury (1–5000). The medical attendant should give special instructions as to the manner of using the syringe, and see that these instructions are followed to the letter. The column of fluid introduced into the canal cleanses it from the discharge which has accumulated there, and, on account of its antiseptic properties, keeps the parts thoroughly aseptic until the ear is again cleansed. The frequency with which the syringe is to be used depends upon the amount of discharge. In infants, it is often necessary to repeat the procedure every two hours. In adults, once in three or four hours is usually sufficient. As the discharge diminishes, this interval is prolonged, and the irrigation is discontinued altogether when the discharge has ceased. It is stated by some that this plan of treatment is absolutely dangerous, and has occasionally been responsible for the unfavorable course pursued by the disease. The absurdity of such a statement is at once evident. If a patient is so ignorant that he can not carry out the syringing of the ear in the proper manner, much more mischief will follow the use of the gauze drain in the canal. I speak advisedly on this point, as my experience has been by no means small.

Very little need be said regarding the further treatment of these cases. An acute catarrhal otitis yields to treatment readily, unless the discharge is infected in the canal. In rare instances, it may be necessary to apply a solution of nitrate of silver, either to the external surface of the drum membrane, or even to the middle ear, before the vessels will regain their proper tone and allow the membrane to resume its normal condition. These cases are, however, exceptional. In acute suppurative cases, granulation tissue occasionally develops. Cauterization, either with a chromic acid bead or with a strong solution of silver nitrate, destroys this tissue completely, and restores the parts to their normal condition. When seen early, mastoid involvement seldom occurs.

17 W. 46th Street.

DISCUSSION.

Dr. RANDALL—It is but just that I should say a word as to the anatomy of the ear according to Leidy. Blake and others followed him by many years in adopting these divisions. Otologists do not realize as they should and must in surgical treatment, that the antrum is the posterior part of the tympanic cavity. The surgical treatment of the middle ear will have its proper basis only when these divisions are rightly realized.

Dr. Smith—Dr. Dench makes a distinction between catarrhal and other conditions. There may be a higher elevation of temperature and worse symptoms, but before we know what part of the tympanic cavity is inflamed, the point of incision seems to me not found.

INTRATYMPANIC SURGERY; ESPECIALLY IN CHRONIC PURULENT OTITIS MEDIA.

Presented in the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY CHARLES HENRY BURNETT, A.M., M.D.

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PHILADELPHIA, PA.

My experience in intratympanic surgery has been gained in 109 operations within the drum cavity, viz.: 43 operations for the relief of chonic catarrhal deafness and tinnitus, 26 for the relief of chronic tinnitus and tympanic vertigo (Ménière's symptoms) of catarrhal origin, and 30 for the relief of chronic purulency of the middle ear. In this article, however, I shall ask your attention to brief notes of the thirty purulent cases and the operations performed for the relief of this diseased condition of the ear. In all these cases various rational routine means had been employed for their amelioration before resorting to intratympanic operations. These operations have been performed upon the etherized patient, with one exception, Case 8, in which the dangling malleus was removed like a polypus with the polypus snare. The ear has been illuminated by means of a three-candle-power electric head lamp, held on the forehead, like

the ordinary forehead mirror, and supplied by a portable storage battery of six volts.

Case 1.—Miss M. of Philadelphia, age 23, a private patient. Attic suppuration and deafness in the right ear for six years. Sole perforation in the membrana flaccida. July, 1889, excision of membrana and malleus; malleus head necrosed; no trace of incus. Cessation of discharge, regeneration of membrana and great improvement in hearing the voice, from *nil* to fifteen feet, in the course of two months.

Case 2.—Miss F. D. of Philadelphia, age 48, a private patient. Chronic attic suppuration, left ear; sole perforation in the membrana flaccida. May, 1890, excision of remnant of membrana and malleus; no trace of incus; entire cessation of discharge in twelve days; improved hearing for the voice; chorda tympani irritation (metallic taste) on side of operation for six months.

Case 3.—Helen S. of Philadelphia, age 13, private patient. Chronic suppuration of the atrium of the right ear; sole perforation in the membrana tensa. June 11, 1890, membrana and malleus excised. Internal face of membrana covered with granulations; manubrium of malleus destroyed by necrosis; discharge diminished; hearing for voice improved from one foot to six feet.

Case 4.—Mr. W. H. N. of Philadelphia, age 30, private patient. Chronic suppuration of attic and atrium; perforations in the membrana flaccida and the membrana tensa. Suddenly an attack of pain and great vertigo; increased deafness. June 17, 1890, the remnant of the membrana and the partly necrosed malleus excised. Cessation of discharge in the course of a year. Deafness unchanged; no return of vertigo.

Case 5.—Mrs. Chas. G. of Idaho, age 32, private patient. Chronic suppuration of the atrium, right ear. July 7, 1891, membrana and malleus excised; malleus handle necrosed up to short process; discharge ceased in two months; hearing for the voice greatly improved.

Case 6.—Rev. I. McC. of Massachusetts, age 37, private patient. Chronic attic suppuration; sole perforation in the membrana flaccida. September, 1891, membrana and malleus excised; a little pus found in the atrium; hearing for voice slightly improved; nearly total cessation of discharge in the course of a year.

Case 7.—Edna P. of Pennsylvania, age 11, private patient. Chronic suppuration of the atrium. Oct. 7, 1891, excision of the membrana and malleus; malleus handle eroded by necrosis; diminution of discharge; hearing for voice improved; death from diphtheria a month after the operation on the ear.

Case 8.—Grace H. of Philadelphia, age 20, private patient. Chronic suppuration of attic, aditus and atrium; total destruction of membrana flaccida and membrana tensa, excepting anterior half of latter to which the malleus was attached. The latter was seized by a polypus snare and removed without pain to the unetherized patient. Total cessation of discharge in a few weeks, until March, 1897, when I removed a small cholesteatomatous mass from the attic and aditus. The discharge has now ceased. There has never been any regeneration of the membrana in this case; hence the easy and perfect drainage in recent cholesteatomatous suppuration.

Case 9.—Miss E. G. of Maryland, age 20, private patient. Chronic suppuration of the atrium, and secondarily, of the attic; sole perforation in the membrana tensa, in the upper posterior quadrant; complicated by ozena. Removal of the membrana and the malleus, March, 1892. Hearing for voice slightly improved; discharge diminished.

Case 10.—B. B. of Philadelphia, age 12, hospital patient. Chronic suppuration of the atrium; sole perforation in the lower part of the membrana tensa; excision of the remnant of the membrana and malleus; cessation of purulency in the course of a month; improvement in hearing for voice from two feet to twenty feet for isolated words.

Case 11.—Dr. W. H. of Iowa, age 32, private patient. Chronic suppuration of attic; sole perforation in the membrana flaccida; hearing for the voice very poor; membrana and malleus excised Aug. 10, 1892; body of the incus was found adherent to the head of the malleus; stapes plainly visible and movable with probe; improvement in hearing from one foot to 15 feet for a whisper and diminution of the discharge after the operation.

Case 12.—Henry T. of England, age 30, hospital patient. Chronic suppuration of the atrium; sole perforation in the membrana tensa; excision of the membrana and malleus August 3, 1892. Deafness unchanged.

Case 13.—Miss Edith H. of Pennsylvania, age 16, private patient. Chronic purulent otitis media in the left ear for five years; no tinnitus; voice heard four feet; scanty offensive discharge; large posterior perforation in the membrana flaccida; malleus head and neck exposed; Nov. 30, 1892, I enlarged the perforation downward; atrium and attic found in free communication; cholesteatomatous mass as large as a pea removed from aditus after horseshoe incision about the manubrium; the latter was seized at the short process, with delicate foreign body forceps and removed alone as it was already detached by necrosis from the malleus neck; malleus neck and head found adherent to the inner surface of the scute of the squama; when removed with hook, the body of the incus was found adherent to malleus head by means of dense fibrous bands; hearing for the voice improved at once from four feet to ten feet; the discharge diminished in six months, but did not cease entirely; case withdrawn from treatment thereafter.

Case 14.—Harry P. of Philadelphia, age 9, private patient. Chronic purulent otitis media, right side, for several years; large posterior perforation in the membrana tympani with protruding polypi; Jan. 3, 1893, enlarged the perforation upward and backward; removed two polypi from region of aditus with an incus hook; after this clearance a central perforation was found in the membrana flaccida hitherto unseen and undiscoverable by a probe because of patient's great sensitiveness to touch in this region. Ligaments of malleus cut and bone removed; then the isolated long process of the incus was hooked out with the incus-hook; nearly the entire head of malleus had been destroyed by necrosis; its neck and short process were covered with fibrous bands.

This case has slowly grown better under the use of alcohol instillations and syringings. The only gain seems to be better drainage from the attic and antrum and within a year almost entire freedom from formation of polypi in the posterior part of the atrium.

Case 15.—Mrs. P. of Philadelphia, age 40, private patient. Chronic purulent otitis media in the left ear; neoplastic diaphragm with central perforation; no trace of malleus; excision of neoplastic membrana near annulus tympanicus; no trace of incus; stapes in position; cessation of discharge; improvement in hearing for the voice from one foot to six feet; regeneration of membrana without perforation in two months; remains well at present time.

Case 16.—Feb. 16, 1894; Charles M, age 15, private patient. Chronic purulent otorrhea, left ear, for many years; parents died of phthisis. Excision of thickened membrane and necrotic malleus; head of latter half destroyed; no incus found; attic filled with synechiæ and cholesteatomatous débris; lessening of discharge and improved condition of attic. Deafness unchanged.

Case 17.—March 7, 1894; Walter S., age 20, hospital patient. Copious chronic purulent discharge from the right attic and atrium; under ether removed two polypi and remnant of malleus; head of latter and part of the neck entirely eroded; nearly total cessation of discharge in a month; patient soon passed from observation.

Case 18.—March 16, 1894; Mrs. P. of New York, age 47, private patient. Chronic purulent discharge from left ear with large perforation in membrana flaccida; membrana tensa and manubrium intact and forming a pocket for pus; excision followed by entire cessation of inflammation and discharge in a year and a half. Deafness unchanged.

Case 19.—Oct. 15, 1894; Mrs. A. K., age 21, private patient. Chronic purulent otorrhea since childhood; attic and aditus involved; membrana destroyed; malleus and incus bound together by synechiæ; excised under ether; small cholesteatoma removed; hearing for the voice improved at once; total cessation of discharge in two months after operation; result has remained permanent.

Case 20.—Nov. 2, 1894; A. M., age 17, a negro, hospital patient. Chronic purulency of attic and atrium; hearing for voice two feet; large polypus removed from the right ear under ether; nearly total cessation of discharge in two months. Hearing unchanged.

Case 21.—Nov. 2, 1894; left ear of the above named patient. similar lesions; hearing for voice two feet; in the same etherization removed remnant of malleus imbedded in polypoid membrana; nearly total cessation in two months. Hearing unchanged.

Case 22.—Nov. 12, 1894; P. N., age 13, hospital patient. Chronic otorrhea, right ear, for four years; mastoid operation by another surgeon several years previous to my first inspection of case; continuance of otorrhea; membrana largely perforated; hearing on contact; under ether, excision of diseased membrana and malleus; total and permanent cessation of discharge in two weeks after operation. Hearing unchanged.

Case 23.—March 6, 1895; boy 6 years old, hospital patient. Chronic otorrhea, right ear, for some years; excision of membrana and malleus; large perforation through upper posterior wall of auditory canal into antrum large cholesteatomatous

masses removed from attic and antrum; finally opened the mastoid cells to tip of process and removed foul débris from mastoid cavity, lying below line of perforation in canal wall into the antrum; entire recovery in a month; no record of hearing.

Case 24.—June 27, 1895; Mr. F. L., age 40, private patient. Chronic otorrhea, right ear, all his life; remnant of membrana retracted and malleus drawn up into empty attic; sole perforation in the membrana tensa; no incus visible; excision of membrana and malleus; latter eroded at tip of handle and rough over entire surface; total cessation of discharge in two months; hearing for the voice improved.

Case 25.—Feb. 29, 1896; Lizzie B., age 21, hospital patient. Chronic suppuration of the attic; complains of tinnitus and vertigo; large perforation in the membrana flaccida; neck of malleus visible; membrana tensa drawn inward; excision of remnant of membrana and malleus; head of latter destroyed; no incus found; cessation of discharge in a month and relief of vertigo; hearing unchanged.

Case 26.—Oct. 20, 1896; Miss G. of Massachusetts, age 40, private patient. Chronic attic suppuration for years; excision of adherent and partly necrosed malleus; cessation of discharge and improvement in hearing for the voice from one foot to six feet.

Case 27.—Nov. 27, 1896; Master A., age 17, private patient. Chronic attic suppuration for several years; large perforation in membrana flaccida; excison of membrana tensa and the manubrium of the malleus, which had formed the outer wall of a pus pocket; cavity of tympanum filled with granulations; nearly total cessation of discharge in four months under alcohol and acetanilid; deafness unchanged as yet.

Case 28.—Dec. 10, 1896; Mrs. F., age 40, private patient. Chronic attic suppuration for years in the left ear; perforation in membrana flaccida both behind and in front of short process: membrana tensa and handle of malleus removed. Marked lessening of discharge; deafness unchanged.

Case 29.—Dec. 29, 1896; Mr. M. J. K., age 30, private patient. Chronic attic suppuration after typhoid fever six years previous. Excision of membrana tensa and handle of the hammer; atrium free from disease; copious discharge from region of attic and aditus; lessening of discharge up to present time; deafness unchanged as yet.

Case 30.—March 27, 1897; Louis L., age 16, private patient. Chronic attic suppuration for eight years; large perforation into attic and aditus; membrana tensa and handle of malleus intact; scanty, thick and offensive discharge from attic; excision of membrana and manubrium; head of hammer eroded; atrium free from disease; bichlorid syringing for four weeks and then an alcoholic solution of acetanilid to May 10, when discharge ceased.

Total cessation of discharge occurred in fifteen cases, marked diminution in seven, and diminution simply in eight. Total cessation of discharge occurred five times within two months, three times in one month; four times in two weeks, and once in a year and once in a year and a half. In the cases tabulated as "marked diminution" the favorable change took place promptly. The ultimate results in several cases are not known to me as they have passed from observation, while two are still under treatment as they have been recently operated upon and it is hoped they will be added soon to the list of totally cured. In those tabulated as simply "diminished discharge," two have recently been operated upon and are still under treatment.

The physical appearances in all cases have improved even when the discharge has not ceased. Granulations have ceased to form, and the discharge has become more mucous than purulent. The hearing improved in eighteen cases, was unchanged in eleven, in which the atrium was the principal seat of disease, and in one case, that of a child of 6, the hearing was unrecorded. The attic alone was affected in nine, the atrium alone in seven, and the attic and atrium together in fourteen cases. Marked ear vertigo was present in Cases 4, and 25; it was due in Case 4, in my opinion, to an irruption of the chronic purulency into the vestibule, through the foot-plate of the stapes. This was demonstrated by the total deafness to all tests, in this ear after the cessation of inflammation and discharge. In Case 25, the ear vertigo was due to irritation about the stapes. In no instance has the stapes been resected or removed.

Alcohol instillations or alcoholic solutions of boric acid or acetanilid have proved most efficient in after treatment, as long as any signs of granulations were present. After these had ceased to form and the mucous membrane had become smooth, a solution of carbolic acid (2½ per cent.) or a solution of bichlorid (1–6000) acted best. In some instances when the discharge had become slight, simply mopping the fundus of the canal with absorbent cotton slightly singed seemed to perfect the cure. Case 14, has proved to be the most obstinate I have encountered; however, under the use of alcohol syringing at home, and alcohol moppings at my hand, granulations and small polypi have ceased to form in the attic and aditus. While preparing this article, Case 8 has had a recurrence of pain in her ear followed by the detachment of a lamellated mass of epithelium from the attic. The fundus is again entirely free from granulations and nearly dry under bichlorid mopping at my hand. When total cessation has occurred we may conclude that the disease was limited to the drum cavity and possibly the aditus. In those cases where the discharge has not materially lessened we may conclude that parts deeper in the mastoid have been and are still affected; perhaps less, however, than before drainage and antisepsis were improved by the operation. No case has been made worse by the operation, not even temporarily. Simply long continuance of the otorrhea in any of the cases noted above would justify a consideration of exposure of the middle ear cavities through the mastoid, as would also any appearance of so-called mastoid symptoms, which not one of them has shown since the operation on the drum cavity. The latter fact I think proves conclusively that so-called "excision" in chronic purulency of the ear by perfecting drainage from the attic and antrum, and facilitating antisepsis of these parts, tends to ward-off mastoid caries, sinus-phlebitis, cerebral abscess and pyemia, and should therefore precede any operation on or through the mastoid simply for the cure of chronic purulency of the middle ear spaces, especially in the absence of any urgent symptoms of mastoid necrosis and pain.

Certainly mastoid trepanation for the cure of chronic purulency of the middle ear will not succeed if the diseased tissues are not removed from the drum cavity at the same time, whereas purulency from the middle ear which has continued after a mastoid trepanation without excision of the diseased middle ear structures, will cease as soon as the latter operation is performed, as exemplified in case 22.

The hearing has been improved in fifteen cases, unaltered in ten, and in five instances it has been unrecorded. Among the cases of unaltered hearing are four recently operated upon; it is hoped they may be finally classed with those improved in hearing. Improvement in hearing has occurred seven times in which the attic alone was affected; six times in which the atrium alone was affected, and twice in instances of disease of both attic and atrium.

127 South 18th Street.

Let us defeat the Antivivisection Bill!

SOCIETY PROCEEDINGS.

The San Francisco Medico-Chirurgical Society.

Regular Meeting Feb. 7, 1898.

President, F. B. Carpenter, M.D., in the chair.

After the transaction of routine business, Dr. Clinton Cushing read a paper on the subject of

CHOLELIATHIASIS

entitled a "Report of Two Cases of Cholecystectomy," in which paper the technique of the work was the main feature.

Dr. L. C. Lane—I saw the operation in the first case. It was extremely difficult. The gall bladder was small and adherent to the liver. It tore somewhat in being severed from the attachment. The bleeding was hard to control also, but it was finally stopped by making a large black eschar with the thermal cautery. The man is now well. There was no rise of temperature after the operation. The diagnosis was in doubt—the case had the appearance seen in malignant disease; and the pain seemed characteristic of it. The physician who first saw the case, diagnosed cancer of the liver. My experience is that you know more about that, when you cut in and see. The pain is probably the most intense of any disease. The mucous membrane of the gall bladder is in folds, and is similar in arrangement to the Archimedean screw. This is claimed by some to be a means of facilitating the passage of bile.

Dr. J. O. Hirschfelder—In the case described it would seem impossible to make a diagnosis; the atrophy of the gall bladder, and the absence of icterus lead to confused ideas, and the sallow look of the patient would also have a tendency to lead me astray. But the typical cases present no difficulty in diagnosis. Internal abdominal pains, mainly in the right hypogastrium, but not clearly localized. (A cause of pain in the right side may produce pain in the left.) The characteristic symptoms is icterus, coming on about or within twelve hours after the onset of pain. No other condition will produce icterus so rapidly, and the reason is that on account of obstruction, pressure in the gall bladder rises and forces a more rapid absorption of bile into the blood. Between the attacks, sometimes, by palpation the stone may, but not often, be felt. The stone may not be found in the stools until four or five days after the pain ceases. I direct that the contents of the chamber pot be mixed with water, then well stirred and thrown upon an ordinary flour seive, and held under a running stream of water until all the material has been washed through, when the stones, if present, may be collected. If but one is found, and it is triangular in shape there are probably others not yet discharged from the intestine. In one week I have collected from a single patient fifty-six such stones.

The treatment need not necessarily be surgical. The object of treatment should be two-fold: 1, increase the secretion of bile by administration of benzoates and salicylates; 2, induce contraction of the gall bladder if possible by administration of pilocarpin; by employing deep massage; by giving the faradic current with slow interruptions. I have seen results of value with the latter method.

Dr. G. R. Hubbell—Some time ago a patient came to me, complaining of vomiting and pain in the abdomen immediately after eating. There were no other symptoms and the only sign was a tumor in the region of the pylorus. Examination of the stomach contents showed a full stomach seven hours after eating. The percentage of HCl was normal. Diagnosis was made of tumor of the pylorus. At the operation a stone was found in the common bile duct, but not closing it. The wall of the gall bladder was greatly hypertrophied and the stone had to be dissected out of the duct.

Dr. E. Rixford—In Dr. Hubbell's case, it was easy to pass a probe into the duct and reach the stone, but it could not be moved. By placing a finger in the foramen of Winslow and lifting up, the stone was dug out of the wall of the duct in which it was imbedded. The duct was closed with Lembert sutures. There was incessant hiccough for five or six days but otherwise no trouble during convalescence.

Dr. L. C. Lane—In 1854, when an interne, a woman came into my ward with a tumor of the liver. It was, in accordance with approved practice at that time, poulticed and finally opened, when a gall stone the size of a pigeon's egg was evacuated. After about three months the woman began to improve leaving behind her a legacy of gall stones amounting to nearly one hundred at the time she was discharged.

Dr. Cushing—The study of this class of cases has proven to me three things of importance:

1. The pain is not so much in the region of the gall bladder, as in the abdomen generally.

2. The gall bladder is not necessary to the life of the individual, although Bouchard says we secrete as much bile as urine.

3. When there is an inflamed and ulcerating gall bladder we may have have a low continued fever lasting for months.

Dr. C. J. Cross—Will the X-ray reveal the presence of gall stones?

Dr. Rixford—In Dr. Hubbell's case it did not. Gall stones are organic. In the radiograph the liver makes a deep shadow, the spine shows well above and below, but the site of the stones can not be distinguished from the liver shadow.

Dr. Carpenter—I have tried to get a plate by having the rays obliquely arranged so as to have as little liver substance as possible intervening, but the results were failures to locate the stones although they were found present at the operations.

Gall stones placed on the outside of the body did not show any shadow.

EXCISION OF THE TONGUE AT THE THYROID.

Dr. E. Rixford presented a patient whose tongue had been removed at the hyoid bone for malignant disease. Kocher's method had been used. Its advantage is the wide field opened by the incisions. A preliminary tracheotomy had been performed, followed by the ligation of the lingual arteries on both sides. A very little sloughing had followed the operation.

PULMONARY TUBERCULOSIS.

Dr. Rixford—I also report a case of pulmonary tuberculosis cured with oxytuberculin. The lady is very enthusiastic over the remedy of Dr. Hirschfelder, but did not wish to come to the society. The patient is a lady about 30 years of age. Several members of the family have died from tuberculosis. In 1896 she nursed her sister who died from this disease. The girl was sick about three months only. It was one of the most rapid cases I have ever seen. Soon afterward this patient became ill and came to me in April, 1897. This note was made at the time: "Both apices slightly dull; bronchial breathing in both; coughing is constant; night sweats; exhausted; gradually losing weight; temperature 99 to 101; sputum large amount and swarming with bacilli. I prescribed creasote and whisky. At the time I wanted her to submit to Dr. Hirschfelder's remedy, but she declined. She went to Auburn, on the American River, and stayed a number of months, gradually gaining strength and health. In October last she returned to San Francisco.

Her coughing, however, was very severe; sputum contained pus, but although I examined it three times, found no bacilli. Night sweats were still present and she complained of great shortness of breath. Although she was considerably improved she began the treatment with oxytuberculin, beginning with injections of 3 centimeters and gradually increasing to 10; in all she has used 500 cubic centimeters. She soon began to improve; in two weeks she noticed that her cough was less; in December there was no sputum whatever. By January 1 she had no cough, no night sweats and could run up stairs and take long walks. Recently she walked ten miles. January 16 the injections were stopped and she was discharged as cured.

I think it right that all such cases treated by this remedy should be reported, those that improve and those that do not, in order that we may add to the clinical experience with this remedy. This was a case not very far advanced, but with tuberculosis in the family history the chances of recovery were against her. There has been no return of symptoms to this time.

Dr. G. R. Hubbell—I wish to report four cases treated with oxytuberculin which are much improved.

Case 1.—Mrs. M. D., age 43, came to my office Nov. 13, 1897. No family history of phthisis. Patient caught cold in January, 1895; since then has been coughing and expectorating. From March until January, 1896, had night sweats—none since; she has had several small hemorrhages and is short of breath on the least exertion; vomits every morning. Weight in health is 135 pounds; at present, 112. On physical examination the right apex was flat to the fourth dorsal vertebra; in the left to the third; anteriorily, the right was flat to the second rib and the left to the third. There was amphoric respiration and bubbling râles of both apices. The sputum contained a large number of the bacilli of tuberculosis. Temperature was, A.M., 100; P.M., 103. Treatment with oxytuberculin was commenced at once in daily injections of 10 c.c. At the end of a week the temperature was, A.M., 99; P.M., 102. She was able to walk up two flights of stairs without stopping, which she could not do when she began treatment; her cough is better and expectoration less; she retained her food without any discomfort. She returned to her home and I heard nothing further of her.

Case 2.—Miss J. R., age 30, who came to me November 9, 1897, gave the following history: One maternal aunt died.

of phthisis. One sister died of what was called consumption of the bowels. Patient had the usual diseases of childhood; was otherwise well until December, 1896, when she caught cold and began to cough; this has continued since and has been attended with profuse expectoration, blood-tinged at one time. In April patient had night sweats. At present she has dyspnea on exertion. Physical examination: Patient is poorly developed, illy nourished and pale; cervical glands slightly enlarged; thorax is moderately long, broad, moderately arched, deep; both supra- and infra-clavicular fossæ are sunken; left side moves more than the right; flatness of the right apex posteriorly to the third dorsal vertebra; flatness of the left apex posteriorly to the second dorsal vertebra; flatness of the right apex anteriorly to the second rib; flatness of the left apex anteriorly to the second rib; amphoric respiration of the right apex with consonant râles; bronchial breathing at the left apex; râles in various parts of the right lung; otherwise the physical examination was negative. Sputum contained a large number of bacilli of tuberculosis. Temperature, A.M., 100; P.M., 102. Since November 9 she has had daily injections of 10 c.c. oxytuberculin. At present she is working nine hours a day; coughs and expectorates very little; has gained one pound in weight; her temperature is normal and she says that she feels well.

Case 3.—Miss H. L., age 20. I first saw the patient April 12, 1897. One sister died of phthisis. Patient was well until three months ago, when she caught cold and has been coughing and expectorating since. Her weight in health was 138 pounds; April 12 it was 127. Physical examination: Patient is well developed, well nourished but pale. Thorax well formed; left side moves slightly more than the right on deep respiration; there is dulness of the right apex to the second dorsal vertebra, posteriorly; anterior, to the clavicle; dulness of the uppermost portion of the left apex; bronchial inspiration and expiration at the left apex; sputum contains a large number of bacilli; temperature. A.M., 100; P.M., 102.4. For a month she received daily injections of 10 c.c. of oxytuberculin. At the end of that time her cough and expectoration had diminished; her night sweats ceased and she felt well enough to discontinue treatment.

Case 4.—Mrs. R. M., age 43. No heredity. Patient was well as a girl, but would always take cold easily. In June, 1892, she came to this city and took a room previously occupied for a number of years by a tubercular patient. The house was very dirty and required much cleaning and sweeping. Nov. 13, 1892, she gave birth to her first child; three weeks later night sweats commenced and about six weeks after that she began to cough and expectorate. She gained in weight subsequently, but cough continued off and on until three weeks ago, since which time it has been much worse and attended with profuse expectoration, pain in the right side and chest and dyspnea. Physical examination: Patient is moderately developed, well nourished, but slightly cyanotic. Cervical glands are slightly enlarged, thorax is moderately long, broad, moderately arched, deep; right side moves slightly less than the left; there is dulness of the right apex, posteriorly, to the second dorsal vertebra, of the left to the first; dulness of both, anteriorly, to the clavicle. Over the anterior part of the chest the percussion note is hyperresonant. The upper border of the liver dulness is at the seventh rib and the lower border of the lung moves but little on deep respiration; bronchial respiration of both apices with mucous râles; over other parts of the lungs the expiration is somewhat prolonged and over the right lung numerous râles are heard, with a faint friction sound over the lower lobe. The sputum contains a large number of bacilli: Temperature, A.M., 99; P.M., 100. For about three weeks she has had daily injections of 10 c.c. of oxytuberculin. In the beginning she raised sixteen ounces of sputum in twenty-four hours; at present she coughs a little in the morning and occasionally during the day and raises about one and a half ounces in twenty-four hours. She has gained six and one-half pounds in weight and is not short of breath on exertion; she ran four blocks without the slightest discomfort.

In passing, I will mention another patient who was far advanced in consumption, being confined to her bed and short of breath even when at rest. At the urgent solicitation of her friends and relatives and against my wishes I treated her. Improvement is marked, her color is much better and two days ago she was able to go down town.

All the cases here reported had been treated with the usual remedies for phthisis—creosote and cod liver oil without any benefit therefrom; these were not discontinued. With the exception of one case all were well advanced and yet all improved and two are well on the road to recovery. I have had the satisfaction of observing cases cured by the use of oxytuberculin and not only was the cure absolute, but none so far have relapsed. In the so-called cures with creosote and various other remedies that I have examined, there remained some faint trace of the disease, but after cure with oxytuberculin all pathologic breath sounds disappear.

Dr. C. N. ELLENWOOD—I will report a case that I have treated for eleven weeks; a girl 27 or 28 years of age who came to me Nov. 16, 1897, in the fourth stage according to Dr. Hirschfelder's classification (dyspneic at rest). She had hemorrhages with persistent coughing and profuse expectoration and this had existed for about two years. She had been a delicate girl through childhood; menstruation had been irregular and none at all for the past six or seven years; she was emaciated and weighed about 100 pounds. The left lung much flattened and contained a large cavity; vesicular murmur heard only at base; right lung dull at apex; vesicular murmurs inaudible. The sputum was loaded with bacilli. I commenced with the daily injections of 4 c.c., increasing it gradually to 11. She has had these daily now for eleven weeks. In the beginning she had to be aided in ascending a flight of stairs, while now she walks up readily. She walks fifteen blocks easily. Her cough has disappeared for the most part, coughing only at intervals of four and five days. She has an expectoration of probably one-half ounce of sputum in the morning during the occurrence of coughing. The left lung is entirely flattened and there is an immense cavity. Her night sweats have disappeared for the most part; her complexion has wonderfully improved; this was observed after the first ten days; her appetite has also improved; she relishes her food and eats three or four times as much as before the treatment was commenced. There is marked improvement in the respiratory function. The right lung is the one she breathes with for the most part; very little action takes place in the left, yet respiration is becoming more and more prolonged. Her weight has fluctuated very materially, but still she weighs more than when she began; she is cheerful now, while before she was despondent. All in all she is very much improved by the oxytuberculin treatment. The bacilli have not disappeared, although they have diminished notably. I know of nothing else that would have given as great relief to this advanced case.

Dr. LANE—In my cases and those which I have observed, I have seen no abscess or any considerable pain beyond the simple puncture of the skin by the needle; sometimes a slight pain is complained of, but by massage upon the point of injection that disappears. I have not seen the inconvenience from the puncture that some have complained of.

Dr. WILLIAM FITCH CHENEY—I have treated several cases with oxytuberculin, and one of these in particular has given positive proof of improved condition. He was well advanced in tuberculosis, with the upper third of one lung gone, bacilli in the sputum, and the patient in a pitiable condition. He had had tuberculosis for two or three years and had been under treatment by some of our well known physicians by the usual methods, the last treatment being creosote in large doses. This man began treatment with oxytuberculin in doses of 3 c.c., gradually increasing to 20. At the expiration of a month he had less dyspnea. His expectorations were easier and he was generally improved. I was not much encouraged by the improvement; furthermore, I wanted to make a test of the treatment and find out what had helped him. I then gave him codein for the cough and a mixture of cod liver oil, and told him to go a week without oxytuberculin. During that week he was not doing as well as before; still I was not satisfied, and would not put him back upon the other treatment. In three days more he returned and said that he must have oxytuberculin or he thought he would die. He was becoming very despondent; was coughing almost constantly, and at his urgent request I returned to the original treatment. Within a week he was much better. He now sleeps all night and can walk about town without the exhaustion he formerly had. I can not think that man can be made well, but he has been made comfortable. He was treated ten days with other medicines and was anything but improved till oxytuberculin was resumed.

Dr. HIRSCHFELDER—I have made distinct claims for oxytuberculin only in the first and second stages, before there is any shortness of breath on exertion; but, as these gentlemen have found, so I find in very advanced cases marked improvements occurring, and in some complete recovery from all symptoms, disappearance of the bacilli from the sputum and the return of the patient to perfect health. Where cavities are present they do not disappear but become smoother walled. In some cases the bacilli have disappeared from the sputum; the patient has lost the fever; strength has returned; there has been a gain in weight and results have been shown such as we might expect from iodid of potassium in syphilis. I might cite many confirmatory cases, but I will merely call attention to a striking

case illustrating what may be done in a field heretofore most disappointing:

J. A., aged 34, a tailor, was admitted to the City and County Hospital July 15, 1897, with the diagnosis of acute miliary tuberculosis. Dulness of the right apex to the second dorsal vertebra with bronchial respiration was found. The sputum contained large numbers of bacilli of tuberculosis. The urine, 32 ounces in quantity, with a specific gravity of 1016, was bloody and contained abundant tubercle in groups. The patient reported that he had been taken sick one week before and that he had been taken short of breath and weak. He was found to have general anasarca. His fever was high, ranging to 104 degrees. Injections of oxytuberculin were given and a rapid improvement in his condition took place. August 12 he reported that he felt better and thought he could breathe easier. His appearance was brighter. The edema soon disappeared. August 17 he got up and walked about the ward. The urine no longer contained blood nor bacilli, but the picric acid test showed a slight deposit. The fever had become lower, and September 10 the temperature became normal. Since November 14 there has been absolutely no elevation of temperature. The weight of the patient has risen from 133 pounds on August 28 to his present weight of 149 pounds. No bacilli of tuberculosis have been found in the sputum since December 30, and for two months past there has been absolutely no cough. Examination of the lungs fails to reveal the slightest sign of trouble. The urine is clear, although with Esbach's fluid a trace of albumin can be found. The patient's appearance is that of ruddy health, and he may be considered a case of cured miliary tuberculosis.

Denver and Arapahoe Medical Society.

Meeting of February 21, 1898.

THE DIAGNOSIS AND TREATMENT OF HEADACHES

was the subject for discussion. Dr. H. T. Pershing divided the various kinds of headache into groups, taking into consideration the practical convenience in every-day diagnosis: 1. Headache due to organic disease—meningeal hemorrhage, optic neuritis, myelitis, encephalitis, abscess, tumor, chronic meningitis. 2. Headache due to diseased blood vessels, arteriosclerosis, syphilitic endocarditis. 3. Due to causes outside of brain, membranes or vessels, as migraine, infectious fever, diabetes, uremia, uric acid diathesis, alcoholism, indigestion, plumbism, active or passive hyperemia, anemia, eye-strain, nasal headache, dental headache, neurasthenia and hysteria.

In treating headache due to syphilitic infection, mercury and potassium iodid should be administered, even in cases where the infection is at all doubtful. Arteriosclerosis calls glonoin in gradually increased doses to lower blood tension and for small doses of potassium iodid. Migraine is a very obstinate disease. Morbid conditions of the eye, nose, teeth, stomach or pelvic organs should be corrected, not with the view that they cause the disease, but because they irritate and exhaust the patient who is already sufficiently afflicted. The nerve treatment should be carried on during the intervals. Cannabis indica is more nearly a specific than any other drug. Beginning with one-twelfth of a grain of Herring's extract three times daily, the dose should be increased to the limits of easy toleration. The antipyretics may succeed for a few times but the dose must be rapidly increased and they soon fail to give substantial relief. The best treatment during an attack he considers to be codein and caffein. In headache due to the uric acid diathesis, the diet should be regulated. Starch should be interdicted. He has seen many cases of habitual headache permanently cured by abstinence from all forms of mush and porridge. The salicylates are as truly specific as potassium iodid, for syphilis. No antipyretics should be given in cases of neurasthenia or hysteria. The persistent use will make the general condition worse. As a sedative opium and cannabis should be administered. Iron is of use, if the hemoglobin is reduced. Mineral acids seldom do good and often do harm. In cases of extreme weakness, the rest-cure as systematized by Weir Mitchell, is of the greatest value. There can, however, be no doubt that his success is due to his personal power of controlling and happily directing the mental state of his patients. A physician who does not possess these qualities will very likely fail with the rest cure. The mental treatment of such patients is an art full of difficulties. Complete reassurance after a thorough examination is the first and most important step in a well considered course of treatment. The patient must be taught to avoid talking of sickness, and to persevere in trying to crowd out the depressing thoughts.

Dr. McLauthlin said that the majority of headaches are due to derangements of the alimentary canal, the headache being frontal and interocular tension present. The treatment should be the old reliable calomel. He does not feel that we have in the salicylate a specific in cases of uric acid diathesis. We succeed very often only to upset the stomach of our patient. In the headache of typhoid fever, quinin and alcohol should be avoided as they only increase the trouble. In chronic heart disease, aortic or mitral insufficiency, nitroglycerin will be found of advantage.

Dr. Levy spoke of the anatomy and physiology of the nose and the adjacent structures and showed how intrinsically they are connected, and therefore there is no wonder that in many cases the headache is traced to some derangement of the nasal passages or sinuses. He divided the pathologic causes into three groups, pressure, atrophy and diseases of the accessory sinuses. The atrophy which is an opposite condition to that of pressure, causes the headache by allowing the air to enter the lungs insufficiently warmed. The headache of the sphenoid sinus is quite distinct from those of the ethmoid and the antrum, the pain being localized at the center of the head and behind the eyes.

Dr. Foster discussed headache from the ophthalmologic standpoint. The weakened muscles without any organic trouble is a cause for headache. Hypermetropia, myopia, presbyopia and astigmatism were considered with reference to the one symptom of headache; glaucoma without special symptoms should not be overlooked.

Dr. Axtell spoke of the headaches due to kidney diseases. He said they were uremic, and that but few escape headache some time in their course. In any cases of migraine occurring after middle life, granular kidney should be suspected. The cause of the headache is to be found in the retention of excrementitious matters, plus thickening of the dura and pia in contracted kidney. The treatment was elimination.

Dr. Jayne took exception to the views of Dr. Pershing, who does not consider pelvic troubles causes of headache. He cited many cases which have been entirely cured from severe headaches by correcting the abnormalities in the pelvic region. He does not see any reason why the nose, the ear, the teeth should differ from pelvic organs in the causation of headache.

Dr. Warner spoke from the stomatologist's standpoint, and dwelt upon diseased pulp as a cause of headache.

Dr. Rothwell added from the leaves of his experience the headaches due to concussion where no organic trouble is perceptible, and chronic ossific meningitis. He touched upon the question whether the pain is located in the brain or in the meninges.

Dr. Hopkins considers that 90 per cent. of all cases are due to gastro intestinal derangement. In his experience he found headaches traceable to syphilis, which occurred early in the morning and were mistaken for gastric headache.

Dr. Stover mentioned the headaches due to disease of the rectum. He advocated static electricity as a therapeutic measure in headache not due to organic lesions.

Dr. Spivak reported a case of headache which was apparently due to an elongated uvula, the amputation of which relieved the patient.

Dr. Pershing, in closing the discussion, said that the difference of opinion between himself and Dr. Jayne lay in the pathology, but not in the treatment. Those who suffer from pelvic trouble are as a rule suffering at the same time from anemia and hysteria, and Dr. Jayne's cases can be explained on this ground. Besides, headaches are in a certain measure amenable to suggestive treatment. In many cases applications in the vagina or clipping the uvula are nothing else but suggestive treatment.

Drs. J. N. Hale and H. L. Taylor reported a case of partial dislocation of the occipito-atlantal articulation. A well-developed man, 26 years old, five feet ten inches high, weighing about 160 pounds, was lightly struck in the face and fell backward, striking his head upon the rail at the base of the bar at which he was drinking. He was dead before the arrival of the physicians. The postmortem showed, underneath the pia, much clotted blood. The brain was normal. The movement of the atlas by the finger inserted into the foramen magnum could be easily felt by the fingers applied posteriorly to the neck. There was no fracture. A ragged tear three-fourths of an inch long existed in the tissues binding the occipital bone to the atlas, and the right vertebral artery was entirely torn across just below the entrance to the cavity of the skull. Such cases are of extreme rarity, and only four cases are on record, those of Lassus, Palatta, Ballisson and Lariste.

Meeting of March 8, 1898.

THE RELATION OF WATER TO TYPHOID FEVER

was the subject at this meeting. The speaker of the evening,

Col. J. W. Hill, E.C., of Cincinnati, said in part: "The best informed sanitarians of Germany are firm believers in the water transmission of certain diseases, chief of which are typhoid fever and cholera, and visitors from the United States to that country who may be interested in the hygiene of water are reminded of the fact that in certain cities of Germany where the water supplies are known to be of very excellent qualities, typhoid fever is scarcely known. Dr. William Osler of the Johns Hopkins University, Baltimore, is authority for the statement that typhoid fever is so rare in Munich that enough cases can not be had to illustrate the disease in the hospital clinics. Unfortunately, no large city in the United States can boast of a lack of typhoid fever. Epidemics of typhoid have been traced to polluted water, but they are more often traced to some other dietetic substance, such as milk, oysters, water cress, etc., but in nearly every instance the source of the infection is something that has acquired its virulence from water or sewage. It is possible that the typhoid bacillus and other bacteria of sewage origin may survive for a length of time in a sewage polluted soil, but is antagonistic to our general knowledge of this and the bacilli of nitrification to suppose that two organisms of such opposite tendencies could survive in a soil where vegetation was in progress. A sodden sewage-polluted soil might be too rank for the nitrifying bacteria and at the same time furnish favorable ground for some of the bacteria of sewage origin, among which may be found b. typhosus and b. coli communis. A theory propounded, but unfortunately not expanded fully by Prof. E. Ray Lankester of Oxford University has suggested the probability that the typic typhoid bacillus has no independent existence outside of the animal body, and the colon bacillus upon the introduction into the human system becomes transformed into the conventional organism which we occasionally find in the spleen of a typhoid subject. In other words, the typhoid bacillus is an exacerbated form of b. coli communis. He points to the fact that the colon bacillus is of frequent occurrence in water used for domestic purposes, while the typhoid organism has been very rarely, if ever, found in water, and argues that a disease so prevalent as typhoid fever must have its cause in an organism better known than the typic germ of Eberth, and that that organism, in his opinion, is bacillus coli communis. The evidence to shake our belief in the water transmission of this disease is very meager, while upon the other hand, in cities like Munich, where a very excellent water-supply has been substituted for a supply known to be polluted by sewage, the typhoid fever rates have quickly fallen to a small percentage of those which prevailed before. These reductions, simply by changes in the character of the water-supply to a city, have been so great as 85 to 90 per cent., and even if the remaining typhoid can not be charged to water, it is obvious that water is responsible for the larger percentage of the cases and death rates from this disease. The colon bacillus is always in the human intestine, and if it is the primary form of the typic typhoid germ, why is it necessary to look for its origin in water? The cities of Germany are extremely solicitous about their water-supplies and of a list of 121 but one, Riga, depends wholly, and one, Frankfort, partly upon unfiltered river water. Of a total population in these cities of 13,607,000, nearly 98 per cent. either obtain their public water supplies from unexceptional sources or rely upon slow sand filtration to properly purify such water, and it is not known that the sources of the other 2 per cent. of this large population are of questionable quality. Filtration among the Germans is not limited to turbid and polluted waters like those of the Elbe and the Maas, but is applied to comparatively pure water like that of Lake Zurich and to what we would regard as very pure water, like that of the wells sunk in the sand dunes at Amsterdam and The Hague. Some people take comfort in the fact that the typhoid bacillus is not a water bacillus and can not survive in water for an indefinite or even a great length of time. It can not certainly exist in water for more than a short period, but it is capable of doing great damage even during these brief intervals of time. We might contend that the cause of typhoid fever and other so-called water-borne diseases is not certainly known, but it would be unsafe to assume that water in some undefined manner is not concerned in spreading these diseases. The fact confronts us, that with a marked improvement in the quality of a public water-supply, there is a lowering of the typhoid fever rates, and so well grounded is the belief that water is the chief agent in transmitting the organism of this and several other diseases that most investigators have abandoned search for the cause and are directing their energies toward methods of prevention. Every year a withering blast sweeps over the land, and in its wake lie thousands of human victims and tens of thousands of shattered systems. The malignity of this stalking specter may be greater one year than another, but its purpose never changes; human life is its constant prey and the flower of the land its choicest morsels. It is in our power to temper the blast and protect humanity from at least 85 per cent. of its ravages by remedies so simple that a child can understand them. Shall we do it?"

After the close of the lecture Colonel Hill illustrated by excellent stereopticon views three modes of water filtration: 1, The so-called continuous sand filter as exemplified in the filter beds of the London, Berlin and Hamburg water-works; 2, the intermittent sand filters as illustrated by the filter proposed by the Massachusetts Board of Health for the City of Lawrence; 3, the rapid mechanical sand filters used to a limited extent in this country, which requires a coagulant to make them effective in the removal of the finer suspended matter and bacteria in the water.

Col. A. A. Woodhull and Dr. Rogers followed briefly. The latter said that it was once an impression in Denver that the mountain streams contained the purest drinking water, but in many cases mountain fever, which is nothing else but typhoid fever, had been taken this way, and that twenty-five years ago when the population of Colorado was almost *nil*, and consequently could not have been ascribed to sewage pollution, the streams must have contained the germs of infection. Dr. Munn said that the success of the filter depended quite as much on the intelligence with which the filter was carried on as the method of its construction.

Maryland Public Health Association.

This meeting was held in Baltimore, Nov. 18 and 19, 1897. The sessions were held in the hall of the Medical and Chirurgical Faculty, and were presided over by Prof. Wm. H. Welch of Johns Hopkins College. The first paper was entitled

SANITARY ORDINANCES—POSTMORTEM,

by Dr. HOWARD BRATTON of Elkton. He said: Its application is hindered by: 1, legislation with penalties against uninstructed half persuaded people; 2, difference of opinion among experts and disagreements of doctors in regard to more occult beget a disbelief and indifference to less hidden dangers; 3, acquaintance with best equipped appliances beyond their reach makes them loath to inaugurate any system at all. Attempts to do too much are unwise and result in nothing at all being done. 1. Burial in a cemetery should always require a permit. 2. No burial at all in this particular cemetery or the town limits. 3. Cremation the only proper means of disposal. It is the duty of the medical profession to instruct the public on matters of disease causation. By constantly hammering on the subject of infection with the object lesson before the class they can secure the adoption of prophylactic measures indoors and out, where carelessness and ignorance are the rule rather than the exception; by health associations, by united and individual effort and popular lectures; by systematic study of hygiene and sanitary science in educational institutions. This has at least the advantage of an early start. In fundamental principles of cleanliness, drainage, ventilation, house building, the more practical fields of fixed knowledge. At a later period the questions of unsightly structures, unhealthy surroundings and immorality may be studied in the light of nature. Professors of esthetics may determine how far esthetic defects are interdependent. An unhealthy town is not necessarily immoral. Next is the need and importance of vital statistics, for foundation for health department; to attract and hold the attention of the people. Theoretic knowledge should be evidenced by practical and beneficial results; hence these must be placed before the public.

Dr. PURNELL F. SAPPINGTON of Govanstown made a report upon recent experiences with typhoid fever in Baltimore County. He alluded to soil, air and water pollution, the spread of the disease by neglect of preventive measures and improper treatment of excreta. He considers the disease chiefly caused by impure water, and treated best by cold water and care as to diet.

A member having alluded to the contamination of the drinking water by the pouring into a cesspool of a quantity of coal-oil, as having for a time compelled people to discontinue the use of the wells, but that as soon as the oil had disappeared so the water could be used, they returned to them as a supply for their houses, Mr. Chas. Hartshorne suggested the pouring into the cesspools of a quantity of permanganate of potassa, which, by producing in the infected wells the appearance of bloody water, would at once make them a source to be avoided.

The next paper was

ON POLLUTION OF SOIL AND WATER,

by Dr. J. S. FULTON, secretary of the Maryland State Board of Health. Some years ago in England a man buried a barrel

of petroleum in his orchard. A series of wells averaging sixty feet in depth, and some as far as 900 feet away, were so affected by the diffusion of the coal-oil that even the cattle would not drink the water. In some parts of Maryland 90 per cent. of the private wells are found chemically unfit for use. In other parts a less proportion, but nowhere are so many as half the wells free from organic pollution. If the misuse which man makes of what he calls his land were permitted to work out its logical conclusions, the race would be extinguished. Man stupidly pours into his land as many as he has of the ingredients of a fatal prescription. Luckily, he is apt to lack the one thing necessary to complete the poison. When he possesses the deadly germ he flings it with the rest into the ground and feels no concern as to results. The consequences are more merciful than his conduct. He scatters, like a prodigal, the seeds of death, but kind mother Nature refuses the crop. He befouls the earth wherever he goes, but the sunlight, air, rain and countless hosts of living things are constantly busy cleaning up after him. It is only when he supplies more and worse dirt than these combined agencies can remove that outraged nature exacts the extreme penalty. The amount of scavengering accomplished by these silent, ceaseless forces is incalculable. Chemic examinations of the soil around and beneath old vaults show, in some instances, that within a surprisingly short distance the soil is pure. Widal and others poured quantities of pathogenic germs upon the earth at Granvilliers, and found that they rapidly perished. The bacteria of the soil are as a rule confined to a zone of from a meter to a meter and a half deep. The organisms of the upper earth are mortal enemies of the disease bacteria. Few disease germs have a good chance to survive in the soil under the changed conditions and in competition with the hardier organisms at home there. Direct sunlight is fatal to many species of bacteria. Drying kills many germs, while others are borne to destruction as dust in the air currents. Only a few harmful organisms, mainly those bearing spores, are able to withstand sunshine and dessication. The breeze which disperses a myriad of dried and inert plants may drop a few into soil fitted for their renewed activity. The sun, whose rays shriveled millions, warms hundreds into growth and releases other hundreds from the clutch of frost. The rain which buries some in the inhospitable depths of earth or sea, gives living drink to a parched few, and trickles into your well, supplying at the same time nitrogen upon which they feed. A vertical drain draws from an area having somewhat the shape of an inverted cone. How long its radius at the base may be is indicated by the coal-oil incident. Experiments have been made to determine the deeper radii, and it has been found that the angle of the drainage cone varies with the character of the soil and the rate of pumping. In fine sand, to pump out a foot of water depresses another well in the same stratum at a distance of twenty feet. In fine gravel, to pump out one foot affects a well twenty-two feet away. In chalk, one foot of depression is felt at fifty-seven feet; in sandstone at 143 feet, and in coarse gravel at 160 feet. If water levels are disturbed at such great distances, then the drainage area must be wider at the surface than the coal-oil incident would indicate. That observation shows that upon such soil nine wells would drain a mile. A Baltimore brewer, who tired of buying water at meter rates, sank an artesian well, securing a fine flow. Another brewer, inspired by his neighbor's success, drove a pipe to the same depth and the first brewer's water disappeared, never to return. These observations all show that among a series of wells there are oscillations of current in the common water-supply, the direction of the stream being deflected toward one well or another as each in turn is used. If A uses 200 gallons in the morning, he gets part of the water of B's well one hundred feet away. In the afternoon B pumps 200 gallons, A's well being drawn upon for part of that amount. As the well is filled by the draining from every direction, so from the points of deposit, human waste is dispersed in every direction. It is customary to set apart two or three spots for the collection of these matters, but it is questionable whether in many instances the soil is not more widely polluted than it would be by indiscriminate distribution. Where deposit on the surface is practiced, ordinary care being used to prevent undue accumulation, the area of impure soil is usually neither wide nor deep. Under favorable conditions the bacteria in the surface soil do all the necessary purifying. Sometimes even under unfavorable circumstances, as under and around long-used vaults, the pollution of the soil has been found to extend not further than six or seven feet. This must not be taken as a general rule, however, for there is a saturation point for all soils, and as the bacteria, like other plants, have their seasons, the saturation point is variable. The barriers may easily be passed, and when this occurs, soluble impurities will sink through the soil in ever widening circles. The area of pollution has a conical shape, base down. The width of the angle of pollution will depend upon the nature of the soil and upon its humidity. A wet soil diffuses chemic impurities widely. In a dry soil they sink more deeply. Impervious strata may conduct foul matter for long distances laterally. It is thus made plain that the attraction between accumulations of filth near the surface and the water in deep wells is mutual. The well exerts a steady pull, and the surface filth a steady push. Up to a high dilution, water increases the danger of soil contamination. For that reason, most pits are worse than surface closets. Shallow pits are good putrefaction vats, and in this process most of the contents become soluble. Cemented pits, if frequently cleaned are, so long as they remain water-tight, not offensive. But cement is soluble in sewage and the efficiency fails in a year or two. To remain water-tight, pits should be surrounded by at least a foot of well puddled clay. The grease from kitchen waste will preserve cement and keep a pit water-tight indefinitely. To the average suburban builder that is the chief reason for not admitting kitchen waste to the pit. Where water-closets are used, tight pits fill up very rapidly, and where sewer connections are impossible the expense of cleaning is a burden. This has led to the reprehensible practice of constructing cesspits of rough stone loosely laid in porous soil. Such rarely or never fill up and are said to be self-cleansing. They distribute vast volumes of foul water into the surrounding soil to be cared for by such agencies as chance or nature may provide, but so far from being self-cleansing, they are all befouling contrivances. Fifteen gallons or so of water with every discharge of the flush tank disperses filth much more widely through the soil than does the slow filtration of an ordinary vault or surface closet. When the service pipes of a water company are introduced into a house, the forsaken well is converted to a new purpose. The waste-pipes from closet and bath room are turned into it and it becomes the cesspit. It is a most economic procedure. The well is dug to running water and the local well-digger will tell you that all the wells in the neighborhood have a very perceptible current from northwest to southeast. Thus without scruple the subterranean stream, which is for many people the only water supply, is befouled.

Prof. A. C. Abbott of Philadelphia gave a very interesting lecture upon

DISINFECTION.

He mentioned the use of sulphur, its value when burning in the presence of water so as to be thoroughly oxygenized. To be effective, the agent, no matter what it is, must be brought into contact with the article to be disinfected. Carbolic acid spray he considered valuable though not effective. The cheapest is ordinary white wash. It is not poisonous, nor injurious to furniture or clothing. Corrosive sublimate is undoubtedly effective, but highly dangerous. Heat is a valuable disinfectant in all cases. The utmost precaution is needed to prevent the spread of disease germs from the sick room, generally by carelessness of the attendants. In all cases of infectious disease the patient should be isolated so thoroughly that no article from the sickroom can carry out the germs. Clothing should be soaked in carbolic acid solution before being sent to the laundry. When the patient is well, before being removed his body should be well cleansed and clothed in fresh clothing, before leaving the room. If he dies, then the body should be made completely free from the possibility of conveying the disease in its progress to the grave or other disposal, and in either case, the sick-room must be cleansed as to the furniture, hangings, etc., and disinfection practiced so as to make it impossible for another to contract the disease by using the room. Under all circumstances, such a room should not be used for at least twenty-four hours after the removal of the case.

Dr. W. Royal Stokes of Baltimore followed with a paper on

DISINFECTANTS.

He alluded to a few fundamental facts as to the objects which these agents are directed, then said: The outcome of our experiments has been the discovery of two important methods of destroying bacteria or, as it is technically called, disinfection. 1. By physical agents; 2. By chemic agents. Heat is perhaps the most efficient physical disinfectant, and when infected materials are of little value this actual destruction of, by burning, is the surest way. So radical a method has a limited scope, but we may in many instances apply heat and destroy the infection without injuring the infected material. Experiments have shown that disease germs are all destroyed by exposure to a temperature of 212 degrees or steam-heat for one hour.

In case apparatus specially designed for this purpose is not available, such materials can be rendered harmless by boiling for about one hour in ordinary boilers. Though such measures

are sufficient for the ordinary household, it is often necessary in large hospitals, or at quarantine stations, to sterilize a great quantity of bulky goods at one time. Mattresses, pillows, clothing, blankets are placed in a steam-chamber and exposed to steam-heat until disinfected. Sunlight is Nature's disinfectant, and experiments have shown that direct exposure to its rays for a few hours will destroy such germs as tuberculosis, typhoid fever and diphtheria. The old method of exposing infected linen, carpets, etc., to the sun has thus been proven of value, and the rays of the sun must often destroy many of the bacteria present in infected hospital wards. This influence also is beneficial in destroying many of the bacteria deposited upon the surface of the earth, and even the upper layers of rivers must be somewhat purified by this agent.

The expectoration of consumptives should be deposited in a covered cup containing 5 per cent. solution carbolic acid, which soon kills the bacillus. The sputum can also be discharged into pasteboard boxes made for the purpose and cheap enough to be burned. Towels, handkerchiefs and all soiled linen from consumptives should be boiled or soaked in carbolic acid for twelve hours before being used again. The room should be dusted with cloth dampened with a weak carbolic acid solution in order to prevent the dust from rising, as well as to destroy the germs. Carpets should be swept with a damp cloth broom. For such diseases as typhoid fever, Asiatic cholera, where the intestinal discharges contain the infective germs, the stools should be immediately disinfected by pouring upon them an equal quantity of a 5 per cent. solution of carbolic acid, which should remain in mixture with the infectious material for an hour, before the vessel is emptied. The hands of nurses should be carefully disinfected after attendance upon the sick. Soiled linen should also be sterilized or burned. In diphtheria the discharges from the nose and throat are the chief vehicles of infection, and these can be received upon old linen cloths which are at once burned. If there is much expectoration it should be received in vessels containing carbolic acid solution. Bed clothing or linen which has been soiled by these secretions should be boiled, or disinfected by means of the last named solution. All articles which come in contact with the patient's mouth should be used exclusively by the patient and then carefully sterilized by boiling in a solution of common soda.

In such diseases as measles, scarlet fever, and smallpox, the same general precautions against the spread of the disease should be observed. All receptacles for intestinal discharges or urine should be cleaned by frequent flushings of water, and also occasionally disinfected with chlorid of lime. This is also an excellent material for the purification of the privy vaults or wells. It should also be used in large quantities upon garbage deposits or other collections of decomposing material. Streets and gutters should be frequently flushed with chlorid of lime. Formaldehyde gas destroys the germs of all these diseases. The gas is not poisonous, though extremely irritating to the mucous membrane of the eyes or respiratory tract. This may be avoided by rapidly opening the windows without drawing a full breath in the room, and by wearing closely fitting goggles.

(To be continued.)

SELECTIONS.

Soil Conditions and their Practical Relations to Tuberculosis and Other Infectious Diseases.—Dr. W. H. Welch, in the Baltimore *Health Magazine* (January) discusses the fate of pathogenic organisms which find their way into the soil. Although the nature of the relationship between the conditions of the ground and the prevalence of tuberculosis is not well understood, practical experience has shown that many localities have secured by good drainage of the soil, great reduction in the mortality from this most deadly scourge of the human race, a reduction amounting in some places to nearly 50 per cent. of the former death rate. Similar measures in Berlin and elsewhere have notably lowered the mortality among infants, particularly from summer diarrhea. Having once reached the soil, disease-producing germs may be conveyed to us in manifold ways. An important medium of transportation of bacteria from an infected soil is the water which we drink or use for domestic purposes. Among the various other ways by which harmful bacteria may reach us from contaminated ground it will suffice to specify their conveyance attached to particles of dust in the air, their transportation by flies and other insects, and by domestic animals, their presence upon vegetables, especially those eaten uncooked, and our own direct contact with the soil. It is evident that the possibilities of infection from soil contaminated with disease germs are numerous and often intricate. The list of diseases whose causation has been shown to stand under certain conditions in more or less direct relation to contamination of the ground with their specific germs is a long one. Among the more important may be mentioned malaria, typhoid fever, cholera, yellow fever, dysentery, tuberculosis and the summer diarrheas of infants. Experience teaches, unmistakably, that contamination with the soil with organic refuse favors the development and spread of such diseases as these, and that drainage and purification of the soil by proper systems of sewerage are among the most effective measures for their prevention. No more instructive illustration of the value of modern methods of public sanitation can be found than the inability of Asiatic cholera to secure a foothold during the last two European epidemics, in clean cities, with proper sewerage and water-supply, and its ravages in notoriously filthy or insanitary cities, such as Toulon, Marseilles, Naples and formerly Hamburg. Authorities have differed as to the relative value of sewerage and of water-supply in influencing the prevalence of typhoid fever. We need not pause here to discuss this matter. Both factors are important, the drinking water usually the more important. But it is sufficient for our purpose to show that purification of the ground by proper disposal of sewage is one of the factors in determining a reduction in the occurrence of typhoid fever and other diseases. It is by no means an easy matter in all cases to assign to each one of the various recognized elements which go to make up an entire system of satisfactory municipal sanitation its due share in the beneficial result, for it rarely happens that one is introduced by itself alone, and the harmonious working of the whole system is often necessary to secure the best results from the individual factors, such as pure water-supply, efficient sewerage, good drainage, cleanliness of streets, improvement or removal of insanitary quarters, thorough sanitary inspection of dairies and food stuffs, public disinfecting establishments, hospital for infectious diseases, municipal laboratories, etc. In some instances, however, the conditions have been such as to furnish conclusive demonstration of the separate influence of the introduction of effective sewerage upon the death rate from typhoid fever.

A Modern Paladin and a Victor.—The *Scalpel* for November has a portrait of Mr. Victor Horsley of London, who was recently elected to the General Medical Council of his country. With it is a brief account of his professional qualifications and some facts relating to the vote that was cast at the election that made him one of the "direct" representatives of his fellows. The voting is done by mail. The number of ballots, or voting papers, sent out was 22,576. The voters returned 13,500, or 60 per cent. of these ballots within the proper time; 1050 ballots were too late or miscarried; 130 were defective; while 8061 or 35 per cent. were ignored. In other words, more than one-third of the electors appeared to be indifferent or not to take sufficient interest in the matter to cast its ballot. Mr. Horsley received 6946 votes; Sir Walter Foster 6112; the majority being 834. There were other candidates, but the balloting virtually concentrated on the two leaders. Mr. Horsley is classed as a London consultant surgeon rather than as a general practitioner, a fact that seems to be in the minds of some a root of bitterness; this possibly militated against a larger vote for him among the rural voters. Mr. Horsley's strong hold upon the profession appears to have come about in consequence of his ardor and efficient work in the Medical Defence Union. Mr. Horsley states that he will resign at the end of four years of his term, that being regularly for five years, in order to save the great expense that special elections involve, thus bringing

to one balloting all the general representative candidatures for the five year period next ensuing. One writer not overconfident in Mr. Horsley's soundness of judgment has said of him that he is one of the most brilliant men in the profession, with the great advantage of youth. He has so distinguished himself in science as to have been elected, in early life, a Fellow of the Royal Society, and in surgery as to be one of its most original and enlightened leaders. Nevertheless, he has always manifested the utmost sympathy with the general practitioner and he has displayed for years the most keen interest in defending medical men from all unfair conditions and unjust laws. He has, as President of the Medical Defence Union, acquired an almost unrivaled knowledge of the weak spots in the Medical Acts and the deepest sense of what is required for the honor of medical practice. He speaks with great clearness and force. He is, in short, a very strong personality. Has he no faults? He has the very faults of his virtues; he is impulsive. Sometimes he is prejudiced and occasionally rather too aggressive. He is apt to be borne along with the very impetuosity of his perceptions and convictions. He may not improperly be styled a modern medical Paladin, for like the champions of yore, he is ready whenever necessary to march into the enemy's country, and he has proved himself to be a hard hitter when the time for the encounter has arrived.

The Woerishofen Water-Cure.—The death of Pfarrer Kneipp has not closed his establishment. Among those who will try to hold together his important *clientèle* are his pupils Dr. Baumgarten, Prior Reile and Dr. Mahr. A letter-writer from Woerishofen states there are over 2000 patients taking treatment at that place. Dr. Baumgarten is a Prussian from the Rhine district. He is quick, energetic, and has the perseverance of the Prussian. For six years he studied and practiced the cure under the eye of Father Kneipp. He is a firm believer in it. His knowledge of German, French and English, together with his knowledge of the cure, brings him a large number of patients. After the doctor comes the prior, or rector of the Brothers of St. John, who, thirty in number, have charge of the large *Kurhaus* in Woerishofen. Prior Reile is his name. Six or eight years ago Father Kneipp determined to perpetuate his cure in Woerishofen by means of some religious order which would reside and always remain in Woerishofen. The order of the Brothers of St. John, who have many hospitals in Europe, accepted the offer to continue the cure. Father Kneipp built a very large *Kurhaus*, gave it to the brothers, and the general of the society placed the brothers of the *Kurhaus* under the direction of one of them, who was called Prior Reile. The prior was given the duty to heal all people who applied to Father Kneipp by letter. The prior often received 200 letters a day. He gathered around him a corps of clerks to take charge of the large correspondence during the last six years, while Dr. Baumgarten has been practicing the cure in the village. The business of the prior became such that it was found to be necessary for him to have the aid of a physician to help him to correspond about the cases brought before him. Dr. Mahr, a Bavarian, was brought from Munich, who also learned the cure from Father Kneipp; so that today Woerishofen has three men who have studied the cure under its inventor, and have practiced it under his direction. At present each of them has his own *clientele*, and their respective patients are more or less satisfied. Two thousand five hundred kur-guests are here from all countries, together with a sprinkling of the princelings and nobility of Europe, many of whom stand in need of the open air life and somewhat dogmatic handling and discipline to which they are pleased to subject themselves for a longer or shorter period. It may fairly be assumed that this "cure" will survive the loss of its founder about five years longer.

PRACTICAL NOTES.

Puncture of the Heart in Case of Air in the Veins.—Bégouin found that dogs and rabbits dying from asphyxia caused by the introduction of air into the veins were relieved and saved by puncturing the right ventricle, in which he concludes that the air accumulates. He suggests that human lives might be saved also in this way under similar circumstances.—*Klin. Therap. Woch.*, January 30.

Bouginage.—Dilating the Eustachian tube with a bougie introduced through a catheter, Grossard has found efficacious in curing tinnitus in 150 cases, applied three times a week for one to four weeks. It also improved the hearing in many.—*Presse Méd.*, January 26.

Carbolic Injections in Anthrax Infections.—A man with eczema of the ear became infected with virulent anthrax infection at the spot; fever, 104 degrees. In view of the threatening symptoms Natale treated the case with injections in the parenchyma of the part affected with a 2 per cent. aqueous solution of carbolic acid. The fever declined at once and in four weeks nothing was left but a small scar on the ear.—*Gaz. de Osp. e d. Clin.*, January 30.

Introduction of Mydriatics and Myotics into the Eye by Electricity.—In the cases in which the iris is rebellious to the action of atropin or eserin, if an electric current is passed through the eye, moistened with the solution, the effect of the drug becomes apparent at once. A current of two or three ampères will cause the absorption of a sufficient amount of a 1 to 300 solution to produce the desired result.—*Arch. d'Elec. Méd.*, June 25, 1897.

Disinfection of the Intestines.—In the disappointing search for a truly effective disinfectant, Lowenthal advises the investigation of the urine as a test for products of intestinal putrefaction. He has obtained with amiloform, which is decomposed in the intestines, developing formaldehyde, a marked diminution in the putrefactive processes in the intestines. It also acts as an intestinal astringent.—*Berlin. klin. Woch.*, 1897, 49.

The Arterial Pressure in the Early Diagnosis of Tuberculosis.—A comparative study of the records of cases of chloro-anemia and tuberculosis at the Paris Charité for many years, all showing subnormal arterial pressure, has impressed upon Papillon the fact which he announces as a suggestion to others, *i.e.*, that when the radical arterial pressure of a chloro anemic patient is below 13 centimeters (Potain's sphygmomanometer), there is grave reason to suppose that she has incipient tuberculosis.—*Semaine Méd.*, January 22.

Iodoform in the Broncho-pneumonia of Measles.—Iodoform, 50 centigrams; cod-liver oil, 100 grams; spirit of anise, 2 grams. Commence with two teaspoons a day, increasing with the tolerance of the child. Combine with it inhalations of iodoformed turpentine. Gambardella reports that with this treatment the pulmonary symptoms and fever rapidly passed away, even when commenced tardily.—*Gaz. de Osp. e d. Clin.*, January 30.

The Constipating Effect of Atropin has been confirmed by G. Traversa by a series of experiments on horses and dogs. He therefore suggests that belladonna and its alkaloid are counter-indicated in constipation in man caused by atony of the intestines, but on the other hand they are logically indicated in saturnine colic in which the constipation is produced by spasmodic contractions of the intestines.—*Sem. Méd.*, January 22.

Intestinal Invagination in Infants.—Cordua reports twelve cases; two were cured by energetic massage, anemas and the insufflation of air. Five recovered out of seven operated on during the first two days; two died from shock. Three were operated after the second day, all dying from gangrene and consecutive peritonitis. From a review of 184 cases in literature, he concludes that in operating great care must be practiced to avoid hernia later. In a case of gangrene there should be resection, enterotomy, entero-anastomosis, but infants under a year can not stand such a serious operation and those over a year but little better.—*Gaz. de Osp. e d. Clin.*, January 27.

Double Hyposulphite of Sodium and Mercury in Syphilis.—A. Miceli states that he has been very successful with hypodermic injections of a solution containing 1 centigram of double hyposulphite of sodium and mercury to 1 c.c., the usual dose. This corresponds to 9 milligrams of metallic mercury, a larger amount than the 1 per cent. solutions of other hydrargyrics. The injections were very slightly, if at all, painful and no secondary effects were observed in the fifteen cases treated, while the therapeutic effects were prompt and patients gained in weight.—*Semaine Méd.*, February 2.

Agar Jelly in Dermatology has been found extremely useful as it dries and can not be rubbed off, while easily removed with water. No bandage is required, and it is not necessary to heat the jelly. Another advantage over gelatin is its non-retractility. For erysipelas Gallois prepares a jelly with water 100 grams; gelose, 1 gram; corrosive sublimate and tartaric acid, āā 10 centigrams. For external use. A thin layer is applied to the parts, renewed several times a day.—*Semaine Méd.*, February 2.

Quinin in Gonorrheal Arthritis.—Local applications are usually recommended, fomentations of turpentine possibly the most typic, but Maragliano administers quinin hypodermically and internally, as he considers it the best remedy against infections in general and also because the results of certain research seem to indicate that it has a specific action on the gonococcus. He rejects Bouchard's "pseudo-rheumatism" and Gerhardt's "rheumatoid arthritis," and endorses calling these arthritic affections by the name of the inducing affection.—*Gaz. de Osp. e d. Clin.*, February 6.

Glycosuria in Diabetes at Different Hours During the Day.—F. Schupper has been testing the glycosuria in the urine of diabetics at different hours and finds that the maximum is invariably between eight and ten in the morning, and the minimum during the evening and night. These results indicate that the patient can better support farinaceous substances inwards at night, and that test meals and examinations should be made early in the morning to determine the height of the pathologic process.—*Bul. d. Soc. Lancis. d. Osp. J.*, xxvii, 2.

Success of Injections of Calomel in Lupus.—Especially in old, tuberculous, ulcerating lupus, injections of five centigrams every tenth day produced remarkable cures, the improvement evident from the first. The lymphatic infiltration and exudation processes were arrested and retrogressed. Twenty-five cases are described in the *Ann. de Derm. et de Syph.* of January by Asselbergs, who considers calomel injections a most valuable adjuvant to the usual treatment. He observes that his success in the genuine non-syphilitic lupus deprives calomel injections of their hitherto assumed values as a diagnostic measure in syphilis.

Paraffined Gloves and Hands in Surgery.—C. Menge not only uses the lisle thread gloves recommended by Mikulicz, but he renders them impermeable to liquids, while retaining their flexibility, by dipping them into alcohol after they are well dried in the oven, then into pure xylol and then into xylol containing ten grams of soft paraffin in solution to each 100 c.c. This solution is slightly warmed and the gloves remain in it fifteen minutes, when they are wrung out and dried again. They can afterwards be sterilized in steam. He also recommends rinsing the hands in the paraffined xylol after the usual alcohol-sublimate toilet, wiping as usual. The hands shine then a little as if varnished, but they are no more slippery than usual, and there is no unpleasant sensation from it. He proceeds then directly to his operation, or puts on the paraffined gloves outside.—*Semaine Méd.*, February 2.

Faure's Method of Suturing Hernias Without Buried Stitches.—J. L. Faure has improved on the Duplay and Cazin method described in the JOURNAL (Vol. xxvii, No. 26), by utilizing the split hernial sac for threads to suture the inguinal ring. The sac is slit its entire length into two pieces, and these are tied in a double knot which closes the peritoneum. The two ends are then passed back and forth through the tissues, lacing up the canal, and tied in a double knot at the other end. This method can only be applied when the sac is of a certain size and firmness, but in these conditions it proves more than satisfactory.—*Presse Méd.*, January 2.

Antipyrin for Diagnosticating Kidney Diseases.—Dr. L. Bremer, in a paper read before the St. Louis Medical Society, has expressed the belief that he has discovered a new method of diagnosing diabetic, pancreatic and kidney diseases by reason of the affinity of the blood and secretion of a diabetic patient for certain anilin dyes. His experiments demonstrated that the secretion of a healthy person has an absolute antipathy for the dye known as gentian violet. When the dye was poured into the secretion of a healthy person it remained floating upon the surface. When the same dye was poured into the diabetic urine it dissolved instantly and colored the whole fluid. The reaction of the dyes and acids upon the unhealthy secretions was most remarkable, showing the colors and sequence of the real spectrum, beginning with red at the base and ending with dark blue and white at the top. The blood of the subjects was affected in the same manner as the urine.—*Western Druggist.*

Flexion of the Spinal Cord Instead of Suspension in Tabes.—Eulenburg rather ridicules re-educating appliances, and advocates strongly the new substitute for suspension, stretching the spinal cord by bending the trunk forward at an acute angle with artificial, gradually increasing pressure (Gilles de la Tourrette and Chipault). The patient sits with outstretched legs on a long, low table. A couple of leather straps are fastened to the edge of the table and pass around the trunk in a figure of of eight, crossing in front of the epigastrium and in the rear over the upper dorsal vertebræ. The ends hanging over the shoulders are fastened to a cross-bar, attached by a rope running over a drum, to a turning crank below. Pressure is regulated with a dynamometer. Applied for five minutes or longer, two or three times a week, he has not observed any inconveniences in his four months experience. It seems to be supported by the patients much better than suspension. The benefit was evident in the improvement in the ataxia and the disappearance of the lancinating pain, etc.—*Deu. Med. Woch.*, February 3.

Eucain as a Local Anesthetic.—At the Montreal meeting of the British Medical Association, Drs. Horne and Yearsley gave the results of the use of eucain as a local anesthetic in one hundred consecutive cases. The cases had to do with operations on the ear, nose and throat and are enumerated in the *Therapist* of January 15. They recommended 5 grain soloids of eucain hydrochlorid from which to prepare fresh solutions. For the examinations a 4 per cent. solution was used, and for the operations an 8 per cent. Upon the method of applying the drug depended largely the amount of anesthesia produced. It was found that in the case of the ear, a few drops instilled and kept in contact with the part to be operated on, by inclining the head, was more efficient than the use of saturated pledgets. The reverse was the case with the nose. The pulse was not materially affected in either rate or character, and in not a single case was there evidence that the cardiac action was influenced by the drug *per se*. It is true that eucain induces hyperemia on application to the mucous membrane, but this rapidly passes off, and in no case was there excessive hemorrhage following operations under eucain and not commonly met with in the use of cocain. It was found that in the presence of acutely inflamed tissue, *e. g.*, acute tonsillitis, pharyngitis, etc., there was an increased flow of saliva, but in a non-inflamed tissue this effect was not produced. As to the disturbances of sensation, more particularly in the case of the pharynx, eucain was less unpleasant and less marked than cocain, but more transient, subjective sensations being normal in about an hour.

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SATURDAY, MARCH 19, 1898.

LOCALIZED INFECTIOUS DISEASES AS A SEQUENCE OF SLIGHT INJURIES.

Medical witnesses and attorneys are very frequently called upon to consider the claims of persons who having been more or less severely injured by an accident, attribute the subsequent state of their health entirely to this cause and bring suit against the railroad company, or the parties causing the injury, for damages. In a certain proportion of cases it is a well recognized fact that the claims of the plaintiff do not hold good. In some instances, for various legal reasons, he is non-suited and in others is defeated even if the case goes on trial. In still other instances, the trial having been completed, the jury awards damages which may or may not be in excess of the requirements of justice. With those instances where the patient's health and activities are permanently and directly impaired by an injury received from the carelessness of a common carrier, we shall not deal. Our interest, in this editorial, centers rather upon those cases in which no serious external manifestation of the injury exists, and yet immediately following the accident grave disease or perversion of function in some of the internal organs develops.

One manifestation of internal injury without marked external symptoms is so familiar to physicians and lawyers that it need not be considered, for the literature which has already accumulated in regard to it is both exhaustive and exhausting. There is a class of cases which is technically grouped together under the head of traumatic neuroses, a complexity of symptoms which in many cases renders the patient deserving of the amount which he sues for and in other instances serve to defraud the defendant by reason of the fact that some of the symptoms of a traumatic neurosis can be fairly well aped by a malingerer. With those we shall not deal.

The question with which we especially wish to deal is indicated by the heading of this article, and our attention has been called to it in particular by a case recently on trial in one of the great cities of the Union, and by a very able paper by Dr. MCDILL of Milwaukee, who writes in association with Mr. VAN ALSTINE of the Chicago, Milwaukee and St. Paul Railway (*The Railway Surgeon*, Jan. 11, 1898).

In the case which we have referred to, a man, by occupation a grinder, and suffering from the early manifestations of "grinder's disease" of the lungs, was thrown with considerable violence from the platform of a street car and struck upon his right shoulder and chest with so much force as to seriously bruise the tissues about the shoulder and the tissues over the ribs in the axillary line. Within the course of a week or two it was noticed that the man's health had become very much impaired. Shortly afterward evidences of pulmonary disease became manifest and thirty-five days after the accident the man died. At the postmortem examination no evidence of external injury was manifest. the ecchymosis resulting from the accident having been absorbed. One lung was found almost entirely consolidated and the other partially so. Scattered through both lungs were a number of large deposits of fine metallic particles derived from the emery wheels and the steel which he had been accustomed to grind.

Suit was brought by the administratrix of his estate, it being claimed that his ill health and death within a short time after the accident was the result of the accident. It was admitted by the railroad company that the accident had occurred, and that so far as the accident itself was concerned, it was responsible. The question which rested upon the medical experts for decision, was whether the pulmonary disease which eventually resulted in the man's death could be attributed to the accident, and the testimony was such that immediately after it was heard the railroad company sought a settlement, which was granted. It was testified that severe injury to the chest might very readily so impair the vitality of the lung as to cause the rapid spread of disease already existing, but very mild in character, or to render the lung peculiarly susceptible to any infection to which it might be exposed. If the consolidation of the lung, which finally resulted in the man's death, was due to a tubercular process, then it would be very easy to understand how a violent injury to the chest wall might so disorganize the inflammatory exudations, which had been thrown out around tubercular and metallic deposits that they might be broken down, thereby making open the pathways for general infection. On

the other hand, it was possible that the micro-organism of pneumonia, always present in the upper respiratory passages of man, might find a ready soil for its propagation.

This testimony is of some importance in connection with cases of the character which we have mentioned and it is endorsed by a large amount of literature which has been accumulating during the last few years, particularly since accident insurance has become popular.

In MCDILL and VAN ALSTINE'S paper they quote much of this literature which bears both directly and indirectly upon the case that has been cited. Thus SPENGLER, in the *Deutsche Zeitschrift für Chirurgie*, Part 2, p. 1, 1886, showed that in about one-half of 136 cases of joint tuberculosis, there was a history of antecedent trauma, and SABRAZES and BINAUD, in an article on "Tuberculosis of the Mammary Gland," assert that an accidental cause is necessary to start it. Then, too, JACCOUD, in the "Bulletin of the Academy of Paris," for 1896 has reported four cases of traumatic tuberculosis of the lung. In three of these the patients were healthy men before the accident and became tuberculous after suffering injuries to the chest. In two cases JACCOUD traced tuberculosis in traumatic pneumonia. Similar instances are quoted by MCDILL from SCHILLING, WAGNER and others, and they themselves record a case of a young man of 26 years who after a severe injury died of catarrhal pneumonia, and a distinct line of injury could be traced from the skin through the pleura to the lung. SENN has also pointed out the close association between trauma as an etiologic factor and tubercular infection, and the fact that injury very gravely predisposes a part to infection by any micro-organism has been proved by a very large amount of experimental research. MCDILL and VAN ALSTINE conclude, we think rightly, that clinical experience and experimental investigation show that infectious diseases often follow slight injury. They also believe that where negligence causes this injury and the injury proximately causes disease, both the injury and the disease are elements of damage in legal action. Two facts are to be carefully borne in mind in this connection, namely, that while on the one hand slight injuries may be followed by grave disease, on the other, patients learning of this fact may often seek to magnify the symptoms from which they are suffering, in order to obtain a verdict. It is necessary therefore for physicians and lawyers to remember that slight injuries may give rise to very proper suits for damage and careful notes of all such cases should, therefore, be kept, in order that a full history of the case from beginning to end may be at hand should suit be brought.

Let us defeat the Antivivisection Bill!

STATE AND COUNTY CARE OF THE INSANE.

The public care of the insane is now recognized in all civilized countries as an essential in some form or other, and the ideal system has been generally accepted as that in which the State at large assumes this duty. The State hospital or asylum of the present is an outgrowth of the humanitarian public spirit which revolted at the conditions under which the unfortunate lunatics formerly were kept in ill furnished and worse managed jails and poorhouses in which, in misery and filth, they dragged out an actively abbreviated existence. Undoubtedly the pendulum has swung to the other extreme in some instances; reformers are rarely conservative, and often are not broad-minded enough to see that by extravagance in their demands for a part they defeat their object as regards the whole; that a few of the insane are often thus housed in comparative luxury, while the great mass are in no wise improved in their surroundings or condition. The ambitions of architects and the satisfaction of local pride also have their part, and it may be political jobbery has also in some quarters had its share in favoring extravagance in asylum building with its consequence of enforced continuance of inadequate and irresponsible county care for a large portion of the insane. The result has been to some extent a reaction against the elaborate and expensive establishments of some years back, and attempts at less extravagant methods of caring for the insane. The necessity of State care has also been questioned, and in one State, Wisconsin, a plan has been devised and followed, which is claimed by its advocates to more completely meet the needs than any other as yet proposed. With the State hospitals for acute and violent patients they have in that State a system of county asylums, to which are sent the milder chronic cases that require less restraint, and are presumably hopeless as regards recovery, so that direct medical oversight and hospital care are not essential as far as they are concerned. The advantages claimed for this system of county care are, according to its advocates, who have brought over to their ideas certain philanthropists interested in this question outside of the State, first, its inexpensiveness as compared to the palatial State hospitals; second, a more normal mode of living for the insane, who are not usually accustomed to be housed "in palaces," more general employment of the inmates on the county farms, thus in a measure contributing to their own support; and third, that by it the State hospitals, relieved from the care of the chronic insane are the better able to devote their energies to the care of the acute and curable cases. They thus become more truly hospitals and not asylums or places for mere humane detention of a class that it is inconvenient or dangerous to permit to go at large.

There is no doubt but that these Wisconsin county asylums are a vast improvement over the average

county poorhouses, such as are still to be found in most of the States, and which still shelter a considerable proportion of the chronic insane. That the Wisconsin plan is the ideal system it is claimed to be, is, however, seriously to be questioned. The argument against it is very well stated by Dr. R. M. PHELPS in a recent number of the *Northwestern Lancet*, in which he shows that the claims of greater economy is to a certain extent fictitious when the total cost of the care for the insane in the State is taken into consideration; that the average per capita cost of the county asylums by their own figures is not less than that of some of the best State hospitals of recent construction, and notably more than some, that the home-like surroundings are likely to be in a measure also fictitious, unless we are to assume that all the chronic insane in these establishments are to be selected from the laboring class, a sort of social classification that one would think might be objected to by the taxpayers and inmates' friends. The strongest point made in their favor is, he thinks, that there is more employment given to the inmates than is the rule in the State hospitals; but this fact is not a necessary one, and there are large State institutions where the ratio is higher than in these county establishments. The argument he makes for the large State hospitals as regards medical care may be a little surprising to some who are now advocating smaller establishments with more purely hospital functions, but it will probably be found, as he says, that the best medical and clinical work today is being done in the larger institutions.

Against the county asylums Dr. PHELPS addresses the following arguments:

First, the lack of direct medical supervision. That this is of some importance can be shown by the fact that with the best selection of cases, the fact that they are all more or less defective degenerates and if they do not succumb earlier they are subject to the changes and diseases of senility, is sufficient to show the need of more than the interrupted medical oversight they receive. There is no possible comparison of the death rate of these inmates in the county asylums with what it would be were they under the closer medical oversight of the larger hospitals, but there is very little doubt that it would be unfavorable to them. Treatment for improvement of mental condition is by no means useless with the so-called chronic insane, and the more experienced the alienist the less inclined is he to be dogmatic as to the absolute incurability of this class.

Another important objection made by Dr. PHELPS is the tendency to reversion to poorhouse methods. The economy of rural county officials is well known, and, though he does not allude to it, it must be in some cases a factor operating against the proper meeting of the real needs of the insane. Another objection is the necessary lack of means of classification in these smaller asylums and the consequent congregation of the disturbing and untidy with the others in these poorly equipped and attended establishments. The oversight of a board of control or of charities, who are fully committed to the advocacy of the system, is hardly as sufficient an assurance against all possible abuses as might be desired. It would be better to have this function deputed to its critics, or at least to those who from long experience with all the methods of caring for the insane in hospitals in the State and elsewhere, could intelligently judge the merits and deficiencies.

Dr. PHELP'S paper brings out strongly some of the leading drawbacks of the Wisconsin system, which is not, in any true sense, an ideal one, though where economic or other reasons prevent a better provision, it may serve a useful purpose. With thoroughly honest and economic methods in the State care of the insane, there is little to be said in its favor, even as regards expense, and that little is more than compensated for by the general results of enlightened medical care, which must necessarily be somewhat lacking in the county institutions.

THE GIANT CELL IN HEALING TUBERCULOSIS.

The morbid anatomy and histology of the essential lesion of tuberculosis have long been known, and while sixteen years have elapsed since KOCH'S discovery of the specific parasite of tuberculosis, still, in the face of a vast amount of study, many questions relative to the source, the conduct and the fate of the elements of the tubercle remain unanswered. The giant cell of the tubercle—that prominent and well-known object—what is its origin and its destiny? The genesis of this element is still unknown; indeed, it is a point upon which such brilliant investigators as LANGHANS, BAUMGARTEN, WEIGERT, KOCH and METCHNIKOFF hold diverging opinions.

In the progressive and destructive form of tuberculosis the giant cell dies and becomes a part of the cheesy mass of necrotic material so evident in advanced tuberculous lesions. In case the destructive tendency of the infection becomes arrested from attenuation in virulence of the invading parasite, or from unusual resistance on the part of the tissues of the host, and a reparative process ensues, what then becomes of these monstrous multinucleated cells so abundantly present?

It is this question concerning the fate of the giant cells in healing tuberculosis that HEKTOEN (*The Journal of Experimental Medicine*, Vol. III, No. 1, 1898) has recently investigated. As material for his careful study the author was so fortunate as to obtain specimens from a case of spontaneously arrested tubercular leptomeningitis in an adult man; certainly a peculiarly suitable object for observation. The clinical conduct of the case was such as to lead

to a diagnosis of syphilitic brain disease, but the anatomic and histologic evidences pointed more strongly to a tubercular meningeal affection, and the question as to the nature of the infection seems to have been set at rest by the isolation and cultivation of the tubercle bacillus from the meningeal exudate, and by the discovery of a very few tubercle bacilli in stained sections of the pia-arachnoid. As to the reparative tendency of the process the writer presents six propositions, based on histologic evidences, to prove that the lesions are progressive and not regressive ones.

In this investigation HEKTOEN has centered his attention upon the giant cells in these apparently healing tubercles, and by a painstaking study of these elements in serial sections and in various situations, concludes that in healing tuberculosis the giant cell does not degenerate, is not absorbed or destroyed by phagocytes, but that its nuclei resume activity, as shown by their heightened affinity for nuclear dyes, and that the protoplasm becomes vacuolated and subdivided until, *from the giant cell, many small but perfect mononuclear cells arise.* From this it would appear that the giant cell, originating as a defensive histologic element to combat the invading tubercle bacillus (providing it does not succumb in the struggle), disposes of its ingested bacilli and, after a period of recuperation, subdivides into numerous small and apparently functional cells which seem to be identical with the formative endothelial cells of young connective tissue. HEKTOEN does not witness a complete reparative process in all giant cells, since in certain of these bodies necrotic processes like dispersion and solution of nuclear chromatin seem to occur in the same cell in which the new elements are forming.

If we are to believe in the indelible histogenetic impress which is assumed to be an attribute of the cell and its nucleus in regeneration of animal tissues, then these phenomena as interpreted by HEKTOEN would offer a strong argument for METCHNIKOFF'S view of the origin of tubercular giant cells from the fusion of mononuclear endothelial connective tissue cells, or from the multiple nuclear division of these cells. Its period of unusual exertion successfully ended, the giant cell returns to the elements which gave it birth—assuredly a very pretty example of that adaptation which nature so bountifully provides in the animal organism to meet the destructive agencies of disease!

EPIDEMIC CEREBROSPINAL MENINGITIS.

Recent medical journals contain articles embodying the results of the anatomic and bacteriologic studies of a recent epidemic of cerebrospinal meningitis in Boston, by COUNCILMAN[1] and his associates MALLORY and WRIGHT.

These reports furnish important additions to our knowledge concerning this disease, as it occurs in America. This disease has appeared at various times in this country. Thus, it raged in Medfield, Mass., in 1806, extending over the New England States into Canada, Pennsylvania and Maryland, prevailing at some point or other until 1816. This epidemic corresponds to the first period of the history of this disease, according to HIRSCH.[2] The second period extends from 1837 to 1850, during which time the disease prevailed principally in France. The third period from 1855 to 1875, when the disease prevailed chiefly in Germany; but there were a number of local epidemics in America, one in Illinois, reported by JOHN B. HAMILTON, 1873 to 1874,[3] and the fourth period, 1875 to the present time, during which time the disease has appeared in small epidemics in a great number of places. Thus, there was a considerable epidemic in Boston in 1874; in Lonaconing, Md., in 1892, and in New York in 1893. In this connection reference may be made to the report on epidemic meningitis published by ALFRED STILLE[4], in Philadelphia in 1867, in which he describes the disease as he had occasion to observe it during an epidemic which ravaged the United States for ten or eleven years previously. STILLE saw 120 cases of the disease during the first quarter of 1867, in the Philadelphia Hospital. One hundred of these cases form the subject of a valuable report by Dr. GITHENS[5].

It is interesting at the present time to read STILLE'S description of the anatomic characteristics, and of the causes of the disease, as they were taught at that time. STILLE summerizes the attempts of BAUDIN[6] and others to prove the contagious nature of epidemic meningitis, by saying, that they fail most where most they need strength, namely, in the proof that the disease is ever communicated from man to man, and without that proof there is no evidence of contagion. One fact to which all American and European writers bear testimony, is the extreme rarity of its attacking physicians and nurses in attendance upon the sick, and those patients affected with other diseases who occupy adjoining beds in hospital wards. He says that we may know some external influences that appear to favor, but we know of none that are essential to, its generation.

During the winter and spring of 1897 there prevailed a small epidemic of the disease in Boston, and in the articles published by COUNCILMAN, MALLORY and WRIGHT, 111 clinical cases are considered. The largest number appeared in March, April and May. Here also there was found but very little evidence in favor of actual contagion. As a rule but single cases appeared in the same family and in the same house. A map of the city, giving the distribution of the sin-

1 Boston Medical and Surgical Journal, 1898. Johns Hopkins Bulletin, 1898, and American Journal of Medical Sciences, March, 1898.

2 Quoted by Councilman.
3 New York Medical Journal, Vol. xxi, p. 113, 1875.
4 Stille, Epidemic Meningitis, Philadelphia, 1867.
5 American Journal of Medical Sciences, 1867.
6 Quoted by Stille.

gle cases, showed them to be well scattered. There is but little in the literature concerning the subject of immunity in this disease, and the problems of genesis and of the mode of infection are therefore still open for study.

The mortality of the 111 Boston cases was 68.5 per cent. The exact cause of cerebrospinal meningitis was first described by WEICHSELBAUM[7] in 1887 as a diplococcus, which he calls the *diplococcus intracellularis meningitidis*, because in the lesions it is found almost solely within the cells. In the cultures this organism grows singly, in pairs and in fours. It is pathogenic to guinea pigs and rabbits, producing serofibrinous inflammations when injected into the serous cavities. Not much attention was paid to this demonstration by WEICHSELBAUM until 1895, when JÄGER[8] found the same organism in twelve cases of epidemic cerebrospinal meningitis occurring in the garrison at Stuttgart. JÄGER'S description corresponds very accurately with that of WEICHSELBAUM.

The most important result of the study of the Boston epidemic lies in the demonstration that in thirty-five of the cases in which postmortems were made, WEICHSELBAUM'S diplococcus was found in thirty-one. Three of the four negative cases concerned very chronic instances of the disease. As a rule the organisms were easily cultivated in the acute cases, although it was soon found advisable to make a large number of inoculations, because the microbe evidently loses its vitality rapidly. The descriptions of the cultures and of the histologic lesions given by COUNCILMAN correspond in the main to those already published. Mixed infections with other organisms were not uncommon. The pneumococcus was found seven times; FRIEDLÄNDER'S bacillus, the staphylococcus and streptococcus occasionally occurred.

In fifty-five cases lumbar puncture of the spinal canal was made during life, and in the fluid obtained diplococci were found in thirty-eight cases. The average duration of time from the onset of the disease to the date of spinal puncture was seven days in the positive cases, and seventeen days in the negative. On the whole, too much can not be said of the importance of lumbar puncture in making a diagnosis of the disease. There should always be made a microscopic and bacteriologic examination of the fluid, in order to ascertain exactly what organisms are present, because this knowledge is certainly useful in making the prognosis. Meningitis, apart from the epidemic form, is commonly caused by the tubercle bacillus, the pneumococcus and the streptococcus. Naturally these cases of meningitis are usually secondary to infection elsewhere. In a series of cases of this kind referred to by COUNCILMAN the pneumococcus was found ten times. COUNCILMAN and his collaborators express the important opinion that all the infections of the meninges, other than with the diplococcus intracellularis, are fatal. The complete proof of this can not be determined except by microscopic and bacteriologic examination of the exudate during life by spinal puncture. If tubercle bacilli, pneumococci or streptococci could be found in a case of meningitis which recovers, it would settle the point. Clinical observation alone can not do it. As the cases of epidemic meningitis become chronic and tend toward recovery, the fluid withdrawn by puncture, hitherto purulent, becomes clear and the number of organisms present diminishes very rapidly, hence the prognostic significance of repeated puncture.

This is not the place to enter into a lengthy description of the histologic changes found. It is interesting to note the condition of the lung, however, on account of the relation which is very generally supposed to exist between epidemic meningitis and pneumonia. In thirteen cases there was congestion with more or less edema; in seven cases there was bronchopneumonia, most marked in the lower posterior part of the lung. In two cases there was a characteristic croupous pneumonia, and in the lung of these cases pneumococci were found. In eight cases lung changes due to the diplococcus intracellularis was found in the form of small bronchopneumonic foci. In one case the consolidation was so extensive that it might easily have been considered as a typic croupous pneumonia. The lung complications due to the pneumococcus may, according to the statistics of the Boston epidemic, take place in almost any period of epidemic meningitis. Thus, in one case pneumonia developed after the meningitis had existed for seventy-four days.

From these and other investigations it appears definitely settled that the disease known as epidemic cerebrospinal meningitis is caused solely by the *diplococcus intracellularis meningitidis* of WEICHSELBAUM, which must be looked upon as a distinct and separate species of micro-organism and not merely a variety of the pneumococcus. Furthermore, that great care must be exercised in attributing leptomeningitis when it occurs in connection with croupous pneumonia to an infection with the pneumococcus alone, because instances of mixed concurrent infection with these two forms of diplococci appear to be not so very infrequent. As already indicated, the manner of infection in epidemic meningitis, the distribution outside the body of the specific micro-organism, and other questions concerning the origin of the disease, merit further investigation.

[7] Quoted by Councilman *et al.*
[8] Centralbl. f. Bact. u. Parasitenkunde, 1895.

CORRESPONDENCE.

"The Humane Society Deal in Fiction."

REPLY TO THE STATEMENTS MADE BY THE PRESIDENT OF THE WASHINGTON HUMANE SOCIETY IN A LETTER ADDRESSED BY HIM TO EACH SENATOR OF THE UNITED STATES.

BALTIMORE, MD., March 7, 1898.

To the Editor:—In your issue of March 5 (p. 565), you pub-

lish under the caption "The Humane Society Deal in Fiction," a letter addressed by Mr. A. S. Pratt, the president of the Washington Humane Society, to a well-known Senator, urging him to vote for the antivivisection bill now before Congress. A letter with the same contents was sent to each Senator. In compliance with the request of one of the Senators that a reply be made to the statements of Mr. Pratt, I have sent this Senator a letter from which I beg to send you the following extract. Most of the points were covered more fully in my paper "Objections to the Antivivisection Bill," published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Feb. 5, 1898, and published also as Senate Document 104, 55th Congress, second session. Mr. Pratt, I am informed, is engaged in the insurance business in Washington.

Very Respectfully, WILLIAM H. WELCH, M.D.

1. Senate bill 1063 is correctly described as an antivivisection bill, and the only reason which Mr. Pratt or any one else can have to assert the contrary is that it does not totally prohibit all experiments upon animals. It originated with the Washington Humane Society, a notoriously antivivisectionist organization, whose president (Mr. Pratt) says in his annual report for 1894 (p. 24): "The subject of vivisection has been frequently before your executive committee during the past year and but one sentiment has been expressed, viz., that of utter abhorrence and condemnation of the inhuman practice." The great majority of the advocates of the bill are antivisectionists.

The great body of medical and scientific men of this country are practically unanimous in opposition to the bill, not a single medical or scientific society having expressed itself in favor of it, whereas considerably over a hundred such societies, including all of the important National and State and many local societies, have passed resolutions remonstrating vigorously against its passage.

The bill is an antivivisection bill not only because it originated with and is advocated by antivivisectionists, but also because it prohibits many important and useful kinds of experiments upon animals, surrounds the performance of others with such restrictions as virtually to prohibit them, and in fact permits no experiments whatever save under extremely vexatious conditions. The contention so much insisted upon by advocates of the bill that it is not prohibitive of any useful experiments can not be admitted for a moment by any one acquainted with the bill and familiar with the purposes and needs of experimental medical and biological science.

2. The summary of the provisions of the bill given by Mr. Pratt in the second paragraph of his letter is grossly incomplete and misleading. Among the objectionable provisions of the bill which he does not mention are:

a. No one, except an officer of the government of the United States or of the District of Columbia, can perform an experiment without first procuring a license from the Commissioners of the District, who can refuse all such applications if they choose to do so. It would be difficult to show what qualifications these Commissioners possess, or are likely to possess, to enable them to judge of the fitness of medical and scientific men to make experiments upon animals.

b. In addition to a license, a special certificate must be procured in case any one of certain commonly used animals is to be employed for experiment.

c. The Commissioners may call at any time upon experimenters (including officers of the United States Government) for reports upon the methods and results of their experiments, and the official inspectors are required to publish the results of their observations. Many important experiments would not be undertaken under any such vexatious conditions as these.

d. The Commissioners may require any place where experiments are performed to be registered. They may disallow or suspend any certificate without any hearing on the part of the holder. In a word, the Commissioners are made the dictators of the medical profession in matters requiring expert knowledge and sympathy with the needs of medicine.

e. With the exception of certain demonstrative experiments for lectures, the only experiments permitted by the bill are those intended for the advancement of knowledge by *new discovery* and this knowledge must be of one of two kinds, either physiological, or for saving or prolonging life or alleviating suffering. This excludes such experiments as those often practiced by the surgeon to acquire skill in operating and those for the confirmation of alleged discoveries by others.

f. The bill permits the use of only two anesthetics, ether and chloroform. There are other anesthetics, in some cases essential for the purposes of the experiment, and it is absurd to prohibit their use.

g. With the exception of inoculation experiments, tests of drugs or medicines and tests of surgical procedure, no animal is permitted to survive after an experiment unless kept continuously under the influence of ether and chloroform. This provision prohibits a large number of important and useful experiments.

h. The bill prohibits the granting of a license to any one under 25 years of age, unless a graduate of medicine duly authorized to practice medicine in the District of Columbia. As Dr. Dabney has pointed out this excludes a large proportion of well trained biologists such as are employed in the Bureau of Animal Industry.

The foregoing are only some of the objectionable provisions of the bill which Mr. Pratt neglects to mention. This bill is in fact a very complicated measure, loosely drawn and doubtful in the interpretation of some of its provisions, and calculated to inflict most serious injury upon the progress of medicine and biology in this country. It is copied in large part from a British law, but goes further in its restrictions than the latter, which has proven to be most injurious to medical science in Great Britain. The whole impulse for this legislation started among antivivisectionists in England some twenty years ago, but thus far other countries, including our own, have been spared such an infliction.

3. Mr. Pratt is in error when he asserts that "ordinary inoculation experiments are expressly excluded from the operation of this law." The only concession regarding this class of experiments is that they may be made without the administration of anesthetics. All of the other vexatious provisions of the bill apply to inoculation as well as to other experiments.

4. Accusations of "revolting cruelty and barbarity" in the performance of scientific experiments upon animals, of which Mr. Pratt and the Humane Society profess to have "certain knowledge" are made in the most reckless and wanton manner by antivivisectionists. Mr. Pratt's statements with reference to alleged cruelty and secrecy in the performance of experiments in the District of Columbia and elsewhere in this country are unsupported by evidence. Not a single authenticated example of such cruelty, that is, the heedless infliction of pain, has he or any one else been able to adduce in the District of Columbia. The Superintendent of Public Schools of Washington, in a letter dated April 24, 1896, has officially stated that no vivisection experiments are performed in the public schools of that city, and that they never have been performed there. Those who have the best opportunities to know the real facts are confident that no cruelty exists in the performance of animal experimentation, which would justify any restrictive legislation whatever in this country. If any instances have occurred, they are certainly most exceptional, and are quite within the power of public opinion, including that of the medical profession, aided by the ordinary law, to cope with.

5. The charge of secrecy in the performance of animal experiments is without foundation. These experiments are published in scientific journals with full details, and any properly qualified person has free access to laboratories where such experiments are made. The scheme of inspection provided for in this bill may readily lead to a system of outrageous espionage utterly foreign to our system of government, and degrading and intolerable to the scientific men who conduct the experiments.

6. Mr. Pratt's utterly baseless and absurd, I do not hesitate to say wicked, charge that members of the medical profession are educated to "utter indifference to the infliction of pain and the sacredness of human life" and subject the sick poor in hospitals to experimentation, is an example of the recklessly false assertions of antivivisectionists. It is inconceivable that statements of this character, which fairly represent those upon which the antivivisection agitation is based, should be allowed to influence legislation in the Congress of the United States.

7. Mr. Pratt's argument that experimenters, because they do not concede any abuse of vivisection in this country justifying the proposed legislation, should be willing to submit to the provisions of such a bill as Senate bill 1063, seems to me too absurd to require comment.

8. Medical and scientific men very naturally and properly object to penal legislation directed exclusively against them in the conduct of investigations which they believe to be of the utmost importance to scientific and practical medicine and therefore to humanity. The District of Columbia already has an effective law for the prevention of cruelty to animals, which permits only properly conducted scientific experiments under proper authority. Those who conduct experiments are no less subject to this law than other members of the community. No special or class legislation on this subject is needed and such legislation is offensive in the extreme.

9. It is true, as Mr. Pratt states, that Senate bill 1063 was reported unanimously by the Committee on the District of Columbia. I believe that I am correct in stating that this matter was left by his colleagues on the Committee very largely in the hands of Senator Gallinger, who would seem from his report on the bill to be an extreme antivivisectionist. He must by this time realize that in this matter he has antagonized the sentiments of the great majority of medical and scientific men of this country. There never was an adequate presentation of the arguments against the bill before the Committee. I have information that at least some members of the Committee have changed their opinions and are now opposed to the bill.

10. It is likewise true that a very impressive list of names is attached to a petition favoring this legislation. Here again I know of some who, having become better informed, have written letters retracting their consent. You know better than I how much value is to be attached in general to such petitions, for which it is sufficiently easy to secure signatures. Undoubtedly not a few of the general public have been misled by the grossly false, misleading and sentimental appeals of antivivisectionists. Upon this matter it is the voice of science and of medicine, which is likewise the voice of true philanthropy, which should be heard and which should control legislative action, and not that of those who, however worthy their impulses, however high their social position, however great their knowledge in other departments, do not possess that special knowledge which renders them competent to judge of the merits of this question. The voice of science and of medicine, so far as it receives authoritative utterance, is overwhelmingly opposed to any such legislation as that contemplated by this bill.

As to the necessity and great value of animal experimentation to scientific and practical medicine, both human and veterinary, and to biological science, there is practically no difference of opinion among well informed medical and scientific men. Thousands of lives of both human beings and animals have been saved and in increasing number will lives continue to be saved by knowledge which could have been gained only through experiments on animals.

In conclusion permit me to express my gratification, and I may safely add the gratitude of all enlightened physicians and scientists, that your powerful influence is being exerted in opposition to the enactment of Senate bill 1063. In this you have espoused the cause not only of science but also of humanity.

Malaria Infection.

CHARLOTTE, N. C., March 7, 1898.

To the Editor:—In your remarks under the above heading, in the issue of March 5, 1898 (page 561), you make some statements which appear to deserve some qualification, at least from my information and experience on the subject. That there is a form of malaria (the disease) which resists the therapeutic action of quinin even when in proper dosage by the stomach, rectum and skin, is within the experience of a number of physicians throughout the South. This form of malaria, designated the estivo-autumnal, will not infrequently persist in spite of the exhibition of large and repeated doses of quinin, the patient dying literally saturated with the drug and thoroughly cinchonized. Dr. Osler, the highly gifted and capable authority quoted to support the points of the editorial, has given absolute testimony to the fact that quinin *will not* remove the crescentic forms from the blood and that the fever will persist in spite of its use. Writing to me in answer to a communication, he replies to the question as to whether in his experience there was a form of malarial fever that resisted quinin: "Yes, the estivo-autumnal resists in certain phases. The organism—crescents—do not disappear." I take this to mean that there is a form of malaria which will not yield to quinin no matter how employed. The action of quinin upon certain types of malaria is very positive and undisputed. There are, however, phases or stages of what was doubtless originally a purely malarial affection, yet the precise nature of the pathologic phenomena soon becomes obscure and we deal with agencies supplementary to those originally and still present.

Exactly what constitutes this addition to the crescents already present in the blood, we have no present adequate answer. We know enough to know that the pathologic condition is not amenable to the therapeusis of quinin, no matter how much or by what avenue it reaches the blood.

Respectfully, J. WELLINGTON BYERS, M.D.

Oxytuberculin.

SANTA CLARA, CAL., March 12, 1898.

To the Editor:—My attention has been drawn to a letter in the JOURNAL about oxytuberculin by Dr. E. H. Smith of Santa Clara, Cal. It is not my custom to reply to such letters, but a few facts will be at least interesting.

There are seven (or more) physicians in this county who have used oxytuberculin. How many of the cases treated by these physicians have been observed by Dr. Smith I am not able to state, nor do I know whether or not Dr. Hirschfelder has diagnosed all the cases of tuberculosis treated by these men. The letter states, "It is a very noticeable fact that all of the cases seem to be diagnosed by one individual, viz., Dr. Hirschfelder."

For myself I shall reply, and will be glad to hear from the others. Dr. Hirschfelder never examined a case for me (nor the sputum) for at least three months after I had used treatment; nor has he ever diagnosed a single case for me. I have several times submitted the samples of sputum to him for satisfaction and for preservation of a slide by him. One case of mine to which Dr. Smith refers as "observed" by him, the letter states "That was a case of 'asthma,' and no positive evidence of tuberculosis at all. This case has been reported cured."

Now this case has never been reported "cured."

Dr. Smith has never examined this patient, and yet he states "These cases are not presented to an unbiased medical profession for diagnosis." What could be more biased than to say that a certain case was "asthma" and not "tuberculosis," without having made any examination. Let us see whether or not this was a case of "asthma;" and, notice, that before oxytuberculin or Dr. Hirschfelder were known to me at all, this case was diagnosed "consumption" early in 1896. Dr. P. M. Lusson of San Jose, examined the patient and gave his diagnosis as "pulmonary tuberculosis in both lungs." I was not acquainted with the patient at that time. On Aug. 6, 1896, this patient presented herself at my office for examination. My notes taken at the time are as follows: Temperature 101.5 degrees; pulse 104; cough very annoying; losing flesh; expectoration abundant; left lung affected to third rib; right lung to fourth rib; nocturnal paroxysms of asthma causing patient to smoke asthma powder from six to fifteen times a night; weight about 103 pounds; usual weight for five years 110 pounds; microscope shows abundant tubercle bacilli. Diagnosis: Pulmonary tuberculosis, complicated. Treatment: Outdoor life, generous diet, tonics, creosote carb., protonuclein, etc., with cough mixtures.

November 6, gradual decline; weight about 100 pounds; no improvement.

November 16, tubercular pleurisy, severe; tubercular foci throughout both lungs.

Dr. I. N. Frasse of San Jose, called in consultation. Diagnosis according to written statement: "a clear case of phthisis." (He examined the sputum also.)

The doctor told the husband of the patient that in his opinion she would not live much longer than one week. He did not recommend any drugs, but agreed to use oxytuberculin or anything, as the case was far gone. After three months treatment, the patient did her own housework. In six months weighed 122 pounds, or twelve more than for four years.

The asthma has returned only two or three times in 15 months and then only after a heavy meal, and the attack was completely stopped by one treatment of oxytuberculin, within fifteen minutes after administration. The patient feels well, sleeps

ten hours daily uninterruptedly and does her own work. No medicines were used for six months during the treatment with oxytuberculin. Dr. Frasse has examined the patient twice since his first consultation at intervals of about three months, and writes me, "at my last examination some time ago I could still detect some bronchial breathing at the apex of the right lung, posteriorly, but otherwise the patient had made most excellent progress." Four other physicians examined this patient during the first four months of the treatment, each one unhesitatingly saying that it was a case of "tuberculosis."

Is it fair or "unbiased" to call this a case of "asthma?" Does "positive evidence" of tuberculosis only come from an examination by Dr. Smith and none other? Would you submit a case for an opinion to a man who will diagnose the case without an examination?

In every case that I have treated with oxytuberculin there is as much proof of tuberculosis and confirmatory evidence as in the above case, and I challenge proof that the tuberculosis did not exist in every case. Of four cases under my care in which oxytuberculin was used, two made marked improvement, one considerable improvement, one very slight improvement. With Koch's T. R., several cases have made some improvement. My own experience does not lead me to say that oxytuberculin will cure a single case of tuberculosis, nor do I pretend to champion the remedy. Facts are better than statements. Until we find a remedy that will cure every case, it is better to wait for time to reveal the worth of every treatment. Where there are no contra-indications, why not use combined means, medicine, diet, exercise, hygiene, and any available specific treatment? The idea is not to prove the worth of any one remedy, but to cure the patient. Invariably, however, I explain to the patient that no guarantee of cure can be given. Yours respectfully,

D. A. BEATTIE, M.D.

Advertising in the Secular Press.

TECUMSEH, MICH., March 10, 1898.

To the Editor:—In these days of push, of progress, of smokeless gunpowder, of climbing to the pinnacle of fame by every available means, is it not right, yea, is it not the only certain method by which a young and ambitious medical graduate can lift himself bodily into the aerie of success, by advertising his wares in the secular press where he locates, and informing his patrons through the press of his undoubted ability after the following manner?

Dr. Obediah Hayseed, assisted by Dr. Mossback and Dr. Falstaff of Rouge's Hollow, successfully removed a tumor from Mrs. George Gumbo. The patient is doing nicely. Is this not the proper method of becoming eminent with a single bound?

Respectully yours, J. F. JENKINS, M.D.

PUBLIC HEALTH.

A New Source of Contagion.—The *Méd. Moderne* relates the case of a child with scarlet fever. As a new dress was required, the mother had a number sent up from the stores and tried them on the child, returning all but the one she decided to buy.

The Favorable Effect of Hygienic Measures on the Eyesight is emphasized by a report recently published detailing the results of the examination of the eyes of school children practiced in Munich two or three times a year for the last sixteen years. The average of vision is constantly rising.

Free Sanitaria for Nervous Affections.—Munich is soon to have an institution to receive male cases of functional neurosis, at a nominal sum, one mark a day. A minister, Ringseisen, has placed a couple of villas at the disposition of the committee in charge of the project, and money has been subscribed to build another. As soon as sufficient funds have been collected to maintain them, they will be put in operation, excluding alcoholics and epileptics.—*Klin. Therap. Woch.*, January 30.

Health in Chicago.—The report for January gives the total deaths during the month as 1835, or 1.13 per 1000. The rate for the corresponding month in 1897 was 1.25. Of these 1835 deaths, 390 were of persons under one year old, and 217 between one and five years. The chief causes were: Pneumonia, 248; nervous diseases, 226; consumption, 202; heart diseases, 124; bronchitis, 92; diphtheria and membranous croup, 68; cancer, 67; acute intestinal diseases, 79; typhoid fever, 29.

Health in Michigan.—The report for February gives the diseases most prevalent during the month as rheumatism, influenza, neuralgia, bronchitis, tonsillitis, pneumonia, pleuritis, diarrhea and pulmonary consumption. Compared with the report for January, consumption was more prevalent, being reported at 117 places, while measles was reported at 85 places, scarlet fever at 68, diphtheria at 60, typhoid fever at 53, whooping cough at 27, and smallpox at one place. Compared with the average for February for twelve years, whooping cough, intermittent fever, remittent fever, consumption, scarlet fever, diarrhea and pneumonia were less prevalent.

Sex and Population.—The London *Post* in the turbulent wake of the statistician gives some space to the disparity of the sexes, but wrongly credits Egypt as being the only country of the world where the men exceed the women. The avowed number foots up as high as 160,000. Let us dip into the question somewhat. The alleged preponderance of men in the United States is held to be 1,513,510, and in Australia the comparison suffers still more. But by the last Italian census, certainly the most accurate of all, the excess of male over female inhabitants is in the proportion of 50.20 to 49.80. In Greece the percentage of male inhabitants is higher even than it is in Italy, and so it is, too, in Servia and Roumania. In all the South American countries, with the exception of Chile and Venezuela, men outnumber the women, and this is particularly the case in Brazil and in the Argentine Republic. In England's South African Colonies, in India, and in Canada, as well as in Egypt, the number of male inhabitants exceeds the number of female inhabitants. Egypt's claim to any particular prominence in this matter is based on a very slender foundation at best. By the census previous to the last one it was shown that the total number of male inhabitants was 3,402,000 and the number of female inhabitants was 3,416,000. In a population, therefore, of nearly 7,000,000 the excess of female inhabitants at that time was 14,000, and if since then the scale has been turned slightly and now shows a small preponderence of men, there is certainly nothing in it which particularly calls for any great demonstration of surprise. The only commentary after all seems to be that the masculine element is reasonably content with an unembarrassed struggle for existence.

State regulations of Tuberculosis.—Dr. J. M. Withrow, Health Officer of Cincinnati, in the Ohio Sanitary Bulletin for February, says:

"Fourteen States have bovine laws and regulations, and issued circulars for public instruction with reference to tuberculosis in man, i. e., California, Colorado, Connecticut, Iowa, Maine, Massachusetts, Michigan, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, Virginia and Wisconsin. Two States have bovine laws, but do nothing toward stopping the spread of tuberculosis in man, i. e., Minnesota and South Dakota. Tennessee has bovine laws, but can not enforce them for lack of funds, and the Health Board has only issued circulars upon the prevention of tuberculosis in man and beast. The District of Columbia and Oklahoma have a law prohibiting the sale of tuberculous milk, but nothing concerning the disease in man and cattle. Delaware, Indiana, Kentucky, Louisiana, New Mexico, Ohio, Texas and West

Virginia issue circulars of instruction concerning tuberculosis in man, but no steps have been taken concerning bovine tuberculosis. The remaining sixteen States have apparently done nothing to prevent the spread of tuberculosis either in man or beast. In about one-third of the large cities of the United States nothing has been done toward securing the prevention of consumption. . . . In Ohio . . . there is no law to prevent the sale of tuberculous milk, and no means are taken to prevent the spread of tuberculosis among cattle, and so far as tuberculosis in the human being goes, there is no legislation statutory in character upon this subject. . . . The Ohio State Board has issued circulars of instruction on this subject, but their dissemination has not been general enough or frequent enough to create very much public feeling upon the subject. In the city of Cincinnati . . . a board of health regulation has been adopted placing the obligation of physicians to report cases of tuberculosis upon the same plane as cases of diphtheria, scarlet fever and other infectious diseases."

Typhoid Fever at Philadelphia.—There appears to be no doubt in the minds of experts that the Schuylkill River water-supply has been the cause of the high fever rate at that city. That river, near the intakes for Philadelphia, has been shown to be polluted from end to end, and this foul, sewage-laden water is served, unpurified, to the patient tax-payer. Last November an accident occurred by which sewage was pumped directly into a reservoir and thence into the city water mains to the consumer; and this accident seems to have been a principal cause of the present outbreak. It is also known that further up the river typhoid is on the increase, and this adds another factor to the cause of the epidemic. But to enumerate these causes is of no avail. The Schuylkill is polluted and every one has known the fact for years. Every one also knows that the practical remedy for the situation is either a thorough filtration or an entirely new plant. Since the beginning of the present outbreak, the first week of last December, 1134 new cases of enteric fever have been reported in the city of Philadelphia, and of this number 675 have occurred during the first four weeks of the new year, or an average of more than 168 new cases weekly up to the present time. As a striking comparison, we may state that during two weeks of the present month New York City, exclusive of Brooklyn, etc., with a population twice that of Philadelphia, reported a total of thirty-six new cases of typhoid, while Philadelphia for the corresponding period reported no less than 366 new cases. To further the comparison, two wards in the infected district of Philadelphia, having a combined total population of 100,000, in one week surpassed the total roll of enteric fever cases reported among the 2,000,000 inhabitants of New York City for a period of two weeks. To make the contrast still plainer, in one recent week in New York City only six new cases of typhoid were reported from the densely populated tenement districts below Fourteenth Street, where the nature of the surroundings and mode of life offer every advantage to the development of filth diseases. On the other hand, the section of Philadelphia in which typhoid is most prevalent is an area not of crowded tenements and of indifferent hygienic environment, but of separate small dwellings, occupied, as a rule, each by a single family, and pronounced by the corps of health inspectors to be of more than average healthfulness.—*Medical News*, January 29.

The American Public Health Association.—The *Public Health Journal* (January) has a personal item respecting the president-elect of the American Public Health Association, Dr. Charles A. Lindsley of New Haven, of which the following is a part: Among the numerous honorable positions heretofore held by Dr. Lindsley, he was a vice-president of the AMERICAN MEDICAL ASSOCIATION in 1871–72, with which society he united as long ago as 1855. He is one of the oldest living members of the association of which he has lately been chosen president, having joined in 1875. He has made many and important contributions to sanitary and medical literature, to which the annual and other reports emanating from his State board of health and medical society will testify. Of the latter body he was its centennial president in 1892. With the State board he has been connected fully twenty years, and has been its secretary since 1884. With the interests of medical education he has been identified since 1860, and has been for twenty years dean of the Yale University medical faculty. He is a descendant of Francis Lindsley, who came to America in 1666 and settled in New Jersey. He was born in Orange in 1826, and was graduated from Trinity College, Hartford, in 1849, receiving a master's degree in 1852. Then he began the study of medicine and after the close of a term in the College of Physicians and Surgeons, New York, received his degree of M.D. from Yale. Since then he has been a member of the Yale faculty and has lived in New Haven. From 1860 to 1883 Dr. Lindsley was professor of materia medica and therapeutics at Yale, and since 1883 he has been professor of the theory and practice of medicine at that university.

Decline of Typhus Fever in the Cities of Great Britain.—It may be said without exaggeration that five-sixths of the medical profession of this country have never seen a case of typhus fever. And yet the time is not so very remote, say in the sixties, when that fever was a dreaded visitant among the medical internes of institutions, like Bellevue Hospital, New York, that were brought into contact with immigrants from Great Britain having "ship fever," as it was then frequently styled. About the time that this fever began to drop out of the ken of the American profession, along with relapsing fever, the teachers in the medical schools began to recognize the terms "sanitation," "public hygiene," a "preventive medicine," and the like, and to treat briefly of those subjects. This was possibly not much earlier than 1870, and not much earlier, therefore, than the founding of the American Public Health Association. Regarding the decadence of typhus fever, Dr. Bailey of Bilston has prepared the following sketch, a portion of which we quote from the *Lancet*, as follows: "In 1837, typhus fever prevailed in many parts of England, and in 1838 no less than 1271 per million of the population died from it. In the years 1846–48 a frightful epidemic occurred in Ireland on the failure of the potato crop. It spread to England where, in 1848, 786 cases were admitted to the London Fever Hospital alone. In that hospital as many as 14,589 cases were treated during the period 1862–70. In Glasgow, too, the death rate per million for the five years 1855–59 was 1265, and for the five years 1860–64, 1576. These figures show the extremely fatal character of this most formidable disease. Since 1869 this fatality has markedly and continuously decreased, until now it has almost reached the vanishing point. In that year the deaths in England and Wales were 4281, in 1885 they were only 318, and the mean rate for the quinquennium 1891–95 had actually been reduced to 4 per million of persons living. . . . Surely if sanitarians could lay claim to no other achievement they would be entitled by this to an honorable place in the history of the Victorian era."

Caution to be Exercised by Boards of Health in Destroying Property.—The language of the Arkansas statute is that municipal corporations shall have power to cause "any nuisance to be abated." From this and the other provisions relative thereto, the supreme court of the State holds, in the case of Gaines vs. Waters, decided Jan. 8, and rehearing denied Feb. 19, 1898, that the city council is authorized to confer upon the board of health power to abate nuisances dangerous to the health of the inhabitants of the city. It takes the view that a board of health is an instrumentality of the city, and that the city has the right

to make general rules to be carried out by the board of health as its agent. The board being but an agency of the city, its acts in reference to the abatement of a nuisance are, in effect, the acts of the city itself. The contention that a city council can not delegate to the board of health the power to determine judicially that a certain structure or other thing is or is not a nuisance, the supreme court goes on to say, has no bearing on the case, for the reason that the council itself has no such power, nor does the board of health in abating nuisances, exercise judicial powers within the usual meaning of such term. There is no requirement that parties interested shall be given notice and an opportunity to be heard, nor does the statute contemplate a judicial hearing before the city council or board of health in matters of this kind. On the other hand, there is no authority to destroy property not a nuisance, and the resolution of a board of health that a house, for example, is a nuisance, the court says, does not make it a nuisance unless it be one in fact, nor is such resolution a judicial determination of that question. This leads the supreme court to make the even more practical, general suggestion, that it follows, therefore, as a matter of common prudence, that in summary proceedings by a city council or board of health to abate a nuisance, when the imposing party has no opportunity to be heard, that great caution should be exercised that property may not be unnecessarily destroyed, and further, for the reason that if it should turn out that a house declared by either of these bodies to be a nuisance was not such in fact, and its removal unnecessary, those removing it might become liable for an action in damages.

Kentucky Local Boards of Health entitled to Compensation.—Section 2055 of the Kentucky Statutes, among other things, provides that, "The local board shall receive such compensation for such services as the county court in which the local board is established shall in their discretion, determine." From this, the court of appeals of Kentucky concludes that the legislature intended that the members of the local board of health should be fairly compensated for the services they are required by law to render. The discretion of the fiscal court with reference to the compensation to which such board is entitled, it further declares, in Stephens vs. Allen, Jan. 27, 1898, is not an arbitrary one, but is a sound judicial discretion, and one that can be controlled.

The Water-Supply Laboratory of Brooklyn.—With infinite pains a biologic and chemic laboratory was established at Rockville Center, L. I., for the purposes of a scientific supervision of Brooklyn's supply of drinking water. Under the new régime of the Greater New York, this plant has been wiped out. It had been in operation over a year and was considered by the former health commissioner, Dr. Z. Taylor Emery, as being one of the most sanitary of his accomplishments in his four years' service. As the *Medical News* states, this plant connoted the opinion of those who have discovered that the proper location for an institution of this nature is upon the watershed itself and that the chemic and bacteriologic researches should be accompanied by frequent inspection of all suspected feeders and ponds. The investigations have been conducted by Dr. Hibbert Hill, formerly in the employ of the Louisville Water-Supply Commission, an expert in bacteriology, assisted by Dr. Ellms, chemist. Dr. Ezra H. Wilson, who recently resigned from the health department to give his sole attention to the work of the Hoagland Laboratory, was for a time in charge of the Rockville biologic work, but latterly was appointed to the honorary position of consulting bacteriologist. The names of these three officials are signed to an important report of 200 pages setting forth the organization and results of the laboratory. This report is replete with tabular and other technical matters, and will be especially valuable to water-biologists and engineers; it may without exaggeration be characterized as a "State paper" of permanent value. As the new charter of New York City places the sanitary supervision of water-supplies in the board of health, it is to be hoped that this important function will not be slighted. It is beyond doubt a mistaken policy to neglect this line of sanitary work until the water becomes suspected or polluted, and popular panic and outcry, to say nothing of decimating epidemics, make its resumption necessary.

NECROLOGY.

JOHN DUGAN SKEER, M.D., Chicago, March 7, aged 73 years. Dr. Skeer was graduated from Cincinnati Medical College and the Nashville College of Medicine. Throughout the Civil War he had charge of Hospital No. 9, at Nashville.

SAMUEL H. DISMOND, M.D., Richmond, Va., March 1, aged 44 years. He was graduated from the Richmond Institute in 1879 and as Doctor of Pharmacy and Doctor of Medicine from Harvard University in 1883.

W. O. RODGERS, M.D., Omaha, Neb., March 10, of rheumatism of the brain. Dr. Rodgers was chief medical director of the Woodmen of the World, a member of the AMERICAN MEDICAL ASSOCIATION, and was graduated from the Medical Department of the University of Buffalo in 1883.

WALTER O. RICHARDS, M.D., March 2, aged 78 years. Dr. Richards had practiced his profession in Waterloo and Blackhawk County for forty-three years. He was a member of the County Medical Association, also District, State and National Associations.

S. D. SMITH, M.D., Piqua, Ohio, February 6, age 69 years. He was graduated from the Medical Department of the University of Pennsylvania in 1863; was appointed assistant surgeon in the U. S. Navy and was assigned to duty on the *Brandywine*, which service he left by resignation. He was a member of the AMERICAN MEDICAL ASSOCIATION. At a meeting of the Medical Societies of Miami and Shelby Counties February 9, the following memorial report was adopted:

Resolved, By our Joint Society, that in the death of our associate and fellow member, Dr. S. D. Smith, while bowing in humble submission to the will of our Heavenly Father, that Great Physician before whom we must all appear and whose immunizing power alone can divest mortality of its sting, we have sustained a personal loss and would drop a tear upon the grave of our departed brother and place on record our appreciation of those high and noble qualities of heart and head which make up the life of one so well known as an accomplished physician, whose irreproachable life exemplified the value of a good citizen, who in his social relations was refined, genial and brilliant. One who was a sincere and faithful friend, removed from us at a time of life when many more years of active usefulness were to be hoped for; all who have been associated with him will ever hold in cherished remembrance his varied attainments and those higher moral qualities which rendered him not less endeared than admired.

Resolved, That we ever cherish the memory of our late associate and tender to his bereaved family our warmest sympathy in their great loss.

JAMES E. SHELLENBERGER, M.D.
J. F. GABRIEL, M.D.
D. R. SILVER, M.D.
F. M. WRIGHT, M.D.
O. TYDINGS, M.D.
} Committee.

JOHN H. MEASE, M.D., licentiate of the Oswego County Medical Society, 1875, died in Oswego, N. Y., March 11, after a practice there of twenty-four years. His wealth, according to the daily prints, was made by ventures in the early days of California, and by sales of horses to the government during the war.

HENRY DAVID KAHLER, M.D., Western Reserve Medical College, 1895, a native of Bolivar, Ohio, died in Shelby, Ohio, where he had recently located, February 20, aged 32 years.

CHARLES H. CALMAN, M.D., died in New York City, March 9, aged 21 years.

GEORGE BOWERS, M.D., Oshkosh, Wis., March 8, aged 29 years.——W. H. Bunker, M.D., Hartwell, Ohio, March 6.——

Eugene Clark, M.D., New Orleans, March 7.——Charles B. Jennings, M.D., Dubuque, Iowa, March 11, aged 64 years.——Sylvester Laning, M.D., Kingman, Kans., March 4, about 50 years old.——Anthony Weiskopf, M.D., Kenosha, Wis., February 26.——F. B. Wood, M.D., Garrett, Ind., March 1.——J. H. Hauptmann, M.D., Erie, Pa., March 6, aged 34 years.

DEATHS ABROAD.—Sir Richard Quain, Bart., physician extraordinary to her majesty, president of the general medical council and editor of "The Dictionary of Medicine." He was born Oct. 30, 1816, was a fellow of several learned societies and the author of numerous medical and scientific works.

ASSOCIATION NEWS.

Fifty-first Annual Announcement.

OFFICE OF THE PERMANENT SECRETARY,
1400 PINE STREET, PHILADELPHIA.

The Forty-ninth Annual Session will be held in Denver, Colo., on Tuesday, Wednesday, Thursday and Friday, June 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

"The delegates shall receive their appointment from permanently organized State medical societies, and such county and district medical societies *as are recognized by representation in their respective State societies*, and from the medical departments of the Army and Navy and the Marine-Hospital Service of the United States.

"Each State, county and district medical society entitled to representation shall have the privilege of sending to the ASSOCIATION one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *Provided*, however, that the number of delegates for any particular State, Territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the ASSOCIATION."

Members by Application.—Members by application shall consist of such members of the State, county and district medical societies entitled to representation in this ASSOCIATION as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the president and secretary of the society of which they are members, and the amount of the annual subscription fee, $5. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms.

The following resolution was adopted at the Session of 1888:

That in future each delegate or permanent member shall, when he registers, also record the name of the Section, if any that he will attend, and in which he will cast his vote for Section officers.

Secretaries of medical societies, *as above designated*, are earnestly requested to forward, *at once*, lists of their delegates.

Addresses.—Presidential Address, Geo. M. Sternberg, Washington, D. C. Address in Surgery, J. B. Murphy, Chicago. Address in Medicine, J. H. Musser, Philadelphia. Address in State Medicine.————

Committee of Arrangements.—J. W. Graham, Denver, Colo.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

Offered by W. L. WELLS:

Art. IV.—Officers. Amend to read "Each officer shall hold his appointment for one year, and until another is elected to succeed him."

Offered by H. B. ELLIS:

Art. IX.—Conditions for further representation. "Any State or local medical society, or other organized institution whose rules, regulations and code of ethics agree in principle with those of this ASSOCIATION may be entitled to representation on the advice or agreement of the Judicial Council."

"That the name of the Section on Dental and Oral Surgery be changed to that of Section on Stomatology."

Offered by L. D. Bulkley:

"That all new business shall be introduced not later than the third day of the session."

☞At the last session it was agreed that all committees having reports of public interest, and particularly matters pertaining to legislation, be instructed to make their reports on the second day at the General Session.

EXTRACTS FROM BY-LAWS.

"The Chairman of each Section shall prepare an address on the recent advancements in the branches belonging to his Section, including suggestions in regard to improvements in methods of work, and present the same to the Section over which he presides, on the first day of the annual meeting. The reading of such address not to occupy more than forty minutes."—*By-Laws.*

"It shall be the duty of every member of the ASSOCIATION who proposes to present a paper or report to any one of the Sections to forward either the paper or a title indicative of its contents and length (not to exceed twenty minutes in reading) to the Secretary of said Section, at least one month before the annual meeting at which the paper or report is to be read."—*By-Laws.*

4.—The Publication of Papers and Reports. "Every paper received by this ASSOCIATION and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the ASSOCIATION, and shall be published and sold for the exclusive benefit of the ASSOCIATION."—*By-Laws.* WM. B. ATKINSON, Permanent Secretary.

Section on Surgery and Anatomy.—All titles for papers in the Section on Surgery and Anatomy must be in my hands by May 1. Inasmuch as my program must be in the hands of the Secretary of the ASSOCIATION by May 7, I must have a week for its preparation. CLAYTON PARKHILL, Sec'y, Denver, Colo.

Section on Ophthalmology.—The undersigned would be glad to have the titles of papers for the Ophthalmic Section sent to one of them as soon as possible, in order that they may appear in the preliminary program. The subjects specially set for discussion at the meeting are: The Uses of Electricity in Ophthalmology; and The Treatment of Affections of the Lachrymal Apparatus. Papers on these or any other subjects of special interest to the Section will be welcome. A number of interesting contributions have already been promised and everything points to a most successful meeting. R. L. Randolph, M.D., Secretary, 816 Park Avenue, Baltimore, Md., H. Gifford, M.D., Chairman, 1404 Farman Street, Omaha, Neb.

Notice to all Interested in Neurological Progress.—All who classify themselves under the above caption will confer a favor upon the undersigned by sending a brief memorandum, with accurate reference data attached, of actual progress in neurology and neuristry for the past year, or any facts which they may consider so classified, to be epitomized or referred to in his forthcoming Presidential Address to the Section on Neurology and Medical Jurisprudence of the AMERICAN MEDICAL ASSOCIATION at its meeting in Denver in June *proximo*. Communications are also solicited to be presented to the Section either in person or by letter. C. H. Hughes, M.D., Chairman of Section on Neurology and Medical Jurisprudence, 3857 Olive Street, St. Louis, Mo.

Section on Neurology and Medical Jurisprudence—Preliminary Program.—The afternoon of the second day will be devoted to a joint session with the Section on Obstetrics and Diseases of Women for a discussion of The Relation of Pelvic Disease to Nervous and Mental Affections. This will be opened by six short papers, three from each Section. Those contributed by the Neurological Section will be as follows:

Is Pelvic Disease a Cause of Nervous and Mental Affections? by Frederick Peterson, New York.

Are Nervous and Mental Diseases Cured by Pelvic Operations? by F. X. Dercum, Philadelphia.

Nervous and Mental Diseases Following Pelvic Operations, by Harold N. Moyer, Chicago.

GENERAL PROGRAM.

Address of the Chairman, by Charles H. Hughes, St. Louis.

Double Consciousness and the Dual Action of the Brain, by David Inglis, Detroit.

Those Cerebral Neuroses Miscalled Insanities, by Clarke Gapen, Madison, Wis.

Relation of Neurasthenia to the Organic Neuroses and the Acute Psychoses, by James G. Kiernan, Chicago.

The Relation of Neurasthenia to Insanity, by John Punton, Kansas City.

Insanity; Borderland Symptoms; How Best Met, by W. S. Watson, Fishkill-on-Hudson, N. Y.

Neurasthenia; Its Co-relation to the Physiology and Pathology of the Reproductive Organs, by F. Savary Pearce and Harry D. Beyea, Philadelphia.

The Influence of Sexual Disorders upon the Nervous System; Its Nature and Extent, by J. R. Buist, Nashville, Tenn.

Reflex Neuroses in Women, by I. N. Upshur, Richmond, Va.

Uterine Hyperesthesia, by Ephraim Cutter, New York.

Functional Nervous Diseases That Are Associated with Pregnancy, by Samuel Goodman, Boston.

Functional Nervous Disturbances in Pulmonary Invalids, by Sherman G. Bonney, Denver.

Vasomotor Storms, by Frank R. Fry, St. Louis.

Neuralgia and Nerve Cries, by Charles H. Lodor, Chicago.

The Nervous Element in Hyperpyrexia, by C. C. Hersman, Pittsburg.

Neural Dynamics, by W. J. Herdman, Ann Arbor, Mich.

An Examination of Some So-called Faith Curists and Mental Scientists in the Light of Functional Pathology of the Brain, by Louis F. Bishop, New York.

The Stress of Modern Civilization as a Factor in the Causation of Insanity, by Frederic S. Thomas, Council Bluffs, Iowa.

The Question of Inheritance in Degeneracy of the Nervous System, by Ira Van Gieson, New York.

A Form of Degeneracy, by Eugene G. Carpenter, Cleveland, Ohio.

Melancholia, by Frank P. Norbury, Jacksonville, Ill.

Some Experiments in Uric Acid Excretion on a Milk Diet and in Melancholia, by F. Savary Pearce, Philadelphia.

The Result of Blood Examinations in Some Forms of Insanity, in Connection with the Administration of Thyroid Extract, by Samuel Bell, Newberry, Mich.

The Blood Changes in Nervous Diseases, by L. Bremer, St. Louis, Mo.

Toxins of Erysipelas in the Treatment of Insanity, by Oscar A. King, Chicago.

Travel as a Therapeutic Measure in Psychoses, by Richard Dewey, Chicago.

Moral Insanity in Inebriety, by T. D. Crothers, Hartford.

Massage Combined with Psycho therapeutics in the Treatment of Nervous and Mental Affections, by Geo. V. I. Brown, Duluth, Minn.

Electricity an Important Factor in Therapeutics, by W. S. Watson, Fishkill-on-Hudson, N. Y.

Two Cases of Hydrophobia with a Suggestion as to Treatment, by Hugh T. Patrick, Chicago.

Paralysis Agitans, by Sanger Brown, Chicago.

Exophthalmic Goiter, by J. B. Marvin, Louisville.

Hysteria in Children, by J. G. Biller, Cherokee, Iowa.

Aboulia in its Relation to Hysteria, by L. Harrison Mettler, Chicago.

The Opium Treatment of Epilepsy, by Frank C. Hoyt, Clarinda, Iowa.

Modern Treatment in Epilepsy, by Curran Pope, Louisville, Ky.

Symptoms Indicating Organic Nervous Disease, by Howell P. Pershing, Denver.

Paretic Dementia and Tabes, Their Genuine and Counterfeit Varieties, by Arthur E. Mink, St. Louis.

Some Considerations of the Symptomatology in the Diagnosis of Tabes, by J. M. Aikin, Omaha.

Report of a Case of Intra-dural Tumor of the Spine; Removal, Complete Recovery; Exhibition of the Patient; by J. T. Eskridge, Denver.

The Finer Structure of the Nerve-cell in Health and in Disease, by Lewellys F. Barker, Baltimore.

The Neuroglia in Health and Disease; by Maximilian Herzog, Chicago.

The Reclassification of Some Organic Nervous Diseases, by Chas. K. Mills, Philadelphia.

Cerebral Meningitis; Some Suggestions on Diagnosis and Treatment, by D. R. Brower, Chicago.

Apoplexies Without Paralysis; by William N. Bullard, Boston.

Syphilis of the Nervous System as the General Practitioner Sees It, by C. Travis Drennen, Hot Springs, Ark.

Aphasia; With Report of an Interesting Case, by F. E. Coulter, Omaha.

The Orthopedic Treatment of Infantile Spinal Paralysis, by John Ridlon, Chicago.

Lumbo-Abdominal Permanent Drainage in Hydrocephalus, by Alex. Hugh Ferguson, Chicago.

Adiposis Dolorosa, by Augustus A. Eshner, Philadelphia.

The Status of the Medical Expert in the Different States, by Edward B. Angell, Rochester, N. Y.

How Shall Consultations be Conducted by Those Who are to Testify as Experts? by John L. Hildreth, Cambridge, Mass.

The Medicolegal Value of the Roentgen Rays, by Geo. H. Stover, Denver.

The Medicolegal Aspect of Senile Dementia, by W. B. Fletcher, Indianapolis, Ind.

Characteristics of Headaches According to their Origin, by Henry Gradle, Chicago.

Ocular Headaches, by William H. Wilder, Chicago.

Headaches Caused by Errors of Refraction by J. Elliott Colburn, Chicago.

Some Causes of Wry-neck, by C. M. Hobby, Iowa City, Iowa.

A Case of Acromegaly, by Henry W. Coe, Portland, Ore.

There will also be a symposium on brain tumor, the details of which have not yet been completed.

HUGH T. PATRICK, M.D., Sec'y.

Section on Diseases of Children—Preliminary Program.—Address of Chairman, by J. P. Crozer Griffith, Philadelphia, Pa.

The Influence of Dystocia in the Causation of Infantile Diseases, by Joseph Eve Allen, Augusta, Ga.

Thyroid Treatment in Early Myxedema and Cretinism in Young Children, by Frederic Bierhoff, New York City.

Blood Examinations in Pediatric Practice, by S. E. Woody, Louisville, Ky.

Of the Value of Eye Symptom in Meningitis, by A. Edward Davis, New York City.

Some Additional Researches on the Poisons Found in Milk and Milk Products, by Victor C. Vaughan, Ann Arbor, Mich.

Tubercular Arthritis in Children, by John Ridlon, Chicago, Ill.

Some Skin Eruptions which are Confounded with Infantile Syphilis, by Charles H. Allen, New York City.

Preventive Treatment of Tuberculosis in Children with Hereditary Predisposition, by John A. Robison, Chicago, Ill.

Fracture of the Clavicle in Children, with Especial Reference to Treatment by a Modification of Sayre's Method, in over 200 Cases, by A. Ernest Gallant, New York City.

Discussion of above by Charles Power, Denver, Colo.

Whooping Cough, R. B. Gilbert, Louisville, Ky.

Eczema in Four Branches of a Family, by Ella M. Patton, Quincy, Ill.

Report of Some Odd Results in the Treatment of Diphtheria with Antitoxin, by Henry Anthony Strecker, Philadelphia, Pa.

Influenza in Children, by James J. Concannon, New York City.

The Treatment of Congenital Infantile Syphilis, by Charles S. Shaw, Pittsburg, Pa.

Mechanical Management of Difficult Defecation in Infants, by Thomas Charles Martin, Cleveland, Ohio.

Subnormal Temperature in Infectious Diseases, by Henry H. Freund, Philadelphia, Pa.

The Influence of the Climate of Colorado on Diseases of Children, by C. F. Gardiner, Colorado Springs, Colo.

Tetany in a Child 18 Months Old, by Edward H. Small, Pittsburg, Pa.

Tetany in Infancy, by J. Lovette Morse, Boston, Mass.

Pneumonia—Laborde Treatment of Artificial Respiration, by A. E. Roussel, Philadelphia, Pa.

Clinical Studies of Multiple Neuritis in Young Children, by Annie S. Daniel, New York City.

The Treatment of Tuberculosis in Children in New York City; Remarks Based on Ten Years' Experience, by Louis Fischer, New York City.

The Treatment of Congenital Talipes, by Harriet E. Garrison, Dixon, Ill.

The Debility of Adolescence, by Louis Faugeres Bishop, New York City.

Discussion of Intubation and Diphtheria, by Solomon Solis Cohen, Philadelphia, Pa.

The Diagnostic Value of Tuberculin, by Dillon Brown, New York City.

Some New Facts Concerning Scarlet Fever, by Joseph William Stickler, Orange, N. J.

Tuberculosis of the Iris, by A. C. Thompson and Samuel J. Cittelson, Philadelphia, Pa.

Formative Nutrition, by H. W. Scalfe, Chicago, Ill.

Tubercular Peritonitis, by F. F. Lawrence, Columbus, Ohio.

Cyclic Vomiting in Children, by Charles Godwin Jennings, Detroit, Mich.

Auto-Infection vs. Typhoid Fever as Seen in Young Children, by W. C. Hollopeter, Philadelphia, Pa.

Discussion in Diphtheria and Tubercular Diseases, by Edwin Klebs, Chicago, Ill.

Data Derived from One Hundred Cases of Laryngeal Diphtheria, Including Forty-five Intubations, by Rosa Engelmann, Chicago, Ill.

Management of Infectious Diseases in Children, by I. N. Love, St. Louis, Mo.

Is the Use of the Term "Typhoid Pneumonia" Justifiable? A Case in Point, by Henry E. Tuley, Louisville, Ky.

Neurotic Purpura, by Francis A. Thompson, Milwaukee, Wis.

Mortality in Children Due to Neglect, for Which the Physician is Responsible, by W. A. Dixon, Ripley, Ohio.

Dentition, by Joseph Clements, Kansas City, Mo.

Conservations in Diphtheria, by H. D. Jerowitz, Kansas City, Mo.

Demonstration in the Method of Auscultation and Percussion for Heart and Lungs, by Herbert B. Whitney, Denver, Colo.

Discussion of Dr. Whitney's Method, by J. N. Hall, Denver, Colo.; John H. Musser, Philadelphia, Pa.; James C. Wilson, Philadelphia, Pa.; J. P. Crozer Griffith, Philadelphia, Pa.

What Influence do Stimulants and Narcotics Exert on the Development of the Child, by E. Stuver, Rawlins, Wyo.

Milk Food in Infants, by Edwin Rosenthal, Philadelphia, Pa.

Gastro Intestinal Chloroform Diarrhea, by Edward L. David, Louisville, Ky.

The Diagnosis and Treatment of Inherited Syphilis, by E. C. Davis, Atlanta, Ga.

Discussion on Intubation and Diphtheria, by Robert Levy, Denver, Colo.

Serum Treatment of Diphtheria, as viewed by the General Practitioner, during the last year, by Alexander McAlister, Camden, N. J.

SOCIETY NEWS.

Florida Medical Association.—The annual meeting of the Florida Medical Association will be held at Jacksonville, Fla., April 26, 1898. R. R. Burroughs, M.D., President; J. D. Fernandez, M.D., Secretary.

The Austrian Congress of Otology discussed the following subjects at the Vienna meeting in February: "Comparative Anatomy of the Labyrinth," "Pigment in the Labyrinth," "Persistent Perforations of the Tympanum," "Traumatic Neuroses," "Cholesteatoma of the Temporal Bone," "Cerebral Deafness," "Anatomy of Acute Tympanitis," "An Automatic Rheostat." Politzer, Gruber and Baginsky were among the speakers.

Congresses Announced.—The fourth International Congress of Physiology will meet at Cambridge, England, August 28 to September 1. The German Congress of Internal Medicine meets at Wiesbaden April 13. Von Ziemssen speaks on medico-legal instruction, Müller and Brieger on intestinal auto-intoxication and antisepsis, and Leo on diabetes mellitus; others on diseases of the cardiac musculature, blood plaques and experimental gastric ectasia. The German Congress of Surgery at Berlin April 13; for particulars address Professor Gurlt, W. Keithstr. 6, Berlin. The French Congress of Gynecology, Pediatry, etc., at Marseilles October 8; president, Professor Pinard. The French Congress of Alienists and Neurologists at Angers August 1. The subjects announced for discussion are: "Post-operative Psychic Troubles," "Arteritis in the Pathology of the Nervous System," and "Transient Delirium from a Medico-legal Point of View." The French Congress of Medicine at Nancy, April 12. Subjects of addresses: "Clinic Forms of Pulmonary Tuberculosis," "Mixed Infections and the Therapeutic Application of Organs with Internal Secretions." The Norwegian Congress of Internal Medicine is announced for August 11 to 13 at Christiana. General secretary, H. Koester, Goeteborg.

BOOK NOTICES.

The Elements of Clinical Diagnosis. By PROF. DR. G. KLEMPERER, Professor of Medicine at University of Berlin. First American from the last (seventh) German edition. With Sixty-one Illustrations. Authorized Translation by Nathan E. Brell, A.M., M.D., and Samuel M. Buckner, A.M., M.D. New York: The Macmillan Company; Chicago: A. C. McClurg & Co. 1898.

As the translators remark, the fact that a work has gone through seven editions in as many years in Germany, is sufficient evidence of its merits, without further comment. They seem to have done their part in an unexceptionable manner. There are no traces in the translation of the involved and difficult language of the original. The book will be, with its convenient form and inexpensive cost, a very acceptable addition to the literature of its subject in our language. There are few works of its compass that are likely to be more serviceable.

Outlines of Rural Hygiene. For Physicians. Students and Sanitarians. By HARVEY B. BASHORE, M.D., Inspector for the State Board of Health of Pennsylvania. With an Appendix on the Normal Distribution of Chlorine, by PROF. HERBERT E. SMITH of Yale University. Illustrated with Twenty Engravings, 5½x8 inches. Pp. vi–84. Extra cloth, 75 cents net. The F. A. Davis Co., Publishers, 1914-16 Cherry Street, Philadelphia; 117 W. Forty-second Street, New York City; 9 Lakeside Building, 218-220 S. Clark Street, Chicago, Ill.

This little work is a very useful one and one very much needed. Indeed, *the* neglected point of sanitation today is the country. In cities the work is attended to by able and well equipped health departments, but rural hygiene is supposed to take care of itself. We bespeak for these "Outlines" of Dr. Bashore a wide circulation and careful attention.

Sexual Neurasthenia (NERVOUS EXHAUSTION), ITS HYGIENE, CAUSES, SYMPTOMS AND TREATMENT, with a Chapter on Diet for the Nervous by GEORGE M. BEARD, A.M., M.D. Edited with Notes and Additions by A. D. ROCKWELL, A.M., M.D. Fifth Edition (with Formulas). Pp. 308. New York: E. B. Treat & Company. 1898. Price $2.

The editor, Dr. Rockwell, says truly that "the fact that each successive edition of this work has been exhausted more quickly than its predecessor, sufficiently indicates its popularity and right to live."

In this edition is for the first time described what the author terms the "depolarizing" method in the treatment of neurasthenic cases. By this method the force of the positive pole is changed, by the use of a hollow-handled or cup-shaped electrode which, when in use, is filled with some electrolytic fluid, as a weak salt solution or weak solution of soda bicarbonate. This method prevents the pain and undue irritation sometimes felt at the point of contact with one of the ordinary electrodes, no matter how widely separated.

MISCELLANY.

Personal.—Professor William L. Nichol, so long identified with the schools of Nashville, Tenn., as a teacher of medicine, will in future lecture and teach exclusively in the Medical Department of the University of the South, at Sewanee, Tenn.

Broth for Cultivating Microbes.—Miquel recommends the following formula for a cultivation broth in bacteriologic researches: Chapoteau's pepton, 40 parts; gelatin, 4 parts; common salt, 10 parts; wood ashes, 1 part; and 2000 parts of water; the broth is made in the usual way.—*National Druggist*, March.

Retirement of Professor Esmarch.—Professor Esmarch of Kiel, one of the veterans of surgery, intends to retire from his professorship very shortly. Esmarch is 75 years old, and has held his chair at Kiel for more than forty years.—*British Medical Journal*, February 12.

An Editor Receives Professorial Honors.—Dr. J. W. McLaughlin of Austin, Texas, has been made professor of practice of med-

icine in the medical department of the University of Texas at Galveston. In accepting this honor, he has had to sever his connection with the *Texas Medical News* as its senior editor. This is a serious loss to our esteemed contemporary. We note, however, that Drs. A. N. Denton and M. M. Smith have been added to its editorial staff, with whose assistance, we feel sure, Dr. Bennett will keep up the standard of the *News.—New Orleans Medical and Surgical Journal.*

Paternalism Run Mad.—Representative Parker of Cleveland recently introduced a bill in the Ohio legislature providing for the appointment by the probate court of each county of a board of marriages composed of physicians. To this board, consisting of three members, persons who wish to marry must make application. The board will refuse to grant a license in case either party to the proposed contract has dipsomania, kleptomania, insanity, true or hereditary or resulting from vice; certain blood diseases or tuberculosis. It will charge $2.50 for each license and out of the fund so made each member will be paid a salary of $1000. There is provided a method of appeal to the State Board of Health in case of any refusal to grant the license.

Immunity to the Sting of Bees.—Dr. Langer of Bohemia, stated at the recent Congress of German Naturalists and Physicians, that he found the majority of bee-keepers in his district (Ruschowan) acquire a complete immunity to the stings of those insects, while some seem to have enjoyed that immunity from the first, possibly by inheritance. Of 153 nine had always been insusceptible, 118 had acquired the immunity, twenty-six had not. In some cases it was so complete that when intoxicated men had been stung in from fifty to one hundred places with less suffering than is felt by most persons from flea bites. He found the poison to be an animal alkaloid, and not, as is commonly believed, a formic acid. The best treatment is a subcutaneous injection of a 2 to 5 per cent. solution of potassium permanganate, as this salt in the proportion of 1 to 20 destroys this poison.—*The Practitioner*, February.

The So-called Roentgen Lady.—Latest among the marvels of French origin is *La Femme Roentgen*, a woman who is described as being able to read with ease through opaque bodies. Such, at least, is the story. We are told that Dr. Ferroul of Narbonne has found and has introduced this phenomenal lady to his colleague at the Medical Faculty at Montpellier. "All this is quite impossible," exclaimed Dr. Grasset when he was informed of the new wonder. "Well, you will see," was the reply. Then the demonstration was made. The woman succeded in reading, at a distance, a letter, the envelop of which had been covered with seals and also posted as an additional precaution, and so Dr. Grasset was converted. Some skepticism on the subject is still permissible, nevertheless; yet what a vista of queer possibilities does not this open out, even if *La Femme Roentgen* possesses only a moderate share of the extraordinary qualities thus attributed to her!—*The Parisian.*

Sugar in Mullein Flowers.—Dr. Schneegans, while making periodic examinations of the urine of a diabetic patient, who had been put on a strict diet without carbohydrates, found for a few weeks no sugar, but suddenly a considerable amount was again noticed and continued with regularity, although the diet had not been changed. Inquiries brought to light that the patient regularly drank considerable quantities of strong mullein tea, which had been recommended him as a remedy for Bight's disease. This led the author to repeat the experiments of Rebling, who had found 11 per cent. of sugar in mullein flowers, which would fully account for the sugar in the urine. Schneegans then found in various samples from 9.2 to 11.7 per cent. of invert sugar, and small varying quantities of cane sugar, corroborating the results of Rebling. Traces of an alkaloid were obtained from the seeds.—*Jour. de Ph.* in *Ap. Ztg.*

Quantitative Determination of Sugar in Urine.—According to Foerster (*Pharmaceutische Zeitung*) a quantitative determination of the sugar in urine may be made by means of Fehling's solution without the use of an indicator, in the following manner: The solution must be so prepared that 10 c.c. exactly represents 10 c.c. of a 5 per cent. solution of glucose. The limit of reaction when sugar solution in an Erlenmeyer alembic still plainly shows up blue, but when poured into a white 20 gm. glass it is completely colorless. To this end the Fehling solution must be made somewhat stronger than usual, and instead of carrying 34.64 gm. of copper sulphate should contain 35 gm. to the liter. For the determination pour 10 c.c. of the urine into a graduate glass, add 10 c.c. of the glucose solution thereto and fill up with distilled water to the 100 c.c. mark. With this mixture the liter is taken exactly as in pouring in the solution. The amount of the diluted urine used must be divided by 50, and from the quotient subtract 5 gm. The remainder is the percentage of sugar in the urine. The addition of the grape sugar makes it possible to titrate freely without the liquid ceasing to boil. The precipitate settles quickly, and the color shown by the mixture enables the expert to determine the limit of the reaction very closely.—*National Druggist*, March.

Must Assert Privilege in Time.—Referring to the provision of the California code that a licensed physician or surgeon can not, without the consent of his patient, be examined in any civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient, the supreme court of that State says that the privilege is personal to the patient, and is waived when he calls the physician himself as a witness, or when he permits him to give his testimony without making any objection thereto. If the patient once consents to his testifying, he can not, after the testimony has been given, revoke the consent, and ask to have it excluded. Such consent may be either implied or express, further holds the court, in Lissak vs. Crocker Estate Company, where it maintains that there was an implied consent when the plaintiff permitted the witness to be examined in full by the defendant without any objection.

The Death-dealing Properties of Modern Ammunition.—The deadly effects of firearms is being steadily increased by the constant improvements which are being made. The *Scientific American* says that the deadly effect upon game of small, metal-covered expanding bullets, with high-velocity smokeless powder, has been recently satisfactorily demonstrated. Modern weapons possess several advantages over the old large calibers in flatness of trajectory, absence of smoke, long range, increased penetration, high velocity, less recoil and light-weight ammunition. The expanding bullet produces invariably an area of laceration gréater than ever effected by any projectile before used. Without calculating the effect of the nervous shock, extensive splintering of bone and laceration of tissue are produced. The secret of the deadly effect of these small projectiles lies in their expanding qualities and extraordinary high velocity resulting from the use of smokeless powder, which is only possible when confined in small calibers. These facts are of interest not only to the members of the profession who are notorious Nimrods, when in search of large game, but are of immense practical value to the army and navy surgeon.

Some Examples of Incompatability.—The fact that many alkaloids and similar substances frequently give physiologic results different from those expected, suggested to the *Ztsch. f. Krankenfl.* a discussion of these conditions, including a consideration of those medicinal substances, that suffer rapid decomposition and molecular rearrangement and those subject to deterioration during the process of preparation. As examples are mentioned the admixture of silver salts and organic matters; of salicylates with vegetable or mineral acids; sterilization of morphin and

cocain solutions. Ointments are frequently entirely inactive, when containing metallic salts in addition to a salt of morphin or cocain, as the alkaloids are always rendered insoluble by a slight excess of metallic salts. Simultaneous external and internal use of certain medicaments may also exert a disturbing influence on their action. If, for example, an oculist prescribes an ointment containing mercury and the patient takes potassium iodid internally, there will be a formation of mercuric iodid in the eyes, which considerably increases their inflammation. Quinin is not infrequently prescribed with substances containing tannin, an insoluble tannate of quinin being the result. Quinin is also slowly precipitated by potassium bromid. In the cases of iodin and bromin the reactions with quinin are not always simple, but at times these bodies enter directly into the molecule and change not only the structure, but also the physiologic properties and are liable to change it even into toxic bodies. During the sterilization of morphin solutions there is a liability, especially when the temperature is too high, of forming apomorphin, an alkaloid of totally different therapeutic action. A similar change may take place under like condition in the sterilization of cocain solutions.—*Ph. Post*, in *Pharmaceutical Era*, March 3.

Supreme Court of United States on Suicide of Sane Insured Person.—A most important decision, bearing on the legal effect on life insurance of a policy holder committing suicide while sane, was rendered by the supreme court of the United States, Jan. 17, 1898, in the case of Ritter vs. the Mutual Life Insurance Company. Here it approves an instruction of the jury that if the insured understood what he was doing, and the consequences of his acts to himself and to others (that is, if he understood, as a man of sound mind would, the consequences to follow from his contemplated suicide, to himself, his character, his family and others, and was able to comprehend the wrongfulness of what he was about to do, as a sane man would), then he was to be regarded as sane; otherwise, not. And if experience justifies the view that an application for a policy would be instantly rejected if expressly providing that the company would pay the sum named if the insured committed self-destruction, being at the time of sound mind, the supreme court insists, it would follow that a policy stipulating generally for the payment of the sum named in it upon the death of the insured, should not be interpreted as intended to cover the event of death caused directly and intentionally by self-destruction while the insured was in sound mind, but only death occurring in the ordinary course of his life. But the court goes still farther and holds that if a policy—taken out by the person whose life is insured, and in which the sum named is made payable to himself, his executors, administrators or assigns—expressly provided for the payment of the sum stipulated when or if the insured, in sound mind, took his own life, the contract, even if not prohibited by statute, would be held to be against public policy, in that it tempted or encouraged the insured to commit suicide in order to make provision for those dependent upon him or to whom he was indebted. Nor does it consider that the case is any different in principle when such a policy is silent as to suicide, and the event insured against—the death of the insured—is brought about by his wilful deliberate act when in sound mind.

Coroner's Verdicts not to be Considered in Civil Cases.—Upon a rehearing, in the case of the Germania Life Insurance Company vs. Ross-Lewin, the supreme court of Colorado reverses the position it first announced, and rejects the construction which the supreme court of Illinois has put upon a statute similar to that of its own State and upon which statute the latter one was previously modeled, relative to the use of coroner's verdicts. It now takes the ground, Dec. 20, 1897, that the purpose of the coroner's inquisitions is merely to furnish the foundation for a criminal prosecution in case the death is shown to be felonious, and are of extrajudicial character. It says that in case of death under suspicious circumstances, or resulting from accident, the rule permitting inquisitions to be used in evidence would result in a race and scramble to secure a favorable coroner's verdict that would influence, and perhaps control, in case suit should be instituted against life insurance companies upon policies of insurance, and in cases of accidents occurring as the result of negligence on the part of corporations operating railways, street-car lines, mining for coal or the precious metals, etc. Law writers of late have frequently animadverted upon the carelessness with which such inquests are frequently conducted, and to allow inquisitions to be used in a suit between private parties upon a cause of action growing out of the death of the deceased, continues the court, would be to introduce an element of uncertainty into the practice, which, it thinks, would be contrary to public policy, and pernicious in the extreme; and for these reasons, the court concludes, upon careful consideration, it says, that the safer and better rule is to exclude such inquisitions.

Hypnotism Before the Court.—In the surpreme court of California, in the case of the People vs. Ebanks, the ruling of the Trial Judge in reference to the effects of hypnotism upon the defendant, are interesting. The decision was reviewed by the supreme court of California. In this case a witness was called by the defendant who was charged with murder and an offer was made to prove by him that he was an expert hypnotist, that he had hypnotized the defendant and that when hypnotized the defendant had made a statement to him in regard to his knowledge of the affair, from which statement the witness was ready to testify that the defendant was not guilty and that defendant denied his guilt while in that condition. The Trial Judge sustained an objection to the testimony. He said: "The law in the United States does not recognize hypnotism. It would be an illegal defense and I can not admit it." Commissioner Searles, who prepared the opinion of the supreme court of California, wherein it, Aug. 23, 1897, affirmed the judgment of conviction of murder in the first degree, said "We shall not stop to argue the point, and only add the court was right." Commissioners Belcher and Chipman concurred. Justice McFarland said: "I concur in the judgment and in the opinion of Commissioner Searles, but what is said in the opinion on the subject of hypnotism must be taken as applicable to the testimony offered on that subject in this case, which was clearly inadmissible, and not as covering the whole subject. It will not be necessary to determine whether or not testimony tending to show that a defendant committed the act charged while in a hypnotic condition is admissible until a case involving that precise question shall be presented." In this utterance, Justices Henshaw and Van Fleet concurred.—*Medico-Legal Journal*, December.

Qualification of Expert as to Poisons.—Notwithstanding that the supreme court of Colorado says it is seldom that a witness is presented whose general competency, not only in the practice of medicine, but in toxicology, is so well established as was that of Dr. Eskridge upon the trial of the case of the Germania Life Insurance Company vs. Ross-Lewin, the trial court refused to receive his testimony with reference to the effects of cyanid of potassium upon the human system, for the reason that he had had no actual experience with poisoning from cyanid of potassium. This ruling the supreme court pronounces clearly erroneous. It says new poisons are constantly being discovered by scientists, and under the rule announced by the district court all inquiry as to the result of such new poisons upon the human system from experts would be excluded. In fact, under that rule, expert evidence would be excluded in all except those cases in which some of the usual and well-known poisons were resorted to. And the supreme court suggests that it would offer a premium to the ingenuity of criminals and others in the

selection of rare and unusual poisons to destroy human life. For these reasons, the court declares the rule entirely too technical, and not supported by reason or authority. Moreover, while in some States it has been held that the decision of the trial court upon the competency of a witness to testify as an expert is conclusive, the supreme court of Colorado takes this opportunity of declaring for the contrary rule as supported by the weight of reason and authority and because it has the sanction of the supreme court of the United States.

Better Have Your Family Physician.—

Jest keep the heart a-beatin' warm,
Be kind ter every feller;
Look fer the rainbows in the storm,
But—carry yer umbreller!

Be brave ter battle with the strife,
Be true when people doubt you;
Don't think that money's all in life,
But—carry some about you!

An' when it's time ter shuffle off,
An' you have done yer mission,
Jest put yer trust in Providence,
An' call a good physician!

—*Atlanta Constitution.*

Recent Experiences with Cataract Operations.—At the recent Moscow Congress, Knapp of New York reported 1050 cataract operations, of which 400 included all complicated cases. The method of operation was usually a simple extraction without iridectomy, and the incision at the border of the transparent cornea almost half its extent. The capsule was opened with the cystitome to the extent of 5 or 6 mm. in the upper part of the iris, so that the torn pupillary edge of the iris and the wounded capsule should not touch. Pressure at the lower part of the cornea easily delivers the lens, but contact of the border of the lid and the corneal wound should be avoided. Both eyes are bandaged afterward and the dressing changed after twenty-four hours, when any prolapse of the iris can be disposed of. Reaction of an inflammatory nature was limited to six cases of slight iritis, two cases of partial wound infection and four cases of purulent infection of the cornea. In 355 operations prolapse of the iris occurred fifteen times (7.6 per cent.) and was successfully treated by iridectomy. Secondary operations were done in 40 per cent. of the cases. In three cases glaucoma following discission was observed. Recovery was obtained by means of iridectomy, eserin and morphin. In the last 400 cases good vision was obtained in 93 per cent., fair in 4.5 per cent. and total failure in 2.4 per cent.—*Archives of Ophthalmology.*

Therapeutic Value of Spleen Extract.—The *Edinburgh Medical Journal* for February, contains the results of an investigation extending over two years and establishing the therapeutic value of this extract. Briefly, "it aids digestion and nutrition, increases the cutaneous activity, stimulates the glandular activity of the skin, etc." In the first class of cases, chronic inertia, mental and physical, after a year's treatment the mental result was *nil* in a few, slight improvement in a few and recovery in two. The second class included recent cases of insanity due to physical exhaustion and the results were more prompt, first physically, then mentally, the majority being improved and some completely restored. The effect on the pulse and temperature, the bowels and urine, is yet to be determined definitely; in some the appetite improved, in more the digestion; the weight curves varied, increase of weight being the rule; in all the women there was increase of hemoglobin and red blood cells with one exception; color and warmth of the skin with softness and elasticity was noted; mentally, exhibition of temper was noted in both sexes, more so in the males. The author had previously used thyroid extract with no success in these mental cases. He believes that, "spleen extract, if less phenomenal in its effects than thyroid, is conducive to more lasting results, that it is surer, and still more important, exceedingly safe," but much smaller doses are sufficient to produce pyrexia, etc., especially after use of the etherial extract.

Suits by Both Physician and Patient against Railway Company.—One of the points sought to be made in the case of Smith vs. the Chicago & Nothwestern Railway Company, an action brought to recover payment for medical services rendered in the treatment of an injured employe of the company, was that the plaintiff physician was estopped by having given testimony showing the service rendered and the value thereof, in an action brought against the company by the former patient, in order to enable the latter to recover therefor. On the trial, the jury were instructed that if the physician was a witness in the other case, and for the purpose of enabling his former patient to recover against the railway company, he gave testimony that he was the physician in attendance, and performed the services, and of their value, thus enabling the former patient to recover of the company for such services, he, the physician, was estopped to recover in this suit of his own. But this was followed by another instruction that if the jury believed that at the first trial, and when the physician was examined as a witness, in answer to the question with reference to his bill for services he said: "I have a suit pending against the company for my services, and I expect to collect for my services from the defendant," or words of a similar effect or import, then there would be no estoppel. This, the supreme court of Iowa holds correct, December, 1897. It says that the doctor owed the railway company no duty, when asked, on the first trial about his services, to decline to answer, and inform the court that he had a suit pending for such services. He was a witness in court, and, in a sense, under the direction of the law. The defendant company was present, with full opportunity to insist upon a disclosure of the facts; and if the witness gave them, and, in so doing, it was made to appear that he was a claimant for such services himself, the court maintains, the basis for an estoppel against him in his own suit failed.

New York Skin and Cancer Hospital.—The New York Skin and Cancer Hospital now has a proper building. For fifteen years it has occupied a dwelling house, 243 East Thirty-fourth street, which was altered over, but on March 5 the new hospital building, Second Avenue, corner Nineteenth Street, was opened with appropriate ceremonies. After a few introductury remarks by the president, Mr. J. Cleveland Cady, Dr. A. Jacobi, president of the medical board, made an address, dwelling on the necessity and value of special hospitals and the work of this, the only institution of its kind in the United States. Dr. L. Duncan Bulkley then made an address, reviewing briefly the origin and early history of the Hospital, and its work during the fifteen years of its existence. He called attention to the fact that the old city of New York had grown at the rate of 50,000 inhabitants a year for the past ten years, and suggested that the hospital accommodations had not kept pace with the growth of the city. He mentioned that most of the other special departments of medicine had special hospitals, but until the establishment of the New York Skin and Cancer Hospital there had been none of the kind in this city or country. He instanced the large provision made for skin diseases in Paris, Vienna, Berlin and all the cities of Europe, Great Britain having twelve special hospitals of this kind. Beginning in a very small way and with no endowment or pledged support, the Hospital had received $375,000 during the past fifteen years, of which $75,000 had come from board of patients, and also of drugs to out-patients. Of the $300,000 contributed from outside, the hospital now had $25,000 invested for five endowed free beds, and had paid $150,000 for the new building, which was free of debt; but, as it had no permanent or definite income, he earnestly asked gifts and moral support from those present. During the fifteen years the Hospital had treated 25,031 patients, of which 22,159 had been out-patients,

who had made 118,154 visits to the Hospital, and for whom 132,263 prescriptions had been written and filled. The in-patients had spent 165,077 in the Hospital. He called attention to the value of the Hospital as an educational center, instancing that thirty young men had been internes and had acquired a knowledge of these diseases second only to that obtained by prolonged study abroad. He also stated that it was proposed to have clinical lectures in the Hospital, free to physicians, which were to be further illustrated by a collection of Paris models and colored plates which had been loaned to the institution. The new building is a modern fire-proof structure of four stories and basement, containing about sixty beds for patients. Of these, seven are in private rooms. On the top floor there is a modern operating room, well equipped, the Worden ward for children and most of the private rooms. On the next two floors are four wards for male and female patients with dieases of the skin and cancer. On the ground floor is the large out-patient room, with consulting rooms, pathologic laboratory, drug room, office, reception room, etc. In the basement there is a complete set of baths, including Turkish, Russian, needle and plunge; besides the kitchen, laundry, dining rooms, etc. The lighting, heating and ventilation are of the most approved kind.

Wanted.—We desire to secure a copy of No. 11, Vol. iii, of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for completion of above volume for a foreign library. Anyone having this number to spare will confer a favor by returning same to this office and we will remit charges.

Acute Otitis and Mastoiditis Cured by Intercurrent Erysipelas.—Stein reports a case so severe that trephining of the apophysis was decided upon, when suddenly the patient was attacked with erysipelas of the nose, extending to the mastoid region and the diseased ear. The attack lasted two weeks and the other trouble vanished with it.—*Semaine Méd.*, December 15.

Histo-psychology.—In describing two cases that combined the two syndromes of meningism and catalepsy, Dupré ascribes them to two factors, a grave toxi-infection and a psychopathic predisposition. In toxic encephalopathy the form of the accident is determined at least as much by the psychopathic disposition of the subject as by the pathogenic properties of the poison (uremic). This explanation will probably be confirmed by the new science now being evolved by our progress in histologic technique and psychlogic analysis which Soury calls histo-psychology.—*Presse Méd.*, January 22.

Histologic Investigation of the Prostate after Castration, etc.—Extensive experimental research at the Histologic Institute at Nancy in regard to the atrophy of the prostate after castration, vasectomy and the new method of intra-epididymitis injection of a 20 per cent. solution of zinc chlorid resulted in evidences of regression of the glandular substance with considerable development of the interstitial conjunctiva, and the size of the gland very much reduced, especially in the pig. These results were invariably found after castration and also after the sclerogenic injections, not so constantly after vasectomy (beeves, sheep, pigs, dogs, guinea pigs).—*Presse Méd.*, January 22.

Gleanings.—An exhibit of universities is to be one of the features of the Paris Exposition.—Professor Ruggi of Modena recently performed his thousandth laparotomy.—Unilateral, repeated pains in the articulations, myalgia or neuralgia may prove the precursors of hemiplegia; especially important in the diagnosis if the vascular system shows a predisposition to the affection (*Journ. de Méd. et de Chir.*, 1898, No. 1).—If in convalescence from pneumonia the valvular sound assumes a "smothered" tone, becoming later "smothered and hard," it is an indication of incipient ulcerous endocarditis, which should receive prompt treatment without waiting for further indications (*Gazz. d. Osp. e d. Clin.*, January 20).—Jean Pasteur is said to receive $110 a day from Cornelius Vanderbilt, for his medical services, accompanying him on the yacht *Catania*.—The viceroy of India has sent to England for more medical assistance. He asks for eight physicians, two women physicians and twenty-five nurses.

Anatomic Alterations in the Genital Organs after Sexual Operations to Relieve Hypertrophied Prostate.—B. Floderus contributes an article to the *Nordiskt Med. Ark.* of January 10, based on the necropsy of thirty-six cases previously operated. In twenty the examination was both macro- and microscopic (testectomy fourteen, vasectomy five, combined one). He adds a number of illustrations which show that these operations fail to produce any alterations in the organized tissue of the prostate. The decrease in the size of the prostate, which, he adds, is inconstant and seldom equal to the extent of the hypertrophy, is not due to any alterations in the organized tissues but is rather to be attributed to a diminution in the elements circulating in the organ, the blood and the lymph. The importance of this diminished congestion from the functional point of view is less apparent in the prostate proper than in the prostatic portion of the urethra and neck of the bladder. In normal prostates a genital operation may induce alterations in the organized tissue, but this he considers impossible in senile hypertrophy to any appreciable extent. The evidences of fatty degeneration, etc., are no more than is observed in non-operated hypertrophied prostates.

Gladstone's alleged Indifference to Sanitary Legislation.—An old medical friend of Mr. Gladstone and who had been somewhat of a sanitarian all his life, is wont to complain that he has never been able to enlist the attention of that mind of large and multitudinous interests in questions of sanitary reform, questions of infinitely greater importance to Englishmen than the troubles of Bulgaria and Armenia. This venerable physician has come to the conclusion that sanitation lacks in those "showy" qualities that lead public men to become the champions of subjects that excite the *vox populi* The best way to get politicians to consider the public health is to educate people up to that point where the latter will begin to insist upon having that theme put as "a plank in every platform." When votes are to be caught by pledges on behalf of sanitary reforms and administrations are turned out for not redeeming such pledges, then will the statesman arise to the needs of the commonwealth, and we will view the upbuilding of a national Department of the Public Health. It is not difficult to imagine how different might have been the position of public medicine before the world if Mr. Gladstone had, in the early part of his career and later, adopted sanitation as one of his war cries. It can not be said that his attention was not properly called to the subject, for his lively foeman, Disraeli, in the 70's, threw down the challenge in a proposition that speedily sped around the English-speaking world, to the effect that "the first consideration of a minister should be the health of the people."

The Semeiologic Value of Abnormal Reactions of the muscles and nerves, was the subject of an address by E. Doumer at the Brussels Congress of Neurology. He asserts that it is only in quite exceptional cases that it is possible to excite exclusively the muscular fiber. In most cases the muscular reactions obtained by applying electric excitation to elective points on the muscles are due mostly to excitation of the terminal filaments of the motor nerves. The term "exploration of the muscles," used so frequently in electro-diagnosis, is therefore incorrect. The reaction of the muscle to the excitation of the nerve, shows that this excitation is transformed at the exciting point into a nerve wave which in its turn acts upon the muscle. After studying the abnormal reactions hitherto described

(reaction of degeneration, of compression, of the diathesis of contractions, myotonic, etc.), which are in reality electric syndromes formed by the elementary reactions, he arrives at the following important conclusions in regard to these elementary reactions: Faradic and also voltaic hypo-excitability may depend upon an alteration in the reacting organ (muscle), as well as upon an alteration of the excited nerve. It always corresponds to an alteration in the nervo-muscular system situated *below* or *at* the point excited. Among the qualitative modifications of voltaic excitations he asserts that what he calls "Erb's reaction" always corresponds to a more or less profound alteration of the peripheral motor neurons at the very point of the excitation. It is absolutely independent of the lesions which may be situated above or below this point. The other elementary reactions are still too little known for positive clinical deductions. He urges the adoption of methods of exploration in electrodiagnosis which will determine the characteristics of the excitation, and the curve of the reaction, and suggests that the principles necessary for the establishment of such methods may be found in Professor d'Arsonval's remarkable works.

Fatality Following a Controversy Between Medical Men.—A letter from the University of Bonn recites a tragedy following a difference between surgeons. An armed encounter between members of the medical profession at this the close of the nineteenth century was certainly not to be anticipated, but the old saying that it is always the unexpected which arrives has once more been verified. It is only too true that a duel was recently fought at Bonn, the combatants being both medical practitioners, and most unfortunately one of them met with his death from a penetrating wound of the thorax. It seems that two of the assistants of a surgical clinic named Reusing and Fischer, had a violent altercation over a professional matter, the former accusing his colleague of malpractice in the conduct of an operation, and as apparently there was no older and wiser person at hand to pour oil on the troubled waters a hostile meeting ensued, with the above mentioned deplorable result. That duels should still survive on the Continent, especially in military circles is perhaps not to be wondered at under the existing regime, but happily the vast majority of medical men of all nationalities are the possessors of well balanced minds, and recourse among them to the *argumentum baculinum* for the adjustment of technical disputes must be an altogether exceptional occurrence. Complaints are often heard of the overcrowding of the medical profession on the other side of the channel, but of all depletory methods the slaying of one's confrère is surely the least philosophic. A duel at the present day is an anachronism. As a mode of settling scientific controversy it is not only out of date, but also about the most illogic procedure conceivable. Killing an opponent does not prove the survivor's case; while the gratification of an ignoble feeling of personal resentment is dearly purchased at the expense of lifelong remorse. The principals in a duel are blameworthy, but for them there are excuses, seeing that most human beings are more or less passionate by nature. For the seconds, generally speaking, there is absolutely nothing to be said. They are simply the abettors of a crime in which they run no bodily risk, and it is against them that retributive justice should be mainly directed. If seconds would only consider the heinousness of their position, there would soon be an end of dueling.

Ohio Law Constitutional.—The constitutionality of the Ohio law passed Feb. 27, 1896, "to regulate the practice of medicine in the State of Ohio," was attacked in the case of France vs. State. One objection made to the statute was that, by those provisions which authorize the medical board, for the causes therein mentioned, to refuse or revoke certificates of qualification required of physicians before they are entitled to practice in Ohio, and provide for an appeal to the governor and attorney general, it assumes to confer judicial power which, under the State constitution, belongs exclusively to the courts. Undoubtedly, says the supreme court of Ohio, Oct. 26, 1897, the authority conferred by the provisions referred to includes the power to examine into and decide questions requiring the exercise of judgment, such as might not inappropriately be conferred on a court. Nevertheless, it holds that the power conferred on the board is administrative in character, and not judicial, within the meaning of the constitution; nor made judicial by the circumstance that an appeal is allowed from its decisions to the governor of the State and the attorney general. It further holds that the statute is prospective in operation, and in no respect obnoxious to section 10 of article 1 of the Federal constitution, which forbids the enactment of *ex post facto* laws and bills of attainder by the States. Neither does it consider that the regulations adopted by this statute infringe upon the privileges and immunities guaranteed by section 2 of article 4 of the Federal constitution to citizens in the several States, nor abridge those secured to citizens of the United States by the fourteenth article of amendment of that constitution. It is competent, the court declares, for the State, under its power to provide for the welfare of its people, to establish needful regulations, and impose reasonable conditions, calculated to insure proper qualifications, both with respect to learning and moral integrity, of persons desiring to engage in the practice of medicine in the State, and require compliance therewith by such persons before they shall be permitted to practice within the State. Of that character, it pronounces the regulations adopted by the statute in question, which it accordingly holds constitutional and valid.

Societies.

The following recent meetings are noted:

California.—Fresno County Medical Society, Fresno, March 1.

Connecticut.—Bridgeport Medical Society, March 2.

Illinois.—Chicago Pathological Society, March 14; East St. Louis Medical Society, March 7.

Indiana.—Bartholomew Medical Society, Columbus, March 1; Marion County Medical Society, Indianapolis, March 1; Monroe County Medical Society, Bloomington, March 8; Tippecanoe County Medical Society, La Fayette, March 2; Vigo County Medical Society, Terre Haute, March 3.

Iowa.—Semi-annual meeting of the Medical Society of the Missouri Valley, Red Oak, March 17.

Massachusetts.—Everett Medical Society, Boston, March 1.

Michigan.—Grand Rapids Medical Society, February 28.

Minnesota.—Minnesota Academy of Medicine, St. Paul, March 2; Ramsey County Medical Society, St. Paul, February 28.

Missouri.—St. Louis Medical Society of Missouri, March 12.

New York.—Binghamton Academy of Medicine, March 3; Broome County Medical Society, Birmingham, March 3; Herkimer County Medical Society, Herkimer, March 1; Hornellsville County Medical and Surgical Association, Hornellsville, March 1; Queens County Medical Society, Jamaica, March 1; Syracuse Academy of Medicine, March 8; Utica Medical Library Association, March 7.

Ohio.—Lucas County Medical Society, Toledo, March 4; Tri-county Medical Society, Conneant, March 1; Union Medical Society, Chicago, March 14.

Pennsylvania.—Luzerne County Medical Society, Wilkesbarre, March 2; York County Medical Society, York City, March 3.

Wisconsin.—Waupaca County Medical Society, Manawa, March 5.

Denver.

THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION.—The Denver and Arapahoe Medical Society, to whose successful efforts the State of Colorado owes the honor of securing the next Convention of the AMERICAN MEDICAL ASSOCIATION will not be found dozing when the jolly Esculapians are here. It is not expected that the members of the ASSOCIATION, learned and devoted to pure science as they are, shall subsist on pure air, glorious sunshine and mountain views. The people of Colorado, the medical men as a body, with the Denver and Arapahoe Medical Society at the head, intend to also add to the spir-

ual pleasures those of the flesh. The society has appointed committee on entertainment consisting of men versed in that rticular branch of science, and they will fulfill their onerous uty to the satisfaction of all. The entertainment to be given y the local medical society will be one of the prominent feaires of the convention, and the palate of the most fastidious ill never forget the event.

Dr. Carl Johnson, vice-consul and port surgeon. Dr. Johnn has sailed for Amoy, China, at which port he will serve in ie above double capacity.

Cincinnati.

The mortality report for the week shows: Still-births, 8; motic diseases, 13; phthisis, 12; other constitutional, 6; cal, 59; developmental, 11; violence, 6; under one year, 21; etween one and five, 15: total, 107; annual rate per thousand 3.73; preceding week, 117; corresponding week, 1897, 103; 396, 120; 1895, 123.

Dr. W. E. Lewis announces a class in anatomy for students medicine, dentistry, art, physical culture, calisthenics and ostetrics, open to both sexes, beginning April 4; class to eet Monday, Wednesday and Friday from 8 to 9 P.M., at the incinnati College of Medicine and Surgery.

The Academy of Medicine held their annual election arch 7, and the following officers were chosen: President, ouis Schwab; vice-presidents, J. C. Oliver and Estella Riley; easurer, S. E. Allen; secretary, W. H. Crane; financial sectary, M. A. Tate; corresponding secretary, F. E. Kugler; ustees, A. I. Curson, N. P. Dandridge and J. T. Whittaker.

The representatives of the several medical societies have ined in an attempt to secure an amendment of the present edical law. The intention is to increase its present effectiveess by making it more stringent and more in conformity with ie medical laws of New York, New Jersey and Pennsylvania hich are much more rigorous than the twenty other States aving a specific law. The outcome of this proposed amendent will be to practically make the Board of Registration a oard of examination for the licensing of all practitioners of edicine, whether graduates or not.

The Annual Report of the State Board of Registration and xamination gives the following summary: Total number of rtificates issued, 8231; to graduates, 7521; to legal practiioners, 697; by examination, 13; number rejected, 339; gradates, 121; legal practitioners, 204; examination, 14. Cash alance on hand at beginning of the year, $5,460.56; disburseents, $10,429.87; total deposited with State Treasurer since assage of the Musgrove Law, $25,919.62.

Detroit.

Wayne County Medical Society.—At the regular meeting this society, March 10, Dr. W. C. Stevens read a paper on Habitual Abortion." The Doctor took up the subject only so far as it relates to those cases of habitual abortion which sult in women who show no signs of hereditary taint, or any nstitutional dyscrasia, and who have no lesion of the partunt canal. He reported the history of a case occurring in his n practice of a woman, who during her twenty-five years of rried life, had been pregnant thirteen times. Seven times e aborted and six children were born to her at full term. ie etiology of the case was very obscure, as there was no apent cause for the abortions, either local or general. During eatment her gestation would go on to full term, but if the eatment were remitted abortion would supervene. The eatment recommended by the Doctor in this and similar cases is the absolute avoidance of heavy work, hygienic measures, operly fitting and light garments (the skirts being supported m the shoulders), plenty of sleep, and daily sponge baths. ie medicinal measures consist in the use of mild laxatives ien necessary, tonics, assafetida, Jamaica dogwood and black w. Dr. Lucy J. Utter read a paper on the subject of the Constitutional Causes of Abortion," referring particularly to philis as an etiologic factor. Dr. C. D. Aaron presented a per on the "Relation of Hemorrhage of the Stomach to Menuation." The Doctor stated that hemorrhage from the mach may occur in gastric ulcer, carcinoma, heart disease, rtal obstruction, cirrhosis of the liver, scurvy, yellow fever, ute yellow atrophy of the liver, rupture of an aneurysm and active hyperemia. To the last named class belongs hemorrhage from the stomach co-incident with menstruation. The Doctor concluded that patients who suffer from gastric hemorrhage always present symptoms of indigestion, and that therefore when a patient exhibits symptoms of indigestion during a menstrual period in which the flow is scanty, gastric hemorrhage must be *suspected* even though vomiting does not occur.

Philadelphia.

College of Physicians. — "A Consideration of the Real Value of the Cold Bath Treatment of Brand in Typhoid Fever" was the title of a paper by Dr. Hobart A. Hare, which led to a spirited discussion at the meeting held on the 2d inst. The fact that the author had himself recently suffered with a severe attack of typhoid and had enjoyed (?) a personal experience of the Brand method, in addition to the fact of his prominent position as a writer and teacher of therapeutics, gave special interest to the expression of his views upon this important subject. He said that a very decided decrease in the mortality of typhoid fever had unquestionably occurred of late years, but much of this is undoubtedly to be ascribed to improvements in nursing, in sanitation, and in other methods of treatment, which are now employed in conjunction with the Brand system. In reply to his own query of how much of the improved mortality is fairly to be ascribed to the baths, he said that the difference between 10 per cent. mortality when the baths are not given and 7.5 per cent. when the baths are given, or 2.5 per cent., might be fairly credited to the cold bath treatment. Against this he placed the facts that the course of the disease is prolonged, hemorrhages and relapses appear to be more frequent, and perforations occur in the same proportion and certainly are not lessened in frequency. While admitting the usefulness of the bath in appropriate cases, he deprecated its too frequent employment, protesting against routine management. In the great majority of cases the early use of calomel, symptomatic treatment, and moderate stimulation, with cold sponging, not merely to the extremities but the back especially, to reduce pyrexia, would prove sufficient, with the aid of proper diet and judicious nursing, to bring about recovery of the patient, but each case should be considered as an individual one and treated on its merits as an individual. In the discussion, the advocates of the Brand method were decidedly in the majority. Dr. Wm. Osler said that at Johns Hopkins, out of 684 cases treated, the mortality was 8.1 per cent. and he was convinced that if generally used throughout this country, the Brand method would prevent five or six deaths out of every hundred cases of typhoid fever, cases which in his opinion could not be saved by any other known method of treatment. Dr. James Tyson stated that there is not only a decided reduction in the mortality rate, but there is also less delirium and less diarrhea, and the type of the disease is made milder. He had not seen any harmful effects and preferred the routine employment, on account of the fact that although discrimination is desirable, it is difficult and not always practicable. Dr. John H. Musser endorsed the preceding speaker's remarks and said that he had never witnessed any ill effects, but on the contrary had observed relief from threatening complications. He advised modification of the cold bath in certain cases. Dr. J. P. Crozer Griffith said that at the Children's Hospital he is accustomed to place the little patients at first in a warm bath (95 degrees F.) and then to gradually reduce the temperature (to 85 degrees) and claimed great reduction in the mortality. Dr. H. C. Wood, basing his remarks on twenty-five years experience with this method, stated that each years use only confirms him the more as to the value of the cold bath treatment of typhoid fever. He considered the object of the treatment to be the abstraction of heat as rapidly and with as little violence as possible to the patient. He thought that it might have contraindications, especially when begun late in the course of the fever, and in asthenic cases. Dr. S. Solis Cohen said that he finds the application of the ice bag over the abdomen a useful expedient to reduce temperature. In reply to Dr. A. V. Meigs, who criticized the method and denied that it accomplished all that had been claimed for it by enthusiastic advocates, Dr. A. A. Eshner said that Brand did not advocate the indiscriminate and routine employment of cold baths, but on the contrary their systematic and discriminate employment. Dr. T. M. Balliet claimed that where bathing with cold water was not practicable, as among the very poor, he had exposed the fever patient to cold air, with the same object in view, and had never seen ill effects.

In closing the discussion Dr. Hare explained that he did not dispute the value of hydrotherapy in typhoid fever, but deprecated routine treatment of any kind. It may not be amiss to add that, in private conversation, Dr. Hare referring to his own experience with the cold bath, stated that he dreaded

them more than he could describe and that in the whole course of his disease he could only summon up resolution enough to take three. He also remarked that even if he knew that the cold bath would improve his chances of recovery 25 per cent. he would refuse to take them except out of regard for and a strong sense of duty to his wife and children. His own personal experience with the treatment as administered at one of the best city hospitals had inspired him with such a physical antipathy and dread to the cold bath that he could never prescribe it as a routine measure and would only use it where it was imperatively demanded. He did not regard it as a finality in the treatment of typhoid fever and hoped in the course of a few years to see a more humane and less disturbing method take its place in the estimation of the profession.

At the same meeting, Dr. Thomas H. Dunn of Westchester reported a case of "Parasitic Chyluria" occurring in an adult woman, who had always lived in Pennsylvania. For several years she had been subject to headache with gastro-intestinal disturbance and suppression of urine, the attacks lasting about two days. Following this she passed milk colored urine, which not only contained albumin, red and white blood cells and fat, but also many active organisms, which were found to be embryonic *filariæ sanguinis hominis*. This case, according to Dr. Osler, was the first of which he had any knowledge, in which the disease was undoubtedly contracted in the North. Dr. F. P. Henry had exhibited specimens before the College in 1896, of living filaria in blood taken from a colored woman, 29 years of age, who was formerly a resident of Florida, where it was believed she contracted the disease.

The Board of Health of Philadelphia in opposition to the sentiment in the profession which led to the appointment of a committee some weeks ago, to confer with the Board and attempt to secure some modification of the rules requiring the placarding of private houses for cases of infectious disease, has issued the following circular:

Whereas, The members of the Board of Health of Philadelphia are unanimously of the opinion that the strict enforcement of Section 2 of the "Act to provide for the more effectual protection of the public health," approved June 18, 1895, is absolutely necessary to prevent the spread of disease, and

Resolved, That hereafter, without exception, all cases of cholera, smallpox (variola or varioloid), scarlet fever, typhus fever, yellow fever, relapsing fever, diphtheria, diphtheric croup, membranous croup, or leprosy shall be placarded. This is to be done by placing a placard at the most conspicuous point of every entrance of the affected premises. Should the medical inspector be in doubt as to what is the "most conspicuous point," or as to the necessity of further placarding, isolation or quarantine, he shall at once communicate with the chief medical inspector and follow his instructions.

All reports of the placarding of houses shall be made in duplicate, a copy of which shall be forwarded to the superintendent of police, who is requested to have them referred to the respective police districts, and the lieutenant instructed to report to the superintendent all cases in which the placard is removed. Such reports to be returned forthwith to the bureau of health.

When it is reported at the office of the chief medical inspector that the placard may be removed, he shall notify the superintendent of police in the same way he used to notify him of the original placarding.

The Polyclinic Hospital free lectures on popular medical subjects which were delivered by the Faculty last spring, met with such favorable reception that a similar course has been arranged for the present Lenten season. The dates and subjects are appointed as follows, all lectures being given at 5 P.M.: March 4, The Filtration of the Water-supply of Philadelphia, by Henry Leffmann; March 9, The Prevention of, and Nursing in Typhoid Fever, by Augustus A. Eshner; March 11, The Hygiene of the Infant, by Edward P. Davis; March 16, The Care of the Eyes and the Influence of Defective Vision upon Mental and Physical Growth, by Samuel D. Risley; March 18, Surgical Emergencies, by Lewis W. Steinbach; March 23, The Essentials of Health, by Judson Daland; March 25, Hypnotism and Allied States, by William G. Spiller; March 30, The Cultivation of the Voice, by G. Hudson Makuen.

CHANGE OF ADDRESS.

Ammerman, U. S., from Keokuk, Ia. to Harbine, Neb.
Bardon, F., from Keokuk, Ia. to 621 Monroe St., Quincy, Ill.
Back, A. J., from Keokuk, Ia. to Montpelier, Ohio.
Buzarg, I. S., from Keokuk, Ia. to Belinda, Ia.
Booth, F. H., from 857 W. North Ave. to 662 Cortez St., Chicago, Ill.
Brenholtz, W. S., from Columbia to 36 E. Walnut St., Lancaster, Pa.
Beadles, E. St. Clair, from Water Valley, Miss., to San Diego, Cal.
Frissell, S., from 18 School St. to 181 State St., Springfield, Mass.
Friedel, M. J., from 468 Graud Ave. to 1228 Milwaukee Ave., Chicago, Ill.
Garvin, W. C., from Millington to Vassar, Mich.
Ghrist, D. M., from Keokuk to Pella, Ia.
Hart, H. H., from 114 Powell to 2325 Bush St., San Francisco, Cal.
Jackson, G. E., from Wheatou to 252 Nicollet Ave., Minneapolis, Minn.
Luburg, J. N., from Keokuk, Ia. to Stafford, Ohio.
Layton, C. S., from Duraud to Delray, Mich.
Morton, E. E., from Keokuk to Vincent, Ia.
Mitchell, A. H., from Deer Lodge to Warm Spriugs, Mont.
Noren, G. P., from Keokuk, Ia. to Geneseo, Ill.
Reed, W. H., from Keokuk to Perry, Ia.
Russell, C. R., from Keokuk to Ottumwa, Ia.
Rectanus, F., from Cincinnati, Ohio, to cor. Preston and Market Sts., Louisville, Ky.
Sholleuberger, C. F., from 2162 Larimer St. to 2309 Larimer St., Denver, Colo.
Thomas, C.H., from Dansville, N. Y. to 1633 Locust St., Philadelphia, Pa.
Van Slyke, W. H., from Detroit to Tamarack Mine Hospital, Calumet, Mich.
Whiting, E. D., from Alma, Mich. to Presbyteriau Hospt., Chicago, Ill.

LETTERS RECEIVED.

Arnold, Philip, Elizabeth, Ill.; Alta Pharmacal Co., St. Louis, Mo.; Atwood Mfg. Co., Amesburg, Mass.; Ames & Frost Company, Chicago.
Bulkley, L. Duncan, New York, N. Y.; Ball, M. V., Warren, Pa.; Blaylock, Thomas, Springer, I. T.; Blees Moore Instrument Co., St. Louis, Mo.; Brothers, S. F., New York, N. Y.; Baker & Co., Ltd., Walter, Boston, Mass.
Class, W. J., Chicago, Ill.; Crane, A. W., Kalamazoo, Mich.; Cargile, Chas., Bentonville, Ark.; Crowell, H. C., Kansas City, Mo.; Coe, F. H. Seattle, Wash.; Coe, Henry Waldo, Portlaud, Ore.
Dellahauuty, D. F., Bloomington, Ill.
Eclipse Bicycle Co., Elmira, N. Y.
Ferguson, Frank C., Indianapolis, Ind.; Forrester, Joseph, Erie, Pa.; Fletcher, W. B., Indianapolis, Ind.; Farwell & Rhines, Watertown, N.Y.
Graham, J. W., Denver, Colo.; Gotham Co., The, New York, N. Y.; Goodwin, R. S., Thomastou, Conu.; Gleitsmann, J. W., New York, N. Y.; Goodrich Co., The B. F., Akron, Ohio.
Hektoen, L., (2) Chicago, Ill.; Hardiu & Walker, Savannah, Tenn.; Hart, H. H., San Francisco, Cal.; Houghton, Mifflin & Company, Boston, Mass.; Howe & Co., C. H., Denver, Colo.
Imperial Granum Co., New Haven, Conn.
Jayne, W. A., Denver, Colo.; Justis Food Co., Syracuse, N. Y.; Jaques, W. K., Chicago, Ill.
Krüger & Co., Leipzig, Germany; Klein, W. L., Miuneapolis, Minn.; Kelly, Howard, A., Baltimore, Md.
Lagorio, E. L., Norfolk, Va.; Lea Brothers & Co., Philadelphia, Pa.; Lougmans, Green & Co., New York, N. Y.; Lehn & Fink, New York, N. Y.; Long, W. D., Reading, Pa.; Lewis, B. S., Camden, N. J.; Lord & Thomas, Chicago, Ill.
McLean, Angus, Detroit, Mich.; Marchand, Charles, New York, N. Y.; Medical Gazette Publishing Co., The, Cleveland, Ohio; Martiu, Thos. Chas., Cleveland, Ohio; Maltiue Co., Brooklyn, N. Y.; Monarch Cycle Mfg. Co., Chicago, Ill.; McCowu, T. B., Chafin Bridge, Ill.
Newby, A., Nora, Ind.
Open Court Publishiug Co., New York, N. Y.
Poole, W. H., Detroit, Mich.; Pope, E. D., Kouutze, Texas; Purdue. Frederick Co., The, New York, N. Y.; Pilling & Son, Geo. P., Philadelphia, Pa.; Postum Cereal Co., Ltd., Battle Creek, Mich.; Pike, F. N., Fortress Monroe, Va.; Phillips Chemical Co., The Chas. H., New York, N. Y.; Prudential Insurance Company, The, Newark, N. J.; Pheno-Bromate Chemical Co., The, New York, N. Y.
Rose, F. L., (2) Chicago, Ill.; Reynolds, H. D., New York, N. Y.; Richardsou, H., Baltimore, Md.; Ricker, S. J., Aurora, Ill.; Rosenthal, Edwin, Philadelphia, Pa.; Remiugton Arms Co., New York, N. Y.
Stoelting, C. W., Detroit, Mich.; Schwab, Leslie W., Chicago, Ill.; Strawbridge & Clothier, Philadelphia, Pa.; Sherer, J. W., Kansas City, Mo.; Sewanee Medical College, Sewanee, Tenn.; Silver, D. R., Sidney, Ohio; Sellars, Chas. B., Zanesville, Ohio; Seabury & Johuson, New York, N. Y.; Schering & Glatz, (2) New York, N. Y.; Steele, Robert E., Beaver City, Utah; Spratling, Wm. P., Sonyea, N. Y.; Sargent & Co., E. H., Chicago, Ill.
Turubull, Laurence, Rock Ledge, Fla.; Tiemann & Co., George, New York, N. Y.; Tilden Company, The, New Lebanon, N. Y.
Upjohn Pill & Granule Co., Kalamazoo, Mich.
Vance, A. J., Harrison, Ark.
Yates, H. W., Detroit, Mich.; Yocom, A. L., Chariton, Ia.
Welch, William H., Baltimore, Md.; Woodruff, Chas. E., New Orleans, La.; Wocher, Max & Son, Cincinnati, Ohio; Ward Brothers, Jacksonville, Ill.; Welch Grape Juice Co., The, Watkins, N. Y.; Western Wheel Works, Chicago, Ill.; Williams Company, The J. B., Glastonbury, Conn.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from March 5 to 11, 1898.

Capt. Nortou Strong, Asst. Surgeon, is grauted leave of absence for six mouths on surgeon's certificate of disability, to take effect upon the expiration of the ordinary leave of absence grauted him.

First Lieut. Thomas S. Bratton, Asst. Surgeon, upon the arrival at Ft. Niobrara, Neb., of First Lieut. Brainard S. Higley, Jr., Asst. Surgeon, will be relieved from duty at that post and ordered to Ft. Leavenworth, Kau., for duty.

The following named medical officers are relieved from duty at the Army Medical School in Washington, D. C., to take effect upon completion of the course at the school eudiug April 1, 1898, and ordered to take station as follows: First Lieut. Henry Page, Asst. Surgeon, Presidio of San Francisco, Cal.; First Lieut. Bailey K. Ashford, Asst. Surgeon, Ft. Sam Houston, Texas; First Lieut. Henry A. Webber, Asst. Surgeon, Ft. Reno, Oklahoma Ter.; First Lieut. Jere B. Clayton, Asst. Surgeon, Ft. Clark, Texas; First Lieut. Brainard S. Higley, Jr., Asst. Surgeon, Ft. Niobrara, Neb.; First Lieut. George Rauchfuss, Asst. Surgeon, Ft. Apache, Ariz.

A board of medical officers to consist of: Col. Dallas Bache, Asst. Surgeou-General; Major Walter Reed, Surgeon; Major James C. Merrill, Surgeon; Capt. William H. Arthur, Asst. Surgeon; First Lieut. Alexander N. Stark, Asst. Surgeon, is constituted to meet at the Army Medical Museum Building in Washington, D. C., on Monday, May 2, 1898, at 10 o'clock A.M., for the examination of candidates for admission to the medical corps of the Army.

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ADDRESS.

EVIDENCES OF THE PROGRESS OF NEUROLOGY AND MEDICAL JURISPRUDENCE.

Address of the Chairman, Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY WILLIAM J. HERDMAN, M.D., LL.D.

ANN ARBOR, MICH.

In compliance with the by-law of this ASSOCIATION, which specifies the subject upon which the Chairman of each Section shall address its members, it becomes my pleasant privilege as well as duty to attempt a brief review of the progress made in neurology and medical jurisprudence during the past twelve months, and to hazard a few suggestions as to the conduct of the future work of the Section, which if they shall be adopted would, in my judgment, greatly improve the efficiency of its function.

And here it might be well to call to mind what the function of this Section is, and what we, who constitute its membership and attend its sessions from year to year, are attempting to accomplish.

No doubt the motives which influence us to attend these meetings annually are many and various. Social, fraternal, recreative, and perhaps at times even less laudable inducements than these call us together and cause us to seek fellowship with those whose paths of labor and experience are similar to our own, though found in fields far separated. But underneath these lighter and more transient motives for our assembling, will be found the imperative incentive of the love of truth, and the desire possessed by every earnest soul to seek it for its own sake and to promulgate it.

No bond less vital than this could have for fifty years maintained, in ever-increasing strength of membership and influence, this National ASSOCIATION, or have brought about the orderly segregation of it into the natural groups of Sections which have gradually evolved from it, like the members of one body fitly joined together, separate in function yet interdependent, essential each to all. It is the search after truth that has created this ASSOCIATION, and a more intimate and we trust more efficient search that has determined these differentiations.

The Section which we represent is one of the later developments, but its formation was a natural separation in the interests of greater precision in the search after the normal and abnormal phenomena of the nervous system, and in the attempt to know what is, and what ought to be, the law governing the courts in cases where medical questions are involved.

If, then, the *raison d'être* of this Section in common with others of this ASSOCIATION, is that, by means of it, the pursuit of truth in the fields which its title covers may be made more effective, we, its members, should see to it that this purpose be not lost sight of, but be made the primary motive in all of our contributions and discussions. We will learn from one who is well qualified to perform the task, how well the members of this Section have discharged this function hitherto, and we trust that the honorable record of the past will stimulate us to even greater zeal, and to the adoption of even more efficient methods for the future.

Months and years do not serve as mile-stones to mark the progress of human knowledge, or measure the evolution of discoveries or ideas. In an attempt to portray the advance made by the mind of man in mastering and comprehending the intricate play of energies in the midst of which it is placed and of which, in some sense, it is a part, we must depart from the imagery of the conquering army, moving on from victory to victory, where the date of each can be forever fixed in the time calendar of events, and adopt, instead, the figure of the growing plant, where the selective assimilation of the developing germ exhibits notable increase and elaboration, from seed to perfected flower or fruit, and yet when the eye is directed to a single day of that increasing growth, it might not discover any marked advance beyond the progress of the preceding day.

The growth of knowledge, like the growth of plants, may be ever active, and at no time can it be said with truth, that this or that stage of the growth is less important than another in attaining the ultimate perfection, and yet, to both the interested and casual observer, these stages may differ in interest and attractiveness, according as they reveal by their suggestiveness a less or greater glimpse of the broader truths that lie beyond, or open up more clearly the paths that give promise of leading to them.

These premises seem called for in view of the fact that in the twelve months that have gone by since last we met, the growth of neurology has not been signalized by any unusual outburst of fruitage or efflorescence. Yet they have been busy months for all who are actively engaged in any division of the broad field of neurology.

We can safely say that the work that has been accomplished in that time is superior, both in quantity and quality, to that done in any previous period of equal length in the world's history, and yet we are unable to refer to it as an epoch-making year in the progress of neurology, for it has not been marked by any notable discoveries either in the science or the art. Each worker has been busy digesting and assimilating the discoveries of previous years, and adding his mite of observation and fact to the store of knowledge already accumulated.

But when we recall that never before today have there been so many thoroughly educated and energetic physicians devoting their time exclusively, or for the

most part, to the study of disorders of the nervous system, and are reminded that never have the resources of associated fields of research been so replete with helpful fact and suggestion, we can rest assured that, whether it is each moment apparent or not, the amount of actual advancement made in a year's time now is greater than was possible in any previous year.

But if we can not mark off the boundaries of the year that is just past so as to include within them many notable achievements to the credit of neurology, we can at least point to certain evidences that the growth is steadily enlarging, and is preparing for expansion into wider fields and greater usefulness. This is made evident by the capacity it has recently exhibited in the discovery and assimilation of new facts in the histology of the central nervous system.

Even though these discoveries have already to some extent, and may still further, require a reconstruction of the framework of our neural physiology, and consequently of our theories of the pathology of many diseases, and though our established modes of practice will likewise need to be modified in some respects to adjust them to the new conceptions of the neuron, yet the vitality of the plant is in no respect endangered, but rather quickened and strengthened by such radical changes in pabulum.

While we would all be disposed to smile at the absurdity of an attempt on the part of any one to deny, in the face of unmistakable demonstration, the revelations in cell structure and arrangement which the improved methods of staining and manipulation have made, yet it is a commendable conservatism that will not at once renounce old and well established theories, upon the announcement of some facts that appear at first glance to be antagonistic to them.

It is, on the other hand, equally commendable and a sign of healthful activity when a revolutionizing order of facts can be injected into a developing system of knowledge with no other effect than that of healthful stimulation of the normal processes to greater energy. The recent advances in cytology seem to have had none other than just such quickening effect upon all branches of neurologic research. Progress in neural physiology and pathology must of necessity follow closely on the advance made in more exact knowledge as to the structure and arrangement of the nerve cell, and it now appears clear that within the walls of this minute laboratory—the nerve cell and its prolongations—our attention for some time to come is likely to be arrested and fixed, for to it as the primary theater of all the activities of the nervous system, normal and abnormal, we have at last been led in the ardor of our search for the causes of the protean forms of nervous diseases and by our anxious desire to prevent them and to relieve the sufferers.

Again we may point with confidence to the recent accessions to our special literature as another substantial evidence of healthy growth in the science and art of neurology.

First assimilation, then construction, and finally secretion represents the natural sequence of organic processes We have already so far matured that we have begun to give back to the world in permanent form some of the fruits of our researches and investigations. Quite a harvest in neurologic book-making has been garnered during recent years, and not a few of the best products have appeared during the last few months, and in this our American soil has been most fruitful and adds much to our credit for its excellence, unsurpassed as it is by that of any other country, even though there has been no famine elsewhere. The activity that has been shown by American authors recently in putting forth so many excellent text-books and monographs treating of nervous disorders, gives assurance that this branch of study will henceforth receive its appropriate share of attention in every well-devised medical curriculum, and that those already in the field of practice have now every facility for fully informing themselves as to the latest acquisition in this class of disorders. While the great bulk of that which has so far been published by American authors, and is original with them, treats mainly of the clinical aspects of neurologic questions, yet there are encouraging signs that it will not be many years before this country will be the leader in special research work in neural anatomy, histology, experimental physiology and pathology, as well as in the clinical study of the phenomena of the nervous system. For many years the experimental work in neurologic fields by American physiologists has received international recognition by reason of its value, and now in a dozen or more educational centers in this country laboratories have been established for special research work in neural pathology, which give promise of soon surpassing in their facilities for investigation, anything that the specialists of Europe have ever dreamed of. I need only call your attention to the comprehensive plan outlined by the Director of the Pathological Institute recently established by the Commission of Lunacy of the State of New York, and published in the bulletin of the State Hospitals of that State, to convince you that American neurologists have no narrow conception of the work which lies before them, nor any hesitancy in rightly undertaking to do it when the opportunity is offered and the facilities furnished.

From laboratories such as these we have a right to expect that our literature will soon be enriched with the products of well-planned research, which will materially aid us in clearing up the etiology and pathology of many nervous disorders which now baffle the skill of the clinician.

The universal interest and activity in compiling and promulgating neurologic knowledge has brought prominently into view the need of greater uniformity in the neural terms, especially with respect to those used to designate the various parts and locations in the central nervous system.

Science knows no national boundaries and the advance demands that provincialism in terminology give place to more cosmopolitan terms and that a language be adopted the significance of which would be the same wherever uttered. To this commendable purpose a well known American anatomist has devoted much time and scholarly ability for many years, and we are glad to see that at last his labors are claiming something of the favorable recognition they so richly deserve, and that the American Association of leading neurologists, together with the American Association for the Advancement of Science, and the Association of American Anatomists have formally stamped with their approval a certain number of terms, and have recommended that they be employed in preference to their less appropriate synonyms. The step is in the direction of clearer and more exact description, and will do much to rid our technical language of obscurity and confusion.

It would not be out of place, but rather an opportune and helpful act, for the members of this Section to add their support, by vote or resolution, to this effort at uniformity and so declare themselves for greater simplicity and scientific accuracy in the expression of thought upon subjects of special interest to us.

But it appears to me that in no way has neurology exhibited its vitality and progress in recent years to greater advantage than in the relationship it has shown itself to bear to those sciences of an altruistic type, which are the peculiar products of modern times.

In the beginnings of any independent line of research among phenomena possessing an importance sufficient to form a distinct department of knowledge, such as this of ours, there must of necessity be first a period for collecting data; an accumulation of facts with apparently little in common, except that they relate in some way to the field that has been chosen for separate consideration. The natural tendency during this primitive period is for the mind of the observer to be occupied with distinctions and differences rather than with resemblances.

In the beginnings of neurology cases of nervous disorders and the features that characterize them must needs first occupy the attention. The records of individual instances of disease presenting different phases must accumulate until, through repetition and comparison, a type is discovered and accepted for each form of disorder which deserves a separate place in the nomenclature.

This may be said to have been the period for neurology in which it was engaged in establishing its right to independent existence; when it was occupied with marking out the boundaries of territory peculiarly its own. This pioneer work is now well done, and may be said to be complete. Our right to separate existence has been established and recognized, and our growth as a sturdy branch of medical knowledge has already borne rich fruit. But while engaged in this close analysis of the phenomena of disease in the realm of the nervous system, we have had frequent occasion to note that much that we have come upon has a value beyond the limits of our special field. While searching for truth with the view of making use of it within our limited sphere, we discover that its rays extend far beyond our little world and illumine spaces upward, and beyond anything which the mind of man had hitherto attained.

The community of knowledge and of truth and the relationship of a part to the whole, is made evident by these researches, furnishing material aid to co-workers in other fields, which at one time were thought to have but little in common with our own. It is one of the most gratifying evidences of the growth in neurology that investigations in this field are daily proving more and more helpful in solving the problems of anthropology, education, psychology, criminology and sociology.

Each one of these departments of what may be termed the humane sciences may be said to have had its origin in discoveries in neurology.

They are at least experiencing the transforming influence of discoveries first made in our special field, and we are justified in claiming for ourselves priority in the beneficent work which these associate sciences are, in their practical results, accomplishing in the better conduct of our schools, asylums, reformatories and prisons, and in the more rational attitude of the public mind toward the defective and dependent classes of our fellow men.

It is with considerable diffidence that I venture to say a word regarding the present tendencies of medical jurisprudence, since neither my opportunities nor my training have prepared me for utterances on this subject that are worthy of much consideration. Indeed I have, in common with other members of this Section, questioned the propriety of our assuming to compass within the boundaries of our limited membership the entire range of topics that are grouped along the borderland where law and medicine unite. It is true that a very large and most important share of the problems which demand the attention of the physician and lawyer jointly arise within the boundaries of neurology, and it may have been wise at the outset to have appended the department to this Section, rather than to that of any other now existing.

But since there is not a Section of the ASSOCIATION whose members are not at times directly interested in the legal aspects of questions which of necessity arise in connection with their special line of work, and since in one Section especially (that of State Medicine) the legal relationship of the physician to the laity has been greatly enlarged within recent years, and is destined to become still more so in the future, it has seemed to me that the time is near at hand when the establishment of a distinct Section of Medical Jurisprudence is advisable. As it is now, seldom are papers, presenting the legal aspects of medical subjects, offered to this Section unless they relate directly to perverted action of the mind, the brain, or nervous system in some other part, and even many of these have been of too general interest to receive from the members of this Section alone fitting consideration and discussion. It would appear, then, that the time is at hand for the creation of a separate Section to be devoted in its work wholly to legal medicine. The field is already broad enough, and is every day enlarging.

To one not very familiar with the recent literature of medical jurisprudence, and yet who has attempted to make a cursory review of what has been presented on this subject in the law and medical journals during the past twelve months, it appears that in this line of work the courts have been chiefly occupied with cases of suspected poisoning, where medical questions involved have been as to the nature and actions of poisons, and methods of detecting them in the tissues of the body, either before or after death. These have been mainly questions of fact, calling for the testimony of the expert physiologic chemist and toxicologist, and in them no very broad principles of law or medical practice have been involved. There have been a few instances of another class of cases, however, in which a certain very important principle is involved, which appears to me worthy of being brought to your attention, as they furnish food for very careful reflection. The more so as the same principle, of the sacredness of the absolute rights of the individual, has been threatened by proposed enactments in several of our States during present and recent sessions of their legislatures. The citation of one case commented on in the March number of the editorial column of *The Green Bag*, will serve to bring this principle before you. I will quote this comment in full:

"A very novel case regarding the right of a surgeon to go beyond his specific authority in performing an operation was recently tried in London. Miss Beatty, a hospital nurse, submitted herself to Mr. Cullingworth, an eminent surgeon of London, for an operation of ovariotomy. It was admitted by the defendant that she forbade him to go beyond the single operation, but he testified that he refused to perform the operation under that condition and told her she must submit to his discretion. This she denied. Finding it necessary, in his opinion, to perform the double operation to prolong her life, he did so. He testified that in view of the patient's wish he had hesitated, but he concluded to overrule her objection. In consequence she felt compelled by conscientious scruples to break off her marriage engagement. The most eminent surgeons testified that they would refuse to operate under such a restriction. Sir Thomas Wells, however, the greatest expert, testified that he thought the double operation in this case was unnecessary, but he had no doubt the defendant acted conscientiously. The defendant and his assistant testified that the plaintiff would not have lived ten years without the double operation." There was a verdict for the defendant. This of course may have been based on a finding that the defendant had refused to submit to the condition, and that consequently the plaintiff had tacitly assented. If any inference is to be drawn from the case that a surgeon may exceed his specific instructions, not dissented from by him, even if he deems it necessary to prolong or save life, it is bad law. Miss Beatty had a perfect right to prefer to live for ten years, and to be for that time a wife and possibly a mother, rather than to live the ordinary length of time unmarried, or be a barren wife. The matter is probably less serious to the female sex than a somewhat analogous operation would be to the male, but we believe that it would be rather difficult to induce a judge and a jury to justify a surgeon in disregarding explicit instructions of a similar purport on the part of a man. If a second operation, in the case under consideration, should have proved necessary, it would have been easy to make it, and not unsex the sufferer at the outset. We confess that we are surprised at the verdict, and that in any view we regard the result as wrong. We have sympathy for a woman who demands that her sexual physiology be respected, despite the custom of surgeons. We fully agree with the *New York Law Journal* that, "Where a proposed operation is as clearly the subject of definite agreement as the one under consideration, and especially where the worst that could result from following the patient's directions would be the necessity of submitting to a second operation later, we think such directions should be accepted as morally binding upon the surgeon, and held legally controlling by the courts."

This case serves for a type of many, and the principle involved, is the sacredness of what Blackstone defines as the absolute right of the patient which no physician or surgeon may presume to invade at his own discretion, assuming to decide what is best for the patient without the latter's full acquiesence in that decision.

In the proposed legislative enactments above referred to, and which have been brought forward in so many different localities as to indicate a general tendency in this direction, the attempt is made to check the current of crime and misery at its fountain head by unsexing the inmates of institutions for epileptic and feeble-minded, and the inmates of prisons and houses of correction who have for the third time been convicted of crime.

The difference in principles involved, between such proposed legislation and in the special case just cited is, that in the latter case the surgeon assumes to violate the absolute right of the person of the patient in what he believes to be the patient's interest, whereas, in the former, society, by legislative enactment, undertakes to invade the absolute rights of the individual on the assumption that it is for society's own interest to do so.

This assumption on the part of society of the right to protect itself against possible future harm by encroaching upon ground that in the fundamental principle of law is regarded as sacred to individual rights, has found its champions and defenders among those high in authority in both medical and legal circles and this has opened up a field for medico-legal warfare upon which the contest will soon be raging. You can well see, without our attempting to discuss the various phases of this question at this time, that it is one worthy of our most serious consideration and concerning which it will be well for us to be forming an opinion.

The broad question as to how far society is justified in attempting to protect itself against remote and possible harm by provisions which curtail the inalienable rights of the individual, is one which to be rightly answered calls for the widest knowledge and the wisest judgments which the human mind can attain. It is even a question as to whether the solution of such questions as this will ever be rightly solved within the domain of civil law.

I will now venture to call your attention to a few features in the organization and management of this Section which seem to me to be in need of decided change if the work of the Section is to become a positive factor in the advancement of neurology.

Primarily the membership of this Section is too evanescent as yet to be relied upon for the prosecution of any persistent and settled purpose.

The various Sections of the AMERICAN ASSOCIATION should each be the culture field of the best thought, the most mature products of the human mind and skill in that division of medical work with which it assumes to deal.

The first requisite to this result is that the membership of each Section be made up of those who are interested and able in that particular branch of medical science above all others, and that they identify themselves with the work of the Section year after year.

This is not now the case. I do not know how it is with the other Sections of this ASSOCIATION, but this section has not at present any permanent membership upon which its officers can rely for support or assistance, in attempts to further the work of the Section. There is not even a list of members. Not the shadow of an obligation exists on the part of any member of the AMERICAN MEDICAL ASSOCIATION, as far as any tangible promise is concerned, to devote his efforts in the main to the interests of this Section.

You can very well see that this is a very insecure foundation upon which to construct a fabric of any permanency or value, and the marvel is that with such a loose organization this Section has been able to accomplish as much as it already has.

Steps should at once be taken to effect a more permanent organization. The membership of the general ASSOCIATION should be canvassed by the permanent secretary, by special committee, or by the council of this Section, and those members who wish to devote the whole or a share of their time to the work of this Section, be asked to declare themselves so that they may be counted upon hereafter to contribute to the work of this Section either in individual or associate papers or discussions. I personally very much doubt if this result can be brought about to the satisfaction of those interested in the permanent growth of this Section without making the secretaryship a permanent office, so that through his efforts the valuable experiences and products of successive years be preserved.

By such a change as this—a permanent secretaryship—our Section will begin to take on a vertebrate existence. but without one, at least, of such centers of ossification our undifferentiated, ameboid membership is likely to continue. I am aware that this suggestion, if thought worthy of adoption by you, will require a change of organization which transcends the powers of this Section, but in the interests of more efficient work we should not hesitate to ask that the power to effect such change be granted.

When once a fixed, rather than a floating membership, is secured, it will then be possible for the officers and council of the Section to institute changes in the method of preparing for the annual meetings that will make them much more effective.

If this Section is to fulfil its mission in bringing together the men and the conditions by which the science of neurology and medical jurisprudence are to be advanced, and if it is to serve, as it should, as the channel through which the latest and most enlightened conclusions in these special fields are to reach the great body of physicians, and so the laity, throughout this broad land, then such measures must be adopted as will keep the work of the Section at each meeting up to the requirements of the times, and prevent the wasting of valuable time and opportunity with trivial, trite, or inconsequent matter.

The main topics for consideration and discussion for each meeting should be determined upon many months in advance, and every care should be taken to have them fully presented. With a permanent secretary our official board would be well constituted to enable us to follow out a consistent plan and purpose in this regard, and our meetings could then be made the source from which the final and most authoritative word would be heard on the live topics of the day in our special departments of medical science and practice.

Into this Section of our ASSOCIATION should be brought the representatives of the various departments which are contributing to the advancement of those branches of knowledge which we are attempting to foster. The most learned anatomists and biologists, the ablest pathologists and physiologic chemists, the most experienced alienists and neurologists, and the wisest jurists which this great nation can furnish, are needed here to fitly deal with the problems which are continually before us for consideration. And where more suitably than in this special Section of our AMERICAN ASSOCIATION, representing as it does all departments of medical activity on this continent, could all these elements combine with greater expectation of evolving well rounded truth? It is my opinion that only in an association of this character, composed of a membership representing all phases of the body-medical, are the conditions fully secured for eliciting the broadest and clearest conceptions of the origin and natural history of disease, the tendencies that lead to it, and the measures needful to combat it.

With such an organization and such a membership as here suggested, this Section would be capable of advancing in its proper sphere of work purposely and consciously, and in the direction of humanity's greatest needs. We would then, by co-operative and predetermined action, be able to concentrate our thought and attention on the settlement of questions with respect to the etiology of certain diseases which now affect the highest functions of the nervous system.

It must be apparent to all, that as the future progress of mankind is of necessity along the lines of intellectual, moral, and spiritual attainments by the individual, and that such progress is possible only as the lower powers of our nature become subject to the higher and that, since these higher powers, as we are now constituted, reside in and have their expression and depend for their growth and development upon the activities of the nervous system, the most important problems involving human destiny are laid at the feet of the members of this Section for solution. Do we appreciate this? Do we recognize that it is from just such associations as this that mankind must receive the authoritative word declaring that the researches of science have completed the circle of the universe, and that she has clasped hands with revelation and joined with it in the utterance that intemperance, lust, licentiousness, self-seeking are degrading and debasing, blasting and dwarfing man's higher capacities for attainment, since they directly operate to the injury of his nervous organism, sapping its energies, and cramping its expanding powers; while on the contrary, temperance, purity, peace, and a continent life and conduct are evidence of a well balanced organism, and is in harmony with all law, human and divine.

These are, perhaps, far reaching conceptions of the growth which it is possible for us to attain. But I do not doubt that you concur with me in the opinion that this is the line of destiny and so of duty for neurology, and if so why waste time on less inspiring ideals and narrower conceptions of our function?

THE GROWTH OF COMMERCIALISM IN MEDICINE.

Read before the New York State Medical Association, Oct. 12, 1897.

BY JOHN SHRADY, M.D.
NEW YORK, N. Y.

In approaching this complex theme there are many besetments which involve more or less controversy. Indeed, there may be suspicions of ulterior motives for, mayhap, an untried form of ambuscade, since it is widely conceded that statecraft may even masquerade as diplomacy. At the outset, however, there need be a disclaimer to the effect that there is to be any eulogy of honesty in any form, lest it be set down as cant in favor of the code. The purpose, then, to be announced is that of self-examination as to whether or not there may not be some sins of our own which require the penitential tear.

We have heard not a little of the outrages that have been perpetrated against us in the way of non-recognition, or what hurts our pride not a little, of that indefi-

nite something which we consent to call ingratitude. It is not to be gainsaid that self-esteem has been sorely wounded and that we have been balked in our efforts to hoard up the Klondike surface washings amid unesthetic surroundings of that barbaric simplicity which makes the want of probity fatal. That there have been hardships of no mean sort, the best panoplied of us stoutly maintain, for did not this very Borough of Manhattan begin the history of our profession with a petition for the monopoly of shaving?

But in those days of unusual sanitary conditions, when the ocean breezes did not sough against cloud-piercing towers, nor even whirl around the massive chair of a De Peyster in Bowling Green, there was little heed given to aught but pastoral joys or nocturnal frolics. There were then no heavy licenses for the sale of very small wares, and the little learning in vogue was easy of capture without question of its source. In very truth, the local color had then a sober tint and the picture a deep perspective. Since then, posterity has garnered the honest fruitage of not over-much labor, and has whet its appetite with the spiced offerings of the luxurious voluptuaries from every clime beneath the sun. But those halcyon days are gone, for the home of commerce has come where once were quaint cottages and low-bending trees. The counting-house has crowded away the May-pole, craft has displaced honesty, and the agent with his satchel of samples crosses the threshold with the ambling grace of Mephistopheles.

Now the schoolboy chuckles over his barters, for has he not early learned the power of wealth, and that money is current everywhere no matter how obtained! He has mastered business long before his prayers, and knows the biography of every merchant prince. How much, and how readily, is about his only ritual! If money comes not quickly what time can there be left to him for the wild carnival, which scatters what it can not use. Thus, with a starving soul he goes to the banquet of life. Gold, gold, but never the idolatry of the great, the unselfish and the true, is his prospective award. He bites the rosy apple but to fill his mouth with ashes. Aye, he is to be denied what he has won from the unsuspecting, for the irony of fate has long ago taught him that the calm of philosophy is not the accompaniment of the pride of possession. Still he ever searches for new fields, sterilized by auriferous deposits. Grown to manhood with the empty shout of public weal, he saps the foundations of public morals. But what boots it, he hugs his gatherings from which the eyes of angels are averted, and deludes himself into the belief that his conscience-smitten gift is charity. Now of this name, or *umbra nominis*, we have heard much. Business men claim to practice it with the click of machinery and vaunt it even in their supplications, while they wince at the voice of the whining beggar who plies his art upon their credulity with the saddest eyes. They keep a syndicate and the forms need no revision, for they have been passed upon by their board of managers, who investigate but seldom find their standard of poverty. What shall we say, is it high or low? With such seeming virtues romance endows the rosy-cheeked milkmaid, and to it the rollicking tourist scatters his coin. But here, in this boasted metropolis, the cajoler of the best traits of a common humanity skulks away with his rags and tatters from off the face of the cleanest streets. His picturesque outfit and beseeching face no longer linger to be beckoned into a studio as the model of a grand old Lazarus. Duty, the synonym of all that is obnoxious, is limited to the nickel-in-the-slot and the almoner is invisible. Faith is Charity—the sisters have the confusion of twins.

To this, we add without sarcasm, that we have no need to question the wisdom of business men, who have caught up with the nineteenth century in the rant of its worship. Is poverty, then, a sham only to be mitigated when abject? Is it never to be led by the gentle hand? Must starvation never be relieved except behind the poor-house door? Say not rather that charity ceases when regretted, and that the personal equation vanishes when there is too much organization. Justice at a lynching bee likewise is but a mockery when diffused through many hands gripping a long rope. Like the still remembered cartoon, thumbs point to the culprit with a "t'was him" around an unbroken circle.

When we physicians of the long ago, for the years flow swiftly, were wont to say but little of fees and chanced with the future for a livelihood, was there less recompense than now? Was there not more gratitude and more tender remembrance than in this age of rampant misgiving and shocked responsibilities? Did then the poor talk of our experiments or vivisections? Did we then chase the coin down to its covert? Rather did not the turmoils of conscience make us penitent and tender? Did we not point to the tribunal somewhere, only too glad that the deception was not ours and that we had missed the sickening potion of discovery?. Did we then care to cast the sinless stone? Did not our humility grow with our years, for was there not before us a shore bordering the misty sea of all knowledge?

Someone has defined charity to be the telling of A to B what C ought to give. This is undoubtedly the commercial custom. As professional men we have always been more practical with what few virtues we are supposed to possess. We scarcely protest with the hand outside of the pocket. Think all guilty until proven innocent, has never been our motto. In truth, have we ever been on the alert for "the little heaven below" which cash-in-hand is supposed to give? Knowing that we have more rights than we ever cared to claim, we have waived them for the sake of a swifter progress. We have turned from our ledgers to our books, from our regrets to our cases. Why should we bandy words with a chattering crowd, or carry our right of petition up to a legislative hall? Who cares for our woes, for have we not always been too proud to parade them? In the present drift toward paternalism we might even say with Emerson, we are only "bartering subsidies for privileges." Know you not that there was long a scribbled inscription in one of the rooms of Temple Bar, London, "Law is dear, but it is prime, it is prime." The price is high and the commodity invisible. The year between us and Santa Claus has ever been exceeding long and the gifts contemptible But then does the 'longshoreman get any more for the dripping body that he has fought to the dock? Does our lawyer friend ever forget to note an interview?

Let us indulge in a little introspection. Let us see if we have not ourselves fallen away from our high standards. Let us admit that we have adopted some of the formulas of trade, for what else can we say when such advice as, "You must make your market," is baldly flaunted with never a zest of Machiavelli, that all governments are liars. Let us refer to

that other almost criminal insinuation, "Well, there are more ways than one," which is, oh, so well hammered into our ribs. Our love of greed has been stimulated by the rarity of exceptions, and a vendetta has been established for mutual extermination. There has been rife a persistent effort for undivided possession, for a kingdom without satraps, for a dogmatic isolation conjoined with a shameless effrontery. Covert arts have been in vogue to cut off the opportunities of the honest plodder, who is assigned the rôle of the unskilled workman for the chance of a minimum reward, while stupendous fees are deemed attainable by the merest clutching. All these, not with design, we admit, but still the consequences are not a whit less deplorable—aye, to the verge of abject degradation. But the great public has been enlightened by the usual slipshod methods, to-wit, with information on just enough to alarm their fears. To be sure, there has been no flagrant offense offered to the most exquisite taste, none of the nimble art of the street preacher balancing as wares the coarsest virtues on his finger tips, but still the suggestions are dire and exact. The rattle and clatter of the plates only tell of old tests and old escapes.

The journalist may have trimmed from the common heap, the jewel of modest merit, but the gravity of our doubts is most oppressive. His zeal for the public may have been of the "purest ray serene," but unfortunately there are many judgments at variance. He has his friends, too, who stoutly defend him against the charges of purloining microscopic slides, portraitures and photogravuric misfits for newspaper columns. Still he is persistently correct in his minature, but somewhat obscure in his statements of superb excellences. This editor of ours so loves to revel in surprises, so well uses the power of the press, and pirouettes so trippingly away from the latest scandal to the worship of the latest paragon. Thus jocularly do some men their duty regardless of the woes of their victims. But seriously, we would excuse such blunders, were they not so fatal to budding reputations. Yet these catastrophies may befall the humblest Fellow of our Association, even him, who storms over being found "among the distinguished persons present" and who is so vexed at the absurd praise, oh, so lavishly bestowed.

What an outrage upon a physician who simply tries to do his duty, just as does every other brother of the profession who seeks not his own but another's welfare. If he elects to mitigate an eulogy by a declaration of his merit (alas, far below the average), he is incontinently accused of an attempt to prolong a controversy for the sake of notoriety, and not at all in the interest of a nobler standard in his own calling. He has laid his tribute before a shrine and is therefore roundly denounced for keeping a mascot. Should he be convinced of the virtues of a mineral water, his jealous brethren accuse him of merely stringing his hard-earned honors after his name! But he has really been duped by an advertising agent, who has played upon his credulty. His simple scientific disposition has been made to subserve the ends of an enterprising manufacturer, who is exploiting his discoveries throughout the land. Even those references "by permission" on the cards of struggling nurses may have been an abuse of the best of natures. Alas, such is the enterprise of trade! Such are the indiscretions of our blatant admirers who keep not within the bounds of their own affairs!

It is just by such methods as these that civilization is retarded by the only "still small voice" that our too trusting consciences are made to hear. We can never be brought to understand why it is that the merchant from behind his bargain counter keeps forever giving out his malicious opinion that no physician can be made over into a business man, why our modes are held to be crude, the language of his science, jargon; for says the advertising expert, where is the art of not saying, where the non-obviousness of the delicate insinuation that our commodities are just a mite superior to those of our rivals? Have we done more than our duty to the public? Where are our arts of faint praise of possibilities? Where the long vista of years yet to come, where the negative yet to be developed and where the well-graced actor yet to enter? Sweet plaudits such as these says our man of a commercial emporium, may be cheaply had just at the cost of a quizzical shrug or a tone of sadness; if not thus won, why not be content with the "reading notice," stumbled on unawares and thus cheap at any price? That neighbor of yours in yonder palace, who stands up grandly in his pew and essays to deceive with pious interjections, has fared in his day and generation much better, for the wails of his victims possess the soft cadence of a longer distance; aye, just the width of the gulf between Dives and the poor man in Abraham's bosom. Still in the seesaw of an inevitable destiny the one as ever looks down and the other up. The one has a scowl, the other a smile; for joy has fled from one, but abided with the other. But let us not therefore refrain, for after all retribution may be only a myth! Fall down and worship, the wealth of the valley is yours.

What says the State—the state of all nations, grades, forms and conditions, which but enforces fealty to itself and jeopardizes naught for its own interests. It is not strictly charitable, but it suavely does the work of charity, without heed of the hardships or perils of the person. Aye, along its moving armies there ever rings out the hoarse high-pitched order: "Wounded to the rear." If it helps it is without coddling and without the soothing stroking of kinship, only as a conglomerate mass it moves and flounders; like the leviathan buffeting the waves it is merely powerful for displacement. On its day of danger it may call for levies, but the pay it gives is the sense of duty and a tinsel crown of martyrdom. It may have a thrift of its own, but has made no provision for the legacy after death. It talks of ignorance and vice, but not at all of misfortune, for with it a blunder is worse than a crime. It may fight, but seldom arbitrates, and when revolution or carnage comes it dies washing its hands with a supercilious curl of the lips. The prating is for justice, swift, stern and sweeping, not for mitigating mercy, charity or any other persuasive grace. Like the street gamin, it is disappointed that the patrol wagon holds only thieves instead of murderers, for the former may work out the charity won by their enterprise while the latter would have been chief in some grand lurid drama, with defiant and mock-heroic faces. This gamin of ours but wants the sensation, the curdling little red rivulet. He, too, needs the carnage that leads to glory, but never the glow of the fireside that beckons on the slumber of peace. Why then should we mix our appeals with clamor for the royalty of a meagre patronage or a short official life? Let us rather be dumb before our shearers that our submission may pass for stoicism, our self-

conquest for grit. May we, too, not have honor for our scars?

That as a moiety of the community we have suffered in the financial depression of the past few years, none will have the temerity to deny. But acknowledgements are more or less painful. In a politico-economic sense, we have become versed in the maxims of supply and demand, we have heard much of overproduction and have had many experiences of buying in the cheapest and selling in the dearest market. We have imbibed trades-union ideas, and have insisted on immediate and adequate recompense. We have catered to the prejudices of the dependent classes by informing them that our revenue was from the rich and that the surplus was cheerfully bestowed upon the unfortunate in lieu of fee-less skill. Why therefore should we complain if the much-talked-of gratitude was absorbed in the mere sense of a cancelled duty? If we referred our cases without demur to your hospital and dispensary, because our skill was far beyond the means of the applicant, why protest that damage came to our prestige? If we exalted the charity of our neighbor, why cavil if he received the credit? If we enhanced his reputation, why deprive him of the emoluments, be they what they may, if only such were the returns for his toil and trouble? Why not allow the wage we have scorned?

How few read the lesson of the right to give in the parable of the Prodigal, and how many waste their indignation upon him, who served his father, lo, these many years! The fault lies with a slinking away from our individual charities and a reference of what is our plain duty to a corporation or to the state itself. Both of which may relieve—be not startled by the harshness of the phrase—through motives of policy. In the squabbles of our childhood how soon we learned to conceal our grievances from our parents! How much more precious was the redress when the settlement was all our own! How much less the rancor when the skirmish was too brief to grow into a battle! How much happier when we had no grim judge to face whose regret was that the law provided insufficient punishment for the crime! Let us not, therefore, saddle our shortcomings upon those who bestow merely to escape importunity and appoint grand almoners because their sympathies are shocked at the mere sight of misery. Just so the brigands of old hoped to win eternal happiness by the pittance at the shrine. The self-tormenting saint, in his life-long practice of Samaritan virtues, erects a higher ideal and is much more sure of the hosannahs "to the good and faithful servant." What need, we ask, for that perpetual delegation of our very virtues along with our liberties to a hazy unification of a something we call power divorced from wrong? Is it any more distinct and select than the hug of the crowd?

As a profession, too, we have allowed ourselves to be deceived by over-statements of success on the part of those who have won the popular favor. We may even have enhanced our own merits by well-directed self-laudations, which in the young pass for enthusiasm; in the old for candor. While the merchant has speculated with capital we have sported with reputations. What have we gained; only an ownership insignificant and transient. Beginning a career when the votary of commerce is arranging for retirement, we find that our attainments do not advance us beyond the rank and file, whom we have been taught were created to furnish us with cases, to them incomprehensible. Gathered up by the wayside and hurried into the institutions of learning, we have been taught the progressive glories of medicine, and especially that all of life was antisepsis. We have found that, after an awakening from our disillusions, our preparations have been mainly for a sham battle and that Jupiter, after dividing with the warrior and the merchant, allows the poet the whole world just because he has divorced it from its most desirable treasures. The ample room above, we have carried as a tradition, some of us from the kindergarten, and have striven as well to escape from the multitude, among whom statures are dwarfed and visions bereft of their tawdry mockeries. We soar, but soon strike the bars of the cage.

Somehow the self-deceptions of our commercial part do not beguile us, inasmuch as in our investigations we become annoyed, like John Hunter, by the quest after the guinea and envy the pipe and simple needs of some Virchow, poring over the deepest problems of life. To us in what should be the valley of content fit for a Rasselas, the luring invitation of the mountain top, upon which a castle may be built, has as ever withstood the flattery of our prayers. Let us not look upon legislation as a panacea or seek to abolish hospitals as a lesser remedy for our grievances. Let us not stultify ourselves by demolishing what for centuries we have been erecting. Much of our best work has been within hospital walls, and few would willingly part with the memories of our first "God bless you." We have been disappointed, it is true, but because of too much expectation and the absence of cringing appeals. How could we hope from the law but an extension of advantages and an enlargement of a community to which none of us can be admitted to full membership. How can we be exempted from competition by legal enactments! Still as we are expected no longer to pass upon questions, as jurors, we may become useful as signers of petitions and as a colleague expressed it, "practice medicine as a blind." We have not been the only ones who have worked outside of our proper spheres. Judicious investments rather than accumulated earnings are made by one of the English journals to explain the rather insignificant fortunes left by practitioners of more than national fame. With our diplomas we carried off the vows of the clergy, of whom we were once an integral part. We have always preached philanthropy, let us still defend the text and cease our strictures upon flaws in doctrine. Let us learn from the multitude how much may be done with a little.

Many are the arts of trade and often have we, as a profession, essayed to adopt them, but the glamor has not strictly deceived and our mimicry has been much too awkward. The intellect of the many headed we have already learned is by no means dull and the ways of the charlatan are soon divined. Our dignity is not of that order which prompts to stuff the bosom and to ride erect with a long curved sword for the homage of an hour. Why not, says our lawyer, the fee is large and a portion may buy a home? Somehow we have come to dread the "nevermore" of the croaking raven and even to belittle our services. The salesman of glib tongue, the financier of plastic conscience and the inventor of ready brain emerge from the mine far richer than we, whose competitors are too apt to be of our own household. Our pay is the bulky coin of the iron age, much too heavy for the convenience of commerce. Nay, further, it is our born prerogative

to serve our fellows, to defer their doom by kind offices and select none even for the value of their lives. The tradesman, the landlord and all who gain a livlihood out of the necessities of others, may flourish under the ægis of the law, but preferably not ourselves, for legislation knows but one remedy, that of a different and leveling method. It takes care to spread only on the thin slice. Much toil and much self-conquest is the screed of our book of fate. Let us read it with a contrite submission and like the beggar in the market place wait until the pittance grows into an investment.

It is not for us to waste life in banquet halls with well-rehearsed laughter and invite placid slumber to the sound of the lute. Reverently, our kingdom is not of this world, for though art may make the Sybarite, science never, and "then too," rejoins the cynic, "there may be no more sleep upon a bed of down than upon a pallet of straw, no more content with millions than the frugal meal with much liberty." "Anyhow," continues a modern Diogenes, "we could much better enjoy our outing were it not for that ponderous book of questions so pompously borne in our rear."

THE PATHOGENESIS OF LOCOMOTOR ATAXIA.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

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The gradual attainment of our present knowledge of the disease known as locomotor ataxia, is one of the fascinating stories of medicine. While it is undoubtedly true, as one writer says, that it is the most common and the best known today of all the nervous affections, and while it is also true that the advances made toward the recent conception of its etiology and pathology have within the last few years been something marvelous, it is nevertheless a fact that after all we have only entered upon its elucidation. Many of the newer discoveries have only added to the complexity of our knowledge. We are almost as much in the dark as ever in regard to the real cause or causes of the trouble, nor have we found as yet any sufficient reason why those causes should exert a selective action upon special nerve areas. One comprehensive definition has it that locomotor ataxia is a degenerative sclerosis of the sensory apparatus, involving this side of the nervous system anywhere from periphery to cortex. But why should the sensory elements be the subject of deleterious influences in this disease more than the motor elements which lie in such close proximity to them, and which so far as we can see are histologically identical? There must be a reason for this, and it is the object of pathology to discover it. In regard to the differences between sensory and motor elements, anatomy is silent and physiology only declares that one is centripetal and the other is centrifugal in function. Even should some agreement be arrived at in regard to the character of the lesion in all cases, whether it is inflammatory, degenerative, interstitial or parenchymatous; and even should a happy conclusion be reached in regard to the much vexed question of etiology, whether it is syphilitic, traumatic, hereditary, sexual, etc., the all important contention still remains as to why these causes should always produce the degeneration, the sclerosis or the inflammation of the sensory elements as they always do in locomotor ataxia. To be sure they often give rise to similar lesions in other parts of the nervous system, but still they must possess some special influence in locomotor ataxia, since this disease is so much more common than all the other nervous diseases. When one attempts to extensively examine the literature on this subject he is soon overwhelmed with confusion; for he observes that almost every writer promulgates a theory of his own, based largely upon facts and observations interpreted in accordance with his own mental bias and limited experience.

Consider for a moment the etiology of the disease. Syphilis has been assigned as a cause of locomotor ataxia in from 5 to 90 per cent. of all cases, and by equally competent authorities. When in 1876 Fournier first called attention to the wide association of syphilis and tabes, he was severely criticized because his field of observation was chiefly among syphilitics. But Duchenne, who first named and described the disease in 1864, so that it was thereafter given a place by itself in the text-books, indicated his suspicions of its specific nature by urging the efficacy of the iodid of potash in its treatment. Testimony has been steadily accumulating in favor of the tremendous influence of syphilis as a causative factor until at the present time there is not wanting high authority for the assertion that locomotor ataxia is nothing more nor less than a sequel of lues, and that the cachexia venerea constitutes the background whereon all cases are projected, no matter what may be the exciting cause that starts them into activity.

Möbius of Leipzig declares that tabes is a syphilitic disease. Darkschewitsch of Kazan argues that syphilis must be considered as the cause of the disease because the specific peripheral neuritis (toxic polyneuritis) is the primary trouble, the cord lesion being merely a subsequent secondary manifestation. Blathner of Berlin, points out a sort of crossed action of syphilis in tabes, as revealed in the not infrequent insufficiency of the aortic valves. It is to be noted, however, that though Gowers states that valvular heart disease "is the most important" complication of tabes outside of the nervous system, it has been shown, after a careful study of the question by Bailey, that "while organic cardiac changes occur in a small proportion of cases, their occurrence is not more common in tabes than in any other disease of a senile character." Minor of Moscow, brings forth apparently some strong proof of the syphilitic origin of locomotor ataxia upon ethnographic grounds. Out of a series of 1642 cases of nervous diseases of all kinds among the native Russians, 496 were males and 264 females, while among the Jews, 449 were males and 433 females. Of the male Russians, 25 per cent. were syphilitic; of the females, 11.4 per cent. Of the male Jews, on the other hand, only 7 per cent. were syphilitic, while of the females only 1.5 per cent. had had syphilis. It is strikingly significant, therefore as bearing upon the question of the syphilitic origin of tabes, to find that the latter disease is five times more frequent among the Russians than among the Jews. But note in connection with this the equally significant fact, long ago pointed out by Grimm, that syphilis is particularly rife in Japan, while tabes is exceedingly rare.

Of 1016 optic nerve atrophies examined by Galezowski, 800 were found in tabetic subjects, and more than half of these were syphilitic. In Schwarz's tabulated list of thirty cases of tabes, all were syphilitic. Germeix

insists that syphilis is the cause of locomotor ataxia. Strümpell holds that all cases are due to syphilis, the lesion not being, however, strictly syphilitic, but rather a metamorphosis brought about by the slow selective action of the toxin. Vermel voices the same opinion, as likewise does Raymond of Paris. Erb's recent list of 500 cases of tabes admitted syphilis in 89.2 per cent., but Erb recognizes the power of other causes acting in conjunction with syphilis, for he enumerates a long and varied list of such causes. Specific disease was found to have been present in 90 per cent. of the 400 cases of Gajkiewicz of Warsaw. Marie of Paris, a pupil of Charcot, who was notoriously conservative in regard to the influence of syphilis, has lately declared that syphilis is practically the only cause of tabes. Truly does experience teach men different lessons!

One fact is certain, however, that syphilis has not yet been established as the only cause of locomotor ataxia. Many advocates of the specific etiology of the disease are forced to admit that there are some cases in which syphilis does not seem to play a rôle. Soon after Fournier had announced his radical views, Teissier of Lyon, took the stand that lues was not a direct, competent cause of posterior spinal sclerosis, though he ranked it as a predisposing cause along with gout, rheumatism, alcoholism, etc. He based his views upon some thirty-five cases, of which only thirteen were positively syphilitic. In 1887 Karger of Berlin, reported that 53 per cent. of 117 cases of tabes were syphilitic. In the same year Nägeli of Zurich studied a list of 1403 cases, and found that 46.1 per cent. were positively syphilitic, while 60.6 per cent. were merely suspiciously so. Gerlach observed among 156 cases of tabes, that 56.25 per cent. of the men and 66.7 per cent. of the women were the victims of specific disease. In contrast with Gerlach's observation it is interesting to note that Andronico examined "great numbers" of prostitutes, of which many must doubtless have had syphilis, but found that locomotor ataxia was exceedingly rare among them. It is currently stated that tabes affects men in proportion to women as ten to one, and all because women are less exposed to the same deleterious influences that men are. But if syphilis be the direct cause of tabes the ratio, it seems, ought to be less that ten to one, even taking into consideration the well known fact that syphilis is not so disastrous to the female as to the male. In six of Andronico's cases, all of which were women, only one had had syphilis. At all events, this disparity between men and women in regard to syphilis and its relation to locomotor ataxia, would seem to indicate that syphilis is not a direct cause of the latter disease, but rather a predisposing or diathetic cause; and that the singular immunity of women is due to their comparative freedom from the direct, exciting causes such as cold, damp, muscular exertion, etc.

That syphilis can not be the only cause of locomotor ataxia is conclusively shown by the case of Leloir, which became a victim of the spinal disease in 1878, and not until five years later, in 1883, was afflicted with syphilis. Bernhardt and Guelliot have both reported cases of tabes, free from specific disease, in which the excessive muscular exertion of running a sewing machine seems to have been the only cause.

Lagondaky estimates that only about 42 per cent. of tabetics have been the victims of syphilis. Kuhn, of the Berlin Charity Hospital, found that syphilis was present positively in only about 37 per cent. of the tabetics, probably in 31, and possibly in 7 per cent. In 225 cases of the disease, Pitres of Bordeaux could only prove that 55 per cent. of them had been syphilitic. Since there were other causes in operation at the same time, such as heredity, alcoholism, sexual excesses, etc., the syphilitic cases, pure and simple, were reduced to 22.33 per cent. Leyden is still of the opinion that 20 per cent. represents a fair estimate in regard to the number of cases of tabes caused by syphilis. Of 108 cases quoted by Storbeck, 20.4 per cent. were syphilitic, and 58.3 per cent. were non-syphilitic. After all, it would seem as Cardarelli says, that the effect of syphilis in the production of locomotor ataxia has been greatly overestimated.

In a certain percentage of cases the syphilitic toxin may so impair the nervous tissues as to cause them, under some special stimulation, to undergo degeneration and sclerosis. There must be some exciting cause, some determining cause to act upon the general cachectic state produced by the syphilitic toxin, or else it will be incumbent upon the advocates of the syphilitic etiology, such as Marie, to explain, first, why all or at least a larger percentage of syphilitics do not contract posterior spinal sclerosis, and secondly, why this universal wide-spread toxin floating through the blood, selects special parts of the nervous system whereon to expend its force. They must demonstrate a selective power in the toxin or a special susceptibility in the sensory apparatus. Until such an explanation is forthcoming other causes must also be invoked. Among these there have been enumerated heredity, age, sex, cold and damp, sexual excesses, trauma, alcoholism, ergotism, arsenicism, environment and other spinal diseases.

Let us now look at the question from the pathologic side. Locomotor ataxia is recognized today as a much more extensive disease than it was for a long time supposed to be, and from various indications it appears that the distribution of its lesion will be found in the future to be wider than the facts now warrant us in accepting. Indeed, the implication of many of the motor nerves and tracts would seem to be more than a mere extension of the pathologic process from the contiguous sensory structures. Instead of the disease being a purely systematic one, it begins to resemble an extensive form of multiple sclerosis. The names posterior spinal sclerosis and tabes dorsalis are no longer accurate, for the posterior columns are not the only parts of the sensory cord that are affected, while the process is no longer considered an ordinary form of sclerosis; nor is the disease a genuine tabes, confined solely to the dorsal region.

Without reviewing the development of our knowledge in regard to the parts of the nervous system involved in locomotor ataxia I will simply indicate those that are now known to be affected. They are the columns of Goll and Burdach, including the posterior root-zones of Charcot; the direct cerebellar tracts of Flechsig, which many think are the real cause for the ataxia by cutting off the transmission of sensory impressions to the cerebellum, the organ of co-ordination; the antero-lateral columns of Gowers; the columns of Clarke; and the Spitzka-Lissauer tracts near the circumference of the cord on either side of the posterior roots. Structures outside of the cord that have been found diseased, are the posterior spinal nerve-roots, many of the peripheral sensory nerves, many of the encephalic nerves like the optic, trigeminus, abducens, oculo-motor, auditory and spinal accessory, and parts of the cerebral cortex.

Of all the extra-spinal lesions, those of the optic and other ocular nerves are the commonest. Out of 1016 cases of optic nerve atrophy observed by Galezowski, 800 were tabetic. The same author noted as a significant prodromic sign of locomotor ataxia, unilateral paralysis of the muscles of accommodation associated with anesthesia of the corresponding periorbital region, unaccompanied by mydriasis. Kayer of Berlin, found impairment of vision in 35 per cent. of 117 cases of locomotor ataxia in Mendel's clinic, the Argyll-Robertson pupil occurring in 66 per cent. Any number of cases might be cited, all manifesting an early and significant implication of the ocular nerves. The organ of sight, however. does not exhaust all the cranial nerve palsies, and Erb says these cephalic symptoms are present in one-half of all cases of tabes, and are persistent in from one-third to one-sixth.

The auditory apparatus comes in for its share of trouble. In the examination of some forty cases, Marini found that only 17.5 per cent. had normal hearing, while 29 per cent. had some affection of the auditory apparatus. Of the latter, 10 per cent. had middle ear disease, and 37.5 per cent. had undoubted internal ear disease, a condition which was also suspected of the remaining cases. Morpurgo observed that forty-three out of fifty-three cases of tabes had some auditory trouble. Admitting that some of these statistics may be open to question, it is none the less true that impairment of hearing, due to true nerve-deafness, as well as to trophic disturbances in the auditory apparatus, is not an uncommon symptom of locomotor ataxia.

The vagus accessorius and glosso-pharyngeal (Oppenheim) have been found degenerated, along with the extension of the spinal lesion up into the corpora restiformia. Many of the bulbar symptoms have been attributed to disease of the central nuclei, but after a careful investigation Van Gieson concludes that the various crises are really due to peripheral and not to central lesions. He reports a case in which a painstaking autopsy revealed, besides the usual characteristic spinal lesions of tabes, a bilateral chronic diffuse neuritis of the vagus and spinal accessory roots, but without involvement of the nuclei of those nerves.

Ever since Déjerine in 1883 described his case of locomotor ataxia in which there was only a general peripheral neuritis, and in which the cord elements and posterior roots were discovered to be normal, the lesions of the peripheral nerves, with or without accompanying spinal cord lesions, have attracted more and more attention until the extreme view has been advanced (Déjerine) that locomotor ataxia is, after all, a disease primarily of the peripheral nerves, a *neuro-tabes périphérique*. In his own words, Déjerine says that tabes is beginning to present more and more the appearance of a peripheral disease of the sensory and motor, and nerves of special sensation. According to this idea the medullary lesions are the result of a secondary degeneration, and the entire nervous affection is the product of a toxin in the blood.

Leyden, Redlich, Déjerine and Marie have all demonstrated that the primary trouble is in the posterior nerve-roots in their intra-medullary course. Marie sums up these views thus: "The changes found in the tabetic spinal cord are not the results of a primary systematic myelopathy. They are the expression of a progressive degeneration of the posterior root fibers. These medullary changes in tabes occur in segments, while each diseased posterior root furnishes a new contingent of degenerated fibers to the spinal cord." The question which is still unsolved is whether the origin of the degenerative process is below or above the posterior ganglion. The cause of the degeneration in the posterior roots is supposed by Marie to be a disease of the spinal ganglion cells as well as of the peripheral ganglia. Locomotor ataxia therefore resolves itself primarily into a ganglionic disease induced by a virus. Wallenberg of Halle, and Ransom give strong support to these views of Marie from postmortem examinations made by themselves. Blocq of Paris adds his confirmation also, and furthermore shows the developmental character of the degeneration of the medial portions of the posterior roots, those portions which are the first to become diseased consisting of thicker fibers and developing very early in embryonic life (from the seventh to the eighth month).

Whether this ganglionic theory be wholly true or not, there must be some place of beginning for the disease process. The usual site of this beginning, and the reason for the disease commencing at this site have been the inspiration of many theories and much controversy. That the extension of the disease is an upward degeneration will not, I presume, be disputed by anyone; for clinical as well as pathologic observation prove it. There is a gradual centripetal disappearance of the axis cylinders and medullary sheaths (Adamkiewics) with accompanying neurogliar changes (Schiefferdecker and Homén). It may not be untrue, as some more recent writers have stated, that the progressive scleroses of the spinal tracts are, to a certain extent, primarily attributable to an overgrowth of the neuroglia originating in the epiblast, as well as of the connective tissue derived from the mesoblast; so that as Dana says, we may have to speak of the process as a posterior spinal fibrio-gliosis. At this point the well known conclusions of Déjerine and Letulle are appropriately recalled. The neurogliar type of sclerosis, according to these investigations, is characteristic of Friedreich's disease, and we can therefore understand the hereditary nature of this form of locomotor ataxia, since it has been proved that the neuroglia is histologically of ectodermic origin and not meso-dermic, as is the associated connective tissue. In the neurogliar sclerosis of Friedreich's disease the defect is an embryologic one and not vascular, as it is in the mixed connective tissue type of sclerosis, characteristic of multiple sclerosis, diffuse sclerosis and tabes. The one is an inherited defect, the other an acquired form.

Auscher corroborates these views from an autopsy. According to Tellinek of Vienna, the lesions of the cerebellum found in six cases of tabes, consisted of atrophy of the nerve cells of the dentate body and degeneration of the medullary fibers of the lobules, which to some extent would seem to indicate the parenchymatous nature of the pathologic process.

From past observations the most frequent focus from which the lesions of locomotor ataxia took their start seemed to be in the dorso-lumbar region. Many have been the reasons given to account for this. Long ago, when the lesion was supposed to be of an inflammatory nature (Vulpian, Charcot, Erb), the gravitation and stagnation of the circulation in this part of the cord were advanced as sufficient reasons. Then when sexual excesses were considered as a potent cause of the disease instead of an unfortunate early symptom, their disturbing influence upon the local circula-

tion and over-excitation with exhaustion of the genito-spinal centers were blamed for the trouble starting in this region. The vasomotor theory of Porter based upon organic alterations in the anterior and posterior spinal blood vessels, with consequent disturbance of the local nutrition was certainly ingenious, but hardly tenable in view of the wide extent of the lesion and the similar vascular changes in parts of the nervous system not subject to sclerosis and degeneration. The same criticism applies to Spitzka's explanation in regard to the thickly interwoven minute fibrous network in the dorso-lumbar part of Burdach's columns, as being the reason for the disease originating there. Not even the views of Déjerine, founded upon the existence of a local meningitis and neuritis, nor those of Obersteiner and Redlich, based upon the injury supposed to be caused to the posterior nerve roots, by a syphilitic inflammation and contraction of the membranes of the cord surrounding the roots at their exit, are entirely satisfactory. First, locomotor ataxia is a most extensive disease, and not all cases, by a large majority, begin in the dorso-lumbar, or any other region of the cord; and second, if these various local conditions, invoked as an explanation of the origin of the disease in the dorso-lumbar part of the cord be entirely adequate, why do the same conditions not account for those forms of locomotor ataxia that start elsewhere in the cerebro-spinal system, than in the dorso-lumbar region? For example, how can general organic thickening of the vascular walls throughout the body, or local meningitis determine all of the many varied forms of tabes? How can a peculiar histologic network in a certain part of the cord account for cases that ofttimes seem to originate in peripheral nerves? How can gravitation and local stasis be made to answer for such varieties as cervical tabes? For the frequent forms of tabes that have the origin of their lesion in the dorso-lumbar part of the cord, almost any one of these various explanations would answer; but for the other and irregular forms, they are all untenable. In science a theory is not acceptable unless it is capable of being applied to every individual instance of a series. It does not seem to me that any one of these explanations, applicable as they may be for the dorso-lumbar forms of locomotor ataxia, can be applied in those not uncommon instances (Galezowski and others) in which the ocular so long precede the spinal symptoms; in those (Martins, Déjerine, Finny, Weir Mitchell) in which the cervical symptoms predominate; in those (Trousseau, Déjerine, Gubler, Luys) in which only the peripheral nerves seem to be affected. Indeed, no sufficient explanation for the origin of all cases of locomotor ataxia has yet been proposed. Many of the exciting causes such as trauma, local meningitis and sexual excesses operating in conjunction with a neurotic cachexia do determine the original site of the disease process; but for those insidious, apparently spontaneous cases starting from merely a general cachectic condition of the nervous system, there seems to be no explanation. For the selective implication of the sensory elements in these latter cases it appears very much as though we will have to consider some peculiar cellular structure or alteration or differentiation, some histologic peculiarity in the sensory elements themselves as the real determining cause.

As a result of some embryologic investigations made by Trepinski, under the direction of Flechsig, the latter declares that not only in the posterior columns but in the posterior nerve-roots as well, the parts that undergo degeneration first in tabes correspond to certain definite embryologic tracts. These tracts are the so-called middle root zones and median zone of the posterior columns. The other fibers from the middle root zone, which in the embryo appear later and seem to go to the columns of Goll, remain intact in tabes. Flechsig's entire article is full of suggestions and seem to point in the right direction for a solution of the question as to the selective action of the cause or causes of locomotor ataxia. Blocq confirms the origin of these tabetic degenerations in certain tracts of the posterior roots, which are developed in the embryo earlier than are some of the adjoining tracts. Can any such differentiation be found between the sensory and motor tracts as to enable us to comprehend why, with such general causes as a blood dyscrasia, locomotor ataxia should always be a disease of the sensory apparatus? It certainly would be a magnificent attainment if we could fully and positively assert as Leyden does, quoted by Obersteiner, that locomotor ataxia is "a chronic atrophic degeneration process of the spinal cord, originating in the posterior roots and connecting itself with distinct embryologic fiber symptoms."

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A STUDY OF RETRO-PERITONEAL NEOPLASMS WITH SPECIAL REFERENCE TO DIAGNOSIS.

Read before the Southern Surgical and Gynecological Association at St. Louis, Mo.

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Definition.—For the purpose of my paper I accept the limitation suggested by Mr. Lockwood for retro-peritoneal neoplasms. The term implies a solid or cystic tumor growing behind the peritoneum, into its folds and not connected with any of the great retro-peritoneal organs. So we at once eliminate from our consideration tumors of the kidneys, pancreas, uterus and so-called broad ligament ovarian cysts. Neoplasms connected with any of the retro-peritoneal viscera usually present sufficient evidence in their history, symptoms and physical signs to enable us to ascribe their site of origin.

Origin.—Surgeons are not very careful in determining at the time of operation the true origin of the tumor with which they are dealing. The spirit of the pathologist is for the time eclipsed by the surgical emergencies. Therefore, I feel safe in assuming that many retro-peritoneal neoplasms have been encountered, the surgeon, recognizing the inoperable character of the case or awed by the apparent insurmountable difficulties, abandons the attack and consigns the patient and the diagnosis to oblivion. The structures involved primarily in these growths are the retro-peritoneal cellular and fascial tissue, retro-peritoneal and mesenteric glands, the sheaths of the great blood vessels and the vertebræ.

Pathology.—The type of tumor usually encountered in the retro-peritoneal space belongs to the connective tissue group. A careful study of these cases shows that they are of a mixed variety, the predominating type being sarcoma and lipoma, occasionally fibroma and myxoma are seen. An analysis of the twenty cases of solid retro-peritoneal tumors collected by Rogowski showed sarcomatous tissue in every one.

The peculiarity of retro-peritoneal sarcomata is that they are encapsulated. According to Mr. Cripps, they do not recur when removed. From a careful investigation of the literature on this subject I think the speaker was safe in making this assertion inasmuch as about 95 per cent. of the patients die from the operation or before it.

The predominating microscope picture is generally of the spindle cell sarcoma, yet in literature we see such descriptive terms as myxo-sarcoma, lipo-sarcoma, fibro-cysto-sarcoma, etc. Metastasis occurs in about one-half the cases, the liver, lungs and mesenteric glands being the parts involved.

Frequency.—There seems to be a general understanding among surgeons that these tumors are so rare that they are scarcely worth special study, and this is borne out somewhat by Mr. Lockwood, who says that no specimen of retro-peritoneal sarcoma has been exhibited in the Obstetrical and Pathological Society of London, and prior to 1895 the Medical Society of London had no opportunity of discussing this peculiar pathology, yet in 1889 Rogowski was able to collect twenty cases. In a recent discussion in the Royal Medical and Chirurgical Society of London, Mr. Shield reports a very instructive case of retro-peritoneal sarcoma and from the limited discussion that it elicited one would infer that the members were quite unfamiliar with the subject.

Age.—They occur after maturity, from 28 to 59 years. Mudd's patient, the oldest on record was 71 years. In one case reported by Joseph Austein, the patient was a female 4 years of age.

Sex.—These growths occur alike in both sexes.

Duration.—Duration of life history of retro-peritoneal tumors is usually about six months, though some cases have lasted for years, but usually when the tumor has existed for so long a time the original growth was some form of typical neoplasm and sarcomatous change engrafted upon it. Thus in Waldeyer's case in which the tumor weighed sixty-three pounds, there was some history of abdominal tumor for several years; the microscopic examination showed it to be a lipo-myxo-sarcoma.

Causation.—There is no recognized cause for these growths, yet in some cases the malignant growth appears as secondary to some local injury or suppuration. Rogowski reports a case of Neumann in which tubercular abscesses occurred some ten years before the appearance of a sarcomatous tumor at the site of suppuration. There has been some effort to assign these growths to specific origin, yet we would scarcely expect a gumma in the loose retro-peritoneal tissue without its occurrence in other organs.

Diagnosis.—The difficulty that surrounds the differential diagnosis of abdominal swellings is notorious, and a solid growth that can not be attributed to any of the great organs should at least arouse suspicion. Clearly it is of the greatest importance that we should learn to diagnose these retro-peritoneal tumors before they have seriously affected the health of the patient, acquired such universal attachments, and distorted the abdominal viscera. And it appears that the diagnosis would be much easier in the early stage if the investigation is made under anesthesia.

Retro-peritoneal tumors possess certain well marked characteristics not found in primary intra-abdominal neoplasms. The latter originate primarily between the duplications of the peritoneum, are attached to the organs from which they spring and have their attachment between the intestines and pelvic cavity, while retro-peritoneal tumors "originate in the retro-peritoneal space and as they develop they encroach

upon the peritoneal cavity, and push the organs contained therein either forward or to the side, in a most typical manner." (Witzel).

General condition.—A patient bearing a retro-peritoneal tumor exhibits pronounced constitutional disturbance. The usual large size of the tumor and its location, give rise to disturbances of the digestion and respiration. The kidneys are frequently displaced and compressed by the growth, the spleen is entangled in the mass and the blood vessels and lymphatics of the digestive tract are partially obstructed. Consequently these patients are usually emaciated, suffer from intermittent diarrhea and not infrequently with nausea and vomiting and gradually a pronounced cachexia is developed.

Such a growth, whose history does not extend over a period of a year, frequently a much shorter time, develops this condition more rapidly than in ordinary intra-abdominal tumors.

Morphology.—The appearance of the abdomen in these growths is by no means characteristic. They grow anteriorly, as VanderVeer says, in the direction of least resistance; yet the size and location has much to do with the morphology.

In Mudd's interesting case the abdomen was exceedingly pendulous, the tumor resting on the patient's thighs. In other cases the contour of the abdomen is very striking, the tumor causing great swelling in the upper portion and bulging but little in the side or below the umbilicus.

In the interesting case of lipoma reported by Terrier and Guillemain, this characteristic appearance of abdomen was exceedingly striking. These tumors are usually asymmetrical and frequently extend into the pelvis, in one instance producing complete uterine prolapse. The direction of the growth of the tumor alters the appearance.

The superficial veins of the abdomen are usually very much enlarged, a fact easily accounted for, both by the pressure of the tumor upon the vena cava which frequently occurs, and by the distortion of the mesenteric veins due to displacement of the viscera.

Contrary to what one would suppose, these tumors are sometimes decidedly influenced by respiration. In Ransohoff's case, a very large tumor which lay chiefly on the right side intimately connected with the liver, was moved distinctly with each respiration. This phenomena was evidently confusing to the surgeons. As a general rule, however, these tumors are not influenced by respiration.

Palpation.—These tumors, whether lipomata or sarcomata, do not give upon palpation the elasticity or fluctuation observed in a tumor with fluid contents, and certainly not that hardness observed in ordinary uterine fibromata. Lipomatous tumors, particularly, impart upon palpation a special feeling which may be likened to that of the liver. (Terrier and Guillemain.)

Tumors that grow from the root of the mesentery and develop between its folds are very movable, but those attached along the vertebra or in the retro-peritoneal spaces of the flanks are fixed.

The surgeon, in palpating these tumors, must bear in mind that many of these solid growths are undergoing cystic changes and this alteration sometimes deludes, as the tumor does not present a uniform density upon manipulation. It is a well known characteristic of lipomatous tumors in any part of the body to impart on palpation a deceptive sense of fluctuation.

In Mudd's, Ransohoff's and Guillemain's cases of large retro-peritoneal lipomata fluctuation was apparently distinct. This sign together with the lobulated character of the tumor is confusing and more than once has lead the operator to mistake it for multilocular ovarian cyst, especially of the type of cyst described by Rokitansky.

Percussion.—This is our most reliable method of diagnosing these tumors. In all retro-peritoneal tumors whether they originate close to the vertebra or to the side, their growth is usually laterally and in these cases, according to Witzel, the colon bears a most typical and diagnostically important relation to the tumor. At first, while yet the tumor is small, the colon is external, later it is pushed forward and lies in front and, finally, the tumor attaining great dimensions and still growing laterally, the colon lies centrally in front of the tumor. Appreciating this fundamental fact we can intelligently apply our physical test of percussion.

Barring the relation of the colon, as above expressed, these tumors are usually dull upon percussion. And unless they are very large and project into the pelvis there is usually an area of resonance between the tumor and the symphysis. When situated upon the right side their relation and connection with the liver is so intimate as to efface any area of resonance between that organ and the tumor. When large the resonant area is upon the side opposite to the tumor or that part of the abdomen occupied by the displaced intestines. The relation that the colon bears to the tumor can be easily determined by inflation of the gut with gas. Unless this precaution is taken the ordinary pressure applied with a plexiметer or hand, in making mediate percussion, may cause a dull note. Percussion does not always yield the same note in any individual case. In the second case reported by Lockwood, immediately after admission to the hospital the tumor was dull upon percussion; it grew rapidly in the next fortnight and was decidedly resonant. This was explained at the operation; the growth of the tumor being rapid it extended into the mesentery, separated it widely and the intestines which were at first laterally displaced were now by the growth of the tumor, elevated and distributed over its surface.

From this clinical observation I would draw the following conclusion, that intra-mesenteric tumors may be resonant upon their upper surface and the dulness marked in the flanks, a condition closely resembling ascites. Furthermore, it is a clinical feature of retro-peritoneal growths that the area of resonance varies with the position of the patient. Consequently it is not surprising that many a dry tapping has been made through a failure to recognize these clinical peculiarities.

While not an advocate for the use of the aspirator in intra-abdominal diagnosis, yet under proper conditions this instrument will reveal valuable evidence, not only as to whether the growth is solid or cystic, but as to its nature. In retro-peritoneal sarcoma aspiration reveals only a little blood or bloody serum in the needle. This sign was one of the convincing points that enabled Wier and Bull to correctly diagnose a case reported by Devlin. In lipoma, on account of the slight vascularity of the growth, no blood is withdrawn. By puncture of ordinary cysts, whether mesenteric, kidney, ovarian or echinococcal, characteristic fluid will appear in the canula.

Blood in the urine.—In only one case in which the

kidney was not involved is there recorded any change in the character of the renal secretions. Usually there is entire absence of blood in the urine of these cases.

There are two special symptoms that occur in the history of post-peritoneal growths deserving of mention. First, the occurrence of intestinal obstruction which has been noted in the history of many cases. Witzel records a case in which volvulus is diagnosed but the patient was suddenly relieved. She was pregnant at the time, and after the termination of her labor, a large swelling still remained in the abdomen which reached to the umbilicus. Again symptoms of obstruction came on, operation was attempted but the tumor was too deeply imbedded in the structure of the loin to attempt its removal. Autopsy showed it to be a retro-peritoneal sarcoma. While volvulus is mentioned in many cases, the condition does not usually advance to that stage. There are numerous attacks of partial obstruction, due to intestinal distortion, giving rise to pain, nausea and vomiting, symptoms relieved as soon as free evacuations are obtained.

The second special symptom that I wish to emphasize is edema of the extremities. It is a symptom that may occur very early in the history of the growth; it is due to pressure on the vena cava and should materially aid us in making a diagnosis.

While we have attempted to analyze the special symptoms present in retro-peritoneal growths, yet we must admit that no one is pathognomonic and a diagnosis must be reached by exclusion.

Complications. — The most serious complication attending these retro-peritoneal growths, and one that indicates usually peritoneal metastasis or serious obstruction to the circulation, is ascites. This, together with the distension due to distortion or pressure, usually characterizes the closing scene of the case.

Prognosis.—The prognosis in lipoma and other forms of innocent or typic tumors is ultimately as grave as in sarcoma. The disturbance of digestion, respiration, circulation and lymphatics sets up a condition that soon undermines the constitution The relative benignity of these tumors justifies, in all cases, an exploratory operation. In intra-mesenteric growths of all forms, the prognosis is necessarily grave. The injury to the circulation, the devitalization of the peritoneum and the difficulty attending the enucleation and often the necessary resection of the intestine, renders the operation an exceedingly grave one.

RETRO-PERITONEAL CYSTS.

A generic classification of retro-peritoneal cysts is even more difficult, in view of our meager knowledge of the subject, than that of solid neoplasms. Adhering to our original idea of considering only tumors disconnected with the great viscera, we find four varieties of retro-peritoneal cysts: 1, retro-peritoneal cysts with chylous-like contents. These are cysts of the lacteals which, by retention and rupture, give rise to true mesenteric cysts containing chyle; 2, retro-peritoneal serous cysts (Prizewoski); 3, dermoid cysts which originate in the structures which persist from fetal life; 4, traumatic cysts (Schonwerth).

Pathology.—Large cysts with chylous-like contents have frequently been found. Their retro-peritoneal nature is unmistakable, from the relation they bear the colon and mesentery, and in one remarkable instance the tumor lay behind the kidney. These tumors bear a very intimate relation to the mesentery; they are separated from the liver.

The origin of these cysts is in the lacteals, or they may, by accident or disease, have some connection with the thoracic duct itself. The character of the contents is the interesting feature of their pathology and diagnosis. Perhaps one of the most carefully observed and accurately recorded cases is that by Gustav Kilian. This surgeon, after many attempts to obliterate the sac by aspiration, finally cured the patient by operation. The fluid in its macro- and microscopic examination and chemic analysis very closely resembles milk.

A second form of retro-peritoneal cyst deserving, perhaps, more attention than it has received, is the retro-peritoneal serous cyst, originally described by the pathologist Prizewoski. A complete summary of all knowledge we possess on this variety of cysts may be found in the dissertation of Dr. A. Ohelinski, in Krakau. He concludes: 1, that retro-peritoneal serous cysts, while not often observed, are not of such great rarity. The reason of this is lack of, or faulty knowledge of the existence of such growths; 2, they are cysts of slow evolution; 3, their origin is, according to Prizewoski, the Wolffian or Müllerian bodies; 4, they are innocent in their behavior; 5, contents clear, serous fluid; 6, extirpation is a simple operation, comparatively free from danger.

The parasitic, dermoid and traumatic cysts, the three other retro-peritoneal forms, possess nothing peculiar or distinctive because of their special location and do not require further consideration.

Differential diagnosis.—The exclusive or differential diagnosis of retro-peritoneal tumors from conditions which closely simulate them is perhaps one of the most difficult problems in surgery. A conclusion can only be reached by systematic investigation of each individual abdominal organ and its function, and in a careful study of the tumor itself, its physical characteristics, its relations, and with the assistance of the aspirator, a careful microscopic and chemic analysis of its contents.

Retro-peritoneal tumors must be differentiated from every form of tumors found within the abdomen, but we encounter particular difficulties in distinguishing these growths from tumors of the kidney, cysts of the pancreas, uterine and ovarian tumors.

Kidney and retro-peritoneal tumors possess certain features in common. They are both retro-peritoneal, in both the large intestine lies in front, both are dull between the tumor and vertebral spines, no space between the kidney or tumor in which the fingers can be dipped, both grow anteriorly, consequently there is no prominent lumbar projection. Respiration influences either tumor but slightly.

Retro-peritoneal tumors that grow between the mesentery are movable, all other forms are firmly fixed. Kidney tumors, unless inflamed, can be moved laterally and upward, and whether solid or cystic, no matter what the size, retain some, often much, of their natural outline; the kidney has no sharp edges. Retro-peritoneal tumors affect but little the normal function of the kidney. In renal tumors there is alteration in the character and quantity of the urine and finally if the tumor be cystic the aspirator will reveal the characteristic fluid in either case.

Cysts of the pancreas.—Cysts of the pancreas are also resonant upon percussion. They underlie the stomach, usually, and push the colon down. The tumor is generally in the epigastric or left hypochondriac region. It is not upon the physical signs,

however, that we rely for differentiation. Cysts of the pancreas have been found only in adults, retro-peritoneal cysts may occur at any age. Pancreatic cysts are very painful, patients suffer with colicky pains in the epigastrium often of great violence; they have fatty stools, are frequently jaundiced; their digestion is impaired; there is rapid emaciation; the skin becomes pale and yellow, a symptom said to be pathognomonic. Diabetes mellitus is occasionally associated with pancreatic disease. These phenomena are, with exploratory aspiration, sufficient to discriminate the case.

Küster emphasizes the great value of inflating the stomach and colon as a means of developing the relation of pancreatic swellings.

Tumors of uterine or ovarian origin assume any dimension and position in the abdomen and differential diagnosis of these from the tumors under consideration can only be made by thorough investigation into the history and subjective symptoms, and by careful vaginal and abdominal examination and conjoined manipulation.

The majority of retro-peritoneal tumors are revealed only at operation and it appears that they are more frequently mistaken for ovarian or uterine tumors, perhaps because of the frequency of these growths.

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ADDISON'S DISEASE; TWO CASES IN ONE FAMILY.

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My object in reporting this case is its rarity, difficulty of early recognition and the fact that two brothers died from this disease within thirteen months of each other.

I will first give the younger brother's case.

Mr. C., aged 55 years, married, Spanish descent, salesman in wholesale drygoods house.

Family history.—Father is 82 years old and in good health, though he had a slight cerebral hemorrhage last winter, but entirely recovered. Mother died at 62 years of age, from fatty degeneration of heart and kidneys. The necroscopic report does not give any clue as to the cause. An elder brother died, at 57 years of age, from Addison's disease. One brother, still living, is 45 years old and in fair health. Two sisters died in childhood from scarlet fever.

Patient's history.—Average weight 165 pounds, dark and sallow complexion and troubled with chronic constipation; moderate smoker and user of alcoholic liquors. Previous health always good with the exception of the constipation. Health began failing about eighteen months before his death, the first indication of which was a general progressive weakness, anemia, followed by emaciation. In May, 1896, he took a two weeks' vacation, then returned to work feeling some better.

He seemed fairly well until July 17, when he had a severe attack of vomiting and diarrhea lasting four days. This then ceased for about ten days, when he was again taken with diarrhea lasting three or four days. The alternation of diarrhea and constipation, or normal condition, continued throughout the whole course of the disease. The diarrhea generally lasted from three to four days and was followed by from ten days to two weeks of normal condition of bowels or constipation.

Vomiting was not a permanent symptom until about six weeks before his death, although he was continually nauseated after eating.

With the onset of the attack of vomiting and diarrhea, a marked numbness of the hands and wrists occurred, which lasted several days. After this passed off the feet and ankles became in the same condition. The numbness of the feet and ankles remained, and this condition extended upward until it reached the crest of the ilium.

The circulation was quite feeble and sluggish from the beginning. The appetite was good and at times almost ravenous. There was no pain, though he suffered from extreme exhaustion.

In January, 1897, he suffered from a general eczema, most marked over the back, which lasted about three weeks. The skin became bronzed in color about four months after his health began to fail. It varied in shade, at times being darker than at others, and on the parts where the eczema had been prominent it was darkest. The urine was negative.

After March 28 he was confined to bed. From this time on there was frequent vomiting besides nausea.

On and after March 30 he was unable to void urine. This was probably due to atony of the bladder. By this time the anemia had become very marked and he was also very much emaciated.

Treatment.—The treatment was principally symptomatic. The diet was largely milk, beef juice, eggs, clam broth and fruits. Massage was used on the limbs but had no appreciable effect. Catheterization was employed to empty the bladder.

In medicines, compound licorice powder in 2 to 4 gram doses in the evening, and occasionally a half bottle of the solution of the citrate of magnesia, mornings, were given for constipation. The eczema was readily cured by means of alkaline drinks and the use of a paste locally, consisting of starch and glycerin. The nausea and vomiting were controlled by aromatic spirits of ammonia in doses of 2 to 4 c.c. The diarrhea was controlled by the use of carbolic acid, tinct. catechu, bismuth subnitrate and chalk mixture. Tonics like iron, quinin, strychnia and arsenic were employed, but with very little effect.

The powdered dessicated sheep's suprarenal capsules

in 0.2 gram doses were used at one time for a couple of weeks, but the general condition seemed to fail so rapidly and the numbness ascended so fast that they were discontinued.

During the last three weeks morphin hypodermatically in 0.016 to 0.032 gram doses were used to produce sleep and alleviate the suffering from cramps in the limbs.

The patient died May 7, 1897, from general asthenia, the end being very quiet.

At the necropsy the suprarenal capsules were found to be almost entirely wasted; what remained was tubercular, as shown by microscopic examination.

The elder brother was a very active business man, having had a responsible position in a wholesale dry-goods house. He had typhoid fever and chronic diarrhea in the army, and it troubled him occasionally ever afterward. He suffered from insomnia for several months prior to the establishment of the disease, after which he slept very well; otherwise his previous health had been fairly good.

His first symptom was impaired vision, which gradually progressed until he was unable to read ordinary print; this afterward became considerably better.

The course of his disease was about two years; with the exception of the longer course, and impaired vision, his train of symptoms were about the same as those cited in his brother's case.

There was no necropsy, but a clinical diagnosis of Addison's disease was made by eminent men about a year before his death.

His trouble had been diagnosed as pernicious anemia, neurasthenia, paresis and cancer of the liver, before the correct diagnosis was made.

Conclusions.—Drs. Osler and Quine both say it is the first instance in their knowledge where two cases of Addison's disease have occurred in the same family. Dr. Quine says children of tubercular parents would probably be more susceptible to Addison's disease, but there is no tubercular history in this family. I am informed that these brothers were very similar in habits and temperaments, and this may have something to do with the hereditary element in this instance.

Investigators have come to the conclusion that the suprarenal capsules, in addition to any other functions they may have, elaborate a substance which has a direct action on contractile power of muscular tissue, and on the muscular substance of the coats of the blood vessels, causing contraction and thus heightening the blood pressure. This probably accounts, at least partially, for the great loss of muscular power, this being so great and apparently out of proportion to the other symptoms of the disease.

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FORCIBLE STRAIGHTENING OF SPINAL CURVATURES DURING COMPLETE ANESTHESIA.

Read before the Chicago Medical Society, Dec. 23, 1897.

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CHICAGO, ILL.

So much has been published during the past two years in the continental medical journals and in the daily newspapers about the new French method of treating Pott's disease that we feel warranted in briefly narrating the facts and in critically discussing this new surgical procedure.

Spinal curvatures are, broadly speaking, of four kinds: 1, simple posterior curvatures; 2, anterior curvatures; 3, lateral curvatures; and 4, the posterior curves or angles of spinal caries.

As to the first class of simple posterior curvatures, or the ordinary round shoulders most frequently seen in adolescence and old age, and the posterior curvatures of rachitic infants, nothing so far as I know has been attempted in the way of immediate and forcible straightening under anesthesia.

As to the anterior curvatures, again nothing has been attempted. Indeed cases of this class are seldom met with even by orthopedic surgeons of large experience, and their pathology is not well understood.

As to lateral curvatures of the class ordinarily called "rotary lateral curvatures" or "true lateral curvatures"



FIG. 1.—A case of scoliosis.

which we orthopedic surgeons denominate scoliosis, I have seen no reports in the medical journals. These cases of scoliosis should be considered as quite apart from postural lateral curvatures and from the lateral curvature, either with or without rotary deformity, which often precedes the posterior deformity of spinal caries and at times accompanies the posterior deformity in cases of some years standing. Figure 1 shows a well developed case of scoliosis. Figures 2 and 3 show lateral curvature with rotary deformity in a case of spinal caries (tubercular spondylitis) prior to the development of any posterior curve or angle in the spine. Figures 4 and 5 show lateral curvature with rotary deformity in a case of tubercular spondylitis of many years standing and with well marked posterior angular deformity.

I have attempted forcible correction of the deformity, under anesthesia, in five cases of scoliosis. Two cases were at Michael Reese Hospital, girls of 14 and

17 years of age. The curvatures were of the ordinary right dorsal variety, of moderate degree of severity and of several years duration. In each instance I succeeded in reducing the deformity by about one-half. One case at St. Luke's Hospital, a girl of 17 years, with a right dorsal curvature of extreme severity and exceedingly rigid, and of many years duration. In many respects it resembled the case shown in Fig. 1, but the deformity was greater, the spine was stiffer, the shoulders more displaced to the right, and the deformity of longer duration. I succeeded in reducing the deformity somewhat more than one-third and made the patient taller by an inch and a quarter.

The fourth case was at the Home for Crippled Children. A girl of 15 years with a very severe left



FIGS. 2 and 3.—A case of tubercular spondylitis simulating scoliosis; shows lateral curvature and rotation deformity.

dorso-lumbar curvature of more than three years duration. Figure 6 shows this case. The pathology is perhaps uncertain. It is a case that most surgeons would unhesitatingly pronounce scoliosis; nevertheless the patient's mother died of consumption; the spine was very stiff for the known duration of the disease; she was not comfortable when lying on her back, and there was pain on pressure over the lower dorsal and lumbar portions of the spine I do not, even at this time, feel sure as to whether this case is one of tubercular spondylitis or a simple scoliosis.

For nine weeks she was kept in bed with horizontal head-traction of four pounds. The spine became somewhat more flexible, but scarcely straighter. June 23, 1897, under complete anesthesia, I used great force in the way of straightening the curvature. Tearing and crackling sounds were abundant and great straightening resulted. The patient was suspended by the feet and a plaster jacket applied. She was then kept in bed for three weeks, when the operation was again repeated with further gain in the way of straightening. Figure 7 shows this gain, which in height amounts to about three inches.

The fifth case was a girl 7 years old, with well-marked right dorsal scoliosis. Deformity has been noticed since the child was six months old. The deformity is believed to be rachitic. On Dec. 15, 1897 at the Home for Crippled Children this curvature was forcibly straightened under anesthesia to



FIGURE 3.

about two-thirds its extent. The patient is still in the first plaster jacket, and in bed.

In none of these five cases did any unpleasan symptoms result from the forced straightening.

Finally, as to the posterior curves and angles o spinal caries, that is to say, the deformities of tuber cular spondylitis or Pott's disease. It was in thi class of cases that the work of forcible straightenin under anesthesia was commenced by Dr. Calot, o Berck-sur-Mer. Being dissatisfied with the result obtained by the ordinary methods of treatment, D Calot argued that there appeared no good reason wh a tubercular spinal joint should not be treated on pre cisely the same principles as a tubercular joint in an other part of the body, as the knee or the hip; th

inasmuch as it is customary to straighten deformities resulting from hip disease and knee disease by forci-



FIG. 4.—An old case of tubercular spondylitis, with posterior, lateral and rotary deformity.

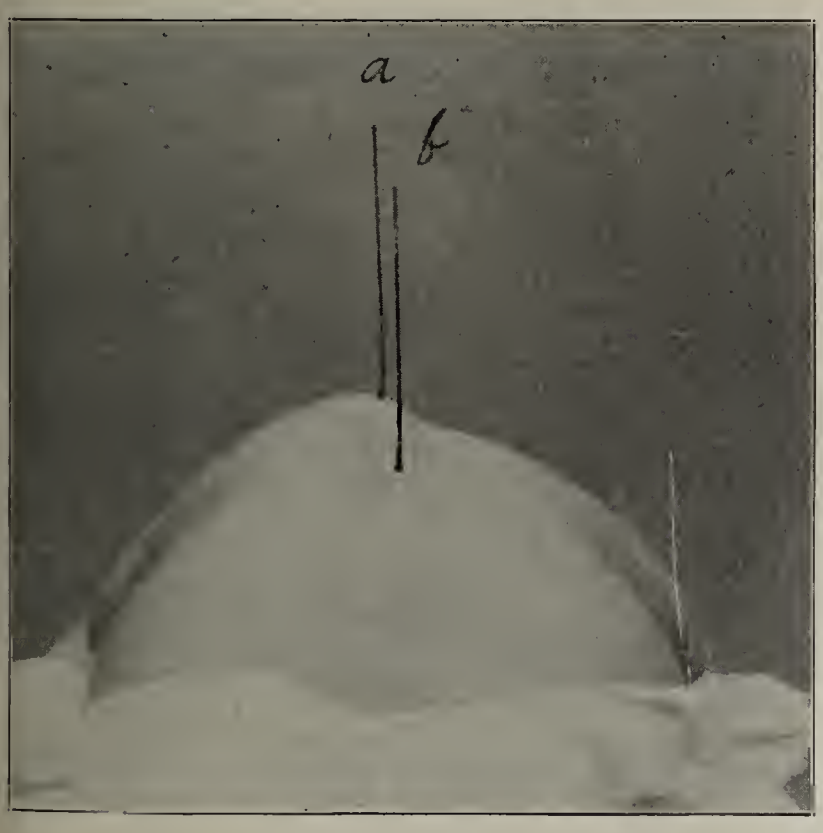


FIG. 5.—The same case shown in Fig. 4, stooping forward, viewed from the rear, showing by the parallel lines, *a* and *b*, the degree of lateral deviation; showing also the amount of rotary deformity.

ble manipulations under anesthesia, either with or without a cutting operation, it would be perfectly feasible and wholly justifiable to do the same operation for the correction of the deformity resulting from the same disease in the spinal bones and joints.

I do not know just what the "ordinary methods of treatment" were with which Dr. Calot become dissatisfied, but if they were the same that one usually finds in France it is not surprising. Even in this country those surgeons who have depended upon the unqualified surgical instrument maker to measure for and fit braces and those that have placed their reliance upon the plaster jacket as a support in ambulatory cases have hardly been satisfied with the results obtained.

Dr. Calot's methods have been followed, with certain modifications, by many of the continental surgeons. It is not necessary here to name them or



FIGS. 6 and 7 show case No. 4 of lateral curvature, forced straightening, and four weeks later after second forced straightening.

specify their modifications. Sufficient to say, that in recent cases the straightening was effected by longitudinal (horizontal) traction and counter-traction, by the hands of assistants or by mechanical devices, while the operator made manual pressure in the direction of straightening the kyphosis. In older cases operative measures were added. The soft parts were cut through and the bones divided by chisel in one or more places, abscesses were evacuated and cheesy foci cleaned out when such were accessible; then the deformity was straightened and the spinous processes were wired to each other to maintain the corrected position. Immobilizing dressings were applied, and the patient was kept recumbent in bed for many months.

This idea of forcibly straightening the kyphosis of Pott's disease did not originate with Dr. Calot, though he may not be aware of the fact. On Dec. 22, 1890, Dr. B. E. Hadra, of Galveston, Texas, straightened a fractured spine and wired the spinous processes. Commenting on the case in the *Times and Register*, May 23, 1891, he says: "I can not resist the temptation to connect my device also with the treatment of Pott's disease. Here, too, the indication in cases where the abscess or carious bones do not call for other surgical attempts, is mainly to steady the vertebral column in order to protect the cord, to prevent the diseased bones from rubbing on each other, and finally to make the outcome, in regard to disfigurement, as favorable as possible. Judging from my concededly limited experience, and from theoretical deductions, the proposed procedure will do better than braces, corsets, plaster jackets and the like. It seems to me called for as soon as displacement of the bones is noticed; but even if a full kyphosis should be established, it will be proper to put the patient under anesthetic, and to wire together the spinous processes, provided that the column can be straightened to a satisfactory extent."



FIGURE 8.



FIGURE 9.

FIGS. 8, 9, 10 and 11.—Dr. B. E. Hadra's case of wiring the cervical vertebræ. Figs. 8 and 9 show habitual position; Fig. 10 shows the extent to which the chin could be raised; Fig. 11 shows the scar of the operation.

Again in the *Medical News*, Nov. 28, 1891, Dr. Hadra says, "But if an abscess cavity has already formed, the surgeon will have to decide whether or not its dimensions are too great to be filled up by new bone formation. If the abscess cavity is too large it may be better to allow the diseased surfaces to come in contact and to unite by bony anchylosis with kyphosis. Under such circumstances the wiring will be out of place. Not so, however, if the destruction of the bodies and of the inter-vertebral discs is moderate. We may then hope for the reproduction of a sufficient amount of bone, and by holding the spine in a straight line we shall obviously enforce a desirable final outcome."

Forced straightening, without a cutting operation, and without an anesthetic is an idea so old that it has practically been forgotten. Hippocrates writing 500 years B. C. spoke of it as an old method, so old then that the name of the author had been forgotten. He says:

"Those cases in which the gibbosity is near the neck, are less likely to be benefited by these succussions with the head downward, for the weight of the head and tops of the shoulders, when allowed to hang down, is but small, and such cases are more likely to be made straight by succussion with the feet hanging down, since the inclination downward is greater in this way. When the hump is lower down, it is more likely in this case that succussion with the head downward would do good. If one then should think of trying succussion, it may be applied in the following manner: The ladder is to be padded with leather or linen cushions, laid across, and well secured to one another, to a somewhat greater extent, both in length and breadth, than the space which the man's body will occupy; he is then to be laid on the ladder upon his back, and the feet at the ankles are to be fastened at no great distance from one another, to the ladder, with some firm soft cord, and he is further to be secured, in like manner, both above and below the knee, and also at the loins and chest, loose shawls are to be put around in such fashion as not to interfere with the effects of succussion; and his arms are to be fastened along the sides of his own body and not to the ladder. When you have arranged matters thus, you must hoist up the ladder, either to a high tower, or to the gable end of a house; but the place where you make the succussion should be well instructed, so that who perform the extension should be well instructed, so that they will let go their hold equally to the same extent, and suddenly, and that the ladder may neither tumble to the ground on either side, nor themselves fall forward. But if the ladder be let go from a tower, or the mast of a ship fastened in the ground with its cordage, it will be still better, so that the ropes run upon a pulley or an axle-tree." (Dr. Adams' translation, Sydenham Ed., and Bigg's "Orthopraxy.")

FIGURE 10.

FIGURE 11.

Hippocrates, however, seems to favor the treatment of gibbosities by extension. Here is his method:

"Something like an oaken bench, of a quadrangular shape, is to be laid along at a distance from the wall [in which there had previously been scooped an oblong furrow], which will admit of persons passing around if necessary, and the bench is to be covered with robes, or anything else which is soft, but does not yield much. The patient after being stoved and bathed with hot water, is to be stretched upon the board upon his face, the arms being laid along and bound to the body. Next the middle of a thong which is soft, sufficiently broad and long, and composed of two cross straps of leather, is to be carried across the patient's breast, as near the armpits as possible, then what is over of the thongs at the armpits is to be carried around the shoulders, and afterward the ends of the thong are to be fastened to a piece of wood resembling a pestle; they are to be adapted to the length of the bench below the patient, and so that the pestle-like piece of wood resting against this bench may make extension. Another such bond is applied about the knees and the ankles, and the ends of the thong fastened to a similar piece of wood; and another thong, broad, soft, and strong, in the form of a swathe, having breadth and length sufficient, is to be bound tightly about the loins, as near the hips as possible; and then what remains of the swathe-like thong with the ends of the thongs, must be fastened to the piece of wood at the patient's feet, and extension in this fashion is made upward and downward, equally, and at the same time in a straight line."

The physician is further recommended to press the

palm of the hand upon the hump while extension is being made; or a person may sit upon the hump, rising up from time to time, and letting himself fall back upon it. Or a foot may be placed upon the hump and the entire weight of the body brought gradually to bear upon it. Or better still, a lever may be used, one extremity of which is fixed in the hole in the wall (previously scooped out). The lever is brought to bear across the hump, a cushion being interposed, and firmly pressed down while extension is made. (Dr. Adams' translation, and also Bigg's "Orthopraxy.")

Ambroise Paré, in the sixteenth century, followed the teaching of Hippocrates in the essential principles. He made traction and counter-traction by towels, in place of leather thongs, and assistants, in place of the mechanical device; and he discarded the lever, making pressure with his hands, or with "two pieces of wood, four fingers long, and one thick, wrapped more or less in linen cloths, and so to apply one on each side of the displaced vertebræ, and so with your

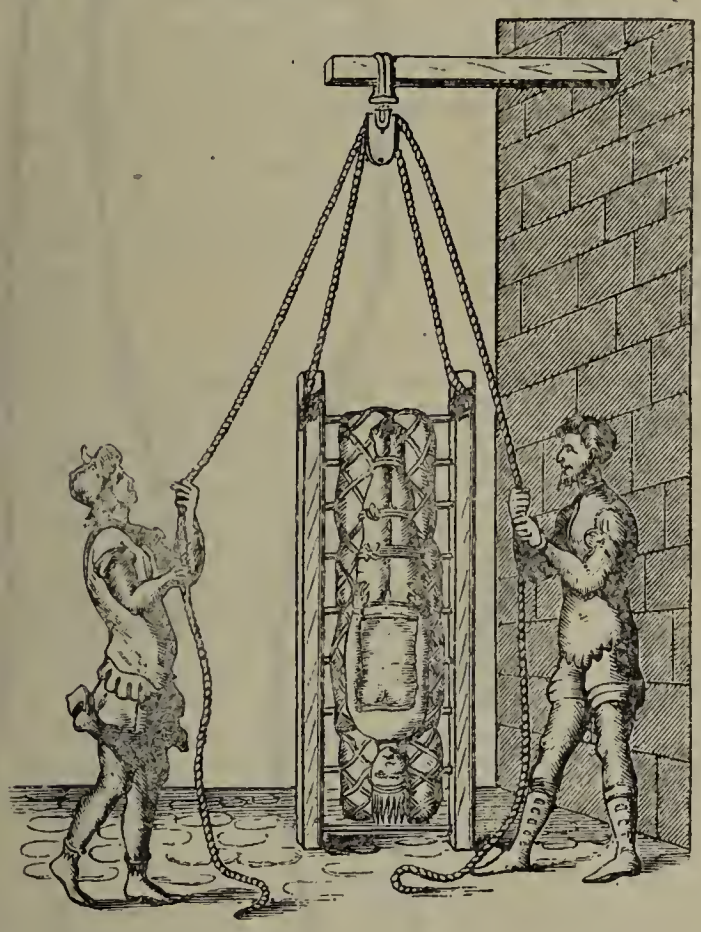


FIG. 12.—The treatment of spinal deformities by succussion. From the Venetian edition of Galen. Quoted in Bigg's "Orthopraxy."

hands to press them against the bunching forth vertebræ, until you force them back into their seats, just after the manner you see before delineated."

It would appear from the above that the only thing new in "the new French method" is the use of the anesthetic, the cutting operation, which is being rapidly abandoned, and the wiring of the spinous processes as recommended by Hadra, which has not yet been demonstrated to be of the slightest value, and appears to add greatly to the discomfort of the patient and to the risk in the treatment of these cases.

European surgeons are becoming more conservative in their work of forcibly straightening spines than they were some months ago, since deaths have occurred from tubercular meningitis and from general tuberculosis arising apparently from dissemination of the disease by tearing through the protecting wall of the tubercular focus, as has occurred after forcible straightening at hip and knee. They are now more inclined to straighten gradually at several sittings instead of attempting to obliterate the deformity at once.

The procedure is as follows: The patient being fully anesthetized, lies face downward upon a table. The hips and the upper portion of the chest may be raised on padded blocks or supported by assistants. Traction is made downward on the legs by assistants or from a girdle around the pelvis by means of some mechanical device, while traction is made upward on the arms and head by assistants or by a girdle around the chest, above the kyphosis, and the aid of some mechanical device. Corrective pressure is brought to bear upon the kyphosis by the hands of the surgeon. When as much correction has been had as is thought safe, some immobilizing device is applied to the spine to maintain the corrected position, usually plaster-of-Paris is used. This is applied by some while the patient is still horizontal; by others (Bilhaut and Levassort of Paris) the patient is suspended by the feet during the application of the plaster dressing. The objections to the prone, horizontal position are that it requires many assistants, favors lordosis above and below the kyphosis, and is a difficult position

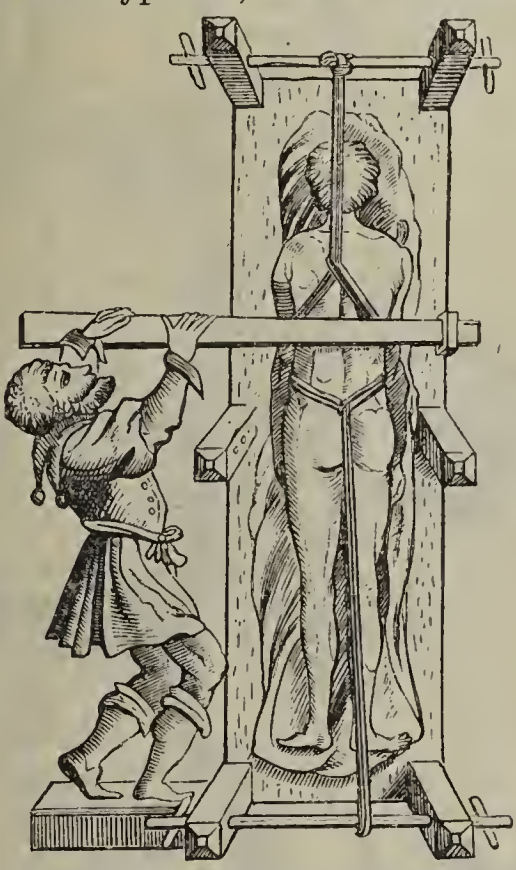


FIG. 13.—Forced correction of spinal curvature by traction and counter-traction, and direct pressure by lever. From the Florentine edition of Galen. Quoted in Bigg's "Orthopraxy."

when the head must be included in the plaster dressing, as it should be when the disease is at or above the ninth or tenth dorsal vertebra. With the patient suspended by the feet few assistants are necessary, and the head is readily included in the plaster dressing, but suspension by the feet causes the abdominal contents to fall upward against the diaphragm and the jacket constricts uncomfortably when the horizontal posture is resumed.

I have attempted this operation on cases of Pott's disease only seven times. I find parents rather disinclined to submit their children to the operation.

Case 1.—Female, 5 years old, well marked dorsal kyphosis (see Fig. 15). The deformity had been present for more than two years, and for the first eighteen months of this period had increased rapidly. No abscess was made out. On July 15, 1897, at St. Luke's Hospital, the spine was straightened to the extent shown by the second tracing. Horizontal traction and counter-traction was made by two assistants to not more than forty pounds (estimated), and very little direct pressure upon the

kyphosis was necessary to reduce the deformity to the degree indicated by the tracing. The tracing was made as the patient lay upon the table after traction had been discontinued. A plaster jacket, not including the head, was applied with the patient held horizontal. Immediately afterward the patient stopped breathing; the jacket was split open, and breathing was resumed. It was left gaping about an inch. Two weeks later when this jacket was removed there was found to be about two-thirds of the original deformity present. The operation was repeated and another jacket was applied, not including the head. At the end of three weeks this jacket was removed and a pressure sore the size of a dime was found over the most prominent spinous process, and there had been some return of deformity. A jacket well padded with felt to protect the spinous processes was now applied with the patient in the prone horizontal posture and without the administration of an anesthetic. The pressure sore readily healed. The spine was again straightened during anesthesia, the patient suspended by the feet and a plaster dressing applied, including the head. The patient is perfectly comfortable and spends much of the day, lying prone and raised on her elbows, in play with toys and the other children.



FIG. 14.—Correction of spinal curvatures by traction and counter-traction and manual pressure upon the kyphosis. From Ambrose Paré, in the sixteenth century. Quoted in Bigg's "Orthopraxy."

Case 2.—Male, 13 years old, inmate of the Home for Crippled Children, where he has been for four years. There is no history of the case prior to his coming to the Home. During the past four years he has had no treatment, but the deformity has not increased. July 21, 1897, I attempted to straighten this spine under complete anesthesia and in the manner already described. Nothing was accomplished after using as much force as seemed safe.

Case 3.—Female, 4 years old, severe upper dorsal curvature with marked forward projection of the chest. The duration of the deformity is not known. An attempt was made to straighten this case, in the usual way, July 21, 1897, at the Home for Crippled Children. Nothing was gained after using as much force as seemed safe.

In neither of these cases, 2 and 3, were there any unpleasant symptoms as a result of the attempts at straightening.

Case 4.—Male, 4 years old, lumbar kyphosis (see Fig. 16) of one year's standing, complicated with an intra-pelvic psoas abscess that flexed the thigh to a right angle. Tuberculosis in the mother's family. July 21, 1897, at the Home for Crippled Children, this spine was practically straightened (see Fig. 16). The correction has been maintained, no unpleasant symptoms have arisen; the psoas abscess has descended upon the anterior and inner aspect of the thigh, and the thigh is now nearly free from flexion deformity. The jacket has been changed without an anesthetic.

Case 5.—Female, 2½ years old, with lumbar kyphosis of more than six months' duration. The spine was completely straightened at St. Luke's Hospital, Sept. 27, 1897. The jacket has since been changed without an anesthetic, and there is no return of deformity.

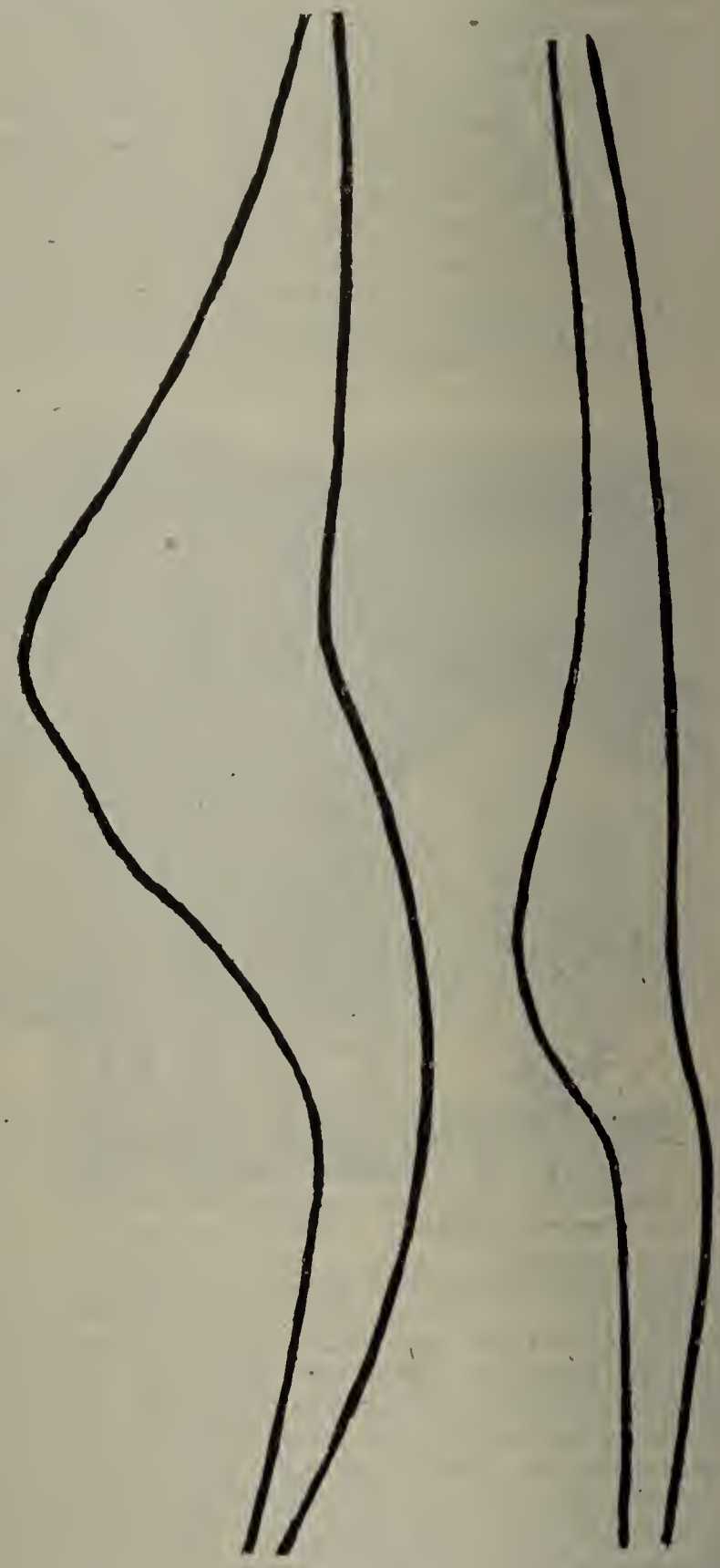


FIG. 15 shows tracing (reduced) of spinal curvature before and after straightening in case No. 1.

FIG. 16 shows tracin (reduced) of spinal curv ature before and afte forced straightening i case No. 4.

Case 6.—Boy, 5 years old, left dorso-lumbar curvature c more than three years' duration; very rigid in all directions muscles rigid in involuntary spasm, and girdle of clonic spasr on any movement or other irritation. Unquestionably a spor dylitic deformity, although he has been treated for scoliosi Dec. 21, 1897, at St. Luke's Hospital, patient under complet anesthesia, three-fourths of the deformity was effaced an patient put up in plaster. There has been increased restles ness at night, but no increase of conscious pain The plaste dressing is still on.

Case 7.—Girl, 6 years old, lower lumbar spondylitis with well marked kyphosis of more than two and one-half years' duration. There is a sinus in the left loin, from a lumbar abscess, of some months' standing. Dec. 28, 1897, at St. Luke's Hospital, patient under complete anesthesia, the spine was more than three-fourths straightened, in the usual way.

In none of these cases have there been any unpleasant symptoms, except as stated in Case 6.

From this slight experience, and from a study of the reports from abroad, I am inclined to the following conclusions:

1. Cases of scoliosis can be safely attempted, and can always be somewhat and often greatly improved by this method of treatment; and no unpleasant results are to be anticipated. It is best to straighten by horizontal traction and counter-traction and by a rotary pressure upon the curvature. During the process of straightening, that is to say, between the operations, patients should wear permanent plaster jackets, extra long, and remain in bed. The jackets will best be put on during suspension from the feet or knees, and complete anesthesia must be maintained until the plaster has set. The feet or knees should be protected from constriction during suspension by plaster stockings applied the day before the operation.

2. In cases of tubercular spondylitis, old cases, where the inflammatory process has ceased and anchylosis has resulted, should be left alone. Any gain in such cases is doubtful, and if accomplished is had at a great risk.

3. Recent cases of tubercular spondylitis can be readily straightened, often at a single operation, and at no greater risk than is encountered in straightening similar deformities at the knee and hip.

4. In older cases of tubercular spondylitis, not yet anchylosed, but in which structural shortening has taken place in the soft parts, repeated efforts at straightening should be made in place of reducing the whole deformity at one sitting.

5. Plaster jackets are best applied with the patient in the prone horizontal posture in young children, when the deformity is below the ninth or tenth dorsal vertebra; in all other cases it is best to suspend the patient by the feet or knees. In all cases where the disease is at or above the ninth dorsal vertebra the head should be included in the plaster dressing. Pads of felt, at least three-fourths of an inch thick, should be placed on each side of the spinous processes at the region of the disease.

6. All cases should be kept recumbent for a long time, many months, after the spine has been straightened.

7. The plaster jacket and the steel brace are found to have the same faults and failings as in their use in acutely progressive cases of spondylitis that have not been subjected to forced straightening, that is to say, they can not be absolutely depended upon to prevent some degree of return of the deformity, and they may cause pressure sores.

8. The dangers from forcible correction of spinal deformities in cases of Pott's disease are tubercular meningitis and general tuberculosis from dissemination of the tubercular infection.

9. The advantages of this method of treatment are obvious: The reduction or abolition of an unsightly deformity; but no diminution of the duration of treatment over the ordinary methods by rest and immobilization is to be anticipated.

ESOPHAGOTOMY FOR THE REMOVAL OF A TOOTH PLATE IMPACTED FIVE DAYS IN THE UPPER THIRD OF THE ESOPHAGUS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY JOHN O. ROE, M.D.
ROCHESTER, N. Y.

On Saturday, March 28, 1896, as I returned to the city after an absence of two days, I found Elisha L. Gates, a man of 66 years, impatiently awaiting me, and complaining of a difficulty in swallowing and of a severe pain in the neck.

I elicited from his attendant the following history of the trouble: On the previous Monday evening, while eating his dinner, his tooth-plate, which was an upper one, slipped into his throat and passed down into his esophagus. At the time, he choked but little and coughed only two or three times. He stated to those present that he had swallowed his plate, and in evidence called attention to a lump in his neck. The family physician was called soon after, but found no lump in his neck other than the pomum Adami, and as he could swallow liquids without difficulty and complained of no pain in his neck, but of soreness in his abdomen, the doctor concluded that the plate had passed into his stomach.

There was no change in the patient's condition until the following Thursday night, when he began to expectorate freely. The lower portion of his throat was also somewhat painful and obstructed, but as he was still able to swallow liquids freely and the only pain complained of was in his epigastrium, it was still believed that the disturbance was caused by the tooth-plate in the stomach.

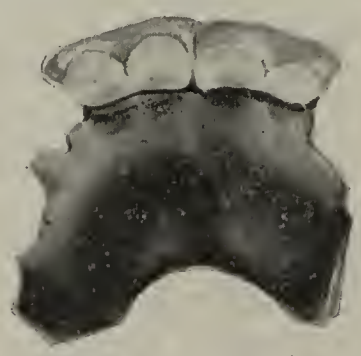
On Friday the pain in the lower part of his throat and in the neck became quite severe and he could swallow no solids whatever, and liquids in small quantities only. The family physician was again called and then concluded that the plate must be lodged in the esophagus instead of the stomach, and referred the patient to me. He came to my office, but finding that I would not return until the following day, went home and awaited my arrival, the doctor seeing nothing more of him.

On examining his throat with a sound, I found an obstruction in the upper third of the esophagus, just below the cricoid body. This was evidently the tooth plate. I then endeavored to extract it. I could readily grasp the plate with a pair of esophageal forceps, but it was so firmly fixed that the amount of force necessary to extract it would certainly have lacerated the esophagus. It was therefore deemed imprudent to attempt its extraction in this manner. I endeavored, however, to turn it up by means of an esophageal hook, but it was impossible in any manner to dislodge it. It was apparent, therefore, that esophagotomy must at once be resorted to.

I sent him to the hospital and early in the evening the operation was performed, Drs. Mulligan, W. R. Howard, Soble, Rose, and the hospital internes being present. An incision was first made in the left side of the neck, which was carefully dissected down until the esophagus was reached. An esophageal sound was then passed through the mouth and the wall raised over the tooth-plate to facilitate the incision of the esophagus. This was made in the side of the

esophagus, sufficiently long to permit the ready extraction of the tooth-plate, which was dislodged from its bed with the finger. As there was some ulceration of the esophagus where the tooth-plate had been imbedded, stitching and closure of the wound were not advisable. The esophagus and the wound were accordingly thoroughly cleansed and packed with iodoform gauze. On dressing the wound, there was found to be considerable sloughing of the inner wall of the esophagus on the side opposite to that in which the incision was made. The parts were thoroughly irrigated with antiseptic solution, by closing the esophagus below with packing and allowing the fluid to return through the wound and the mouth. Afterward this was done daily and the wound carefully packed with iodoform gauze. After the wound was cleansed pyrozone was also used, on account of its strong antiseptic properties. A solution, 1.3 grams of nitrate of silver to 30 c.c. water, was applied on cotton to the ulcerated surface for the purpose of stimulating the reparative process.

For four days the patient got on very well indeed. His temperature was increased but one degree, and he was fed regularly and freely through a gum-elastic catheter, which was placed in the esophagus with the dressing. There was no regurgitation of fluids from the stomach into the wound or through the catheter. The following Thursday morning, however, he suddenly began to feel ill, had quite a chill, with rising temperature, and grew rapidly worse. Congestion and inflammation of the lungs supervened and the old gentleman sank and died the following morning.



Tooth-plate, actual size.

A postmortem examination showed considerable sloughing of the esophagus on the side opposite to the incision, where the tooth-plate had been impacted, but there was no perforation of the wall. Both lungs were in a condition of congestion.

The history of this case previous to the accident is somewhat interesting. The tooth-plate that the old gentleman wore, which is shown in the accompanying cut, was made forty-five years before. It contained four incisor teeth, and nothing had been done to the plate until four years ago, when he accidentally dropped it, breaking off the hooks which clasped the adjoining teeth and held the plate in position. He neglected to have it repaired, and this accident was the result. He had always been well up to eleven years ago, when he had a sunstroke while working in the field. This so affected his mind that he was sent to Willard's Asylum for two years, when he fully recovered. Since that time he has been somewhat feeble-minded, and it was for this reason that his account of having swallowed his tooth plate was distrusted.

This case is of special interest also on account of the age of the patient and the rarity of the operation, and as illustrating the danger of the retention of an impacted sharp or angular foreign body in the esophagus for even a comparatively short period of time.

There have been reported 169 cases of esophagotomy for the removal of foreign bodies from the esophagus. The youngest patient was the case of a child one year old, operated on by Schramm[1] for the removal of a button. The child recovered. The oldest patient was a man 65 years of age, operated on by Wilson[2] for the removal of an impacted tooth plate. The patient died. Our patient, therefore, is the oldest case that I find recorded on which esophagotomy has been performed. Among the 169 cases, fifty-one were for the removal of impacted tooth plates, with thirty-six recoveries and fifteen deaths.

The danger attending the prolonged retention of foreign bodies in the esophagus is very great; and a large number of cases is reported in which death resulted in consequence of perforation of the esophagus, peri-esophageal and mediastinal abscesses and inflammations resulting from the retention of foreign bodies for even a very short time. The greatest danger is from rough, angular or sharp bodies that may pierce the esophagus or cause ulceration of its walls or inflammation of the surrounding parts, on account of the irritation thereby produced. In all cases, however, the rule laid down by Fischer[3] is a safe one to follow. That is, if the foreign body can not be extracted within twenty-four hours, it should be removed by esophagotomy without further delay.

28 North Clinton Street.

DISCUSSION.

Dr. SCHEPPEGRELL—It is very important to make a careful examination in these cases. There are many people who suppose they have swallowed something when they have not. I had a case in which a man woke up in the night, coughing and choking, and insisted that he had swallowed his plate. At this time we had not the X-ray, and I used the esophagoscope and was able to tell him that if he had swallowed it, it had gone into the stomach. The next day his wife found the teeth in the springs of the bed. The probe is dangerous in these cases, and operation may be equally so.

Dr. L. J. HAMMOND—The mortality in cases of esophagotomy is due to the fact that the posterior mediastinum has been entered, as shown by the postmortem. Esophagotomy is the more desirable because the probe is likely to enter the mediastinum. Esophagotomy enables us to find the point through the tube and not disturb the ulcerated region.

Dr. ROE—A number of cases of imaginary swallowing of the teeth have been reported. In one case the patient, a man, had nausea and vomiting, until his teeth were found under the bed, when all these distressing symptoms at once disappeared.

In regard to the esophagoscope for examining the interior of the esophagus, Mackenzie has devised one which is depicted in his work on "Diseases of the Throat." One has also been invented by Leuer of Vienna. With the latter instrument, by the use of an electric light attached, we are enabled to see into the stomach also.

A NEW METHOD OF SKIN GRAFTING.

Read at the Eighth Annual Meeting of the Washington State Medical Society, held at Spokane, May 11 and 12, 1897.

BY GEORGE T. DOOLITTLE, M.D.

SPOKANE, WASH.

There are few minor operations so annoying or troublesome as to undertake to cover a large denuded surface with skin. The average practitioner attempts to obtain large grafts by the use of the razor, but generally after one or two trials he abandons the effort in disgust. In fact, it requires an expert to do it successfully.

Many cases of extensive sores and granulating sur-

1 Wiener medizinische Wochenschrift, 1895, XLV, 2102-2106.
2 Liverpool Medical and Chirurgical Journal, July, 1894, p. 480.
3 Deutsche Zeitschrift f. Chirurgie, Leipzig, 1888-89, Bd. xxix, S. 110.

faces from burns and other causes are left to heal over as best they may, aided only by an antiseptic dressing, to be followed by the inevitable result of ugly scars and generally more or less contraction.

The old method of using small grafts made it a very slow process to cover a denuded surface of any considerable size, and the varied thickness of the grafts made growth uncertain. Larger pieces were tried but failure often followed, until Thiersch introduced his method, which consisted in antiseptically preparing the skin to be taken; also the surface to be grafted upon, and using a razor to cut the strips of skin.

The objection to this method is the difficulty in making an even cut, when using a knife or razor. To facilitate the cutting, Dr. McBurney, of New York, uses a pair of short toothed retractors to fasten into the skin and hold it taut while cutting. Even with the aid of these hooks, which few physicians have, the operation is not easy, and the difficulty of skin grafting, the cutting of large pieces of skin of even thickness, is not removed.

A formidable case was presented to me, recently, of an adult, where there was total loss of skin on one leg from ankle to knee, including a surface of about seventy-five square inches. This condition was caused by a bruise and sore, starting about eight years ago, going from bad to worse, with indifferent results as to treatment. No history of any constitutional disease.

It was a question if amputation would not give the best results. I was called in with that object in view by the patient's friends, and we considered the probable contractions that would result from the usual method of skin grafting, as there was already some contraction in the popliteal space, which together with the sore, made the limb useless.

We decided to do skin grafting and use the safety razor to cut the grafts with. The first attempt was successful, and we were able to make grafts one and a half by two and a-half inches and of an even thickness. Later, we made large cuts, one and a half by five inches, the large growing as readily as the small, with the advantage that the larger the grafts the less secretion from the granular surface. The advantage of the safety razor, over the knife or common razor, was marked by the quickness and ease with which these sections were obtained. The skin from which the grafts were taken was first shaved, so the hair would not increase the liability of the grafts to stick to the dressing, then scrubbed with green soap and water and washed over with ether or alcohol.

A few words are necessary in regard to the razor. (The Star made the best cuts.) Set the blade forward to about the edge of the guard. Grasp the razor between the thumb and first and second finger, thumb at the front of the razor and the first and second finger pressed firmly against the back of the blade to keep it from slipping. With the left hand hold the skin tight just back of where you begin to cut; hold the blade at an angle of about 45 degrees with the skin surface; cut toward you and against the grain; don't be afraid to bear down until you feel the blade taking hold of the skin, which will roll up on the blade as it is cut. After a little practice a strip six or eight inches long can be cut if necessary. Remove the blade and the skin will be found gathered up and the upper surface ready to spread, which is done by placing the blade flat on the granulations, holding down the last cut edge of the skin with some light instrument, and withdrawing the blade. The skin will readily spread evenly over the granular surface.

In this case there was no preparatory treatment by scraping the granulations in order to freshen them. The surface was simply washed with 1 to 3000 bichlorid solution and then rinsed with boiled water.

In dressing the planted grafts, a liberal supply of moist bichlorid gauze was used and the part firmly bandaged, without protective. Fresh gauze was applied every day and seldom was any trouble experienced from its sticking to the grafts, if a little care was used. About every third day more grafts were applied.

There was so large a surface to cover that it was thought best to leave small interspaces between grafts and thereby hasten the covering; but if these had not been left, the leg would have been covered and the patient discharged in half the time, as the vitality in the leg was not sufficient for rapid growth of the grafts and filling up of the spaces.

Today the leg is completely covered with skin with no contraction at the knee. The patient is discharged and is able to do her work.

SUMMARY.

1. With the use of the safety razor any physician can easily obtain large uniform grafts.
2. By the use of large grafts we have little or no contraction of tissue and the work of covering a large denuded surface is greatly hastened.
3. Where there is a granular surface without ulceration it is not necessary, in preparatory treatment, to freshen the granulations by scraping; neither is a protective necessary in dressing the surface, it only sweats and softens the grafts.

Rookery Building.

EUSTRONGYLUS GIGAS.

BY G. W. MOREHOUSE, M.D.
SPARTA, OHIO.

John Hopkins of Centerburg, Ohio, age 58, weight 175 pounds, medium height, general health good, March 10, 1896, had an attack of severe renal colic on right side. He passed from his bladder, according to his own statement, a pint of blood during the first twenty-four hours. He had eight similar attacks during the month of March. Attending physicians at first diagnosticated renal calculus.

March 27, he passed from the urethra a worm nearly a foot in length. Two more worms, four and seven inches long, respectively, were passed by April 1. Since this date, he states that he has expelled from his bladder fifty-five worms, from one inch to one foot long, with the addition of numerous flesh-like shreds, which he considers portions of additional worms, but which were probably blood coagula. He has not bled much since passing the first worm. He claims now to pass the parasites with comparative ease. I have seen a number of the worms and can vouch for them as answering in every detail the description given by writers.

Uranalysis, from a specimen voided in my presence, Aug. 22, 1897, showed specific gravity 1018, reaction acid, color light yellow, turbidity slight, and traces of albumin.

Microscopically, blood cells, scattered pus cells, pelvic epithelium and numerous circular nucleated bodies, about one-third the size of red corpuscles.

The paucity of literature on this subject is commensurate with the rarity of the disease. Dr. Samuel D. Gross, in his "Surgery," fourth edition, Vol. 2, p.

653, gives a good description of the parasite, but mentions no cases.

Dr. Austin Flint, in fourth edition on "Practice," merely mentions the name of the worm as "strongylus gigas, inhabiting the kidneys."

Niemeyer, 1874, Vol. 2, p. 47, gives a very good description, but cites no cases. He states that the the worm is from six inches to three feet in length.

In Quain's "Dictionary of Medicine," 1885, p. 1554, it is stated that the "eustrongylus gigas has only been once found in the human body," and that "the specimen is still preserved in the museum of the Royal College of Surgeons."

In Pepper's "System of Medicine," 1886, Vol. 4, p. 66, it is mentioned as occurring in seven different cases, but that "only part of these are admitted as genuine by certain authors."

The case cited by the writer will be kept under observation and reported upon as to future developments.

REMOVAL OF THE OSSICLES, WITH REPORT OF SIX CASES.

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CHICAGO, ILL.

Case 1.—Chronic sclerosing inflammation of the middle ear. J. B., a negro, age 25, employed as a waiter. His general condition is good, but there is a rheumatic diathesis. His previous history is of but little value. Has had little or no treatment. Has steadily increasing deafness which became apparent in the left ear first, about three years previously. This has become so great that it seriously interferes with the proper peformance of his vocation. There is arterial tinnitus but he complained of it only when questioned. There has been no pain; no discharge. The deafness has become decidedly worse during the preceding four months.

Auricles and external canals normal, except for the absence of cerumen in the latter. Tympanic membranes pale; mobility slightly decreased; not depressed. Light reflexes quite normal. Handles of mallei were defined through their entire lengths. The Eustachian tube only slightly occluded; that on the right side more so than on the left.

Weber test positive for the right ear. Rinne with Koenig's A, negative for both; C, negative in right.

Speech for right ear two feet; for left between three and four. Whisper occasionally understood in left at one inch. Right not heard. Watch barely heard on firm pressure in left. Deafness in right ear by aerial conduction for tuning forks up to C^1, and duration markedly diminished. Left ear C^1 could be heard on some days. Nose and naso-pharynx negative.

Nov. 10, 1893, I operated on the right ear, with cocain for local anesthesia. The drumhead and malleus and incus were removed. The stapes was found to be partially fixed in the pelvis of the fenestra. It was mobilized by severing the tissue about the footplate and left in situ.

Immediately after the operation, watch could be heard on light pressure. Speech four feet, but the patient complained of hearing in a confused manner. There was no reaction. The corda tympani had been severed and a metallic taste, on the corresponding side of the tongue, was complained of, but this disappeared in less than a week. The tinnitus was markedly benefited. After three months, speech was heard in the ear operated on, two feet; watch barely on firm pressure, and the tinnitus had recurred but not continuously.

Case 2.—Chronic selerosing Inflammation of middle ear. C. E., female; German; age 68; married. Complained principally of tinnitus. One had to shout into the ears to have her understand. Lucae's hammer-fork of 2048 vibrations could be heard in the right ear, by aerial conduction, when held very close. But it was in the right ear that the tinnitus was greatest. She applied for relief for this distressing symptom, and not to regain hearing. She described the noise as a great roaring sound. I chose the right ear for an operation because the noise in that ear was greatest. I removed the tympanic membrane, malleus and incus. The stapes was immovably fixed in the fenestra. In attempting to remove it, the crura broke off near the footplate. Subsequent examination proved that the crura were atrophied—a condition, noted by Schwartz and Blake of Boston, which is liable to occur in stapes which have been anchylosed. There were apparently no adhesion bands, nor anchylosis other than that of the stapes in the pelvis.

Immediately after the operation the tinnitus was slightly relieved, but in a week it was as bad as ever.

Case 3.—Chronic suppuration of the middle ear. A. F. T., American; male; age 25; clerk. Is of full habit. The disease dates from his thirteenth year, when he had scarlet fever. The discharge in the right ear ceased years ago, but that in the left continued. This was not great but very foul, and subject to excerbations, accompanied with pain. Hearing for the watch three inches; for speech four feet; for whisper less than a foot. Drumhead thickened markedly; a central perforation through which projects granulation tissue, imbedded in which may be felt the necrosed remains of the upper portion of the handle of the malleus.

Nov. 9, 1894, I removed the drumhead, malleus and incus. The hemorrage from the granulation tissue was abundant. The tympanic cavity, including the attic, was scraped clean and the whole packed with iodoform gauze. On the following day the packing was removed and the tympanum irrigated with permanganate of kalium solution, 1–1200, and again packed. Whenever exuberant granulations appeared, they were removed with the sharp spoon, and the bases cauterized with chromic acid in substance. With this treatment the discharge ceased in less than two months. Hearing unimproved. The arterial tinnitus was, however, greatly decreased.

Case 4.—Chronic suppuration of middle ear. R. S., American; age 24; male; machinist. Suppuration existed since his fifth year, as a sequela of scarlet fever. Condition about the same as the foregoing case, excepting that the membrane was more thickened, the discharge more offensive, and the perforation smaller and situated higher up in the posterio-superior quadrant.

Dec. 23, 1894, the membrane and body of the malleus was removed. Hemorrhage was profuse, delaying the operation greatly. I could not find the incus. The attic was freed from granulation tissue as far as possible, but on account of hemorrhage, the spoon was not used as freely as it otherwise would have been. The cavity was irrigated with Hartman's canula and packed. There was no reaction. The patient left his bed on the following day. In ten weeks, although there was still some oozing, not altogether odorless, he considered himself well enough to accept a position in a distant city, and went from under my observation. In this case the hearing was improved; five inches for watch, and three feet for speech.

Case 5.—Chronic catarrh of the middle ear. S. S. E., American; male; age 33; farmer. Deafness lasting seven years. Slowly progressive. Has had no previous treatment. General history negative, with the exception that he dates his tinnitus from an attack of malaria. There has been no discharge; little or no pain. Tinnitus continuous.

Both tympanic membranes depressed; darkened; handles shortened. Short processes prominent. Tympanic membrane and malleus of left ear movable. Weber to left. Positive Rinne for right; negative for left ear, with Koenig's A fork. Eustachian tubes slightly pervious. Speech for right ear three feet; whisper six inches; tuning fork C_1 heard; watch two inches. Left ear, speech one foot; whisper one inch; watch on firm pressure.

Operation, Feb. 10, 1894. Left ear. Membrane more thickened than I supposed before cutting it. The tensor tympani snapped when cut. The malleus and incus removed. The stapes was quite movable and was allowed to remain. Improvement after operation marked; for speech three feet; for whisper nearly a foot; watch three inches.

Although the tympanic membrane had partially reformed the improvement remained the same eight months afterward.

Case 6.—Chronic selerosing inflammation of the middle ear. A. E.; female; age 41. She is now in the menopause. She has had ear trouble five years. The tinnitus is continuous and produces intolerable nervousness. She is becoming worse rapidly. There is no history of heredity.

Examination: Auricles, normal; external auditory canals normal and contain a very dark-colored wax. Tympanic membranes lack luster, and the left is somewhat retracted. Eustachian tubes are both open. Voice tests gave for right ear: speech at two feet; whisper on contact; watch not on firm pressure. For the left ear: speech at two feet; whisper at two inches; watch on forced pressure; fork C_{111} heard in left ear; C_{11} in the right; Weber to the left. Galton heard in the left ear in the upper half of its register only. I removed the drumhead, malleus and incus of the left ear under cocain.

The stapes was found to be firmly fixed in the window and could not be removed without endangering fracture of the crura. The results were nil.

REMARKS.

Here we have six cases where the tympanic membrane and one or more of the ossicles were removed. Two of them were for chronic suppuration, three for sclerosis, and one for chronic catarrh. In the suppurative cases the results were highly satisfactory. In one case after a duration of twelve years the suppuration ceased in two months. In the other, after a duration of nineteen years, the ear was practically dry in ten weeks. We are not justified, however, in expecting that all cases will have so happy a termination. I have lately had a case under my care which was operated on by an eminent otologist over a year and a half previously, and the suppuration, foul and abundant, continued up to a few weeks ago. In this case the membrane had not reformed in the least. The pus seemed to arise from a point at the superior posterior portion of the cavity. Here I detected superficial caries. After carefully scraping the diseased area and packing with iodoform gauze for a short period, the suppuration ceased entirely. But there is a slight relapse whenever the patient takes cold. These relapses do not last but a day or two, and readily yield to cleansing douches. I believe that such relapses will occur until the cavity has been epidermized. The loss of the tympanic membrane may account for the condition, the mucous membrane being exposed to every infection from the air via the external auditory canal.

All this, however, does not militate against the performance of the operation in chronic suppurative otitis. I do not coincide with the opinion that this operation should be performed at an early date. There is a danger in being too precipitate, and yet there are a certain number of cases which very early in their course indicate this procedure. For instance, where there is a large perforation with no necrosis or granulation that may be demonstrated, but where a copious, constant or intermittent foul smelling discharge is present. All are aware of the futility of treating by the ordinary methods those cases in which fistulous perforations occur primarily in the membrana flaccida, for in such cases there is usually caries of the malleus or incus, or both.

Schwartze regards as nearly pathognomonic of caries of the head of the malleus a perforation over the short process of the malleus, with or without the presence of granulations. Further experience has fully verified this conclusion since its first publication (1884).

Grunert (A. F. O. xxxiii, p. 207), gives the following otoscopic picture as aiding in the diagnosis of incus caries:

1. Defect in the extreme upper portion of the tympanic membrane through which can be seen the retracted malleus. Beneath the upper and posterior edge of the perforated membrane may be seen a small granulation, or after careful irrigation a small drop of pus remaining, coming from above and behind. (Caries of the long process of the incus.)

2. Perforation behind the malleus, extending above to the edge of the membrana Shrapnelli, and forward quite or nearly to the long process of the malleus. (Caries of the long process of the incus.)

3. Fistula in the membrana Shrapnelli behind the processus brevis of the malleus. (Isolated caries of the incus.)

When there are two fistulous openings above and behind the processus brevis, or when the entire membrana flaccida is replaced by broad granulations the co-existence of caries of both the incus and the head of the malleus is in the highest degree probable.

Ludewig states the frequency of occurrence of isolated malleus caries compared with isolated incus caries as six to ten. The predilection point for caries of the ossicles is the long process of the incus (72 per cent). This is explained by its position, lying as it does, free in the tympanum. Its nourishment can be much more easily interfered with than that of the long process of the malleus, the circulation of which is intimately connected with the vessels of the tympanic membrane. Years ago, Schwartze called attention to this point in connection with that peculiar destructive process of the long process of the incus, accompanied by the accumulation of pus which undergoes fatty degeneration within the cavum, the tympanic membrane not being perforated.

The next in frequency to become carious is the body of the incus, 46 per cent. The head of the malleus was the seat of caries in 23 per cent., the handle in 25, and the neck 14, and the joint surface of the head 7 per cent.

Schwartze gives the following conclusion, based on the condition of the ossicles in a series of cases, the tympanic cavities of which were laid bare by external operation:

1. The amboss becomes earlier and more frequently carious than the hammer.

2. Isolated caries of the amboss occurs more frequently than isolated caries of the hammer.

3. In isolated caries of the incus, the incudo-malleus joint is unaffected.

4. The long process of the incus is by far the most often carious.

5. The incus is frequently destroyed in toto, even when the malleus in whole or in part is still present.

I have formulated the following

INDICATIONS FOR OPERATION:

1. When the perforations, situated anywhere in the pars tensa, is small and the membrane thickened and the discharge copious, pustular, long continued and offensive and has resisted continuous treatment by means of gauze drain for one month.

2. Where the perforation is small, the membrane thickened, the discharge scanty, but odorous.

3. Where more or less of the pars tensa has been lost; but the discharge continues, evidently coming from the attic.

4. When any of the indications as formulated by Schwartze or Grunert are present (see supra).

When we determine upon the removal of the ossicles for the cure of suppurative otitis, the effect which that procedure may have upon the hearing scarcely enters into consideration, for the removal of a suppurating focus in the locality is much more important than the preservation of audition. But we may hope, not only that the same degree of hearing may exist after the operation as before, but that it may be increased. Ludewig in analysing the cases operated upon in Schwartze's clinic, to the end of 1891, found that in half the cases the hearing was markedly increased; unchanged in about one-third, and decreased in about one-twelfth. In Jack's eleven cases, all were improved in hearing power.

There still remains the consideration of this opera-

tion in its relation to catarrhal and sclerosing diseases of the middle ear. That it is indicated in certain cases belonging to the former class is at this time assured, but the good name of the operation and the operator forbid its use in the latter class.

Those cases of deafness which are caused by anchylosis of the stapes in the pelvis of the fenestra ovalis will not be relieved or improved by the removal of the incus, hammer or tympanic membrane. When, however, the fixity of the stapes is secondary to adhesions between other portions of the cavum and its contents, the removal of those adhesions will more or less improve audition. Likewise when the sound waves are reflected from the scala by adhesions or anchylosis which render the malleus and incus more or less immobile, the removal of the bones will be beneficial. But it is in sclerosis otitis that stapes anchylosis occurs earliest and most surely; this is the chief characteristic of the process, the real nature of which is almost entirely unknown to us. It is probable that the portion of the pelvis immediately surrounding the footplate is where the sclerosing process begins, and from this point spreads to the structures of the internal as well as to those of the middle ear. Operative interference for the relief of deafness or subjective sensations in these cases can be attended only with disappointment.

In the purely catarrhal cases the operation is rational and promises relief to subjective sensation and improvement of audition.

OSSICULOTOMY IN CHRONIC SUPPURATION OF MIDDLE EAR.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY J. A. STUCKY, M.D.
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In chronic suppuration of the middle ear where there is necrosis of the soft tissues, tympanic walls and attic, and caries of one or both ossicles, the most rational treatment consists in removing the carious ossicles and all necrosed granular and fibrous tissue in the tympanic cavity.

Ossiculotomy for caries has passed the experimental stage and is now recognized not only as justifiable, but a rational method of treatment. There being no such thing as special surgery, we are no more justified in leaving carious bone in the middle ear than is the general surgeon in leaving it in any other portion of the body accessible to removal. The same general and well-known principles of surgery which apply to caries and necrosis of other parts of the body, are equally applicable to the ear, and when we find carious ossicles and necrosed tympanic walls they should be removed and all necrosed parts thoroughly curetted. There still exists some prejudice against this operation which is hard to understand. I can see no reason for tolerating the presence of dead bone in the tympanic cavity, neither do I believe it possible to cure a suppuration as long as the carious and infectious matter remains. From the results obtained in the thirty-six cases in which I removed one or both ossicles (malleus and incus) and curetted the attic, I am convinced that ossiculotomy (where caries exists) is not only the most conservative, but the most rational treatment for the majority of cases of chronic suppuration of the middle ear. The cases included in this report have been operated upon within the last two years, the latest included in the report was operated upon four months ago.

The object to be attained is the complete removal of carious bone and the thorough curettement of the necrosed and granular tissue, and the establishment of perfect drainage of the attic and lower tympanic cavity. This I believe can be successfully done through the auditory canal. I follow the plan outlined by Dr. E. B. Dench of New York in his textbook on "Diseases of the Ear," except that I substitute a modification of Sexton's curette for cleansing the attic and removing part of the tympanic ring and superior wall of the auditory canal. So much has been written by eminent men, both in America and Europe, on this subject that a description of the operation is not necessary.

Observation leads me to agree with the published statement of Dr. C. H. Burnett that "necrotic tympanic structures must be removed before chronic purulency can be checked." I also believe that the Stacke or rational operation could be obviated in many cases if the entire tympanic cavity was thoroughly cleansed, and free and uninterrupted drainage through the auditory canal established. I need scarcely mention in this connection that the nasal and pharyngo-nasal cavities should receive scrupulous attention, in order that there be no obstruction to nasal respiration or danger of re-infection of the tympanic cavity through the Eustachian tube. From published reports I infer that secondary operations for relief of middle ear suppuration are as frequent from the Stacke operation as from those through the canal. The after-treatment is much shorter, there is no external wound, hence no scar, and less danger of injury to the facial nerve. I think the operation of ossiculotomy in the class of cases under consideration should be done under general anesthesia. I have found it impossible to do it with cocain, the scraping of the wall of the tympanum causing intense pain. The after-treatment consists of cleansing and facilitating drainage by use of narrow strips of gauze introduced well into the cavity.

In one of the thirty-six cases included in this report there was facial paralysis (motor) which came on the day before and lasted for five weeks after the operation. There was an extensive caries of the ossicles and I suppose the paralysis was brought on by an exacerbation of the trouble due to an acute otitis, producing a thickening of its sheath.

A summary of the results in cases operated upon are as follows: In thirty cases suppuration ceased and hearing was improved from 10 to 20 per cent.; all uneasiness in ear and head relieved. In four cases the suppuration stopped entirely for several months, then returned; this was due to formation of granulations, which were easily destroyed and patient relieved; no improvement in hearing. In two cases the results were negative, so far as relief of suppuration or improvement of hearing; the fulness and dizziness were relieved and suppuration lessened. These cases were afterward found to be tuberculur. In eleven cases the incus could not be found and only a part of the malleus. In the remaining twenty-five cases the entire remaining portions of the malleus and incus were removed. In no case did I find only one ossicle involved, the greatest amount of necrosis being observed in the incus.

The chief points to be observed in this method of treatment are: *a*, remove all carious bone; *b*, cleanse

thoroughly the attic and tympanic cavity; *c*, establish free drainage.

The results obtained in the thirty-six cases referred to in this report are: 1, cessation of the discharge; 2, relief of the fulness, dizziness and general uneasiness complained of; 3, slight to marked improvement in the hearing; 4, great improvement in general health.

DISCUSSION ON PAPERS OF DRS. BURNETT AND STUCKY.

Dr. BURNETT—I have made an omission. I have failed to make any remark about the stapes, but in no case have I ever thought of removing this bone. For, to do this is simply opening the door and inviting the pus to enter the cranial cavity.

Dr. GLEASON—In how many of these cases was caries of the ossicles still active? It seems probable that in many of them the process ceased after partial destruction of a bonelet, and that some other cause was responsible for the continuation of the discharge for years. Whatever operation is done, chronic otitis media is never completely cured and that almost invariably there will be a recurrence of the discharge if the case be entirely neglected. The discharge tends to recur whether the operation consist in the mere removal of the malleus and incus, the removal of the ossicles and the lateral wall of the attic, or the most complete and radical Stacke operation. In a large proportion of cases it is possible to bring about a cure, or rather a cessation of discharge without operative interference so far as the ossicles are concerned. Frequent and thorough intra-tympanic syringing will in some cases bring about a cessation of the discharge. In other cases it is necessary to remove the ossicles to gain access to the attic for treatment. Still better access can be obtained by curetting away through the canal the lateral wall of the attic; but no matter what the operation be the irritation caused by the presence of dust, exfoliated epidermis and other substances that accumulate in the middle ear when the drumhead is lacking will, unless they are removed from time to time, in the course of months or years bring about a recurrence of the discharge. After the discharge has ceased the ear is in the same condition as the teeth after the dentist has filled them and is through with his patient for the time at least.

Dr. MAX THORNER—There can be no doubt that where we have caries and necrosis it must be removed. We did not recognize this until the general surgeons called our attention to it. We must proceed on surgical principles. If we have caries of the ossicles alone, we can remove the caries by removing the ossicles. I have operated on a number of such cases, and have seen good results occasionally in cases operated exclusively by ossiculectomy. But in most cases the caries is not limited to the ossicle. The attic and the antrum communicate by a narrow opening. I compare this narrow channel, the so-called aditus ad antrum, to an hour-glass contraction. Through this narrow channel caries extends into the antrum. If in such cases we do a mastoid operation we will be astonished at the condition that we find. I have seen cases where the mastoid cells were honeycombed with granulations, while externally nothing indicated such a condition. Such cases can not be cured by ossiculectomy. If we remove first the ossicles and after a reasonable time no improvement follows, a more radical operation may be done. But many patients will not submit to this. I would limit the indications for ossiculectomy to those cases in which we have good reason to believe that only the ossicles are affected, or in which we do it for the purpose of procuring better drainage from the attic.

Dr. Gleason thinks that these cases can not be entirely cured. If he refers to the cases which are operated upon by ossiculectomy, I think he is right in regard to a number of cases, which will later on have recurrences. For we can not get rid of all the carious portions if caries is extensive in the attic and antrum, but in the more radical operation, by opening the antrum widely we can remove all the carious portions and can graft skin into the cavity and by doing that can and do get a cure. I think that from two to three years are sufficient to judge results. I, and many others before me, have had a number of cases which remained cured. I would not say that every case must have the radical operation, for I favor ossiculectomy. But it is difficult to say when the ossicles only are affected, and the cases have to be carefully selected for this operation.

Dr. J. A. STUCKY—I do not want to touch the stapes if I can help it. I never remove it. I did so once, but it was accidental. As to what Dr. Gleason said about the activity of the caries, in most of my cases it was still active. The secret of success in these cases is the establishment of free drainage. I have not found the intra-tympanic syringe a success. I have always treated cases for some time before removing the ossicles. As to a cure, I think if a case remains free from symptoms, discharge, etc., for four or five months we may call it cured. I saw some cases recently on which I operated two years ago, and there has been no discharge or trouble since three or four weeks after operation. I consider them cured.

Dr. BURNETT—I have always thought caries in the ossicles was active. No very scientific answer could be given without using the microscope. My experience has been that caries was limited to the ossicles. I think we can say positively that it is, if cure takes place speedily. If cure takes place slowly, we may know that there was denudation of the walls of the tympanic cavity. I have generally found some denudation, but I do not consider that as very significant, and by no means a justification of curettement. I know of cases of chronic purulent discharge of the ear which would have been cured by the removal of the ossicles if the curette had not been used. We get by this operation chiefly improved drainage, as well as the removal of the septic nidus. As to Dr. Thorner's remark about knowing when the ossicles are affected, I would say we do not know exactly what is going on in the antrum or in the mastoid cells, in an ordinary case of otorrhea with suppuration. I regard the antrum as a part of the middle ear. After ossiculectomy in these purulent cases, if we get a cure we may conclude that the antrum was not much diseased, if at all. When the antrum is diseased I have seen good results from free drainage and even if there is some relapse the improved drainage enables the patient to get rid of the fresh products of suppuration and thus escape septicemia. If we are not sure that the mastoid cavity is diseased, I do not think we should perform a Stacke operation and attack the disease through the mastoid cortex. Attack the disease in the simpler way first, through the meatus.

A FEW PARAGRAPHS ABOUT TOBACCO AMBLYOPIA.

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It is hard to say why tobacco has been selected as the general agent for inciting what is called toxic amblyopia. Is it not a fact that various toxic agents are said to be attended by varying degrees of amblyopia, and that some writers, apparently eager to ignore the effects of alcohol, have taken up the consideration of central and peripheral lesions of the optic nerve, clearly due to prolonged local disturbances of the vasomotor system, from various kinds of excesses and mechanical obstruction to nutrition, even including tuberculosis, to set forth an exaggerated view of the by no means well-established toxic effect of tobacco?

In Turkey where tobacco is inordinately used by both sexes and among all classes, the so-called tobacco amblyopia, according to competent observers, is almost unknown, and yet the daily consumption of tobacco by this portion of the Mussulmanic race is enormous. Carefully made assays show that the smoke from Turkish cigarettes (which the Turk draws directly into the lungs) contains about double the percentage of nicotine as is found in cigars made from Havana tobacco. Does not the Moslemic law religiously interdict, among other things, the use of alcohol in any form, and exacts from the faithful strict observance of bodily cleanliness by morning and evening ablutions?

In a series of clinical observations the writer reported to the Kentucky State Medical Society, in June, 1895, there will be found some cases in which it was clearly apparent that amblyopia was not caused by tobacco, but was due directly to retrobulbar neuritis. Similar cases clearly establish the fact that symmetrical scotomata is neither diagnostic of tobacco

amblyopia nor constantly present in otherwise apparently "well-established cases."

In one case the central scotoma was decidedly asymmetrical; ophthalmoscopic signs *nil;* the fields for white good, but there was a scotoma for red and green extending from the fixation point to beyond the blind spot, and about 15 degrees upward and downward; inside this area he called red yellow and green white; outside of it he recognized color well. There was no scotoma for blue; he had frequent attacks of what he called nervousness; knee reflexes normal; has neither albumin nor sugar in urine, specific gravity 1022. No specific history. The patient admits being a regular drinker and smoker. Mercury, iron and nux vomica, with strict attention to bodily cleanliness, by frequent bathings, outdoor exercise by walking, in conjunction with a wholesome diet, brought about a complete cure. Alcoholic stimulants were strictly proscribed, but smoking, however, upon admission of the patient, was not discontinued. Is there a physician who at some time in his medical career has not been taught that the "exact symmetry of this affection is one of its marked features"; does one "always find the same amount of defect in each eye," and achromatopsic phenomena fairly attributed to tobacco alone?

Are these scotomata for certain colors due to toxic influences or structural changes?

We are aware, however, that occasionally a slight deviation between the two eyes coexists, which is accounted for by an original difference in visual acuity.

A brief inquiry into the anatomic conditions in the disease described, affecting the fundi, optic discs and their contiguous intracranial connections appears to be pertinent. The optic nerves have their origin in the thalami optici and the corpora quadrigemina, receiving filaments from the corpora geniculata, with filaments from the corpora geniculata, tuber cinereum, lamina cinerea, the anterior perforated space, the gray substance of the brain, the posterior columns of the spinal cord; the optic apparatus being a series of projections—the first the retina, a secondary projection in the cortex of the occipital lobe or, as some will have it, in the angular gyrus.

Is it unreasonable for one to be more inclined, taking into consideration environments and the "eccentric" character of patients, who are said to especially suffer from this form of amblyopia, to favor some mechanical obstruction to nutrition, inflammation excited by tuberculosis or even circulatory or vasomotor disturbances, the reflex phenomena in cases of megrim, keeping well to the front the neurologic elements, as some of these factors appear to be in a degree present in most all the forms of amblyopia, and not make tobacco alone chargeable for certain undeveloped or over-exaggerated type of amaurosis?

A shock to the nervous system from a railroad accident has been said to be followed by the so-called tobacco amblyopic indications. That a peculiar form of white atrophy of the optic nerve, distinguished by some ophthalmologists as having a peculiar haziness surrounding the edges of the discs, and by others without this effusion or blurring of the outlines, and attributed to the use of tobacco, should from this variance call for explicit explanation. How difficult, then, it is to differentiate the varying forms and degrees of amblyopia must appear to the clinical observer.

Does not the present limited knowledge of the relations of those aspects of the fundus of the eyes, to what is concurrently going on in the optic avenues and their several contiguous portions of the complex double brain and spinal cord, prove to us how rudimentary must be our insight into this important field of inquiry?

When we take into consideration the study of the brain function—employing that term in its widest sense—and of the aberration occurring in it, that we call disease, we can see that the subject is still in its very infancy. Can we so readily differentiate the varying forms of amblyopia, and not be "startled" when we hear it stated or see it set forth in writing describing certain trophic neuroses that are unmistably distinctive types of disease—as "characteristic effects" of the use of tobacco?

What physician in the school of ophthalmology, no matter how enlarged his experience or favorable the surroundings to the proper study of the aberrations found in eye troubles, may say he is safe in the recognition and differentiation of anesthetic retinitis, coincident with locomotor ataxy, the retinitis of anemia and the multifarious forms of toxemia along with tobacco amblyopia—for is it not a fact that in the majority of instances we are unable with assurance to assign a cause? In lead poisoning, for instance, is the central visual disturbance due to saturnine cachexia or to albuminuria, anesthetic paralysis and encephalopathy which is so often present?

All the conspicuous symptoms of tobacco amblyopia are, in a great measure, identical with those visual disturbances which arise from axial neuritis, observed in poisoning by sulphur, bisulphid of carbon, stramonium, cannabis indica, iodoform, quinin, alcohol and even from starvation itself.

Is it not a fact that similar lesions and visual disturbances exist in varying degrees, more or less prominent, in nearly all organic lesions of the brain and spinal cord; in embolism, loss of blood, dementia paralytica, traumatism, syphilis, tuberculosis, epilepsy, dysmenorrhea; various forms of nephritis, miasmatic fevers, anemia, rheumatism, podagra and la grippe?

The very fact that a number of cases of so-called tobacco amblyopia get well, although the smoking is kept up, casts doubt upon the diagnosis. Medicinal agents which correct local lesions, and morbid conditions of the system generally, are unquestionably in evidence as the means of mitigating the disease and bringing about a cure in even old standing chronic cases. Is it fair to assume therefore that the so-called tobacco amblyopia has any distinctive characteristics? Tobacco amblyopia may have a possible existence, but closer study must show the difficulty of discriminating as to the cause, and absence of positive proofs must be admitted in a majority of cases.

In the *New York Medical Journal* of Dec. 18, 1897, there appears under caption of "Tobacco Amblyopia in a Horse," an abstract of the proceedings of a meeting of the section in ophthalmology, of the College of Physicians of Philadelphia, wherein a description is set forth of a form of amblyopia in horses, which was attributed to their eating the Australian tobacco plant. A pronounced advocate of "tobacco amblyopia" exhibited to the section two slides which a Melbourne (Australia) physician had prepared from the optic nerves of a horse which had become blind. One of these originally stained sections was restained with carmin, according to the Weigert method, and

was said to show distinct signs of disease, and described as one of progressing fibrosis with degeneration (atrophy) of the nerve fibers. Is there a pathologic anatomist of today who can so readily differentiate the varying types of nerve lesions and say that this abnormal degeneration (a species of fibrosis) is diagnostic of the toxic effect of tobacco alone, either in the optic nerves of the human being or in Australian equines which are constrained to the use of tobacco?

Why go to Australia where "unexpected happenings" occur in the "make-up" of the creatures classed or unclassified among the animal kingdom?

The habit of smoking is now probably at its apogee, certainly it would be difficult to give it a wider scope of action. It may be taken as a rule that every man smokes, who by idiosyncracy is not disabled from indulgence. They who scorn the "filthy habit" and are disposed to attribute many ills to its use, belong to two or possibly three categories, whose classification need not be detailed here.

It may be prudential to mildly infer that some reasoning from their anti-tobacco standpoint, in assuming that the "weed" is responsible for a certain form of amblyopia, and, in their haste to satisfy themselves with a cursory examination, even to the ignoring of the physiologic aspect and, to further their reasoning in contra-distinction to anatomic facts, are sacrificing themselves on the altar of duty rather than promulgating their purposes.

Third and Breckenridge Streets.

THE VENOUS CHANNELS OF THE AURAL REGION.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY B. ALEXANDER RANDALL, M.A., M.D.

PROFESSOR OF EAR-DISEASES UNIVERSITY OF PENNSYLVANIA AND PHILADELPHIA POLYCLINIC, ETC.

PHILADELPHIA, PA.

Study of the venous channels of the head had no great interest for most aural surgeons until a comparatively recent period; for, their important relations to septic processes in the ear and throughout the body were known and appreciated by few. Many knew that the sigmoid sinus lay uncomfortably near to their field of operation in opening the mastoid, and gave their attention largely to its avoidance. Latterly, among general surgeons especially, there has been rather a swing in the opposite direction in their readiness, on slight occasion, to expose and explore this sinus and take other liberties which better judgement and more diagnostic acumen would have showed them to be needless. Important as is this channel, it is far from being the only one demanding thoughtful consideration in a case of otitic pyemia.

The position and relation of the great sinuses of the brain need not detain us, for it is fairly appreciated that the lateral sinus is the continuation of the superior longitudinal and straight sinuses and follows the inner curved line of the occipital bone outward and forward to the temporal. Since the superior longitudinal sinus or sinuses (for it is at times a double channel) generally passes undivided to one side, that lateral sinus—more often the right—is the larger and is apt to groove out a deeper sigmoid sulcus upon the temporal bone. It is regularly joined as it bends down and in upon the back of the pyramid by the superior petrosal, coming back and out from the cavernous sinus; but there is frequently a petro-squamous sinus of notable size which follows the suture of that name and, often tunneling in the base of the pyramid, enters the lateral about the same point. The inferior petrosal sinus makes little impress upon the temporal bone, as it follows the line of suture with the body of the sphenoid; yet like the other feeders of the lateral sinus it receives countless twigs from the interior of the temporal bone and can easily be the recipient and transporter of much septic matter. Another vessel, the mastoid emissary, is a branch of the sigmoid sinus just as it begins its second curve, and has been described at times as being also a feeder of the lateral sinus. Rarely, although I have myself seen two cases and Zuckerkandl described one long since, the entire lateral sinus turns out through this opening and feeds the external jugular instead of the internal; then and probably always, the blood current must be outward by this rightly named "emissary." Tunneling far at times through the back of the temporal bone, this vessel is decidely open to injury in operations at this part of the cerebellar fossa, as I have learned to my cost. One other important sinus has a relation to the temporal bone commonly forgotten. This is the cavernous sinus at the tip of the pyramid, which may not only be involved in caries of this extremity of the temporal bone, where pneumatic cells may often be found communicating with the antrum and perhaps sharing in its suppuration, but also receives venous twigs from it which may convey infected blood.

Besides these striking and rather regular extrinsic blood channels, there are numberless small nutrients of the bone, as we may term the veins as well as the arteries; and wholly within its walls there is much diploetic structure abounding in vessels often of considerable size. My studies have not confirmed Zuckerkandl's estimate of the frequent occurrence of much diploe in the mastoid process; pneumatic bones with little if any diploetic structure have been the rule in my series, larger than his; yet none are wholly free from such structure in the squama and elsewhere. The importance of this, wherever met with, has been made clear by surgical pathology in general; but surgeons, general and special, are not so careful as regards it as they should be. The needless opening up to infection of considerable areas of such diploe must aid greatly in the dissemination of septic matter through the system; as must also the timidity which leaves such areas uncleansed after infection. The importance of this is not duly weighed by many in their work or their inaction, unless pathologic investigation has given them occasion to note how fatal intra-cranial or pulmonary disease has spread from such sources. It is in the carious cases with direct continuity of lesion extending inward that they are most interested; yet very little experience should show them case after case in which no demonstrable channel for infection can be traced for the extension of aural infection to the meninges of the brain.

Minute but of importance far beyond anything their size would suggest, are the numerous small vessels which dip into the bone with the offshoots of fibrous tissue from the dura mater, most marked at the petro-squamous suture and the subarcuate fossa. Neither of these prolongations is of much prominence except in early life, and the vessels shrink much with decrease in size; yet at each of these positions septic

infection has been demonstrated and the unproven instances of such invasion are doubtless not infrequent.

THE RELATION EXISTING BETWEEN BRIGHT'S DISEASE AND CERTAIN EAR SYMPTOMS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY FRANCIS DOWLING, M.D.
CINCINNATI, OHIO.

During the past year a limited number of cases of ear affections have come under my observation where there were certain well marked symptoms such as tinnitus aurium, dull aching pain referred to the region of the mastoid, more or less reduction of the hearing power, slight irregularity in the gait, etc., where there were no appreciable pathologic conditions of the structures of the ear as far as could be ascertained. In most of the cases the patients were of large fleshy build and over-fed appearance and examination of the urine showed the presence of more or less albumin.

I present two cases for discussion as to whether there was not a possible connection between the ear symptoms and the organic disease of the kidneys.

Case 1.—Benjamin B., aged 50, a plumber, consulted me March 4, 1893, complained of dull aching pain in the region of the mastoid. The pain was not increased by firm pressure over mastoid region and there was no swelling. Ear drums on both sides were intact, and presented slight spots of calcareous degeneration. Hearing power reduced to fourteen inches, by the watch, on the right side and eighteen for the left. Had noises in his ears that troubled him greatly, particularly at night. The patient stated that at the battle of Murfresboro, in 1863, he was struck by a piece of shell. His hat was torn and he was knocked senseless to the ground by the concussion. He had a scalp wound which bled freely, but after it was dressed he was able to resume his place with his company and fought until the battle was over. No particular ill effects were experienced until about three months afterward when he was taken suddenly with dizziness and irregularity in walking, also severe headache. The dizziness and irregularity in walking disappeared in about a week or ten days but the headache continued, coming on periodically. He has had some aching pain in the right side of the head, back of the ear ever since. Tinnitus aurium came on in the fall of 1889, and has bothered him more or less to the present time.

Patient died August 4, 1893, and for a month previous to his death had gradually failing vision and three or four days before death, which was due to Bright's disease, the condition of the vision was reduced to the bare perception of light. The pain in the head and the tinnitus aurium continued almost to the last. The urine was loaded with albumin during the period of his last illness. The physician who attended the patient informs me that the patient died in a comatose condition, presumably from uremic poisoning. No postmortem examination was made.

Case 2.—Mrs. H., a large fleshy woman, aged 48, consulted me Feb. 6, 1897, complaining of dull, aching pains deeply seated in both ears, there was slight unsteadiness in walking, and there was a perceptible reduction in the hearing power of both ears. The ear drums were intact, and presented no pathologic changes except some thickening, bone conduction normal. Tinnitus aurium was very troublesome especially at night. Examination of the urine revealed an appreciable quantity of albumin and some casts.

I could find nothing bearing on this subject in medical literature although I examined a number of the best known works on diseases of the ear. I think, however, that in the cases mentioned, the disease of the kidneys stood in a causative relation to the symptoms which were manifested in the ears. This might take place from the retention of morbid matters in blood, through obstructed drainage on the part of the kidneys. These retained matters acted by producing a toxic irritation of the filaments of the nerves of hearing as they spread out in the labyrinth, possibly involving at the same time some structural changes in the texture of the nerve filaments. It also seems to me that there might be some structural changes possibly brought about in the nerve filaments through an albuminous exudation with its secondary degenerative changes, similar to those produced in the retina in the condition known as retinitis albuminurica. Among the first effects of such an exudation would be an increase in the pressure exerted by the contents of the labyrinth, which might on its part account for the tinnitus aurium, and also for the irregularity of gait. The degenerative changes following this stage, such as a fatty or a fibrinous degeneration, might be sufficient to account for the reduction in the hearing power owing to the disorganization of the nerve substance in a greater or less degree.

216 W. 9th Street.

SOME FURTHER RESULTS IN TREATING EARS BY MASSAGE METHODS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY LOUIS J. LAUTENBACH, M.D.
PHILADELPHIA, PA.

During the past year I have persevered with my tympanic massage treatment, and the results but confirm those obtained in the past. The results, so far as the relief of deafness is concerned, continue favorable, the tinnitus, unless attended by severe aural vertigo, usually disappearing also. These results are nearly uniform and can be demonstrated readily. It is a method that if properly applied is painless and harmless, and one that seems borne out by common-sense reasoning.

Diseased ear structures occasioning tinnitus and poor hearing are usually of the nature of closed or obstructed Eustachian tubes; diseased and thickened structures within the middle ear, such as anchyloses or hindered articulations, thickened, retracted and adherent membrane, or a nerve which either from disuse or pressure, or both, has become dormant.

My massage machines, which are applied to the auditory meatus, occasion a suction action (or in a few cases a pressure force) upon the membrana tympani, which in turn serves to attenuate the air within the tympanum and to thus open the Eustachian tube, to start the ossicles into motion, increase the circulation of the tympanum and thus cause absorption of the thickened membranes and diseased structures, and, directly acting on the drumhead, it serves to gradually loosen it from the promontory when attached. The method when properly applied, and for a sufficient length of time, repeated as necessary, will usually, at least in some measure, produce the effect required. The pressure upon the nerve is relieved as soon as the stapes begins to resume its normal elastic hold in the window, which is partially accomplished by direct suction action and partially by the increased health conditions occasioned in the structures at the juncture with the fenestra ovalis. In addition the method by sound throwing into the ear rhythmically while the suction effect is continued wakes up a nerve dormant from disuse. This method is practically the same that we see used in surgery every day; a leg on being

removed from its plaster envelope finds its muscular and nervous energy impaired, the masseur is called in to manipulate the muscles, the electric current being used to re-establish the nerve tone.

It is true in the ear we have in addition a diseased condition, the non-use and the disease acting and reacting upon one another to continually increase the pathologic conditions. Restore the mechanical action in an ear and you do much to cure the disease. This restoration of the normal mechanical functions of an ear seems to be one that has not been properly met. Too often ears are considered as being in danger of becoming worse as soon as efforts directed to this end are commenced. I contend that the sooner, in any case of ear disease unaccompanied by severe acute inflammation, efforts directed to the restoration of the normal mechanical functions are made the better, and within reasonable limits, the more persistently and continuously applied the more perfect will be our results. I believe that if this doctrine was invariably acted upon the number of chronic catarrhal ear cases would rapidly grow less. I know of no method which can more efficiently meet this indication than that of tympanic massage, in connection with the old and well tried forms of ear treatment.

I now apply my massage instruments even to all acute cases of tympanic and even of mastoid disease at the earliest possible moment, and use it long and often, adapting its force to the conditions presented, and have been rewarded in often having perfect hearing restored within two or three weeks, whereas, formerly I would usually fail to get as good a result, and if obtained it would be only after prolonged treatment. I consider the method a means of displacing most of the operations on the ossicles, as by it mobilization of the ear structures can usually be produced, and when it fails it will be the differential factor in separating those in which an operation is to be considered.

In this connection I will note three cases:

Case 1.—Miss A. H., aged 21 years, had the chain of bones removed in 1887. There was little or no permanent improvement of hearing, and when I commenced to use phono-pneumo-massage she could not hear a clock or watch on contact. By persistent massage she at last heard an ordinary watch immediately upon the ear.

Case 2.—Mrs. E. H., aged 45 years, after la grippe, developed tinnitus and occasional vertigo, and in one ear she could barely hear the watch on contact. She was advised by an ear specialist to have one or more of the ossicles removed, but refused the operation. A year and a half later the conditions being worse, I commenced massage treatment with the result that her hearing is fair, watch being heard about thirty inches. There is no vertigo, and tinnitus only appears upon the advent of a severe cold with its attendant uric acid symptoms.

Case 3.—Mrs. J. B. K., aged 64 years, who has been deaf thirty-five years, and has been treated by several specialists without results, was informed that an operation was her only refuge, but she refused it. Last week, after two applications daily of about three hours each for five days, she heard a clock at over two inches, which before she could not be sure she heard on hard contact.

To illustrate the results obtained in ordinary cases of non-suppurative disease. I report the following cases:

Case 4—Dr. S. H. S., aged 32, deaf nineteen years, right membrane thickened, retracted and adherent, with little or no ossicular motion demonstrable, hearing distance right ear watch light contact; closed clock five inches; left ear, watch ten inches, closed clock fifty-two inches. After two months treatment twice a week he hears right ear watch three-fourths inch; closed clock seventeen inches; left ear watch twenty-two inches; closed clock seven feet.

Case 5.—Dr. W. D. M., aged 30, deaf ten years, hearing distance, right ear watch one-fourth inch, closed clock six inches; left ear watch not heard on contact, closed clock one and one-half inch. After three hours' application hearing in right ear watch three inches, closed clock fourteen inches; left ear watch one inch, closed clock nine inches. (Obtained in three months' treatment.)

Case 6.—Mrs. M. F., wife of a physician, was treated by one of our best specialists without results. She has been deaf for six years. When she came to me hearing in right ear, watch eight inches, closed clock three feet; left ear, watch not heard, closed clock not heard. After about fifty treatments she hears, right ear, watch fourteen inches, closed clock seven feet; left ear, watch not heard, clock three inches.

The suppurative cases are among the most responsive to the method. The massage serves to cleanse the middle ear cavity, while otherwise it has the same effect as noticed in the catarrhal cases. This cleansing is more thorough than can be accomplished in any other way, and I find that cases which have been treated for years in other ways, will often cease suppurating and the drumhead heal within a few months.

Case 7.—Mr. A. H., 15 years old, suppuration with right ear no watch hearing; left ear on light contact. We obtained after about fifty treatments a hearing distance for the watch of over fifteen inches in each ear. This case had received an unfavorable prognosis from first-class specialists.

Case 8.—Mrs. R. W. K., aged 38 years, deaf from suppuration caused by scarlet fever during first year of life, had never heard thunder until after the massage treatment was instituted. She improved until she could hear the watch about twenty inches in each ear.

Case 9.—Mr. G. S., aged 14 years, with bare contact hearing in one ear and no watch hearing in the other, developed a hearing of over thirty inches, with cessation of the suppuration and closure of the perforations after about forty treatments.

These three cases have all been without treatment for six months or more, and illustrate an important factor, the permanence of the improvement. It is not evanescent if persisted in; it must be continued until the diseased processes are overcome by the reactive tendencies of a healthy circulation and a restored mechanical action.

Case 10.—Miss A. H., aged 25 years, after being treated for suppuration over a year by a specialist with little or no result, has received a marked increase of hearing by the mixed masseur. Watch was heard right ear hard contact; left ear light contact; is now heard right ear five inches; left ear eight inches.

Case 11.—Miss M. K., aged 13 years, after treatment for suppuration by two specialists, and a mastoid operation by a general surgeon, has been placed on ear massage treatment. As a result there has been considerable increase in hearing and a marked decrease of the suppuration. The hearing was, right ear watch one-fourth inch, closed clock five inches; left ear light contact, closed clock four inches. She now hears, right ear watch six inches, closed clock eighteen inches; left ear light contact, closed clock six inches.

Case 12.—Miss E. S., aged 18, who has been examined by two or three specialists, all of whom gave an unfavorable opinion as to the restoration of hearing, has after twenty-five visits improved from a hearing distance in right ear of watch three-fourths inch, closed clock six inches to two inches and eleven inches respectively, and in left ear from watch one-fourth inch, closed clock two inches to one and one-half to eleven inches respectively.

I claim for the method when applied in a thorough and rational manner, that it will in part or wholly restore the normal mechanical action of the conducting apparatus, and will help to open the Eustachian tube more completely and induce a more healthy action in the middle ear, while it will stimulate the auditory nerve and often relieve it from the pressure which, when sufficiently long continued, would destroy its functions. Its indication after an acute middle ear or mastoid disease is evident, and thus used it would prevent the development of the multitudes of chronic catarrhal, sclerosed and chronic suppurative ears now so prevalent. In cases of suppuration its cleansing action in addition to its other reparative effects makes it a most valuable agent, and cases other-

wise irremediable succumb to its action. It is valuable in differentiating cases of ear disease in which an operation is required; when the method fails in improving the hearing and relieving the tinnitus, then the necessity of an operation on the conducting apparatus is to be considered, and not until then does this question arise.

Patients with ear disease are often deterred from seeking advice because of influences which have been at work from time immemorial to make them think that work on the ear means a decrease rather than an increase of the hearing function. It will take time to overcome these wrong tendencies. Even in our public schools the text-books are very prone to make mistakes. Within a week I have found in a text-book called "*Our Bodies and How We Live*," by Dr. Blaisdell, the following statement as to the drumhead: "If once broken this delicate membrane can not be repaired and deafness results." This book is used in a large number of American cities. Such books have a most pernicious effect, and these impressions should as far as possible be corrected.

1723 Walnut Street.

DISCUSSION.

Dr. ELLEGOOD—I ask whether Dr. Lautenbach observes more benefit from the sound or the motion, or from the impression made on the mind of the patient. I have used phono-massage and found it without benefit. The instrument which I used was called the violin vibrophone. It was easily put out of order. Tinnitus was only improved in a few cases. I do not think that any treatment of tinnitus is always satisfactory from the fact that the causes are so very variable.

Dr. BURNETT—As Dr. Lautenbach has laid much stress on the work done by the conductors, I should like to know how the result was brought about when there were no conductors to work. I should like to know whether adhesions will not recur, as in every other method?

Dr. RANDALL—I believe the instruments based on phono-massage are all mistakes. They have all proved, under trial, to be capable of mischief. It is known that the vibration of tuning forks will cause cataract in the eyes of animals, and if long continued will destroy the function of the nerves of sight. Most of these instruments just fail of being a complete success. On the other hand they often do harm.

Dr. KYLE—I ask if Dr. Lautenbach has tested the hearing of the patients at different times without treatment, to see whether the same variations of hearing did not occur? In a number of my cases the same variation has occurred without treatment.

The CHAIRMAN—The statement regarding the drumhead found in a public school text-books is perhaps responsible for some of the difficulties under which the physician labors when he wishes to puncture the drumhead as a remedial measure. Otherwise well informed people have the impression that an intact drumhead is essential to hearing, and that total deafness will result if there is any aperture there.

Some years ago when the phonograph method first became popular, some of my patients insisted on having this treatment, and though I could not understand, theoretically, how it could be beneficial, I tested the method for a period of several months, and was discouraged before the patients were. I can report no good results whatever. Since that time the phonograph has disappeared from my office, and this elaborate apparatus has now made its appearance. I have not had the courage to hold out hopes to these patients, knowing that in so large a percentage of cases no permanent improvement was perceived. I think that much benefit can be secured by pneumo massage.

Dr. LAUTENBACH—The question has been asked whether there is more benefit from sound or motion. These are all pneumo-massage machines. and with that you can use phono-massage if you wish. I have not found phono-massage of peculiar value, but pneumo-massage is very valuable. The combination of the two in my hands has proved most excellent. I do not use phono-massage alone at all. I think it is directly applicable to a nerve which has become dormant. It simply stirs up the nerve fibers to renewed activity. The machine not only restores mechanical functions, but is intended to put the middle ear cavity into a condition as nearly normal as possible by stimulating the circulatory apparatus. As to Dr. Burnett's remark about the removal of the conductors, there was formed in the middle ear cavity a membrane closing over the middle ear. The facts are simply that the ossicles were removed and hearing did not improve. The patient could not hear at all. After my treatment a watch could be heard on contact.

As to adhesions recurring, under ordinary operative conditions they would have to recur, but under this method they would not necessarily recur. As to mastoid disease, I do not wish to say that this method has any effect on mastoid disease. What it can do is to prevent mastoid disease from diminishing the hearing as much as it otherwise would.

THE IMPLANTATION OF STERILIZED ROOTS OF ANIMALS' TEETH CARRYING ARTIFICIAL CROWNS.

Presented to the Section on Dental and Oral Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

BY WM. ERNEST WALKER, D.D.S.

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It is a deplorable fact that notwithstanding the great advances made in the treatment of the various diseases of the oral cavity, occasionally a tooth is lost in spite of all the best endeavors of the stomatologist to prevent such a calamity. It is therefore very desirable that we should be able to replace such lost organs, and often by other means than plate or bridge-work. I need therefore make no apology for bringing before you the subject of planting teeth.

Since the introduction of the operation of implantation, by Dr. Wm. J. Younger (1885) various substitutes for carrying artificial crowns—as lead capsules, porcelain teeth, double staples of metal reversed, etc., have been tried. The literature on the subject does not indicate any marked degree of success with any of the roots save natural ones.

As it is often a difficult matter to obtain a healthy root of a human tooth suitable for this purpose, it has occurred to me that we might utilize the roots of the teeth of animals, which are easily obtained from the slaughter-pen and which are as a rule free from disease, requiring however thorough sterilization. Before implanting they can be surmounted with Logan or other crowns, a cast made of the mouth and a bandage made on it by Dr. Jacks' method, which I have found the most satisfactory.

While I have not found any animal teeth with roots very closely corresponding to those of human molars, this is immaterial as the socket from which a molar has been extracted, requires remodeling even to receive a human molar, for the roots of no two human molars are alike, and less cutting is necessary in using the large single root of a bovine central incisor, all that is demanded being the removal of the septum dividing the alveoli of the socket. I have examined a number of heads and find that while bovine centrals are very well developed and admirably adapted to this purpose, it is not so with the lateral incisors at the age of which beef is usually slaughtered in this section of the country, the root of the lateral not being fully developed and the foramen very large.

This is not, strictly speaking, implantation, but a practical transplantation, which might be practiced by some who are hesitating to drill sockets in the molar region for implantation, or who might be deterred by the difficulty of inserting a multi-rooted tooth.

I will not lengthen this paper by going into the details of the removal of pulp, sterilization, canal filling, adjusting artificial crown, etc., for any necessary

variation in the procedure from what has been published on im- and trans-plantation will naturally suggest itself to any one who will take the trouble to review the literature on the subject before undertaking the operation.

TUMORS OF THE MAXILLA.

Presented in the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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In this paper it is intended to describe briefly some of the more ordinary neoplasms of the maxilla.

The upper, as well as the lower maxillary bones, besides being subject to diseases affecting other bony structures of the body, are liable to the invasion of neoplasms peculiar and limited to themselves; among these may be mentioned the epulides, dentigerous and multilocular cystic tumors. The pathologic congeners of the epulides may, however, be found in other parts of the body, but it is not customary to call every growth found arising from the gums or from the periosteum of the alveoli an epulis.

Two, and only two, distinct forms of epulis are to be recognized as affecting these bones. The recognition of these is of importance, not only from a pathologic, but mainly from a surgical standpoint, as deciding the proper treatment, which is different in the two affections.

The hard or fibrous form is by far the most innocent in its pathologic effects; it is almost identical with the fibrous growths found in other parts of the body, yet it differs from them, mainly in its tendency to form spicula of bone.

The myeloid or softer form is composed of but a small amount of fibrous tissue, the remainder of the neoplasm being largely composed of polynucleated myeloid cells; the first variety is closely connected with the gum, also with the periosteum of the alveolus; it springs from the inner or outer surface, and unless long standing and of large growth seldom, if ever, invades the entire thickness of the alveolar process. The second form, or myeloid variety, is more closely allied to the endosteal than to the periosteal structures and is connected within the alveolus. It has a marked tendency to invade the entire thickness of the alveolar process, and does not attack the deeper portion of the bone unless improperly treated with irritants, when it may assume a malignant condition and quickly infiltrate the surrounding tissues.

The etiology of either form of epulis is somewhat obscure. Both varieties have been observed before the eruption of the teeth of infants. It is, however, generally agreed that some prolonged dental irritation is the usual exciting cause of this affection, as instanced in the following case:

A lady, aged 45, was referred to me two years ago for treatment. She had worn for five years a lower dental plate that had caused her some annoyance, yet was unattended by any special pain.

June 10, 1895, when I examined her mouth, there was seen a small growth the size of a hazel-nut, occupying the bicuspid region of the left lower jaw. She stated that the growth had been present for more than a year, but to her great alarm had enlarged considerably during the past few months. Having consented to an operation, the alveolar process, from the lower lateral incisor to the first molar down to and including a portion of the basilar part of the bone, was removed, when a fragment of the root of the second bicuspid was found imbedded in the bone; this fragment of a tooth had been, in all probability, the original cause of the formation of the tumor, which upon section proved to be a myeloid growth; although the jaw was accidentally fractured toward the completion of the operation, no untoward symptom followed. At the present date, May 31, 1897, the patient is wearing a new lower plate. There is no evidence of any return of the disease.

In all instances in which the surgeon suspects a myeloid epulis, he should not rest content without removing the entire thickness of the alveolar process. There is perhaps no more pitiful story for a surgeon, when a case of this kind returns to him with a sarcoma occupying the seat of the former operation, with perhaps infiltration of the floor of the mouth, than to declare that permanent relief is almost hopeless, and to believe that if more of the jaw had been removed during the operation, this might not have happened. This was forcibly recalled to the writer's mind in a recent case at the clinic of the Ohio Dental College.

The patient, a woman aged 32 years, had been operated on by another surgeon nine months previous to applying at the clinic. At that operation a small growth had been removed from the left upper bicuspid region. On examination, two growths were seen, one occupying the seat of the former operation, the other located in the right upper bicuspid region; both growths were myeloid in character. It is by no means common to find this primary plurality of myeloid growths, and there is a suspicion that, in this case, the disease is something more than a local one.

Both growths were removed, and although it is early to prognose, the patient at the present time is better in spirits and health than she was, and there are no local manifestations of a return of the affection.

In the treatment of myeloid epulis, in consequence of the extensive involvement of the alveolar portion of the bone, even as in this case, when the growth apparently springs from one plate only, radical measures must be insisted on. It is always the wiser plan to remove the entire thickness of the process, sacrificing whichever tooth may be deemed necessary to effect a thorough removal of the disease. It is in these cases that imperfect operations are more than useless, for when imperfectly removed, it is the unfortunate tendency of myeloid epulis to return in a still more malignant form. This fact is so well recognized that no operator, in treating these cases, should be satisfied unless he removes outlying tissue beyond the apparent extent of the growth. The best method to be employed for the purpose, is to saw completely through the alveolar process on each side of the disease and then, with one of the various forms of cross-cutting bone-forceps, remove the entire piece of bone with the tumor. It is my invariable practice, after having removed the affected piece, to use the bone-gouge freely, so as to remove every vestige of the disease. The free hemorrhage which arises in these cases is easily controlled by pressing a few small pledgets of cotton into the wound; the hemorrhage having ceased, compresses of cotton, saturated with a weak boracic acid or a permanganate of potash solution, can be gently pressed into the wound; these compresses are readily retained in position without much inconvenience to the patient, by his simply keeping his mouth closed. External bandaging is seldom required. Twenty-four hours having elapsed since the operation, the compresses may be removed, and the mouth should be rinsed four times a day with a solution of 0.32 grams of permanganate of potash to 30 c.c. of water. In ordinary cases no other treatment is required.

In the fibrous or hard form of epulis, it is seldom

necessary to remove the entire thickness of the alveolar process, although it is advisable always to remove either the inner or outer plate upon which the growth is attached; it is prudent, in order to effect a limited destruction of the bone, to touch the site of the removed growth with the actual cautery; those who object to the use of the cautery can produce the same result by touching the part with nitric acid, chlorid of zinc or the trichlor-acetic acid. It is seldom necessary to sacrifice the teeth contiguous to the tumor, as the unremoved plate is sufficient to retain them in place, and in many instances, years after the operation, the teeth are found to be firm and in good condition.

Cystic diseases of the maxillary bones are perhaps more frequently due either to disease of fully developed teeth, or they are associated with teeth that have been imperfectly developed. Cysts from either one of these two causes may attain a very large size, giving rise to absorption, to a greater or less extent, of the walls of the maxilla without in so doing giving rise to much inconvenience to the patient.

It is claimed by Broca, whose views on this subject meet with general recognition, that the majority of cysts of the jaws have their origin in tooth follicles. It is held that the soft gelatinous enamel organ, being easily affected by morbid influences, readily disappears, leaving in the follicle a cavity which is ready to be transformed into a cyst. Some of these cases seem to arise without any appreciable cause; an instance of this kind was referred to me four years ago by Dr. F. Sage of Cincinnati.

The lady, 46 years of age, had, occupying the right side of the lower jaw, a small cystic tumor in the bicuspid region; the tumor had been of slow but continuous growth; at no time during the development had pain been experienced; she sought medical counsel partly on account of the inconvenience of its increasing size, but mainly from the fear that so often possesses the laity, that whenever a growth appears on any part of the body, it must of necessity be a cancer. Careful inquiry into her history failed to elicit any fact that would give a clue upon which an opinion might be founded. Both dentitions had been normal and the teeth in the immediate neighborhood of the growth were in good condition. A careful search was made during the operation to discover any probable cause that might have produced a tumor, but none was found. Four years have passed since the operation, and there has been no return of the affection.

Although the etiology of cystic tumors occurring in the jaw bones, has in recent years been elucidated to a very large extent, much still remains in doubt. Mr. Christopher Heath, in his work on the "Diseases of the Jaws," has made particular mention of the views held by Mr. F. Eve,[1] as to the development of multilocular cystic tumors of the maxilla. Mr. Eve maintains that so far from multilocular cystic tumors having a dental origin, they are on the contrary produced by an ingrowth of the epithelium of the gum. This class of tumors frequently follow injury, or irritation of decayed teeth, or long continued inflammation which has lead to an increased supply of blood to the parts; they are slow of growth, do not affect the lymphatic glands, nor infiltrate the surrounding parts. These tumors are innocent in character, but owing at times to their enormous increase and multiplicity, they not infrequently necessitate the removal of the larger portion of the lower jaw, which bone is specially affected by the disease.

The treatment of cystic tumors necessarily varies according to the form of the cyst; if it be a single cyst connected with a fang of a tooth, the extracting of the offending body will usually be sufficient to effect a cure; if, however, it be of larger size and has caused some expansion of the bone, an incision through its bony wall will be necessary; this operation will evacuate the fluid, which is usually of a dark clear color, unless inflammation has been present, in which event, the contents will be of a more purulent character. It is also the best practice to cut away a good portion of the cyst wall, as otherwise the cyst is liable to rapidly reform. In all instances in which a tooth is suspected of being present within a cyst, a careful search for it should be made, for it is obvious that resolution will be impossible so long as the tooth is retained. In both of the above instances the after treatment consists in simply using, four times a day, an antiseptic and slightly astringent mouth wash. In cases where a portion of the wall of the cyst has been removed, the cavity should be plugged with boracic acid gauze or lint that has been saturated with a solution of permanganate of potash. This packing might be removed and a fresh one used if necessary in forty-eight hours time.

But in the treatment of multilocular cystic tumors more radical measures must be adopted. If any suspicion exists as to the possibility of a sarcomatous complication, which is not infrequently the case in this character of growth, the removal of the portion of the affected bone is always recommended, and has been the usual procedure; if however, the diagnosis can be satisfactorily determined as to the absence of a malignant factor, the operation as recommended by Mr. Butcher of Dublin, can be performed. This operation consists in dividing the mucous membrane covering the cyst, and then with gouge and bone forceps or chisel and mallet, thoroughly removing all of the affected parts. The success of this operation depends entirely on the completeness with which this is done. Mr. Butcher has had very marked success with the cases of multilocular cysts that he has treated by his method; other operators, however, have had only partial success by following the plan advocated by Butcher; their comparative failure may perhaps be attributed to their having left a portion of this diseased structure unremoved.

A malignant tumor composed of the same structural elements differs in its clinical history according as it attacks the soft or the bony tissues, and differs also in bone, as to whether the compact or cancellous tissue is involved. Thus a round-celled sarcoma will not infrequently develop within the interior of the lower jaw, and will give rise to no other symptom, than perhaps enlargement of the bone. This condition may continue to exist for several years before the tumor has attained the size of a walnut, the patient during all this period complaining only of the small deformity caused by the slowly growing enlargement. What a contrast this offers to the rapidly growing sarcoma, as it occurs in the softer tissues! This difference of growth in the same structurally formed neoplasm, may partly be explained by its elementary formation. All varieties of the sarcoma belong to the type of the embryonic connective tissue; the cells of which they are mainly composed have no definite arrangement; they are in constant relation with the stroma, and consequently the cell not being surrounded by alveoli, as in the case with the carcinomata, have a marked tendency to infiltrate the neighboring tissues at a very early period. The blood vessels of a sarcoma ramify among the cells, and are very thin walled,

[1] Eve: British Medical Journal, Jan. 6, 1883.

hence, the frequent occurrence of hemorrhage into their substance, and their rapid dissemination through the vascular, and not the lymphatic system of vessels.

The compact tissue of bone antagonizes to a marked degree the favorable conditions for sarcomatous growth; this is especially the case when a sarcoma develops between two plates of bone, as when a neoplasm of this character forms in the interior of the lower jaw. Occupying an intermediary position, clinically speaking, between the rapidly growing sarcoma of the soft parts, and those slow growing ones occurring in the lower jaw, are those instances of sarcoma originating in the the connective tissue of the mucous membrane lining the antrum of Highmore; this is by no means an uncommon location for the development of primary sarcoma. The history of all such cases is very similar. The sufferer complains of pain which is often referred to a tooth in the affected jaw. The offending member is sometimes treated, more frequently, however, is extracted, while the relief, if any, is but temporary; the uneasiness and pain continue, with perhaps some intermission. This condition may, and usually does, continue for a considerable time before any swelling of the part is observed; after the swelling appears the disease is apt to increase rapidly, and the growth, which by this time has completely filled the antrum, and has infiltrated the bony walls of the cavity, has a tendency to fungate and bleed readily. A case of this kind was referred to me by Dr. F. Saul.

A man 42 years of age who, for two years past, had had intermittent pain in the upper second bicuspid. Although the tooth was in a sound condition, he had it extracted, without obtaining any relief. Two months previously to coming to me, a slight swelling appeared on the right cheek, and a suspicious looking growth in the alveolus of the extracted tooth. He had some pain almost all the time, which now and then was severe, and was advised to have the right maxillary removed, but dissented. Five months later he returned, the swelling now extending upward under the zygoma, and reaching the temporal region. To operate with hope of permanent relief under such conditions, was extremely questionable, but he was very eager to have the operation performed. The right half of the maxillary bone was removed together with considerable of the surrounding tissue. The tumor proved to be a round-celled sarcoma; seven months afterward the disease returned and a second operation was performed. This, for a few months, gave him relief, after which time hemorrhage ensued, and occurring periodically terminated in death.

To a certain extent this case illustrates the clinical history of sarcoma, when originating in the antrum. Intermittency of growth at first, is somewhat characteristic of sarcoma wherever it occurs. This was followed by a slow but continuous enlargement, and, finally, after the bony walls of the antrum had yielded by a rapid increase in growth with infiltration of all the surrounding parts. The treatment of sarcoma must be radical, and any contemplated operation should be done as early as a diagnosis can be made. As long as a sarcoma is confined within the bony walls of the antrum, a hopeful result as to a permanent cure can be looked for, but after this disease has passed beyond these confines, any operation, however heroic it may be, will usually result in failure, as it is almost impossible to remove all of the affected tissues. I always refuse to operate in advanced cases of sarcoma of the upper jaw, without informing the patient, or his friends, of a probability of the return of the disease, and agreeing to operate simply as a means of temporarily relieving the suffering of the person so affected.

Let us defeat the Antivivisection Bill!

SOCIETY PROCEEDINGS.

College of Physicians of Philadelphia—Section on Otology and Laryngology.

Stated meeting March 1, Dr. E. L. Vansant in the chair.

Dr. F. Woodbury read a communication on

NEUROTIC OR PARADOXIC COUGH,

and presented a case to the members for examination. It was that of a woman 48 years of age, who, when first seen last December, suffered with a peculiar spasmodic cough, consisting of a single explosive effort, recurring with considerable regularity once or twice every minute. There was no expectoration and no pain, but with each cough the head was turned violently to the right side and the face was contorted. The patient was subject also to headaches and constipation. She gave a history of having had a severe nervous shock about ten weeks previously, owing to the death of a son with consumption; she had lost much sleep while nursing him for months before his death. Upon examination the larynx and lungs were found to be healthy. In the nasopharynx the mucous membrane was hyperemic in the vault. The nasal chambers were also hyperemic. The inferior turbinals were swollen. These were shrunk by an application of 10 per cent. solution of cocain, and a sharp spur was seen projecting from the septum and pressing against the left middle turbinal. When this spur was touched with a probe the patient experienced a tickling in the larynx and an irresistible impulse to cough. As the nose appeared to be the site of reflex irritation causing the cough, it was stated that the removal of the spur and the reduction in size of the turbinals by the galvanocautery would probably give entire relief. Under systemic treatment with bromids to reduce the nervous irritability, and laxatives to overcome the constipation, she had already been greatly benefited and had recently gone as long as five days without a cough or headache. Two other cases were reported, one in which the site of reflex irritation was in the throat in a mass of glandular tissue below the left tonsil; in the other one a case of ear cough. A case of persistent cough due to glandular hypertrophy at the base of the tongue was also referred to, which had been shown by Dr. Donellan at the last meeting of the Section. These cases were described as instances of neurotic or paradoxic cough, inasmuch as the site of irritation was not in the throat or chest, and treatment of the cough was unavailing, except to direct attention to some abnormality which required diligent examination into various sources of reflex irritation. Without such careful search a case might be dismissed as one of hysteric or gouty, or so-called "stomach cough." The necessity of both local and general treatment was pointed out by the reporter. In conclusion, he warned against mistaking a cough, caused by tuberculous infection of the lungs, and previous to the development of sufficient pathologic changes to afford characteristic physical signs in the chest, for merely a nervous laryngeal cough; here the altered temperature, the pallor of the larynx and possibly the detection of the bacilli in the sputum, would suggest the true nature of the case and its proper treatment. Such a case might be neurotic, but would not be a case of neurotic cough in the sense in which it is used in this communication.

Dr. P. S. Donellan mentioned a case of obstinate cough, which, after death, was found to be due to aneurysm of the arch of the aorta. Irritation of the recurrent laryngeal nerve was suggested as the cause of the cough. He inquired with regard to the so-called stomach cough, if it occurred at all, and if so, with as much frequency as the popular references to it would seem to imply.

Dr. Woodbury said that an overloaded stomach was a frequent cause of croup in young children, and indigestible food will often excite asthma in susceptible subjects; therefore the possibility of a stomach cough as a symptom of indigestion might be admitted, but it must be extremely rare, in proportion to the great number of cases of dyspepsia in which no cough is present. To warrant such a diagnosis, there should be entire exclusion of other sources of reflex irritation, the symptom should only be present after eating food and during the act of digestion and susceptible of entire relief by careful selection of the diet. It is very probable that many cases of so called stomach cough are really instances of reflex cough from glandular hypertrophies at the base of the tongue, or some other form of neurotic cough similar to those mentioned in the paper.

Dr. Vansant said that it is a very frequent occurrence, in examining the nasal chambers, to have a patient cough in your face which is a very disagreeable experience when the patient has an infected cough or bad breath. As a protection, he had

found it useful to direct the patient to hold a handkerchief in the hand ready to bring it up before the mouth when he coughs.

Dr. E. L. VANSANT presented a

CASE OF ACUTE EMPYEMA OF THE FRONTAL SINUSES.

A little girl, 11 years of age, was shown, who three weeks ago had an attack of cold, which probably was the grippe. She had a cough and a discharge from the nose since that time. The mother was anxious about her because a sister, 16 years of age, had died a few weeks ago with consumption. The child now has purulent rhinitis with acute empyema of the nasal chambers. The question of treatment was suggested for discussion. The reporter's own experience had been that when such cases are given early treatment, they make a good and rapid recovery. After only twenty-four hours treatment the present case had very much improved; her cough had lessened; the tenderness over the frontal sinuses had almost disappeared and the secretion was materially reduced. The treatment consisted of active purgation, followed by frequent use of warm alkaline wash, and hot moist applications to the frontal sinuses, externally, with clearing away of secretions from the mouths of the sinuses. The patient was also kept indoors. The relief here has been a quick one; rather quicker than usual in his experience of such cases.

Dr. GIBB—Empyema of the accessory sinuses is quite a frequent supplement to influenzal attacks. They generally recover with careful management, but I have not seen any get well so quickly as this one. Last summer, a young man who, while traveling in Yellowstone National Park, inhaled the alkaline dust, and had in consequence acute inflammation of the nasal chambers extending into the accessory sinuses, but confined to one side. After cleaning the outlets, thus securing proper drainage for the frontal sinus, and the usual local and general hygienic measures, the patient got well in the course of a week.

Dr. EMMA MUSSON, a guest, asked about the effects of the direct application of oxygen in these cases. In several cases coming under her own observation good results were noted. A prominent specialist had advised opening of the maxillary sinus in one of these cases, which yielded very promptly in the course of a few days, to oxygen applied three times a day. After reading Stokes' paper on the treatment of acute otitis media by this method, she had tried it in sinus disease. Subsequently she had read that it had also been applied to the treatment of purulent discharges from the nasal chambers and accessory sinuses.

Dr. DONELLAN said chronic cases give the most trouble. He reported the case of a woman who had suffered with headache for two years, and he had discovered empyema of the right frontal sinus, with hypertrophied turbinals, the headache being caused and aggravated by the damming up of the outlets. Last week he had seen Dr. Delavan remove the anterior end of the middle turbinated bone with the punch forceps, and he subsequently washed out the sinus with a 50 per cent. alcohol. The case has been very much improved since the treatment.

Dr. J. S. GIBB presented a case of

NEW GROWTH IN THE LARYNX

for examination. It had a papillomatous appearance, resembling what has been described as pachydermia laryngis. The patient had been before the Section some months ago and he had brought him back by request in order that the Fellows might watch the case. The growth appeared to be about the same size as when previously shown. He had removed a piece for examination, but the place had been soon filled up again. The growth is on the right side of larynx and extends from the arytenoid down to and including the true cord. Its broad flat surface has a rough appearance and it is almost purely white. Under the impression that it might be of specific nature, he had been put upon potassium iodid, and while his general condition improved the treatment had very little effect on the growth. From the specimen submitted one pathologist reports that the growth is papillomatous and is an illustration of pachydermia laryngis. A larger piece was submitted to another pathologist, who reports that it is a papillomatous neoplasm with a suspicion of malignancy; for reasons assigned it would be best designated as an adenopapilloma.

Dr. VANSANT said that the case represented an extremely rare condition and was the first one that he had seen. The condition of the tongue termed leucoplakia is frequently seen and it is our experience that such cases frequently become carcinomatous. In a patient, a man who had a rapidly growing epithelioma of the tongue requiring extirpation, he had known that leucoplakia had existed for twelve years. Such a result might be looked for in the present instance, but how long a time before this would occur it would be impossible to predict.

Dr. WOODBURY asked the reporter if he contemplated extirpation of the larynx?

Dr. GIBBS said: Extirpation of the larynx is a very serious operation and certainly, in this case, one not to be considered at the present time. The report from the pathologists had been obtained with reference to deciding this question, but he did not think that either report would warrant the operation. There is no rapid extension of the growth, no glandular involvement, no deterioration of the general health and nothing to warrant the idea of malignancy at present. The patient will be kept under observation and its course reported to the Section from time to time.

Dr. GIBBS presented a specimen of

MUCOUS POLYP SPRINGING FROM THE NASAL SEPTUM.

This is a very rare occurrence. In a large number of autopsies in which Zuckerkandl had examined the nasal chamber, thirty cases occurred in which mucous polyps had sprung from the middle turbinate bodies and only three presented polyp growths from the septum. The case was that of a woman, 50 years of age, who for several years had had attacks of epistaxis, and more recently had increasing difficulty of breathing through the right naris. About two weeks previous to application for treatment, she had noticed the growth at the entrance to the nostril. Upon examination a polyp was found, which was pedunculated, and it was traced to its attachment on the septum. It was snared off and there was very little bleeding. The spot was touched with the galvanocautery and healed readily. This growth is quite different from the cases recently reported by Pierce of Chicago, of bleeding polyp of the nose, which are instances of fungous fibroma or polypus teleangiectoides. The ordinary causes of mucous polyp were absent in the case just reported, as there was no necrosed bone and no inflammation. If this case proves that it is possible for a polyp to develop at any point in the nasal chambers, without any previous disease or inflammation, it will certainly upset some of our pathologic ideas as to the causes of these growths.

Dr. MUSSON referred to a case occurring a number of years ago, in which she had removed with a Jarvis snare a growth as large as a hickory nut, which had grown from the septum. There was no recurrence of the growth, which was characteristic of growths from the septum.

Dr. P. S. DONELLAN exhibited a

PHANTOM LARYNX FOR THE STUDY AND PRACTICE OF LARYNGEAL DISEASES AND OPERATIONS.

The chief point of interest attached to this instrument was that it was formerly the property of Morell Mackenzie and had been used by him for daily practice. He would drop in small pieces of paper or beads and remove them with the forceps, thus acquiring his wonderful manual dexterity. The advantage of this method of studying the diseases of the larynx over the ordinary flat diagrams or plates in books is very obvious, but its chief usefulness is in the practice it affords in the use of instruments in the larynx, both for diagnoses and operations.

Maryland Public Health Association.

Meeting held at Baltimore, Md., Nov. 18 and 19, 1897.

(*Concluded from page 670.*)

Dr. CH. WARDELL STILES, Zoologist of the U. S. Bureau of Animal Industry, Washington, D. C., read a paper on

SOME OF THE DANGERS ARISING FROM SLAUGHTER-HOUSES, WITH SUGGESTIONS FOR MEETING THEM.

Generally speaking, he thought the places for slaughtering animals for food might be divided into large abattoirs and local slaughter-houses. The former are usually located in cities and operated in connection with packing-houses. The latter are used chiefly by the meat dealers of the country towns, and the animals slaughtered at such places are generally, if not always, for local consumption. He left the abattoirs out of consideration, making criticisms on the local slaughter-house in its relation to disease. He said some local dealers obtain all their meats from the packing-houses where inspection exists; others drive from farm to farm buying animals and slaughtering them on the premises; still others buy slaughtered animals which farmers bring to town; while the majority of dealers in small towns own or rent slaughter-houses where they do their own killing. In many cases these houses are located on the banks of rivers or creeks into which they drain. Frequently the offal is thrown down the embankment and left there to be eaten by hogs, dogs and rats, or in some parts of the West by Indians, or to decay and drain into the stream. Quite often the slaughter-houses are located on farms, the butcher giving the

offal to the farmer as feed for his hogs, in lieu of paying rent. In case a town is provided with more than one slaughter-house, these houses are generally scattered north, south, east and west, each butcher apparently trying to so locate his house as to prevent any undue amount of curiosity on the part of his competitors regarding the character of his stock. Again, slaughter-houses are usually situated just beyond the borders of the town which they supply. Thus they do not come under the supervision of the local Board of Health; and as few, if any, of the State Boards pay any attention to them, they are without any sanitary supervision. Notes taken on the premises of various slaughter-houses were read illustrating the actual existing conditions. Some places were found in good condition; some in a condition that was a disgrace both to their proprietors and the communities that tolerated their existence. Every slaughter-house is from the very nature of things a center of disease; and naturally the poorer the condition of the premises the more dangerous they are. Even if only a few animals are slaughtered each week, the total number may amount to several hundred during the year. Some of the animals are surely diseased. At least one of the hogs has trichinosis, and when the offal of this hog is fed to other hogs which are raised on the grounds, these hogs can not escape infection with trichinæ. But that is not all. Slaughter-houses are often over run with rats; the rats feed on offal, and when feeding on the offal of a trichinous hog, they likewise can not escape infection with trichinæ. About 55 per cent. of the rats I have examined from slaughter-houses have been found to be infected with this disease, so that if a hog at a slaughter-house eats a rat the chances are fifty five in a hundred that he will catch trichinosis. Now, suppose that a slaughter-house is burned or abandoned; the rats inhabiting the premises naturally wander to the neighboring farms in order to obtain food, and of every hundred rats which leave the slaughter-house, fifty-five carry with them the disease known as trichinosis. This disease they transmit to hogs if eaten by them. From this it will be seen that every slaughter-house where hogs are killed, is a center for the spread of trichinosis to neighboring farms, and thus forms one of the great factors in keeping this disease alive, so that today about 1 per cent. of our American hogs are infected with trichinæ. Yet, fortunately, because of our custom of cooking pork thoroughly, the disease is usually killed before we consume the pork, and our cases of trichinosis in man are thus reduced to the few, chiefly Germans, who eat raw or rare pork.

But trichinosis is by no means the only disease transmissible to man which centers at the slaughter-house. Of the cattle killed during the year, some of them surely have tuberculosis; in many cases, as I said, the entrails of the slaughtered animals are thrown to the hogs on the premises. There can be but one result, and that is to spread tuberculosis to the hogs. Fortunately, we find only about three thousandths of 1 per cent. of the American hogs have to be condemned because of tuberculosis; and here again our custom of thoroughly cooking our pork protects most of us to a great extent against infection from this source.

Another disease, apparently on the increase in this country, and against which we have at the present moment absolutely no protection, is hydatid disease, caused by an animal parasite which passes its adult stage in the intestine of Old Dog Tray, in the form of very small tapeworms, almost the smallest tapeworm known; its larval stage is the largest larval tapeworm known, varying from the size of a bean to that of a child's head, and living in the liver and lungs of cattle, sheep, swine and a large number of other animals, including man. Its complete life cycle is as follows: Starting with the adult tapeworm in the small intestine of dogs, the eggs are scattered on the ground and swallowed by cattle or other animals with the fodder or water. Upon arriving in the stomach the eggshells are destroyed and a six-hooked embryo, which is thus freed, bores its way through the intestinal wall and wanders to the various organs of the body; coming to rest in a suitable place it increases in size, forming a bladder which generates numerous heads, each one capable of developing into an adult tapeworm when swallowed by a dog.

Now, anyone who has had the misfortune to visit a slaughter-house, knows that dogs soon find that these premises are excellent places to obtain food. The butcher of course can not utilize the parasite in his trade, so he throws the infected organ aside, or at least discards the infected portion of the organ. This discarded portion forms a delicacy for the stray or pet dog which happens to be near; and thus becoming infected with tapeworms the dog proceeds to unconsciously transmit this disease to the persons who pet him or to the flocks and herds he is supposed to keep from danger. It is claimed that in some districts of Iceland every sheep of three years old was infected, while it is an exception to find a cow ten years old free from the disease. In India, about 70 per cent. of the cattle are infected. In Germany the statistics vary for different animals and for different parts of the country, from 1 to 37 per cent. Turning to our own country, we have as yet no exact statistics upon this disease, but at a rough guess, judging from what I have seen at slaughter-houses and abattoirs, I should estimate that about one-fourth to one-half of 1 per cent. of our American hogs harbor this parasite. This worm is the most fatal animal parasite found in man, 50 per cent. of the cases of infection dying within five years. The disease is especially common in man in Iceland, it being estimated that about 2 per cent. of the inhabitants are infected; it is also quite common in Australia where 3000 cases were reported from 1861 to 1882, or about 150 cases per year. In Central Europe the hydatid is found on an average once in every 130 postmortems, while in Rostock it is found in nearly 2.5 per cent of the postmortems. In our own country the disease is not so common, but one of my assistants, Dr. Sommer, recently compiled for the United States 100 cases which were reported in various medical journals. Taking the world at large, certainly 500 human lives per year would be a very moderate estimate of the victims of this disease transmitted to us by Old Dog Tray.

There has been a regular decrease in Berlin, Prussia, in the number of lungs and livers of cattle and sheep condemned for this disease, the statistics falling for cattle from 4.6 per cent. of the lungs, and 1.8 per cent. of the livers in 1888-1889, to 1.7 per cent. of the lungs, and 0.5 per cent. of the livers in 1892-1893; in sheep they fell from 1.4 per cent. of the lungs and 0.9 per cent. of the livers, in 1888-1889, to 0.9 per cent. of the lungs and 0.3 per cent. of the livers in 1892-1893.

The fewer slaughter-houses we have the easier it will be to control the diseases. In a tour of inspection I made not long ago, selecting two different States, I found twenty-nine towns, varying from about 100 to 1600 inhabitants, were provided with sixty-nine local slaughter houses. Sixteen of the towns had two slaughter-houses each, eight had three each, two had four each and one had five! Thus these twenty-nine towns provided sixty-nine centers of disease for the surrounding area.

Segregate the slaughter houses, compelling all the butchers of each town to do all of their killing in a given inclosed area. The slaughter-house could best be built by the city, stalls being let to the butchers for slaughtering purposes.

This suggestion will naturally not meet with the approval of all butchers. The objection will be made that they have money invested in slaughter-houses and that any change will mean financial loss to them. To this I would reply that all or nearly all local slaughter-houses are frame buildings which are not of much value; they are cheaply built and poorly arranged; they represent an infinitely smaller investment than the stock of neighboring farmers, or the lives of the inhabitants, computed at the legal value, and the temporary loss to be sustained by the butcher will be infinitely less than the continuous loss sustained by neighboring farmers and by the community at large. Furthermore, these numerous slaughter-houses are menaces to public health, and under these circumstances a small financial loss to a few individuals can not be taken into consideration.

Another objection that will be made by the butchers is that while the segregation of the slaughter-houses would reduce the number of centers of infection, it would not reduce the amount of infection in a given district. To this the reply is, that the objection is more apparent than real, since a given amount of infection in a restricted area is more easily controlled than the same amount of infection scattered over a large area and in different localities.

Objection will also be made that this segregation of the slaughter-houses is an innovation, an experiment, a scientific theory which is not practicable. The reply to this is, that while it is an innovation in this country, it has been tested and found satisfactory in other countries where practical experience has borne out scientific theory, and where the plan has been shown to be entirely feasible.

Objection may be raised that one butcher does not care to be subjected to having his business open to the gaze of other butchers. This objection answers itself. There undoubtedly are butchers who would object to having other butchers see the class of stock they kill or raise, and the sooner the health authorities exercise some control over these dealers the better.

My second suggestion relates to the director of the proposed municipal abattoir. If the slaughter-house is placed under city control, the natural tendency among certain people will be to claim that patriotism calls for the appointment of the director according to his political pull. I would modestly suggest that an unsuccessful blacksmith, or barber, or a physician, dentist or druggist, who has failed in your State examination, is hardly the person to be appointed director of a municipal

abattoir, notwithstanding his political pull. In this matter of public health we are dealing with life and death, and we must have a man equal to the position. Personally, I believe that the man appointed should be a veterinarian, and should be ex-officio a member of the local board of health. And by this word veterinarian I do not mean a quack horse-doctor, but rather a well educated and scientifically trained graduate of a reputable school, and besides that a man of experience in gross pathology and meat inspection. The scientific meat-inspector can render public service in the prevention of disease among men and livestock to a degree scarcely dreamed of by non-technically trained laity.

My third suggestion is on behalf of the butcher. While I believe every butcher sins more or less in selling meat which he ought not to sell, he unquestionably does so unintentionally and innocently in many cases. He is not trained in pathology and does not understand the exact nature of all he sees. He may even tell his customer that this or that meat is not an especially good article, but it can not be expected that he knows the danger connected with lesions which even few physicians would at first recognize.

The proposition that diseased meats which are dangerous as articles of food should not be allowed on the open market, is one which will receive universal support from all sanitarians and also from the thinking public. The question however arises as to the classes of diseased meats and the stages in these diseases that justify their condemnation, or that justify their sale, and the method of their disposal if condemned.

In some foreign cities regulations exist, or have existed, compelling the burial or cremation of meats affected with certain diseases. To such extreme measures I am opposed, and this for several reasons. Such destruction by burial or by burning is in itself an expense. It also results in a total and unnecessary loss of the carcass. Again, the burial of a diseased carcass, unless buried in quicklime or other destructive material, does not meet either the practical or the theoretic requirements of destruction of diseased material. Take trichinosis, for instance. In some places the carcasses of trichinous hogs have been buried by order of the sanitary officials. After this has been done, the owners of the carcass have disinterred the hog and it has been used for food. This has happened a number of times in Germany, one case being reported within less than a year past. Even had these human rats not disinterred the body and fed it to their friends and customers, the grave would have been accessible to rodents, such as rats, field mice, etc., which would not hesitate to feed upon the carcass, and thus become infected with the disease, resulting in a possible (theoretic) ultimate transmission of the disease to other hogs. Finally, I am opposed to this method of alleged destruction on the ground that diseased or partially diseased carcasses can be utilized under certain conditions and restrictions or in certain ways, so that the owner will not lose the entire amount of his investment.

Three methods in particular are open, the method selected being dependent upon the nature, extent or stage of the disease and the facilities at hand. These methods are: 1, utilization as fertilizer; 2, rendering the meats harmless by cold storage, cooking, or preserving, and then placing them upon the market; 3, selling the meats under a declaration of their character.

There is no parasitic disease known which will withstand the degree of heat used at the large abattoirs in the preparation of fertilizers. "Tanking for fertilizers" is therefore an absolutely safe method for the disposition of condemned meats, no matter how serious the infection is, or to what extent the disease has progressed.

In connection with certain bacterial and parasitic diseases, however, a question arises as to the necessity of condemning to the tank certain diseased conditions. A case of generalized cestode tuberculosis (*Cysticercus bovis*) should undoubtedly be "tanked," but in a very light infection the question takes a different aspect, namely: Can not the diseased portion be cut out and the rest of the carcass be placed on the block? To allow such meat on the market, leaving the consumer to suppose that he is purchasing a first class article, is evidently an injustice to the buyer, for it is by no means certain that all of the parasites have been detected and removed. To condemn a light infection of this disease is, on the contrary, an injustice to the dealer, for there are methods by which the remaining parasites, if any, may be rendered harmless, and in this case the dealer could be saved a part of his loss. To judge between those cases in which the carcass is absolutely unfit for food, and therefore to be condemned, and those cases in which the carcass may be treated according to methods which will destroy the remaining but undiscovered parasites, thus rendering the meat fit for food, is a point upon which the expert meat inspector must decide.

Experiment shows that the parasite under discussion (*Cysticercus bovis*) dies about two to three weeks after the death of its host. Three weeks of cold storage would therefore render a light infection of this kind absolutely harmless, and the meat could safely be placed on the block. With the disease known as pork measles the parasites live for a month, so that more care would be necessary in dealing with it.

Many of the abattoirs voluntarily tank for canning certain meats of inferior quality. The heat to which these meats are subjected is not so great as that used in tanking for fertilizers, but as *Cysticercus bovis* can not survive a temperature of 140 degrees Fahrenheit for five minutes, and as the meats tanked for canning are thoroughly cooked, it may safely be asserted that a light case of "beef measles" would be rendered perfectly harmless by the cooking preparatory to canning. The same applies to cases of trichinosis. The parasite of this disease can not withstand a heat of 70 degrees C. (150 degrees F.) so that if trichinous pork is cooked until the entire piece has reached this temperature, and assumed a light gray color, the disease is rendered non-transmissible to man.

The parasite of "beef measles" is killed in twenty-four hours by the action of salt solution, and we have found no case where the parasite of trichinosis has been able to withstand four months in the "pickling vats." In both of these cases it must be remembered that it takes some time for the salt to thoroughly permeate the tissues. It would accordingly not be safe to assume that in a piece of measly beef which had been placed in brine for twenty-four hours the parasites had been killed. The length of time necessary to guarantee the result is, of course, dependent upon the size of the piece of meat. A safe rule is to cut the meat into pieces of any length, but not over six inches thick, and leave them in brine for two weeks.

While the large abattoirs have means at their command by which cases of light infection may be rendered non-infectious, the smaller slaughter-houses are at more of a disadvantage in this respect. Cooking and salting would be possible for some, perhaps all of them, while cold storage would often be out of the question. . . . In some parts of Europe certain meats of inferior quality are allowed on the market under given conditions. One of these conditions is that they must be sold in a specially licensed meat stall or counter, known as the "Freibank" or "Finnenbank," where the true nature of the meat must be made known to the purchaser. Naturally such meats are sold at a lower price than the meats offered in open market, thus enabling many of the poorer classes to purchase meat who can not afford to pay the regular prices. Meats which are absolutely dangerous from a sanitary standpoint are, of course, excluded from these special meat counters, and in some instances the law requires that even those meats of inferior quality, which are harmful in some cases, though not dangerous, must be rendered harmless before being sold.

The German system of the "Freibank" practically results in dividing the meats into three classes: 1. Meats which may be sold in open market, good or first-class meats ("gute oder tadellose Ware," of North Germany, "bankwürdiges Fleisch," of South Germany, also called "bankmässig" or "ladenrein"); 2. A second class of meats which may be sold only under declaration of their true character, in many cases only after having been cooked or salted under official supervision ("nicht-bankwürdig," "nicht-bankmässig," "nicht-ladenrein"); 3. A third class of meats which are unconditionally condemned, and therefore excluded from the market. . . . Objections to the "Freibank" have been raised by some parties, but I am unable to see wherein this system is unfair either to the dealer or to the purchaser, for no one is obliged to buy this meat who does not wish to do so, while any one who wishes a cheaper class of meat can purchase it at the "Freibank" with the full knowledge of the condition of the meat he is buying. It is perfectly safe to use the meat when thoroughly cooked, and the dealer is able to economize in his business. I take the decided stand, however, that it is far better to subject all these meats to thorough cooking or other methods of safeguarding before they are placed upon the market.

SUMMARY.

1. A well-regulated system of slaughter-houses is as necessary to the public health as is a well-regulated system of schools to the public education.

2. Every slaughter-house is a center of disease for the surrounding country, spreading trichinosis, echinococcus disease, gid, wireworm, and other troubles caused by animal parasites, and tuberculosis, hog cholera, swine plague, and other bacterial diseases.

3. The important factors concerned in spreading these diseases are offal feeding, drainage, rats and dogs.

4. These diseases may be greatly held in check and in some cases entirely eradicated in two ways: 1. By a reduction in the number of premises on which slaughtering is allowed, on which account it is urged as all important that there be a segregation of the slaughter-houses, so that all the butchers of any given town will be compelled to do all their killing in a common inclosed and restricted area. In abandoning slaughter-houses, care should be taken to destroy the rats, in order to prevent the spread of infection. 2. By regulating the factors concerned in spreading the diseases: *a*. Offal-feeding should be abolished; *b*. Drainage should be improved; *c*. Rats should be destroyed; and, *d*, dogs should be excluded from slaughter-houses.

5. A licensing of slaughter-houses by the State Board of Health and the employment of an assistant State veterinarian, whose sole or most important duty shall be a sanitary supervision of all places where animals are slaughtered for food, are necessary.

6. The appointment on every local board of health of a competent veterinarian, whose duty it shall be to control the class of meat placed upon the block, is urged. All meats should be inspected at the time of slaughter, thus securing for the local consumer the same guaranty that the National government provides for the foreign consumer and for interstate trade.

7. The prohibiting of the rotting of any kind of stock within the premises of slaughter-houses is advised, as are also State regulations to the effect that when a stock animal (horse, of course, accepted) once enters the premises of a slaughter-house it must never be allowed to leave those grounds alive, but must be slaughtered within two weeks' time.

8. In justice to butchers and as a protection to the consumer, I strongly advocate the introduction of the German "Freibank" in connection with every municipal slaughter-house.

SOME PREVALENT DISEASES OF DOMESTIC ANIMALS IN MARYLAND.

Dr. A. W. CLEMENT of Baltimore, read a paper on "Some Prevalent Diseases of Domestic Animals in Maryland." He said: Tuberculosis is very prevalent among the cattle of Maryland at this time. Such cattle should be dealt with in a manner which will protect the public from the possibility of infection. No one appears to have this matter in charge, hence there is no means to prevent the use of the milk from these cows, or the meat when offered for sale by the butcher. When we have so sure a method of diagnosis as tuberculin by which to detect the presence of tuberculosis in cattle, it should be made the duty of some one to take the proper steps to protect the innocent public. Rabies exists in the State to a much greater extent than has been supposed. It is a distinct disease propagated only by inoculation. Hence it can not spread unless introduced by some one animal afflicted with it. Legal enactments should be resorted to which will enforce that kind and character of cure necessary to eradicate the disease. A proper dog law would largely assist in preventing the spread of rabies, since the dog is one of the most active to spread it. Many horses have been killed by a disease said to be cerebrospinal meningitis, but the queer thing about it is that there are no cerebral symptoms or spinal lesions present. It has been supposed that weeds of different kinds had much to do with the disease, but this has not been proven. It is, however, extremely fatal. It affects horses in the stables, in the fields, in winter and in summer; but probably is more prevalent in the former.

In the discussion which followed, Dr. AUGUST STABLER of Montgomery, advocated a law to prevent the spread of tuberculosis, and mentioned instances where cattle evidently diseased were sold in spite of every effort to bring the vendor to a proper idea of the injury he was doing.

Mr. CHAS. HARTSHORNE also of Montgomery, said they had made somewhat of a study of rabies down his way, and could now tell whether a dog is mad or merely indignant. When the former is the case he runs with his tail hanging loosely down; when he is indignant it sticks straight out behind; when he is frightened it clings close between his legs.

Dr. A. C. ABBOTT thought that special licenses for dairymen would aid in the work of inspection and prevent the sale of diseased milk. Every safeguard should be thrown around the milk-supply, as it was liable to produce disease at the fountain head among the children.

Dr. S. S. MAYNARD of Frederick, read a paper on "Hog Pens and Slaughter-houses in Towns." He depicted at some length the dangers to public health from the carelessness with which these were kept; the general filth surrounding them; the wretched condition of the cattle in many cases; the feeding of diseased offal, etc., to pigs, thus conveying more disease through them to other animals. Such a condition should not be permitted. It would be better to have a few abattoirs in place of the numerous miserably kept places in which animals were killed to be made into food for men.

Among those who took part in the discussion which arose on these papers was Mrs. Fendler, an active member of the Woman's Health Protective Association of New York. She gave a history of the excellent crusade in New York City against a badly conducted slaughtering system, and detailed the success which attended their efforts.

At 3 P.M. on Friday the Association again convened, and a paper was read by Dr. W. D. THOMAS of Baltimore, on

SANITARY CONDITION OF THE PUBLIC SCHOOLS OF BALTIMORE.

His attention was largely given to the outhouses attached to each school. Without exception they were found to be most unsatisfactory and deserving of the most severe condemnation. He thought particular attention should be paid to the overcrowding which exists in many of the schools. Rooms arranged for forty pupils are required to accommodate sixty or seventy at the expense of the health of both teachers and scholars. Proper ventilation is not possible in many cases owing to the close proximity of the water-closets, and the methods employed for changing the air in many instances is simply that of lowering a window above the head of some child, who suffers thereby, in many cases admitting the foul air from a contiguous water-closet to so great an extent that it became necessary to close the window spcedily. The result of his inspection showed conclusively that the school-rooms are not properly cared for. Floors are washed but three times a year, and inside painting not done until absolutely necessary; as a consequence, many of the rooms have a besmeared appearance. He suggested that an inspector be appointed, not burdened with the care of other buildings to have charge of the sanitary condition of the buildings and surrounding grounds. To these duties might be added the inspection of suspected infected children and to follow cases of disease existing in the homes of pupils.

The subject was continued by Dr. S. J. FORT of Ellicott City, who read a paper on

OBSERVATIONS ON THE HYGIENE OF THE PUBLIC SCHOOLS OF HOWARD COUNTY.

He said: No matter how wide-awake or up-to-date a board may be, the bucolic mind is still apt to think that what was good enough for the children of the past is good enough for children of today. . . From a hygienic and sanitary standpoint there is not one school in the county in which some fault can not be found and many are absolutely unhygienic in *every* respect. A searching investigation, made some time since by the State Board of Health, shows the pressing necessity of a complete remodeling of at least one-half of our school-houses, of providing a pure water-supply for every school at present unprovided, a stricter attention to the law requiring vaccination, a closer attention to quarantining children from families in which there are cases of infectious or contagious diseases, and provision for properly disinfecting the walls, floors and furniture of the schoolrooms.

At present, so far as I can learn, the teacher is permitted to have the schoolroom swept or scrubbed and incidentally pay for this service out of his or her own pocket; hence while it is done, sometimes with ordinary soap and water, it is only in rare instances if ever that scientific disinfection is practiced and, however done, the floor is the only part scrubbed, successive generations of children using the desks from year to year, each year adding its collection of nasal discharges, sputum and general filth to those of years gone by.

A single drinking cup, one solitary brush and comb, piece of soap, wash-basin, etc., render personal cleanliness a misnomer and hampers the efforts of the teacher to bring about the condition that is said to be next to Godliness, at the same time helping along the dissemination of skin diseases and parasitic insects, to say nothing of more serious diseases that may thus be carried from one to another.

In making the investigation already alluded to, the State Board sent out a list of questions to every teacher in the county and while not all of them replied, enough answers were received to show the condition of a majority and a tabulation gives results as follows: Eight schools in four election districts are overcrowded; ten school lots in five districts are badly drained; seven schools in three districts are badly ventilated: ten schools in three districts have a bad water-supply; eight schools in five districts have bad outhouses; thirteen schools in four districts do not require vaccination; two schools in two districts do not enforce quarantine.

Our county is also distinguished by being one of nine exempted by law from having more than one privy; a law passed in 1894 providing that every school should have two privies, one for each sex, properly protected from the weather and perfectly private, specially exempting Howard County with eight others, to the shame of the school board that then or ever failed to cry out upon such an outrage on common decency.

Notwithstanding this exemption some of our schools have two privies, but there are many with only one and, as seen by the tabulated returns, ten outhouses are reported as being in bad order.

We have a law providing for teachers' institutes annually, during which meetings the teachers could be instructed by experts in the laws of sanitation and hygiene, and the teachers of Howard County as a rule are far above the average, needing only to be shown the way to respond at once. We have a law providing for meetings to be held at intervals for the benefit of the patrons of the schools, at which the same information should be disseminated, bringing them into closer touch with the school authorities and providing opportunities for discussion of ways and means to perfect the hygienic and sanitary arrangements of the schools; this law is also a dead letter. The excuse given for the supineness of the school board is that money can not be had to work with, but I question whether an appeal to the people would not bring a response in hard cash, just as much as I question whether a parsimonious and non-progressive board is not equally culpable with one that steals the people's money; the former is robbing the children of the tax-payers of their birthright, the right to receive a thorough education and with it to have their health protected by every safeguard known to man, while the other only steals money.

Mrs. DANIEL MILLER of Baltimore read a paper on

AN INSPECTION OF THE BALTIMORE PUBLIC SCHOOLS.

She said: Investigating the public schools was undertaken as part of last winter's work of the Arundel Good Government Club. Our plan was to visit *all* the primary schools and as many more as convenient, resulting in reports from forty-nine buildings, including thirty-six primaries, five grammar, four annex, two colored and two English-German. Of the 137 buildings now in use, 103 are owned by the city and 34 are rented; most of the rented buildings visited were dwelling houses, not only not adapted to school purposes, but totally unfit to be so used. Some of the school buildings, noticeably the *newer ones*, are in excellent condition. In the old buildings, far too many pupils to the air space of the rooms is the rule throughout the schools and in some of the buildings the overcrowding is a positive disgrace. For instance, in Primary School No. 20 102 boys were found sitting on the floor of the teachers' platforms. In Primary School No. 6, 80 children and two teachers were occupying one room, and in Primary School No. 12 38 children in a room eighteen by seventeen feet. In Grammar School No. 10 (where boys occupied the first floor) 300 girls were packed into the second story of an old building composed of eight rooms, about fifteen by twenty feet each. These rooms open into each other with glass partitions and no corridors between the rooms, making them death-traps in case of fire, and impossible to ventilate.

After the overcrowding, the condition of the outhouses seemed the greatest menace to good health. Insufficient accommodation and insufficient separation is common, while close proximity to the schoolrooms and lack of cleaning makes it impossible to open certain classroom windows even in warm weather.

Provision for the disposal of wraps during school hours vary from large and well-appointed cloak rooms to schools having neither halls or corridors (except the outer one, the rooms all opening one into another), consequently cloak rooms are unknown, and in addition to stoves and human beings, the heavy wraps (often damp, sometimes strongly permeated with home cooking) are piled between the children when sitting at their desks or hung many deep on pegs; certainly a most prolific cause for the spread of contagious disease as well as direct danger to children themselves. Seating of school children at desks properly adapted to them is (so far as the committee was able to learn) not considered. Even in the best equipped schoolrooms there is no adjustable desks and no effort seems to be made to adapt desks of different sizes to the pupils, even where these are provided.

The usual means of relieving thirst is from the hydrant in the yard, and through the winter months uncovered buckets of drinking water are brought to the class rooms with one or two cups to a room probably occupied by forty children. In one or two schools only was it found that each child was supplied with its own drinking cup. Buckets of water were also in the rooms for wetting sponges and slates. Is it not feasible to replace this nuisance with some cheap paper and pencils?

As good housekeepers, the committee was deeply interested to find the ordinance for cleaning school-buildings decrees they shall be swept daily and scrubbed three times a year, midsummer, Christmas and Easter. However this ordinance may have originated, the letter of the law is carried out to the present day, as only one exception to it was found.

There seems to be an unfortunate proximity in many cases of schools to saloons. One report mentions seven within two squares, another six, still another five.

SCHOOL LIFE AND CHILDREN'S EYESIGHT.

Dr. HIRAM WOODS of Baltimore, read a paper on "School Life and Children's Eyesight." In company with Dr. H. Harlan he had made a plan for the examination of the school children's eyesight. This was adopted by the Baltimore School Board. The examination was systematically made, and in 1895-6 53,069 children were subjected to the examination; of these, 43 per cent. had normal vision in each eye, and 17 per cent. fell below that. During the last session 39,241 were examined, 16 per cent. fell below and 52.5 per cent. had normal vision. There is a necessity of a modified curriculum for children with defective vision, but not too defective to permit their getting an education. The number of these children is not inconsiderable. Subjects of every-day use should be taught in such cases. Books with large clear type should be provided. Otherwise they must grow up in ignorance. They should have three hours for recreation, eight hours for sleep, and yet rise sufficiently early in the morning to reach school without being unnecessarily hurried. Blinding and sick headaches are the result of improper light in the school, or not enough light. This is accompanied by pain in the head and partial blindness. The causes are also often the result of other conditions, hence it needs the most guarded examination to enable one to know just what is producing this trouble. He exhibited forms of desks and chairs to show how often the child is wrongly seated, with the desk too high or too low, not a proper slant, etc., not proper support for the back.

In the evening a joint meeting of the Association with the Medical and Chirurgical Faculty of Maryland was held in Levering Hall, Johns Hopkins University. Subject, the "Sewerage of Baltimore."

Dr. JAS. F. MCSHANE, Health Commissioner of Baltimore, read an abstract of his report of the "Sewerage Commission."

The next paper was

THE RELATION OF TYPHOID MORTALITY AND SEWAGE

by Dr. WILLIAM OSLER, professor of medicine in Johns Hopkins University. His text was the trite statement that typhoid fever is the sanitary index of a city. He considered it under three headings. 1. The mortality from typhoid fever has progressively declined with improvement of sanitary conditions. In 1838 in England, 1228 persons died of typhus and typhoid fevers per 1,000,000 living. Twenty years later this was reduced to 918: in 1878 to 306 of typhoid and 36 of typhus; in 1892 only 137 died of typhoid, 3 of typhus per 1,000,000 of living. In London the death rate per 1,000,000 of living was 307 in 1869; in 1892 it was 102. Three factors have been concerned in this extraordinary saving of life, the cleansing of towns, the purification of water-supplies and the introduction of good sewers. 2. The death rate from typhoid fever forms an accurate measure of the efficiency of sewage removal and the pureness of the water-supply. A tabulated statement of the death rate of sixty-five cities from typhoid, during five years, 1890 to 1894, grouped in seven classes, shows in class 1, comprising thirteen cities, the rate was under 10 per 100,000, but contains no American city. In class 7, comprising thirteen cities, the death rate was over 60 per 100,000, and all are in this country except Milan, Cairo and Alexandria. The lesson of several European cities is worth reading. Munich had in 1857, 291 per 100,000 and kept that high until 1865, when there was an improvement in the water-supply and a reduction of almost 50 per cent. After the introduction of the new system of drainage the mortality was still further reduced, and in 1887 was only 10 per 100,000 of the inhabitants. 3. Baltimore has a typhoid fever death rate of a fairly well-watered but unsewered town. During the years 1893-94-95-96, 908 persons died of this disease, a yearly average of 227. Prior to the introduction of a good water-supply the death rate was 74 to 80 per 100,000 of the inhabitants, now reduced to about 41. Good water alone is not sufficient, as shown by the experience of the cities of Dantzig and Stockholm. In the latter the death rate from typhoid fever fell *pari passu* with the number of meters of sewers, from 51 per 100,000 in 1877 with 937 meters of sewers, to 17 per 100,000 in 1887 with 65,709 meters of sewers. We may confidently expect with the completion of a good sewerage system the present death rate of Baltimore, about 40 per 100,000, to fall to that of cities of the first class, from 4 to 8 per 100,000 inhabitants. What does this mean in cold figures? That 204 persons died in Baltimore last year of typhoid fever? The loss to a community of a person in the prime of life may usually be placed at $2000. The total funeral expenses would amount at a low estimate to $5000. About 12 per cent. of those attacked die, so that the total amount of cases of typhoid fever last year in the

city may be placed at about 2500. The loss in wages at $1 per day during the illness may be estimated at over $100,000; nursing and doctor's bills estimated at the low rate of $25 per case, gives $62,500, a year's fever bill of about $575,000 against the city of Baltimore for one disease, a sum sufficient to pay the interest on the most expensive plan presented by the commission. The penalties of cruel neglect have been paid for 1896, the dole of victims for 1897 is nearly complete, the sacrifice will number again above 200. We can not save the predestined ones of 1898, but what of the succeeding years? They will be of the fairest of our sons and daughters; they will not be of the very young or the very old, but the youth in his bloom, the man in the early days of his vigor, the girl just waking into full life, the young woman just joying in the happiness of her home. It is not likely that we can abolish typhoid fever completely, as we have abolished typhus, but we can reduce it to a minimum, and if the experience of other cities is worth considering, this will be effected by the introduction of a complete system of sewerage; and, moreover, the total cost of the plan, however elaborate, however costly, would be fully reimbursed in the course of a few years by the saving of life and of unnecessary expense in typhoid fever alone.

Prof. Wm. K. Brooks of the University, delivered a lecture on the

INFLUENCE OF CRUDE SEWAGE UPON ANIMAL LIFE IN THE BAY.

This was in connection with the adoption of the plan for emptying the sewage into the bay. He gave a description of the oyster and its habits, explaining how it plays the part of a filter, every oyster constantly filtering water through its gills. During this process all organic matter is filtered out of the water by means of the oyster's gills. These microscopic organisms in place of passing through the gills are caught and drawn into the stomach, where they are digested. Very many germs may be found in transit from the gills to the stomach. It has been found that the dumping of sewage in so vast a body of water as the Bay would obviate any danger of contamination through oysters. Many interesting experiments have been made in England to ascertain how long disease germs would live in sea water. It was shown that typhoid fever and cholera germs may live three weeks or more, and may be spread through oysters. The oyster itself is not injured by harboring these germs.

Dr. Geo. H. Rohe of Baltimore, read a paper on

METHODS OF SEWAGE DISPOSAL.

The Doctor alluded to the different points brought out in the Report of the Sewage Commission and said: I have no hesitation in agreeing with the recommendation of the consulting engineers, that despite the greater primary cost of the filtration method, the disposal of the sewage by this method is "the best solution of the problem for all time." Surely the successful experience of the City of Berlin with its 1,800,000 inhabitants is an object lesson worthy of consideration. The Commission has shown, that land in abundance and of the most favorable character for the disposal of sewage, can be obtained within eight miles of the city. The cost of this land as estimated is only about 65 per cent. of that paid by the City of Berlin. With the more scientific construction of sewers now possible, and the exclusion of all storm water, the success of the disposal of the Baltimore sewage by filtration should be much greater even than it has proven to be in Berlin, Paris, or any other community where the method has been adopted.

The estimates of cost, made by the consulting engineers and the Commission, are merely approximative. I am inclined to the opinion, however, that the receipts estimated from the selling of crops from the filtration field in the Baltimore system are fixed at too low a figure entirely. The estimates allow for an income of only $3 per acre from the sewage fields. In 1887-88, the sewage farms of Berlin were partly managed by the municipality, and partly rented to market gardeners in fields of two or three hectares (five to seven and a half acres); the rent obtained was on the average 200 marks ($50) per hectare. The portion of the sewage farms managed by the municipality returned an income nearly the same, there being only ten cents per hectare difference in the receipts between the fields managed by the municipality and those rented. It has been found that not only in Berlin, but in Paris, in Dantzic, and in numerous towns in England, the rental value in sewage farms has constantly increased. I have therefore no hesitation in saying, that the greater primary cost of the filtration system over the dilution system would be to a considerable extent offset by the increased value of the land used for filtration. But it seems to me, that the adoption of the dilution project would be, as it has been in nearly every instance where the conditions were similar to, or approached those in and around Baltimore, an experiment likely to result in failure. The filtration of sewage, on the other hand, is not an experiment, but has been always, where adopted, a permanent and final solution of the problem.

Prof. W. H. Welch of Johns Hopkins University spoke of the relation of sewage to public health. He considered the soil the place which sooner or later all organic matter reaches. It is one of the greatest laboratories in the world, but is only capable of doing this work to a limited extent. Among the dangers from contaminated soil are the gaseous emanations from polluted ground. Another and very serious danger is that of polluting the drinking water. There are various ways in which disease-producing germs can reach us from a contamination of the soil. Typhoid fever, cholera and the diseases of infancy thus almost invariably result. Cholera frequently attacks cities without a proper system of sewage, but has never been able to gain a foothold in cities that are well sewered. Pure water and good sewerage enable a city to defy cholera, etc. Health statistics everywhere give the practical results of a purification of the soil by sewerage. His remarks were well illustrated by a number of charts showing the relative rates of disease and mortality in cities as they were more or less well sewered.

Dr. John S. Fulton closed the discussion with a paper entitled "Will it Pay?" He argued that the expenditure of the amount of money required, would be economic and wise. Cholera cost in 1884, Italy $7,680,000. In 1878, yellow fever cost the United States $100,000,000 and 15,934 lives. The annual tax by typhoid fever is $527,250,000. Typhoid mortality in sewered cities is to that in unsewered cities as 1 to 4.5. He explained the cost of sickness and death from this disease, the loss not only of lives, but time and general health to those afflicted and the loss to the State, and showed that Baltimore would save annually $1,102,215 by reducing the typhoid fever alone to the lowest possible point. This is an annual visitant, not, like cholera, an occasional one. The introduction of a proper sewerage system would positively enable this reduction to be accomplished. At the same time other forms of disease would be reduced and the general rate of mortality be correspondingly lessened.

The subject having been concluded, Dr. G. Lane Taneyhill, Chairman of the Committee on Health of the Commissioners of the Public Schools of the City of Baltimore, spoke in defense of that committee and called the attention of the Public Health Association to the fact that the members of the school board are not responsible for the insanitary condition of the schoolhouses, but that that duty devolves on the health commissioner and the inspector of buildings. He outlined the work already done toward alleviating existing conditions and the difficulties accompanying such work, and said: "How to maintain an educational system that fits perfectly public needs is one of the most important problems that confront the municipal reformer," but to take a dark and ill ventilated, if at all ventilated, old building, and introduce modern sanitary conveniences and improvements is a task in this city that may well puzzle the best informed sanitarian. Many of these antiquated buildings are so deficient in the proper provision for light that Drs. Harlan and Woods, the oculists appointed by the school board to inspect the eyes of the children, were compelled to condemn many of the rooms as unsuitable places for study. Even the proper provision for the general health of pupils at this, the most important period of their young and growing brains and bodies, can not in many of these buildings be made. The contracted space alloted for the yards was apparently only equaled by the contracted appropriations, when many of these buildings were erected. The committee has found it to be impracticable to supply the crying need, "enforced ventilation" in these buildings on account of their faulty construction. This system is the only system now advocated by those who are considered experts in this branch of science; it includes the use of *fans* by which moderately warmed air is forced into the schoolroom in such quantities as to give to each pupil 1800 cubic feet of air per hour to breathe. One member of the committee has seen this system work admirably in New York City. It is highly commended by school commissioner Buckley of that city. In Baltimore we have it in three or four buildings.

In conclusion, Dr. Taneyhill remarked that during the seven or eight months of the existence of the new school board, many other questions had been considered by the committee on health and the board in general, such as a more sanitary manner of supplying drinking water to the pupils, possibly the use of a spigot in each class room; the changing of desks to suit the height of the children by individual measurements; a traveling inspecting committee is now in other cities examining the kind of desks most nearly adapted to the present necessities; the text-book committee had ordered the unclean slates to be dispensed with and have substituted the unglazed paper pads;

the floors have been more frequently washed; the urinal troughs flushed, the privies ventilated as well as possible, and two sanitary inspectors are continually engaged in looking after the immediate wants of the schools as rapidly as is in their power. The over-crowding, the proper lighting, the sufficient ventilating, the proper removal to a sanitary distance of the privies, and the prevention of the proximity of the saloons can best be remedied by a liberal appropriation by the city council for the building of modern sanitary schoolhouses with ample yard space. Today this city is in urgent need of at least fifty such buildings.

PRACTICAL NOTES.

Dyspepsia with Flatulence.—Tincture gent.; tr. valer.; tr. nuc. vom. āā 4.0; chloroform, xx-xl gtt. Ten to twenty drops in water before meals.—*Memorabilien*, January 18.

Sublimate in Erysipelas and Meningitis.—Voskressencsky reports much better results with sublimate in erysipelas than with any other remedy; sixty-five cases. The surface was painted with an alcoholic solution at .5 to 1 per cent.—*Nouv. Remèdes*, January 24.

To Avoid the Trickling of Serous Fluid after Abdominal Paracentesis, Gumprecht applies a small cotton tampon and covers it with a couple of folds taken up in the skin, held in place with adhesive plaster. The skin can be painted first with collodion if desired.—*Therap. Monatsh.*, 1898, No. 2.

Menthol in the Treatment of Varicose Ulcers of the Legs.—Simonelli recommends a powder composed of fifty parts of chlorid of sodium and five parts of pulverized menthol. Both substances should be in the form of an impalpable power, and intimately admixed.—*Medicine.*

For Gastric Cough and Hiccoughs.—A. Robin recommends a teaspoonful every hour of the following, never taking more than a third of the whole during the twenty-four hours: Potassium cyanid, 5 centigrams; syrup of morphin and syrup of orange flowers, āā 75 grams.—*Semaine Méd.*, February 16.

Subcutaneous Injection of Quinin.—Stofella recommends for this purpose quinin muriaticum, which dissolves in water heated to 40 degrees C. (two grams to 10 c.c. water at 40 degrees). There is no local reaction if antiseptic precautions are observed. Dose: One Pravaz syringe, equal to 0.2 quin. mur.—*Wien. klin. Rundsch.*, January 2, *Vide* JOURNAL, January 29, page 268.

Aspiration Treatment of Inguinal Bubo.—R. Hahn reports 70 per cent. out of 200 cases cured by aspiration of the contents of the bubo, requiring no further operation (75 per cent. with one single aspiration). The cavity is then rinsed with salt solution and a gauze pad applied, held with a zinc plaster and compressing bandage outside to reduce the distended skin and prevent the accumulation of more pus. If the deep-lying glands are found to be involved total ablation is necessary, but otherwise aspiration will be found sufficient.—*Mitth. a. d. Hamburg. St. krk. anstalten*, i, 3.

Mechanical Process to Favor the Expulsion of Sputa.—In cases of myelitis in which the muscles of the thorax are paralyzed, bronchial complications prove exceedingly distressing, as expectoration is difficult. Reusner describes a method of relief which can be easily taught to the attendants, and has proved most effective in his practice. The aim is to reinforce the diaphragm and abdominal muscles in their effort to expel the accumulations in the bronchi. The patient on his back, bladder emptied, the attendant on the right side, the latter applies his right hand to the abdomen, pressing progressively downward into the small pelvis, stretching the skin. The left hand is then applied outstretched on the hypogastrium, the pressure sufficient to enable the pulsations of the aorta to be felt. The compression is continued as the patient coughs, and relief is immediate.—*St. Petersb. Med. Woch.*

Prevention of Contagion of Measles.—Ausset asserts that measles is contagious during the pre-eruptive stage, but that contagion can be prevented then and later by destroying the germs in their stronghold, the mouth, nose and eyes. He uses for the purpose copious irrigations twice a day with two quarts of fifty per thousand solution of Labarraque's solution, with boricated water for the eyes, although he admits that a spray of mentholized oil might be equally effective. Six cases thus treated at the hospital were not followed by any contagion, although they were not isolated in the least, but mingled freely with the other children.—*Nord. Méd.*, v, 81.

Formalin Disinfection of the Field of Operation.—None of the disinfectants in vogue reach and destroy the germs that have penetrated below the surface of the skin, and yet these are a frequent cause of infection. Professor A. Landerer reports that he has succeeded in securing absolute bacteriologic asepsis with a 1 per cent. solution of formalin applied on an air-tight compress, after the usual preliminary toilet, and left from twelve to thirty-six hours, changing once or twice. The vapors penetrate and kill the germs in their remotest strongholds, and perfect prima intentio is secured.—*Cbl. f. Chir.*, February 26.

To Locate Foreign Bodies by Radiography.—Morizes secures extreme accuracy with four small adhesive discs of lead. The patient placed between the tube and the screen, one of the discs is placed over the spot where the foreign body is seen, and another on the side toward the screen in a straight line with the first disc and the foreign body, so that all three cast but one shadow. The patient is then turned at an angle and the two other discs are applied in the same way on another straight line, also passing through the foreign body. The intersection of the two lines locates it with precision.—*Presse Méd.*, February 12.

Improved Local Anesthesia.—The Oberst method of anesthetising fingers and toes, described in the JOURNAL, February 26, page 496, has been found equally applicable to operations involving the entire hand or foot, and is urgently recommended by Kraske-Manz in the *Cbl. f. Chir.* of February 19, who report several cases operated, including some serious cases of metatarsal carics, requiring an hour's work, with the removal of the toes, metatarsal and cuneiform bones. The blindfolded patient conversed quietly, feeling nothing of the operation, but two to three minutes after the ligature had been removed, could feel the slightest touch on the toes. A 1 per cent. solution is used; 0.02 to 0.025 gram, to 0.05 to 0.06, but Manz suggests that possibly a stronger concentration might shorten the fifteen to twenty minutes waiting time. He adds that possibly the compression of the nerve, stagnation of the blood, etc., may all be factors in the anesthesia secured, which he believes is even applicable to an entire limb.

Operations to Remove Syphilitic Cerebral Tumors are justified, Schlesinger asserts, when the tumor is stationary and does not yield to antisyphilitic treatment, easily accessible and presumably of small extent. An operation is especially indicated if the tumor grows worse, unchecked by specific treatment, or if Jacksonian epilepsy develops, even if the tumor retrocedes. He considers it counter-indicated by the presence of basal or extensive spinal syphilis, extreme weakness, or amyloidosis. He describes a case operated on with the rare symptom of isolated paralysis of the hypoglossus unaccompanied by paralysis of the facialis. The gumma was in the dura, on the left central convolution, the size of a "gulden." During the removal the right facialis twitched and the right half of the thorax did not join in the act of respiration. There was hernia of the brain later through the drain opening, and right hemiplegia, which gradually subsided. He concludes by urging the necessity of sparing as much of the cortical tissue as possible, to prevent permanent paralysis.—*Wien. klin. Woch.* January 27.

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SATURDAY, MARCH 26, 1898.

SOME MEDICAL QUESTIONS OF A POSSIBLE WAR.

Now that war talk is rife and it seems a little more than merely possible that the "dogs may be let loose," to use a well worn figure of speech, it is in order to consider certain medical problems that are inevitably suggested by the state of affairs. If we are to be rushed into a war with Spain at the very close of the healthy season on the island of Cuba, it would appear probable that hostilities will either have to be limited to the sea or if carried on by land will be complicated with some very serious sanitary questions, at least during a portion of their continuance. What naval warfare will be with modern ships and guns is very largely a question for the future to decide, the little experience gained by a single engagement in the China-Japan struggle hardly being enough for any one to generalize from to any great extent. One thing seems probable, that is that the mortality will be either slight or very great, that modern naval ironclad vessels will be very likely to either fairly protect their crews or prove their coffins. There will not be, or should not be the splintering of wood that in the old-fashioned oak-built ships contributed so largely to the minor and sometimes the major casualties of a naval engagement. There may be, however, more than an equivalent in flying bolt heads and rivets and splinters of steel, and the danger of fire where there is anything combustible to burn is enhanced by the tremendous heat produced by the impact of modern projectiles on resisting armor. There has been only one person who has given a graphic account of his experience in a large modern ironclad under perhaps exceptional conditions of exposure to the fire of modern high powered artillery, and he shortly after died, insane apparently from the effects of the shock to his nervous system. This is a factor also to be reckoned with; it may be not a very serious one on the whole, but this also is one of the medical problems the future will have to decide. Judging from the war game as played by naval officers in their schools of instruction in naval tactics, the anticipated ratio of casualties in loss of ships and lives must be very large.

It is not, however, alone in the matter of great-gun performances that we meet with questions of medical interest; the small-arm wounds in a future war may also present us with some new experiences and raise new questions for military surgeons and sanitarians to consider. It is well known that nearly all civilized nations have within the last few years reduced the caliber of their military rifles so that at the present time it is hardly greater than that of the despised "22" pistol, of which a Western pioneer remarked that if any one shot him with it and he ever found it out he would give him a good thrashing. The modern steel-coated bullet has within certain ranges a tremendous effect on certain parts of the body, but in a very large proportion of cases, probably a majority, the immediate effects of the wound it produces are slight. In a strike riot in England not very long ago a miner was shot in the fleshy part of his leg and was entirely unaware of it till, after all was over, he felt a slight irritation that led him to realize that his limb had been completely penetrated by a bullet. The English troops on the Indian frontier found the Lee-Mitford bullet altogether inefficient to stop a charge of fanatical mountaineers, and learned to make them more effective and infinitely more deadly by filing off the steel point. The Indian government taking the hint, invented the Dum-Dum bullet with a soft point which strips off its steel cover and makes a fearfully ragged wound, and is virtually an equivalent to the explosive bullet prohibited by the Geneva convention. Russia is said to have recently adopted a similar projectile, and if this becomes general the wounds of future wars will be more formidable than ever before. The English government seems to be aware of this fact, and has devised a bullet to obviate some of the objections that would be surely raised were she to introduce her Dum-Dum projectile in any conflict with a civilized nation. It is steel cased throughout but has a cup-shaped depression instead of the soft point; it is said to "set up" a little and sometimes split its casing, but this, it is claimed, is a very different thing from the effect of the Dum-Dum projectile or of explosive bullets generally. What Russia will do is yet to be seen, but her reported adoption of the soft-point bullet is a relapse toward barbarism, and if allowed to go without protest will do much to render nugatory all the humane regulations that have been adopted by international agreement to mitigate the

horrors of war. Even the proposed English "Mark III" bullet suggests strongly a modified "express" projectile intended to make up for the small caliber and to aggravate the effects on the victim. It is a serious question whether there ought not to be a new Geneva convention to re-regulate these and some other matters, when civilized nations seem to be trimming their course dangerously near the limits of savagery.

In any case military and naval surgeons of the next war, whenever it may be, will have to face some new problems. The effects of modern projectiles, and the care of the wounded in naval actions, are two of the most obvious of these, but perhaps others as yet unforeseen may arise that will sink these into comparative unimportance.

In the question now at issue in a case of hostilities the sanitary problems on the Island of Cuba will be many and full of interest. The march through Spain from Cordova to Madrid will no doubt furnish much material of interest for the medical historian.

SEXUAL DIFFERENTIATION AND THE PROCESS OF FERTILIZATION IN THE HEMATOZOA.

A brilliant investigation into the biology of certain hematozoa infecting several species of our American birds, especially the common crow, carried on in the clinical laboratory of the Johns Hopkins Hospital, by MACCALLUM and OPIE, and recorded in detail in the current number of the *Journal of Experimental Medicine* (Volume 3, No. 1, 1898), has lead MACCALLUM to make certain observations upon the sexuality and the sexual processes of these parasites which promise to be of far-reaching importance in solving the problems surrounding these biologic phenomena in various hematozoan species, including the organisms of human malaria. The three papers in which these writers describe their studies in avian malaria are valuable contributions to the comparative pathology of hematozoan infections and are well worth careful consideration. The balance of the work is, however, eclipsed in MACCALLUM'S second paper ("On the Hematozoan Infections of Birds," *loc. cit.*, pp. 117–136) which contains the account of those processes interpreted as sexual in character.

In patiently studying the various forms presented by *Halteridium* (the most common species in crow's blood) MACCALLUM differentiated two distinct kinds of intra-cellular parasites, a granular and a hyaline variety. It was found that the granular forms never became flagellated, while the formation of flagella was constant in the hyaline bodies. The process of flagellation was carefully watched in the hyaline forms, in which four or more of these motile appendages were suddenly projected from the body of the spherical mass after it had burst from the confines of the enclosing red blood corpuscle. As other observers have noted, the author also found that the flagella ultimately became detached from the mother cell and swam about freely in the blood plasma. Pondering upon the phenomena presented by the varying forms of this parasite the idea that some of them might signify more than mere polymorphism finally led to the observation best described in the author's graphic language: "Two forms lay at some distance from one another separated by plasma and a few corpuscles. The granular form happened to escape from the corpuscle first and lay perfectly quiet beside the free nucleus and the shadow of the corpuscle. Soon the hyaline body, becoming greatly agitated, burst from the corpuscle and threw out active flagella, which beat about for a few moments and finally tore themselves loose. Then came the acme of the process. One of the four flagella passed out of the field, but the remaining three proceeded directly toward the granular form, lying quietly across the field, and surrounded it, wriggling about actively. *One of the flagella, concentrating its protoplasm at one end, dashed into the granular sphere, which seemed to put out a process to meet it, and buried its head, finally wriggling its whole body into the organism, which again became perfectly round.*" This process was repeatedly verified by the author and by other workers in the Johns Hopkins Hospital, among whom may be mentioned WELCH, THAYER, and BARKER.

It is scarcely possible to contemplate the picture thus accurately drawn by MACCALLUM and not approve in his view that the whole phenomenon is a sexual one, that the granular parasite is the female and the hyaline the male organism, that flagellation is a form of spermatogenesis, and that the final act is nothing more nor less than a sexual fertilization. The only wonder is, now that the whole matter is so lucidly set before us, that the true interpretation should have been so long delayed. It is, however, a matter of patriotic pride that this important discovery should have been made by an American student of medicine, working in an American laboratory.

Since completing his studies upon the avian hematozoa, MACCALLUM has been so fortunate as to discover, in a case of estivo-autumnal malaria in a woman, essentially the same process as was noted in the crow's blood. The malarial crescents were seen to become spherical, one form flagellating, the other remaining quiescent. The flagella were thrown off, and swarming about the quiet sphere the act of fertilization ensued essentially like that noted in *Halteridium*.

Thus it seems that we are at last to have set at rest the mooted points in the biology of the malarial hematozoon which have centered about the crescentic and flagellate forms of the parasite. Naturally these intensely interesting investigations have not disposed of all the problems in the life history of the hematic

sporozoa, but a new impulse has been given which can not fail to be fruitful in its results.

These very important researches furnish another instance of the value of comparative pathologic and experimental methods in connection with the investigation of human diseases.

POST-GRADUATE LECTURES AT HOME.

Many Eastern medical societies have adopted a new plan of increasing their membership and the interest in the meetings. Once a month, or at longer intervals, they invite some leading physician or specialist who has become expert on some topic to give them a lecture, of an hour or less, and then resolve themselves into a general meeting, in which each one becomes a tutor, or inquirer. These are called post-graduate courses at home, where the lecturer comes to the physician, and are becoming very popular in many sections. Prominent medical men, who have made a special study of some topic, are pleased to address medical societies on their favorite themes. As a gratuity their expenses are paid, and they are entertained by the society. The society in this way is enabled to hear the best men and the most advanced studies along new lines, at a trifling cost, and the society becomes the center of new interest, in which all participate. Physicians in Philadelphia have been very generous, and encouraged the country and outside city societies to invite them to their meetings. The result has been very helpful to both the society and the lecturer. Boston medical men have been prominent for years in accepting all invitations of this kind and many Eastern societies boast of having heard at home all the leading medical men of Harvard and other Boston schools. New York and other large cities, have not been so prominent in this field, probably because the country and inland societies, have not the same interest. As an example of the practical working of this new feature of society work, the following is given. The B. city society, nearly a hundred miles from Boston, had six lectures in 1897, from leading physicians in Boston and elsewhere. Two were surgical topics with illustrations of cases; two were on therapeutics, new remedies and means of treatment; one was on rheumatism; and the other on fevers. The society paid, in traveling expenses and entertainment, $81 for these lectures, and, as the membership was over one hundred, the individual expense was less than a dollar each. The lecturer had an opportunity of addressing a class of practical hard-working men at their homes, enlarging his acquaintance, and usually securing consultations, and above all having a good opportunity to test the value and acceptance of his personal views and teachings. The society also had the pleasure of hearing the leaders in the different lines of study, and of having some measure for comparison of their own attainments. The results have been an increased interest in the society meetings, and a larger attendance with more care in reporting cases, and better papers read. Some of the subjects have caused a great deal of study and dissensions. The lecture on rheumatism was followed by two interesting meetings on this topic.

This is clearly a most practical advance for all local medical societies, and can be followed up almost indefinitely, with the best results. The tendency to egotistic provincialism would be checked, and each society would have new interest to gather and exchange experience.

Nearly all the leading men in the profession would take pleasure in meeting local societies, and giving them the result of their work. It would be far more practical for all medical men to have lectures on their daily work, and become familiar with the advanced studies of leading men, than to subscribe to literary lectures and concerts. Every society of twenty or more members could secure four or five most practical lectures during the winter, at a cost but little more than an ordinary ticket to the theater. Not only the society but each individual would receive great personal advantage from it.

CONCERNING THE PARATHYREOID GLANDS (SANDSTRÖM), OR THE EPITHELIAL BODIES OF THE THYREOID (KOHN).

The presence of isolated glandular bodies in the neighborhood of the thyreoid gland has long been known. Up to the year 1888 all such bodies were described as accessory thyreoid glands, or as masses of lymphadenoid tissue. By accessory thyreoid glands are to be designated nodules of thyreoid tissue which at some time of development became separated from the main part of the gland, but still appear to be structurally similar to it. The accessory thyreoid glands are inconstant as to occurrence, and are marked by great uncertainty as to position. They have been found at all levels, from the superior hyoid region to the aortic arch.

The parathyreoid gland is a term applied to independent structures remarkably constant in number and position, which at no stage correspond in structure to the thyreoid gland, and which appear to have a function of their own.

These structures, although in all probability noticed by previous observers, as for example VIRCHOW, were definitely discovered by SANDSTRÖM in 1880,[1] who found that man and several other mammals possessed small epithelial glandular organs near or in the thyreoid. In man he described two parathyreoid glands on each side on the posterior surface of the lateral lobes, near its lower margin, one above and one below the inferior thyreoid artery. They were invariably separated from the thyreoid by a layer of connective

1 Upsala Läkareforeningens Förhandlingar, 1880.

tissue. The histology of these bodies varied somewhat, but it tended to conform to one of the three following main types: 1. A condensed mass of epithelial cells, traversed by a capillary network; 2, a cellular reticulum, in the meshes of which were blood vessels and connective tissue; 3, small follicles in a connective tissue framework. D. A. WELSH[2] has been able to confirm these observations as far as they relate to the human parathyreoid, and he emphasizes strongly the position and accuracy which characterized SANDSTRÖM'S earliest description of these structures in man.

SANDSTRÖM ventured the conjecture, based upon purely anatomic reasons, that the parathyreoids were embryonic remnants of the thyreoid, destined to form fresh thyreoid tissue when required.

In 1895 KOHN[3] published an extended study of these glands in the cat and other animals. He made the important addition to SANDSTRÖM'S work that there are constantly present two parathyreoid glands on each side in the cat, dog and rabbit. Previous observers had recognized only one on each side, and the significance of KOHN'S work is therefore at once obvious, because these animals were the ones chiefly employed for experimental research. He insisted that they are structures morphologically and functionally independent of the thyreoid, and he therefore proposed that they be called the epithelial corpuscles of the thyreoid, distinguishing them further as external and internal according to their relation to the lateral thyreoid lobes. L. R. MÜLLER[4] in 1896 examined the thyreoid and adjacent glands in twenty-two cases in man. His results agree in the main with those of KOHN, but he states that he could not estimate the frequency of their occurrence in man as he found they were easily overlooked.

It has long been observed that various species of animals present striking and unaccountable differences after extirpation of the thyreoid, and this may occur even in the same species. It was thought that these variations corresponded to differences in metabolism in different animals. Flesh-eating animals seemed to suffer most acutely, while the herbivora suffered less, the omnivora occupying a middle position. In 1891 GLEY[5] began the publication of a series of papers in which he offered a different explanation. He pointed out that in the rabbit the external parathyreoid is quite distinct from the thyreoid and situated about .5 cm. below it, whereas in the dog the parathyreoid was closely connected with the thyreoid. He investigated the effect of removing both the thyreoid and the parathyreoid in the rabbit, and out of sixteen rabbits only two survived beyond a week. The remaining fourteen showed a rapid train of symptoms and fatal result. By the end of 1893 GLEY had performed complete thyreoidectomy in fifty-five rabbits and only twelve survived. He then showed that in some animals, even the dog, it is possible to remove the thyreoid and leave the external parathyreoids intact. He describes this delicate operation in ten cases, and of these only two died. Subsequent removal of the parathyreoids in the same dogs led to their rapid death. Since that time these results have been contradicted by some investigators, supported by others. Among the more important of the researches bearing upon this point may be mentioned those of VESSALE and GENERALI,[6] who removed all four parathyreoid glands, leaving the thyreoid *in situ*. They performed this operation on ten cats and nine dogs. In the cats nine died before the tenth day, after suffering from the characteristic symptoms ordinarily observed after thyreoidectomy; of the nine dogs all died within eight days.

It may be concluded that at the present time no definite statement can be made concerning the functional importance of the parathyreoid glands. Experimental physiologists are still hard at work attempting to demonstrate the relation of the functions of the parathyreoid to the thyreoid body. In the meantime it is well to bear in mind the existence of these peculiar epithelial bodies, now that the study of the thyreoid and other ductless glands is attracting so much attention, because it may be found that these bodies, which are constant, embryologically and structurally different from the thyreoid, may have important functions, the exact nature and the relations of which to those of the thyreoid are as yet not understood.

2 Journal of Anatomy and Physiology, 1898.
3 Arch. f. mikr. Anatomie, 1895.
4 Beiträge zur path. Anatomie, Ziegler, xix, 1896.
5 Archives de Physiologie, 1892–3.
6 Archives italiennes de biologie, 1896.

THE WEEK IN CONGRESS.

The sanitary bills have been up for consideration in the Senate. Senators SEWALL of New Jersey, VEST of Missouri, and others took part in the debate. Senator SPOONER on the 16th submitted anew his bill, this time, in order that it may be properly reached, as an "Amendment" to the CAFFERY bill, which action gives it place equal to that of the committee's amendment, which, as will be remembered, struck out all after the enacting clause, etc., etc.

The Marine-Hospital lobby have been active, as also the Mississippi auxiliary, with Acting Assistant Surgeon ROBBINS, M.-H.S., of Vicksburg, at the fore in the interest of the CAFFERY bill. Dr. DOTY, Health Officer of New York, and Dr. WINGATE of Milwaukee, Chairman of the ASSOCIATION Committee, have also been present much of the time, and have advocated the passage of the SPOONER bill, which has daily gained friends as its scope and extent become better understood. Let us understand that the CAFFERY bill is a quarantine bill, and nothing more; the SPOONER bill is a broad sanitary bill commensurate

ith the importance of the subject and the great nterests involved. The latest information we have ceived is, that the CAFFERY bill is practically dead, ut our friends must keep pounding its corpse. Then nere will be no question about it.

CORRESPONDENCE.

The Serum Treatment of Tuberculosis.

ST. LOUIS, MO., March 21, 1898.

To the Editor:—I have read with great interest Dr. Waxam's "Report of Cases of Tuberculosis treated with Antihthisic Serum, T.R. (Fisch)." It is well that all sides of this ubject should be presented, as only by the collective investiation of numerous observers working independently, in differnt places, and under diverse conditions, can any satisfactory ecision be arrived at. With that end in view, Messrs. Millien & Co., have been consistent in impressing on all users of ne serum (Dr. Waxham himself not excepted), their desire nat reports of cases should be made to the medical press, whether the results be "good, bad, or indifferent." While eports favorable to the serum can not fail to be gratifying, nose of failures are equally important, as a means of drawing ttention to sources of error on either side.

On reviewing Dr. Waxham's cases, it appears to me a very ood thing that he has published them, since they serve as a ood text wherefrom to preach more efficaciously what has een laid down *ad nauseam*, viz., that so far as our present nowledge goes, no good whatever can be with any confidence nticipated from the use of the serum in cases in the third stage f the disease, nor even in the late second stage, especially if hey show mixed infection.

Now, in no case does Dr. Waxham state whether the examintion of the sputum showed the presence of other microrganisms than the tubercle bacilli in any appreciable numbers; ut it is a fair inference from the clinical reports, notwithtanding the absence of temperature records, that there *was* ixed infection in cases 2, 3, 4, 5. 6, 7, 9 and 10; while not a ingle case is in the first stage, and only No. 8 (apparently), and ossibly No. 1 in the second. So far therefore, from their eing, as Dr. Waxham states "fair ones with which to judge he value of treatment," they are nearly all excluded *ab initio* rom that category.

In proof that this is no *ex post facto* objection, I may state hat I have recently returned from a tour of hospitals in the ortheastern States, where I have had the privilege accorded ne in many of them of selecting for experimental treatment vith the serum the most suitable cases available. I am sure hat these members of the visiting staff, say of the Massachuetts General, the Carney and the City Hospitals in Boston, the Montefiore Home, the Columbus, City and Seton Consumptive Hospitals in New York, with whom I come into contact, will ear me out from their own personal knowledge, when I say hat the only case I should not have at once promptly rejected s utterly unfitted for serum treatment from among the ten resented by Dr. Waxham, is No. 8. Of Case No. 1 I can not peak positively, owing to the meager report of physical signs, emperature, etc., given.

I wish here to point out that no clinical records are of any alue which do not describe in detail the physical signs and onditions found. I was always taught, and by no less an uthority than Sir William Broadbent, in recording clinical ases to give the details of the signs as found, leaving the eduction as to their significance to be made by the reader. Dr. Waxham has reversed this practice, giving only his deductions, nd leaving the physical signs, etc., to be inferred. Every man as, of course, a right to his own method; but I must own that to me the former seems far the more scientific, and when the subject is of a controversial nature, the more satisfactory.

In concluding, Dr. Waxham says: "It is possible that in incipient cases the A.P. serum may overcome the disease." As that proposition was clearly laid before Dr. Waxham at the outset as the extent of the claim, I fail to see why he should have tried to prove that it could not do what was never claimed that it could. He proceeds: "If it can be proven to be effective in early cases, thus preventing the necessity of a change of climate, it will indeed be a blessing to mankind." To this we can all agree; I will go further and add that without disparaging climatic, hygienic, nutritional and other modes of treatment, all of which can render valuable aid *where available*, we may reasonably propose for investigation the question whether serum treatment is not quicker, more certain, and more permanent in its results, even though it be conceded that such results are at present attained with more or less frequency by the methods above referred to.

What results may later be gained in cases with disintegrating or mixed infective processes (viz., all third stage and *late* second stage cases) by improvements in the serum, or by its alternate administration with anti-streptococcus serum, remains to be shown. But at present we reaffirm as rules for the selection of cases for treatment with the antiphthisic serum T. R. (Fisch):

1. It is *not* recommended to be used with any anticipation of good results in *any* third-stage cases.

2. It is *not* recommended in any *late* second stage cases, i.e., with breaking down of tissue, especially if there be "mixed infection."

3. It *is* recommended in the so-called "pretubercular" stage, in the first stage, and in the early second stage prior to disintegration; and in these alone.

4. Finally, its advantages if it be proved to possess any, over climatic, hygienic, nutritional and other methods, will be found to lie in the attainment of results more quickly, more certainly, more permanently, and without the necessity of measures which in a very large proportion of phthisical cases are unattainable.

If Dr. Waxham's paper helps to fix these points in the minds of prospective users of the serum, it will not have been published in vain; for it shows conspicuously "what *not* to do," which is oftentimes far more instructive than the converse.

Yours respectfully,

KENNETH W. MILLICAN, M.D., B.A., M.R.C.S.

Oxytuberculin.

SANTA CLARA, CAL., March 15, 1898.

To the Editor:—In the JOURNAL of March 12, 1898 (p. 621), Dr. J. O. Hirschfelder writes of "Oxytuberculin." In his article he states that "it was and is my desire that the doctrine of the curative effect of oxidized toxins should be most skeptically investigated, etc." That is just what I have been doing. The more I investigate the more skeptic I become, especially as regards "oxytuberculin." As to the Doctor not having "entered upon the field of animal experimentation, but limiting my work entirely to the clinical and bacteriologic sphere, etc.," I beg leave to call Dr. Hirschfelder's attention to plate 1, page 268 of the "Transactions of the Medical Society of the State of California" for 1897. This plate shows a dog upon whom the Doctor claimed to have experimented. The same plate, or one purporting to be the same, appeared on the first page of the *Daily Examiner* of San Francisco, Oct. 25, 1897.

Dr. Hirschfelder labors under a grave misapprehension as to my place of abode. Instead of a small village I live in an incorporated town of 3300 inhabitants. The town and surrounding country afford an excellent field for general practice. Again, I must beg to correct the erroneous statement that "he

has had some unpleasantness with a medical gentleman who is using oxytuberculin with most excellent success in Santa Clara." I have never an unpleasantness with a medical *gentleman* in my life. "Oxytuberculin" is being used "with most excellent success" financially, we presume. However, I challenge Dr. Hirschfelder or anyone else to produce a resident of the town of Santa Clara who has been positively cured of tuberculosis by "oxytuberculin." I want the diagnosis and cure above the suspicion of a doubt. There have been a number of cases here in which the disease terminated by death. I understood that "oxytuberculin" had been tried in these cases.

In one case which I have seen, and in which it is averred Dr. Hirschfelder examined the sputum a number of times before finding the tubercle bacilli, and then but a "few," there is a grave doubt in the minds of several reputable practitioners as to whether or not there is or ever was tuberculosis. There is evidence of an old pleurisy, a heart lesion and an aneurysm in the vicinity of the left common carotid artery. There is no hectic, expectoration or other important symptom which proves the existence of tuberculosis. Oxytuberculin was tried for a time with the result that the patient lost many pounds of flesh according to her own statement. After a cessation from the use of "oxytuberculin" she regained some flesh. Treatment directed toward the amelioration of the symptoms due to the aneurysm has made the patient much more comfortable than she had been in weeks.

As to the county hospital cases, I must say that I do not think that a full-fledged case of tuberculosis could subsist on thirteen cents a day very long. I think the diet rather than the oxytuberculin cut short those cases. The marvelous results which seem to have been claimed, have in one instance at least occurred in a patient said not to have been "expected to live a week;" I would ask the Doctor if this was an "early stage case."

I wish to call attention to the fact that the case or cases about which I wrote were in my own town and not under Dr. Hirschfelder's immediate care. I do know something about these cases. More than that, I have read the Doctor's reports of cases, and I must say that I do not think very many medical men are likely to know much about his cases from his reports, as they seem to be made up mostly of assertion and very little data of positive value.

I agree with the learned Doctor that "there should be no mud-throwing in the temple of science." However, in the pseudo-temple of science in which he would seemingly enshrine himself and "oxytuberculin," he must be responsible for what takes place. He has invited criticism and "skeptic investigation" and must not be dissatisfied or angry if such criticism comes from "a small village some fifty miles from here," or from a fair-sized municipality like Paris, for instance, some thousands of miles from here. I would beg leave to observe that the country practitioner is quite as apt to be skeptic and think for himself as is the metropolitan practitioner. In fact, the "country doctor" does not seem quite so much given to fads as his more or less fortunate city brother. Yours respectfully,

E. H. SMITH, M.D.

State Board Examinations.

FRANKLIN, KY., Feb. 22, 1898.

To the Editor:—Will you be kind enough to publish the names of all the States that require all graduates to stand an examination before the State board before they can practice?

Yours truly, W. A. GUTHRIE, M.D.

ANSWER.—Alabama, Arkansas, Florida, Maryland, Minnesota, Mississippi, New Jersey, New York, North Carolina, North Dakota, Pennsylvania, South Dakota, Texas, Utah, Virginia and Washington. *Vide* JOURNAL, Vol. 22, p. 354.

Let us defeat the Antivivisection Bill!

NEW INSTRUMENTS.

A NEW RECTAL SPECULUM.

BY THOMAS CHARLES MARTIN, M.D.
CLEVELAND, OHIO.

The instrument which is the subject of the following description was briefly described in the July (1896) number of the *Cleveland Medical Gazette*. It is now being quite extensively and, I regret to say, defectively manufactured. The italicized paragraph points to the defective features of many of the specula to be found at the shops. If this feature is not made to operate precisely as designed the instrument can not be manipulated with one hand unaided.



Figure 1.



Figure 2.

This two bladed speculum is designed especially for use on the rectum. The form and dimensions of the blades have been planned with a particular consideration for the dimensions and form of the parts upon which they are to be used. The blades proper are two inches (5 cm.) in length, they are very shallow and their edges are given a pronounced inward turn; their acorn-like initial extremity contributes to the instrument's

facility for introduction, while at the same time especially qualifies it to be self-retaining. The inturned edges of the blades permit of easy rotation when in the bowel. The shallowness of the blades provides for the greatest possible exposure of the walls of the rectum when the blades are separated. The length of the blades has been determined by a consideration for the depth of the neck or lower contracted fixed part of the rectum. The blades are set at the ends of long outreaching and descending arms, a feature which gives much satisfaction when the instrument is in use. The length and curves of



Figure 3.

these arms afford four positive advantages; lying close along the surface of the nates, as they do, these parts are held aside; the blades are buried in the anus, no part of the blades or arms



Figure 4.

projecting above the surface to obstruct the field of vision and operation. These out-stretched arms permit approach to the exposed proximal wall of the rectum as well as to the distal; the great distance at which the blades are set from the joint provides for the simultaneous exposure of almost as great a surface of proximal wall as of the distal.

The easily working collar-button joint is a feature which commends itself to those who appreciate the value of an aseptic instrument.

I feel sure that the quick lever-screw lock in the handle will also find favor. The perfectly constructed instrument will be locked when the lever is at one or the other of the two positions shown in Figs. 2 and 3. By such a provision the speculum may be locked and unlocked, opened and closed with one unaided hand. (Instruments defective in this particular may be corrected by filing a bit off the screw end.)

Designedly, the speculum lacks a spring. My experience convinces me of the disadvantage of a spring between the handles of instruments designed to be used about the anus. The blades of that instrument which is provided with a spring are often rushed together with such force as to grasp and damage the mucous membrane. The sphincters ani provide the only spring this speculum requires—the anus will not pinch itself. The speculum, which is springless, is not capable of any movement independent of the exercise of the operator's will, while the converse is true of the spring speculum.

The handles of this instrument are of such length that the pressure of the surgeon's grip is at the same distance from the fulcrum as are the blades; thus, in his sense of touch he may have at one and the same time an intelligent appreciation of the force he applies and of the resistence supplied by the sphincters.

With this speculum introduced to the rectum and rotated 45 degrees the surgeon may, aided by a proctoscopic mirror and proper posture of the patient, survey at a glance the whole of the interior of the rectum and a part of the sigmoid flexure.

The use of bivalvular, trivalvular, fenestrated tubular, or of specula of forms other than that of the complete cylinder provoke pain, therefore the above described rectal speculum is designed to be used only on the anesthetized subject.

1077 Prospect Street.

ASSOCIATION NEWS.

Section on Obstetrics and Diseases of Women.—All the members of the Section on Obstetrics and Diseases of Women of the AMERICAN MEDICAL ASSOCIATION who intend to participate in the Section dinner at the meeting of the ASSOCIATION in Denver, will please signify their intention by writing to Dr. E. C. Rivers, Chairman of the Section Dinners, Denver, Colo.

Section on State Medicine.—Members desiring to read papers in the Section on State Medicine are requested to send the title of their paper as early as possible to Dr. Arthur R. Reynolds, Room 2, City Hall, Secretary of the Section. Following is a list of papers already promised:

Maritime and Interstate Quarantine, by G. B. Thornton, President of Board of Health of Memphis, Tenn.

Isolation in a Great City, How Best Accomplished, by Samuel P. Duffield, Health Officer of Detroit, Mich.

The Relation of the Courts to Administration of Sanitary Laws, by William P. Munn, Health Commissioner, Denver.

Maritime Quarantine, by A. H. Doty, Quarantine Officer, Port of New York.

The Difference in Sanitary Quality Between Water and Ice from the Same Source, by Adolph Gehrmann, Superintendent City Laboratory, Chicago.

The Control of Diphtheria, by William K. Jaques, Chicago.

Concerning the Importance of Bacteriology in Preventive Medicine, by Franklin Staples, Winona, Minn.

Recent Investigation of the Action of Alcohol on all Growth, by I. D. Crothers, Hartford, Conn.

The Necessity for Mountain Sanitariums for the Treatment of Poor Consumptives, by J. H. Kellogg, Battle Creek, Mich.

Cold and Respiratory Diseases, by Charles H. Shepard, Brooklyn, N. Y.

The Treatment of Syphilis by the General Practitioner, by Harvey P. Jack, Canesteo, N. Y.

The Great Need of Central Resting and Recreation Places in the Large American Cities, by Thomas H. Manley, New York City.

Brain Surgery from Railway Injuries, by Clinton P. Herrick, Troy, N. Y.

Thallassic Submersion a Means of Disposal of the Dead, by Daniel Lichty, Rockford, Ill.

The Supervision and Licensing of Certain Industries Necessitated by Their Bearing upon Public Health, by Ernest Wende, Buffalo, N. Y.

The following have promised papers: Benjamin Lee, Philadelphia; H. N. Avery, Minneapolis, Minn.; Lewis D. Mason, Brooklyn, N. Y.; Thomas F. Harrington, Lowell, Mass.

SOCIETY NEWS.

Kentucky Midland.—The Kentucky Midland Medical Association will hold its ninth quarterly meeting in Georgetown, Ky., April 14, 1898. Dr. F. B. Powers of Lawrenceburg is secretary.

Mississippi State Medical Association.—The thirty-first annual meeting of the Mississippi State Medical Association will convene in Jackson, Wednesday, April 20, 1898. Titles of papers should be sent, by April 1, to J. R. Tackett, secretary, Biloxi, Miss.

West Virginia State Medical Society.—The thirty-first annual meeting of the medical society of the State of West Virginia will be held in Martinsburg, May 18, 19 and 20. Those wishing to read papers will send title to the secretary, G. A. Aschman, M.D., Wheeling, W. Va., before May 1.

The Tri-State Medical Society of Iowa, Illinois and Missouri will meet at Dubuque, Iowa, April 5 and 6. The following have promised papers: R. N. Cresap, Bonaparte, Iowa; Albert H. Cordier, Kansas City; George Kessel, Cresco, Iowa; Albert Green, Rockford, Ill.; Wm. E. Whitney, Eldora, Iowa; W. W. Peck, Darlington, Wis.; D. C. Brockman, Ottumwa, Iowa; James Moores Ball, St. Louis; F. A. Dunsmoor, Minneapolis; Byron Robinson, Chicago; John W. Kime, Des Moines; C. E. Ruth, Keokuk; A. C. Bernays, St. Louis; R. P. Berry, Clermont, Iowa; Gershom H. Hill, Independence; W. P. Hartford, Cassville, Wis.; T. J. Maxwell, Keokuk; Emory Lanphear, St. Louis; J. Scott Stevens, Cedar Falls; James H. Etheridge, Chicago; Francis Reder, St. Louis; C. C. Gratiot, Shullsburg, Wis.; Paul Paquin, St. Louis; G. H. Fuller, Delhi, Iowa; W. H. Byford, Chicago; G. Frank Lydston, Chicago; D. S. Fairchild, Clinton, Iowa; Thomas H. Manley, New York; Franklin H. Martin, Chicago; F. B. Dorsey, Keokuk; J. R. Brady, Lamont, Iowa; E. O. Cisson, Keokuk; J. H. Craig, Volga City, Iowa; J. DeWitt Graham, Springville, Iowa; L. J. Bowman, Greeley, Iowa; H. C. Temple, Waucoma, Iowa; Jacob Geiger, St. Joseph; William F. Waugh, Chicago; C. R. Pickering, Muscoda, Wis.; Thomas Bassett Keyes, Chicago; L. L. Renshaw, Monona, Iowa; J. J. Lindsay, Manchester, Iowa; W. B. Graham, Waterloo, Iowa; H. C. Markham, Independence; Charles H. Flinn, Postville, Iowa; N. J. A. Mueller, Dyersville, Iowa; J. J. Brownson, Dubuque and J. W. Osborn, Dyersville, Iowa.

Missouri State Medical Society.—The Medical Association of Missouri will meet at Excelsior Springs, May 24, 25 and 26, 1898, instead of the previous week as heretofore announced, the change being necessary to secure proper accommodations. The Committee on Scientific Communications (Drs. Emory Lanphear of St. Louis, C. H. Wallace of St. Joseph and Joseph Sharp of Kansas City) announces the following papers which are given and will be read in the order of their reception:

President's Address, Prof. Jacob Geiger, St. Joseph; "Pelvic Abscess," Prof. O. Beverly Campbell, St. Joseph; "Diagnosis in Infantile Diseases," O. P. Kernodle, Sedalia; "Delays in Surgery," W. B. Sisson, Kahoka; "Value of the Use of Diphtheritic Antitoxin in the Treatment of Pseudo-Membraneous Croup," L. I. Matthews, Joplin; "Hypnotic Criminality," Joseph Taintor, Warrenton; "Enuresis of Childhood as It Frequently Extends in Its Results to and even Later than Puberty," Prof. J. M. Richmond, St. Joseph; "Report of a Case of Cholecystotomy," Francis Reder, St. Louis; "Progress Made in the Treatment of Conditions Resulting from Microbic Infection," J. T. Marsh, Liberty; "Some Remarks on a Recent Epidemic of Typhoid Fever," H. H. Vinke, St. Charles; "Venesection in the Treatment of Disease," P. S. Fulkerson, Lexington; "Broncho-pneumonia," J. D. Brummall, Salisbury; "Nasopharyngeal Catarrh and its Treatment by the General Practitioner," S. S. Davis, Fulton; "State Medicine," Prof. J. M. Allen, Liberty; "Three Cases of Hysteric Vomiting," Prof. Jerome K. Bauduy, St. Louis; "Osteomyelitis," Prof. T. E. Potter, St. Joseph; "Occlusion of the Posterior Nares (bony), two Cases," J. Rule Fritts, Mexico; "Personal Experience in the Treatment of Uterine Fibroids," Prof. Walter B. Dorsett, St. Louis; "A Case of Extra-uterine Pregnancy Operated upon at the Eighth Month; Recovery," Prof. H. C. Dalton, St. Louis; Does Missouri Need a Home for Epileptics?" Geo. R. Highsmith, Carrollton; "Quinin Bilndness; the Amaurotic Form of Tabes; Hydrophthalmos; Report of Cases," Prof. James Moores Ball, St. Louis; "The Way to Determine the Qualifications of Matriculates in our Medical Schools," W. Francis Mitchell, Lancaster; "A Rapid Treatment of Chancroid and Syphilitic Ulcerative Lesions," A. H. Ohmann-Dumesnil, St. Louis; "Physiologic and Pathologic Intemperance," Edward E. Parrish, Memphis; "Spina Bifida and its Treatment, with Report of Cases," Prof. T. F. Prewitt, St. Louis; "Some Phases of Intestinal Obstruction," Prof. A. H. Cordier, Kansas City; Report of Committee on Progress in Obstetrics, Prof. B. M. Hypes, chairman, St. Louis; Report of Committee on Progress in Gynecology, Geo. F. Hulbert, chairman, St. Louis; "The Progress of Phthisic Processes in the Lungs by Way of Bronchi," Prof. Wm. Ophuls, Columbia; Report of Committee on Progress in Pediatrics, I. N. Love, chairman, St. Louis; Report of Committee on Progress in Surgery, Prof. Andrew L. Fulton, chairman, Kansas City; "Asexualization as a Preventive of Pauperism and Crime," R. S. Kelso, Joplin; "The Treatment of Chronic Hypertrophic Tonsillitis in the Light of Modern Theories of Infection Through the Tonsil," Prof. Hanau W. Loeb, St. Louis; "Report of Two Cases of Intracranial Aneurysm," Prof. J. D. Griffith, Kansas City; "Report of a Case of Castration for Enlarged Prostate, Followed One Year Later by Prostatectomy; with Presentation of Patient." Prof. C. M. Nicholson, St. Louis; Title unannounced, J. Block, Kansas City; "Fat Embolism, with a Report of a Case," T. B. Ellis, Bethany; "Stricture of the Esophagus," Paul Paquin, St. Louis; "When to do Colpohysterectomy, and Methods," Prof. Milo Buel Ward, Kansas City; "Surgical Anatomy of the Ankle Joint," Prof. Herman E. Pearse, Kansas City; "The Effects of Osteopathy upon the Patient and upon the Business of Reputable Physicians," Whitley G. Hendrix, New London; "How to Give Prompt and Permanent Relief in Prostatic Obstruction," Geo. Wiley Broome, St. Louis; "A Plea for Early Operation in Cholelithiasis," Prof. A. H. Meisenbach, St. Louis; "Facial Erysipelas; Its Treatment," Z. T. Martin, Lathrop; "Treatment of Hemorrhoids by the Clamp and Cautery Method," Prof. S. G. Gant, Kansas City; Subject unannounced, N. M. Baskett, Moberly; "The Application of Protargol in Ophthalmic Surgery," Prof. B. E. Fryer, Kansas City; "Typhoid Fever," Robert E. Sevier, Liberty; "Traumatic Injuries of the Urethra," J. W. Holliday, Tarkio; "Electrotherapeutics," Prof. Brummell Jones, Kansas City; "Pneumonia," Tinsley Brown, Hamilton; "Injuries Produced by Bicycle Saddles and their Rational Remedy," John L. Short, Rolla; "Can Cancer of the Uterus be Cured?" Emory Lanphear, St. Louis.

NECROLOGY.

Dr. W. S. O'NEAL, M.D., of Lancaster, Ky., died at that place on March 15. He had been a sufferer from bronchial asthma for a number of years, and his last attack complicated by bronchopneumonia was the cause of death. He was born at Verona, Boone County, Ky., 61 years ago, on October 3. He was graduated from the Ohio Medical College in 1861 and located at Verona, where he practiced for twenty-one years. Thirteen years ago he moved to Lancaster, Ky., where his only child had married, and soon had a large practice. He was a member of the State Medical Society for more than thirty years, and was much loved in the community in which he lived. He was recently appointed a member of the State Board of Health by the governor, which place he resigned shortly before his death.

JOHN T. CONKLING, M.D., College of Physicians and Sur-

geons, N. Y., 1855, died after about a year's illness at his home in Brooklyn, N. Y., aged 73 years. He was connected with the Brooklyn Board of Health as sanitary superintendent in 1866 and 1867. From 1874 to 1877 he was a health commissioner and introduced the ambulance system in Brooklyn. He was also for six years connected with the board of education, and despite his quiet unostentatious manner, was regarded as a public-spirited citizen.

E. A. Praeger, M.D., Los Angeles, Cal., March 6, aged 43 years. The Doctor was professor of gynecology, Los Angeles Polyclinic, Fellow of American Obstetricians and Gynecologists, Fellow of the Obstetrical Society of London, member of the British and Canadian Medical Associations, and Southern California Medical Society.

Wm. P. Morrissy, M.D., New York University, 1869, for more than ten years a police surgeon in Brooklyn, died in his 52d year at his home in Greenpoint, N. Y., March 13. He was a Canadian by birth. A widow, three daughters and one son are his survivors.

P. D. Baker, M.D., Franklintown, Pa., March 8.——F. P. Bell, M.D., Naples, N. Y., March 12, aged 39 years.——C. S. Boarman, M.D., Boonville, Mo., March 15, aged 72 years.——James S. Fulks, M.D., Baltimore, March 13, aged 69 years.——W. C. Hobbs, M.D., New London, Iowa, March 2, aged 84 years.——L. M. Squire, M.D., Poynette, Wis., March 7.——J. J. Towle, M.D., Jamestown, N. Y., March 12, aged 61 years.——Alward M. White, M.D., El Paso, Texas, March 10.

Deaths Abroad—J. C. Busch, M.D., Germany, prominent in legislative, professional and editorial activity.——W. Moldenhauer, professor of otology at Leipzig.—G. Kalischer, M.D., Berlin.——Anna Jelenewa, M.D., superintendent of foundling hospital at Nishni Nowgorod. Committed suicide on account of death of infant from defective hot water bottle.——M. H. Saenger, professor of obstetrics at Groningen.——Prof. Rudolf Leuckart, the distinguished entomologist and parasitologist of the University of Leipzig, born at Helmstedt in 1823. In 1847 he became Privat-Docent at Göttingen, and in 1855 he was appointed professor of zoology in the University of Giessen. In 1870 he accepted a call to the corresponding chair at Leipzig, which he occupied till his death. Besides his great work "Die Parasiten des Menschen," which appeared in 1863, he contributed largely to the literature of his special department. As a teacher he was regarded throughout the scientific world as the greatest authority on the subject which he professed.——Prof. Waldemar von Schroeder, director of the Pharmacological Institute of Heidelberg.——Dr. Carl Nikolas, professor of hygiene in Lausanne.——Dr. Otto von Essen, of St. Petersburg, a Russian dermatologist, aged 35 years.——Dr. Mesnet, member of the Académie de Médecine and author of several works on the nervous system and hypnotism, aged 77 years.——Dr. Ludwig Ruge, aged 81, the oldest practitioner in Berlin.——Prof. Leopold Auerbach of Breslau, a writer on neuropathology, aged 69 years.——Dr. Paul Hasse, formerly medical director of the Brunswick Lunatic Asylum at Königslutter, aged 68 years.

PUBLIC HEALTH.

A Congress for the Study of Tuberculosis will convene at Paris, July 27 to August 2, under the auspices of a permanent committee consisting of prominent physicians, professors and veterinarians. L. H. Petit, general secretary, Menton (Alpes Maritimes), France.

The Carrasquilla Leprosy Serum has been found ineffectual by the committee appointed to study its action by the Academy of Medicine at Bogota, at the request of the government. Twelve patients were carefully treated by Carrasquilla and scientifically observed by the committee during a period of nine months, and they report "with positive grief," that the serum failed to modify the symptoms or the course of the disease in any case (*Revista Méd. de Bogota*, December, 1897, just received). Carrasquilla's first announcement was made after only two month's experience with the serum.

Hospital Ships for Cuba.—The *Archivos de la Policlinica* mentions that the distressing conditions accompanying the transportation of sick and wounded soldiers to the Peninsula in the usual passenger steamers, have forced the government to provide some large vessels fitted up for hospital purposes alone. The first of the "transatlantic hospitals" has arrived at Havana and will have eight physicians, a pharmacist and a military officer on board when it leaves.

Serum Treatment of Yellow Fever.—Sanarelli has sent out a limited number of samples of his finished serum to colleagues in Brazil, this country, etc., begging them to use it strictly in accordance with his directions, so that the tests may be uniform and all cases rigorously observed. He remarks that the "effect on man will probably be favorable, judging from its efficacy in saving animals destined to succumb almost without exception to experimental yellow fever."

State Board of Health of Pennsylvania.—In *Public Health* (January) Dr. Benjamin Lee outlines the parsimonious treatment that befell his State Board during the year just closed. It seems that early in that year there occurred a most untimely accident and damage to sanitary, as well as more material interests, in the fact that the State capitol at Harrisburg took fire and was entirely destroyed, with most of its contents. This disaster not only deprived the board of its place of meeting at the capitol of the State, but it caused a loss of about $544 in furniture, books and stationery. Many of the books it will be impossible to replace. The board should make earnest effort to induce the commission for the rebuilding of the capitol to provide for its permanent use a commodious, well-lighted, conveniently arranged suite of rooms, consisting at least of an anteroom, a room for the meetings of the board and room for that sadly neglected but most essential department of the work of the commonwealth, the Bureau of Vital Statistics. The last-mentioned room should contain fireproof cases for protecting the returns, which will soon become quite voluminous and will be of great value. It is recommended that a resolution to this effect be adopted at the current meeting. Indirectly, however, the burning of the capitol worked much more serious detriment to the interests of the board than the destruction of its office and property. Entailing a very considerable immediate outlay in providing a temporary place of meeting for the legislature, then in session, and a far greater prospective expenditure in rebuilding the ruined edifice, this disaster created an uneasiness in regard to the financial condition of the State government and inspired the members of the legislature with a zeal for indiscriminate retrenchment as unfortunate in its results in some directions as it was wise and commendable in others. So far from being met in a spirit of enlightened liberality by the members of that body, the Committee on Sanitary Legislation of the Board was obliged to content itself with acting on the defensive. Only by unremitting efforts did it succeed in obtaining the same meagre appropriation which had been doled out to it in the past, in preventing the repeal of certain acts of much importance to the sanitary welfare of the people and in preventing the enactment of others which were fraught with danger to the State. Was it necessity then that caused Dr. Lee, of all the State health officers, to endorse the Caffery bill?

Sanitation and Utilization of the By-Products of Dairies.—The Food Fair, which was held during the month of October in Boston, contained in its Agricultural Department an exhibit of interesting character, which had for its object the demonstration of certain new processes for utilizing the by-products in

dairies; namely, the skimmed milk, the buttermilk, and the whey. The exhibit brought out the merits of certain processes shown that have been devised by Alexander Bernstein of Berlin, at present in Boston. If we consider the enormous quantities of these by-products, probably more than twenty million quarts per day, the question of their better commercial utilization appears of the utmost importance as a matter of national economy. The milk is mixed with a small amount of wheat flour or other farinaceous material. The flour does not dissolve in milk, but can be maintained for a short time in a state of exceedingly fine division, approaching the state of the fat globules. If rennet is added, and certain precautions are taken, the milk will gradually curdle and retain the flour in an even and very finely distributed state in the curd. The further treatment is as usual; but the cheese, instead of being a hard, leathery substance, is soft and of loose texture. It seems that during the process of ripening the flour undergoes some changes, which impart a pleasant piquant taste to this kind of cheese. But the utility of this process has another application. This farinaceous curd, as it may be called, can be made so loose as to form a powder when dry; and it can then be mixed with more flour to form a dough suitable for baking purposes. After the casein has been removed, the whey remains. In another part of the exhibit is shown how this substance can be made into a pleasant beverage, of excellent taste and wholesome. To accomplish this the whey is treated in such a manner as to become perfectly clear and transparent by the removal of all undissolved matter. The popular idea that a beverage should be clear is not a mere fancy. In drinking, we wish to assist digestion and not introduce undissolved substances, which give additional work to the digestive organs. The finished whey to which the name of "wheyn" has been given, contains a considerable amount of lactic acid and a small amount of sugar, which is added to make it more palatable. As to its medicinal effects, it has long been known that whey is an excellent tonic in cases of general debility, in liver and in kidney diseases; but the fresh whey is out of reach for the city population, and the danger of possible infectious germs is another objection to its use. In "wheyn" we have a perfectly sterilized product, pleasant to the taste, which has all the essential features of whey as a beverage. It would be difficult to state whence the medical value of whey is derived. It is a remarkable fact, that animals fed exclusively with an artificial mixture of pure casein with sugar and the salts of the milk, all in proportion in which they are contained in milk, will invariably die in a short time, showing that there must be something in the constitution of milk which is not shown by analysis. "Wheyn" has been made sparkling to answer the purpose of a table beverage, and in this form it was shown in the exhibit above referred to.—*Journal of the Massachusetts Association of Boards of Health.*

BOOK NOTICES.

Lessons in Hypnotism and the Use of Suggestion, Based Upon the Neuron Motility Hypothesis. By LESLIE J. MEACHAM. Cincinnati, Ohio: The Bishop Publishing Co. 1898.

The author of this work, though a layman, has evidently studied considerable medical literature in the preparation of his book, which he says is "intended primarily for the use of physicians." Undoubtedly it may be of some interest to medical men, but its practical value is hardly likely to be as great as perhaps its author anticipates. Hypnotism has been before the medical profession in one form or another for over a century and has always had its advocates and the utilizers, but its actual practical benefits have never equaled expectations and the verdict of half a century ago is likely to be repeated now. This little volume, while intentionally scientific, has too much unsupported theory to be succcessfully so. Like some really accomplished but not severely critical medical authorities who have injured their scientific reputations by an undue credulity in these matters, Mr. Meacham goes well beyond all possible scientific proof in his ideas of cures, telepathy, etc.

The book is interestingly written and strikingly illustrated.

The Nervous System and Its Diseases; A Practical Treatise on Neurology for Physicians and Students. By CHAS. K. MILLS, M.D., Professor of Mental Diseases and Medical Jurisprudence in the University of Pennsylvania, etc. Diseases of the brain and cranial nerves, with a general introduction on the study and treatment of nervous diseases; 459 illustrations, pp. 1056. Philadelphia: J. B. Lippincott Co., 1898.

Although the author intends, if circumstances permit, to follow this volume by another which shall include the remaining diseases of the nervous system, insanity and medical jurisprudence, the present volume is complete in itself with bibliographic and general index. The bibliography is very full, and the general index leaves nothing to be desired. The introductory portion of the work comprises a summary of the embryology, anatomy, physiology and chemistry of the nervous system, and a consideration of the general pathology, etiology and symptomatology of nervous diseases, with the methods of investigating them and the best measures applicable in their treatment. Close attention has been given to the subject of localization with regard to all portions of the encephalon. The nomenclature and terminology, advised by Prof. Burt J. Wilder of Cornell University have been in the main used throughout the book. Many of the illustrations are new and they are all clear and distinct. This work is very compact, concise and withal written easily. It is a pleasure to read the works of this writer and in this book his style is shown to its best advantage. The most difficult branches of this confessedly intricate subject are illumined by the pleasing style of the author. If one could have but a single book on diseases of the nervous system, he would not make a mistake in selecting this.

Fatty Ills and Their Masquerades. By EPHRAIM CUTTER, LL.D., M.D., and JOHN ASHBURTON CUTTER, B.Sc., M.D.; "being a contribution to clinical medicine for practitioners and students, to emphasize the inestimable value of the microscope in detecting the prestages of amaurosis, angina pectoris, apoplexy, Bright's disease, cataract, dementia, fatty heart, gall-stones, glaucoma, hemophilia, locomotor ataxia, etc., and the like value of American means of treatment in these prestages, and those advanced stages usually considered incurable."

That fat is the natural enemy of mankind every athlete knows, and if Dr. Cutter's book will better aid in getting rid of this persistent enemy, it will not have been written in vain. A number of cases are given in the peculiarly interesting style of the author, and they serve conclusively to illustrate the points the author makes. The book is entertaining, and even if one does not agree with the author's conclusions, he will at least be interested in the manner of stating his case. As an addition to American medical literature, it is unique and should find a place in the advanced medical library.

The Essentials of Experimental Physiology; for the Use of Students. By T. G. BRODIE, Lecturer on Physiology, St. Thomas' Hospital Medical School. Pp. 231. London, New York and Bombay: Longmans, Green & Co. 1898.

The aim of the author in writing this book has been to give a short account of those experiments which can be carried out by students during classes, together with a description of experiments suitable for class demonstrations. The illustrations are numerous and for the most part new. The contents of this volume comprise 22 chapters, namely, chapter 1, some physical instruments in constant use and in physiologic experiments; chapters 2 and 3, frog's muscle; chapters 4, 5, 6 and 7, experiments on muscular contraction, tetanus, fatigue of muscle, thickening, excitability, polarization of electrodes; chapter 8

xperiments to determine the function of nerves; chapters 9, 0, 11, 12 and 13, experiments on frog's heart; chapter 14, lemonstrations of the movement of the mammalian heart; hapter 15, experiments in electro-physiology; chapters 16 and 7, on the circulation of the blood, sphygmograph; chapter 8, the kidney, demonstration of oncometer experiments; chapcr 19, demonstration of the nerves, regulation and respiration; :hapter 20, demonstration of the secretion of saliva; chapter 1, reflex action excited upon the spinal cord of the frog; and :hapter 22, experiments and physiology of the eye.

The work is well adapted for advanced studcnts in the aboratory.

The Year-book of Treatment for 1898. A Critical review for Practitioners of Medicine and Surgery. Crown octavo; 488 pages. Cloth, $1.50. Philadelphia and New York: Lea Brothers & Co. 1898.

This work is a trustworthy epitome of the year's progress in ll branches of practical medicine. The aim of this book is o furnish a readable digest of the therapeutics of the year for he use of practitioners. Considering the compass into which t is compressed, it must be conceded that the editors have airly succeedcd in the work assigned them.

The list of contributors comprises Francis D. Boyd, Patrick Manson, Dudley W. Buxton, Malcolm Morris, Albert Carless, Edmond Owen, Alfred Cooper, Sydney Philips, George P. Field, Henry Power, Archibald E. Garrod, E. S. Reynolds, G. A. Gibson, Wm. Ross, M. Hanfield Jones, Gustav Schorstein, Reginald Harrison, Sinclair Thompson, Herbert P. Hawkins, Nestor Tirard, G. Ernest Hartman, W. J. Walsham, J. Ernest Lane, E. F. Willoughby, P. Luff and Dawson Williams.

The Therapeutics of Infancy and Childhood. By A. Jacobi, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, New York, etc., etc. Second edition, pp. 629.

Although the author states that the revision of this book was begun immediately after its publication; that some of the chapters are rewritten, and a few new ones addcd, and that there is hardly one that has not been somewhat enlarged or otherwise changed, yet we have additional reason to reassert our favorable opinion of the book expressed in our issue, Vol. 26, 1896, p. 190. The fact of the early exhaustion of the first edition, which was published in 1896, carries with it sufficient evidence of its popularity with the profession.

Transactions of the Pathological Society of London in 1896.

These transactions have been a veritable mine of wealth not only to practitioners, but to hundreds of medical students in the throes of thesis writing. The latest, or forty-seventh, volume is now here fresh from the press of Smith, Elder & Co., and is for the year 1896. The excellence of the illustrations, so important to a work of this class, is great and constantly increasing. All the modern improvements in photography and allied pictorial presentation are liberally and wisely employed.

MISCELLANY.

Roentgen and Lenard Honored.—The Paris Académie des Sciences not only awarded the La Caze prize of 10,000 francs to Roentgen, but also bestowed the same amount upon Professor Lenard of Heidelberg, whose work on the cathode ray stimulated Roentgen to further research, and led to his great discovery.

Fate of Tetanus Toxin in the Alimentary Canal of Guinea Pigs.—Recent experimentation at Behring's Institute shows that the supremely toxic tetanus toxin is entirely harmless to the organism from the alimentary canal. It is not absorbed either from the stomach or the intestines, but passes unaltered through the entire canal and is thus eliminated *per anum.—Deu. Med. Woch.*, February 24.

Correction.—In the Journal of March 12, in a note on Pittsburg (page 630), mention is made of the specialists, and the name "Barham," is given. This should read "Hersman."

A Pitfall.—Mrs. Pokely: I understand from Mrs. Jokely that your doctor was guilty of conduct unbecoming a gentleman? Miss Meekly: Yes. Mrs. Pokely: Good gracious! When and what—. Miss Meekly: O! constantly. My doctor's a lady. —*Philadelphia Record.*

"Death and Sudden Death."—This latest work by Dr. P. Brouardel has appeared in English dress, and is warmly commended by the critics as a veritable classic. And the author, who has for years been the official director of the Paris morgue, is *facile princeps* among the French medical jurists.

Postmortuary Parturition.—In German medical literature is found a term for which as far as we are aware, there is no English equivalent, viz., "Sarggeburt," which literally translated means "coffin-birth," that is to say, that a pregnant woman dies and the body is placed in a coffin and then before or after burial, delivery takes place. Very few cases of this kind are on record.—*Medical News.*

Consolidation of the Spine After Reduction of Curvature.—Ducroquet has found by radiographs of patients taken several months after the hump had been forcibly reduced, that two-thirds to four-fifths of the gap has been filled by new osseous formation, a result surpassing expectation, and supplying a bony column of great solidity that ensures ample support to the spine.—*Nord. Méd.*, v, 81.

Effect of the Roentgen Ray on Bacteria.—Perfected apparatus and technique have convinced Rieder that the Roentgen ray acts upon bacteria exactly the same as sunlight, only much more intensely, destroying them or at least checking their growth. His experience encourages further therapeutic application of the rays.—*Münch. Med. Woch.*, 1898, No. 4.

A Course of Lectures on Hydrotherapeutics has been provided in the annual appropriations for the University of Heidelberg, which thus takes the lead of all the German universities in this matter, although Vienna has been on the point of taking a similar step for some time. The Berlin University advocates including hydrotherapeutics in the course on general medicine, but protests against the creation of a special chair for any subordinate branch of medical training.

Vacancy to be Filled.—The chair of diseases of the eye, ear and throat, at the Medical College of Virginia, made vacant by the death of Professor Charles M. Shields, will be filled at the annual meeting of the board of visitors of the college, April 21. All applications, accompanied by credentials, should be forwarded to Christopher Tompkins, M.D., Dean, Richmond, Va.

Log Cabin Hospital for the Gold Hunters.—At Skaguay, Alaska, sickness and deaths by cerebro spinal meningitis have been the cause of much anxicty. So prevalent has the disease been that it has been spoken of as epidemic by some. A subscription for a hospital was promptly raised and a two-story log house was rented in the latter part of February; in that temporary shelter and in a cabin annex fourteen patients have been under treatment.

Maragliano's Aqueous Extract of Tuberculosis Bacilli has the same biologic and toxic properties as Koch's glycerin tuberculin. It is prepared by boiling the bacilli forty-eight hours in distilled water. A precipitate is obtained by the addition of alcohol, and a dessicated extract by evaporation, which has the same properties as the original extract. The toxic action of each is completely neutralized by the antituberculosis serum. He considers water a better medium than glycerin, for several reasons.—*Gaz. d. Osp. e d. Clin.*, February 1.

Modifications in the Blood Produced by Cold.—Carrière announces

that recent investigations demonstrate that the corpuscles of the blood are very much modified by cold, in number, in shape, in histologic reaction, and in their functional activity. They relinquish a large part of their coloring matter and the serum becomes much more toxic than usual. This effect of cold on the blood resembles the effect produced by varnishing the skin and he is inclined to ascribe them to a similar mechanism.—*Bull. de l'Acad. de Méd.*, February 15.

An Appeal to the Men of Ohio; Let the Good Work Go On.—Send in your subscription promptly to the Rush Monument Fund. The object is a worthy one. There should be a representative statue of the American medical profession at the Nation's capital. Fifty cents each from the regular physicians of the State will make Ohio's contribution the welcome sum of over $2500. Don't hesitate to send a small amount. Address at once the chairman of the committee, Dr. William E. Bruner, 514 New England Building, Cleveland.—*Cleveland Medical Journal.*

Practical Therapeutics.—Dr. Frank P. Foster's book in two volumes is reviewed with laudatory criticism in a prominent medical journal of London. The reviewer, among other good points made, says that "with one exception, Dr. Gordon Campbell of Montreal, all the contributors are Americans." Of course the reviewer knows where Montreal is located, but his pen slipped. He must have for the moment regarded America as a synonym for the United States, a territorial vastness that is not to be claimed by the most effusive of Yankees.

The Thyroid Gland in Chronic Icterus.—The necropsy of four cases of icterus from compression of the choledochus by neoplasms, showed a superactivity of the thyroid gland, while nothing of the kind is observed when the liver is not involved. Lindemann explains this superactivity by supposing that the bile and other substances insufficiently disintoxicated by the liver, passing into the circulation, start the other organs with similar disintoxicating functions, to extra exertion to supplement the hepatic insufficiency.—*Virchow's Archiv*, cxlix, 2.

Hermaphroditism a Variety of the Female Sex.—Virchow's experience has convinced him that on the whole, hermaphrodites belong to the female sex. He has never discovered a testicle in any hermaphrodite, although it is a difficult matter to decide exactly the nature of the seminal gland, upon which alone the actual question of the sex depends. There is only one authentic case on record (Obolenski's) in which both testes and ovaries were present.—*Klin. Therap. Woch.*, February 13.

Further Proof of Antitoxin in the Blood of Immunized Animals.—Serum from the blood of an eel is very toxic to certain animals, rabbits, dogs, etc., destroying the red corpuscles *in vivo*. Camus and Gley immunized rabbits against the action of the eel serum by inoculating them with small doses for a week or so, and found that a drop of serum from an immunized rabbit would protect the red corpuscles in a specimen of blood from a non-immunized animal, from the globulicidal action of the eel serum, thus furnishing a direct proof *in vitro* of the presence of an antitoxin in the blood of immunized animals.—*Presse Méd.*, February 12.

"The Archives of the Roentgen Ray."—Under this new name is now known the quarterly journal, of London origin, formerly styled the *Archives of Skiagraphy*. The publishers are the Rebman Company of the Strand, London. In England there exists a society having quite a considerable membership, medical men and others, called the Roentgen Society, which society has adopted this quarterly journal as the place of record for its proceedings. Single numbers are worth about $1 to import, plus the postage, twelve cents. The editors are Dr. W. S. Hedley of the London Hospital, and Sidney Rowland, M.R.C.S., and they have the assistance of an editorial committee, fairly well stocked with medical men.

The Use of Wine at Table.—Last year a book of new verses on diet and allied subjects was put forth by Pope Leo XIII. Regarding the use of wine, the lines of the Pontiff show that he is no extremist, but pursues the golden mean. In the verses beginning, *Apponi in mensas jubeas purissima vina*, his counsel is in effect, "Get only the best for your table; and free from care, soothe and refresh your heart with the grateful beverage, in the company of friends; but in all sobriety trusting not overmuch to it as a restorative."

A Chemic Vaccine for Viper's Venom has been discovered by C. Phisalix, in tyrosin, found in certain plants, especially in the tubers of the dahlia and a mushroom. Two or three cubic centimeters of a hundredth solution will confer immunity to the venom upon a guinea pig after twenty-four hours, lasting frequently for twenty-five days. It has no antitoxic power injected at the same time as the venom, nor any effect as an antidote, but merely acts as a chemic vaccine, the first known example of the cellular juice of a plant possessing immunizing properties in regard to snake poison. The immunizing action of the cholesterin of bile and also of the vegetable cholesterin found in the carrot by Arnaud, has already been noted by Phisalix.—*Presse Méd.*, February 12.

The History of an Article.—We sometimes publish things twice. We recently printed an excellent article prepared by one of the JOURNAL staff, under the title of "*Hypnotism Before the Court*," in the Oct. 16, 1897, issue. The *Medico-Legal Journal* man of New York also thought it was a good article, and he printed it in his *Journal* in December, 1897, but forgot to credit it to this JOURNAL. One of our young men who looks into the exchanges with great care, and has special affection for the *Medico-Legal Journal*, recognized the article at once as being an excellent one, but did not recall that it was one of our own and it went out to the composing room and was published in our issue of March 19, 1898. As this JOURNAL always credits its esteemed contemporaries with whatever it takes from their columns, the article was duly credited to the *Medico-Legal Journal*, so that interesting publication received a valuable advertisement to which it was not entitled, although it has many other excellent features which entitle it to much credit as a rule.

Insanity on the Increase in Philadelphia.—The condition of the insane department of Philadelphia Hospital recently reported by the grand jury is interesting in many ways. According to the report the admissions to this department have increased 85 per cent. within the last ten years, while the proportion of the poor has decreased proportionately to the population and in point of actual numbers. So crowded has this department become that 1400 patients are accommodated in buildings intended for less than 900. In both the male and female departments, additional quarters are being constructed which will only permit of accommodations for 100 or 150 more. Beds have had to be placed in the aisles and passageways, in order to give sleeping facilities. To properly care for all the insane the Board of Charities and Corrections have asked that the districts of Germantown, Frankford and Roxborough be consolidated with Philadelphia.

A Novelist's Tribute to the Medical Profession.—In one of Far geon's Christmas stories, originally published in *All the Year Round*, that distinguished and admired writer takes occasion to make a most graceful reference to our profession, as follows: "It is my pleasure and duty to here cast in my tribute to this worthy and kind physician, whose life has been and is an honor to the calling of his choice. 'I can not refrain here from paying a tribute to this kind gentleman, whose life is an honor to the profession he adorns. But, indeed, in what ranks of professional labor can more unselfish kindness be found than in the ranks of those who minister to the sick? Surely there must be some beneficent influence in the world

hey do that humanizes and softens the heart, that makes it espond willingly and cheerfully to the appeals of those who uffer? Numberless are the instances that can be adduced of he wonderful goodness of doctors, renowned and eminent, who sacrifice their time without expectation or desire of return or the inestimable services they render. I have no hesitation n saying that, of all arts, it is the most ennobling and beautiful, and that its record of kind deeds is matchless and unapproachable. With all my heart I say, 'Heaven bless the doctors for the good they do, for the good they are enabled to lo!'"—*The Scalpel.*

Opinions as to Cause of Death.—The rule as generally stated is hat a medical witness may give his opinion as to the cause of leath. But the supreme court of Kansas makes the very mportant suggestion, in Davis vs. Travelers' Insurance Company, February, 1898, that the most, if not all, of the cases out f which this rule has been collected are those of homicide, in which an opinion by a medical witness as to the cause of death arely, if ever, involves the principal question submitted to the ury, to wit, the guilt of the accused. In other words, the opinion ie expresses in such cases is upon the cause of the death, and ot as to who caused it. Consequently, the supreme court intiates, but does not decide, because the question was not properly presented, that a different rule might obtain in cases where he principal fact to be tried is the cause of death, as in many ctions on policies of life insurance. Save in such rare and xceptional cases as admit of no other method of proof, the ourt says, it would seem that opinions, whether by experts or thers, are not admissible upon the ultimate fact to be found. t may also be noticed in this connection that the supreme ourt rather hints that hypothetic questions may be extended o too great length and be burdened with too great prolixity of letail, though the question of length is one very largely in the liscretion of the court trying the case. Hypothetic questions o an expert witness, it further insists, should be based upon he evidence, and should not assume the existence of matters naterial to the formation of a correct opinion, about which no estimony has been given.

Physician an Uninterested Third Party.—It is an elementary rule f law that a stranger to a simple contract, from whom no consideration moves, can not sue upon it. But there is an exception to this, which generally obtains in this country, that where a promise is made to one person, upon a sufficient consideration, for the benefit of another, the latter may sue the promisor for a breach of his promise. Yet notwithstanding hat, it recognizes this, the supreme court of Arkansas holds, n Thomas Manufacturing Company vs. Prather, Jan. 29, 1898, hat a physician is such a stranger to it that he can not sue on contract made between an employer and employe by which he employer is to furnish the employe medical attendance in ase of accidental injury. Moreover, while the fact that the mploye had called in a certain physician to attend him was nown to the company in whose service he had been injured, nd it had through its officers, fully approved thereof, might, n a suit brought by such employe against the company to ecover of it, under a contract of this kind, the sum which he ad paid his physician, be sufficient to estop the company from enying that it had waived its right to furnish its own physian, provided the company knew that the physician in quesion was called in reliance upon its contract to furnish medical ttendance, the supreme court holds that it could not avail the hysician anything in an action brought by him against the ompany.

Three Supposed Cases of Hydrophobia.—Recently three alleged r suspicious cases of hydrophobia occurred in Philadelphia nd were examined thoroughly by both pathologists and bacteologists. The first case was that of a lad 16 years of age who as bitten by a dog in September, 1897, and who died in the Presbyterian Hospital six weeks afterward. The attending physician stated that the lad's saliva was frothy at times, and that three days before death the temperature rose to 100 degrees, and the next day 101, being 103 degrees on the day of death. In the second case no definite history had been given, but it was regarded as being suspicious. The third case, an adult male, was bitten by a dog last December and died at the German Hospital in February. The symptoms were frothing at the mouth at sight of liquids, together with spasms and convulsions. The first two cases were thoroughly examined by Dr. A. C. Abbott in the following manner: Sections of the spinal cords were obtained and from these specimens four rabbits were inoculated, two rabbits being inoculated with the supposed virus from the spinal cord in each case. One rabbit died the following morning from the effects of the operation and another died on the twenty-first day from congestion of the brain. The other two rabbits lived and developed no symptoms of hydrophobia. Dr. Cattell, the coroner's physician, made a postmortem in the first case and found that death had resulted from congestion of the brain. In the second instance Dr. Morton, the coroner's physician, after a thorough postmortem stated that death had been due to uremia, and in the third case that death had resulted from the same cause.

The Bladder in Hernias.—Fifty-eight cases are on record since 1889 in which the bladder was involved in the hernia, all but one adults. Males, forty-two inguinal and one femoral; females, five inguinal and ten femoral. In only three cases was the involvement of the bladder diagnosed beforehand from disturbances in urination. In thirteen it was discovered during the operation and injury to it thus avoided. On the other hand the bladder was injured in no less that forty cases, in some by cutting, in others by the ligature, etc. The injury was discovered at once in twenty-five cases; in the others not until during the recovery or at the necropsy. In only one case was there an actual intraperitoneal hernia of the tip of the bladder entirely covered with serosa. In the rest the hernia consisted only of a portion of the organ, partially or not at all invested with serosa, but always more or less firmly adherent to the medial side of the hernia sac. In all cases studied the presence of a fatty envelope was noted as characteristic, an actual lipoma in some cases. If it can be detached when adhered to the hernial sac, without injury, the operation can proceed as usual, but if the bladder is injured or if gangrenous, suturing with after-tamponning seems indicated, although in three cases the bladder was sutured, reduced and the hernial wound sutured at once, with perfect success. Eleven cases terminated fatally; four as a direct consequence of the injury to the bladder. Small urinary fistulas have not affected the final success of the operation. In some cases described in detail in *Deu. Ztsch. f. Chir.*, xlv, page 245, twice the bladder was taken for an accessory hernial sac and opened, when the flow of urine announced the error. Another case requiring resection of a gangrenous portion of the peritoneum in a strangulated femoral hernia, was followed by peritonitis. A hole the size of a pencil was found at the necropsy, in the rear wall of the bladder, due to the operation.

A New Form of Operation for the Cure of Inguinal Hernia.—Swift (*New York Med. Jour.*, Oct. 23, 1897, p. 553) recommends the following procedure in the radical treatment of inguinal hernia: An incision is made a little below the level of and about an inch external to the anterior superior iliac spine, extending downward to the pubic spine, parallel with and about half an inch to an inch above Poupart's ligament. This extends to the aponeurosis of the external oblique, which is well exposed. A Kocher's director, or the finger, is passed through the external ring and the canal slit up to the internal ring. As the operation proceeds, all the bleeding should be promptly stopped by dry gauze or ligature when necessary, so as to pre-

vent the staining of the tissues and resulting obscuration of the field of operation. The hernia, if still unreduced, should be returned with or without first opening the sac, as may be required. The sac is now isolated from the cord by blunt dissection. If it can not be readily found, the mass should be held up, the vas deferens found, and while guarding it from injury, a longitudinal incision is made into the mass. This procedure will be found to open up the sac. The finger is then introduced into the sac and well up into the internal ring and a catgut ligature applied around it as high as possible, the finger being withdrawn gradually as the assistant tightens the ligature. The sac should be excised below the ligature. While the cord is held out of the way, three or four (in extreme cases more) sutures should be passed through the transversalis fascia, the conjoined tendon (if necessary also through the rectus abdominalis), the muscular fibers of the transversalis and the internal oblique, and the aponeurosis of the external oblique, on the one side, and about three-eighths of an inch from their edges. The sutures are double-threaded and are passed from within outward. Both free ends of each suture are now passed through the deep parts of Poupart's ligament about half an inch apart, and tied. Care should be observed that the suture next to the cord does not interfere with its circulation. The next step in the procedure consists in overlapping the superficial edge of Poupart's ligament and the lower part of the cut aponeurosis of the external oblique, and sewing the former well up on the anterior surface of the latter muscle. The ligament should be drawn firmly up and the line of sutures not placed so near the edge as to soon tear through. In addition a couple of sutures should finally be placed back of the lost line, which should pass through the overlapping Poupart's ligament and take generous bites of the overlapped structures. The last sutures are placed about midway between the others and serve to hold the flap more securely. When the veins of the cord are enlarged their number may be reduced by Halsted's procedure, and when the cord is otherwise large, some of the redundant tissue may be peeled up. The canal is now obliterated and the cord lies beneath the skin. The suture material consists of catgut hardened in iodoform and alcohol, or in mercuric chlorid and alcohol. Drainage is not provided for, except in operations on large hernias, when a few strands of silkworm gut are inserted. Usually only a few strands of this material are placed under the skin and they are removed at the first dressing. Rest in bed for six weeks or the wearing of a truss for that length of time is further recommended.

The Alleged "Boycott" of the British Army Surgical Department.—The London *Practitioner* points out that it is an error to say that the medical profession of that country has declared a boycott against the Army Surgical service, and that if any such act has been committed it can be found in the systematic slight and ignominies that have been put upon the medical corps by bureaucratic officials. When military rank shall have been accorded to the surgeon, says the *Practitioner* the government may expect to get something better than "the refuse of the profession" for the Army Surgical Department, but not before. The contumelious treatment of that department has been so prolonged and emphatic that the wonder is that the surgical *personnel* is as good as it is. The *Practitioner* says: "The complaint about the boycotting of the army by the doctors, which has been recently made in Parliament and in certain newspapers, are to the last degree disingenuous. The army, as represented by its combatant officers, seems to take a special pleasure in boycotting the doctors, and it is surely not to be wondered at that doctors who have any regard for their own dignity should not care to expose themselves to such treatment. As things are, the army for the most part gets the mere refuse of the profession, and it will never get anything else while the present system of official snubbing of medical officers on every possible occasion, and of treating them as in a military sense 'camp followers,' and socially as unfit to come between the wind and the combatant's nobility, is allowed to continue. Till the army doctor is given military rank with its full privileges, and is recognized not merely *de jure*, but *de facto*, as an officer and a gentleman, and treated as such, it is the duty of the teachers in the medical schools and of every member of the profession who is in a position of influence, to recommend young medical men not to enter the Army Medical Department. Why one of the leading medical journals should be so vehement in denying that this is an 'Army medical boycott' is not clear. The name given to the process, however, matters nothing. Let us call it 'abstention' if that sounds better. The important thing is to get youngsters to 'abstain' from putting on the livery of degrading servitude into which the War Office has transformed the Queen's uniform as far as doctors are concerned."

Loss of Life by So-called "Hunting Accidents;" Legislation for Its Prevention.—A bill has been presented to the legislature of Maine to establish a penal clause against those men with guns who "accidentally" wound or kill their fellow-men in the woods. This measure has been prompted by the unfortunately large number of fatalities which have occurred during the past season and the fall of 1897. If it becomes a law it is believed that the measure will operate as a means of saving human life. It is claimed that the hunters who wound or kill persons are mostly novices, who become excited and blaze away at any moving object they may see. It is proposed to put up notices of the law at all points where sportsmen enter the woods, at the various camps, railway stations, etc. Three so-called "hunting accidents" occurred in Maine almost as soon, in 1897, as "the law was off" deer. These were fatalities, while the number wounded but not killed was much larger. In Vermont a similar unfortunate record was made. Such results can but be set down as due to gross carelessness, although beyond question the shootings were not intentional. The average inexperienced hunter is so anxious not to return to his fellows from his hunting trip empty-handed that it is easy to understand his overzeal, but these mistakes have occurred so frequently that they should have been, and should be made to be, an effective warning. The number of cases may have been lessened through these sad experiences below the number they might have attained to had not a very wide publicity been given to each.

North Carolina Medical Law Constitutional.—Sections 3122 and 3132 of the Code of North Carolina, as amended by Acts 1885, chapters 117 and 261, by Acts 1889, chapter 181, sections 4 and 5, and by Acts 1891, chapter 420, relating to the examination and certification of persons desiring to practice medicine in that State, the supreme court of North Carolina hold, does not offend the provisions of the State constitution, which forbid exclusive privileges and emoluments to any set of men and prohibit monopolies and perpetuities. Nor does it consider that there is any infringement on the constitution of the United States, which prohibits any State to deny any person the equal protection of the laws. Moreover, it does not agree with the contention that the statute is unconstitutional on the additional ground that it exempts from its requirements those physicians who were already practicing medicine and surgery in North Carolina on March 7, 1885. The supreme court says, Dec. 23, 1897, case of State vs. Call, that the first statute, making it indictable to practice medicine and surgery without an examination by the State Board of Medical Examiners, and a license therefrom was enacted at the session of 1885, and was made prospective, so as to apply only to those who should begin the practice of medicine and surgery thereafter. This, it declares, was not unreasonable. It was fair, it somewhat tartly continues, to assume that those already in the practice, many of whom had grown gray in the service of humanity and the alleviation of suffering, had already received that public approbation which was a sufficient guaranty of their competency, and should not be needlessly subjected to the humiliation of an examination by the side of beardless boys, who had not yet swung a scalpel, or prescribed a purgative, save under supervision; while those already in practice, who had proved incompetent, it might be assumed had been equally stamped with public disapproval at the cost to the public of much bitter

experience, an expensive and dangerous process of distinguishing the two classes, to save the public from which, in future, was the object of the new regulation requiring examination and license by a board of competent examiners.

Louisville.

STATE BOARD OF HEALTH.—There is a contention in the State Board of Health which bids fair to grow quite warm before long. The terms of Dr. J. M. Mathews, the present President and Dr. J. O. McReynolds, having expired, the Governor re-appointed Dr. Mathews, and in place of Dr. McReynolds appointed Dr. W. S. O'Neal of Lancaster. Dr. J. B. Kinnaird of Lancaster, an appointee of the Governor on the Board resigned his position in order to become a candidate for the Secretaryship to succeed Dr. J. N. McCormack of Bowling Green. The Secretary is elected each year by the Board and is not considered a member of the Board in the true sense of the word. In Dr. Kinnaird's place the Governor appointed Dr. Fulton. On account of the untiring zeal of the present Secretary, Dr. McCormack, in ridding the State of the quacks and in getting the bill preventing the practicing of osteopaths in the State, passed by the Legislature, Dr. McCormack has made a number of enemies, both in and out of the profession, and they are using every effort to make the race for the Secretaryship a heated one, bringing it down to a level with politics. It is understood that all of the appointees of the Governor at the present time are pledged to vote for Dr. Kinnaird for Secretary, with the exception of Dr. Mathews. A majority of the Board as now constituted are appointees of the present Governor and there is a possibility of the plan to defeat Dr. McCormack being successful.

JENNIE CASSEDAY INFIRMARY.—This institution, which since April, 1892, has been maintained by the "King's Daughters" of the city has just been sold to Dr. Lewis S. McMurtry, the purchase price being $15,000. On the above date the institution was first started, Dr. McMurtry being elected surgeon in chief with the following staff: Consulting physicians, Wm. Bailey, Thomas H. Stucky; consulting surgeons, J. M. Mathews, Geo. W. Griffiths. Since that time the institution has done remarkably well, but the King's Daughters were unable to meet the maturing notes with the interest, consequently the sale above mentioned was consummated. It will be run as a private infirmary by Dr. McMurtry.

SMALLPOX.—The situation at Middlesboro continues grave, especially as complications have arisen in regard to authority, State or Federal. The Governor and President of the State Board of Health were notified that there were 70 cases of smallpox and 400 suspects in the city and not a cent to meet current expenses. The funds of the State Board are exhausted and to meet the emergency, the Governor sent an emergency message to both branches of the legislature, sitting its last day of the session, urging the necessity of an appropriation for the purpose of stamping out the disease, but none was passed. Realizing that the funds were not available from the State, and no possibility of the town or county raising the money, with the consent of the Governor the State Board wired Washington, asking for assistance. In response to this, Passed Assistant Surgeon Wartenbaker was dispatched to the scene at once. For two days there was a conflict of authority but this was amicably settled and the Federal and State authorities are now working in harmony. A stricter quarantine is being enforced, and the isolation and detention hospitals will be moved to the far outskirts of the town. More money is now available from private subscriptions. Drs. J. M. Mathews, Wm. Bailey and J. N. McCormack went to the scene of the epidemic last week to investigate the situation in person.—Two cases of smallpox are reported at Richmond, Ky.

LEGISLATION.—The Governor has signed the "osteopathy" bill which requires these quacks to comply with the law governing the practice of medicine in the State previously referred to in these columns. The bill governing the practice of dentistry was vetoed.

INDICTMENT.—The following physicians of Covington were indicted by the grand jury of Kenton County for failing to comply with the State law requiring medical practitioners to register at the office of the county clerk: Robert Furnam, John E. Stevenson, Charles E. Ellis, B. F. Laird, R. H. Crisler, F. D. Crigler, A. W. Devoss, Wm. L. N. Armstrong. They will combine and test the constitutionality of the law in the court.

CHOLERA VACCINE COMPANY.—Articles of incorporation of a company by this name have just been filed at Frankfort, with the Secretary of State. The capital is $10,000. Two of the incorporators are Dr. Frank Eisenman, State Veterinarian, and Dr. John E. Cashin, State Bacteriologist. The object of the corporation is to manufacture and sell a vaccine against cholera in animals.

Detroit.

AT THE REGULAR MEETING of the Detroit Medical and Library Association March 14, Dr. J. V. Becelaere read a paper on "Professional Secrecy," in which the author outlined the legal conception of the subject, confining his remarks to the definition of professional secrecy as given by the courts of the different States in the Union.

AT THE REGULAR MEETING of the Wayne County Medical Society March 17, Dr. E. V. Riker read a paper on "Non-penetrating Injuries of the Eye." Dr. R. W. Gillman followed with a paper on "Penetrating Injuries of the Eye and Foreign Bodies." The Doctor said that the fear of sympathetic ophthalmia has influenced surgeons to sacrifice seemingly slightly wounded eyes. The Doctor is not in favor of immediate enucleation of the eye in this class of cases, but insists on the necessity of keeping the patients under close observation for some time, when, by the extent of the inflammatory reaction, the best way of dealing with the case can be determined. He reported a remarkable recovery to normal vision of an eye that was apparently destroyed in October, 1892, by a chip of steel from a hammer, which pierced the right cornea at the temporal side of the sclerocorneal junction, making a rent in the iris and passing back into the vitreous. The Doctor made three attempts with different-sized tips of a Hirschberg magnet forty-eight hours after the accident to remove the steel, but without success. In the manipulations the vitreous had been pretty thoroughly stirred up without any after-disturbance whatever. The eye healed and at the present time, six and a half years after the injury, the vision of the injured eye is $^{20}/_{30}$. The patient was presented to the Society and examined by the members present. In the fundus of the affected eye, a few mm. to the outer side of the macular region, is a deep fissure involving the retina, choroid and sclera. In the central part of this, which shows as a white patch, a pointed, bluish-gray object projects anteriorly and downward into the vitreous. This object is undoubtedly the sliver of steel that was projected into the patient's eye at the time of the accident. The object has almost the exact appearance of a cysticercus. Dr. Don M. Campbell read a paper on the subject of "Mules' Operation," outlining the technique of the operation and discussing its merits and its superiority over enucleation. Dr. J. H. Sanderson discussed the subject of "Tinnitus Aurium."

HEALTH REPORT for the week ending March 19: Total births 83; males 41, females 42; total deaths 81; under 5 years 33.

Cincinnati.

THE MORTALITY REPORT for the week shows: Zymotic diseases, 11; phthisis, 19; other constitutional, 9; local, 76; developmental, 8; violence, 4; still-births, 13; total 127; annual rate per 1000, 16.30; under one year, 18; between one and five, 14; preceding week, 107; corresponding week, 1897, 138; 1896, 126; 1895, 133.

THE ORGANIZATION of the medical corps to look after the veterans in attendance at the coming annual encampment of the G. A. R. is announced as having been divided into eight sections as follows: Medical director, Dr. J. C. Culbertson; camp under medical inspector Byron Stanton; school buildings under medical inspector A. B. Isham and deputy inspector A. B. Birchard; Grand Central and C. H. D. railway depots under deputy inspector M. E. Bloyer; Pennsylvania and Northern railway depots under deputy inspector J. M. Crawford; emergency corps under deputy inspector J. G. Hyndman; ambulance corps under deputy inspector L. C. Carr. The entire corps is to be uniformed at their own expense and all services

rendered are to be gratuitous. The commissions are to be issued by the citizens' committee.

Dr. Charles H. Myers has been appointed district physician to succeed Dr. J. E. Stephan.

Dr. E. Gustav Zinke will deliver a lecture at the Odeon March 23, on Nansen's "Successful Expedition to the North Pole." The proceeds are to go to the German Deaconess' Home and Hospital.

Societies.

The following meetings are noted:

Illinois.—Chicago Medical Society, March 16 and 23; St. Clair County Medical Society, Belleville, March 11; Vermilion County Medical Society, Danville, March 8.

Missouri.—Lafayette County Medical Society, Higginsville, March 8; Medical Society of City Hospital Alumni, St. Louis, March 17.

New York.—Albany County Medical Society, Albany, March 16; Binghampto.. Academy of Medicine, March 15; Medical Society of Newburg Bay, Newburg, March 8; Onondaga Medical Society, Syracuse, March 15; Rensselaer County Medical Society, Troy, March 8.

Ohio.—Cleveland Medical Society, March 11; Lorain County Medical Society, Lorain, March 13.

Pennsylvania.—Delaware County Medical Society, Chester, March 10; Lebanon County Medical Society, Lebanon, March 8.

CHANGE OF ADDRESS.

Barber, W. M., from Scio, Ohio, to North Liberty, Pa.; Blackburn, R. S., from Keokuk, Iowa, to Breeds, Ill.

Clark, I. S., from Keokuk, Iowa, to Dexter, Mo.; Caspers, P., from 356 W. Division St., to 2107 Michigan Ave., Chicago, Ill.; Creswell, G. W., from 36 Spruce St., to 8 DeKalb St., Chicago, Ill.

Guerard, A. R., from 2143 7th Ave., to 2041 7th Ave., New York, N. Y.

Hefelbower, R. C., from 7th and Elm to Groten Building, Cincinnati, Ohio.

Murrell, T. E., from Tuscon, Ariz. Ter., to 2224 E. 14th Ave., Denver, Colo.

Paine, H. M., from Atlauta, Ga., to Glens Falls, N. Y.; Peabody, C. H., from Toledo, Ohio, to Mulliken, Mich.

Risjord, J. N., from Keokuk, Iowa, to Horeb, Wis.

Sargent, A., from Frankfort to Hopkinsville, Ky.; Shortridge, W. R., from Keokuk, Iowa, to Hopkinton, Iowa; Straley, S. B., from Pasadena, Cal., to Hnntsville, N. J.; Shollenberger, C. F., from 2309 Larimer St., to 2301 Larimer St., Denver, Colo.; Starr, J. M., from Chariton to Lacona, Iowa; Stringfield, C. P., from 300 31st St., to 138 Jacksou Boul., Chicago, Ill.; Slagle, C. D., from Portsmouth, Ohio, to Box 114, Pomona, Cal.; Sullivan, T. J., from 4729 Ashland Ave., to 4709 Michigan Ave., Chicago, Ill.

Weaver, W. H., from 126 State to 92 State, Chicago, Ill.; Wagner, H. E., from Ashland and Milwaukee Aves., to 551 Armitage Ave., Chicago, Ill.; Warner, A. L., from Hospital to Penfield, Ill.

Yates, H. W., from 1411 Fort St., W., to St. Luke's Hospital, Detroit, Mich.

LETTERS RECEIVED.

Alta Pharmacal Co., St. Louis, Mo.; Alkire & Clarke (Drs.), Topeka, Kan.; Abbott, E. H., Elgin, Ill.; Andrews, D. B., Elyria, Ohio.

Berry, W. F., Mt. Clemens, Mich.; Beattie, D. A., Santa Clara, Cal.; Bremer, L., St. Louis, Mo.; Brown Hotel Company, The, Denver, Colo.; Brown, Mark A., Cincinnati, Ohio; Brown, R. W., Glenwood, Wis.; Bulson, A. E., Jackson, Mich.; Burrows Bros. Co., The, Cleveland, Ohio; Burnham-Hall-Chase Co., Boston, Mass.

Care, J. R., Worcester, Pa.; Capp, S. B., Devon, Pa.; Campbell, E. R., Bellows Falls, Vt.; Cokenower, J. W., Des Moines, Iowa; Crothers, T. D., Hartford, Conn.; Cutter, E., New York, N. Y.

Drury, A. G., Cincinnati, Ohio.

Egan, J. A., Springfield, Ill.; Elliott, H. G., New York, N. Y.

Ferguson, J. A., New York, N. Y.; Fisk, F. F., Waterloo, Ind.; Frederick Co., Purdue, New York, N. Y.

Gibbon, John H., Philadelphia, Pa.; Gilchrist, T. C., Baltimore, Md.; Gundrum, F., Sacramento, Cal.

Hallberg, C. S., Chicago, Ill.; Hessler, Robert, Indianapolis, Ind.; Hewitt, J. M., Galesburg, Ill.; Howard, A. B., Cuyahoga Falls, Ohio.

Imperial Grauum Co., New Haven, Conn.

Joues, E. C., Philadelphia, Pa.

Klein, W. L., Minneapolis, Minn.; Knox, A. W., Raleigh, N. C.; Kraus, J. M., Buffalo, N. Y.

Lanphear, Emory, St. Louis, Mo.; Laplace, Ernest, Philadelphia, Pa.; Leiter, Frances W., Mansfield, Ohio; Lehn & Fink, New York, N. Y.; Lord & Thomas, Chicago, Ill.; Loveland, B. C., Cliftou Springs, N. Y.

Mogk, Wm. A., Ann Arbor, Mich.; Millican, Kenneth W., St. Louis, Mo.; Mettler, L. Harrison, Chicago, Ill.; Mays, Thomas J., Philadelphia, Pa.; Munn & Co., New York, N. Y.; Moore, W. H., Brockport, N. Y.; Matthews, D. J., Zanesville, Ohio; Marchand, Chas., New York, N. Y.; Mulford & Co., H. K., Philadelphia, Pa.

Naylor, H. L., Pikesville P. O., Md.

Parke, Davis & Co., Detroit, Mich.; Peabody, C. H., Milliken, Mich.; Phenique Chemical Co., (2) St. Louis, Mo.; Pothier, O. L., New Orleans.

Reed, C. A. L., Cincinnati, Ohio; Roseuberger, J. L., Chicago, Ill.; Rogers, J. T., Snit, N. C.; Ricker, S. J., Aurora, Ill.

Scott & Bowne, New York, N. Y.; Shields, W. J., New Wilmington, Pa.; Smith, H. S., Detroit, Mich.; Smith, Klinc & French Co., Philadelphia, Pa.; Steele, Robert E., Beaver City, Utah; Stuver, E., Rawlins, Wyo.

Voje, J. H., Oconomowoc, Wis.

Ward, J. A., Dubuque, Iowa; White, F., Elwyn, Pa.; Woldert, E. A., (2) Philadelphia, Pa.; Woodbury, Frank, Philadelphia, Pa.; Wocher, Max & Son, Cincinnati, Ohio; Wyckoff, R. M., Brooklyn, N. Y.

Yates, H. W., Detroit, Mich.

PAMPHLETS RECEIVED.

Anuual Address to the Missouri State Medical Association. By J. H. Duncan, St. Louis. Paper. Pp. 16.

Authors and the Journals; Clinical Tests of New Remedies. By S. S. Bishop, Chicago. Illustrated. Reprints from the Laryngoscope.

Boils, Carbuncles and Felons, Notes on Non-Surgical Treatment of. By L. Duncan Bulkley, New York City. Repriuted from New York Medical Journal.

Constitution of the Uuited States of the World. By C. S. Welles, London. Paper. Pp. 8.

Coroner's Inquest a Medieval Relic, The. By S. W. Abbott, Boston. Reprinted from Philadelphia Medical Journal.

Catarrhs of the Gastro-Intestinal Tract, Diet in; A Plea for More Frequent Resort to Analysis of the Stomach Conteuts for Diagnostic Purposes; Massage of the Abdomen. By Boardmau Reed, Philadelphia. Reprints.

Diastatic Preparations, Note on. By W. G. Tucker, Albany, N. Y. Reprinted from Albauy Medical Annals.

Epiphora, or Watery Eye . . ; Implantation for a Glass Ball for the Support of au Artificial Eye and Mules' Operation for the Substitution of Enuclcatiou of an Eyeball; New Ophthalmic Operating Table; Ophthalmia Neonatorum. By L. Webster Fox, Philadelphia. Reprints.

Equitable Protection, Debate on. Issued by N. E. Free Trade League, Boston. Paper.

Gastritis (Phlegmonous) Following Ulcus Carcinomatosum of the Pylorus. By J. C. Hemmeter and Delano Ames, Baltimore. Illustrated. Reprinted from Medical Record.

Gonorrhea, Rapid Cure of; Protection of the Innocent from Gonorrhea; Urethroscopy in Chronic Urethritis; When May Gonorrheal Patients Marry? By F. C. Valentine, New York City. Reprints.

How Can We Prevent the Slaughter of the Innocents? By E. Stuver, Rawlins, Wyo. Reprinted from Charlotte Medical Journal.

Hysterical Dysphagia, A Case of. By Llewellyn Eliot, Washington, D. C. Reprinted from Medicine.

Infauts, Recommendations in Regard to the Care of. Pennsylvania State Board of Health, Circular No. 24.

Ingninal Hernia in the Male, The Cure of; Cure of Vesico-Vaginal Fistula by the Free Dissection of the Bladder from its Vaginal Attachments and Closure with the Buried Continuous Suture; Intestinal Obstruction After Laparotomy; Personal Service as the Especial Exponent of a Great Profession. By H. O. Marcy, Bostou. Reprints.

Protest Against Adoption of Senate Bill No. 2680, by the Board of Health of San Francisco.

Protest Agaiust the Passage of Senate Bill No. 1063; Memorial of William H. Welch. Senate Document No. 104, 55th Congress, Second Session.

Report of City Board of Health of Terre Haute, Ind., for 1895. Paper. Pp. 20.

Report of City Board of Health of Terre Haute, Ind., for 1897. Paper. Pp. 26.

Report of the Board of Health of Memphis, Tenn., for 1897. Paper. Pp. 50.

Salt Theory or Hypothesis of Disease, The. By J. D. Poindexter, Ft. Hamilton, New York Harbor. Paper. Pp. 6.

State and Federal Quarantine Powers. By Edgar H. Farrar, New Orleans. Paper. Pp. 27.

Syme, Personal Reminiscences of. By Donald Maclean. Illustrated. Reprinted from the Medical Age.

Trachoma, The Treatmeut of the Malposition of the Lid Border in. By F. C. Hotz, Chicago. Reprinted from Journal American Medical Association.

Tuberculosis and the Public Health. By Geo. Lane Mullins, Sydney, N. S. W. Paper. Pp. 23.

Tubercular Peritonitis, Surgical Treatment of. By J. P. Creveling, Auburn, N. Y. Reprinted from Buffalo Medical Journal.

Typhoid Fever. By J. E. Woodbridge, Clevelaud, Ohio. Paper. Pp. 50.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from March 12 to 18, 1898.

Major Joseph B. Girard, Surgeon (Jefferson Bks., Mo.), is granted leave of absence for three months, to take effect on or about April 1, 1898.

Capt. Madison M. Brewer, Asst. Surgeon, is granted leave of absence for one month ou surgeon's certificate of disability. to take effect upon the expiration of the ordinary leave of absence.

First Lieut. Thomas S. Bratton, Asst. Surgeon, the order assigning him to Ft. Leavenworth, Kan., is revoked, and he is relieved from duty at Ft. Niobrara, Neb., and ordered to Tybee Island, Ga., for duty.

Capt. Francis J. Ives, Asst. Surgeon, is relieved from duty at St. Francis Bks., Fla., aud ordered to Ft. Wiugate, N. M., to relieve Capt. Adrian S. Polhemus, Asst. Surgeon. Capt. Polhemus, upon being so relieved, is ordered to Ft. Columbus, N. Y.

Capt. William E. Purviance, Asst. Surgeon, is relieved from duty at Ft. Columbus, N. Y., and ordered to Ft. Morgan, Ala.

Capt. Allen M. Smith, Asst. Surgeon, will be relieved from duty at Ft. Reno, Oklahoma Ter., upon the arrival there of First Lieut. Henry A. Webber, Asst. Surgeon, and ordered to Ft. Hamilton, N. Y.

First Lieut. James S. Wilson, Asst. Surgeon, is relieved from duty at Ft. Clark, Texas, and ordered to Ft. Caswell, N. C.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the two weeks ending March 19, 1898.

Surgeon L. B. Baldwin, detached from the "Puritan" March 17, and ordered home with two months' leave.

Surgeon J. D. Gatewood, detached from duty at the naval museum of hygiene, Washington, D. C., March 15, and ordered to the "Puritan" March 17.

Asst. Surgeon C. D. Kindleberger, detached from the "Olympia" and ordered home with two months' leave.

Surgeon N. H. Drake, detached from duty with the "Minneapolis" and "Columbia" aud ordered to the "Minneapolis" March 15.

Surgeon C. G. Herndon, ordered to the "Columbia" March 15.

Medical Inspector W. S. Dixon, detached from the "Brooklyn" and ordered at once to the hospital at Norfolk, Va., for treatment.

Medical Inspector P. Fitzsimons, detached from duty as a member of the board of inspection and survey, Washington, and ordered to the "Brooklyn."

Surgeon J. E. Gardner, ordered to the "Dolphin" March 24.

P. A. Surgeon T. W. Richards, detached from the New York navy yard aud ordered to the "Machias" March 22.

P. A. Surgeon M. R. Pigott, detached from the "Machias" March 22, proceed home and wait orders.

The Journal of the American Medical Association

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ORIGINAL ARTICLES.

THE FORM OF TYPHOID FEVER CALLED MOUNTAIN FEVER—WIDAL'S TEST.

AFEBRILE CASES.

BY CHAS. E. WOODRUFF, M.D., U. S. ARMY.

JACKSON BARRACKS, NEW ORLEANS, LA.

When the eastern part of the United States was being settled, it was discovered that peculiar fevers arose. It is now almost certain, that at first the fevers were invariably malarial, but as the lands became drained, the farms cultivated and the water supplies infected with typhoid bacilli imported by the settlers, malaria disappeared and typhoid fever took its place. The first is the disease of new lands, the latter the result of insanitary conditions brought about by the settlers themselves. In the stage of transition there were numerous cases of "low fevers" which could not be positively stated were malaria or typhoid and for a while it was thought that double infections or hybrid cases occurred, hence the former frequent use of the obsolete term typho-malaria. As for double infections we know that they are so extremely rare as to need no further consideration, and if a doubtful case does not respond to quinin and does not show the plasmodium of Laveran it is surely typhoid. As for a hybrid disease neither malaria nor typhoid, we can be equally positive and state that since the discovery of Laveran's organisms and the typhoid bacillus, no such case has ever been found. The old method of giving quinin in typhoid no doubt arose from thus curing the malarial cases which were believed to be typhoid.

Now, in the early history of the settlement of the elevated western parts of the country, a similar confusion occurred in relation to its fevers. In those parts of Montana in which the writer has lived it can be positively stated that there is no native malaria. Every case found is an importation; for instance, a soldier or civilian arrives from St. Louis and after a few months has chills, fevers and sweats, the plasmodium is found and the case is promptly cured by quinin. Such cases curable by quinin and in which the malarial organism is found, never arise in persons who have lived a long time in the West, that is, a time sufficiently long to exclude the possibility of the organism having remained latent in the liver and spleen. There is no data at hand to substantiate such a dogmatic statement, but it can be accepted as the writer's individual experience. Now, the rarity of malaria was not known at first and indeed is not now known, for that matter, for the writer has personally seen typical cases of typhoid fever, diagnosed and reported as malarial remittents, treated with small doses of quinin and when the case recovered in due time, it was held up as a triumph of the persistent use of small doses of quinin for three or four weeks. With modern methods such absurd mistakes are impossible. In early days no doubt malaria was imported as now, and no doubt that typhoid was also imported, but physicians had so many atypical cases of fever that a new name was coined for them, "mountain fever." Whenever a case went to the postmortem table, the lesions of typhoid fever were invariably found, so that a few physicians dropped the term at once. An effort was made to prove that mountain fever was typho-malaria, and if the proof was logical, then there is no such thing as mountain fever because there is no typho-malaria. It was supposed that the term mountain fever was obsolete, but recently a Montana physician has informed the writer that such a disease really exists, that severe cases of fever are undoubtedly typhoid but the milder cases are not. Now, a great deal of this confusion results from ignorance of the fact that when a new country is being settled the first cases of typhoid are rarely recognized, because of their atypical nature. Even in the older East many physicians still refuse to call a case typhoid unless the fever lasts three weeks or more and is severe. Then again it is quite safe to assume that the altitude or some other unknown causes, effect a decided change in the character and activity of the bacillus, causing cases somewhat different from those in the East. But the differences are not marked, for it will be found that every eastern city has just as great a proportion of atypical cases as appear in the West. Indeed the occurrence of typical typhoids is so rare that we are astonished to find one. It is so variable that at one time it was considered to be due to several causes, several varieties of bacilli. Every case in the West can be exactly duplicated in the East by men of large experience. Now, this rule of absence of rigid type was not known by the earlier western physicians, hence they only too readily appropriated the term mountain fever. There are a large number of residents of Montana who are so thoroughly imbued with the idea that it is the best climate in the world, that they will not listen to any such bosh as the prevalence of typhoid fever. Records show that typhoid fever has occurred now and then at Fort Custer for years, and one postmortem of a man who died after a few days sickness showed perforation. In spite of all these cases, an old resident of Fort Custer told the writer that he never heard of a case of typhoid fever in Montana. Some of this feeling of local pride possibly blinds a few of the physicians; for instance, a certain physician saw one of the writer's cases in which the roseola was perfect and the course of the disease left no doubt as to the diagnosis, yet he said it was only a "touch" of malaria and she would be "up" in a few days. She had been "down" more or less for three weeks and was "down" about ten days after his diagnosis was made, the quinin taken not having a particle of influence. In another case, the man was advised to go to bed at once, but concluded to consult a physician of Billings, who thought it was

mountain fever and advised him to return to the hospital. The patient thought he could cure himself with a "good drunk," but did not succeed, and when he did come into the hospital he was one of the worst cases we had.

Finally, the same series of events is now taking place in the West as it has already taken place in the older East, that is, the more concentrated the population becomes the quicker is the infection from patient to patient, and the more closely do the cases resemble the typhoid we were accustomed to call the classic type. Formerly, when the water courses were not markedly infected, it is reasonable to assume that considerable time may have elapsed after the bacilli were discharged from one patient before they were taken up by another, a time in which it is perfectly possible, even probable, that they took on new and less malignant characters. Just as soon as a western town or neighborhood becomes crowded and it is possible for the water-supply to become polluted, the cases are infected almost from one patient to the next, not giving time for the bacilli to lose virulence, but possibly increasing in virulence. As a consequence, the cases are so severe as to leave no doubt as to the diagnosis. Hence the term mountain fever is not heard nearly as often as formerly, and then only in the more remote, smaller towns, or in isolated places, where we can presume cases occur as they did twenty-five years ago.

During the past summer and fall, there occurred at Fort Custer, Montana, an epidemic of fever, which was undoubtedly typhoid and which could have been pronounced mountain fever by those who hold to such views, and the following analysis of the cases is made with the express purpose of helping to abolish the use of such an illogical term.

It is an old habit to conceal one's ignorance of the disease he is treating by giving it some neutral name such as "slow," "pernicious," "gastric," "bilious," "typho-malarial," "swamp," "Red River fever," "irritative," and so on indefinitely. In epidemics when it is desired to conceal the true state of affairs the same euphemism is used. Nowadays when the public is beginning to recognize that every case of infectious disease is apt to spread the poison broadcast, they are calling for definite diagnoses and the abolition of meaningless terms.

The danger of typhoid is extremely great as a moment's thought will show, because no means are taken to disinfect the stools, and dieting is considered superfluous. The water courses are becoming more and more infected and are spreading fatal typhoid throughout the whole West. There is already a frightful state of affairs in some localities. If rumor is to be believed a bad epidemic has occurred in Miles City from infection brought down by the rivers, for every town considers itself entitled to pour its sewage into its river, to be consumed by the next town below. In arid countries like Montana, where the only available water is in the streams, as wells and springs are not to be found, it certainly behooves the people to take measures to protect the streams. They are the very life of the country, for no one can live very far from them; unless care is taken they will be the death of the country.

At Fort Assinniboine, Mont., some years ago a severe epidemic of fever occurred, and it was shown subsequently that the infection was brought by the water (Beaver Creek) which had been infected by Indians and half-breeds camped on its banks a mile or two above the fort, one or more of these people dying of the disease. In this case there was considerable irritation shown by the officer having charge of the water supply, at the imputation that the water was at fault. He stated with great vehemence that there was not a single case of typhoid in the lot, that they were all mountain fever not due to the water. This vicious term, then, actually interferes with proper sanitation in the West, and the sooner it is abolished the better.

Travel in the West is sometimes unsafe for this reason, and it is decidedly to the interest of the railroads to be positively assured of the purity of the water supplied to the cars for drinking purposes, or to have it properly sterilized if they are not certain. Entirely too often do we hear of typhoid fever occurring in persons who have been traveling in the West, and it is to the interests of all railroads to make it clear to their patrons that the water used in the cars is above suspicion.

Even in isolated places there is danger, because recent reports brought by intelligent priests and others, who have been among the Indians a great deal, show that it is not uncommon in the summer and fall, for the Indians to have a sickness which can be nothing else than typhoid fever. They do not complain much, merely lounge about their tepees for three or four weeks "out of sorts," more or less feverish, sometimes with high fever, in fact a picture of some of our cases in which the diagnosis is beyond a doubt.

Case 1.—D. E., age 22, colored recruit, one month in post. May 2, chilly sensations. May 5, Admitted to hospital. Temperature in evening over 103 for six days, then between 99 and 100 until May 26. Quinin had no effect. Widal's test, with blood, negative May 23 and 25, but with serum from blister, positive May 24 and June 2. July 4 blood gave positive reaction. June 2 this case took measles, fever lasting until June 7. The disease was derived from another recruit, who brought the infection to the post. Baths not ordered.

Case 2.—O. G., age 22, colored soldier, one year at post, was sick only three days before entering hospital June 17. Headache, limbs and joints stiff and sore. No appetite. Very slight sore throat, constipation. Fever lasted only four days November 3. Perfect Widal reaction.

Case 3.—C. T. B., colored nurse, age 24, one and one-half years at the post. May 30, had measles—contracted, as did Case 1, from recruit. Eruption June 3. June 6-8, convalescent and helped to nurse Case 1 who was brought into isolation ward with measles June 4. In these few days while susceptible to any infection, he probably became infected with typhoid, possibly from direct contact with his patient. He did not complain until June 21, when he "felt badly" and went to bed with temperature 104, next evening it was 105. He became unconscious quickly, had great subsultus, and died June 30. Had incontinence of bladder and bowels two days. Though he was in bed but nine days, the postmortem showed typical lesions of end of third week, *i. e.*, ulceration nearly completed, a few patches not having sloughed off. This case presented a picture of profound poisoning, and is extremely interesting as showing the fact so noticeable in many of these cases, that at first the patient may not have sufficient symptoms to cause him to notice them. He was doing hard work for the first ten or twelve days of the disease. Cultures from the enlarged spleen were used for Widal's test in all subsequent cases. Widal's test June 27 negative. The blood of June 28 gave an incomplete reaction in one hour, at the Surgeon-General's office, "while the majority of the bacilli had become agglutinated there were yet to be seen quite motile organisms in all fields." Fourteen cold baths were given.

Case 4.—L. B., age 25, colored soldier, one year and three months at post. Admitted to hospital August 5. Diarrhea a few days followed by constipation. Temperature above normal ten days and subnormal about one week. No data as to Widal's test. Baths not ordered.

Case 5.—S. G., colored soldier, age 22, one year at post. Admitted August 15. Headache, chill of several hours. For a few days stools were soft and of a greenish yellow, then bowels generally constipated. Fever lasted until September 9.

Widal's test August 21, negative, August 25, doubtful. S. G. O.) "Some marginal clumping, but the majority of the bacilli actively motile at the end of one hour September 4 and 5, positive." September 23, partial reaction (agglutination and immobility not complete). Twenty-nine baths.

Case 6.—V. V., age 49, white. Admitted August 16, temperature 99.4, rising to 104 in the evening. It remained high (102 to 103) for ten days, then gradually approached the normal, which was reached in ten days more. Time of origin unknown, but he was sick for at least two weeks at Lame Deer before he entered the hospital. The nervous symptoms were very marked. In the beginning he was semi-delirious and irresponsible and destroyed a vocabulary and grammar of the Cheyenne language on which he had been at work for fifteen years. He became stupid and apathetic, careless of dress and appearances, and so mentally unbalanced that his friends brought him to the hospital for treatment of acute insanity due to worry. He was semi-comatose for fifteen days; had retention of urine, weak pulse and was not expected to live. Needed stimulation throughout. For three or four days typical "pea soup diarrhea," but subsequently there was obstinate constipation. Tongue badly coated throughout, becoming brown in third week; mouth required constant attention. There was a marked roseola. About August 20 Widal's test resulted in immediate cessation of movement but no agglutination. August 22, agglutination marked but some movement. August 31, perfect reaction. September 23, perfect reaction. Sponge bath given every two hours if temperature was over 103; about eight were required.

There was a partial aphasia in this case, which lasted well into convalescence. His memory was also defective during convalescence.

Case 7.—J. S., colored soldier, age 23. At post one year and eight months. August 17, headache; 18th, fainted in ranks; 19th, admitted to hospital; generally constipated, sometimes natural movements. Tongue slightly coated and swollen but cleared off in about fifteen days. Evening temperature over 101 for twenty-nine days, reaching normal in five more days. Eight times temperature reached 104 or over, three times it was 105. Comfortable throughout, no nervous symptoms. Quinin tried eleven days with no effect. Widal's test, August 21 doubtful, August 22 partial, August 31 positive, September 5 positive at S. G. O., September 22, positive. Considerable emaciation, convalescence rapid. Twenty-two baths were required.

Case 8.—W. B., colored soldier, age 24, two and one-half years in service and at post. August 24, chill; 25th, headache, but had "felt badly" three days. Constipation throughout disease, tongue swollen and coated; no other symptoms. Temperature variable, evening rise for eight days, once going to 104, usually 100 to 101. September 1 to 9, temperature normal. Got up September 4. September 10, temperature rose to 102.5 and remained high until September 14, when it gradually came to normal on the 21st. This was the first case in which there was a period of normal temperature (afebrile) in the middle of the course. He was perfectly comfortable throughout, and resented confinement. Widal's test September 4, partial reaction, agglutination but some movement, September 22 and 23, positive. Six baths needed.

Case 9.—R. H., colored soldier, age 24, in service twelve years and four months, at post one-half year. Had a mild attack of acute melancholia in June. August 27 admitted to hospital with temperature 103.6, complained that for two weeks he had had pains in the loins, general malaise and weakness, occasional chills, and feverish at night but not in morning. Generally constipated, tongue large, pale and slightly coated. Evening temperature gradually receded from 102.5 until it reached normal in eleven days, but it varied a little for six days more. He became perfectly comfortable as soon as he was put to bed. Had slight sore throat. Widal's test, September 4 positive, though there was a slight movement of a few bacilli. Baths not needed; temperature always below 102.5 after admission.

Case 10.—B. G., colored soldier, age 22, at post one year and one month. In August was at Lame Deer, on Tongue River, where he felt badly having headaches off and on. August 21 came to Custer. August 28 admitted to hospital complaining that for three days had had sick headache and generally out of sorts. Temperature 101; on the 29th rose to 104; 30th and 31st rose to 101; September 1, 100. It then did not rise above 100 for five days. September 7, it was 100, and subsequently strictly normal. Quinin (650 mg.) was given twice or thrice daily until September 9, and seemed to cure the fever, for the temperature gradually went down. Tongue was so coated as to require mouth wash. Was perfectly comfortable throughout after he went to bed. Widal test on September 4; there was cessation of movement but no agglutination. He went to duty September 1 feeling perfectly well. September 16 he returned as he did not seem to regain strength. Temperature normal until 29th, when it rose suddenly to 102.5, and there was a daily rise from that time on for forty-eight days when he was discharged for acute tuberculosis. Fever was always moderate (100), rarely over 101, tongue slightly coated. At first he was considered to have a relapse, for Widal's tests gave September 28 and 29, negative; October 3, positive; October 10 and 17, perfect; October 16, negative (S. G. O.). September 29 he had pains in left chest, usually near heart, worse on motion or turning over, and he had a chill that day, but nothing abnormal was discovered in the chest after repeated examinations, until October 14, when there were suspicious sounds in right apex. On 16th had night sweats and these were repeated several times. Emaciation now became greater, notwithstanding increase of food, tonics and stimulants, and November 6, there was decided involvement of both lungs and effusion in left pleura, which was absorbed within a week. Had constant cough but no sputum. Tubercle bacilli were only found once in the mucus which came from the nose and mouth. Only one bath was required.

Case 11.—R. R., colored soldier, age 25, service three months at post. Admitted August 30; complained he was sick two days; had been at Lame Deer, on Tongue River, until two weeks previously. Had headache, was tired and had pains in his legs. Tongue coated and swollen. Temperature 102.2. Evening temperature was between 102 and 103 for nine days and gradually came to normal in fourteen days more. Was obstinately constipated throughout. Widal's test September 4, immobility but no agglutination; 21st, negative. Three baths were given.

Case 12.—J. H., colored soldier, age 23, one year and one month in service and at post. September 11 had stiff neck, pains in chest, dizziness and fever, but by 15th these left and he complained of malaise, anorexia and occasional vomiting. September 15, was admitted to hospital. Temperature 102: evening temperature remained between 104 and 105 six days and 103 three days; it gradually came down for eleven days, and then was quite irregular for nine days more, when it remained normal, except one rise to 101.2 on the third day of convalescence. Was obstinately constipated throughout. Tongue heavily coated until fourth week. Tympanites first four days with gurgling in right iliac fossa. Turpentine stupe required on third day. A loud systolic murmur heard at apex for a few days. Temperature subnormal throughout convalescence. Widal's test gave perfect reaction September 22 and 23, and October 10, 16 (S. G. O.) and 17. Twenty baths were given.

Case 13.—L. H., colored soldier, age 22, one and one-half years in service and at post. September 13 had a chill, dizziness and "smothering spell;" September 15, temperature was normal, was given laxative; September 16, morning temperature normal; evening 103.2 and was put to bed. Evening temperature then gradually came down, the normal being reached in twelve days. Was generally constipated. Tongue, which was but slightly coated at first, became heavily covered with white fur in five days. Had headache at first and "weakness in eyes." Gurgling in right iliac fossa. No other symptoms; was perfectly comfortable after the first day or two. Widal's test on September 22 and 23 gave positive reaction. Five baths were given.

Case 14.—R. B., civilian, white, age 21, one month in the vicinity. Admitted September 18; had had for two weeks malaise, headache, cramps, diarrhea and anorexia. On admission, tongue foul, tympanites, gurgling in right iliac fossa and headache. Nose bled several times during course of disease; was generally constipated; marked roseola. Temperature on admission 104.2. The evening temperature was 104.6 for two days and then gradually came to 99 in twenty-two days more, but some slight irregularities lasted for about a week longer. Tongue became brown in second week. Was comfortable and free of all symptoms after a week in bed. Widal's test September 20 and 21, positive; October 10 and 17, perfect (16th, S. G. O. positive). Twenty-four baths were given.

Case 15.—E. G., colored soldier, age 28 years, nine years and eight months in service, five years at post. September 17, began to have nose bleed, and neuralgia over eyes. The latter became so severe that he had to be taken to hospital on the 20th, pains left on the 22d and he was considered well as his temperature had been strictly normal. On the evening of 23d it suddenly rose to 102.2. The evening temperature then remained between 102 and 103.6 for eight days and then sank, reaching normal in five more days. Then for fifteen days longer it showed an irregular line oscillating between 99 and 100. In the last two weeks this case came as near to being an afrebrile

type as one could well imagine. He was perfectly comfortable throughout after his headache left, and bitterly resented being confined to bed. His bowels moved regularly but were soft until fourth week when constipation set in. Widal's test October 3, negative; October 9, positive; October 16 (S. G. O.), positive; October 17, perfect. Five baths were given.

Case 16.—T. R., white, cowboy, age 32. Had been in vicinity occasionally all summer. September 23 came to hospital with morning temperature of 100.6. Had headache: coated tongue; had been feverish several days. and "out of sorts" three weeks. His bowels moved regularly once or twice daily and stools were soft, sometimes watery, pea soup variety for a day or two but subsequently yellow. The evening temperature was about 103 the first week and 102 the second and third weeks. He left the hospital on the twenty-first day (September 13) temperature 102, because he felt perfectly well and resented the cold baths and milk diet. After the first few days he was comfortable. His tongue gradually cleaned off as his temperature fell. Roseola was marked. Widal's test September 29, negative; October 4, positive; October 10, perfect. He made a perfect recovery. Eleven baths were given.

Case 17.—J. B., colored soldier, age 27 years, five years and six month in service, five years at post. September 25, admitted to hospital, temperature 98.8; complained that his "head and eyes hurt" four or five days. Cold chills at times and was somewhat feverish. His "knees would give way." Bowels had not moved often, but stools were thin and watery when they did move. Evening temperature on 25th was 104.6, and for twelve days it was between 103 and 104. It then gradually came down, reaching normal in eight days, though it showed a slight irregularity for three weeks longer. Constipation was a constant feature. Tongue was very much coated and after clearing off once it again became foul. The nervous symptoms were very marked and culminated in post febrile insanity. He was stupid, quiet and apathetic from the start. His pulse was always slow, and markedly dicrotic in the second and third week. In the fourth week the rate varied from 50 to 55. On the nineteenth day of the fever, he had great mental confusion, loss of memory and marked delusions, though generally quiet and stupid. The stupor gradually left with the fever, but the delusions continued. His mental depression was succeeded by mental exaltation and delusions of grandeur. He became filthy and violent, requiring constant restraint. One night he had a violent maniacal outbreak. His strength returned quite rapidly and until he was restrained he had no difficulty in knocking the nurses down whenever he wished. Widal's test September 28, partial; 29th, negative; October 3, positive; October 10 and 17, perfect; October 16, positive (S. G. O.). Twenty-two baths were given. The insanity might be called "confusional." When last heard from he was recovering.

Case 18.—W. P., colored soldier, age 34, nine years and six months in service, five years at post. September 25 admitted to hospital, temperature normal. Had general malaise and weakness for two weeks, felt as though "legs were drunk." Evening temperature on 25th was 103; 26th, 101: 27th, 99.6: 28th, normal, and no subsequent irregularity. There were positively no symptoms in his case beyond the three days of fever, after he went to bed. Widal's test September 28 and 29, and October 3, negative. It was considered simple fever from unknown causes. The diagnosis was changed on November 3, because on that day his blood gave a typical reaction. This case is remarkable for its shortness, the probable length of time he kept about without symptoms (resembling Cases 2 and 3) and the length of time before Widal's reaction was found. It was necessary to give but one bath.

Case 19.—R. G., colored soldier, age 26 years, four years and three months in service and at post. October 5 was admitted to hospital; temperature 101; complaining of headache and backache with sore throat. Had been sick four or five days. His bowels had been regular, and though they did not move often (once or twice daily) the stools were usually thin, watery and yellow. He was never constipated. The pharyngitis lasted about one week. The tongue was always more or less coated: edges red, and very tremulous. The evening temperature was 104 for sixteen days, and gradually fell to 99 in ten more days; subsequently it was for twenty days sub normal, or normal, with two rises, one 101 and one 99.6. The nervous symptoms were confined wholly to marked tremor and subsultus. He was bright mentally and always comfortable. Widal's test, October 9 and 16 positive (S.G.O.); October 17 perfect. Thirty-nine baths were given. He was quite weak during convalescence.

Case 20.—B. J., colored soldier, age 24 years, one year and eight months in service and at post. October 5, in evening, he was admitted to hospital with a temperature of 103.4. Had been sick a week. Had dull headache and was drowsy. Tongue swollen and slightly coated. Bowels regular. The temperature was irregular for six days, when it became normal and stayed normal so that he got up on the fourth day thereafter, but after he had been up three days the evening temperature began to go up until in three days (October 21) it was 104. It then kept up from 103 to 105 until November 5, when it fell to 102. November 14, it was 100; subsequently it rose again and by November 19 and 20 it was again 104, where it stayed for ten days and then gradually came to normal in six days more. Convalescence then began with sub-normal fluctuations. This case is remarkable for its afebrile interval in the second week. He required fifty-seven baths. His mind was always clear. Bowels generally constipated. There was considerable cough and expectoration. Skin became dry, rough, harsh and covered with branny scales. Widal's test was perfect on October 9, 10, 16 and 19, but on 17th it was entirely negative. October 16 negative. (S.G.O.) After the second rise of temperature in November, he had a suspicious roughening at the right apex, and had had considerable cough, but no tubercle bacilli could be found in the small amount of sputum. The nervous involvement was remarkably severe. He had throughout a persistent marked tremor of both arms, but this symptom was an exaggeration of what existed before the fever, for he has had for some time a condition resembling paralysis agitans. In the course of the fever his muscles took on a tetanoid state with "lead pipe contractions;" his face was drawn almost into the risus sardonicus of tetanus. He could not open his mouth widely, nor thrust out his tongue. The stomach would not retain food during the height of these symptoms, though he had no nausea, and the attempts to vomit caused even greater rigidity of the head muscles. December 20, Dr. D. A. Howard reports the following conditions: "paralysis and marked atrophy of certain groups of muscles as follows: Extensors of hand causing drop wrist; the interossei and smaller hand muscles giving the hand appearance of a claw; 'drop foot' also present; extensors of toes paralyzed and toes are held stiffly contracted in extreme flexion; foot and whole leg, right side atrophied to marked extent; arm also same side; angle of mouth on right side lower, and on laughing is immobile, showing paralysis; tongue pushed toward the paralyzed side; no atrophy here noted; deep reflexes (tendon) retained; no ptosis or pupillary symptoms. In right foot there is some tenderness to touch, but no edema nor congestion; no areas of anesthesia. Right hand and arm is in continuous tremor; has been so since early in the disease. No disturbance of speech, vision or hearing." On the 23d he had some numbness in toes of right foot and has cold feeling in left foot. On the 25th he could walk with some difficulty, and on January 10 he had such marked improvement in walking and was gaining in weight so much that he was transferred to his new station, convalescent. The multiple neuritis thus described as a complication of convalescence may have had its beginning much earlier, but the nervous symptoms in the course of the fever could easily have been caused by the direct intoxication.

Case 21.—O. L., colored soldier, age 22 years, in service and at post one year and two months. Was admitted to hospital evening of October 5; temperature 102.2. Had been sick a week. Had headache and constipation. Tongue was slightly coated. In two days he was perfectly comfortable and remained so. He remained constipated and the movements were hard unless a laxative was taken. The tongue was badly coated and did not clear up until the fever left. The evening temperature was 102.2, October 6; 101 on 7th; about 100 for seven days, and then kept about 99 for fifteen days longer. It can not be said to have been normal until November 3, or twenty-eight days from onset. It was as perfect a type of afrebile, or nearly afrebile typhoid, as we have. Widal's test, October 10 positive; October 16 good grouping, but a little remaining movement in center of drop. October 16 positive. (S.G.O.) Seven baths were necessary.

Case 22.—J. C., colored soldier, age 24; only been two months in service and at post. October 4 had stiff neck, pains in side and neck, and headache. October 6 fever in the evening. Had been complaining for a week or more of a bad feeling, and a pain over eyes when he raised them. Bowels were loose, but not many movements. Tongue nearly clean. October 7 was put to bed; temperature 100. The evening temperature was 102.8, coming down to 102 on the 12th. and then gradually falling to normal on the 20th; it was then slightly sub-normal twelve days and irregular for another week, but not varying more than a degree either side of the normal limits. October 12th (fifth day in hospital) there began a sharp attack of tympanites, which with its enormous hard distension of the abdomen, excruciating pain, tenderness over right iliac fossa and heart failure, was thought at the time to be peritonitis. Under saline laxatives, turpentine en-

mata and stupes, and hot local applications it gradually subsided, but the tenderness over the cecum did not leave until the ninth day. It had not a particle of effect upon the temperature, which gradually subsided all this time. He made an uneventful recovery. Widal's test gave, October 9 and 16 positive. (S.G.O.) October 17 immediate immobility, but no grouping; October 19 perfect reaction. One bath was needed.

Case 23.—J. E., colored soldier, age 24, one year and ten months in service and at post. October 7 admitted to hospital. Had been "feeling bad" for three days; general pains in head, eyes, calves and shoulders. Bowels regular. Had been feverish. Tongue heavily coated and swollen. Evening temperature was 101.4, but it rose no higher, gradually coming to normal in sixteen days. This case might have been called afebrile. After he was in bed thirty-six hours, all his symptoms disappeared, except fever. He was perfectly comfortable and good natured and did not resent his confinement. He was almost always constipated. Widal's test gave, October 9, a little agglutination but immobility; October 10, many groups, but there was little activity; October 16 positive; October 16 positive (S.G.O.); October 17 some activity and some grouping. No baths were needed.

Case 24.—W. P., colored soldier, age 26 years, only one month in service and at post. October 8 admitted to hospital with noon temperature of 100; complained of feeling badly several days; now had pains in head and back, and general malaise. Tongue coated and did not clear up until long after fever went down. October 8, in evening, temperature was 103.6; on 9th and 10th 102; 11th and 12th it was 100, and was then normal three days. On 15th he got up, as he was apparently perfectly well. On 16th evening temperature rose suddenly to 101.1, and from that point the evening record gradually declined eleven days, and was subnormal for fourteen days more, when he left hospital, or thirty-seven days after onset. He was always comfortable; had no symptoms beyond constipation and fever. Widal's test, October 9 positive; October 16 agglutination at edges, but some motility left in center; October 16 positive, (S.G.O.); October 17 perfect. The peculiarity of this case was the early appearance of Widal's test and the peculiar afebrile interval. Eight baths were given.

Case 25.—W. D., colored soldier, age 27, four years and ten months in service and at post. October 8 came to hospital, with temperature 100.2, complaining of sore throat, pharynx congested and tonsils swollen. Had headache and backache for two days. Temperature rose to 102.2 in evening, but subsequently evening temperature receded, reaching normal in four days, but the curve for ten days was irregular, varying from 97 to 99. After October 22 it was normal. He was constipated throughout, and had no symptoms worth recording. The pharyngitis was gone before the fever. Under ordinary circumstances this would have been called a simple pharyngitis, and dismissed in four days, and the abnormal temperature chart (afebrile almost) for the next ten days would not have been discovered. But on October 9, Widal's test gave some grouping and marked immobility. October 10, negative, October 16 perfect reaction, October 16, negative S. G. O., October 17, few groups but some activity. It is probable that this is an aborted case or, like Case 3, the disease may have existed a long time before he felt any inconvenience from it. No baths were needed.

Case 26.—O. G., colored soldier, age 22, one year and two months in service and at post, September 26 to October 9 was under treatment for gonorrhea. October 9 went to duty but had to be excused from guard for headache and general bad feelings. Admitted to hospital with temperature of 102.2. His tongue became coated at once and mouth was so foul as to require special care, but was cleaned off in ten days. He was sleepless for a few nights. Bowels moved once or twice a day and stools were very soft and yellow. Subsequently he became constipated. The temperature was remarkably irregular throughout; the evening record was 104 for seven days, and then gradually receded, reaching normal in twenty-two days more (November 7). After being normal three days it was subnormal three days and then normal again. Widal's test, October 10, immobility but no grouping, October 16 and 17 positive. but groups were not numerous, October 16, positive S. G. O. Twenty-two baths were given.

Case 27.—W. S., colored soldier, age 26, five years and two months in service, four years and ten months in post. October 13, admitted to hospital in A.M., temperature 100.6. Had been sick two days with headache and pains in the neck. Slight cough about a week. Tongue was pale and he had foul sweetish breath. The tongue and mouth became so foul as to need special attention. Pain in head lasted two days, after which he made no complaints whatever except of hunger. There was persistent constipation throughout. The evening temperature on the 13th was 103.2, 14th and 15th 104, it then subsided to the normal by the 21st and remained subnormal until his discharge. From the 21st for eighteen days there was a regular daily curve with range of 2 to 3 degrees, which is extremely interesting, for it shows so well the fact that even in these afebrile cases there may be a daily range never found in healthy men, and more exaggerated perhaps than the subnormal records due to the weakness of convalescence. Widal's test, October 16, positive, S. G. O., October 16 perfect, 17th some restriction of motility but no grouping, 19th perfect reaction. Ten baths were given.

Case 28.—J. H., colored soldier, age 27, three years and nine months in service and at post. October 16 admitted to hospital, temperature 99.2. Had for two days "sore" and painful eyes and headache increased by bending over. Bowels were regular but became obstinately constipated. In twenty-four hours he was comfortable and had no symptoms other than constipation and fever. Evening temperature on 16th was 104.4, but it gradually declined until 27th (eleven days). It was then irregular and subnormal or but slightly above normal for seventeen days, the daily range being 2 to 3 degrees. Widal's test, October 17, no grouping but much restriction of movements, October 19, perfect reaction. Six baths were given.

Case 29.—J. B., white civilian teamster, age 37, several years at post. About October 4 he asked treatment for general malaise with pains in head, back and legs. Temperature was 103 and he was advised to come into hospital, but held off. After a week or so he took a leave of absence, consulted a civilian physician who told him he had mountain fever and advised him to return and enter hospital. He got some medicine, and thought a "good drunk" would cure him. October 22 or eighteen days after the diagnosis was made he was so sick that he had to come into hospital. Had had diarrhea several days, but this quickly changed to constipation. Temperature 99.8, pulse 100 and strong. Tongue coated, pain in right iliac fossa. Typic roseola. The nervous symptoms now came on quickly, first slight delirium, then semi-coma; deafness persisted about ten days; marked urticaria November 2, 3 and 4; paralysis of bladder November 5, requiring catheter for several days; tetanoid state of all muscles. The tongue became brown and heavily coated; mouth required constant attention. The evening temperature October 22 was 104.6; for five days it was 103, for seven days 102, becoming normal in three days more; it then remained irregularly above and below normal nine days, when November 18 it gradually rose to 102 on November 23 and reached the normal December 2—like a short relapse. It was then irregularly subnormal until he left hospital December 16. With the temperature drop November 8, all nervous symptoms gradually left. Widal's test, October 31, gave perfect reaction. Twenty-one baths were given. This case illustrates the disastrous results of not going to bed at once.

Case 30.—J. C., colored recruit, age 26, three months in service and at post. October 20 he applied for treatment for headache and constipation. Was given a laxative and felt well until 26th, when he had a chill, pain in shoulders and all his bones; 26th and 27th had severe fever and 28th came in hospital; temperature 99.6. Pains diminished quickly and in three days he was comfortable. Bowels constipated. Temperature evening 28th was 101.8 and evening rise was in neighborhood of 102 for seven days, and then reached the normal in eight days more; it then became irregular, varying from 97.4 to 100.8 until November 25 when he became convalescent. It remained subnormal until he went to duty December 12. Widal's test, October 31, gave a perfect reaction. No baths were needed. He lost no strength and emaciated very little.

Case 31.—R. A., colored soldier, age 50, twenty-seven years' service, five years at post. Admitted July 1 for fever, which lasted only three days. From the general trend of his symptoms it is probable that there was a typhoid infection, but it was considered simply continued fever, and he disappeared from the post before Widal's test could be made. This test was not made while he was in hospital as it was one of the first cases, before it was suspected that an epidemic was brewing. Widal's test in February was negative.

Cases 32, 33 and 34.—Three children, ages 2½, 3½ and 5, one colored. One white child had typical roseola. The fever was moderate in height; lasted two to three weeks; was uninfluenced by quinin in one case and the drug was not given in the others.

Case 35.—M., female, age 45, typic roseola. She was seen but once and then only after she had been sick two weeks with fever. She recovered in about two weeks more, but the course was mild; constipated; tongue coated.

The following peculiar case has not been included as it was impossible to get facts:

B., colored recruit, admitted November 8 for adenitis of left groin. He had been in the post one month. Claimed the bubo had existed only two days, but he was so evidently lying that it was suspected that he had been sick a long time, but was afraid to ask for treatment, fearing dishonorable discharge for concealing a venereal disease. Temperature was 103, and stayed up for five days. Suppurative gland was excised November 9. On the 11th his condition was so identical with the other cases that his blood was examined by Widal's test and a typic reaction obtained. His temperature remained normal after the fifth day and in ten days he was sent to another post. He claimed that he never had had typhoid fever but his statements were too unreliable to be accepted.

ANALYSIS OF CASES.

A study of these cases brings to light the following facts and deductions.

Prodromes.—The usual malaise and headache are almost universal; in a smaller number the pains are present in other parts of the body, commonly in the back. Nose bleed never occurred as a prodrome. In one or two cases it occurred during the course of the fever.

SYMPTOMS.

Constipation is almost the rule, only in the severe cases do we get diarrhea, and only very rarely is the stool of the typic pea-soup variety. The cases being mild, illustrate the rule throughout the world, that constipated cases are not to be feared. The abdomen is rarely distended, only one marked case.

The roseola was present in every white case, mild or severe.

The breath was always foul, yet of a sweetish odor.

Perspiration.—The foul sweetish odor of the perspiration was so constantly present as to be pathognomonic. It was almost possible to pick out the typhoids in the ward from the odor of the patients. Perspiration was rarely abundant.

The headache seldom lasted more than two days; as a rule it was gone after twenty-four hours in bed.

Pharyngitis and *bronchitis* were rare.

The pulse was markedly dicrotic in but one case, No. 17. The rapidity of the pulse, though never marked, was increased in proportion to the rise in temperature.

The tongue was always coated. In the mildest cases there was a whitish fur along the center of the dorsum, the edges and tip being clean. This coating was more marked in proportion to the severity of the the cases, and in the most severe it was brown and extended over the whole dorsum of the tongue.

Temperature.—Some of the cases present a chart in no way different from the typhoids found elsewhere. The greatest peculiarity is found in the few cases in which there was a distinct period of normal temperature in the course of the disease. From the fact that the disease can exist nearly two weeks without symptoms as in the fatal case (No. 3), it is quite possible that those recrudescences may be true relapses. Some cases are nearly subnormal and afebrile, though in every case there was a period of fever, perhaps of only a few days. It seems that these few cases are as near an approach to those sometimes found in Europe as we may well expect. In two cases there was not a regular daily rise and fall, but it took two or more drops daily, one record might be 104 and the next nearly normal, and so on every three hours, and this in the first or second week. The slight elevations in the fifth and sixth weeks of the protracted cases are believed to be due to the anemia, weakness and possibly nervous causes.

Spleen.—The spleen was enlarged as a rule, but it was distinctly palpable in only three cases, each of them being severe.

Nervous symptoms—As a rule, nervous symptoms were conspicuous by their absence. Some of this was no doubt due to the cold bath treatment. In the few cases in which they were marked the patients had been up and about during the first week or two. One of these had traveled 100 miles in a wagon a week previous to admission, another had been on a spree, and the third (fatal) had no symptoms for eleven or twelve days (ambulatory type). In the others the symptoms were not marked and in only two of these was there delirium. Tremor was present in two. The peculiar tetanoid state found in three was characterized by the "lead-pipe" symptom, that is, each joint resisted movement but stayed in the position in which it was bent. It is quite similar to the same symptom found in some cases of cerebral or spinal palsies. Paralysis of the bladder occurred in only two and they were severe cases in white men. Partial aphasia occurred in one case.

Complications.—Bronchitis was rare, only three or four cases. There was no pneumonia. Intestinal hemorrhage was several times suspected from sudden falls of temperature, but in no case did blood appear in the stools.

Sequelæ.—Tuberculosis occurred in one case and in one there was post-typhoid insanity. In but four cases was there extreme emaciation as a result from the fever. There were no bone lesions, abscesses and other local sequelæ due to the bacillus. Multiple neuritis occurred in one case.

Mortality.—Only one death in thirty-five cases is not remarkable when we consider the mildness of many cases and the fact that the great majority were put to bed at the very beginning of the disease. The benefit of early confinement to bed has repeatedly been noted in typhoid fever. The fatal case was an ambulatory one, still further proving the benefit of early treatment. The condition as to nourishment also has a vast influence on the course and mortality. In one epidemic in the southwest which has been described as mountain fever there were so many taken sick as to stop all work in a military post, and yet not one soldier died, and the only death in the post was an ill-nourished, old civilian employe. Outside of the post the Indians were infected in equal numbers and as they were ill-fed and badly nourished they died in large numbers. Nevertheless in other epidemics, likewise called mountain fever, the mortality among robust, well-nourished soldiers is said to have been remarkably severe, as at a cantonment on the Uncompaghre, in 1881, in which the infection very likely came from the Indians also.

Widal's test.—Widal's test gave a reaction in every case (except one) in which it was tried. It will be noticed: 1. That as a rule in the first week or two the reaction was absent or was incomplete, that is the agglutination was not perfect except perhaps at the edges of the drop, and that there were some bacilli still actively motile at the end of one hour. In the latter part of the disease the reaction was perfect in almost every case. 2. As a rule the more severe the case, *i. e.*, the higher the temperature or the nearer the case resembled typic typhoid, the sooner was the reaction obtained and the more perfect did it appear. The milder the case was, the more imperfect did the reaction appear until quite late in the disease. In one case (18) it was not found until after convales-

cence. In this form of typhoid then, Widal's test is worthless for diagnostic purposes in the earlier stages. The absence of Widal's reaction in the early course of these cases probably explains abortive cases of unknown fever in the east, such as those described by Dr. N. E. Brill in the *New York Medical Journal*, Jan. 8, 1898. In these cases there were typhoid symptoms but no reaction to the test. The tests made at Custer with cultures from the spleen of the fatal case (3) were almost identical in results with those made at the Surgeon-General's office.

The results can be explained by the supposition that there was not much intoxication and that the special substances causing Widal's reaction were very slowly formed. This supposition is in strict accordance with the symptoms and general course of these cases. Indeed in Case 3 there were no symptoms whatever in the first eleven or twelve days of what proved to be a fatal case. Negroes are said to give reaction normally, but we never found it so except in one case, who on previous tests gave a negative result; a healthy negro or one not suffering with typhoid was used as a control every day.

Roseola.—All the cases except eight were in negroes, consequently the roseola could not be seen, but in every white case the typical rose rash was present. The most marked rash found was in a child 2 years old, who was so slightly ill that she could not be confined to bed. Her fever lasted about twenty days.

Urticaria.—A general urticaria in Case 29 lasted several days during the height of the fever.

Diagnosis.—Malaria was excluded by the failure of quinin and by the presence of Widal's test in every case except one, and the failure of the test in all other negroes except one. Blood was examined in a few cases for the plasmodium, but it was not found. Then, again, recovery took place without quinin, and in every white case the roseola was present. Unfortunately, we were not so situated as to get the bacilli from the stools and urine and demonstrate them.

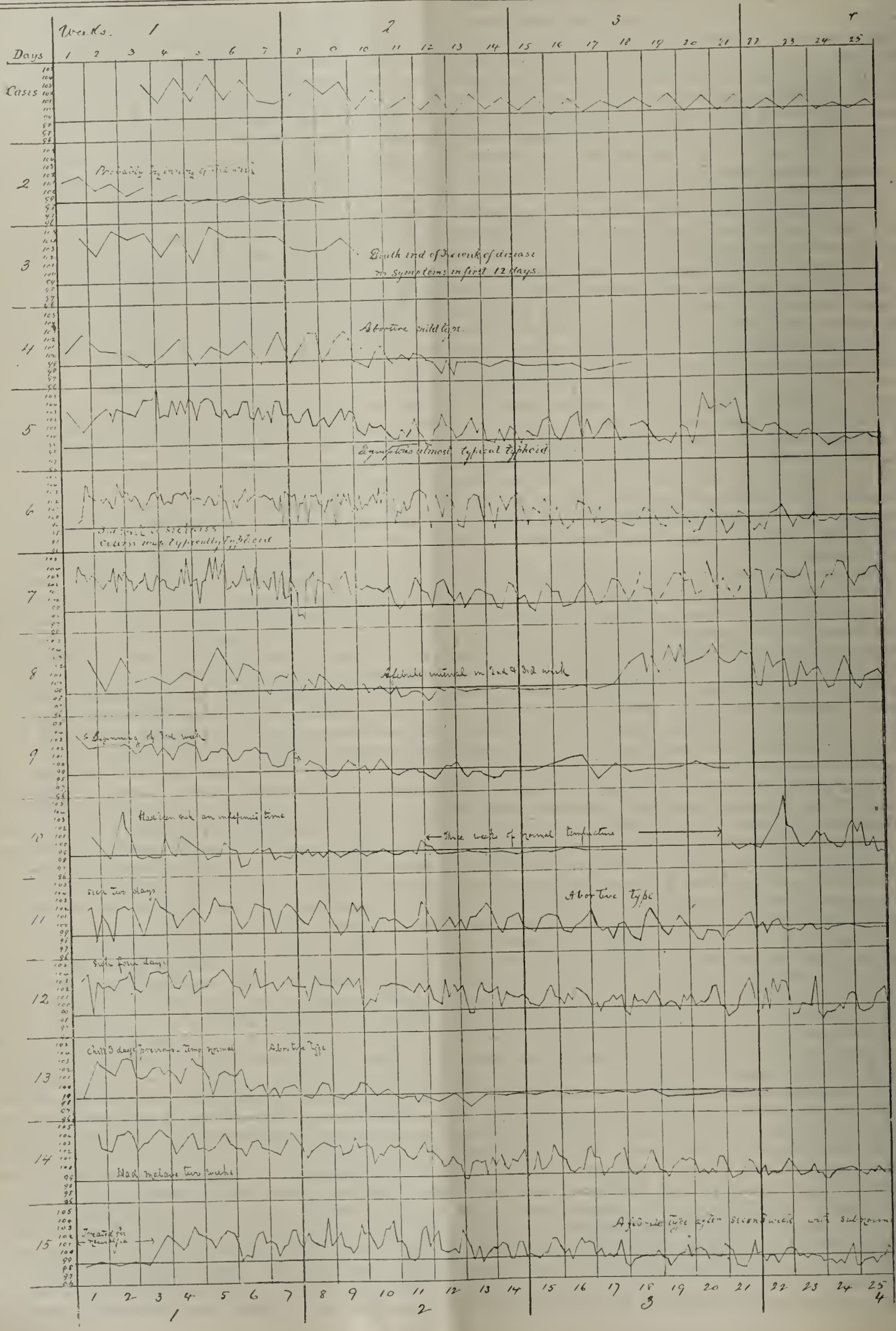
The presence of western fevers is complicated with the presence of undoubted thermic fevers during the hot season. In these elevated lands the atmosphere is clear and cloudless and the sun's rays pour down a torrent of heat, which would surely be quickly fatal were it not for the dryness of the air, which permits an enormous invisible evaporation from the skin. The loss of heat is not enough at times and a condition of fever results, but the typic sunstroke is almost unknown. If the patient goes to bed the fever lasts only from one to four days, and no medicine seems to be a specific for it. Unfortunately, the cases on which these statements are based were seen before the cold bath treatment of all fevers had become so well known, or it would have been tried, and reasoning from analogy we can rest assured that there will be a rapid, almost instantaneous, recovery if it is used in these short thermic fevers. But to call a simple fever of unknown cause of over a week's duration anything but typhoid is apt to be an error. We have shown (Case 3) how a case may be fatal, yet for the first twelve days give no symptoms whatever.

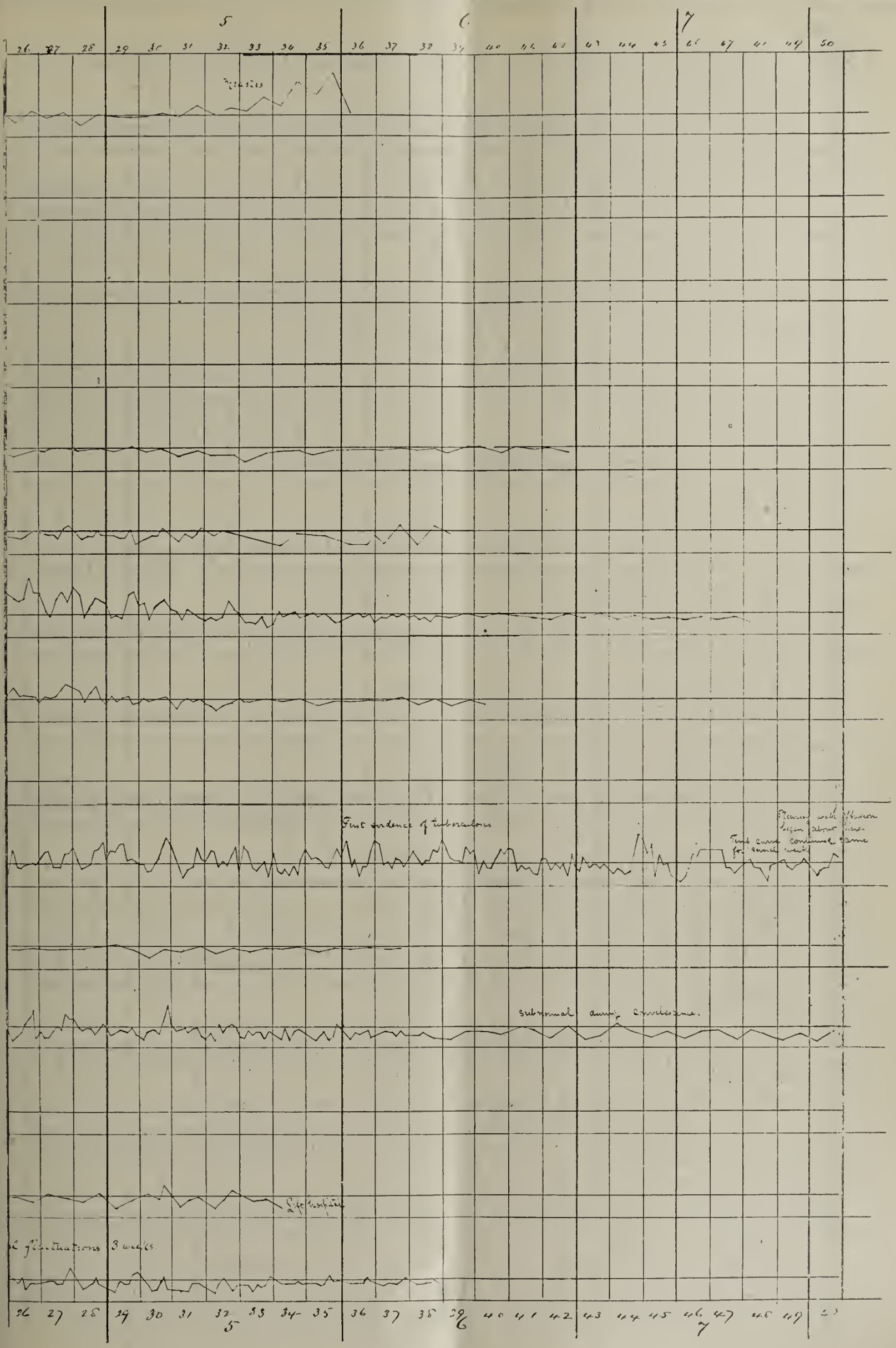
Those who claim there is a new disease must prove it, or they are guilty of criminal conduct in permitting the spread of a dangerous infection. The safety of the community demands that they be considered infectious.

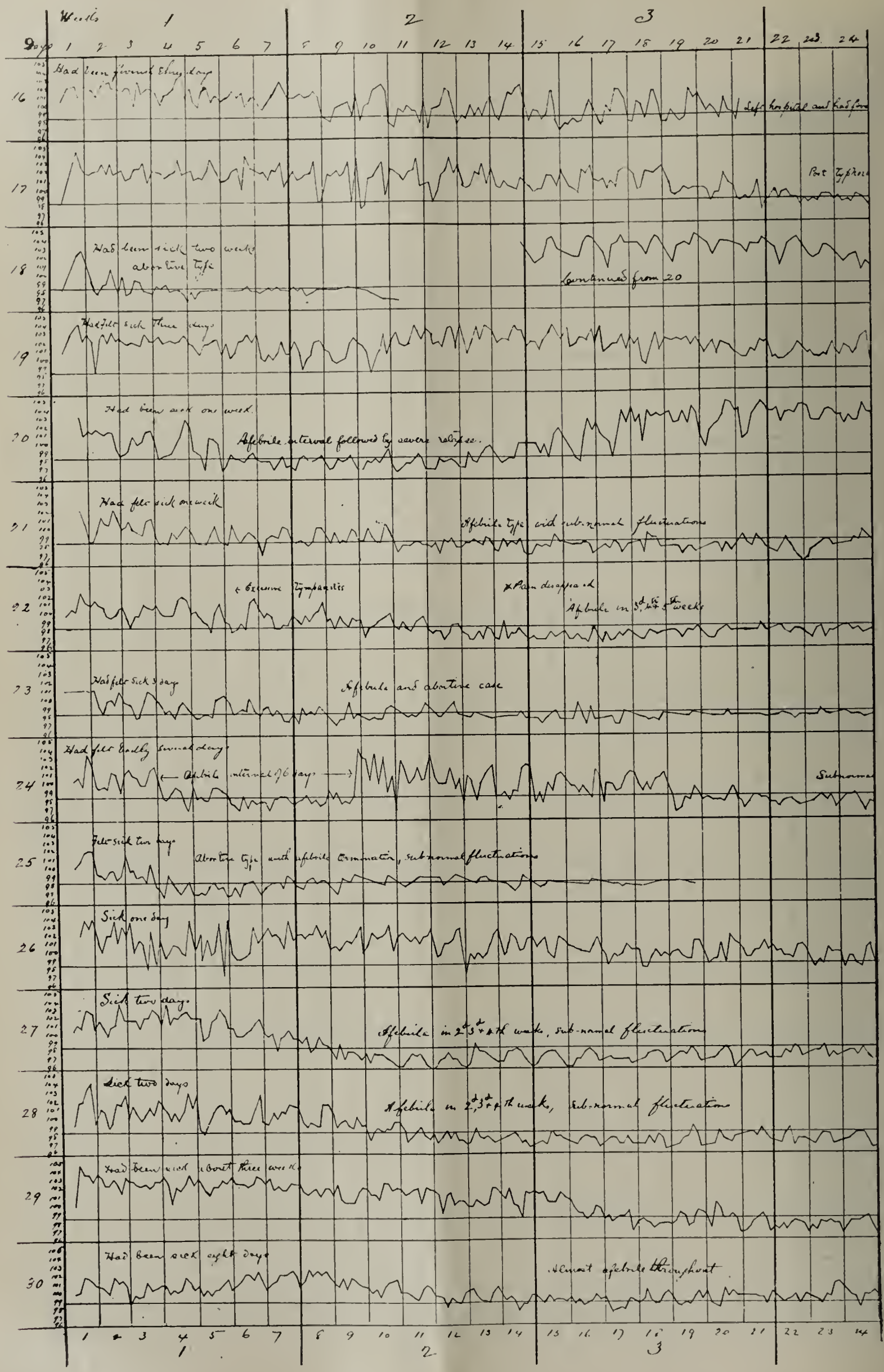
An editorial in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION Jan. 1 1898, gives a synopsis of the numerous atypic forms of typhoid fever. The lesions may be confined to any portion of the intestine, even the stomach or large bowel, and may be of any grade of severity, or they may be entirely absent from the canal and lesions confined to lymph nodes and spleen, and there may be a true typhoid septicemia without lesions. Any organ may become infected, usually as a complication, but sometimes as the sole lesion, such as typhoid abscesses of the pleura, lung, thyroid gland, peritoneum, parotid gland, biliary passages, kidneys, testicles, periosteum, bone marrow, joints, skin, subcutaneous tissues, meninges, endocardium and middle ear and heart muscles. Mountain fever is merely one of the myriad forms of this infection. It is to be hoped that all Western fevers will be subjected to Widal's test. M. Taty, in *Lyon Medical*, November 7 (*New York Medical Journal*, Dec. 4, 1897) refers to the delirium or insanity of typhoid which may mask all other symptoms and even cause cases to be sent to a hospital for insanity, as in Case 6 of our series. Widal's test has been of incalculable value to sanitary science in thus showing how wrong we have been in refusing to recognize typhoid unless the patient was sick a long time with typic symptoms of the classic type.

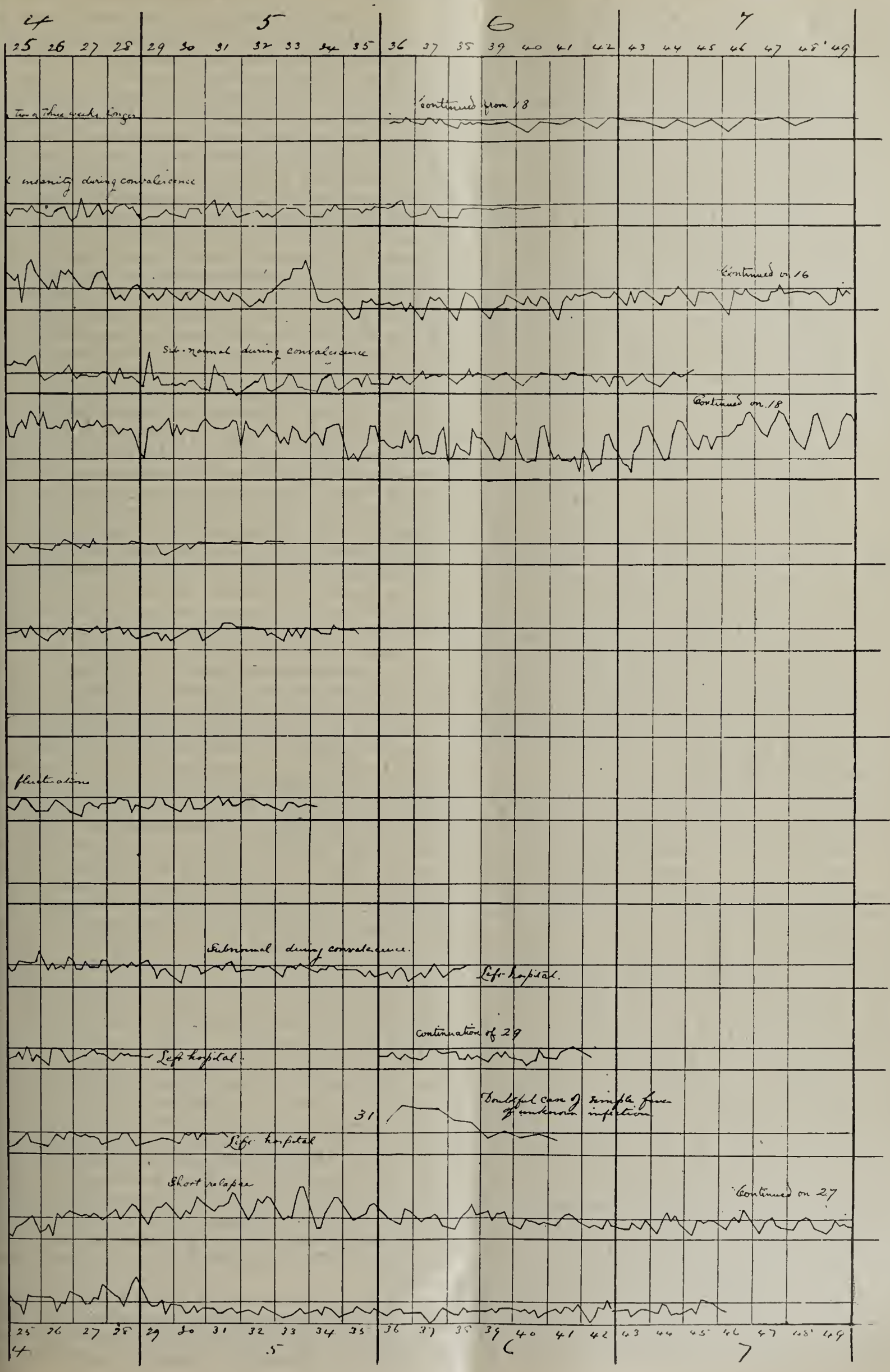
Source of infection.—As before mentioned, it is quite evident that typhoid is endemic in the Indian tribes of the West—it may be fatal for all we know, because the Indians rarely call for medical advice in such cases. They either endure it stolidly or call for the tribe's "medicine man." It is possible that western rivers have always been infected with typhoid from Indians, and we have here a logical explanation of the sporadic cases of typhoid now and then reported from isolated places in the West, tending to prove the origin of typhoid *de novo*, a thing yet undetermined. In this epidemic sewage entered the water-supply, and as the writer saw a case of typhoid whose discharges had gone through that sewer, and as there were numerous other mild cases at the same place, the origin of our infection is quite evident. Two (Cases 6 and 10) were infected at Lame Deer, sixty miles from Custer, where there was considerable typhoid. The introduction of the above sewer was seriously protested, but it went in nevertheless, and it took just eighteen months to prove that the protest was just. In the meantime one man is dead—an unnecessary death.

Time of arrival at post.—The time at which the cases arrived at the post throws some light on the source of infection. For instance, Case 1 was taken sick one month after his arrival. This and a few others show the susceptibility of new-comers. Case 24 was a recruit of only one month's service, and Case 14, civilian, was taken ill only two weeks after he arrived; Case 24 two months, Case 11 three months, Case 30 four months and Case 9 six months. In every one of these cases malaria can be positively excluded, as quinin was not required and Widal's test was present and the course of the disease or its complications left no doubt as to the diagnosis; in only one (11) did the Widal test prove not conclusive. All the other cases had resided at the post over one year. Cases 2 and 5 one year, Cases 10, 12 and 13 one and one-twelfth years, Cases 21 and 26 one and two-twelfth years, Case 4 one and three-twelfths, Case 3 one and six-twelfths, Cases 7 and 20 one and eight-twelfths, Case 23 one and ten-twelfths, Case 8 two and six-twelfths,


Weeks. 1 2 3 4
Days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Cases
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Probably beginning of 1st week
Beginning of 2nd week
Abortive mild type.
Symptoms almost typical Typhoid
Attack mitigated in 2nd & 3rd week
Headache at an unfrequent time
Sick two days
Sick four days
Chill 3 days previous - Temp normal
Had relapse two weeks
Treated for remittent
Abortive type
1 2 3 4


5
6
7
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
First evidence of tuberculosis
Temperature subnormal
subnormal ante-mortem
Slight irregularities 3 weeks
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49
5
6
7


Weeks 1 2 3
Days 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
16
Had been feverish 8 days
Left hospital and had fever
17
Part Typhoid
18
Had been sick two weeks
abortive type
Continued from 20
19
Had felt sick three days
20
Had been sick one week.
Afebrile interval followed by severe relapse.
21
Had felt sick one week
Afebrile type with sub-normal fluctuations
22
Extreme Tympanitis
Pain disappeared
Afebrile in 3d, 4th & 5th weeks
23
Had felt sick 3 days
Afebrile and abortive case
24
Had felt badly several days
← Afebrile interval 26 days →
Sub-normal
25
Felt sick two days
Abortive type with afebrile termination, sub-normal fluctuations
26
Sick one day
27
Sick two days.
Afebrile in 2d 3d & 4th weeks, sub-normal fluctuations
28
Sick two days
Afebrile in 2d, 3d & 4th week, sub-normal fluctuations
29
Had been sick about three weeks
30
Had been sick eight days
Almost afebrile throughout
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
1 2 3


4
5
6
7
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49
Two or three weeks longer
Continued from 18
Normal during convalescence
Continued on 16
Sub-normal during convalescence
Continued on 18
fluctuations
Subnormal during convalescence.
Left hospital.
Left hospital.
Continuation of 29
Doubtful case of simple fever
31
Left hospital
Short relapse
Continued on 27

Case 28 three and nine-twelfths, Cases 19, 25 and 27 over four years, Cases 15, 17 and 18 over five years, Cases 16 and 19 several years and Case 6 fifteen years. Malaria can reasonably be excluded on this alone. In none of these latter cases could the infection have been received except here or at Lame Deer. They did not bring it from the East and it did not originate spontaneously.

Treatment.—Quinin was tried faithfully at first, but having no visible effect it was stopped as a waste of a good drug. Subsequent cases received no medicine except laxatives and stimulants when necessary. Diet was limited to milk, 180 c.c., every three hours day and night. It was well borne by every case, even by one man who claimed that he never could drink it. Broths were given as soon as the temperature began to seek the normal, and then there was a gradual addition of eggs and soft food. Meat was withheld until the temperature had been normal at least ten days, sometimes longer in the afebrile and subnormal cases. The cold bath treatment was carried out faithfully in every case. After some variation a rule was made to tub for fifteen to twenty minutes every three hours that the temperature was over 102.5 with water at 75 degrees. There was a reduction of temperature after the bath of from 1.5 to 4 degrees or even more in some cases; lack of nurses prevented an accurate record being kept of these observations. The earlier the commencement of treatment the milder the case as a rule. The number of baths required varied greatly. Twenty-six cases were ordered baths; but of these, five (Cases 9, 21, 23, 25 and 30) required none, three (Cases 10, 18 and 21) had one bath, Case 2 had three, Cases 13 and 15 had five, Cases 6 and 28 had six, Case 24 had eight, Case 27 had 10, Case 16 had eleven, Case 3 (fatal) had fourteen, Case 12 had twenty, Case 29 had twenty-one, Cases 7, 17 and 26 had twenty-two, Case 14 had twenty-four, Case 5 had twenty-nine, Case 19 had thirty-nine and Case 20 had fifty-seven.

Thermograms.—The temperatures were taken every two, three or four hours according as we had nurses to do it, consequently the thermograms are not uniform. They have been reduced in size so as to be easily compared and the curves explain themselves. On the charts four spaces are taken for each day and the records are so charted as to show the time of day, for instance, 6 A.M., noon and 6 P.M. being on the lines, while 3 A.M., 9 A.M., 3 P.M. and 9 P.M. being between the lines, and appropriate positions given to 4 and 8 P.M. This is to avoid writing the times for each record. Sometimes as many as twelve records are crowded into one day, but these show quite graphically the remarkable fluctuations which now and then occur. The rapid and sudden drops recorded are due almost entirely to the cold baths, for the temperature would sometimes remain down several hours after a bath. In the afebrile cases the curves show conclusively the sickness, for they are so different from the normal line eventually reached in every case. The highest daily record may occur at any hour of the day or night, and is not necessarily an evening exacerbation—indeed there may be two maxima one in the morning and one in the evening. In some cases, in the first week we may get the rapid fluctuations commonly found in the fourth week of ordinary typhoid, and this fact shows how a physician may be deceived in a case if he happens to visit it daily during the remission. He may find the temperature normal, yet right after he leaves it may be 104 or over.

Abortive cases.—What are called abortive cases may not be such at all, but the terminations of ambulatory cases which in the first two weeks gave no symptoms whatever. Thus Case 25 may be either a short attack or the end of a long one. In this case the chart shows an abnormal curve for twelve days after the fever left, and is identical with the termination of the longer cases. The subnormal fluctuations may be considered the usual course of typhoid convalescence, but in the short cases such as 24, it is possible for these fluctuations to represent an afebrile period in the third, fourth and fifth weeks of the disease and not the convalescence. These subnormal fluctuations, no matter whether they be considered either of the above, show that the heat-regulating centers are decidedly disturbed by poisons in the blood—and this is true even in case like 25 where the infection was so slight that fever lasted only three days. Surely an infection which disturbs these centers for two weeks is a dangerous and serious one. Thus Case 25 shows how little incommoded a man may be with typhoid fever, on the Western plains, carrying a dangerous infection to others, so slightly infected himself as to have no fever, and yet be several weeks in convalescing. An inspection of these afebrile thermograms leaves no doubt whatever of the illness of the patients—they are abnormal curves. These afebrile or abortive cases raise the suspicion that if all the abortive cases reported by Woodbridge and others be similarly investigated they will be found to have irregular subnormal fluctuations long after the fever leaves, proving that the infection lasts just as long as in the classic type of typhoid fever

Dangers of Western fevers.—Nothing could show more conclusively the dangers of the mild Western fevers, and the utmost necessity existing to look upon them all as typhoids until they are proved to be something else, such as imported malaria. To try to discover new diseases in the West has failed before, because typhoid has not been excluded, and the sooner all such efforts are given up the better. It is indeed criminal not to take the view of the infectious nature of the disease and try to prevent further pollution of the waters, and to give these fevers any other name is only to blind us to the danger. Several years residence in Montana has proved to the writer the extreme danger of drinking water of unknown origin, and many a traveler has suffered for his temerity. It is almost a National question, for it is so important to travelers to protect them from harm. Investigation will probably show that all other fevers in the west which are now masked under other names are all atypical and therefore regular typhoids—for mild typhoids are almost always atypical.

The chief danger arises from the fact that the disease may last for so long a time without symptoms Case 3 for instance. Far better would it be to have severe symptoms at first so as to compel confinement to bed. "Walking cases" are the worst here as in the East. Then again, walking cases are spreading the disease far and wide and in time will make the Western country as bad as the East, because in these arid sections the water supplies are so few and widely separated, and so surrounded by people and open to contamination, that universal infection of the rivers possible.

It is time that we should also try to stop the nonsense about waters purifying themselves. No doubt sunlight and other germicides do destroy immense numbers of pathogenic organisms introduced with

sewage, and no doubt, also, that harmless hardy saprophytic bacteria natural to all waters destroy the organic matters introduced in sewege, but it takes time for this, perhaps many days or weeks, and only small quantities can thus be disposed of. Hence if feces enter a stream flowing at the rate of two miles an hour, in fifteen hours people thirty miles away are in danger of swallowing the filth with their drinking water, because destruction of feces by decay brought about by saprophytes is not accomplished in anything like fifteen hours. Again it is proved that if water is muddy, preventing the penetration of sunlight, typhoid bacilli will live much longer than if the water is clear. Indeed there are many causes at work, which may prolong the life of pathogenic bacteria introduced into the stream, so that they might be carried hundreds of miles. Self-purification of rivers in the course of time may be a fact, but it is a dangerous fact, because it gives the ignorant a false idea of safety. Some laymen even believe that five miles down stream from a sewer outlet the water has "purified" itself, even though the current is five miles an hour, the time limit never entering their minds. The new crusade now being carried on throughout the world is the only logical and rational one—a crusade against polluting water courses. These streams are public property of vital importance, and he who ruins that property is a criminal. The public should punish him just as severely as it would punish a man who would deliberately pour poison into a neighbor's well.

THE PARALYSES,

BY ONE OF THE MANY PARALYTICS.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY SAMUEL KNOX CRAWFORD, M.D., LL.D.
CHICAGO, ILL.

To have studied paralysis from clinical phenomena observed in one's own body, and to have closely watched its varied and variable phases from a subjective point of view, is to have learned well a story which too few survive to relate.

To have suffered a grave lesion of a part of one hemisphere of the central ganglion, and yet to have been fully conscious of it all, and able to interpret the nerve disturbance and mental perturbation resulting therefrom, and to have been capable, conversely, of locating the lesion from the distal nerve phenomena, is to have enjoyed a rare privilege that none would seek, and to have passed an ordeal through which few pass and survive. Surviving, they seldom possess sufficient force and energy to attempt a formulated portrayal and deductive story of the ailment suffered.

The consensus of medical opinion is to the effect that to the subject it means simply the loss of motion and sensation, and that the conditions leading up thereto are but factors of the same disease. The lost mobility and perverted or lost sensibilities are but fragments of a colossal whole. Paralysis means greatly more. It means, in most instances, pain of a most excruciating character, and mental distress almost unbearable and altogether inconceivable to all but the sufferer himself.

An analysis of the pathology obtaining in the disease leads the writer to the conviction that it is simple, however complex and complicated its etiology may be and generally is. In all forms of the disease, in whatever dress it may present itself, there is disturbed nutrition at the central point of attack. The invasion is the result of a strangulation. In every case of the disease, without exception, from whatever original or remote cause, there is necrosis of medullary tissue. A thrombotic body is the central figure of every embolus, and an embolus or emboli form the essential condition of embolism. Embolism strangulates. Strangulation invariably results in necrosis. Necrosis of medullary matter will invariably result in paralysis of the parts supplied by the nerve trunks whose origin lie within the field of necrosed tissue.

Whatever the primitive step in the morbid process there is strangulation, the result of pressure followed by necrosis as a sequence. An endocarditis leaves a valvular insufficiency. Valvular insufficiency conduces to the formation of pedicular thrombi. A thrombus breaks its pedicle and cuts loose from its moorings and floats with the current of blood to the brain or spinal cord till it reaches an arteriole whose lumen is too small to admit of its free passage, and there it at once becomes engaged and an embolus is born and embolism begins. The volume of blood in the part is impeded. a blood clot is formed and death of tissue ensues.

When an electric battery has its generative function suspended there can be no current at the distal extremity of the conducting medium. Equally true is it, that when any part of the brain shall have had its nutritive functions impaired, interrupted or suspended, there can be no nerve force or current at the distal extremity of the trunk whose origin falls within the area of disturbed nutrition in exact proportion to the degree of disturbance. Neither can there be impressions received at the point affected from the periphery, save in the same ratio of the intensity and extent of the morbid action. Thus there is the chain of circumstances obtaining in paralysis complete. It would seem, therefore, apparent to the casual observer that when the initial symptom of brain clot appears, the physician's imperative duty is to circumvent further pressure and reduce if possible that which may have already transpired.

A blood clot in the brain, from whatever cause, always continues to increase in volume until a collateral circulation shall have been established, unless in some way the blood can have its intensity and forceful activity brought under subjection. The larger the clot, the greater the area of section of suspended nutrition will obtain, and the more extended, therefore, will be the phenomena of suspended function in distal parts. If when an embolism first occurs, as shown by the earliest phenomena, the force and activity of the blood current be subdued or modified, the least possible amount of pressure and the resultant strangulation, and therefore the least extent of necrosed tissue and its long chain of morbid phenomena will have been obtained.

Our own lamented Gross's "lost art," if employed at the beginning, would be the eminently proper remedy, and this to be supplemented by the employment of some well known and reliable cardiac sedatives or more properly speaking, nerve sedatives and cardiac depressants. After the circulation shall have been duly subdued, the work of promoting rapid absorption should be efficiently begun and prosecuted by every means at command. Prominent among these measures the writer believes the electric current to

stand first, and medicaments such as strychnia and cactus, to give force to the vasomotor powers of the fabric. It is possible for brain and nerve tissue to be renewed when once destroyed, and nature is quite willing and ever ready to begin the process of repair at once if she be properly assisted. She should be encouraged in her efforts by all known means. Hope, that greatest of all regenerative forces, should be established at once by all possible measures, and the will to do and live should be called into play. These two greatest of all recuperative forces are singularly overcome in all cases of apoplexy.

Suggestive hypnosis is no mean allied measure to employ in all cases of paralysis and should in no case be neglected. Memory may be, and sometimes is, either quite lost or perverted for a time; but on the contrary, it may be and often is quickened and even permanently brightened. In some cases aphasia is a prominent symptom, but in others the use of language is increased to a remarkable extent, and in a peculiarly interesting manner. Forgotten and long neglected languages have been recalled with astonishing clearness by not a few paralytics. The intellect in a general way is improved in some to a notable degree, in that the powers of arrangement and detail are made especially strong. The power of elimination, where never before in evidence, is in some made manifestly strong.

Can an apoplectic locate the lesion and pressure in his own brain by common sensations? Yes. Never was a boil in the axilla more easily located than was the pressure spot in the writer's brain by his common sensibilities. He could have guided the surgeon's knife to the exact spot where the clot pressure obtained, with as unerring a hand as he ever sought a ball in a soldier's brain. He longed and prayed for an opportunity for an object lesson in this.

Scientific surgery has a great work pending for the coming twentieth century, when it shall have left the pelvic and abdominal cavities and strayed higher where vitality rules in the thoracic and cranial cavities. One of the finest and first object lessons the writer ever enjoyed was that of the removal of bone, two and one-half by three inches, from the right parietal region of a 14 year old boy, through which stellated fracture fully half a teacup full of brain matter had escaped during the interim between injury and operation. This was in January, 1862, and in May, 1897, when last seen, the subject was a hale and hearty farmer, 49 years of age, who has enjoyed uninterrupted good health in every way since the operation, and has been eminently successful in his business enterprises. The bone has manifestly long since been renewed and there has been nothing in evidence to show that the lost medullary was not impaired. This refutes the somewhat prevalent notion that cranial bone once destroyed will never be renewed, and brain matter once lost will not appear again.

The Röntgen electric ray, which has so marvelously outdone opacity, is destined to play no insignificant part in the surgery of the thoracic and cranial cavities, and the day when a clot or abcess in the brain or thoracic viscera will be readily located and relieved, is not far away. The physician, too, must not be found loitering by the waysides of ignorance and superstition, and contenting himself with looking wise and scratching off, in his peculiarly fascinating way and hieroglyphics, a prescription for some remarkable placebo. He must bestir himself and feed the organism with foods proper for the rapid and certain nutrition of the brain and general nervous system, and study well the best methods of promoting the assimilative functions in any given set or class of organs. He must contrive to supply the proper substitute for the interrupted nerve current by the employment, in a scientific way, of the electric currents and by observing polarity and studying its laws, and must familiarize himself with dosage in the case of electricity as in the case of any other efficient and valuable remedy. He must take the measures of this imponderable agent with the same celerity and accuracy with which he would use the apothecary's scales, and then he will have less but better use for his urinometer and thermometer, and do much that he now leaves for the surgeon to accomplish. He must more carefully and critically study the stomach, the accomplished laboratory of the animal fabric, and learn to change an alkalinity to a proper acidity of this principal chemic mortar in the twinkling of an eye, by the polarized current.

If he do these things he will malign the poor old liver less and become less familiar with the word dyspepsia.

He will thus have learned a method of supplying nourishment for any organ or set of organs in the economy, through the natural and proper channel, to be assimilated, which is the last essential of the long chain of acts in the function of nutrition, beginning with prehension, which he never knew before. But he will supplement these suggestions by supplying more oxygen in the form of gas by inhalation, and oxygenated water by inhibition, than can be supplied by nature through ordinary channels and in the usual way. He must learn to fully understand that oxygen the great vitalizing element as well as the supporter of combustion, which is after all the method which nature has devised for sustaining an equable temperature of this great thinking, talking, walking, working and living machinery of ours, is always in demand. He must learn to adopt nature's own plans and measures more than he now does; and if so he will have become more truly a practitioner of preventive and curative medicine, the highest function to which science may attain, and which conduces to the highest interest and hopes of humanity.

DISCUSSION.

Dr. Loder—Will Dr. Crawford give us a description of the sensations which proceeded and were co-ordinated with the lesion, as it might be some guide to us in locating such lesions and also in asking patients questions.

Dr. Crawford—The feeling that I had about an inch and a half back of the right ear, deeply located, was very similar to a toothache. Total paralysis of the left side resulted. I had anesthesia and loss of sensation in the leg. The sensation was that of wedging in, and there was no sharp pain at the location of the trauma. For four months I had severe continuous pain throughout the side. The pain was most severe just below the left hip.

Dr. Dercum—It is not impossible that there should be some sensation of a very generalized character noticeable by those patients whose consciousness is preserved. Neuritic pains rarely, but sometimes, occur in hemiplegics. Peripheral pain in hemiplegics does occur in some cases.

Request your Congressmen and Senators to fight the Caffery bill!

INTERNAL CEREBRAL MENINGITIS CHRONICA; NOTES ON DIAGNOSIS AND TREATMENT.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

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The practical importance to both physician and patient, the seeming lack of appreciation of its frequency in the most unsuspected cases and the desire to emphasize the necessity of early recognition, diagnosis and active treatment of this always grave disease, are the considerations that have led to the presentation of this subject.

Specific infection is the common and chief cause of chronic internal cerebral meningitis, chronic meningo-encephalitis and the various forms of endarteritis and peri-arteritis. This poison is prone to attack the cerebral meninges and vessels, and these pathologic conditions are seldom found in the absence of this infection. Belonging, as it does, to that class of chronic affections whose phases and results extend over many years, this disease is nearly always produced by the luetic virus, which is one of the most energetic and surely operative known in the study of disease.

It is an undisputed fact that this specific infection is widespread and even increasing. Not only in Russia, Prussia, Portugal and the Sandwich Islands, is this disease as a constitutional malady found to affect directly or indirectly a large percentage of the population (endemic in 90 per cent. of the villages of the Novgorod, according to Ostroumoff, and 10 per cent. of all the patients of physicians of the Sartov Society), and according to the careful authoritative estimates for classic Berlin, one-tenth of the entire male population is infected; but at the present rate of increase of this calamitous disease in this country, the same estimate may soon apply to New York, Chicago and other of our large cities. While epidemics do not now occur, owing to our increased knowledge of the symptoms and treatment, individual instances of the transmission of this disease both by the immediate and mediate methods are multiplying.

By a careful study of the statistics from Hjelman, Diday, Hutchinson, Kassowitz, Fournier and others, it is estimated that of adult patients with this disease from 2.5 to 6 per cent. have the cerebral form, much less rare than Dr. Clouston would have us believe.

In general, the symptoms of chronic internal cerebral meningitis vary according to the situation and extent of the local lesion. It is conceded that the constitutional infection may give rise to an acute meningitis or meningo-encephalitis in the absence of any distinctive specific lesion that has been discoverable. The symptoms would then be the same as of acute meningitis from other causes. The diagnosis of this chronic or acute infection is very easy when you get the history of the specific lesion, sore, eruption or cicatrix or when exposure is known or admitted. But the absence of these or their oversight on the part of the patient makes the difficulty very great. Even the identification of the meningitic changes (postmortem) as the invariable result of this infection, according to Sternberg and Heubner, give us no aid in diagnosis. An external pachymeningitis may undoubtedly exist for years and possibly be congenital, without giving marked symptoms, and remain latent until by some exciting cause, such as acute disease, alcoholic excesses, over-study, anxiety and worry, the internal layer of the dura mater is reached and the soft membranes begin to show active symptoms of such inflammation.

It is at this time that we should be able to recognize the condition and by following the train of symptoms reach a correct diagnosis. The implication of the pia mater interferes with the circulation and nutrition of the cortex, and changes in the cerebral function make their appearance. At this degree of development of the disease the true condition is liable to be confounded with the functional neuroses, nervous prostration and even epilepsy, owing to the transitory nature of the focal symptoms. In the latent condition developed by the exciting cause, or anywhere in the entire course of the disease, from the first three weeks to twelve or sixteen years, these prolific changes, involving the meninges and blood vessels in the cord as well as in the brain, may manifest themselves in utter disregard of the arbitrary classification into "stages," which I believe to so intermingle as to make such classification inconsistent in most cases.

The single symptom common to all the rapidly variable and irregular features of this condition, is pain in the head, which may precede more pronounced cerebral symptoms by days, months or even years. While this pain may not seem to differ from headaches due to other causes, it can be discriminated. It may be referred to the frontal region, or to the one or the other parietal region, or even alternate. Since it is an expression of lesion of the meninges, it is more diffuse and more deeply seated than a pain dependent on a bony lesion or an ordinary neuralgia. A sense of weight or fulness, or tension with occasional explosions as if the cranium would split, are peculiar to this condition. There is an habitual intensity about it which is distinctly periodic. There are nocturnal exacerbations. There is obstinate insomnia unrelieved by anything save convulsion or paralysis. This symptom may last for years, may be better on arising or after food, but persistently returns with original or increased intensity. If there were no others, I should consider this symptom pathognomonic.

Sleeplessness prolonged and persistent, without any evident cause and unrelieved by hygienic measures or aught else save convulsions or paralysis, is an important symptom. Polydipsia and polyuria in the absence of sugar or morphologic elements are of great diagnostic value. Muddy whitleather complexion or marked anemia with 50 or 60 per cent. hemoglobin and less than 3,500,000 of red corpuscles are noticeable indications of this infection, especially if the hemoglobin and red corpuscles do not increase with exhibition of iron preparations. With these symptoms infection may be assumed. The peculiar psychic phase is extremely important. The patient in prime of life or younger is unable to read, loses interest in his business or the affairs of life, is indifferent to his own interests and inconsiderate of others; his intelligence is blunted or confused, he lacks power of concentration, makes errors in judgment, becomes irritable, easily excited and cross, is at times erratic, opinionated and peculiar. This accumulation of alteration of thought and conduct seems peculiar to meningeal inflammation.

There is usually inequality of the pupils and sluggish reaction or failure of response to light and accom-

modation. The optic disc reveals venous engorgement and the various stages of atrophy. There is a fleeting hemianopsia and reduction of the field of vision. There are focal epileptiform explosions both motor and sensory. Epilepsy may develop after 21 years of age, as in a case now under the writer's care. Aphasias or monoplegias in any form in young persons, developing suddenly or slowly, independently of any traumatism, with a tendency for any or all of these symptoms to improve spontaneously and relapse, belong to this condition. A combination of any or all of these symptoms may occur without any recognition of the infection on either the skin or mucous membrane and in the absence of demonstration of the etiology, that is, a recognized and acknowledged infection. With these clinical facts added to the above, specific infection may be affirmed.

In general, the prognosis is favorable when the disease is recognized before secondary sclerotic conditions have become permanent, which we know are beyond the reach of therapeutics. Cases where the onset is sudden are more amenable to treatment than where the commencement is gradual and insidious. As different persons react differently to the infection and respond differently to treatment, each case is separate.

The preparations of iodin have the power of influencing the specific products by resolution and elimination, but are not antispecific. The iodid of potassium should be given to the physiologic limit of toleration of the patient. While the sodium salt is at times better tolerated, it is a less powerful alterative. From 2 to 13 grams *per diem* of the potassium salt may be administered in hot water or milk, or in alkaline effervescing waters. In giving tentative treatment, the larger doses seem better tolerated in many cases, and create less disturbance than the smaller quantity.

Mercurial treatment should be instituted as soon as the diagnosis is established, be applied with great energy and carried out for three or four years, alternating the very active and mild courses at intervals of four weeks, according to the tolerance of the case. This disease should always receive a chronic course of treatment. Mercury alone seems to be regarded as the sole specific for the virus itself. It may be administered by the method of Hutchinson, hydrarg. cum creta gram 0.065, Dover's powder gram 0.065, four to six times daily; by the biniodid or proto-iodid in pill, or in the preparation known as mercauro, which often agrees best with the stomach and is a tonic besides. Where it is practicable I believe inunction to be the more effective means, as it reserves the stomach for the systemic tonics and nutritious foods so essential to the system undergoing such abundant tissue change for so long a period.

Grams 4 (daily for thirty treatments) of mercurial ointment rubbed slowly into the inner surface of the thighs, under the arms, on the sides and the chest, over the abdomen and across the lumbar region, selecting a different place each treatment, is the quickest, safest and best method of administration. The drug penetrates the subcutaneous tissue, is transformed into soluble albuminoids which destroys the power of the specific virus. It is then eliminated through the capillaries of the salivary glands and skin, and the mucous membrane of the mouth, stomach, liver, kidneys and bowels. On first sign of irritation in the mouth, as sponginess of the gums or ropiness of the saliva, the treatment should cease for a week and the patient should use a mouth wash containing a tincture of myrrh or rhatany.

Where there are indications therefor, when inunctions fail or can not be given, the corrosive chlorid, the most soluble salt, combined with urea gives excellent results. If calomel, which is less soluble, is thus given, symptoms of saturation may occur and continue, as it is impossible to prevent the further absorption of the remedy.

Then baths daily are serviceable for an active line of treatment as a means of hastening and encouraging the elimination of both the iodids and mercury from the body. Hydrotherapeutics as an adjunct to keeping the patient in better health is of advantage, in that more of the remedies can be given and eliminated in the same length of treatment.

Notwithstanding Dr. H. A. Hare's claim, that neither the meninges nor cerebrum are affected by the electric current, I believe galvanization of the brain to be a valuable adjunct to the treatment of this condition except in the acute febrile form. Eight to ten milliamperes of current can be safely used, and even more, to continue for fifteen minutes with a daily seance. A large sized electrode covered with amadou or chamois, made to conform to the shape of the calvarium, should be placed with the positive pole over the frontal region, and the negative electrode of the same size at the nucha. A tonic and alterative effect is produced by cerebral galvanism, improving the circulation and nutrition of the meninges and adjacent tissues.

The forced following of new lines of thought and forced action of the torpid brain stimulates the circulation and aids in elimination from the brain, as contraction of a muscle hastens tissue change of its substance. In the moderate elevation of temperature as found in exacerbations of this chronic state under treatment, saline laxatives, increased quantity of drinking water, lithia water and digitalis should be used. A cold water coil to the head or a cold head bath gives marked relief. Frequently a leg pack lasting an hour, or a hot bath of sufficient duration to dilate the cutaneous capillaries, with cold to the head at the same time, gives rapid results. The cases that follow were treated on the above principles:

Case 1.—Mr. O., male, aged 36; no history of specific infection but possible exposure ten years previously. Remained apparently well for seven years, and in April, 1891, had slight paralytic stroke affecting left side. Was abed three weeks and gradually nearly recovered use of left hand and leg. Again went about business, though mentally not so acute as formerly. In September, 1895, began to have grand ideas about himself, his business and other people. He quit business on his own account and went to visit relatives, thinking rest and change would restore him. On examination, found thickened hesitating speech with difficult articulation, unequal pupils; central paresis, lower facial nerve left side, no other branches. Patient could not read, from lack of concentration, nor write intelligently. Was headstrong, irritable, and suspicious. Had lost weight and was eating and sleeping poorly. There was active treatment after diagnosis of chronic meningitis; gained twenty-two pounds and improved in every way. Returned home but failed to continue medicine. Returned last May, and for three weeks, on resumption of treatment, improved somewhat slowly; afterward, began to lose use of sphincters; fell into semi-stupor and hebetude; acknowledged he had specific disease thirteen years before but concealed it. At the end of the sixth week he died.

Autopsy.—General cerebral meningeal thickening; no indication of fresh inflammatory action. Cranial nerves normal. Chronic endarteritis, anterior and middle cerebral vessels not complete; no occlusion nor thrombosis; no aneurysms nor hemorrhage; no gross macroscopic lesion of brain substance. No microscopic sections made.

Case 2.—Age 36; married. Good family history. Previous history of patient good. In 1886 had urethral stricture but disclaimed any infection. In 1891 acknowledges exposure to specific infection. Was treated three months homeopathically. Secondary symptoms not severe, and he attended to business until two years ago. He then complained of sharp shooting pains in left temporal region and whole side of the head. This continued for six months and was followed by hemiplegia on right side of the body, from which he recovered. The pain and headache then shifted to the right side of the head. This was followed later by numbness of the left extremities and formication of the entire left side of the body.

The headaches, which were of an explosive type, were so severe that they were only relieved by morphin hypodermically at regular intervals, being always worse at night and preventing sleep.

The patient was irritable, restless and nervous with general mental aberration. Appetite and digestion fairly good. After eighteen months continuous treatment on the above lines the patient recovered.

ANESTHESIA OF THE TRUNK IN LOCOMOTOR ATAXIA.

Presented to the Section on Neurology and Medical Jurisprudence at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4. 1897.

BY CHARLES W. BURR, M.D.
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Hitzig[1], Lähr[2] and Patrick[3] have described as a very frequent symptom in locomotor ataxia, a condition of tactile anesthesia occurring in the trunk, usually symmetrically situated on the two halves of the body, most frequent at the level of the nipples, and not bounded by the distribution of nerve trunks, but corresponding to the spinal roots or their intramedullay fibers. A series of ten cases recently examined by me agrees more or less with the conclusions drawn by these observers. In some, however, the condition found was different. I will not give the histories of the cases but ask you to accept my diagnoses. I will say, however, that none were recent, all being of some years' standing, all having quite marked ataxia, and none being paralytic. In the first case there was a band about three inches wide extending around the trunk at the level of the nipple in which though tactile and pain sense were well preserved there was marked confusion in the temperature sense, the usual defect being that he mistook cold for heat. In a second case there was no real tactile anesthesia but a partial analgesia, an inability to distinguish between touch and slight pain over an area about three inches wide on the chest in front of the level of the axilla and passing down on the inner side of the right arm to the elbow, and of the left arm to its middle third. Posteriorly, there was only a small area over the spine at a corresponding point, in which there was analgesia. At the level of the floating ribs on either side behind, was another small band of analgesia, and finally, in the left popliteal space a patch. There were no other sensory defects over the entire body.

In a third case there was a band of tactile anesthesia around the entire trunk and reaching from the umbilicus to the nipples. Within this area in front was a small irregularly rectangular area of total anesthesia.

In a fourth, there was a similar broad band from umbilicus to nipple and extending around the entire body, but there was also confusion of hot and cold and some analgesia, and a pin prick always felt warm.

A fifth case was typical, that is, involved touch alone, but the upper and lower boundaries on the two ribs did not exactly correspond.

In the sixth, there was not absolute tactile anesthesia, but from the nipple to the axilla and extending around the trunk and down the inner side of either arm, there was an area in which tactile sensation was much delayed. There was also delayed sensation on the outer side of the entire left leg and the right calf.

In the seventh, there was a longitudinal, rectangular band about two inches wide over the entire thoracic spine, in which there was tactile anesthesia. On the front of the chest there was a small area over each great pectoral at the level of the axilla, and on the left side extending down the inner aspect of the arm to the elbow.

The eighth case revealed in different parts of the body almost all possible sensory defects. The left lower leg was completely anesthetic in front except the toes On the right tibia was a large irregular area of total anesthesia. The forearms and hands were normal. Over the chest and from two inches below the nipple to above the lower border of the axilla and down the anterior aspect of both arms to the elbows there was tactile anesthesia. There was also tactile anesthesia over the anterior aspect of the right thigh. On the trunk temperature sense was normal, but in the legs even when not anesthetic there was confusion of hot and cold.

In the ninth case there was no tactile anesthesia on the trunk.

It must be accepted as proven that there occurs in locomotor ataxia such an anesthesia as Hitzig, Lähr and Patrick have described. I think, however, that it is not quite so frequent as their figures indicate, though my series of cases is far too few to draw conclusions from. How early in the disease it may develop is as yet unknown, but it may be present uncomplicated by other sensory defects very late. It may occur without sensory defects in other parts of the body. Its distribution, as Lähr says, corresponds not to the distribution of the peripheral nerves, but to that of the spinal roots or their intramedullary fibers, in which respect it simulates disturbances of sensibility following lesions of the spinal cord and the posterior roots. It is probably not characteristic of locomotor ataxia, but may occur in any local spinal meningitis. Fortunately its little use as a diagnostic feature does not greatly matter since locomotor ataxia is so unlike other diseases in which it may occur. It is of value in studying the natural history of the disease.

DISCUSSION.

Dr. HUGH T. PATRICK—I found the pain sense lost while the tactile sense was retained in a case of syringo-myelia examined not long ago. I think there can be no doubt about the diagnosis of syringo-myelia, although in the absence of a postmortem one would hesitate to be positive. In this case there was the trunk anesthesia extending along the inner surface of the arms, which has been described as typical of locomotor ataxia, with the exception that the loss of pain sense is in a zone considerably wider than the loss of tactile sense.

One of my reported cases of well developed tabes in which there was no trunk anesthesia, a case examined about a year ago, I have just learned has developed a well marked trunk anesthesia of this typical kind. I have since seen the same thing in other cases; indeed, in my first paper I mentioned that it had been found in other diseases and would probably be found in syringo-myelia. I saw this recently in a case which I think is not tabes but some acute lesion of the cord, and also very well developed in a case which I think was acute lateral sclerosis of the cord.

Dr. C. C. HERSMAN—I have found tactile anesthesia, or analgesia, a number of times, especially in specific cases. Since

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1 Ueber traumatische Tabes und die Pathogenie der Tabes im allgemein, Berlin, 1894.
2 Archiv für Psychiatrie, Vol. xvii.
3 New York Medical Journal, Feb. 6, 1897.

Gowers has placed the specific cases at 80 per cent. and only accounts for 10 per cent. of idiopathic, possibly we can say locomotor ataxia without specifying the pathology.

I have a case of specific trouble in which this analgesia is present. The patient has tactile sense but loss of feeling in patches.

Dr. HAROLD N. MOYER—Since the publication of the papers referred to I have examined seven cases and the symptoms were present in all. These are the only cases I have examined, with the exception of two children, one a very marked ataxic; both cases of Friedreich's disease; neither of these children has any of the zones of analgesia or anesthesia. I have observed it, however, in one case of well marked syphilis in the spinal cord, which would not be pronounced in any way an ordinary case of tabes; it was upon one side, and corresponded to a very marked paretic condition on that side.

Dr. CHARLES W. BURR of Philadelphia—I have recently examined two cases of Friedreich's ataxia, and there was no such trunk anesthesia present.

THE USE AND ABUSE OF ELECTRICITY IN THE TREATMENT OF THE SO-CALLED NEUROSES.

Presented to the Section on Neurology and Medical Jurisprudence at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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Of all the therapeutic measures employed to combat disease, electricity is probably the most abused. This is due partly to ignorance, partly to indifference. The extreme diversity of opinion in regard to it as an agent for good is ample testimony of the widespread ignorance concerning its powers. It is a fact that electricity is beneficial in the treatment of disease or it is not; it can not possess two dissimilar qualities at one and the same time. It is absolutely inconceivable that electricity should be at once perfectly neutral and most curative under similar conditions. Therefore, the differences of opinion held in regard to it can not be attributed to anything in the agent itself. The differences of opinion, must have their source in those who use the agent. The users themselves must differ either in their knowledge or in their methods of handling it. These assertions, I admit, are trite, but if their truth can be brought home to those who attempt to employ electricity, something may be gained in the way of more extensive positive knowledge and greater uniformity of opinion.

When one operator insists that all strictures can be reduced by electricity, and another says no strictures can be so affected, surely the electricity can not be at fault for that is presumably the same in both hands. The discrepancy lies with the operators. When Möbius of Berlin argues that the only positive effect of electricity upon a patient is of a mental, suggestive or psychic sort, and Apostoli of Paris teaches that solid fibromata may be made to vanish under the solvent action of the electric current, it is time for us to enquire wherein the methods and personal characteristics of Möbius and Apostoli differ; for, presumably, they have both used the same electric current—the only electricity known in this world—upon the same sort of pathologic conditions, and under corresponding circumstances. The question therefore becomes largely one of personal honesty and relative powers of interpretation. Many things appear different to different men, but if eletricity produces certain physiologic phenomena, such as muscular contraction, catalysis, cataphoresis and modification of local temperature, it is incomprehensible that these obvious phenomena should not be seen by optimist and pessimist alike. Surely, if muscles do really contract under electric stimulation, the patient as well as the operator can not honestly declare that such contraction is a sort of mental aberration or psychic hallucination. If chemic changes are really wrought in the fluids of the body by the poles of a battery, certainly the fact must be something more than a mere figment of the imagination.

It is universally admitted that electricity does produce certain manifestations in the normal tissues, these manifestations always being the same under the same conditions. I enumerate some of those physiologic actions upon which experimenters are pretty well in accord. They are to be noted as dynamic, electrotonic, thermic, electrolytic, catalytic and cataphoric. There are other effects less constant, and some, as Erb says, "that we may not now have even a suspicion of," but those I have mentioned are constant and apparent. As a mechanical irritant and as a chemic resolvent, electricity has undoubted force. Certain details and minutiæ in the manifestations of this force may at the present time be open to controversy, but that the electric current is not absolutely inert in its effect upon the body is admitted. It certainly does influence nerve currents, however that influence may be explained. Its electrotonic force diminishes or increases the transmission of sensory and motor impulses along the respective nerves, according to the ascending or descending direction of the electric current. Muscles do most obviously contract, whether the pole of the battery be applied directly to the muscular tissue or to the related nerves, and Pflüger's famous law in regard to these contractions is a positive scientific fact. Local anemia and hyperemia are, beyond dispute, caused by the action of the electric current. Chemic, mechanical and physiologic effects are most clearly discernible in the skin, as a result of the application of the galvanic current. The same may be said of its action upon the blood.

In addition to these particular activities, there is a whole series of manifestations produced by the dynamic effect of the direct application of the electric current to the brain, the spinal cord, the sympathetic nerves, and nerves of special sense, the sensory and motor nerves, the voluntary and involuntary muscles and the various glands and organs.

The functions and products of the secretory glands are modified by the irritative action of the electric current, sometimes being increased and sometimes diminished according to the kind and quantity of electricity used. Simple observation shows that the blood is affected by the current and that clots are formed while hydrogen and oxygen as well as acids and alkalies are evolved at one or the other electric needle immersed in the blood stream. The local effects upon nutrition are apparent enough to any unprejudiced observer and are to be noted as mechanical, physic, chemic and physiologic.

It is not my desire to refer more minutely to the great subject of electro-physiology. I wish merely to emphasize the fact that there are electro-physiologic phenomena, and to consider how these effects are to be utilized in the treatment of a special class of diseases.

Why is electricity as a therapeutic measure so misused? Many reasons might be suggested, but most of them would come under the head of ignorance or indifference. The expense of a complete electric out-

fit and the trouble of applying the agent are two important hindrances to its universal adoption. It is easier and less expensive to write a prescription than to give an electric treatment. To tell a patient to purchase a "family" battery and to hold the electrodes in the hands while "the current is flowing," is about as sensible as to tell him to go to a drug store and take "some" strychnin as strychnin is a good "nerve tonic." Not to know when and how to employ the galvanic instead of the faradic current, reveals about as much knowledge of electro-therapeutics as not to know when and how to administer belladonna. Far too many practitioners do not distinguish between the various currents, galvanic, faradic and static, in their applications. It is all electricity, they loosely argue, and if the patient is not benefited by the form of electricity which has been administered, they conclude the agent is of no value. Again, they do not measure the dosage of the electricity given, but too often depend upon the feelings of the patient. In some varieties of disease the electric current works deleteriously if it is so strong as to cause the patient to be conscious of it. It is a mystery, therefore, how in such cases the electricity is to be administered with any sort of intelligence, if no measure of the dosage is employed. I have occasionally known the practitioner to first try the current upon himself and depend upon his own sensibility as a guide to the administration of the agent to the patient. One might as well exhibit quinin or opium to oneself with no thought of human idiosyncracies or differences of constitution as a guide for the exhibition of the drug to the patient.

Human nature is full of prejudices and more than once have the slower results obtained by electricity in certain cases been frowned on because of the more brilliant and rapid effects produced by surgery. All prejudice aside, however, it is a fact that in many of the neurotic affections—especially the neuroses—electricity is the curative agent *par excellence*, and while there is less *éclat* associated with it than with a surgical operation, it accomplishes its results without mutilation. So careful and conservative a clinician as Erb of Heidelberg says that "electricity is an extremely powerful and many-sided remedy and that more evident and undoubted curative effects may be attributed to it in diseases of the nervous system than to almost any other remedy. I am not guilty of exaggeration when I say that the curative effects not infrequently astonish even the experienced physician by their magic rapidity and completeness."

And yet there are grave difficulties encountered sometimes in the treatment of these diseases with electricity. They are largely, however, diagnostic and pathologic. Everyone admits that, physiologically, electricity stimulates nutrition. Naturally it follows that in those troubles in which diminished nutrition is the principal factor, electricity should play an important rôle therapeutically. Here is where much of the differences of opinion in regard to the value of electricity have their origin. What are the nutritional diseases and how can they always be accurately diagnosed?

Again, it is recognized that physiologically, electricity manifests a certain amount of catalytic power. Most rational would it seem, therefore, to employ this agent in the treatment of those conditions, like tumors, in which a dissolution of the tissues and fluids is desirable. But who will always and positively tell what conditions are amenable to this solvent force? Obviously we have many things to learn, and it is undeniable that electricity, like a host of other therapeutic agents, must to a large extent be used empirically. It behooves us not to condemn a measure which empirically is shown to be beneficial merely because we do not fully understand the pathology of the diseases in which its grand effects are so apparent.

A neurosis or functional disease is one of the enigmas of medical science. All that we can say is that the tissues and organs involved are functionally perverted, which is nearly equivalent to saying nothing. Many of the so-called functional troubles are purely reflex in character. Sometimes we can discover the distant organic lesion that is the prime cause of the reflex disturbance; more often, however, this final cause remains undiscovered or is found only after the patient has been subjected to a number of mutilating surgical operations. And in very many cases the functional trouble remains after all supposed organic lesions have been removed. Who has not seen cases in which ablation of the ovaries for epilepsy or insanity has failed to accomplish the desired result? Not always does a circumcision put a stop to a chorea or the fitting of a pair of glasses remove a headache. It is well that these operative procedures should be done when needed to clear up strong presumptive evidence that the organic lesions are the source of the neurotic troubles. Other measures, however, should always be given a thorough trial before any such radical methods are instituted. The ultra-mechanical treatment of such conditions as dysmenorrhea, neuralgia, vaginismus, epilepsy, seminal incontinence, intestinal constriction, etc., is not always successful even when most radically undertaken. To argue that an operation is always radical is no argument against trying other measures first. Radicalism is not always effective and too often transcends the limits of what is judicious and necessary. There are men who propose the production of abortion as a radical cure for severe vomiting of pregnancy. By the same process of reasoning these men would probably declare for amputation of an arm for a painful neuroma. Medicine should conserve as much as possible, and for that reason heroic measures should always be approached gradually and only as a last resort. Since therapeutics is only a means to an end and not the end itself, the harsher the means the more reluctantly they should be adopted. If a neuralgia can by any possibility be alleviated by electricity, no argument on the ground of radicalism can console a patient for a surgical mutilation.

There is a large class of neuroses in which the cause of the trouble seems to be inherent in the tissues themselves. The best explanation we can offer of their pathology is that they are the result of impaired nutrition. The chemic or molecular state of the nerve cells is in some way at fault. Perchance this is brought about by a local vasomotor irregularity or by some inherent defect in the metabolic functions of the cells themselves. If the circulation is not what it ought to be, the pabulum carried by the blood to the nervous structures will be deficient or in excess, and these structures will be starved or overnourished. On the other hand, if the cells themselves are wanting in tone so that the pabulum is not normally assimilated and metamorphosed into their own chemic or molecular condition, these structures will not functionate as they should, but give rise to a so-

called functional disease. There may be, and in some instances undoubtedly are, irritants and toxins in the blood that exert a deleterious influence upon the delicate nerve cells so as to modify their functional activities. Many cases of chorea are due to the uric acid diathesis, while not a few mental symptoms are believed to be caused by a toxic condition of the blood. Even in these cases, however, the essential trouble in the histologic structures is largely nutritional, whatever the nature of the prime cause may be. All this class of cases, the so-called neuroses, are therefore especially amenable to electric treatment. Hysteria, insomnia, spinal irritation and nervous exhaustion are always immensely benefited by the electric treatment when it is properly administered. When I see, as I have in many of these cases, an improvement in every symptom, an increase of body weight, a reawakening of the appetite and a more natural performance of all the bodily functions, I am at a loss to understand how such results can be attributed solely to the mental impression or psychic influence excited by the electric current. I can as easily believe that a brick wall may be raised by the practice of hypnotism upon it by the master mason as to believe that such physical manifestations as restored digestion, circulation and restored functions of all sorts in a neurasthenic are the result of a kind of electro-hypnotic influence. I would have to convince myself that electricity does not really stimulate, does not irritate, that in fact it is physically absolutely neutral in its effects, local and general, while the patient's mind alone brings about all the wonderful changes in the activities and appearances of the bodily tissues. No, the psychic theory in regard to the power of the electric current is not only irrational and illogical, but it is emphatically opposed to most observable and tangible facts. I am not over-enthusiastic when I say that in the treatment of the neuroses electricity is the sovereign remedy. In selected cases it accomplishes most favorable results, as I could easily show from my case-book. Whether the influence of the electric current upon the nutrition be the sole explanation of its *modus operandi* or whether in addition to its electrotonic, catalytic and cataphoric properties, it possesses other more subtle powers, is a matter of small consequence in discussing the reality of its effects in the treatment of the neuroses. Because it is so powerful an agent is the very reason why it provokes such a diversity of opinions. Electricity is not a panacea even in the treatment of the neuroses, its most favorable field. In accordance with our present knowledge only that class of cases in which nutrition is primarily at fault call for it. As I have already indicated, certain neuroses are mere reflex manifestations and while electricity may benefit them for a time, it can not be expected to produce a cure until the original cause of the reflex is removed.

A young woman was recently referred to me who had been treated for three months by a gynecologist, on the theory that her neurotic symptoms, which were most distressing, might be due to some pelvic disease. Showing no improvement as a result of the local treatment, she took electricity, baths, massage, etc., and persisted in the general treatment greatly to her benefit. She was an orphan, of a naturally sensitive nature, overwhelmed with financial troubles in connection with her estate, and uncertain as to the future of her life. All these factors had combined to institute a train of neurotic manifestations such as insomnia, restlessness, irritability, loss of appetite, nervous dyspepsia, weakness of memory, want of the power of concentration, fugitive pains, backache, etc. Examination of the pelvic organs, by myself as well as by others, discovered no pelvic trouble whatever. I was surprised that the simple history of this case did not have more influence in the diagnosis made by the gynecologist, but when I found no disease whatever of the pelvic organs, I naturally had my suspicions in regard to the honesty or ability of her attendant. Another case sent to me was that of a young woman who had received much electric and anti-hysteric treatment near her home, without apparent benefit. She was herself to blame in this instance, in having been unwilling to submit to a vaginal examination. This examination, made by myself and by another, on account of her persistent backache, leucorrhea and dysmenorrhea all coming on shortly after a severe fall, revealed a pronounced retroflexion of the uterus with chronic endometritis. In such a case electricity was naturally without benefit to the neurotic condition except temporarily. Three months' treatment here for the pelvic trouble sent the girl home well, happy and grateful.

I have related these two well marked contrasting cases to illustrate the use and abuse of electricity. I could give others, even more in detail, but mere repetitions consume time without adding information. A correct diagnosis is an absolute *sine qua non* in the proper administration of electricity. Too often, however, it seems that with some practitioners the more obscure the diagnosis is, the greater the need for electric treatment. If a paralysis or a neuralgia, for instance, can not be assigned to a definite cause, then as a last resort electricity is tried. I think I am not far out of the way in saying that when a set of neurotic symptoms remains unrelieved by the application of the electric current, the practitioner, to be honest to himself and to his patient, should conclude that his diagnosis is wrong and that his therapeusis is being misapplied. The supposed neurosis is in all probability a reflex of some sort, and calls for other treatment than the electric. More than once have I had headache cases come to me in the hope of being benefited by electricity, while a most superficial examination indicated some form of eye strain. I must frankly state, however, that I have had not a few cases which had been fitted with glasses, return to me with no modification of the old headache, until a more thorough course of general and electric treatment had been instituted. Neurologists are acquainted with such a condition as pain habit, and in lieu of a better explanation I find I have to attribute some of these pains to such a habit.

In the electrical treatment of the neuroses, I find that a combination of galvanism and faradism gives the happiest results. I use a galvano-faradic apparatus. In galvanization of the spine and general muscular faradization, I have the patient remove all clothing and lie on a couch, without exposure, under a large sheet. Sponge electrodes about five inches in diameter, having convenient handles attached are used. At first, with the small, ordinary hand electrodes, one at the nape of the neck, the other over the sacrum or epigastric region, the spine and sympathetic system of nerves are galvanized for four or five minutes. The feeblest possible current is used, the strength never being greater than is just sufficient to cause a slight metallic taste in the mouth. By measurement

it should not be more than from five to fifteen milliamperes. At this stage of the treatment the patient usually declares that he feels a decided local warmth at the negative pole. While maintaining the electrodes in their respective positions, the current is reversed some five or six times with the current reverser of the battery.

With the larger sponge electrodes general faradism is applied to every part of the body. One pole is placed at the nape of the neck or under the sacrum, while the other is passed successively over all the muscles causing in them a gentle but decided contraction. Many patients are over-sensitive, and in such it is advantageous for the physician to hold one pole of the battery in his left hand while he uses his right hand to administer the electricity with a gentle massage to the patient. This is more tiresome to the physician, and fortunately is necessary in only a small percentage of cases. I have used the method many times without feeling any bad effects from the electricity passing through myself. The advantages are that the physician can control the strength of the current better and a sensitive, nervous patient is not annoyed by any sudden shocks. While the spinal galvanism should not be prolonged beyond five minutes, as a rule, the general faradism is gradually increased in strength and time until the latter is an hour and the former produces almost painful contractions of the muscles.

In selected cases this simple method of administering electricity affords, after a few seances, a grateful feeling of rest, sleepiness and well being, which continues until in the end the whole constitution partakes of the improvement, and the patient looks and feels once more like a normal being. If after the first two or three applications a restful feeling and a desire for sleep are not experienced, the physician's suspicions should be awakened. If a condition of over-excitability is produced he may be quite certain that his diagnosis is wrong, and the case is one not amenable to electric treatment.

With a proper knowledge of the qualities of the electric current, with more care in the making of the diagnoses and the selection of cases, and with an intelligent scientific application of the agent, electricity, in the treatment of the neuroses ought not to be abused as much as it is, but it ought to be used with a degree of success that will award it its due place among our therapeutic resources as one of the most powerful and effective in the conflict with disease.

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A CASE OF LOSS OF BLOOD FROM THE RECTUM DUE TO MUCO-MEMBRANOUS ENTERO-COLITIS, AND TWO OF LEUKEMIA.

Clinic delivered at the Jefferson Medical College Hospital.

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The first patient is a man of 23 who is somewhat thin and anemic, and whose face shows the signs of mental depression and lack of nervous energy. His history is, that he was in perfect health until about two years ago, when he was suddenly seized with a severe hemorrhage from the bowels, the blood being quite bright in color. He tells us, however, that he has had no diarrhea at any time, but on the contrary suffers from obstinate constipation. There is nothing in his history which points clearly to the cause of these bloody movements, which have continued from time to time, generally once or twice a week ever since he was first taken ill. The frequent loss of blood has resulted in general debility and anemia. He tells us that an examination of his passages not only reveals blood but a large amount of mucus which appears in shreds or stringy masses. He often has much griping pain and flatulent distension, his appetite is variable and his diet is an irregular one because he is afraid to eat certain articles lest they produce an increase in his discomfort. Every few days he is seized with an attack of looseness of the bowels which seems as if it were an effort upon the part of the bowel to get rid of an excessive quantity of mucus and feces which have accumulated. His urine is normal.

When a case of hemorrhage from the bowels comes before you, the possibility of it arising from a number of different causes at once enters your mind. First, it is possible and most probable in such a case that the hemorrhages come from hemorrhoids, but the man tells us that he has no sign of any congestion of his hemorrhoidal veins. This does not, however, prove positively that the blood has not this origin, for the most severe cases of bleeding from the rectum are seen in those persons who have no large dilatations of the hemorrhoidal veins, but in their place have small arterial twigs in a dilated and hyperemic state and these little bunches of vessels containing arterial blood, when scraped or eroded by fecal matter give free vent to little arterial spurtings. A careless examination of the rectum might result in their being overlooked, but a careful examination with a speculum will often reveal their presence.

Relief may be obtained by touching them very lightly with the tip of a fine glass rod dipped in nitric acid, the resulting scar puckering the blood vessels and preventing further hemorrhage, or in other cases an application of nitrate of silver or of dilute nitric acid for its astringent effect does equally well. I have had this young man carefully examined, however, and the report is that there is no sign of such bleeding points and we have therefore to look further for the cause of his trouble. Is it possible that the blood arises from a duodenal ulcer? I think not; for first, duodenal ulcer is a rather rare condition, and second, the blood which comes from such an ulcer is nearly always dark and tarry, through the action of the digestive juices of the bowel upon it, whereas the blood this man passes, he tells us, is quite bright and arterial in hue. Then, too, he has no pain in the neighborhood of the duodenum; such as is usually felt when ulcer of this portion of the alimentary canal is present and, finally, the blood is not well mixed with the fecal matter, but is well separated from it in the movements, although if it arose in the small intestine we would expect it to be thoroughly mixed with the stools. On the other hand, duodenal ulcer is far more frequent in males than in females. I think for the reasons given we may exclude the possibility of the blood arising from an ulcer in the duodenum.

The next cause to be thought of is cirrhosis of the liver. This condition, as is shown so well in the illustration of the results of cirrhosis of the liver in my book on "Diagnosis," results quite frequently in grave engorgement of the various abdominal viscera,

so that we frequently have hemorrhages from the stomach as the result of the enlargement of the gastric and esophageal veins and of the chronic catarrhal condition which results. Similarly it might be possible to have bloody movements from this cause as the result of the interference of the abdominal circulation and particularly from congestion of the hemorrhoidal plexus, but he has no history pointing to that most frequent cause of cirrhosis, alcoholism, nor does physical examination reveal any signs of this slow pathologic process in the liver. I think we may, therefore, exclude the possibility of the cause of his hemorrhages being hepatic cirrhosis. That he is not suffering from hemorrhages arising from old ulcers remaining after typhoid fever is proved by the fact that he has no history of this disease. He is, however, a markedly neurotic patient and the fact that he has these peculiar stringy movements, that he suffers from constipation with marked intestinal discomfort and with occasional attacks of diarrhea and from various spots of tenderness in the abdomen, which are not constant, leads me to conclude that he is suffering from ordinary muco-membranous entero-colitis. In some of these cases actual membrane seems to be passed from the bowel, but in the majority of them thick, tenacious strings of white mucus are passed with each movement. The proper treatment for this man is to institute, as closely as possible, what is known as the rest-cure treatment, which by improving the conditions of his nervous system, will indirectly cure this condition. His constipation must be overcome by the use of proper laxatives, such as cascara sagrada, to which may be added small quantities of lobelia to increase intestinal secretion, or if he has an attack of diarrhea this must be controlled by proper remedies. He must have a nourishing diet, which should be, however, free from potatoes, beans and similar articles which cause fermentation and the development of large quantities of wind in the bowel. Milk should be given him very cautiously until we are sure that he can digest it. In addition to this treatment his digestion should be aided by bitter tonics, by the use of pancreatin or pepsin, and, almost as important is the rest-cure. He should receive high injections of as hot water as he can bear, in each two liters of which there should be placed about 1.3 grams of the sulphocarbolate of zinc. Should no diarrhea be present we may place in the hot water from 2 to 4 grams of boric acid. His buttocks should be elevated before the injection is given, the fountain syringe should not be raised more than eighteen inches or two feet above the bowel, in order that the water will enter the bowel very slowly, and this treatment should be given at first every night and afterward at least three times a week. During the periods of his constipation gentle massage of the abdominal area may be carried out with great advantage, but it will have to be most gentle, particularly when it is first employed.

The other two cases are very much more important; they represent that not very common condition known as leukemia, or as it was formerly called, leucocythemia. In an earlier clinic I showed cases representing ordinary anemia, chlorosis and pernicious anemia, in all of which conditions the variations in the blood depended chiefly upon alterations in the character or number of the red blood corpuscles. These cases, however, represent but little change, comparatively speaking, in the red corpuscles, and very marked change in what are known as the white corpuscles or leucocytes.

The white blood corpuscles appear in several forms: first, we have the small white blood corpuscle, scarcely as large as the ordinary red corpuscle, which is called a lymphocyte; this has a very large nucleus, which so completely fills the body of the corpuscle that there is no free protoplasm to be seen around its margin. Next we have what is known as the large mononuclear leucocyte, a corpuscle considerably larger than the red corpuscle containing a large single nucleus which is surrounded by an area of transparent protoplasm. Next we have a white corpuscle known as a transitional leucocyte, in which the nucleus of the large mononuclear leucocyte looks as though it were undergoing some transitional change in its shape and character. This corpuscle is not, however, exceedingly important in diagnosis. Then we have what is known as the polymorphous or polynuclear leucocyte, a white blood cell which, as its name indicates, contains either several nuclei or a nucleus of very irregular shape (polymorphous). This corpuscle contains in its protoplasm a number of fine granules which take certain neutral stains and are therefore known as neutrophiles. In addition we find in normal blood another white blood corpuscle, generally polynuclear in character, in the protoplasm of which may be found large granules, much larger than those just described, which readily take an acid stain such as eosin. They are called eosinophiles. At one time the presence of those cells was considered of importance in the diagnosis of leukemia, but they are now considered not so important. These, then, are the white corpuscles which are found in normal blood. What are the changes which we find in leukemia? Before I describe them I must recall to your mind that we have two forms of leukemia; first, spleno-medullary leukemia, which is by far the most frequent type. In this disease we have great enlargement of the spleen and liver and marked pathologic changes in the medulla of the bones and, as a result of these changes, it is supposed that we have developed an excessive number of large mononuclear leucocytes, and at the same time another white corpuscle not found in normal blood is seen which appears as a myelocyte, a corpuscle of very large size with a very large staining nucleus, usually situated toward one side of the cell and in the protoplasm of this corpuscle are to be found numerous fine granules. The presence of these two corpuscles and the mononuclear cells in excess and the development of the myelocytes affords us strong evidence of the presence of spleno-medullary leukemia, particularly if we find in association with these signs the dyspnea of anemia, the pallor, retinal hemorrhages, possibly hematuria and the marked enlargement of the spleen which are so characteristic. The older of these two patients presents just these signs and symptoms. An additional sign of leukemia may be, perhaps, considered in the marked decrease in polynuclear leucocytes which are present, and this enables us to separate leukemia from other cases in which we simply have excessive leucocytosis, because the polynuclear leucocytes are those which are increased in excessive leucocytosis but decreased in leukemia. Repeated examinations of this man's blood show the following changes: September 30 he had 2,458,000 red corpuscles, 28 per cent. of hemoglobin and 368,750 white cells, the proportion of white to red being 1 to 6. Two months later under ascending doses of arsenic his hemoglobin had risen to 50 per cent., his red corpuscles, however, numbered only 2,048,000, but

the white corpuscles had been decreased to 93,750, or 1 to 23.

Today his hemoglobin equals 63 per cent., his red corpuscles 4,000,000 and his leucocytes only 19,000. The proportion therefore is 1 to 210, which approximates the normal proportion very much more closely than the earlier count. The blood also shows that the myelocytes are present in the proportion of from 8 to 13 per cent., and it is a noteworthy fact that his polynuclear leucocytes, which are usually decreased in this disease, amount to from 51 to 66 per cent., which is about the number usually found in normal blood. His spleen is found to be greatly enlarged. It extends almost to the anterior superior spine of the ilium and in the middle line as far as the umbilicus, but his color has greatly improved and there are many men who would appear far more anemic than he, although they would consider themselves as being in perfect health.

The second case is far more interesting because much more rare, representing as it does a case of possible lymphatic leukemia. It is that of a young man of 23, a barber by occupation, who is intensely pale and yellow looking. An examination of his chest and arteries shows loud anemic murmurs, his spleen is enlarged to even greater extent than the patient first brought before you and we have records of his blood over many months. October, 1895, an examination of his blood showed that his hemoglobin was 30 per cent., his red blood corpuscles 2,060,000 and his leucocytes 8000. He has been in hospital off and on since that time and we have a great many counts of his blood. His case is not a typic one, but I think we can say that it is one of lymphatic leukemia. At the present time his hemoglobin is 33 per cent., his red corpuscles the same as before and the leucocytes 6200. While the red corpuscles are somewhat decreased, as they frequently are in leukemia, the white blood corpuscles are not increased as is usual; indeed, this proportion between white and red is often seen in health. It is only when we consider his various corpuscles that we have much light thrown upon the diagnosis. We then find that his lymphocytes, which are ordinarily present in comparatively small numbers, amount to 84 per cent., that polynuclear leucocytes, which usually make up a large proportion of the white cells, only amount in this patient to 8 per cent., while the mononuclear leucocytes amount to 4 per cent. There is also absent in his case one other frequent sign of lymphatic leukemia, namely, very great enlargement of the lymphatic glands all over the body. This boy has no such enlargement, but his lymphocytosis, combined with his profound anemia, the fact that he has had hematuria, that he has hemorrhages in his retina and that he is intensely anemic and pallid without a corresponding loss of flesh, seem to make the diagnosis fairly clear.

In many of these cases of leukemia we find in addition to a decrease in the number of red corpuscles, an abnormal red blood corpuscle which possesses a nucleus, this corpuscle being called a normoblast and sometimes also possessing ameboid movement. In the presence of a patient suffering from multiple enlargement of the lymphatic glands, a symptom which this boy might present, it would be incorrect for you to jump to the conclusion that he was suffering from lymphatic leukemia, because a similar enlargement is seen in what is known as Hodgkin's disease or pseudo-leukemia and multiple tubercular infection.

The treatment given these patients has been a nourishing diet, the meeting of current symptoms which have seemed of most importance, and ascending doses of arsenic until they reached the physiologic limit of the drug.

FIVE CASES OF CHOLELITHIASIS.

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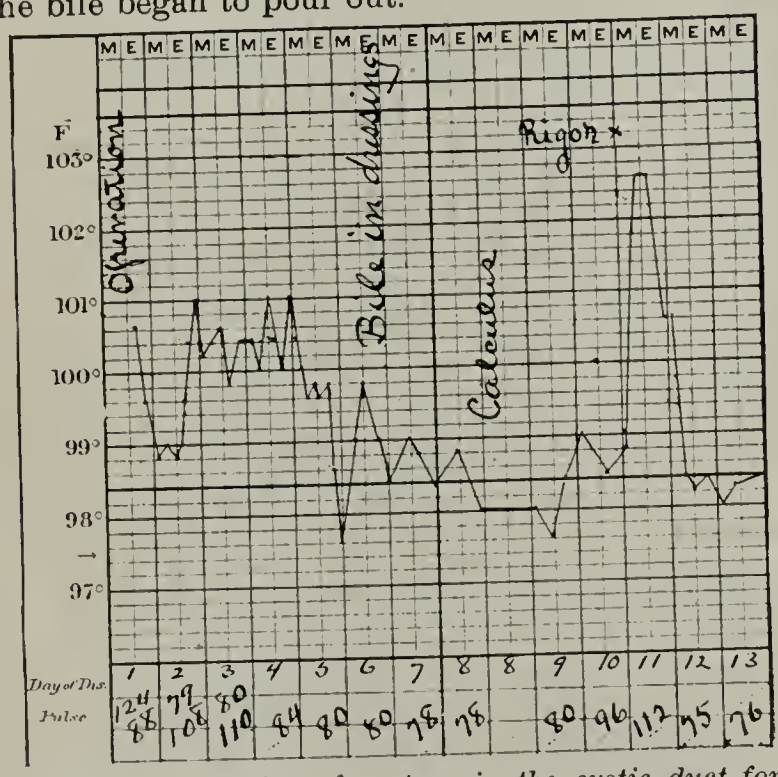
The following cases are reported because each of them contains at least one point of real surgical interest:

Case 1.—Indistinct pain in the abdomen, with sick headache; the morphin habit; empyema of the gall bladder; cholecystostomy; recovery. The patient was a physician, 45 years of age, who came to Dr. Waugh's sanitorium for the treatment of the morphin habit. He was of very regular habits, used no tobacco or alcohol and had no significant previous history. He had indistinct pain in his back and abdomen for several years and was accustomed to take small doses of morphin to relieve this distress. These doses increased, however, in frequency and size until he found himself, under one pretext or another, taking larger and larger doses, up to 0.45 or 0.52 grams a day. He was bright and had been able to follow his practice, which was large and diversified. On coming to the sanitorium he stood the treatment well for a week or two, when without apparent cause and without any very great increase in this indistinct pain in his back he gradually began to have an evening rise of temperature, with some sweat. At length symptoms of peritonitis, distension of the abdomen and tympanites appeared, and it was discovered that his right abdominal region was filled by a tumor six inches long and three or four inches wide. It was so large a tumor that it was at first looked upon as a peri-appendicular abscess. In the course of twenty-four hours the symptoms were so grave that I was called in to open the abscess. This was Dec. 16, 1893. The patient at this time was only partially conscious; his abdomen was slightly tympanitic; the bowels had been freely moved by an enema; the patient's temperature was 102, his pulse 120. He had never had any paroxysmal pain, but complained of a deep pain in the back, which was relieved by the use of morphin. In examining the eyes the pupils did not show the effect of the morphin; the tongue was coated typhoid-like; the lips dry and parched; the skin hot and dry; the respirations rapid and superficial, as in peritonitis; the heart's action was perfect, but rapid; the abdomen was slightly distended, and in the right side was found a tumor, round, smooth and pressing up against the abdominal wall, which tumor I readily recognized as a greatly distended gall-bladder or possibly a pyonephritic tumor. His urine was examined and found to contain a trace of albumin and was otherwise highly concentrated. He urinated voluntarily. The case was considered one of great gravity, and an immediate operation was undertaken. The abdomen was opened by an incision along the outer border of the right rectus muscle two and one-half inches long. The tumor showed itself in the wound unattached to the viscera. The first effort, however, to examine it resulted in rupture of the sac and the discharge of a large quantity of thick pus. The walls of the tumor were instantly grasped in several pair of forceps and the tumor pulled out into the wound. By means of several silk sutures, it was attached to the margins of the wound and the edges were trimmed off, making a large opening into the gall-bladder. The finger was passed down to the cystic duct, but on account of the necrotic condition of the sac it was considered unadvisable to make any attempt to sound the cystic duct.

During the following twenty-four hours the temperature fell to 99 and rose again at the end of the second day to 101, after which it gradually declined until the twenty-fifth day. Upon the eighth day the stone appeared at the mouth of the wound and was with some difficulty removed. It was half an inch in diameter and about an inch long, being pear-shaped and having a facet at one end, showing that another stone had been in contact with it. This was dislodged a few days later. The patient made an uninterrupted recovery, with one exception. On the tenth day after the operation the usual irrigation of the wall of the gall-bladder was undertaken by the nurse, but the mouth of the fistulous opening into the gall-bladder had now become so small that the irrigator point did not allow a free return of the water from the cyst, and as a result the water probably flowed through the cystic into the hepatic duct and carried back with it the pus from the gall-bladder. The patient complained of a sudden dreadful pain, quickly went into a collapse

from which he was with difficulty revived, and in the course of a few hours he had a pronounced chill and a rise of temperature to 103 degrees, as represented in the chart. This was unaccompanied, however, by any symptom of peritonitis, and upon the following day the temperature fell to normal and never rose after that time. This is shown by the accompanying chart. In the course of a few weeks the fistula completely closed, but it required a secondary operation to remove one of the silk sutures, which had been too hastily placed during the emergency of the first operation in an inaccessible position.

This case illustrates the fact that a stone may give rise to severe disturbance and nervous unrest and distress which can not be characterized as biliary colic, and may even initiate the morphin habit in an otherwise healthy and well-balanced man. It also shows the danger of irrigating the gall-bladder after the obstruction in the cystic duct has passed away. In this case the irrigations were begun on account of gangrene of a large part of gall-bladder, but I thoughtlessly neglected to give directions that the irrigations be stopped as soon as the stone was dislodged and the bile began to pour out.



Case 2.—Impaction of a stone in the cystic duct for five years, with attacks of pain and vomiting at intervals of two or three months, each lasting a day or two. Relief from all symptoms for five years. Impaction of the stone in the middle of the common duct; rupture of the common duct, removal of the stone, suture, drainage and death from shock. Mr. P. when I first saw him was 51 years old. He was suffering from an attack of "gastritis," the symptoms of which were pain at the pit of the stomach, general abdominal distress, persistent vomiting and considerable prostration. This attack came on the morning after Thanksgiving, presumably after an unusually full meal. He said he had had such attacks repeatedly for three years. Usually it had been necessary to give morphin to remove the severe, rather constant pain, which was always felt slightly to the right of the middle line of the abdomen and just under the edge of the ribs. The morphin was given hypodermically and the patient carefully examined. A small round tumor the size of a hen's egg could readily be felt almost touching the abdominal wall in the region of the gall-bladder. The liver was not enlarged, the stools were normal colored, there was no jaundice. A diagnosis of a stone in the cystic duct was made and an operation for its removal was recommended. The next day the pain had disappeared, the patient recovered during two or three days on a light diet, and an operation was refused. During the following three years this happened at irregular intervals two or three months apart, one of which always occurred on the morning following Thanksgiving. I attended him through each of these attacks and always recommended cholecystostomy. The patient submitted to a rather restricted diet and during the five following years he had no attacks of pain and often spoke of his wisdom in refusing an operation. At last, upon the morning after the eighth Thanksgiving he sent an imperative message to bring him morphin as he was suffering from another attack of gallstones. This time the pain was much more severe than ever before. The patient showed jaundice six hours after the beginning of the attack, which jaundice deepened gradually during the twelve hours following while we were waiting for the return of his wife in order to operate upon him. It was almost impossible to remove the exacerbations of pain, which come on first at 4 A.M., again at 7 A.M., again at 7 P.M. and lasted from this time continuously until he was operated upon the next morning at 11; but vomiting occurred only two or three times, and nausea was not a prominent symptom. At first a hypodermic of 0.03 gram of morphin was given. Six hours later a teaspoonful of chloroform in olive oil was given by the mouth. After this the pain was controlled by inhalations of chloroform at each paroxysm. His wife returned twenty-nine hours after the beginning of the pain. At that time his pulse was 100, temperature 98 in the rectum; his abdomen considerably distended and his skin in the second stage of jaundice. The abdomen was opened by a small incision in the median line high up, and immediately about a quart of greenish fluid poured out. The finger discovered a completely atrophied gall-bladder, and a stone an inch long and half an inch in diameter in the common duct about its middle portion. This stone had the appearance of two truncated cones set with their bases together. Its surface was dark and nodular. There was evidence of the former contact of a small stone at one end. A long incision was then made on the outer border of the right rectus muscle, the abdominal cavity was carefully washed out with a large quantity of sterile water. The liver and intestines were retracted with the assistants' fingers and a row of twelve fine silk sutures were placed in the wall of the common duct over the perforation, which was found directly over the stone in the middle and beginning lower third of the common duct. The stone was used as a guide in inserting the sutures. When the sutures had been placed a forceps was carefully insinuated into the opening and the end of the stone was grasped, and by the aid of the finger behind it and the forceps it was slowly and carefully withdrawn without much enlargement of the rupture. The duct was explored in both directions without result. The sutures were then drawn together and tied and cut off short. There seemed to be no leaking, and yet fearing this possibility, the omentum was brought up and fastened so as to make a deep well leading down from the long abdominal incision to the rupture in the common duct. This well was filled with strips of iodoform gauze in Mickulicz's handkerchief, and in order to make the drainage more complete a large perforated drainage tube was passed down the center of the gauze for a distance of five inches. Everything was held in place by a few sutures in the omentum, and the abdominal wall was closed, allowing about two inches space for drainage. The operation lasted an hour and a quarter. The patient seemed to suffer only moderate shock, the pulse and temperature at the end of the operation were only a trifle different from what they were at the beginning. During the eleven hours that the patient lived the symptoms of shock increased and the patient slowly but surely, and in spite of every means of stimulation and care, declined. There was no hemorrhage. The dressings were saturated with a greenish fluid; the urine was high colored and the perspiration yellowish. The patient died eleven hours after the operation without reaction. Superficial post-mortem examination through the wound revealed nothing new.

This case illustrates the danger of neglecting to open the gall-bladder and remove the calculus as soon as the diagnosis has been made. It is also a warning against neglecting to operate in case of obstruction of the common duct at as early a moment as possible. Although many cases of traumatic rupture of the gall-bladder have been reported in which recovery took place; after rupture, especially when due to obstruction by a gallstone and presumably accompanied by infection of the biliary apparatus, death from peritonitis is the rule. Mayo of Rochester, Minn., reports a case of injury of the gall-bladder in a boy 12 years old, with recovery after repeated removal of a biliary ascites, and many similar cases are reported. Peritonitis is produced not by bile but by infected bile.

Case 3.—Obstruction of the common duct, absence of the gall-bladder; disappearance of the calculus under manipulation; drainage of the peritoneum; recovery. In August 1894, Dr. Louis May called me to see a patient, 35 years old

in whom he believed he had a case of obstruction of the common duct. The patient was a powerful, fat ice-man, of rather intemperate habits, who had suffered from frequent attacks of colic unaccompanied by jaundice. Three days before my observation he had been attacked with colic during his labor distributing ice. He administered to himself liberal doses of whisky, both hot and cold, and had one or two doses of morphin during the night hypodermically. The pain was very severe and the paroxysms were of rather long duration. In the morning he was completely jaundiced. The jaundice increased, the urine became black and the patient went into a comatose condition, with tympanites and occasional attacks of vomiting. This was the condition in which I found him. His jaundice was extreme; the clothing in which he lay was stained with bile. The urine removed from his bladder with a catheter was almost black. The respirations were shallow and the heart beats were faint. The pulse was 110 and the temperature 98. No tumor could be felt. The liver was considerably enlarged, extending downward about an inch and a half beyond the margin of the ribs. Operation for the removal of the obstruction was undertaken. The stools had been removed during the last two days by means of enemas and they were uncolored by bile. The patient was anesthetized with a small amount of chloroform and an incision made along the outer border of the right rectus muscle. The intestines were stained yellow, the liver itself looked almost black, so greatly was it engorged. The space in which the gall-bladder is usually found was occupied by a firm cicatricial mass, and the gall-bladder seemed to be entirely absent. Passing the finger down the common duct, at the first examination it seemed that a row of calculi could be felt, but a few minutes later and after a little further manipulation made to break up some light adhesions over the common duct, they entirely disappeared, nor could they, during the course of the operation, be felt again. At this time a greenish yellow fluid was sponged out of the bottom of the abdomen and I was afraid, though I could not be certain, that I had ruptured the common duct. Pressure upon the liver caused distention of the common duct, and as soon as the finger was pressed upon it to milk it into the intestine the duct collapsed and the bile disappeared somewhere, presumably into the duodenum. I believed that the obstruction had in some manner been removed, and I feared that the common duct leaked into the peritoneal cavity. The stones could not again be felt; I did not think best to open the common duct and probe for them. Therefore, I built a sort of well leading down on the under surface of the liver between the right lobe and the quadrate lobe and paved the space with strips of iodoform gauze and sewed up the remainder of the wound, covering it all with an antiseptic dressing, held on with adhesive straps. The patient did not vomit after the anesthetic, and on the morning of the following day he was perfectly conscious, had a good appetite and several free bile-stained movements of the bowels. The wife made a superficial examination of the feces, but did not find any stones. This examination I consider valueless, however. The jaundice began to disappear. Upon the third day after the operation he resisted his wife's entreaties and the doctor's orders and dressed himself and went to his favorite saloons to see his friends. The doctor was called and induced a police officer to assist him in taking the patient home and putting him again to bed. The dressings were at first saturated with bile, but after a day or two the discharge was small, the packing was gradually removed and the wound closed without any event. The patient has not had an attack of biliary colic or jaundice since that time and has during the past four years been perfectly well.

This case illustrates the fact that after long continuance of calculi in the cystic duct the gall-bladder sometimes becomes atrophied, and it further illustrates the fact that the stones may be upon the verge of passing into the duodenum and need only slight assistance to dislodge them. It also shows that after forty-eight hours the adhesions about a Mikulicz's drain in the abdominal cavity are strong enough to withstand considerable assault. It seems to me now that in a similar case I should not be satisfied to leave a stone because I could not palpate it.

Case 4.—Repeated attacks of biliary colic for nine years, without jaundice; cholecystostomy and immediate removal of the calculus; recovery.—Mrs. P., 46 years old, the mother of five children, the youngest one 9 years old, had puerperal fever after the birth of this child. The symptoms were very grave. The patient had chills and fever and sweat for six or seven weeks and recovered with broken health, very much emaciated. At the same time she had an abscess of one of her breasts, which required poulticing and afterward incision and drainage. When this child was 1½ years old she had an attack of colic, which lasted for three or four days, during which there was very severe vomiting and great prostration. From this attack she recovered promptly and since that time has had such attacks at frequent intervals, usually as often as two or three times a year. I was called to see her Feb. 13, 1896. She had been suffering for twenty-four hours with excruciating pain in the upper right side of her abdomen, extending into her back and right shoulder. A physician who had been treating her had made a diagnosis of gallstones and had attempted to administer remedies by the mouth, but on account of the frequent and persistent vomiting these remedies had had no effect. The pain was unabated and the vomiting occurred at intervals of ten to twenty minutes, with great retching. I found a large fat woman, with relaxed abdominal walls, moist skin, tender abdomen and a considerably contracted pupil, probably the effect of the morphin. There was no jaundice. and the liver was not recognizably enlarged. The urine was of normal color and contained only normal constituents. The temperature was between 100 and 101 degrees F. There had been no pronounced chill. The pulse was strong but rapid, 110. The patient looked anxious and begged for relief. I made a diagnosis of a single large stone in the cystic duct, and in trying to explain the condition to the husband I made a drawing of what I believed the stone to be, both in size and general appearance. This drawing he afterward compared with the stone which he saw removed. I administered a hypodermic of morphin, 0.03 gram, and urged an operation, basing my diagnosis wholly upon the symptoms. The abdomen was opened by a short incision in the median line and the finger pressed downward and to the right discovered the stone and a slightly distended gall bladder. A second incision was made along the border of the costal cartilage opposite the ninth rib, and the tumor was with some difficulty pressed up into the wound and fastened there with a couple of rows of strong silk sutures. The gall bladder was opened and the stone in the cystic duct was easily pressed forward into the gall bladder and outward through the wound. The stone corresponded almost exactly in size and shape with the sketch I had made of it before the operation. The wound was covered with antiseptic dressing, and during the following three weeks it continued to discharge more or less bile, when it closed suddenly and permanently. Since this time the patient has been wholly free from these attacks and has had no symptoms of sick headache.

This case shows the probable source of gallstones in the puerperal fever which the patient suffered a year and a half before any pain was felt. It also shows how long a patient is frequently neglected, suffering from stone in the cystic duct, a place so easily attacked and so amenable to simple surgical treatment.

Case 5.—Sudden impaction of stone in the cystic duct without previous symptoms of biliary colic or cholangitis, cholecystostomy and discharge of a large number of stones, with a single copious discharge of bile after ten days; closure of the fistula in two months, followed in the course of three weeks by renewed colic; second opening of the gall bladder; drainage for three months; recovery.—Mrs. E., aged 54, the mother of two healthy children, had never had any attacks of biliary colic or symptoms which could be referred to this condition. April 26, 1897, she was suddenly taken with a severe pain in the epigastrium, with vomiting and very slight indication of jaundice. The pain continued for twenty-four hours, with a chill at the end of this time and rise of temperatue to 102. This was followed by repeated slight chills and a continuous high temperature for three days, when I was called to see the patient. She was a large woman of dusky skin and dark eyes. The abdomen at this time was excessively tender and in the region of the gall bladder especially sensitive, but by careful rolling of the tissues under the palm of the hand, a round smooth tumor could be felt, which was believed to be the distended gall bladder. There was nothing significant in the condition of the heart and lungs. The respirations and pulse corresponded with the temperature, which was now 102. The patient was much collapsed and begged to be relieved of the pain and vomiting. I recommended immediate operation, designed to relieve the gall bladder and remove the obstruction in the cystic duct.

An incision was made in the middle line large enough to admit the index finger, and the diagnosis of obstruction of the cystic duct and empyema of the gall bladder was confirmed. The gall bladder was surrounded on nearly all sides by light

adhesions, which did not, however, involve the anterior abdominal wall. An incision was made over the gall bladder and with some difficulty it was drawn up into the incision and fastened there by a row of silk sutures. The gall bladder was then opened and a cloudy whitish yellow fluid was discharged. The finger was passed into the gall bladder, but no stones could be found by a light examination. During the following ten days the patient rapidly improved, and a number of faceted gall stones were discharged. About this time the dressings were suddenly saturated for the first time with bile. A few more stones were then discharged into the dressings and the patient improved, but no more bile showed itself. July 1 the wound had completely closed, the patient was about and feeling well. July 26 the patient was again attacked with the same symptoms which she had suffered in April. I saw her at this time every day. On the third day I determined to reopen the gall bladder in the scar. The patient was as much prostrated as she had been before the first operation, and I determined now to keep the gall bladder open until I was certain that all stones were removed or dislodged. After this operation the gall bladder was drained until November 1, during all of which time there was a discharge of bile whenever the opening from the gall bladder was not plugged. After free drainage for two or three weeks without the removal of any stones, I introduced an olive-shaped urethral sound (about No. 15 American in size) into the gall bladder, and coiled up the silver handle to it so as to make a sort of spring resting against the abdominal wall, thus pulling the blunt side of the olive into the wound to act as a ball valve. This remained in the wound from the last of August until November 1, when it was removed. During all this time there was only a small and not very troublesome discharge of bile. The sound itself on removal was covered with the thinest possible black film, which cracked, rolled up and fell off as soon as it had dried. I can not account for the obstruction which occurred in July. I was not able to find in the gall bladder, or in the cystic duct, or in the common duct any evidence of stone, although I was able without much difficulty to pass a sound into what I believed to be the intestine. During the past six months the patient has been very well and able to attend to her many duties.

Each of these cases has its own story to tell. In only one case did death result, and then because the warnings of biliary colic without jaundice were unheeded, and perhaps, too, because the necessities of the case almost demanded too great a delay after the last warning given by biliary colic with jaundice.

A CASE OF TUBERCULOSIS OF SPLEEN, WITH SURGICAL TREATMENT.

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A scarcity of literature on the subject of surgery of the spleen has induced me to report the following case, one that has been of unusual interest to me.

About Feb. 20, 1896, Mrs. Wm. F., age 24, first felt pain in the left hypochondriac region, which, slight at first, gradually grew more severe until she came under my observation, April 19, 1896. At that time the pain in the region of spleen was at times quite intense, while at others it was entirely absent. There was no rise of temperature, but her pulse was about 100. Her appetite was good, she had no cough or bowel trouble, and attended to her household duties as usual. I prescribed counter irritants externally and quinia and codein internally. Her condition remained about stationary until May 10, when her temperature was 101 degrees and pulse 120. The pain in the spleen was quite severe and on palpation I found quite an enlargement of that organ. She had no chills preceding the rise of temperature, nor other symptoms of malaria. She was well nourished, had rosy cheeks and weighed 108 pounds, which was her average weight.

Notwithstanding she had no symptoms of malaria, I put her on quinin, Fowler's solution and syrup of the iodid of iron, with tincture of iodin externally, and kept her on a similar line of treatment for fifteen or twenty days, during which time her condition continued to grow steadily worse. I was still in doubt about my diagnosis and called council. After a thorough examination, which included the history of both her father's and mother's families, with negative results in regard to both tuberculosis and carcinoma, we were still in doubt about the nature of the trouble that was producing the tumor in the spleen, as it had now reached a size that would justify us in calling it a tumor. My council advised a trial of protonuclein, and it was given her for about two weeks. Meanwhile the tumor of the spleen continued to enlarge, forcing its way up under the short ribs and extending down into the left iliac region and over to the median line, reaching to the umbilicus.

An exploratory operation was done June 23, 1896. The incision was made over the most prominent part of the tumor. After reaching the peritoneal cavity we found the tumor free from adhesion to the abdominal walls.

It was softer than normal spleen structure and of a grayish color. I opened the splenic cyst or covering, which is composed of peritoneum and a fibrous coat intimately connected. Inside of the cyst we found a large mass of abnormal growth and broken down splenic tissue. After removing this soft tissue, which I did with my fingers and a spoon curette, I stitched the splenic cyst to the wall of the abdomen, leaving a cavity in the cyst as large as a baby's head, with no cystic wall separating it from the small portion of the splenic structure that was not removed.

I thoroughly packed the cavity with iodoform gauze and dressed the wound open to secure drainage, thinking that suppuration would take place and it would heal by granulations. A microscopic examination of the specimen removed blasted all such hopes, as it revealed pus corpuscles and tubercular bacilli.

The patient rallied well from the operation. Peritonitis developed on the second day, threatening to destroy the patient's life; after a few days she gradually improved.

Her pulse rate was unusually high compared with the temperature. A chart was kept for twenty-two days after the operation, from which I found an average morning pulse of 114.2, the highest rate being 150, which was noticed June 26, and the lowest 85, July 8. There was an average evening pulse of 119½. The highest reached was 144, June 27; the lowest, July 5, 98. During the twenty-two days there was a mean morning temperature of 99.5 degrees; the highest point being reached on the morning of June 26, 103 degrees; and the lowest July 8, 98 degrees. There was a mean evening temperature of 100.2 degrees; the highest on the evening of June 25, at which time it reached 104 degrees. The lowest evening temperature was 98.2 degrees, and occurred on the evening of July 14, 1896. The high pulse rate continued throughout the entire course of the disease. This high pulse rate has been a peculiarity of most cases of disease of both the spleen and pancreas that have come under my observation.

The patient gradually improved in her general condition as indicated by a good appetite, marked gain in flesh, weighing more three weeks prior to death than she had for several years previous. The opening into the spleen continued to discharge a small

quantity of pus. The tubercular growth in the splenic cyst gradually returned until it attained a size much larger than prior to the operation. She began to cough about six weeks before death; the cough became so persistent and severe that it interfered with sleep. The sputum contained traces of blood and tubercle bacilli. A physical examination revealed slight dulness over nearly the entire lung surface, but no marked flatness. Mucous râles were also present. The abnormal growth gradually crowded up into the opening in the abdominal wall until it rendered the operation of dressing very painful and interfered with drainage. In order to re-establish this and make the dressing of the wound less painful, October 14 I scooped out the entire contents of the splenic cyst through the original opening in the abdominal wall. The tubercular mass was very soft and easily broken up. The only instrument required in the operation was my fingers. After controlling the hemorrhage, which was quite profuse, I dried and packed the cavity with iodoform gauze. The patient rallied well from operation, and at the end of a week had recovered sufficiently to leave the hospital and return to her home. At this time her pulse rate varied from 140 to 150. A few days after returning home her condition grew worse and she gradually declined until November 4, when she died.

Autopsy, held November 5, revealed a great many foci of tubercular deposits in the liver. The pancreas was almost a solid mass of tubercular deposits. The splenic cyst was very much enlarged and partly filled with a cheesy substance which contained tubercle bacilli and pus corpuscles. The lungs were not examined.

Under the conditions was the operation justifiable? In my judgment, the operation was not only justifiable, but demanded. In all cases of tumors or other pathologic changes in the abdominal viscera that would in all probability be amenable to treatment by a surgical operation if correctly diagnosed, an exploratory incision should be made, and any other operation that might prove to be necessary should be done at the time of exploration. I am confident that her life was not only prolonged, but made more comfortable. After she recovered from the immediate effect of the operation, pain ceased; her appetite returned, and she gained considerable flesh; she became more cheerful; took an interest in her home surroundings, and was quite happy for a time, in fact, until the growth had returned and developed sufficiently to cause pain during the act of dressing.

Any other method of treatment would not have reduced the tumor, nor relieved the pain, and, therefore, could not have been as efficient. However, she received about the same internal treatment that she would have, had she not been operated upon, and consequently lost nothing from lack of non-operative measures.

I find that tuberculosis of the spleen is by no means of rare occurrence, but that it affects children more frequently than adults. The nodules may be small and gray, or large and yellow. In acute tuberculosis the spleen rapidly enlarges as the tubercles develop. Tuberculosis of the spleen is generally secondary to that of other organs of the body, while, in the case under consideration, the spleen seemed to be the first organ involved or the primary seat of the disease, the liver, lungs and pancreas becoming involved secondarily. Reynolds says, "tuberculosis is sometimes located in the spleen, but almost, if not always, in connection with tuberculous growths in other organs, and generally in children." Rokitansky says, "in acute tuberculosis of spleen, the organ is smaller and softened very much like the condition it assumes in the typhoid state." Jenner says that it is often the seat of tubercle in children, but only in exceptional cases in the adult.

The lungs and mesenteric glands are very commonly diseased at the same time.

The tubercles are often distributed throughout the spleen substance with much regularity, and they may be solid and hard, but in the course of time they soften in the center, and assume a curdled appearance, or appear like cheesy substance. The "Reference Handbook" says, "acute splenic tumor, without tubercular deposits, occurs during the progress of acute tuberculosis." Splenic tubercles proper are apparently either always secondary to tuberculous growths in other organs, or appear simultaneously with widely disseminated tuberculous growths during the course of acute miliary tuberculosis. In the former case the tubercles are often not very numerous and are visible to the naked eye, varying in size from that of a millet seed to that of a pea, the largest doubtless being composed of several smaller aggregated tubercles. These growths are sometimes called solitary tubercles. They are at first grayish and translucent, assuming later a yellowish or cheesy appearance.

Tubercles of the spleen are alike devoid of interest for the clinician, the diagnostician and the therapeutist. Loomis says, "tubercles in the spleen develop in the spleen pulp." The nodules may be gray and small, or large, yellow and cheesy. Tubercular formations are very common in young children. Yellow tubercular masses, varying in size, are frequently formed in the spleen in connection with similar formations in other parts of the body; occasionally they soften and form abscesses. The small splenic vessels are often clogged with lymph and fibrin. Tubercles of the spleen can not be recognized during life.

Wm. Pepper says, "tubercle frequently attacks the spleen, but only as secondary to general tuberculosis."

Wilks and Moxon think the larger nodules of tubercle may be primary, but there seems to be no evidence in support of this opinion. As a symptom of general tuberculosis, splenic enlargement from congestion simply, and quite without any specific deposit, is observed as a form of acute splenic tumor. It is at the later stages of general tuberculosis that distinct deposits of tubercle are formed in the spleen, and these are consequently almost crude. It is usually impossible to diagnosticate the existence of splenic tubercle during life.

Dr. Orth says, "tubercular changes in the spleen are very common. Primary tuberculosis of the spleen must be very rare, if, indeed it ever occurs, but nowhere is secondary tuberculosis more common than in this organ."

At the time of the first operation the spleen was the only organ in the body that was affected. Would it have been good treatment to have removed it entirely? If so, what would have been the probable results had she survived the operation? If the organ had been removed, and as we believed at the time that was the only point of infection, the patient might have been permanently cured of the tuberculosis. The fact that the patient's health was very much improved after the operation and did not depreciate until other organs

became involved leads me to the above conclusions. Had complete splenectomy been performed, with the result of a complete cure of the tuberculosis, would her life have been prolonged sufficiently to have justified so formidable an operation?

Dr. Wyeth says, "complete splenectomy may be demanded in displacement of the organ followed by interference with the function of other viscera, or for the relief of pain caused by the spleen in an abnormal position." It has been performed in several instances on account of the enlargement of this organ in leucocythemia, but without the success which would encourage a repetition of the operation.

In Ashhurst, "International Encyclopedia of Surgery," Vol.V., p. 1103, I find the following statistics, causes for which the spleen has been excised: From a table published by Mr. Herbert Collier, out of twenty-nine operations performed for diseased conditions since the year 1549, thirteen have been for disease other than leucocythemia, and sixteen for leucocythemia of the gland. Of these sixteen all have been fatal. Of the diseases of the spleen unassociated with leucocythemia in which splenectomy has been performed, in two cases it has been a floating or wandering spleen; one, hypertrophy associated with a floating state of the organ; three, hypertrophy from malaria; three, simple hypertrophy; one, hydatid followed by sanious discharge; one, secondary enlargement after cirrhosis and associated with ascites and anasarca; one, sequestered spleen in peritoneal abscess; and in one hypertrophy, with a unilocular cyst containing three liters of a viscid fluid. Of these thirteen cases, eight have recovered. Of forty-three cases of splenectomy for disease, to which the editor has references, thirty-one are known to have terminated fatally, a proportion almost identical with that shown by Mr. Collier's figures. For injury of the abdomen, implicating the spleen and in several instances attended with protrusion, the results of excision and extirpation have been very encouraging. Nussbaum states that sixteen out of twenty-six operations performed for traumatic causes have been quite successful. (The editor has references to twenty-one cases of splenectomy for traumatic causes, all of which are said to have terminated successfully.)

Statistics are yet not sufficient to enable us to arrive at a satisfactory prognosis in such cases.

AN INTESTINAL OBSTRUCTION, DUE TO AN ABNORMALLY FORMED APPENDIX, ABNORMALLY LOCATED.

BY ANGUS McLEAN, M.D.

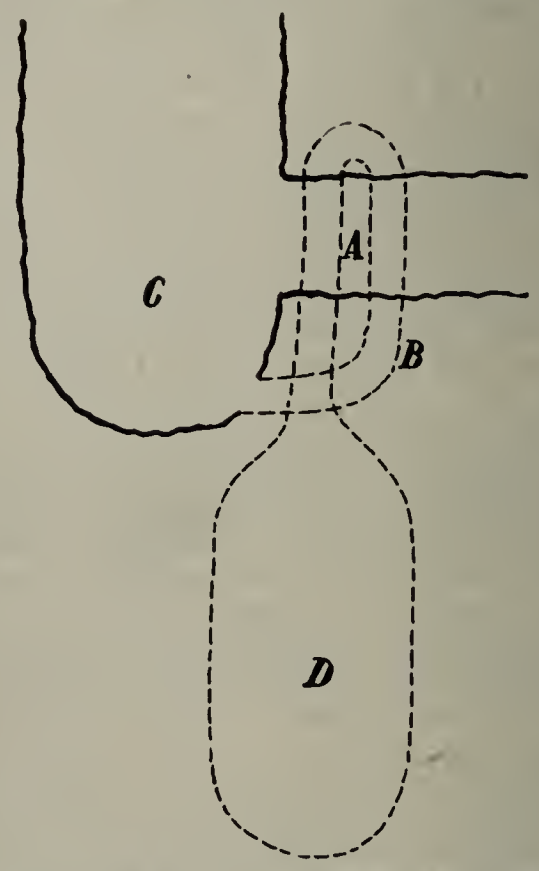
LECTURER AND DEMONSTRATOR OF ANATOMY, DETROIT COLLEGE OF MEDICINE; JUNIOR SURGEON, HARPER HOSPITAL, ETC.

DETROIT, MICH.

The patient who had this rare and unfortunate anatomic phenomenon was a man aged 40 and by occupation a foreman. He was taken with pain in the right lumbar and epigastric regions while at work; the pain was intermittent and gradually became more severe. He was compelled to quit work and go to his home. He became nauseated in a few hours and sent for his physician, Dr. Charles E. Bleakley. The Doctor examined the abdomen but found nothing of a localized character. He administered cathartics, and a slight anodyne for the pain, but the cathartics were ineffectual, and upon seeing him again he gave large doses of cathartics and had this followed by rectal enemata, but this also proved ineffectual. The pain had now become so severe as to require occasional hypodermics of morphia. The Doctor grew suspicious of obstruction and had medical counsel called, but nothing definite was decided upon and the patient was continued upon symptomatic treatment.

I saw the patient on the fifth day and found the abdomen very much distended but no marked localized tenderness. He was not suffering from pain at this time, although he had had no anodyne for twenty-four hours, but appeared to be in a toxic condition. His temperature was 101 degrees F. and pulse 96. The attendant stated that this was the first day on which he had had any fever. I advised that a laparotomy be done at once, and the patient was removed to the Detroit Sanitarium and the operation performed.

After the anesthetic was administered and the tension of the abdominal muscles had relaxed, there appeared to be a slight fulness at the right side just above Poupart's ligament. An incision was made along the outer border of the rectus muscle (right side) opposite the umbilicus. The peritoneal cavity



C, cecum; A, ileum, surrounded by appendix and where obstruction took place; B, point of perforation; D, distended portion.

contained a slight amount of blood-stained fluid; the small intestine was distended and congested and of a dull red color, with some exudation and slight adhesions between its loops. The large intestine was normal in appearance. Upon manipulation a blind pouch of distended intestine appeared at the opening (resembling a Meckel's diverticulum). This was followed to its base and found to be attached to the lower portion of the cecum and to encircle the ileum at its junction with the large intestine, and in its swollen condition so encroached upon the ileum as to obstruct its lumen. The appendix was slightly gangrenous and perforated about one-half inch from the cecum in the portion extending from the cecum to the ileum. A small amount of fecal matter had escaped. The appendix was unwound from around the ileum and removed.

The accompanying diagram will show the position of this abnormal appendage, the heavy lines indicating the walls of the intestine and the dotted lines that of the appendix.

The specimen was seven and a half inches in length; the constricted portion, that is, the portion leaving the cecum and surrounding the ileum, was four and a half inches in length; the free portion three inches long and one and one-half inches in diameter and forcibly distended by gas. It was entirely devoid of mesentery and its canal was pervious throughout. The portion surrounding the ileum passed from behind forward and lay beneath the serous coat; *i. e.*, it was between the serous and muscular coats. The trouble evidently commenced in the appendix, and as the portion surrounding the small intestine became inflamed and swollen, it compressed the muscular coat of that portion of the intestine which it surrounded, gradually causing the obstruction.

Greves reports a case of intestinal obstruction due to the appendix, in the London *Lancet* of Dec. 6, 1884. In his case the free end of the appendix had become attached to the peritoneal wall, the body of the appendix forming an arch, under which a loop of the small intestine had passed and became strangulated.

Nicolaysen reported a case in the *British Medical Journal* of July 23, 1892. In this case the appendix had been previously inflamed and the mesentery of the appendix had become adherent to a portion of the small intestine; this afterward produced a volvulus.

I do not know of any similar case to the one I have described being reported by any writer, and this adds one more reason why the appendix should always be considered when the peristaltic action of the intestinal canal is interfered with.

NOTE.—The specimen was exhibited before the Detroit Medical and Library Association on Sept. 13, 1897.

STUDIES OF SOME FACIAL BONES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY MATTHEW H. CRYER, M.D.
PHILADELPHIA, PA.

The experience gained in a hospital devoted to the treatment of diseases of the jaws, face and associated parts, demonstrated to me several years ago that the text-book descriptions of the anatomy of these parts did not correspond closely with numerous observed clinical facts. To clear up the contradictory elements of this subject, I began; some four years ago, to make serial sections of such skulls as I could gain possession of, in all, numbering some hundreds.

These studies, some of which have been published, demonstrated that many of the printed, or text-book, description of the parts included, contained matter entirely at variance with observed facts.

Finding these printed errors so numerous in the anatomy relating to the parts embraced in the field of oral surgery, it was natural to carry the observations to more distant parts, and I found in them, as will be shown, that errors of description are far from uncommon in the works on anatomy relating to the nasal chamber.

When there is lack of bi-lateral symmetry of the part of the bony anatomy of the head, it is commonly associated with other marks of lack of bi-lateral symmetry, and vice versa; that is, if observation shows the dental arches, the palatal processes, and inferior maxillary bone to be bi-laterally symmetrical, bi-lateral symmetry usually exists in all of the bones, and so on.

Figure 1 shows an under view of a skull almost anatomically perfect, except that the external plates of the pterygoid process are not quite alike upon both sides, and there is a slight difference in the zygo-

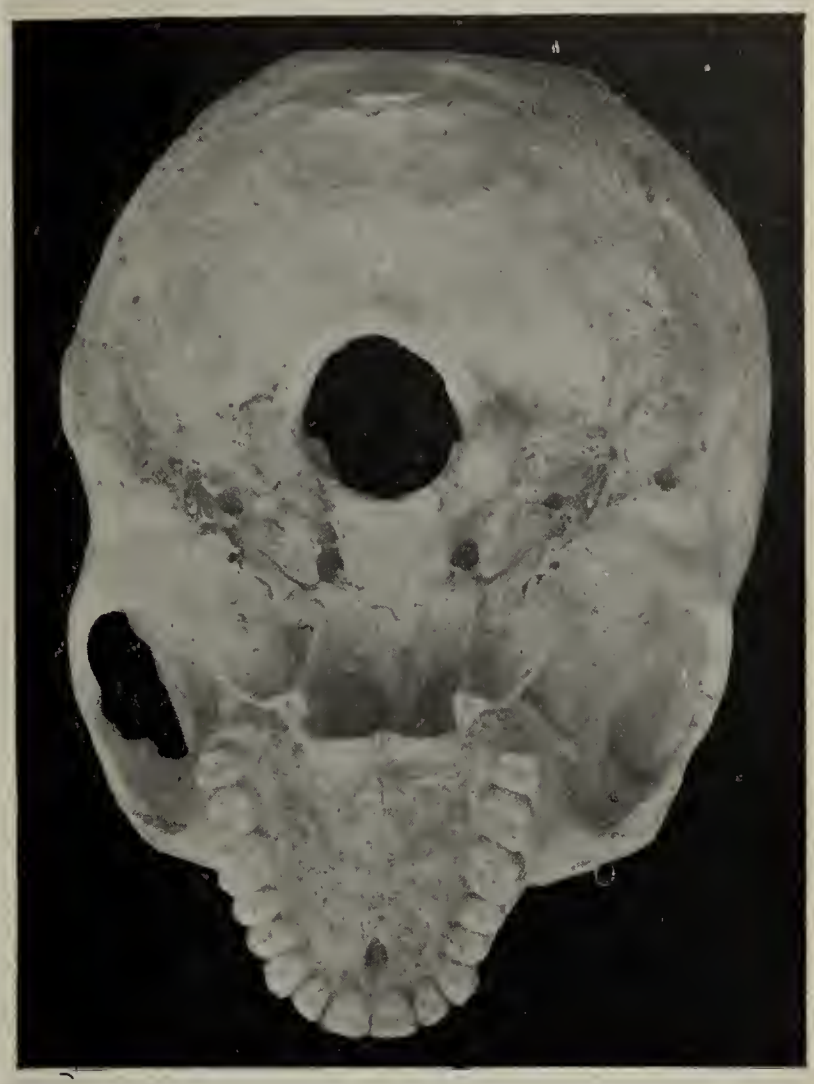


Figure 1.

matic arches of the two sides. The skull is tilted slightly, so that the sides do not appear as symmetrical as they really are.

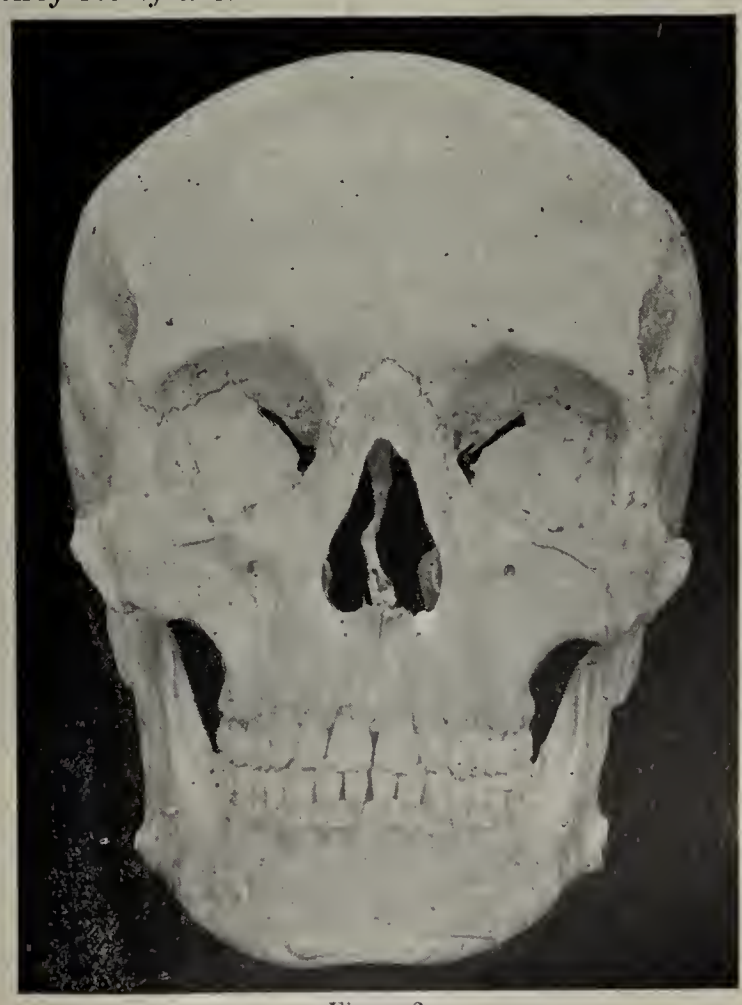


Figure 2.

Figure 2. Same skull gives a front view, the only lack of symmetry being a slight deviation of the septum of the nose. The bulla ethmoidalis of the left side is somewhat larger than that of the right, and the nasal septum is deflected from that side. It is often said that the septum is never straight. This, however, is an error, for I have many specimens in which it is perfectly vertical.

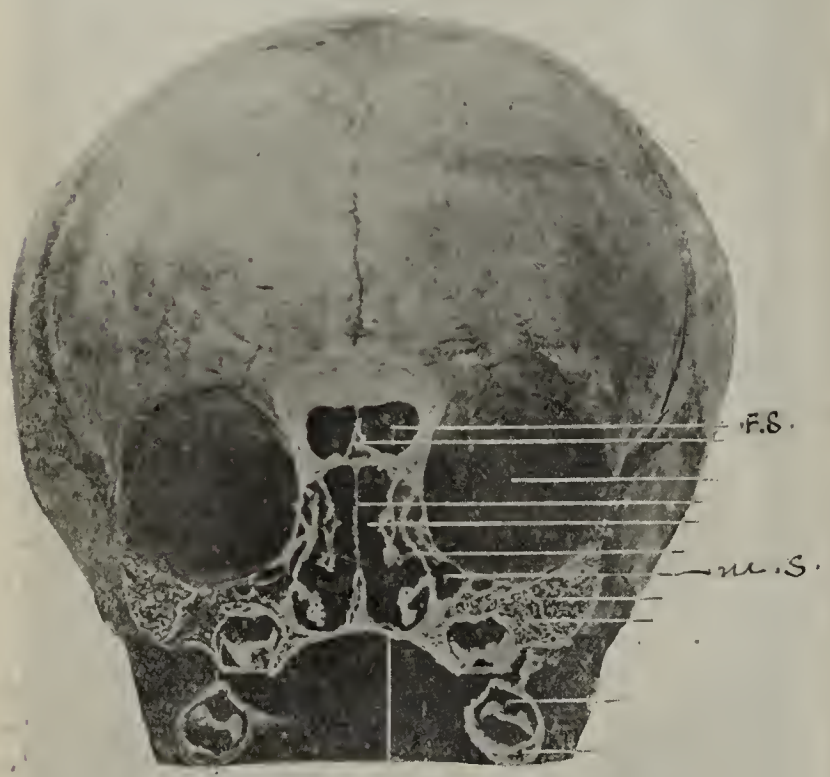


Figure 4.

Figure 3. The first of this series is a vertical section through the facial bones of a seven months fetus. The specimen is almost perfectly symmetrical, bi-laterally. It shows the beginning of the development of the maxillary sinus, M. S. The line of junction between the superior maxillary and malar bones is



Figure 3.

well-marked, as is also the infra-orbital canal, lying beside the developing antrum. Attention is called to the appearance of this canal in section. It looks like a cross-section of a tube. Note the point of the nasal wall at which the invagination, which is to form the future sinus, begins; it is at a higher level than the floor of the orbit. The direction of the developing sinus is downward and outward.

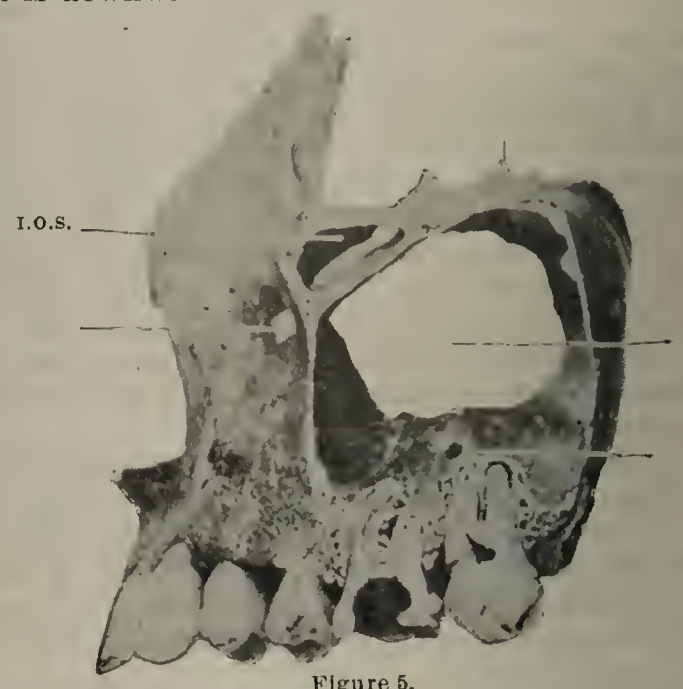


Figure 5.

Figure 4 represents the antero-lateral view of the skull, giving a general idea of the several external bones of one side of the face and head. The occlusion of the upper and lower teeth is almost normal. It shows the relations of the bones, of which we are to speak, to the other external bones. The outer surface of the lateral and anterior wall of the antrum is shown, the teeth having been denuded of the exter-

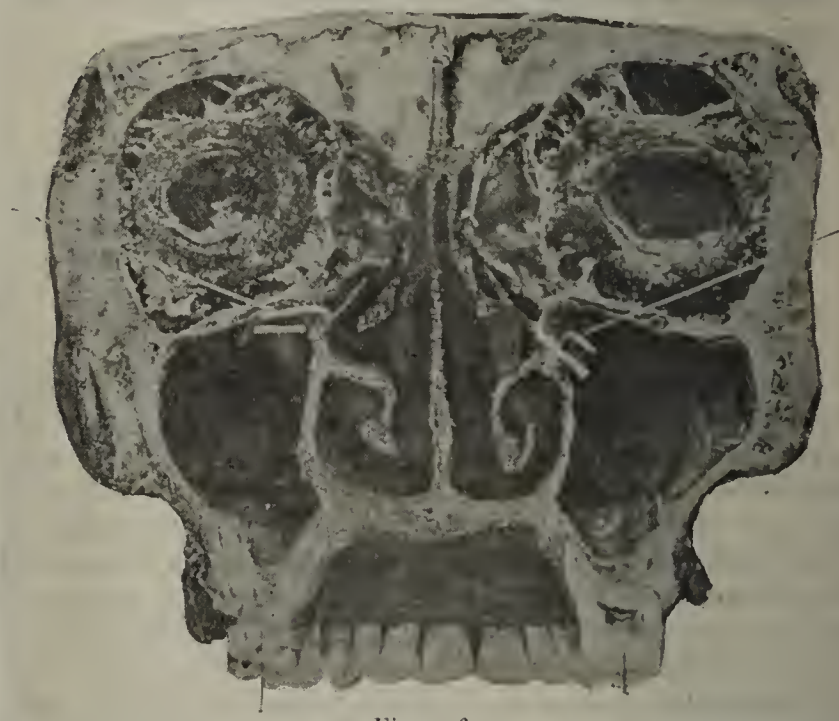


Figure 6.

nal plate of the alveolar process. The maxillary sinus has been opened immediately over the roots of the first, second and third molars, showing, in this case, how thin the bone is between the roots of the teeth and the floor of the sinus. It is also very thin over the points of the roots of the cuspid and first and second bicuspids. I wish to draw attention to the position of the infra-orbital foramen, which is usually



Figure 7.

described as the termination of the infra-orbital canal, which passes through the solid portion of the infra-

orbital ridge to the groove in the floor of the orbit. Several of the figures will show that this canal often passes diagonally through the sinus in the shape of

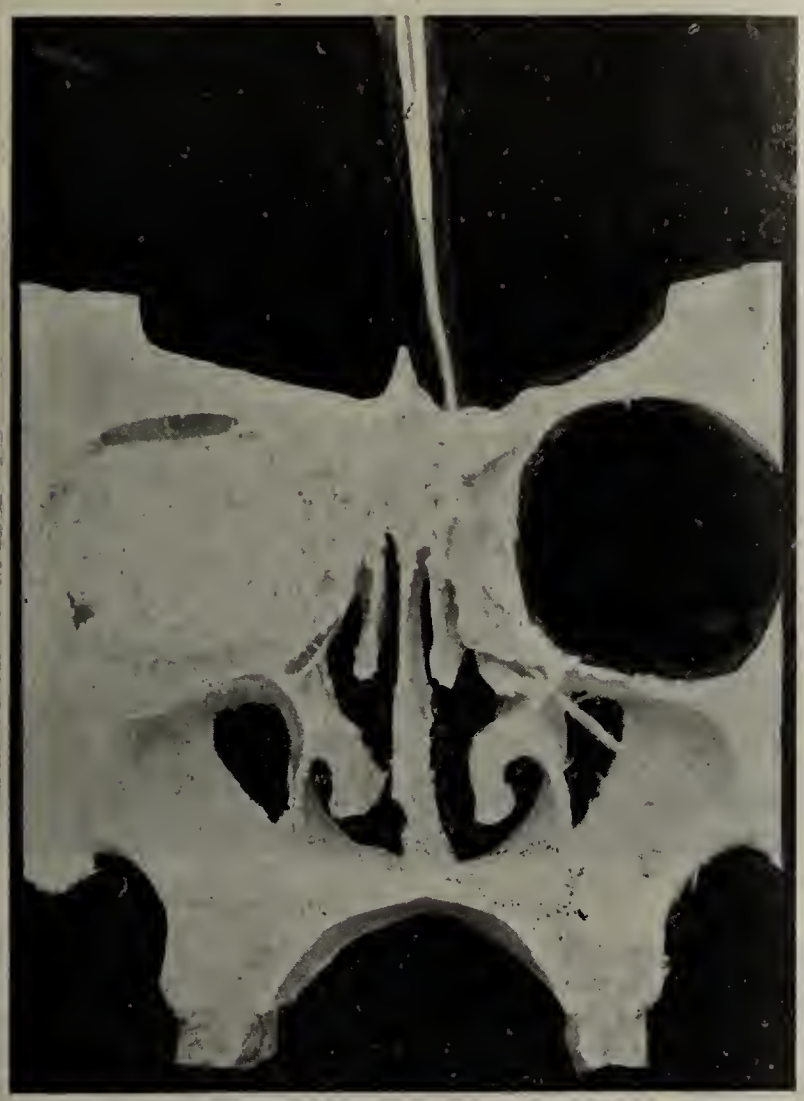


Figure 8.

a tube—a fact I have not noticed described in any work on anatomy. In the lower jaw is shown the recurrent branch of the inferior dental canal opening at the mental foramen, together with other features of special interest to the oral surgeon.



Figure 9.

Figure 5 shows a vertical section made through the upper portion of the right superior maxillary bone. In the upper front portion of the antrum is shown the passageway for the infra-orbital vessels and nerves, a distinct tube and not a passage channeled through the bone. The sinus in this case is seen extending into the infra-orbital ridge, forming what might be fitly termed an infra-orbital sinus. (I.O.S.)

The relations of the roots of the molars to the floor



Figure 10.

of the antrum is an interesting feature of this section.

In consequence of the death and decomposition of the pulp of a molar tooth, there has been, first, irritation and a constructive periostitis upon the floor of the antrum, which has caused a thickening of the bone over the apex of the root. At a later period,

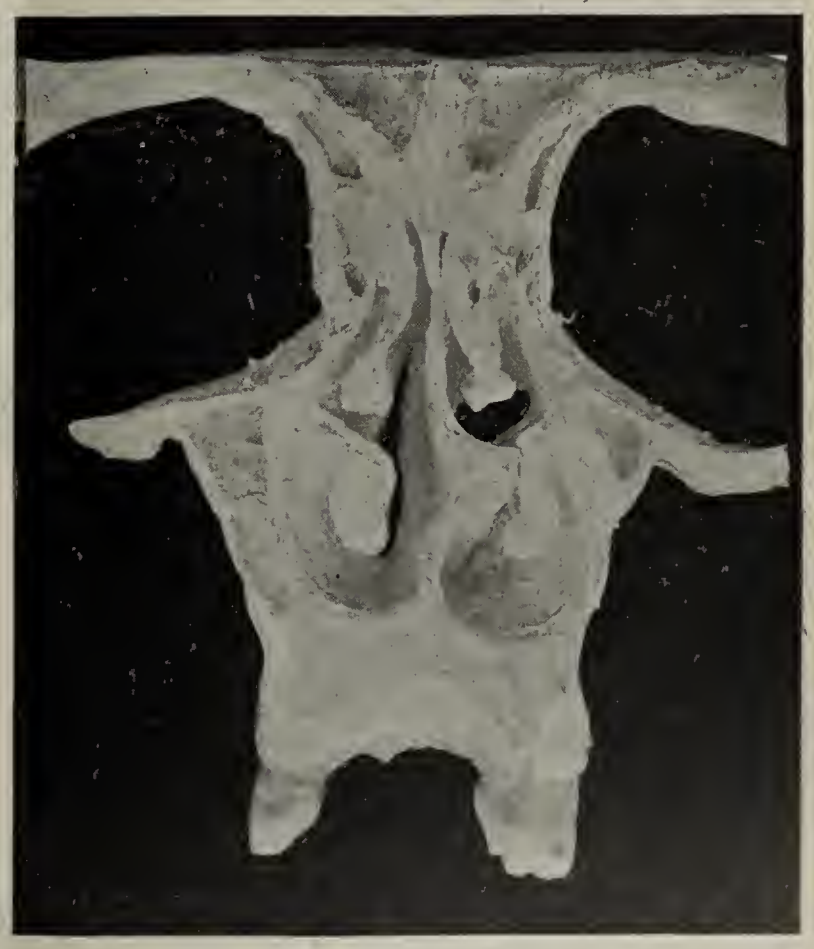


Figure 11.

suppurative inflammation has occurred, an abscess has formed and perforated the floor of the antrum.

Figure 6 shows the floor of the antrum extending between the roots of the molar teeth, a condition much more common among the white races than

among the negroes, according to my observation. Abscess upon the roots of such teeth may cause perforation of the floor of the antrum, and the extraction of a tooth would almost certainly be accompanied by fracture of the floor of the sinus. Note, also, that regarding the antrum as a cuboidal cavity, its exit is at its upper and inner angle. Note, also, the angle of the uncinate process. This is the usual

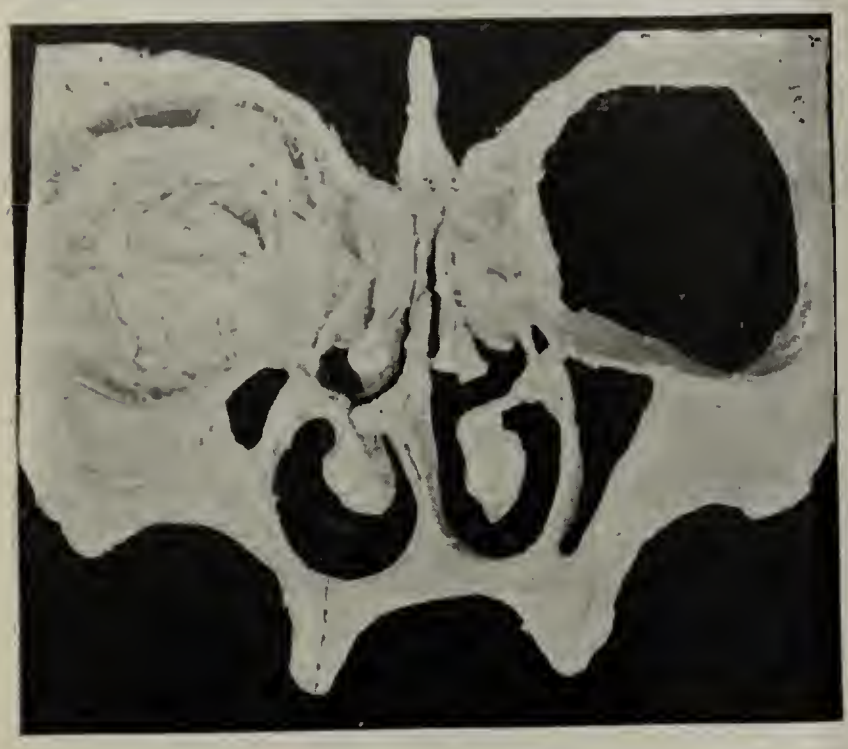


Figure 12.—Looking backward.

condition in all the skulls I have cut. You will see, therefore, that it is a mechanical impossibility to pass a probe from the anterior naris through the foramen of antral exit in normal bone.

Figure 7 is a tooth which has been drilled through while in the mouth, the operator supposing his drill was passing up the palatal root of the tooth, instead of which it passed through the base of the crown, the

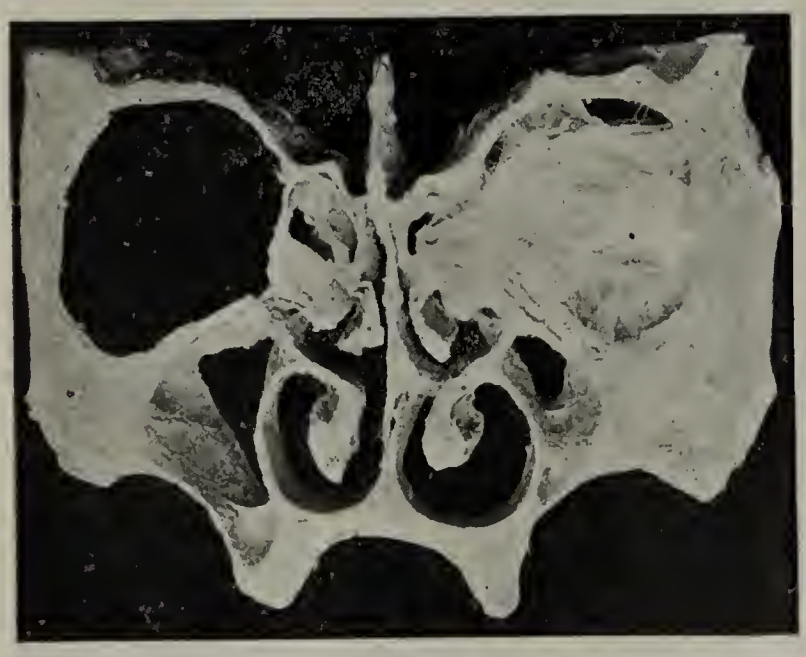


Figure 13.—Looking forward.

pulp chamber, the alveolar process, and into the maxillary sinus. It will be observed that in extracting it a portion of the floor of the antrum has been brought away with the tooth. The patient was suffering, at the time of extracting, from empyema of the antrum.

Figure 8 is a section of a negro skull. Note the greater thickness of the floor of the antrum. The point of special interest in this specimen is the probe, passed through the foramen of exit from the frontal sinus, the unobstructed path of which is directly into the antrum. I pointed out two years ago how common it was to find this condition, one in which effusions, or secretions, from the frontal sinus would find their way into the antrum.

Figure 9 is introduced to show the vertical septa, which frequently cross the antrum from side to side, springing from its floor, and dividing the lower por-



Figure 14.—Looking forward.

tion of the cavity into semi-chambers. Septa of two sizes are shown in the right and left sides. Note, also, how the development of the antrum has reduced the thickness of its walls to thin boundary layers. Note the projection of the bulla ethmoidalis upon one side; it is common to find a deviation of the nasal

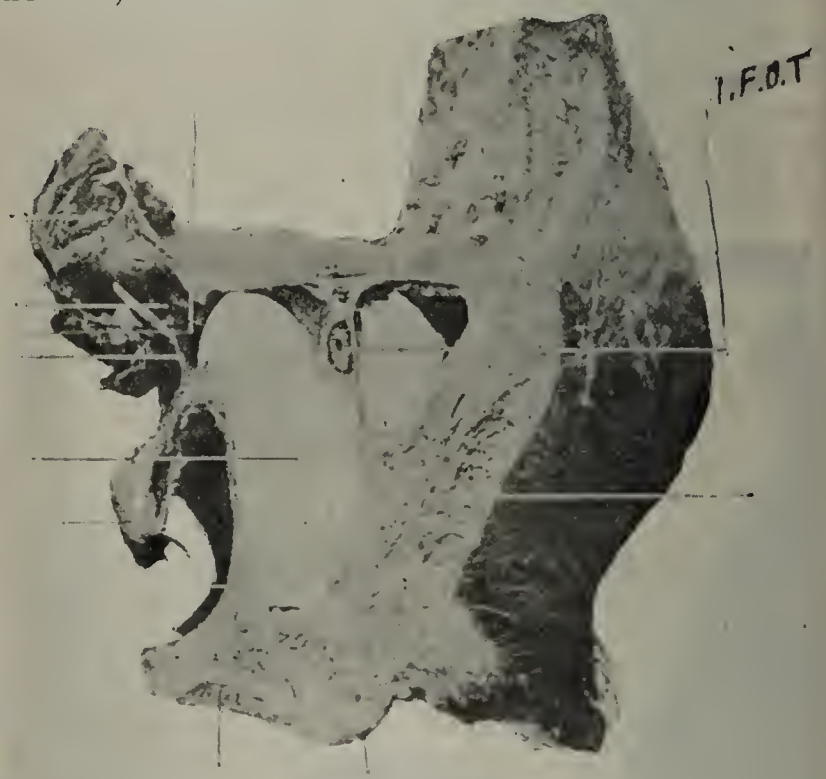


Figure 15 *a*.

septum from that side in such cases, as may be seen in some of the following figures; adenoid growths are also common.

Figure 10 exhibits a condition occasionally met with, the floor of the antrum dipping inward, and partially under the floor of the nose; it will be noted, from the axis of the alveolar process, that in this case the sinus could be drained directly from the palatal aspect of the mouth.

Figure 11 exhibits an entire lack of symmetry between the nasal fossæ and the sinus of the right and left sides, the inferior meatus of one side being closed anteriorly by the deflected nasal septum.

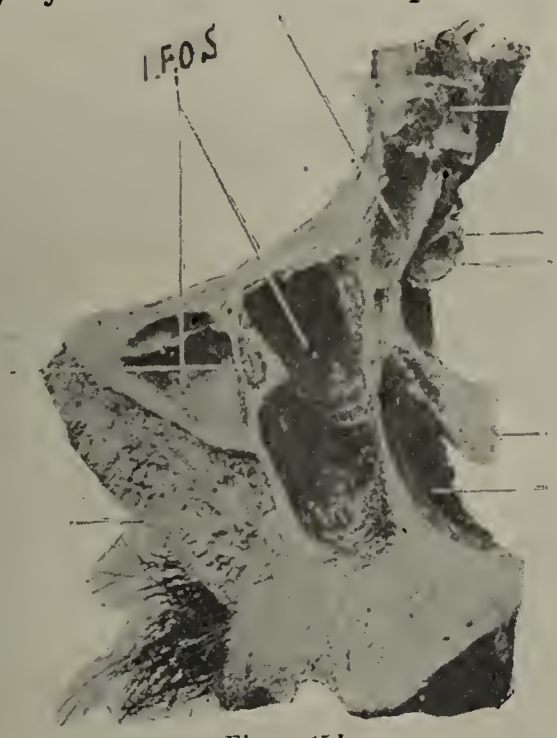


Figure 15 *b*.

Figures 12 and 13 are from the same head. It will be noted that a line, or instrument, passed through the axis of the alveolar process of the right side would perforate the floor of the nostril, instead of the floor of the antrum.

Figure 14 is from the same subject, posterior to the

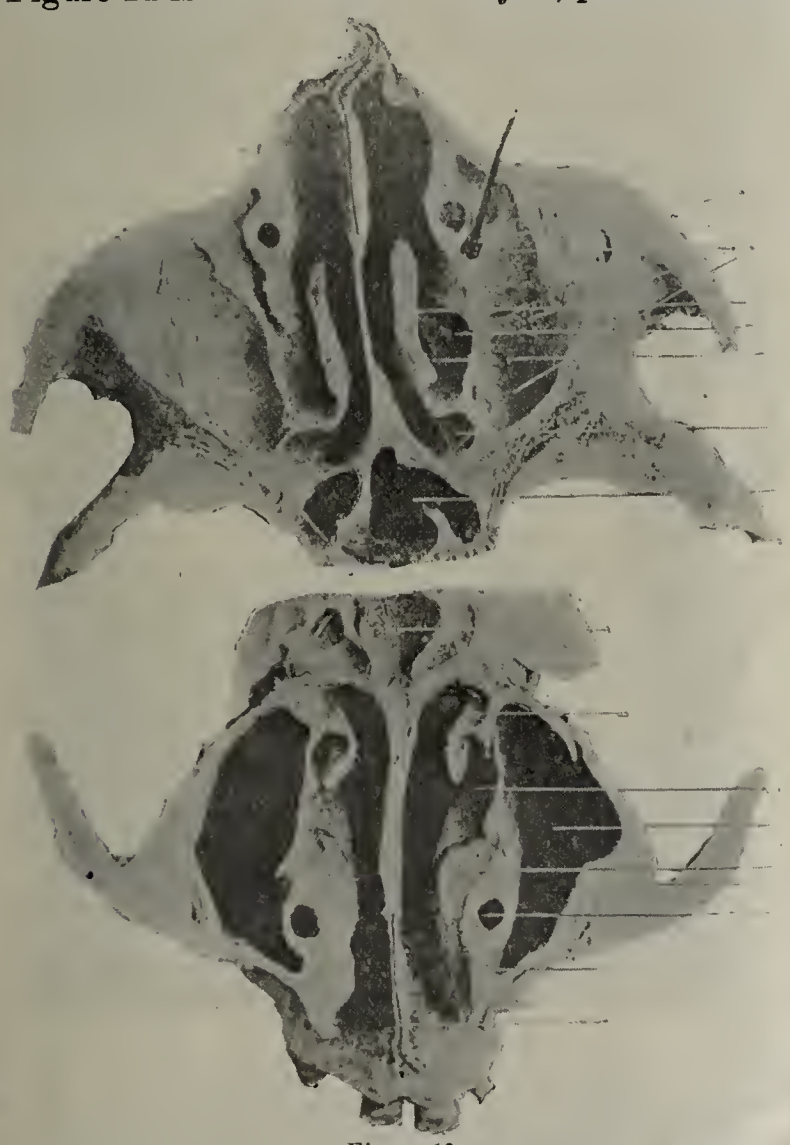


Figure 16.

other sections; the lack of symmetry of the antra is well marked, the more prominent side of alveolar process being associated with the larger antrum.

Figure 15 shows well the exit from the antrum at its upper and inner portion, together with the direction of the hiatus semilunaris. Note, also, the section of the infra-orbital tube. The second figure of the cut shows the division of the sinus, which I have called the infra-orbital. At the right upper corner is the normal opening of the maxillary sinus, leading into the hiatus semilunaris, which is bounded below

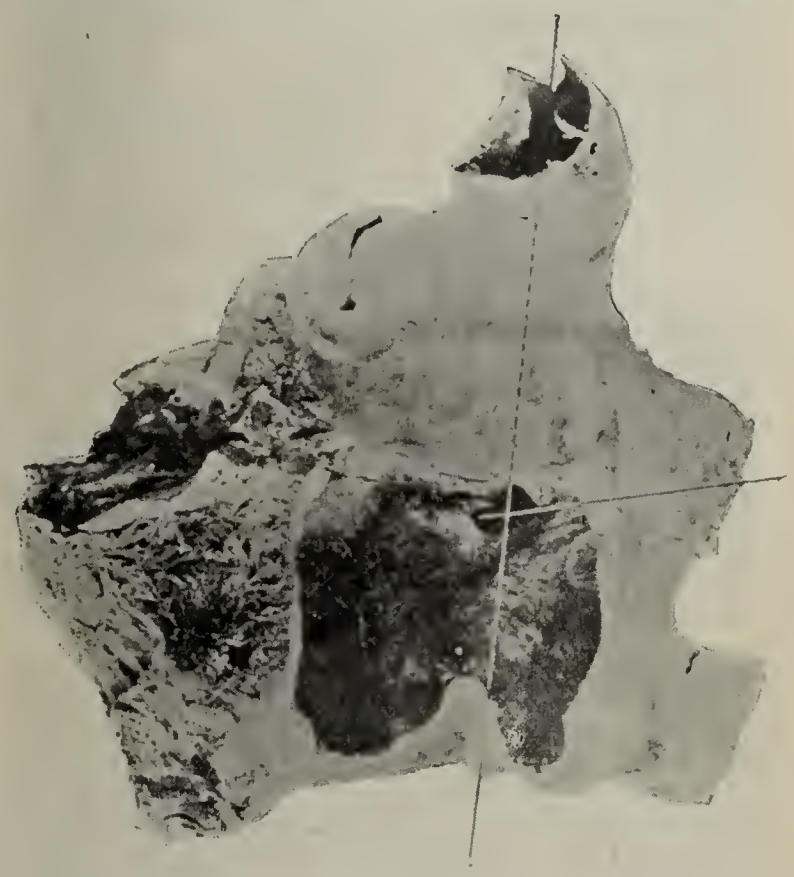


Figure 17.

and to the inner side by the uncinate process, to outer side by the wall of the sinus, and above by the bulla ethmoidalis. This last named rounded projection contains the middle ethmoidal cells; they vary in size in different skulls, and very often in the same skull. I believe this structure to be an important factor in



Figure 18.

causing various diseases of this region, including those of the maxillary and frontal sinuses.

Figure 16 shows upper and lower views of a transverse section passing near the roof of the antra, where it is noted that the place of exit from the antra is in the roof.

Figure 17 shows by the probes passed through the

passages, the relative directions of the exits from the maxillary and the frontal sinuses.

Figure 18. Where there are two infundibula leading from the frontal sinus to the antrum, the probe passing upward into the frontal sinus passes through the infundibulum.



Figure 19.

Figure 19 shows the outer nasal walls, and the normal relation of the bulla ethmoidalis with the uncinate process, together with the nasal entrance to the maxillary sinus.



Figure 20 *a*.

Figure 20 shows abnormal perforation of the inner wall of the antrum. In consequence of the enlargement or distension of the chambers of the bulla ethmoidalis, there has been occlusion of the hiatus semilunaris. Presumably the contents of the antrum have made for themselves an escape, by forming a false foramen. In Figure 20 *a*, the septum is in place. It will be seen that there is an opening in it, exposing to view the bulla and its ethmoidal cells. This absorption of the portion of the septum has been caused by pressure of the deflected septum, and the

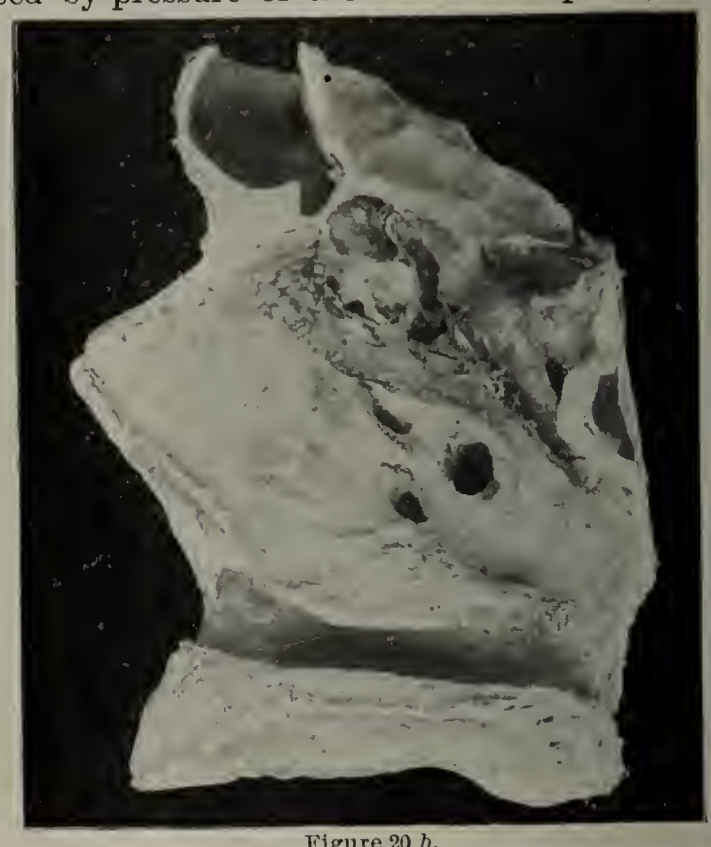


Figure 20 *b*.

enlargement of the bulla ethmoidalis. Figure 20 *b* shows where the septum has been removed, exposing to view the two abnormal openings, and the loss of the greater portion of the middle turbinated bone by absorption through the pressure of the bulla down near the uncinate process.

Figure 21 is taken from the left side of the same

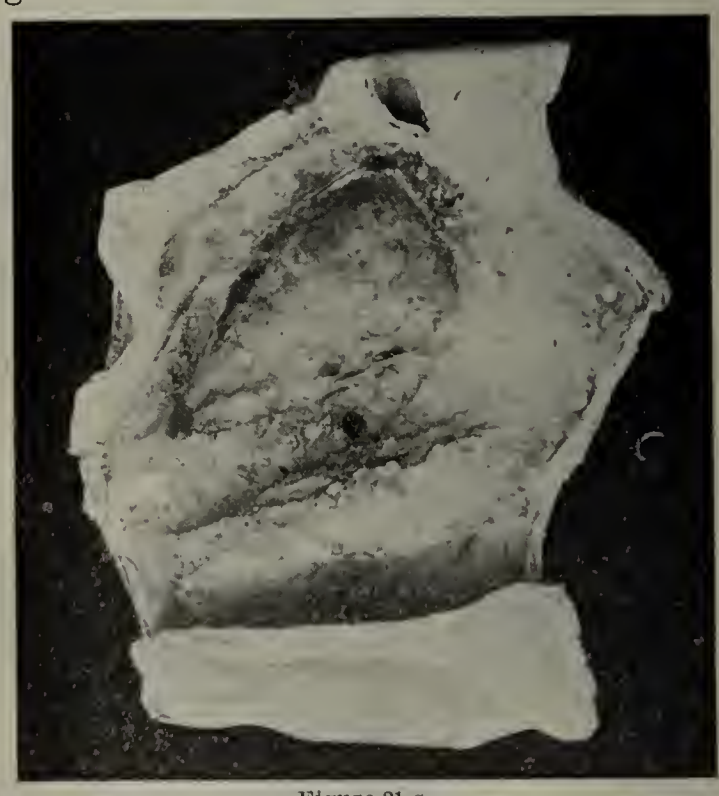


Figure 21 *a*.

skull. Figure 21 *b* has the middle turbinate bone in position, showing an abnormal opening. Figure 21 *a* has the middle turbinate bone cut loose and turned upward, exposing the bulla extending downward and closing the hiatus semilunaris, the passageway for the fluids from the frontal and maxillary sinuses, also from the anterior and middle ethmoidal

cells. This closure has been the cause of the abnormal opening from the maxillary sinus.



Figure 21 *b*.



Figure 22.—Right.

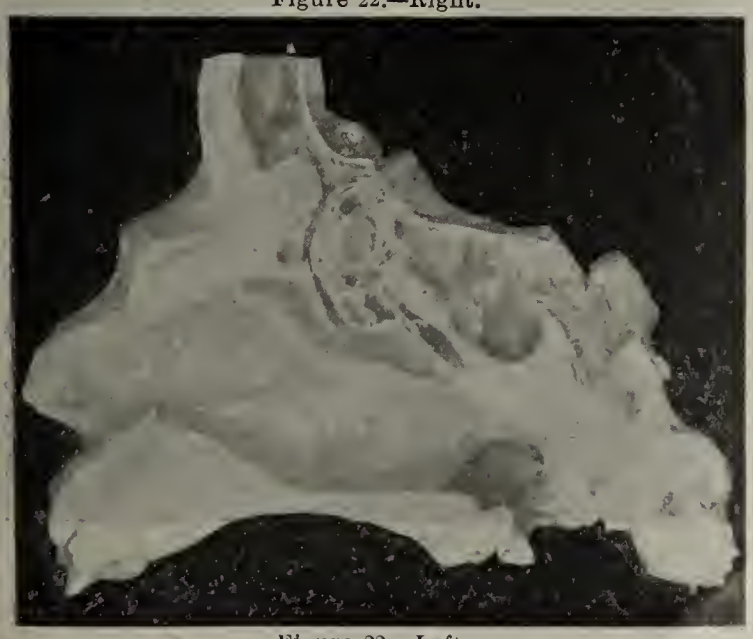


Figure 22.—Left.

Figure 22. The right picture shows the outer wall of antrum removed, the section passing almost through the axis of the molar teeth. The relation of the ends of the roots of these teeth with the floor of the antrum is shown. The special feature of this cut is the double opening leading from the antrum.



Figure 23 *a*.

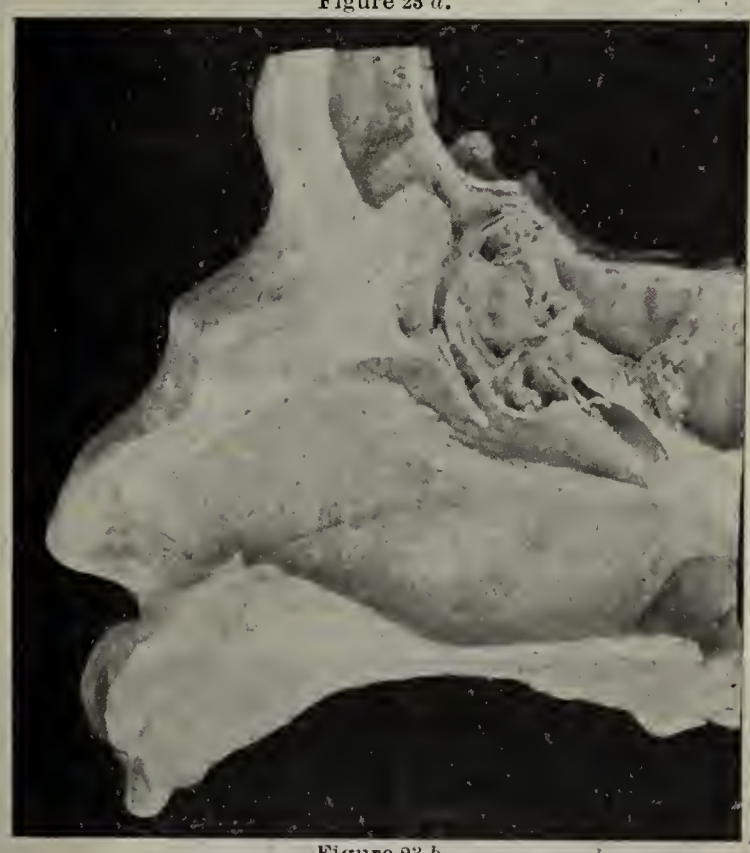


Figure 23 *b*.



Figure 24.

The left picture is made from a section cut immediately within the nasal cavity of the same subject. It shows a section of the bulla ethmoidalis, which is very large, extending downward and forward, partially closing the infundibulum and the hiatus semilunaris.



Figure 25.

Figure 23 is from the same specimen; figure 23 *a* being the same as that at the right in the last, figure 23 *b* being the other half of the section. They show a bulla ethmoidalis cut through. There is also

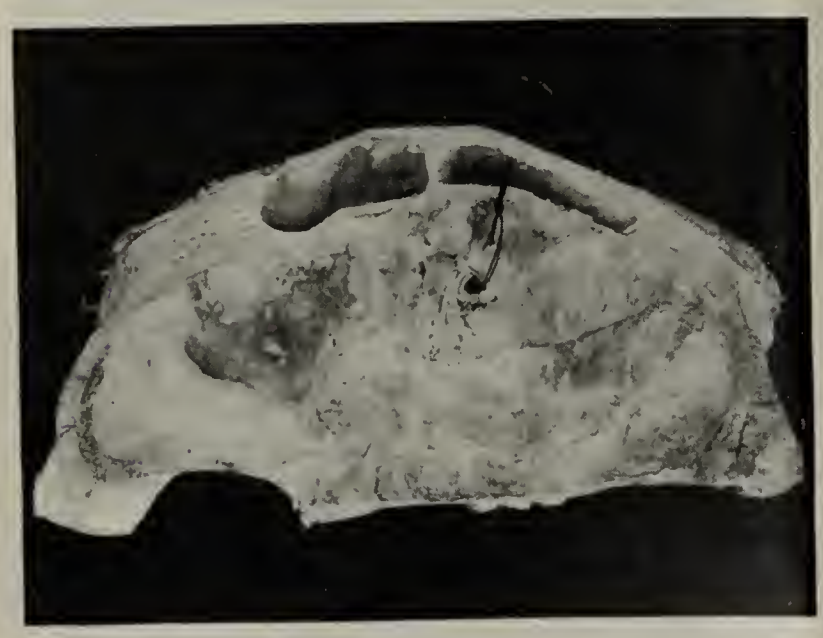


Figure 26.

a condition sometimes met with, particularly when the hard palate is unusually flat, the floor of the nose, instead of being horizontal, is depressed about the middle, giving a concavity to the floor of the nose.

Figure 24 shows a transverse section through the frontal sinuses; from one of which there has been no foramen of exit.

Figure 25. Same subject; the section made one



Figure 27.

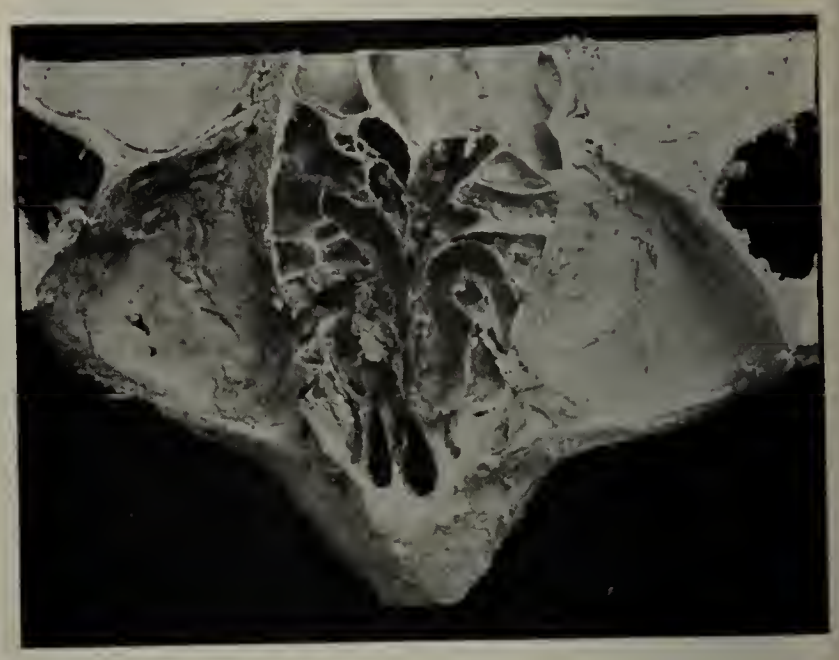


Figure 28 *a*.

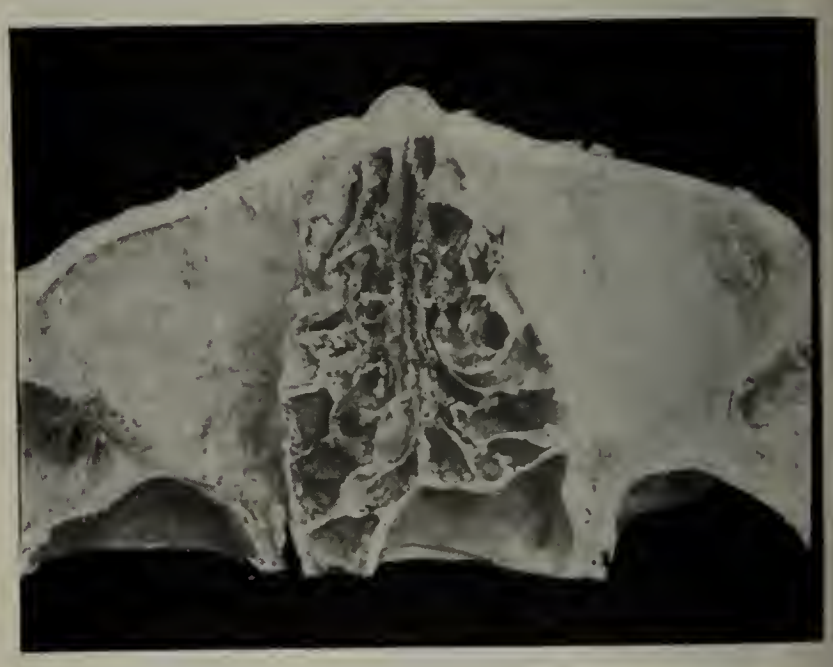


Figure 28 *b*.

inch below the former, shows the downward excavation which has occurred in the occluded sinus. In the lower picture the surface of the specimen is shown, the excavation extending into the nasal bone. A

marked irregularity of the ethmoidal cells of the two sides will also be observed.

Figure 26 is also a specimen of unilateral occlusion. This section exhibits the floor of the brain case. It appears as though the secretion of the occluded sinus had formed a retention cyst, the pressure of which has caused perforation of the brain case, the crista galli being bent down almost flat by the growth of the cyst. Unfortunately, I have no antemortem, or clear postmortem notes of the cases. I should expect, however, that the patient presented cerebral symptoms.

Figure 27. Same specimen; shows the effect of the encroachment of the cyst upon the inner orbital wall, which is badly broken down.

Figure 28 shows a horizontal section through the ethmoidal cell, nasal fossæ, etc., at a point indicated in the last figure (No. 27).

These slides are presented with a double object; first, to show what limited reliance is to be placed upon ordinary text-book anatomy of these parts; second, to demonstrate that what are called abnormalities of structure in these parts are far from uncommon.

DO VIVISECTORS INFLICT UNNECESSARY SUFFERING IN THEIR INVESTIGATIONS?

BY E. STUVER, M.S., M.D., PH.D.

Member American Medical Association; Colorado State Medical Society; International Medical Congress Berlin, etc.

RAWLINS, WYOMING.

About July 18, 1897, there was published in the *Rocky Mountain News*, an article by E. K. Whitehead, secretary of the Colorado Humane Society, followed on August 30 by another. In these articles the scientific experimenters of the world are directly charged with brutal, inhuman, wanton and cruel conduct toward animals, in carring out their experiments and investigations. Physicians are charged with being participators or accomplices in these so-called atrocities, and it is claimed that no real advance in medical knowledge, which could not have been made without it, has followed as a result of vivisection.

The charge that physicians, without sufficient cause, sanction wanton or cruel treatment, or animal mutilations and sufferings which are unnecessary, is a gratuitous insult to a profession animated by the most self-sacrificing and humane instincts of any class of people in the world, a profession which has done more to alleviate human suffering, stay the devastations of plague, diseases and death, to discover and demonstrate the laws of health and causes of diseases, and raise mankind to a higher and better plane, in short to advance civilization, than all other influences combined.

When these facts are appreciated I believe all fair minded people will concede that the medical profession is animated by noble and disinterested motives; that its vivisections and all other investigations and experiments are made in the interests of science, truth and humanity, and not, as has been charged, for the mere sake of performing experiments.

The object of all these scientific investigations is to find out the causes of things, and it was only when inductive science came and put intelligently planned experiments in the place of haphazard experience that a single advance was made. (A. M. S. B. April 10, 1897, p. 318.) On the principles and truths thus discovered by experimental investigations, the splendid results of our modern scientific knowledge and inventions, our progress in medicine, surgery and sanitary science almost entirely depends.

We who live under the benign influences of modern sanitary surroundings, and in the clear light of the laws of health already demonstrated by vivisection experiments, can not realize the benefits we enjoy until we draw aside the dark pall of time that covers the results of thousands of years of empirical experience. Do this and we behold plague and pestilence sweeping over the land, leaving desolation and death in their track. Here we see cities converted into charnel houses, the streets covered with dead bodies, and not enough well to care for the sick and dying; there we behold uncoffined corpses rolled into great trenches, or left as food for ravening animals, or to pollute the atmosphere. We, who enjoy the immunity afforded by vaccination, can scarcely believe that such ravages were caused by smallpox in London as are so graphically described by the historian Macaulay, who informs us that it was a rare thing at one time to find a person in that great city not disfigured or marked by the dread disease. Experimental investigation has stamped out smallpox, except in communities ruled by antivaccination cranks, and diphtheria appears to be in a fair way to share a similar fate. Still, we are challenged by the hypercritical, hypersensitive and I might say, hysterical advocates of a measure which is designed to be the entering wedge of a system of espionage, surveillance and obstruction to experiments made on living animals; a system that would place the lives of a few dogs, cats, guinea pigs, or other lower animals above science, truth and the lives of thousands of human beings, for however much some of the advocates of the pending measure may try to conceal their real intentions, yet their avowed purpose, as boldly announced by others, is the entire suppression of all vivisection. We are challenged by these misguided people to give specific instances of the benefits arising from vivisection experiments. While anything I may say, probably will not influence radical antivivisectionists, because, as some one has said, "some human beings would deny the multiplication table and the axioms of geometry, if they came in the way of their sentiments," still I hope that fathers and mothers who desire to see their children grow up into strong, healthy and happy men and women, will impartially consider the facts of history and lend their assistance in securing the desired results.

By the vivisections of Malpighi, Waller and Cohnheim we learned how blood nourishes the tissues; by the animal experiments of Aselli and Pecquet, how the chyle is carried into the blood. The processes of intestinal digestion were revealed by the vivisections of Hunter, Magendie and others. Sir Charles Bell and Magendie in the same way discovered the difference between the motor and sensory functions of the spinal nerves, and the experiments of Ferrier and a host of others have so illumined the physiology of the brain and localized its functions that many things which were dark and mysterious a few years ago are now as clear as the noon-day sun. The results of the experiments of Pasteur caused Lister to investigate the influence of antisepsis in the treatment of wounds. This has led to our modern antiseptic treatment which has saved thousands of lives and untold suffering, besides bringing surgery to a degree of per-

fection undreamed of a few years ago. But it may be asked, is this all that vivisection has done? For thousands of years under the regime of empiricism men continued to breathe and re-breathe foul and poisoned air. By living in close badly ventilated buildings they intensified mild diseases into pestilences, and then explained the result as a scourge of the Almighty for a lack of fealty to their faiths. Their homes, their churches and their public halls defied every law of sanitation, so that the death rate of London was 80 to the 1000. In 1674 John Mayow, a young Oxford physician, became sceptical of the prevailing doctrines, and defying society's prohibition of experimentation on animals proceeded to find out how animals breathed. By the painful slow suffocating to death of a few animals in air-tight jars, Mayow demonstrated that the agony and death of a suffocated animal were due to the consumption of a constituent of the air.

As soon as these facts were known the old superstitious notions of disease being caused by ghosts and demons vanished in air, and the results of the sacrifice of a few mice, the wanton, brutal torture it might be called by some, came with healing wings to banish slow poisoning, torture and death from millions of homes, to carry sunshine into gloomy hearts and to give hope and inspiration to heavy laden spirits, to brighten and gladden the present and span the sky of the future with a refulgent bow of promise. Later on, Black, by the aid of more experiments on animals, discovered the effects of carbonic acid gas. Priestley in the same way demonstrated the life-giving quality of his oxygen, and Rutherford and Lavoisier followed the same course in proving that nitrogen would not support life. Thus we see that the foundation stones of modern chemistry were laid by this kind of vivisectings.

One of the most signal and conclusive examples of the great value of animal experimentation is the splendid success of the antitoxin treatment of diphtheria, especially in that deadly form affecting the larynx. Where formerly fathers and mothers stood by the death beds of their dearly beloved children, who were slowly strangling, and in agonizing sorrow saw them snatched away by the fell destroyer; where the sympathizing physician, impotent to cope with his relentless enemy, stood by with downcast face, we now behold smiles of joy light up the faces of the parents as they see the roses stealing back to the cheeks of their stricken ones, and the proud happy look of the physician who boldly faces and defeats his old enemy! I ask these fathers and mothers if one such victory as this is not worth more than all the horses that have been sacrificed in attaining the results. And when we consider the thousands of innocents saved to advance and adorn civilization through cycles of the future, we can appreciate the almost infinitely beneficial results that flow from animal experimentation.

We thus see that nearly all our knowledge of physiology, much of that in chemistry, and many of the greatest advances in curing or stamping out diseases have resulted directly from vivisections. We have seen the death rate of London reduced from 80 to 18 per 1000, and in the face of all this the people of this great country are asked to restrict vivisection, to place all operators under inspectors who are to work without pay! It ought to be plain that only two kinds of persons would fill the position under such conditions, the enthusiastic vivisector, eager to discover the truths of nature, or the bigoted fanatic who would use all the powers of his position to obstruct or prevent the work.

Then, too, the provision to limit this kind of work to those 25 years of age or over would have a most disastrous influence on scientific progress, because in order to train an experimenter in methods of accuracy and precision, and to cultivate habits of careful and systematic observation the work must be begun long before that time of life. Men endowed with a genius for scientific investigation are very rare indeed, and those so gifted should be given the fullest opportunities to develop their faculties during youth when the perceptive powers are keenest, and impressions made on the mind are retained with greater clearness and tenacity than at any other time. Think of the loss science and humanity would have sustained if Carpenter, Agassiz, David Starr, Jordan and hosts of other investigators had not been permitted to begin their work before 25 years of age! The whole gist of the matter, however, centers around the question: Are the vivisectors of this country at the present time guilty of inflicting wanton, cruel, brutal and unnecessary suffering upon animals? I say the present time advisedly, because (*American Medico-Surgical Bulletin*, April 10, 1897, p. 321), the evidence presented before the Congressional Committees, and the tales told in pamphlets and papers to influence public opinion are hoary with age. The same pictures and stories which did service in 1874, with scarcely any change have been regalvanized, republished and trotted out in their age and decrepitude to mold public opinion in 1897. If the vivisectors of the District of Columbia are the incarnate fiends they have been represented to be, why is it that after a most careful search of over a year their enemies have not been able to justify their attitude by a single case? Even if mistakes were committed twenty-five or fifty years ago (and it can be shown that many of the stories about that day were pure misrepresentations or gross exaggerations) does it follow that scientific progress ought to be hindered, or scientific men of the present time made to bear the odium of by-gone days? If such a rule were followed the noblest and most sacred causes in the world would be obliterated by a crushing load of obloquy.

Draper ("Conflict Between Science and Religion," page 207) tells us "that in order to extirpate religious dissent by terrorism and surround heresy with the most horrible associations," the Inquisition, "between 1481 and 1805 had punished 340,000 persons and of these nearly 32,000 had been burnt." Nor is it necessary that we leave our own "land of the free and home of the brave," for similar examples.

Our own New England witchcraft tortures and executions ought to make us very modest on that question. Of course the victims offered up in the name of religion were only human beings. If they had been dogs, cats, guinea pigs, etc., sacrificed to stay the ravages of pestilence, disease and death, and carry health, happiness and sunshine into every home in the civilized world it would be a very different matter, and it would be eminently proper to call the investigators "unnamable devils."

The crusade of the antivivisectionists from beginning to end has been a series of equivocations, misrepresentations, and half truths. They never have dared to tell the whole truth, and discuss the question on its merits, and some of the strongest evidence that they

have presented is based on statements made by writers who were misinformed when these statements were written, but who later on had the manhood to acknowledge that they had been deceived by antivivisection literature and retract their mistakes. Have these zealous humanitarians had the manhood to publish the retractions along with the original? Have these earnest advocates of justice and right had enough true nobility of character to admit that they had suppressed the truth and perpetrated an injustice against their fellow men? We leave the history of the movement and the justice of the people of this nation to answer these questions.

Even if the human race had never received a particle of benefit from vivisections, according to eminent authorities the animals themselves by the stamping out and relieving of their own diseases have been spared more suffering during the last twenty years than has been caused by all the experiments ever performed in the world, to say nothing of their immunity from disease in the future.

Then too, many of the pathetic appeals and blood curdling recitals of horrible sufferings are based on gross ignorance of physiologic knowledge. If these writers knew that the motor region of the brain was insensitive and that operations on those parts of the brain substance do not cause any pain whatever and that nearly all animals operated on are first rendered insensible to pain by anesthetics they would be spared many useless tears. More real knowledge and less sentiment would be an inestimable gain both to themselves and to humanity. But to show that we bear them no ill-will, indeed that we admire their zeal and enthusiasm, misdirected though it be, we would suggest that they turn their wonderful energies and great abilities into more appropriate channels. If they will put a stop to the wanton, useless and utterly repugnant slaughter of the thousands of feathered songsters, the victims of fashion that are every year killed to ornament the bonnets of women throughout the civilized world, they will prevent more suffering than is inflicted by all the scientific experimenters in existence. If they will prevent the wounding and mutilating of the thousands of animals that yearly drag out a miserable existence and probably starve to death; the chasing of defenseless creatures with horses and hounds until they actually drop dead, and other similar cruel things done in the name of sport; if they will rescue some of the thousands of women and children who are constantly dying by slow starvation in our large cities, they will find their time fully occupied and do a great deal of good. While they are doing this work they can rest assured that the welfare of humanity as well as the interests of animals will be protected and advanced by physicians and scientists as they always have been in the past.

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

Regular Meeting, Feb. 11, 1898.

Dr. JOSEPH B. BACON in the chair.

C. S. N. HALLBERG, Ph. G., read a paper on

THE PHARMACOPEIA OF 1900 IN ITS RELATIONS TO THE VARIOUS DEPARTMENTS OF MEDICINE.

In introducing this subject it may be well to give a comprehensive definition of the pharmacopeia, what it is, its purpose and its functions. Medical dictionaries and other standard works give definitions which for practical purposes are wholly unsatisfactory. As a rule these works define a pharmacopeia "as an authorized work containing a collection of formulæ," etc. The publication of a pharmacopeia was the necessary and logical outgrowth of the confusion in the identity and strength of medicine existing up to nearly the beginning of the present century. Nearly every medical man of any considerable note and ambition became the author of a dispensatory, each one differing, often as to essential particulars anent potent and important remedies. These works were adopted for certain medical centers such as, Nuremberg, Venice, Augsburg, Cologne, Edinburgh, etc., and were later followed by local pharmacopeias such as those, for instance, for London, Dublin, Paris, Berlin, Hanover, etc. The first half of the present century saw these local pharmacopeias superseded by works of national authority until now, at the close of the nineteenth century, no country can maintain position as a nation without a pharmacopeia; one of the latest, but by no means the least creditable, being that of Japan. The most important republics of Central and South America have their own pharmacopeias. In some, foreign pharmacopeias are employed, chiefly the French Codex and German Pharmacopeia. The republic of Costa Rica adopted officially, in 1897, through La Faculdad de Medicina y Cirurgia at San Jose, the United States Pharmacopeia as the standard authority. In Canada and the British provinces the United States Pharmacopeia is used more than the British pharmacopeia. The project of an imperial pharmacopeia for the British Empire is meeting with but little favor and its realization is doubtful. Attempts have been made toward the formulation of an international pharmacopeia and also a Pan-American one. The former will be considered by the International Pharmaceutic Congress which is to meet in Paris in 1900.[1] The first United States pharmacopeia was issued in 1820 and each decade subsequently has seen a revision. The one now official, designated as the seventh decennial revision, was adopted Jan. 1, 1894. The earlier editions and revisions were the work chiefly of such medical scientists as Samuel L. Mitchell of New York, Erastus Torrey of Vermont, William Tully of Connecticut, Nathan Smith of Connecticut, Valentine Mott of New York, Samuel P. Griffith, Joseph Parrish, George B. Wood, and Franklin Bache of Philadelphia. The Committee was increased to twenty-five members in 1880, comprising botanists, chemists, pharmacists and physicians in nearly equal numbers. To these were added one representative from each of the medical departments of the Federal Government: the Army, the Navy, and the Marine-Hospital Service. The National Committee on Revision is elected by a convention constituted by delegates from incorporated medical and pharmaceutic societies and colleges, which meet in the city of Washington, D. C., decennially. This convention also adopts rules and principles for the instruction and guidance of the Committee on Revision. The next convention will assemble in Washington in May 1900. From this brief résumé of the history of pharmacopeias it will be observed that a pharmacopeia is essential to every civilized country, and the work of revision is one of great interest and importance. Although the United States Pharmacopeia has never been legalized through National enactments, it is recognized as the legal standard in all legislative enactments of the various States pertaining to the practice of pharmacy and the prevention of adulterations in drugs and medicines. It is therefore *de facto* the legal standard for the entire United States as much as though its authority had been declared by congressional *fiat*. No especial attempt has so far been made to legalize the pharmacopeia, through the Congress of the United States, but since the National Government is represented in its creation and accepts its standards quite as readily as do the State and local governments, there may be no need for the Federal insignia, at least not until a National department of health is created.

The "United States Parmacopeia" may be defined as an authorative compilation or work creating: 1, standards for the identification, purity, strength and quality, and 2, giving directions, for the purification, valuation, preparation, compounding and preservation of drugs, chemicals and medicinal substances."

The French pharmacopeia is also called the "Codex Medicamentarius." This last title expresses the scope and functions of a pharmacopeia better than any other. It should be the pharmacal code for physicians and pharmacists alike. With a pharmacopeia as up to date as its periodic revision admits, with thoroughly educated and experienced pharmacists, the physician is assured not only of uniformity in product, strength, purity and quality but also that such medicines will be prepared according to the best and most advanced methods of the pharmacal arts.

While the "United States Pharmacopeia," from a scientific

1 Journal of the American Medical Association, Vol. xxvii.

standpoint is undeniably in advance of all other pharmacopeias, yet it lacks certain features to render it more serviceable, and consequently more generally acceptable to the medical practitioners. The first of these deficiencies is in the pharmaceutic preparations, particularly in such classes as are of solid form and also such as are intended for external use. Another deficiency is that the revised edition does not with sufficient accuracy contain as many new substances as have fairly proved their efficacy, promise and utility as therapeutic agents, as it should. Thirdly it lacks certain general information which should be incorporated as an authoritative guide to the more intelligent use and application of various remedies. In this last category should be included the maximum dose of all toxic and potent substances and their preparations. While pharmacology (or the science devoted to the action of drugs) and therapeusis (or the science devoted to the indications for and selection of remedies), are not within the scope or functions of a pharmacopeia, still the certain safe and accurate method of exhibition and administration of remedies can not be realized unless their respective forms be based upon these fundamental considerations. It is not otherwise possible to realize the motto of Asclepiades, *cito, tuto, jucunde.*

Whatever improvement be necessary in the new pharmacopeia, in the direction of its greater therapeutic utility, must come from medical men. There may be superfluity of remedial substances in a pharmacopeia while no authoritative forms for their administration are given. On the other hand, the preparations though made after elaborate processes may be so defective as to impair their therapeutic usefulness. This is particularly true of solid preparations, especially those intended for external use, while nearly one-half of the 1000 articles of the "United States Pharmacopeia" are preparations, these comprise but thirty-three classes, and of these only eleven are solids, six for internal and five for external use.

The French pharmacopeia has sixty-four classes in which there are thirty-four solids, eighteen for internal and sixteen for external use. The British pharmacopeia has thirty five classes including thirteen solids, four for internal and nine for external use. It is particularly strong in ointments, having forty-four, and is the only pharmacopeia in which an attempt has been made to discriminate as to the selection of the vehicle employed for ointments of varying use. The German pharmacopeia has forty-five classes with twenty-two general formulæ giving directions for compounding any number of as many different classes of preparations. There are twenty-three classes of solids about equally divided into preparations for external and internal use.

While a compilation of about five hundred formulæ for preparations of a polypharmacal or ephemeral character was published by the American Pharmaceutical Association in 1887 and revised in 1895 under the title "The National Formulary," this work does not carry authority as a standard like the pharmacopeia. The "National Formulary" has been exceedingly useful in introducing greater uniformity into such preparations as elixirs, syrups, pills, etc., but its utility is hampered through the difficulty of acquainting physicians with a semi-official work. Familiarity with and adherence to accepted standards are more likely to be secured through one comprehensive work of official character than through several.

From these observations the following suggestions are offered for the work of the revision in these respective special departments of medicine:

DISEASES OF THE EYE.

Identification and determination of comparative value of the mydriatic alkaloids, with especial reference to those of the solanaceous plants and their derivatives.

Formulas for collyria, especially solvents.

Investigation of the employment of the lamellæ (gelatin-disks) containing alkaloids for solution in the eye, instead of water solutions.

List of ointments used and character of vehicle employed, with reference to the preference of the paraffins to the more absorbable animal and vegetable fats.

DISEASES OF THE EAR, NOSE AND THROAT.

Report on antiseptics, anesthetics, anodyns, absorbents, astringents, demulcents, emollients and protectives used in substance or in the following forms, with especial reference to solvent or vehicle used: Gargles, insufflations, injections, lotions, oleates, pastilles, tablets, troches, vapors, cereoli (antrophore), pastes, electuary, confection, sprays, oils (medicated), stylus, suppositorics, cigarettes, papers (fumigating) (inhalant), ointments, cerates, plasters.

SKIN AND GENITO-URINARY DISEASES.

Report on antiseptics, astringents, absorbents, anesthetics, anodyn, caustic, hemostatics, parasiticides, protectives, rubifacients, styptics and vesicants used in substance or in the following forms, with especial reference to solvent or vehicle; also comparative study of vehicles as to ratio of absorption and classification of ointments, cerates, suppositories, plasters and unctuous preparations for external use: Baths, cataplasms, caustics, crayons, sponges (prepared), fomentations, oils (medicated), enemas, lotions, powders, soaps, solutions, injections, suppositories, cotton, gauze, pomades, ointments, cereoli (antrophore), stylus, cerates, plasters, plaster mulls.

DISCUSSION.

Dr. WM. L. BAUM—I have always thought that the interest taken by the medical profession in formulating a new pharmacopeia was entirely inadequate to the needs of the time, and I can say truly that in our specialty of dermatology and genito-urinary diseases, a great improvement could be made, especially in the matter of ointments. The ointments that are prescribed today are of various kinds, as Professor Hallberg has pointed out, those in which it is intended that the base should be absorbed, and others where the ointment is simply used as a protection to the external integument, *i. e.*, those whose therapeutic value does not depend upon the direct resorption of the medicament. There should be a division of ointments into classes. They should be classified as to whether they are intended as absorptive agents or as local protective applications. This should not be a very difficult task, in the light of the work that has been accomplished, especially in this specialty. We have at our command a large quantity of material which has been collected by laborious research work in the laboratory and in hospitals by eminent men throughout the world, giving the quantities of the base resorbed of ointments made up with different vehicles. There are many changes that could be very profitably brought about in the matter of emplastrums; here we also wish to have an absorptive element as the main feature of the plaster. The plaster, owing to the manner of its preparation, fails to carry out the therapeutic intention; that is, we have compact plasters where we should have plasters which will allow the free circulation of air, so that instead of having a plaster in which the active therapeutic agent is resorbed, we frequently find laceration of the skin. In the matter of the various preparations which are used in genito-urinary work, the pharmacist loses sight of the fact that the physician wishes to have a distinct therapeutic action exerted upon the genito-urinary apparatus. The genito-urinary tract is not an absorptive mucous membrane, or best to a very slight extent, so that preparations employed in this direction should contain but little of the oil and lard preparations, but should be such as will enter into active combination with the normal secretions of these membranes. While we do not get a good therapeutic action from the various ointments that are injected into the genito-urinary tract, a smaller quantity would give the same therapeutic effect if made up of demulcents, or some vehicle which enters into active combination. I have long ago discarded the formulæ of the "U. S. Pharmacopeia." I prefer to write out directions for the druggist as to the preparation of all ointments and remedial agents applied to the genito-urinary tract proper. It is but fitting that the medical profession should take an active interest in the formulation of the various methods of pharmacal preparation upon which much of the success of therapeutic measures depends.

Dr. C. D. WESCOTT—We have reason to think that it makes much more difference how a thing is prepared that goes into the eye than in regard to preparations that are used upon the skin, or that go into the stomach or rectum. It is here that small things are more important than in some other places. In regard to the preparation of collyria, it should be almost criminal for a druggist, in these days, not to prepare such a solution in a clear and sterilized condition. To illustrate the importance of having the solution for application to the eye sterile and free from visible particles, patients have frequently come to me with the story that the eye drops which I had prescribed were irritating to the eye, and brought me the bottle to have me tell them if that was the proper thing and what I had ordered. Such solutions, prepared by druggists about town, have frequently contained sediment or particles of dirt. It is not simply a light flocculent sediment, such as may be precipitated from lake water on standing, but visible particles of dirt. Any one of these particles would be regarded as a foreign body resting on the cornea, and would be irritating if under the lid. After I have boiled and filtered these same solutions, they have been used without any irritation or trouble. There should be a rule by which druggists should prepare collyria with boiling water, and they should be filtered while hot and given to the patient in a sterilized condition. Then it rests with the oculist to give such instructions that they shall remain sterile.

In regard to the discs, I quite agree with Professor Hallberg that they should be recognized in our Pharmacopeia, and my experience teaches me that gelatin is the best excipient for the manufacture of these discs. My experience would also indicate that zinc salts and other similar compounds should not be used in this form. We have quite a number of discs of this sort, prepared by the John Wyeth Company. The discs which contain cocain, atropin and eserin, and other active principles of drugs, with gelatin as the excipient, give us remarkable satisfaction. As Professor Hallberg has said, they keep the drug in a permanent condition; there is no danger of decomposition or of alteration whatever, and the application of drugs to the eye in that form is advantageous. But some of the discs with which we have been furnished have something else as the vehicle; perhaps it is boric acid, and those discs have been irritating. A gelatin disc, containing a minute dose of eserin, is not very irritating; but put up in the other way with boric acid it is. I once applied a disc containing a minute quantity of sulphate of zinc, and the experience was very painful to the patient and disgusting to me. Such a thing is not to be tolerated. So the revisers of the Pharmacopeia should have specific advice in regard to these points.

With reference to the ointments to go into the eye, we have all had sad experiences in this direction. One of the commonest ointments which we employ is that made from the yellow oxid of mercury. It is possible to obtain an impalpable powder of the yellow oxid, and when mixed with pure vaselin or lanolin in a proper way, it is absolutely smooth and unirritating to the conjunctiva; but unless we send our patients to a druggist in whom we have absolute confidence, and who has been repeatedly cautioned in regard to these ointments, we get mixtures that are positively harmful. We get mixtures in which we can see, with the unaided eye, palpable particles of the yellow oxid, which, lodging upon the surface of the cornea, act as cauterizing masses, and patients have come back, especially those who do not heed the directions of the oculist in regard to going to certain druggists for the ointment, with fearful irritability of the eyes and with the ointment to show.

In regard to excipients again, I have had various experiences which indicate that some of the things which come under the head of vaselin and petrolatum are not pure, and I have been told that some of the white vaselins are bleached with sulphuric acid. I may not have been properly informed in regard to this point; but at all events they are prepared in an improper way and are very irritating to the eye. There should be some absolute rule with regard to the preparation of vehicles for ointments that go into the eye, so that if a petrolatum preparation is used it will be absolutely pure and non-irritating. In order to avoid the irritating properties of vaselins I began, when lanolin was introduced, to use it as the vehicle for eye ointments. At first lanolin seemed to act very well, and then I found that it became rancid like other animal fats, and I once applied some old yellow oxid ointment with lanolin as the vehicle to my own eye, and was much surprised to get considerable burning; so I have discarded lanolin. Recently I was informed that lanolin is sometimes irritating because it is not made in a proper way and contains a free acid. It seems to me that much will be done to aid specialists in diseases of the eye, if we may have standard directions in our new edition of the Pharmacopeia in regard to the preparations that I have mentioned.

Dr. George F. Butler—There is room for improvement in the Pharmacopeia, although in some respects the present edition is superior to the older editions. In spite of the faults, however, physicians would succeed better if they adhered more closely to the pharmacal preparations. Sometimes our failures are due to unreliable preparations, through the fault of the druggist, but I believe the average druggist is as honest as the average physician.

Many physicians know nothing about pharmacy. While they have learned by experience that in certain conditions various preparations are more active than others of the same drug, they are ignorant of the reason for this difference. It takes skilled pharmacists to instruct them in this particular. The suggestion, therefore, that a radical change be made in the next Pharmacopeia, and that it be the result of the combined effort of skilled clinicians and pharmacists, is an excellent one. Many drugs and preparations should be added to the next edition, and possibly some that are already official should be omitted. Within the past ten years a number of very important medicinal agents have been brought to the attention of the profession which are deserving of a place in the Pharmacopeia.

A few thoughts occurred to me while Dr. Wescott was speaking, as to some of the reasons for our frequent failures in therapeutics, not so much the fault of the Pharmacopeia as that of the druggist. Dr. Wescott spoke of infected solutions aggravating eye troubles. We have similar difficulties with internal remedies. Those of us who practice general medicine know, for instance, how valuable an agent chalk mixture is in certain cases of diarrhea. Perhaps some of the gentlemen present have given this remedy where it was unquestionably indicated, and found the symptoms markedly intensified after its administration. The difficulty was not in the selection of the wrong remedy, but of an impure, infected preparation. Cinnamon water, from which the chalk mixture is prepared, becomes upon long exposure contaminated with microscopic plants, which aggravate the intestinal trouble.

The Pharmacopeia directs how preparations should be concocted, and kept; yet how frequently these directions are disregarded.

As I remarked before, the fault is not with the Pharmacopeia in such cases, but with the carelessness or dishonesty of the druggist.

Considering the physician's ignorance of materia medica and the physiologic action of drugs, and the adoption and administration of various nostrums recommended by the profession as panaceas, together with the unreliable pharmacopeial preparations which too many druggists dispense, it is no wonder there are so many failures in our treatment.

It is high time for the advanced and aggressive physicians and pharmacists to unite, and endeavor in every way to counteract the prevailing tendency toward therapeutic nihilism. One way is to popularize the Pharmacopeia, and educate the physician to prescribe reliable pharmacopeial preparations, depending less upon the irrational therapeutic claims of the secret medicine manufacturer. The Pharmacopeia of the United States should be used as a text-book, not only in schools of pharmacy, but in those of medicine, so that every medical student may become thoroughly familiar with its contents.

The suggestion of Professor Hallberg as to classification is an excellent one. We are using drugs for the relief or cure of disease, and the only rational classification for a pharmacopeia, as well as for a materia medica, is a therapeutic one.

Dr. William F. Waugh—It is to be hoped when revision is made and the preparation of ointments, plasters, etc., is considered, that some experiments will be made as to the efficiency of the various preparations. I am inclined to think that some of the proprietary preparations are better than those of the pharmacopeia. For instance, I have never been able to get a plaster which would compare in efficiency and pleasantness for use with "canthos" plaster made by Johnson & Johnson. Knowing that in this we have a preparation of such undoubted efficacy, I trust the revisers of the Pharmacopeia will take it into consideration. As to gelatin discs, I fear that we have a comparatively limited number of agents which can be used in that way. Dr. Charles L. Mitchell of Philadelphia, who knew more about gelatin than anyone I ever met, was accustomed to say that nothing but experiments would show what would do in any new combination. He mixed gelatin with pepton for me once for rectal suppositories, and the patient wore them in his rectum all night and reproduced them in the morning without the slightest evidence of softening.

Dr. A. Lagorio—There is one point that I hope will be discussed a little more fully and that is the preparation of pills. We have pills which after a while become so hard that we can not break them. I remember purchasing a bottle of Blaud's pills, which were absolutely insoluble. Something should be done whereby these pills can be kept in good condition, also suitable excipients should be used in all the different kinds of pills, making them soft, pliable and easily dissolved. I agree with Dr. Butler that a good deal depends upon the honesty and dishonesty of pharmacists. I am fully in accord with the sentiment that physicians and pharmacists should come together and see what they can do toward improving the new Pharmacopeia. When it comes to the revision of the pharmaceutic and therapeutic parts of the Pharmacopeia the experience of every specialist in these branches will be of great value.

Dr. George F. Butler—While Dr. Lagorio was speaking I thought how careful the surgeon is to have his hands and instruments perfectly clean, in order to avoid the possibility of infection. If a surgeon infects a patient his conduct is looked upon almost as criminal carelessness, yet the physician pours medicines down the throat of his patient without regard to quality or purity, and with but little thought of the physiologic action of his drugs. If the physician would exercise one-half the care in the treatment of his patients that the surgeon does in his operations we should have fifty times better success. Just so long as physicians are lax in these matters, just so long will our patients suffer and die from improper treatment and surgeons and the laity will have some justification in their accusation that "there is nothing in drugs." There is a great deal in proper therapeutics. Compare the surgical methods

of fifty years ago with the operations of today. Are the present results due entirely to the skill of the operator? No; but to cleanliness and *drugs*—anesthetics and antiseptics. There is room for similar improvement in internal medicine, and it is now imperative that we should awaken to this fact and do away, as it were, with the red-hot iron and swab of melted pitch, devoting more time and thought to pharmacology, pharmacy and rational therapeutics.

Dr. J. G. KIERNAN—If every prescription bore the proper directions and the preparation be ordered made according to the "U. S. P.," some of the abuses to which Dr. Wescott referred might be guarded against. Furthermore, if prescriptions be not put up in a particular manner, or as specified, it seems to me that penalties could be enforced against the individual for not complying with the directions of the physician. As it is, without some such directions we afford a leeway for unscrupulous druggists. With regard to the points directly involved in the pharmacopeia, very little can be added to what has already been said. With reference to the question of pills, a number of points might be raised. There is no doubt that in certain nervous conditions sugar-coated pills will be absorbed when gelatin-coated pills will not. In certain cases of hysteria and melancholia we will every now and then find that by giving sugar-coated pills, drugs produce their effects, while the gelatin covered pills pass the rectum unchanged. These are questions that will have to be settled by careful experimentation. The point brought up by one of the Fellows in regard to the pharmacopeia not being one of cosmetic pharmacy but one of therapeutic pharmacy, is well taken. There are a number of points that could be raised along the lines of the various specialties, particularly with reference to the specialty of nervous diseases, but which also involve the genito-urinary specialty and also that specialty from the standpoint of the syphilographer. Many of the questions about ointments are particularly pertinent. Some years ago when the question of lanolin came up, a Fellow of the Academy, now deceased, held the opinion that the vehicle did not make much difference; that the petrolatum of the pharmacopeia and the indefinite and proprietary vaselins and paraffins meant approximately the same thing. Professor Hallberg made a blue ointment with lanolin for inunction purposes, of which he gave me a sample and of which I gave this Fellow of the Academy also a sample. He had a patient with pediculus pubis and gave him lanolin preparation, with which he succeeded in killing the pediculi but salivated the patient considerably. That experiment and a number others would indicate the line that should be followed with reference to ointments. Then there was another question raised by a Fellow of the Academy, who is unable to be present tonight on account of illness, regarding the parasites and parasiticides. He pointed out that the itch insect was more or less given to living to a certain degree on the sebum, consequently a preparation made of lanolin would not be as toxic to the acarus as one made of lard or some other preparation, and that therefore some of the ointments, like the sulphur ointments, which were intended to reach the itch, might be better made from lard and preparations of that kind. This is only one of a dozen suggestions that might be made along the same line. I think, however, the old conception of the authors of the pharmacopeia should be carried out. We forget how high these men stood, not only in medical science but in general science. I am referring now particularly to those who were prominent in originating the Pharmacopeia of the United States. The two first dispensatories contain therapeutic hints which, if followed long ago, would have saved a great many lives. One of them, for example, Thatcher's "Dispensatory," contains an excellent description of Brand's method of treating typhoid fever with cold water, a form of treatment charged to the credit of the other side of the water. Professor Hallberg quoted Samuel L. Mitchell. If there ever was an unrecognized scholar in medicine it was he. If we go back and read the old "New York Medical Repository" and Mitchell's introduction to Erasmus Darwin's "Zoonomia," which went through nine American editions, we would see how high the earlier American physicians stood, especially those who were prominent in the production of "Tilton's Pharmacopeia" and also of the "Pharmacopeia of the Massachusetts Medical Society." The latter contains bryonia, aconite and other things whose use the eclectics and homeopaths claim to have originated, but really took from works of this character. Mitchell was a biologist. He was a student of physiology, geology and of evolution. His preface to Charles Darwin's grandfather's "Zoonomia" showed that he and his medical contemporaries belonged to a cultured set. These people appreciated the necessity to the physician of the pharmacopeia, and from their labors grew up this decimal pharmacopeia. But latterly, when Philistinism came into vogue in America, this whole question of the pharmacopeia fell into the hands of the pharmacists alone, who, of necessity, had to deal with it purely from the standpoint of pharmacy. It seems to me, Americans should, in taking a forward step, go back to the old period when they took so much interest in general science. This would be a good beginning along that line. With all our modern pathologic and bacteriologic work we have gone back to the old workers on biology, and it is a good thing to follow their example along a therapeutic standpoint as well.

PROFESSOR HALLBERG (closing the discussion)—The general sentiment seems to be directly in line with the suggestions offered, and I can only emphasize from my limited sphere of observation as a pharmacist many of the charges that have been made with reference to careless and faulty preparations. Right here is where the general formulæ for a great many different preparations would be of great service. If the Pharmacopeia had a general formula for the preparation of collyria, for example, it does not need to enumerate a great number of different collyria. It may give one or two examples, but also must dictate the official process and method by which the collyria shall be prepared. This certainly would be very valuable. Dr. Butler's reference to chalk mixture and cinnamon water is susceptible of different interpretations. Chalk mixture very quickly spoils in summer. If a prescription is to be repeated and the bottle containing the mixture be brought back to be refilled the chances are that the mixture will quickly ferment when put in the second time. A bottle should never be used a second time for chalk mixture, because chalk mixture is exhibited during the heated season. Preferably a new bottle should be used. The point made about cinnamon water and the careful surgeon keeping everything aseptic is a good one that has to be impressed upon the younger pharmacists with great emphasis. The rising generation of pharmacists does not seem to have the least conception of what is proper. In my position as teacher and conductor of laboratory classes at the Illinois University College of Pharmacy I have the greatest difficulty in warning students against vulgar behavior, such as picking teeth or sticking fingers in ears while at work, perhaps while making pills, folding powders, and against general uncleanliness of that character. As I do not know what Dr. Waugh has been in the habit of using as cantharidal plaster I will prepare a plaster of the official cantharides cerate that will bring about the desired result much quicker than any proprietary preparation. If there be any perfect preparation in the Pharmacopeia it is the cantharides cerate, when properly made and thickly spread. Gelatin is a vehicle which is not adapted to a great many substances, although Dr. Mitchell has made a success of it. He is one of the largest operators now of gelatin plates for photography in this country, and so he has worked gelatin to its full extent. As to the question of pills, I purposely picked out ointments as a starting point. I should be glad to have the Academy appoint a committee to take up the work that has been suggested, because the Fellows are specialists in these branches. Some one should be appointed to take charge of the mixtures for internal use, represented by the pills and their modifications, powders, capsules, etc. I would be glad to make up a similar compilation on pills and other preparations for like use, on some such plan as that for ointments. Some compound cathartic pills made twelve years ago are as hard as rocks, but they are of resinous extracts, such as colocynth and jalap, calomel and gamboge. This pill will pass through the stomach intact without any doubt, but when it gets into the intestines and the alkaline secretions, there come in contact with the pill, they act as a solvent upon the soap in the mass; the soap swells, the pill becomes disintegrated, these resinous constituents slowly and gradually dissolve and produce their desired effect, and in this manner the irritation is gradual and not sudden. I am satisfied pills of that kind are far more desirable and produce evacuation much less painfully than the pills advertised by means of an illustration, which I have characterized as "boiler-shop pharmacy," the pills being represented so hard that they can be driven through a plank with a hammer. That is a therapeutic as well as a physical monstrosity. Last year I had occasion to investigate this subject. I tried various forms of pills, the hard compound cathartic pills, a great many other kinds, and also the "friable pills." I found by treating them with a digestive fluid, which consisted of a little ox gall, sodium chlorid and bicarbonate, that the exceedingly hard, rock-like pills disintegrated and dissolved quickly and completely, while the friable masses did not disintegrate so rapidly, and even after three hours, at body temperature, they were still undissolved, leaving a residue of from 25 to 50 per cent.

I was much pleased to hear the frankness and emphasis with which Dr. Dickerman endorsed the project of the new Pharma-

copeia, saying that the Pharmacopeia should be more adapted for reference by the physician. The great trouble with both medical and pharmaceutic practice in this country at the present time, and for several years past, is that the average medical student does not obtain information concerning official remedies. His information is obtained chiefly from text-books or from teachers who often have an inadequate conception of pharmacy, even though teachers of materia medica. I remember some twenty years ago seeing a professor of materia medica place on the table, when lecturing on tonics, "Plantation Bitters" and "Hostetter's Bitters," using these as typic preparations of bitters and tonics. It is not much better today. Physicians seem to know more about the multitudinous proprietary articles than they do about the official preparations.

There should be no objection to some kind of supplementary therapeutic classification in the Pharmacopeia to which reference could be made. I do not think the Pharmacopeia of the United States should be placed in the hands of the pharmacists alone for revision. At the last convention a number of medical men were placed on the committee, but only one from Chicago attended the meeting. I do not advocate directions in the Pharmacopeia as to therapeutic indications of any drug or preparations. The point I want to emphasize is that the work of revision should consider the therapeutic usage of these respective preparations, heretofore formulated almost entirely from a pharmaceutic point of view. If a certain agent were to be used, it was only a question as to what vehicle would make the best or smoothest mixture, or in the case of an ointment present a nice, elegant appearance, one that would be stable and otherwise be superficially satisfactory. Physicians have not taken the active part in the work of the Pharmacopeia in recent years that they did in the beginning. Pharmacists have been left almost entirely to their own resources in formulating these preparations. They are not necessarily familiar with the conditions that are involved. It is for that reason medical men, and especially specialists, should take up the various preparations and make such changes and modifications in the vehicles as are suggested from a therapeutic standpoint.

I hope the coming revision of 1900 will be as far in advance of the present one as the present one was in advance of the one issued in 1880.

A committee, consisting of Drs. Baum, Butler, Brower, Cuthbertson, Dickerman, Fütterer, Hallberg, Kiernan, Lagorio, Moyer, Pinckard and Wescott was appointed to assist in revising the next Pharmacopeia, with full power to act.

Chicago Medical Society.

Weekly Meeting, March 16, 1898.

Dr. Arthur D. Bevan reported a case in which he showed the value of specific treatment in syphilitic fracture cases. The boy was 14 years of age. The case was presented as a bit of evidence showing distinctly the value of antisyphilitic treatment in cases of fracture in syphilitic individuals. He was glad of the opportunity of showing such a case because several times, in a medico-legal way, the question had been presented to him as to whether he had any definite evidence that syphilis delayed union or prevented it in cases of fracture. The present case was submitted as evidence that syphilis does delay union and prevent it, because the two operations were indentical. After the first operation union failed to take place, but after the second, and the use of antisyphilitic treatment, the bones were found in perfect approximation with good, firm union.

Dr. Effa A. Davis reported three cases of tetany, which presented the characteristics of that disease. One of the patients was exhibited.

Dr. Clara Ferguson showed cases of Friedreich's disease and hemiplegia.

Dr. J. Holinger showed a case of hydrorrhea nasi in a woman 28 years of age, married, and mother of three children. There is no disease of the upper air-passages. During the first month of her first pregnancy, about five years ago, she caught cold in the nose, which gradually grew worse, so that at the present time the discharge from both nostrils is quite profuse. She uses from twelve to eighteen handkerchiefs daily. She is perfectly well otherwise. Secretions from the nose were examined bacteriologically and found to be negative.

Dr. John Ridlon showed an interesting case of anterior poliomyelitis complicated with dislocation of the hip-joint.

Dr. D. W. Graham exhibited a case of double congenital luxation of the hip-joints.

Dr. D. N. Eisendrath exhibited a babe, born February 23, with encephalocele, which was produced by a midwife in delivering the woman.

Dr. Bevan showed a specimen of large sarcoma of the kidney, removed about two months ago. He also exhibited a surgical kidney removed from a man 37 years of age, who, at the age of 14, received a crushing injury to the pelvic bones, the urethra and triangular ligament, producing extensive traumatic stricture. The case showed how a purely mechanical cause may produce an extensive lesion, resulting in death of the patient.

PRACTICAL NOTES.

Methyl Spray in the Vomiting of Pregnancy.—Lefour reports a serious case cured with energetic spraying the entire length of the spine with methyl chlorid.—*Sem. Méd.*, February 53.

Powder for Painful Ulcers of the Cervix.—Insufflate on the cervix, through a speculum, the following powder, and tampon: Tannin, 2 grams; lycopodium, 5 grams; europhen, 10 grams; compound opium powder, 5 grams.—Lutaud, *Journ. de M. de P.*, February 27.

For the Incontinence of Urine and Fecal Matters in General Paralysis, Athanassio recommends the following: Potassio-ferric tartrate, 1 gram; tincture of nux vomica, xv to xx drops; decoction of krameria and decoction of cinchona, āā 100 grams; to be taken by tablespoonfuls during the twenty-four hours.—*Semaine Méd.*, February 23.

Formol in Axillary and Palmar Hyperidrosis.—Unna recommends a salve containing ten to twenty grams of the commercial solution of formol combined with thirty grams of lanolin or vaselin. It diminishes the amount of perspiration and abolishes the odor, but radical cures are extremely rare.—*Sem. Méd.*, February 23.

Hair Tonic.—Dietrich recommends the following wash: Quinin hydrochlorate, 4 grams; tannin, 10 grams; alcohol (60 per cent.) 880 grams; tincture of cantharides, 10 grams; pure glycerin, 60 grams; Cologne water, 40 grams; vanillin, 10 centigrams; pulv. sandal wood, 5 centigrams. For external use. Set aside five days and filter. Apply and rub well into the scalp every other day.—*Prog. Méd.*, February 36.

Combined Thyroid and Thymus Treatment had been found much more effective than the thyroid alone in cases of struma, by Gaibissi, who also states that it was not followed by any of the occasional secondary effects of the thyroid alone. He administered twice as much of the thymus as of the thyroid preparations, suspending all treatment every few days.—*Klin. therap. Woch.*, March 6.

Prophylaxis of Menorrhagia after Childbirth.—Pinard advises vaginal irrigations with two liters of boiled water at 50 degrees C., as a preventive of the excessive menstruation that frequently accompanies the return of the menses when the mother does not nurse the child. The irrigations are made morning and evening, but in case of established menorrhagia three or four times a day.—*Méd. Mod.*, February.

Severe Icterus After the Use of Lactophenin.—L. Hahn reports that he has been using lactophenin for a year and a half with great satisfaction, especially in ileotyphus and for children, as it reduces the fever and restlessness without affecting the pulse or strength. But he has witnessed the development of two cases of severe icterus in consequence of its use, making sixteen now on record.—*Deutsche Med. Woch.*, March 3.

Tingling Symptom in Scarlet Fever.—A new clinical symptom has been noted in scarlet fever, appearing with the eruption, exceptionally preceding it: a transient sensation of heaviness and tingling in the hands, rarely in the feet. It was noted seventy-nine times in 100 cases in adults, usually ascribed by the patient to an uncomfortable position in bed. It may prove an aid in the diagnosis of deceptive cases, especially in the retrospective diagnosis when the eruption was imperceptible.

It has never been found in other eruptions.—*Presse Méd.*, March 5.

Surgery of the Sacro-Iliac Articulation, for Caries.—Rieder reports in the *Deu. Med. Woch.* for February 10, a case of extensive tuberculosis of the sacro-iliac symphysis and os innominatum, successfully operated with a large incision entirely encircling the latter, to open up all the spaces into which the pus might have found its way downward. He is inclined to attribute much of the success to the after-treatment with the permanent bath, which rendered bandages, etc., unnecessary and induced rapid and perfect granulation, with no effort nor pain on the part of the patient, who now walks without a cane and with scarcely any defect perceptible in his gait. Rieder notes that in damage cases after trauma the sacro-iliac synchondrosis should be carefully examined before admitting the idea of simulation. The quite pronounced atrophy of the lower extremity on the affected side is frequently a guide in such cases. He advises in operating that a wide opening be made in the pelvic floor near the rectum, to allow the freest possible outlet to the pus.

Local Treatment of Articular Rheumatism.—Painting the articulations with methyl salicylate relieves the pain rapidly. Cover with oiled silk and cotton to prevent evaporation; or the following salve can be used: Liquid vasclin, 20 grams; methyl salicylate, 12 grams. If the wintergreen odor is disagreeable, salicylic acid can be substituted, although less effective: Vaselin, 20 grams; salicylic acid, 4 grams. Or the combination: Vaselin, 25 grams; salicylic acid, 4 grams; sodium salicylate, 3 grams; extract of belladonna, 1 gram. Guaiacol has a pronounced antithermic effect and rapidly soothes the pain. It can be applied pure, but it is best to use one gram at a time in 5 grams of 85 per cent. alcohol; or it can be mixed with vaselin: Vaselin, 25 grams; guaiacol, 4 grams. The following combination is very effective but has a disagreeable odor: Vaselin, 30 grams; methyl salicylate, 5 grams; salicylic acid, 2 grams; guaiacol, 4 grams. All of these substances are readily absorbed by the skin.—G. Lemoine in the *Nord Méd.*, February 1.

Medicines that Should Not be Prescribed in Powders can be classified into: 1, those that absorb moisture readily from the air; 2, those which form a fluid in combination with other substances; and 3, those that are decomposed by the oxygen of the air and change color. In the first class belong the acid phosphates and their derivatives, the phosphoglycerates. These salts put up in powders liquefy in twenty-four hours; also sodium bromid, which is extremely deliquescent; crystallized calcium chlorid; strontium chlorid; ammoniac citrate of iron and ferrico-potassic tartrate; piperazin and lysidin; chloral, dry vegetable extracts and, in general, all products prepared by evaporation in a vacuum, especially, dessicated peptones and extracts of animal organs. The second group includes the substances that alone are not affected by the air, but combined, absorb moisture rapidly; such are antipyrin and sodium salicylate. The third group comprises the alkaline and ferro-alkaline iodids and the aristols. A little trick that sometimes prevents trouble is to add a certain amount of licorice powder or cinchona; also to keep the powders in an air-tight glass jar. —*Journ. de M. de P.*, February 27.

Fasting as a Cure for Acute Infections.—Professor de Dominicis has been forced to the conclusion that the mysterious cause which transforms inoffensive bacteria passing harmlessly through the organism, into virulent pathogenic germs, is the failure of the digestive apparatus to dispose normally of the food. Even the simplest, scanticst diet will produce putrid decomposition if not digested, and the alimentary canal become a toxin factory and a fine culture-medium for the germs to acquire virulence in and entail serious complication. His extensive experimentation has established the fact that animals kept fasting, recovered far more rapidly and without complications from acute infections and severe traumatisms, than others in the same conditions, fed as usual or even much less than usual. He forbids all food to his patients in acute infections, especially in pneumonia, if there is any reason to suppose that the digestion will not proceed normally. Observations of 140 cases of pneumonia have confirmed the wisdom of this course, which has won for him the name of the "starving doctor." In every case it was noted that during the prolonged fast, sometimes a week in length, the patient partially regained the strength he seemed to have entirely lost before. De Renzi "also places fasting in the front rank of the remedies for arthritism."—*Gaz. d. Osp. e d. Clin.*, February 6.

A Simple and Radical Treatment of Hydrocele has been followed by O. Bloch of Copenhagen for several years, in forty cases, which is effective, radical, painless, and allows the patient to resume his usual occupation almost at once. After chloroform, the scrotum is incised sufficiently to disclose the testes completely. The tunica vaginalis is then turned back its entire extent, excresences on its internal surface removed, and this entire surface energetically frictioned, even into its remotest crevices, as also the surface of the testicle, with sterilized gauze impregnated with 3 per cent. phenicated water. The phenic acid coagulates the albumin in the epithelium of the serous membrane, so that it ceases to secrete liquid. The testicle is then reduced, the serous cavity tamponed with a strip of gauze, left protruding, and a simple anti- or aseptic dressing applied. Three or four days later the gauze is removed and the wound sutured, including only the skin, and the patient dismissed with a simple suspensory to be worn for a while. All his patients have been examined recently, the time that has elapsed varying from eight months to five years. Only one case relapsed. In this the hydrocele had existed two years, and was as large as a child's head and so painful that the frictioning was less thorough than usual.—*Revue de Chirurgie*, February 10.

The Cataract of Glass-Blowers.—J. Hirschberg in the *Berliner klinische Wochenschrift* comments upon the connection between cataract formation and occupations entailing exposure to intense heat as well as residence in hot climates, as having been long recognized. He contrasts the early age of the glass-blowers so affected with the late visitation upon the subjects of senile cataract. This difference, the writer says, ranges from forty years in the former class to that of sixty years in the latter. The heat exposures in India yield similar results of what might be styled as traumatismal. The late Dr. C. R. Agnew of New York was wont to cite cooks and stokers as his classical examples, but claimed that glare rather than heat was responsible for the result. Also in the ante-specialistic days, Dr. Willard Parker gave the dark-eyed as the preferred victims and females as the more constant sufferers. Thus there was no lack of observers although on somewhat divergent lines. Racial peculiarities of the darker skinned with their more torrid environments and heated apartments, with the eye strain of sewing, minute writing, etc., may be in reality the secondary developers. In this connection a well-known ophthalmologist of the Atlantic slope unhesitatingly maintains that but few over fifty years of age can be said to be immune from the cataract disqualification. To his mind the question, one of degree solely, belongs to the domain of prognosis rather than that of diagnosis. Might it not be said that the centrifugal influences inherent in all animals operate in the eye uniformly with the determination of pigmentary and like deposits to the surface? The phenomenon is most readily observed in transparent media and at the points of least resistance. The elaboration of the theory, however, is rather vague and better classifications may be more instructive in what are rated as the higher circles of civilization. Until then hygienic preventives will avail but little, although investigations are exceedingly fascinating. At all events let our statistics be free from prejudice and hasty conclusion.

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SATURDAY, APRIL 2, 1898.

THE DIAGNOSTIC VALUE OF LUMBAR PUNCTURE.

The operation of lumbar puncture, which has now been before the medical profession for some years, is now perhaps beginning to drop out of sight, or at least to be less prominent in medical literature than was the case two or three years ago. It is not meant by this to say that it is becoming obsolete or that all interest in it has been lost, for certainly that is not the case, but the zeal with which it was at first taken up has somewhat lessened as the novelty diminished with time and the claims of its therapeutic efficiency became less prominent. That it has not met the expectations of its advocates as a remedy for cerebro-spinal pressure in various conditions where it is abnormally increased seems to be a fact, notwithstanding the testimony as to its effectiveness in certain cases by very high authorities. That on the other hand it is coming to be recognized as a valuable diagnostic aid, is also true, and evidences of its worth in this special regard are still being multiplied. That, under proper antiseptic precautions, it is a perfectly safe procedure or so nearly such as to meet all reasonable objections on that score, may also be accepted as a demonstrated fact. Where the need of diagnostic data is clear and there is no substitute method of equal value available, there is no reason why this procedure should not be resorted to and only blame can attach to its neglect. In all forms of cerebral disease that are accompanied with pressure or irritative symptoms there is a possibility that lumbar puncture may afford revelations of the highest diagnostic importance and in some instances it almost alone can give the needed information. This is true more especially in dubious cases of meningitis where the symptoms may indicate possibly other conditions that would modify the prognosis and the treatment. In other respects it may also be of value as showing the presence in the cerebro-spinal fluid of various bacterial forms, tubercle bacilli pneumococci, staphylococci, etc. Altogether the introduction of the method has been, beyond question, an advance in both a practical and scientific point of view as regards diagnosis, whether or not it has any actual or considerable value as a therapeutic resource.

While lumbar puncture may often afford positive evidence of inflammatory conditions or the presence of irritative germs within the meninges, there is still a question sometimes whether, in the lack of positive proof, we can exclude these conditions from a negative finding in the operation. It is generally admitted that a turbidity of the cerebro-spinal fluid indicates meningeal disorder, but does a perfectly clear condition exclude it? This question is discussed at length by Dr. ARTHUR SCHIFF in a recent paper in the *Wiener klinische Wochenschrift* in which he exhaustively reviews the German literature of the subject. He finds that, according to numerous observations by QUINCKE, LICHTHEIM, FUERBRINGER, LENHARTZ and others, that while a turbid fluid is a certain sign of meningitis, which may be of tuberculous or other origin, a complete limpidity may coexist with various non-meningitic disorders (tumor, abscess, saturnism, chlorosis, etc.) and also with tuberculous meningitis itself and that therefore it can not be accepted as an adequate diagnostic sign of the absence of this affection. It may also be clear, however, with an encapsulated purulent meningitis, and apparently also, according to some observations, turbidity may be lacking in some cases of more generalized purulent inflammation. A negative finding in this regard can not, therefore, be accepted as absolutely conclusive as to the presence or absence of any generalized infectious process in the meninges.

Dr. SCHIFF in his communication calls attention to still another point which may be of diagnostic value in these cases, viz., the coagulability of the cerebro-spinal fluid. According to LICHTHEIM this feature of coagulability is present in all cases of purulent or tuberculous meningitis, and his opinion is supported by the observations of QUINCKE and SCHIFF, the latter going so far as to say that lacking this symptom we may correctly diagnose a non-meningitic condition. The fact that it has been neglected to a large extent as a diagnostic point is a little noteworthy under the circumstances. There may be exceptions, possibly, to the rule, and his view may be a little too positive, but from the data he gives from his own observations and those published by FLEISCHMANN it would appear that we have in this point of the coagulability or of the non-coagulability of the cerebro-spinal fluid a very important diagnostic aid, of special service when it is

desired to ascertain whether or not there are meningitic complications that may affect the prognosis of an otherwise indicated operation.

The operation of lumbar puncture is one that is not to be too recklessly resorted to, but as already stated, when other diagnostic methods are insufficient and it is important to ascertain the facts of a suspected general meningitic inflammation, it may afford data of the utmost value. As a therapeutic method its utility appears to be, if not altogether dubious, at least a limited one.

THE DIAGNOSIS OF ARTERIAL, MENINGEAL AND CEREBRAL DISEASE DUE TO SYPHILIS.

There are few problems in neurology which puzzle the specialist and the general practitioner more than the differential diagnosis of intracranial disease due to syphilis, except the symptoms be peculiarly frank and well developed. The difficulties in the case are also often greatly increased by the absolute denial on the part of the patient that he has ever been a victim of this specific infection, a denial which may be conscientiously made, for it is to be remembered that nervous syphilis often develops in persons many years after the primary infection and without any intermediate secondary lesions. Further than this it is not to be forgotten that syphilis may be innocently acquired, although such cases, in males at least, are rare.

The symptoms of intracranial syphilis closely resemble other forms of cephalic lesion and are doubtless often considered as true or simple meningitis, thrombosis or hemorrhage, yet a diagnosis of their specific origin, if made, will open possibilities of relief to the patient which are not to be considered when the results of non-syphilitic lesions are discussed. After advanced tissue changes are developed, even if their cause be syphilitic, curative treatment is largely unavailing, but before the pathologic process becomes hopeless great relief can be afforded by medical treatment. A very interesting and useful clinical paper has recently been written by Teissier and Roux, in the *Archives de Neurologie*, for January and February 1898, on this topic, in which they consider, in an exhaustive manner, the differentiation of the various forms of syphilitic brain troubles such as arteritis, meningitis and gumma. It is evident that such a differentiation must be in many cases impossible, because it is not an uncommon occurrence for all these changes to be present in a case at one and the same time, but on the other hand if they be present singly these authors believe that they can be diagnosed with some certainty.

In regard to syphilitic cerebral arteritis it is a noteworthy fact that the symptoms of malnutrition of the nervous tissues are well developed, for the paralysis when it comes on is usually of the flaccid type with loss of the reflexes; and hemiplegia, or more often monoplegia, with partial involvement of groups of muscles, is the condition of the patient. Teissier and Roux believe that these symptoms in a non-hysteric and previously healthy individual are very pathognomonic. Headache is comparatively rare, is diffuse, and not produced by pressure or tapping the vault of the skull, but there may be perverted sensation as of numbness of a limb or formication as prodromes of the onset of the paralysis just named. Optic neuritis is rarely seen in syphilitic arteritis although syphilitic lesions of the retinal vessels may be evident. Ocular palsies are rare and arise from secondary lesions as by the pressure of an aneurysmal growth on the nerve involved. The intelligence usually fails gradually, due to the impaired cerebral nutrition, and if any mental strain is present may rapidly give way for this reason. Transitory aphasia is an important symptom and is often associated with paralytic symptoms of one side of the face and of the right arm. Very rarely, when the arteritis has developed so far as to result in a thrombus with secondary degenerative changes in the pyramidal tract, the paralytic symptoms just named are spastic instead of flaccid.

When the specific poison attacks the meninges, however, the train of symptoms is quite different from that just described, for now the signs instead of being those of feebleness and atony are those of excitement and irritation. The paralyses are spastic, the reflexes are apt to be exaggerated, partial epileptiform attacks are frequent and the muscles affected are more numerous than when arteritis is the cause of the trouble. Headache is diffuse and constant and so severe as to cause delirium or suicidal tendencies and, unlike that due to arteritis, can be increased by pressure or light blows on the skull. Darting pains in the limbs may be present and areas of paresthesia, anesthesia or hyperesthesia are frequently found. These symptoms are not transitory as in arteritis, but persistent. Then again, optic neuritis, loss of pupillary reflex due to compression of the optic tracts with homonymous hemianopsia or amaurosis from this cause or sometimes bitemporal hemianopsia from pressure on the chiasm are to be found. The aphasic symptoms, which in arteritis are so fleeting, in meningitis are more permanent, and maniacal delirium may occur, but in the sane periods the intellect is not greatly enfeebled. When the inflammatory process in the meninges is acute and at the base of the brain, vomiting, paralysis of the cranial nerves and bulbar symptoms are present, and death comes in coma. It it be limited to the convexity of the brain noisy delirium, convulsions and finally hemiplegia or monoplegia with coma are present. When the condition is chronic the symptoms are more slow in onset but otherwise similar to those just described.

We must not forget that in some instances, as we have already stated, the combination of arteritis and meningitis or the presence of secondary vascular changes producing thrombosis with degeneration or pressure by aneurysmal growths may result in a mixture of the symptoms already detailed, and again that syphilitic pachymeningitis hemorrhagica with symptoms of cerebral hemorrhage may be present.

In syphilitic gumma of the brain choked disc is usual, hallucinations rare, distinct focal paralysis is common and headache is apt to be localized. The cranial nerves are paralyzed only if the growth is so situated as to press upon them, and the temperature is very rarely febrile, whereas in meningitis it is often raised.

THE DISSECTING ANEURYSMS OF THE HEART.

In our issue of March 12 (p. 626), we invited attention to the recent Memoir[1] of Dr. ARTUR VESTBERG concerning the pathologic anatomy of the dissecting aneurysms of the heart, from which the following interesting facts are abstracted.

As the result of these researches it has been established that there exists in the human heart a form of aneurysm which, because it is more or less analogous to the dissecting aneurysms of the vessels, may be quite properly designated as dissecting aneurysm of the heart.

The author defines a dissecting aneurysm of the heart as a pathologic cavity communicating with the heart itself or with the origin of the aorta, due to a separation by the pressure of the blood of the layers of tissue composing the walls of the heart.

The affection occurs in the four following varieties:

1. The parietal form, where the cavity of the aneurysm is situated between the layers of the free external walls of the heart.

2. The septal variety, where the aneurysm is situated in the wall of the interventricular or interauricular septum.

3. The valvular variety, in which the cavity occurs between the two lamellæ of a cardiac valve.

4. The interparietal variety, which occurs between the exterior surfaces of the walls of the various heart cavities, which normally are united by loose cellular tissue.

The last variety of dissecting aneurysm of the heart is the most common, and it occurs in the space which the author calls the peri-aortic space of the heart. As far as known this space has not been thoroughly described as yet. It is a subepicardial cellular space, the periphery or external wall of which is formed in part by the anterior wall of the auricles, in part by the *conus arteriosus dexter*. Its internal or central wall is formed, first by the lowermost part of the wall of the aorta; second, underneath this by the root of the aorta, which belongs to the heart according to its structure and which carries the attachments of the valves, under which again are formed the intervalvular spaces of Henle; third, by an inconstant parietal strip situated between the root of the aorta above and the fibrous zone of the mitral valve and the interventricular septum below; this strip should be considered as the wall of a *conus arteriosus sinister*. A loose cellular and adipose tissue fills the space mentioned.

A rupture of the central wall of this space, either from the left ventricle or from one of the sinuses of Valsalva, would allow the blood to penetrate into the space and the force under which the blood is confined would separate the walls one from the other and lift up the roof of the space, which is formed by the epicardium, and thus establish a dissecting aneurysm in all or part of the peri-aortic space. This then is the interparietal dissecting aneurysm of the heart.

From the peri-aortic space the blood could penetrate further between the leaflets of the ventricular septum or of the auricular septum, circumstances which render it impossible to separate precisely the interparietal dissecting aneurysms from the dissecting aneurysms of the septum. There exists on the other hand, transitions of the interparietal aneurysms to the parietal aneurysms, in that the peripheral wall of the space mentioned is interrupted by the coronary arteries, and here an aneurysm of the peri-aortic space could penetrate between the epicardium and the myocardium of the free external wall of the heart. The orifices of the coronary arteries separate that part of the peri-aortic space which is limited by the *conus dexter* from the part which is limited by the wall of the auricles.

The actual case which leads the author to study this interparietal form of dissecting aneurysm of the heart concerns a woman 32 years old who died from the consequences of chronic and acute ulcerous endocarditis. There was a partial rupture of the central or internal wall of the space, between the aortic valves (the posterior valve and the left valve), that is, at the base of the anterior mitral valve, with the formation of a dissecting aneurysm in the auricular part of the space. The aneurysm was of long standing, and had acquired a well marked secondary or new wall.

The author has collected from the literature fifty-nine cases of dissecting aneurysm of the heart, of which he gives a summary. Including his own case the total number becomes sixty. Forty-seven of these were interparietal or septal. It has already been said that it is impossible to separate precisely the one from the other. A few of these also presented partial transformation to the parietal type. Five aneurysms were parietal and eight valvular.

Among the interparietal cases the aneurysm occupied in twenty-five cases the auricular part; in thirteen the part of the cone, and in eight cases it was not possible to make special localization.

[1] Om dissekerande hjärtaneurismer, Nordiskt Medicinskt Archiv, Nos. 26 and 30, 1897.

Excluding the valvular cases the point of departure was one of the cavities of the heart in thirty-one cases, the left ventricle being the one involved in all the cases except one of parietal nature, which appeared over the right auricle. In sixteen cases the aneurysm took its origin from the sinus of Valsalva.

The cause of the lesion which allowed the blood to pass between the tissues composing the walls of the heart was in most cases an endocarditis, generally of an acute ulcerous nature. Sometimes an abscess appeared to have been preformed in the cavity of the aneurysms. In other cases the solution of continuity was produced on account of atheromatous changes in the aorta or by rupture of an ordinary aneurysm. In two cases the primary rupture was probably traumatic.

The interparietal aneurysms frequently present the form of a pouch, but they may occupy the larger part of the space, and then they take the form of the space. When the aneurysm is situated in the ventricular septum it can, exceptionally, become directed toward the cavity of the right ventricle, but it appears more often to cause a diffuse separation of the two leaflets of the septum toward the ventricular cavities. Sometimes this separation may extend throughout the entire extent of the septum.

The form of the opening of the aneurysm may be linear, especially when it is caused by rupture, or it may offer a more rounded form when the perforation is due to ulceration.

Aneurysms in the early stages naturally lack an independent wall, but in the chronic cases there is formed a secondary membranous wall. Frequently the contents are thrombotic.

Secondary rupture of the aneurysms occurs. Very often the rupture takes place into the cavities of the heart, causing abnormal communications between them. Very rarely the aneurysm ruptures into the pericardium.

Among the valvular cases two originated in the valves of the aorta, starting from the lumen of this vessel. Two were formed in the septal curtain of the tricuspid valve, and four were formed in the anterior mitral curtain.

THE DIFFERENTIATION OF THE ANEMIAS.

Not many years ago, physicians were as much accustomed to declare a patient "slightly anemic" as to ascribe the symptoms of another unfortunate to "a touch of the malaria." As we know that the latter disease exhibits different varieties and a vast number of anomalous symptoms, and that we are justified in making a diagnosis of ague only after finding the plasmodium in the blood, so we have learned that in anemia there are many forms whose symptoms are so similar that they can frequently be recognized only by most careful hematologic examination.

A thorough and systematic examination of the blood involves more time and skill than that of any other tissue of the body. Before one has accomplished such a feat he must have examined the fresh blood, dried and stained covers, counted the red and white corpuscles, estimated the amount of hemoglobin, the relative volumes of corpuscles and fluid portion of the blood (by means of the hematocrit), taken the specific gravity, and finally must have made a bacteriologic examination. In many cases an accurate diagnosis can be reached with but a small number of these steps, as for instance in malaria. The first "fresh" slide may reveal large numbers of the plasmodia, and as these parasites enter the substance of the red corpuscles causing their destruction, we would expect to find an accompanying anemia. But it is often of advantage to know the degree of corpuscular destruction. This can only be done by a count of the red cells. In certain of the infectious diseases the white elements of the blood are increased, in others diminished, while the reds may be considerably diminished in either. This difference in leucocyte count has often been of use in differentiating acute miliary tuberculosis from typhoid fever. Again, enough evidence may have been found to account for a simple anemia, but the patient not responding to appropriate treatment, a more extended examination may show that the disease is of the pernicious type. This specific gravity estimation is a method intending to replace the hemoglobin estimation with the Fleischl hemometer, while the hematocrit is offered as an apparatus by means of which the number of corpuscles can be approximately determined with rapidity. Bacteriologic examination in cases of suspected septicemia and pyemia is of evident value.

Now as to the anemias themselves. Too often this much abused expression is applied only to a lack of the red corpuscles, and the diagnosis is reached by a cursory glance at the roof of the mouth, the lips, or the conjunctivæ. Properly an anemia embraces much more than the above. It is a lessening of the whole quantity of blood, or of any of its more important constituents. A diminution in the amount of hemoglobin or of albumin might be correctly regarded as a variety of anemia. In classification one would first look at the grade of the anemia, best expressed by the number of the red elements. Secondly, it should be ascertained whether the anemia is accompanied by an increase or diminution in the number of the white cells—a leucocytosis or a leucopenia—and if leucocytosis, whether it is of a high or low grade. By means of the Thoma-Zeiss instrument, the number of red corpuscles in a fixed unit of volume (one cubic millimeter) is stated approximately in the male as 5,000,000, in the female as 4,500,000. Assuming that the red only are at fault, by putting a dividing line at 1,200,000, we make our first attempt at classifica-

tion; an anemia at or below this is of the primary or pernicious type (except after severe hemorrhage). However, the disease in question may be pernicious anemia, and yet the blood count be greatly above our dividing line. The secondary types, simple anemia and chlorosis, practically never have a count below 1,200,000. Therefore there may be cases in which a blood count would not distinguish between pernicious anemia and simple anemia and chlorosis. In simple anemia the hemoglobin is diminished *pari passu* with the loss in red corpuscles, for example, a count of 4,000,000 (in a male) will give 80 per cent. of hemoglobin, while in chlorosis the percentage is greatly lessened as compared with the count. A hemoglobin per cent. of 35 with a count of 4,000,000 is not an unusual conjunction. In pernicious anemia the hemoglobin is always below normal, yet when compared with the number of red corpuscles, it is apparently greatly increased. This comparison determines the so-called color index. Suppose a case with a blood count of 1,000,000 has a hemoglobin percentage of 30; if we could increase the count to 5,000,000, the hemoglobin would be raised to 150 per cent. Our color index in this case would then be one and a half. By these two methods of examination we would often be able to differentiate pernicious anemia, but other evidence should be obtained from stained specimens. In a slide from a case of pernicious anemia, probably the first point to attract attention is the variation in the size or shape of the red corpuscles. In many the disc shape is lost, and in those that retain it we may find corpuscles two or three times the diameter of their immediate neighbors. This is known as poikilocytosis and is extremely common in this disease. Another point evidenced is that of so-called polychromatophilia. Here, neighboring corpuscles show considerable variation in color. This reaction is best brought out with the triple stain, and is due to the fact that many of the reds, which normally respond only to the orange have taken on an affinity for the other colors of the mixture. Continuing, nucleated reds are seen, of two classes, the normoblasts, and the megaloblasts, giant forms with immense purplish or greenish nuclei. The latter are separated from the surrounding protoplasm by a narrow white (unstained) ring, are regarded as reversions to the fetal type and are found but rarely in other affections and then in small numbers. In hematology, however, we may make the diagnosis of pernicious anemia on this one finding: when the megaloblasts exceed in number the mormoblasts.

To summarize our findings of pernicious anemia: we have reds, about 1,200,000 or less per cubic millimeter, high color index, poikilocytosis, polychromatophilia and megaloblasts increased over normoblasts.

The second division of the anemias is that characterized by a diminution in the reds plus the presence or absence of a leucocytosis. A lessening of the red may be accompanied by a diminution in the white corpuscles, as occurs in malaria and typhoid. Therefore we may have a red corpuscular anemia accompanied by a leucopenia or diminution of white cells, as in pernicious anemia; a normal number of whites as in simple anemia, chlorosis and Hodgkin's disease; a leucocytosis of low grade, as in sthenic pneumonia; and lastly, a lessening of the reds with a leucocytosis of high degree, as in the leukemias. The latter are divided into two varieties, the spleno-myeloginous and the lymphatic. Pure splenic and myeloginous types do not exist. Both forms of leukemia have an anemia of about equal grade (3,000,000), and a large permanent leucocytosis. In the spleno-myeloginous, a ratio of one white to ten reds is common, and the ratio may be one to two; in the lymphatic variety the ratio is about one to forty, rarely exceeding one to ten. A leucocytosis rarely exceeds 1,000,000, or a ratio of one to fifty. The greater the leucocytosis, the greater is the anemia. Another point in distinguishing the two varieties of leukemia is a marked change in the ratio of the different forms of the white corpuscles one to another. In the lymphatic variety the leucocytes are nearly all young forms, called lymphocytes, while in the spleno-myeloginous, though all forms are absolutely increased, relatively they are all diminished (except the eosinophiles), and 35 to 40 per cent. of the leucocytes is taken by a cell found, normally, only in the marrow of bone. This myelocyte is a white cell of large size, distinguished only from the large lymphocyte in possessing granules, and from the neutrophiles by the shape of its nucleus.

Hodgkin's disease has always been a stumbling block in the study of the blood. It resembles some cases of leukemia and the blood examination is always a surprise. There is no anemia, the size of the reds is normal, none are found nucleated, the leucocytes rarely exceed 7500, and the ratio between the different varieties of whites is normal. The differentiation of amyloid disease, chronic malaria and chronic interstitial nephritis, from pernicious anemia is more difficult. This always requires a considerable search of stained specimens before a satisfactory conclusion can be reached. Special stress is put upon this method of examination, for the more one studies stained specimens the more reliance will be put upon their findings, especially when the Ehrlich stains are employed.

THE WEEK IN CONGRESS.

The return of Mr. GALLINGER from the Isle of Cuba has apparently given new life to the CAFFERY bill in the Senate, and also to the Antivivisection bill.

Mr. CAFFERY addressed the Senate in favor of his bill on March 22, and again on March 23, and accord-

ing to the *Record* spoke over two hours on the first occasion, and nearly two hours on the second occasion. No other speeches have been made on the subject, and his own speech has not been printed, as he has not yet concluded.

Senator SPOONER has further amended his bill, and will press the amendment when it comes up. The great and overwhelming interests of our country in the Spanish imbroglio and fiendish assassination of our sailors in Havana harbor have prevented consideration of the sanitary matters to the extent that otherwise would have been given them.

Our friends should continue their efforts against the CAFFERY bill, as although last week it was supposed to be "snowed under."

The Medical Department of the Navy have succeeded in having the age limit bill (Senate 2872) passed. This bill provides that the revised statutes which now fix the age limit of persons to be appointed Assistant Surgeons at 26 years, at 30 years, so that hereafter the section will read: "No person shall be appointed Assistant Surgeon until he has been examined and approved by a Board of Naval Surgeons designated by the Secretary of the Navy, nor who is under 21 or over 30 years of age." The twenty vacancies in the Medical Corps of the Navy will be speedily filled when the House passes this bill. The age limit of the services, as it now stands is, Navy 26 years, Army 28 years, and under the regulations of the Marine-Hospital Service, approved some years ago, the age limit in that civil service was fixed at 30 years. The wisdom of this was evident by the fact that there is never any trouble in filling existing vacancies, whereas in the Navy Department they have always had difficulty in securing persons under 26 years of age who could pass the required examination. It is to be hoped that the House will take this bill from the speaker's table and pass it without delay, as owing to the rapid increase of the new Navy it is necessary to have these vacancies filled as soon as possible.

CORRESPONDENCE.

An Open Letter.

Read before the Boston Medical Society, March 15, 1898, by R. K. Noyes, M.D., and unanimously approved and adopted by the Society, and recommended for publication.

To the Trustees, the Superintendents, the Staffs, and the Medical Officers of the Hospitals and Dispensaries of Boston.

Dear sirs and gentlemen:—The members of the Boston Medical Society feel constrained to present for your respectful consideration certain facts and conditions, which seem to have an intimate relation to the construction and to the solution of the problem which is known as the "abuse of medical charity."

It is hardly necessary to say that the problem in question, which, at the present time, so frequently comes to the attention of the medical profession in all large centers of population, has, on the one hand, features which are perplexing as well as delicate, and, on the other hand, features which are nevertheless exasperating and disheartening.

We deem it proper to state, not without due regard to the fitness of things, that we have hoped for a long time, that the initiative in the matter of dispensary-abuse reform, would be taken, and that an adequate remedy for the evil would be discovered and applied, by some action on the part of the Massachusetts Medical Society. And we beg to believe that it will be readily agreed by all fair-minded medical men, that we had, in that able, honored and influential body, the most ample and justifiable grounds for so hoping, as well as supposing and expecting, inasmuch as it is from within that Society that our vaunted medical ethics, which determine, not only our relations to our professional brethren, but also our relations to the public in general, are supposed to originate.

Moreover, it is from the members of that Society that our medical colleges frequently obtain their tutors, instructors and professors, and that our hospitals choose their medical and surgical staffs: and it is toward those members of the profession that there is always the strongest tendency on the part of practitioners to hold sentiments of special honor, and to feel inclinations for emulation.

It is with pleasure that we acknowledge the almost uniform courtesy, generosity, sympathy and fairness, which eminent professors, both as private practitioners and as consultants, have accorded to us.

As against the professional ethics of the consulting practitioners of Boston, or of the staffs and medical officers of the hospitals and dispensaries, in our professional relations with them, especially in emergent and capital cases, we have no inclinations to complain and no reasons to protest.

But, as private practitioners, we have had, with no slight feelings of regret, occasion to experience what seems to us an entirely different condition of things, as manifested in the methods which are employed by some of the medical men, who are connected with the medical and surgical out-patient departments, in the several large dispensaries, in their relations to us as professional brethren, and in their relations to certain dispensary patients, especially to those patients who were ours perhaps a day, or an hour, or a year, previously, and who would otherwise be ours continuously, when occasions require, if only the same principles of medical ethics were carried out by these gentlemen in public practice as they would undoubtedly carry out in their relations to us in private practice.

As to medical consultations in general, aside from the special welfare of the patients, two things are always of particular importance, as between the practitioner and the consultant, namely: first, that the former shall remain in full charge of the patient, and second, that he shall have his standing with his patient enhanced and fortified. Therefore, that this is not done in our large dispensaries, is precisely what we allege against certain medical men and medical officials, who practically have charge of the conduct of all the principal dispensaries in Boston.

However unwittingly dispensary physicians and surgeons may be responsible for it our complaint is that, by giving advice and treatment to patients at the dispensaries, many of whom must be assumed to be able to pay for it, without a note of request or of recommendation from their family physicians, except in emergent cases, and by omitting to uphold the ability, the proficiency and the procedure of these family physicians with reference to all cases, so far as may be consistent with fact and with conscience, which as to most all dispensary patients can be truthfully done, we not only lose through them our patients but also we lose our standing with our former patients, and hence our standing with prospective ones and with the public.

Even if that result arises, as possibly may be the case, from a purely negative attitude toward the patients and the public

and toward the profession, it hardly needs to be pointed out as to what the consequences would be if that same negative attitude were to be assumed by them in the ethics which would govern them as honorable private practitioners, or especially in their capacities as private consultants with any physician among us, were the opportunity offered to them to do so.

Ethically, as well as justly, it certainly can not be held by any physicians, nor should the public be led to believe by any words or acts on the part of medical officials or dispensary practitioners that private practitioners in general, who are instructed by these same professors, who are graduated from the same colleges, who possess the works of the same authorities, who employ the same therapeutics, who proceed upon the same theories, who have as good a practical experience, who realize as great a sense of responsibility, and who evidently are inspired by as high an ethical sense, are less competent professionally or less successful with given cases than many of those physicians and surgeons who are officially connected with the dispensaries and with the out-patient departments of the hospitals.

In the position from which we take our observations, it may never have come to the attentions of the gentlemen to whom we in this letter especially address ourselves, that, according to the unchanged intentions of those institutions in question so far as can be shown by the statutes and by the original parchments, their is no provision for any such perversion of the conduct of the dispensaries of Boston as seems to be clearly demonstrated by the manifest tendency of some of the dispensary physicians to utilize in their official capacities the dispensaries and the out-patient departments of the hospitals, for something other than the disinterested welfare of the sick poor, and of the official management of the dispensaries to protect and to promote the existence of these institutions by any such means as the dispensing of drugs and of medicines for remuneration.

In conclusion, it is only desirable to add as to the work of medical charity that, as citizens and as physicians, we desire to declare and to emphasize our earnest advocacy of free dispensaries for all those persons as designated in the hospital and dispensary charters who are sick, poor and unable to be properly treated and cared for at their homes and to pay a physician, and that such persons should not be deprived of the blessings and the benefits of such dispensaries by the unjust encroachments of the well-to-do, the well dressed, the selfish and the fraudulent, and that as private practitioners who constitute the great body of the medical profession, and who traditionally are known to be self-sacrificing and to be ever generous toward the needy and the humble, we shall, so far as may be consistent with our time and strength whenever proper occasions arise, endeavor to give cheerfully our professional services without remuneration to all those whom we may personally know to be in need and to be deserving thereof. Signed for the Society,

M. Gerstein, M.D., Secretary.

The Free Medical and Surgical Treatment of the Well-to-do in Michigan University.

Chicago, March 24, 1898.

To the Editor:—I am very glad to see Dr. Vaughan's statement of the policy of the Board of Regents of Michigan University with regard to the admission of patients able to pay for treatment to the free clinics of their medical department. It would be well for the credit of the University of Michigan, whose faculty and teachings we all respect and admire, that this statement should be given the widest publicity not only among the profession at large, but also among the members of their teaching corps: because the ideas entertained by the writer of the editorial corrected by Dr. Vaughan, are very widely entertained. Last summer, your correspondent was discussing with one of the clinical instructors of the University, the clinical advantages to be found in Ann Arbor (we were *not* discussing the abuse of medical charity), and he spoke of the very large number of patients there from all parts of the State and mentioned incidentally, that many of them had no business in a free clinic; but said that they were not allowed to refuse treatment to any citizen of Michigan however wealthy. He said he sometimes puts off operating on well-to-do patients on one excuse and another, till they get tired and go elsewhere, but that he is never permitted to refuse them outright. This particular member of the faculty and doubtless others, will be glad to be corrected. Very respectfully,

Horace M. Starkey, M.D.

Treatment of Pulmonary Tuberculosis.

Santa Clara, Cal., March 22, 1898.

To the Editor:—I am well pleased with the results of my letter on "Oxytuberculin," published in The Journal, Feb. 19, 1898, p. 446. It is bringing out much more in the way of facts than I could have hoped for.

I am obliged to Dr. Beattie for the information that seven physicians out of 120 *regular* physicians in the county have used "oxytuberculin." I presume that the "(or more)" which follows the "seven," may be assigned to the forces of the *irregulars* until the "(or more)" materialize. I think that it argues remarkably well for the intelligence of the profession of this county that only seven physicians have been credulous enough regarding "oxytuberculin" to use it, especially when living within but a few miles of the place of its production.

In regard to the case of asthma alluded to in my letter, I will state for Dr. Beattie's benefit that I am in possession of more facts than he gives me credit for. However, it is not the purpose or scope of this paper to state how I know these same facts.

In the San Francisco daily *Examiner*, Monday morning Oct. 25, 1897, p. 2, appeared the following paragraph: "Dr. D. A. Beattie of Santa Clara, has used Dr. Hirschfelder's cure, and this month he reported its effect on a patient. He said that at the beginning of the treatment the patient was not expected to live a week, but now appears perfectly well." Evidently "cured" does not mean the same as "perfectly well" in Dr. D. A. Beattie's way of thinking, or there is a mistake somewhere.

There is no doubt about the patient referred to by me having asthma. The patient still has asthma. The fact that the patient may have caught cold and had sub-acute bronchitis will account for the symptoms observed in the case, but does not constitute positive evidence of tuberculosis. The fact that the patient is much better now and remaining so through the winter and spring months is evidence that the patient in all probability has no tuberculosis. Dr. Beattie has confirmed my knowledge of the case by acknowledging that the patient has asthma. "The case was far gone," Dr. Beattie says. Dr. Hirschfelder does not recommend his oxytuberculin as a cure for advanced cases. I think I am fully justified in doubting the diagnosis of tuberculosis in this case. I am also inclined to the belief that the Doctor has not kept a close count on the number of paroxysms of asthma recurring in this patient during the past fifteen months. I am credibly informed that there have been many more paroxysms of asthma in that time.

I will agree with Dr. Beattie that in some of his cases there was marked evidence of tuberculosis. I am not aware of any of them having been materially benefited by oxytuberculin. Some of these cases have terminated fatally.

I will agree with him that "facts are better than statements." That is just what I hope to make clear before I am done with this subject.

I am glad that Dr. Beattie acknowledges that he can not guarantee a cure of tuberculosis in any case. We had surmised that the Doctor felt equal to the task of curing many if not most cases of tuberculosis he might encounter.

I must thank Dr. Beattie for the statement that "his own experience" will not lead him to "say that oxytuberculin will cure a single case of tuberculosis." He coincides with the majority of the medical profession in that regard. There is never a contra-indication toward applying any remedy which will relieve distressing symptoms. I fail to understand what he calls a "specific treatment." I think no remedy can properly be classed as a specific until it will positively and permanently cure a fair per cent. of a particular sort of cases.

Yours respectfully, E. H. SMITH, M.D.

Grand River Valley Medical Association.

HOLLAND, MICH., March 28, 1898.

To the Editor:—On page 739 of the JOURNAL, March 26, 1898, under the head of "Post-Graduate Lectures at Home," it is claimed Eastern medical societies have adopted a new plan by which they increase their membership and interest in the meetings. The Grand River Valley Medical Society of Michigan adopted this plan in 1894 when at their annual meeting Prof. J. H. Etheridge was invited to be with us and read a very instructive paper; since which time we have had such men as Professors Dock and McClintock of Ann Arbor, Professors Graves, Green, Boise and Griswold of Grand Rapids. We find our meetings are made very instructive by this plan and will continue it as long as we can procure volunteers for their expenses and entertainment. Will some Chicago men volunteer for our May and August meetings, which occur on the second Tuesdays of those months?

B. B. GODFREY, M.D., Sec.

Why Not the House Cat?

LANSDOWNE, PA., March 2, 1898.

To the Editor:—I have been interested in the letters regarding the castration of squirrels, in the March 5 issue of your excellent JOURNAL, and it occurs to me to suggest that some learned member of the profession set himself to the bringing out of some scheme whereby the squirrels might be led to teach their progeny-limiting process to the common house cat! In the interest of peace and quietness and sweet refreshing sleep, such an happy "artificial cut-off" as Saxe says, is needed. Fame and fortune await him who will bring to pass this step toward Heaven. Sincerely, J. M. LAURISON, M.D.

ASSOCIATION NEWS.

Section on State Medicine.—The following additional papers (*vide* JOURNAL, March 26, p. 743), for this Section:

The Importance of the Immediate Sterilizing of Foods and Drinks before their Ingestion, by Augustus P. Clarke, Cambridge, Mass.; Henry D. Holton, Brattleboro, Vt., will open discussion.

Relation of the Courts of Lunacy Law or Insanity Before the Law, by Charles H. Hughes, St. Louis, Mo.; discussed by William P. Munn, Denver, and T. D. Crothers, Hartford, Conn.

The Milk Supplies of Cities, is the Public Entitled to Receive Better Service? by Henry O. Marcy, Boston, Mass.; discussed by Henry L. Coit, Newark, N. J.

Some of the Duties of Health Boards, by Henry D. Holton, Brattleboro, Vt.; discussed by Charles H. Shepard, Brooklyn.

Alcoholic Stimulation or Irrigation, Which? Including their Uses and the most Efficient means to Obtain their Effects, by W. Van R. Blighton, Buffalo, N. Y.; discussion opened by J. H. Kellogg, Battle Creek, Mich.; Charles H. Hughes, St. Louis; T. D. Crothers, Hartford, Conn.; Augustus P. Clarke, Cambridge, Mass.

The following have promised papers but subjects have not yet been received: Benjamin Lee, Philadelphia; H. N. Avery, Minneapolis, Minn.; Lewis D. Mason, Brooklyn; Thos. F. Harrington, Lowell, Mass.; Elmer Lee, New York City.

Section on Cutaneous Medicine and Surgery.—The Section on Cutaneous Medicine and Surgery (and this includes syphilology) promises to be a useful and interesting meeting. The chairman of the Section, Dr. A. W. Brayton of Indianapolis, has received the following titles of papers.

Treatment of Pigmentary Diseases of the Skin, by Dr. John V. Shoemaker, Philadelphia, the Chairman of the Section on Materia Medica and Therapeutics. Dr. Shoemaker will also hold a clinic on some cases of cutaneous diseases which will be collected by Dr. J. M. Blaine of Denver, the local Chairman of the Section.

The Causes of Sycosis, by Alfred E. Regensburger, San Francisco; Two Cases of Marked Iodin Intoxication with Treatment, by A. H. Ohmann-Dumesnil, St. Louis.

Dr. Wm. S. Gottheil, New York, will read two papers illustrated by casts and photographs.

The Causes of Baldness, by J. M. Blaine, Denver.

Leukemia Cutis, by Wm. Gilbert Hay, San Francisco.

Tuberculosis of the Skin, by A. W. Brayton, Indianapolis.

Syphilis and its Relation to Consumption, by Lincoln Mussey, Denver.

Dr. Wm. H. Davis of Denver, has promised a paper, and papers are expected from Drs. Wm. T. Corlett, Cleveland; T. C. Gilchrist, Johns Hopkins, Baltimore, and Robert Hessler of the Central Hospital for Insane Indianapolis, on "The Effect of Thyroid Medication on the Diseases of the Skin," and a paper from Dr. L. D. Bulkley, New York.

Dr. Wm. T. Corlett writes the Chairman of the Section that he has visited Hot Springs and there will be several attendants on the Section with papers from that locality.

The Section will hold its session in the parlor of Unity Church in the same building with the Section on Materia Medica, and but one short block from the headquarters of the ASSOCIATION, the Brown Hotel.

All additional titles of papers should be sent at once to the Chairman of the Section or to the Secretary, Dr. T. C. Gilchrist, Baltimore, in order that they may appear on the permanent and preliminary programs and announcements.

SOCIETY NEWS.

Florida Association of Railway Surgeons.—The annual meeting of the Florida State Association of Railway Surgeons will be held at Jacksonville, Fla., Monday, April 25, 1898, at 10:30 o'clock, A.M. J. Harrison Hodges, M.D., Gainsville, Fla., President.

South Carolina Medical Association.—The forty-seventh annual meeting of the South Carolina Medical Association will be held at Harris Lithia Springs, April 13 and 14, 1898. Titles of papers should be sent to the Secretary, who also desires members expecting to attend the Denver meeting of the AMERICAN MEDICAL ASSOCIATION to advise him. E. F. Parker, M.D., Corresponding Secretary, Charleston, S. C.

Ohio State Medical Society.—At the next annual meeting of the Ohio State Medical Society, Dr. Senn will deliver the address in surgery; Dr. Hare has promised to deliver the address in medicine and a number of the ablest practitioners in Ohio have prepared papers. Matters of interest to the whole profession in the way of medical legislation, will be presented by the State Board of Registration. The headquarters for the Society will be at the Great Southern Hotel in Columbus. The date of the meeting is May 4, 5 and 6, 1898.

Kansas Medical Society.—The thirty-second annual meeting of the Kansas Medical Society will be held in Topeka, Kansas, May 4, 5 and 6, 1898. According to resolutions adopted last year, committees from the three State societies, Regulars,

Eclectics and Homeopaths met at Topeka, Sept. 28, 1897, and agreed as follows: "That each society would call its annual meeting at Topeka on the first Wednesday, Thursday and Friday of May, 1898. That the societies hold their meetings in separate halls, but that on Wednesday evening the three societies meet together. It is hoped that by this combined meeting matters pertaining to medical legislation and kindred subjects in which all are equally interested may be furthered. Those having a paper or important case to present or desiring any information, write W. F. Sawhill, Concordia, Kan., Corresponding Secretary.

Indiana State Medical Society.—The annual meeting of the Indiana State Medical Society for 1898 will be held in LaFayette, May 5 and 6. The wives of physicians who attend will be entertained by a committee of ladies. The meetings of the society will be held in the chapel of Purdue University, except the evening session, which will be held in Trinity Methodist Episcopal church. The Tippecanoe County Medical Society will tender a reception immediately after the evening session at the LaFayette Club, to the visitors and citizens of LaFayette. Free street car transportation will be provided members to and from Purdue University. The Central Passenger Association has granted the usual one and one-third fare for the round trip on the certificate plan, provided one hundred members avail themselves of the rates. Members intending to read papers (No titles will be received after April 15, 1898) will please send titles as soon as possible, endorsed by the secretary of their society. The hotel accommodations are ample. The laboratories of Purdue University will give continuous demonstrations of subjects in which every physician is interested. Geo. F. Keiper, M.D., LaFayette, Ind., is Chairman of the Program Committee.

Association of American Physicians.—Preliminary program of the thirteenth annual meeting of the Association of American Physicians, to be held in the Arlington Hotel, Washington, D. C., May 3, 4 and 5, 1898:

President's Address, F. C. Shattuck, Boston.

Discussion, Is a Uric Acid Diathesis an Important Factor in Pathology? Referee representing physiologic chemistry, V. C. Vaughan, Ann Arbor; referee representing clinical medicine, Wm. H. Draper, New York; co-referee representing clinical medicine, James Tyson, Philadelphia.

Bacillus Icteroides (Sanarelli) and Bacillus X (Sternberg), Geo. M. Sternberg, Washington.

Comparative Studies of Bovine Tubercle Bacilli and of Human (sputum), Theobald Smith, Boston.

Actinomycotic Forms of the Bacillus Tuberculosis; an Experimental Study, Simon Flexner, Baltimore.

Gastric Syphilis with the Report of a Case of Perforating Syphilitic Ulcer of the Stomach, Simon Flexner, Baltimore.

Some Observations on Cardiac Syphilis, I. Adler, New York.

Danger of Error in Diagnosis between Chronic Syphilitic Fever and Tuberculosis, E. G. Janeway, New York.

Two Attacks of Temporary Hemiplegia occurring in the Same Individual as the Result of the use of Peroxid of Hydrogen in a Sacculated Empyema (Pleural), E. G. Janeway, New York.

Acute Interstitial Nephritis, Wm. T. Councilman, Boston.

Chronic Interstitial Nephritis (by title), I. N. Danforth, Chicago.

Acute Leucemia, M. H. Fussell and A. E. Taylor, Philadelphia.

Bacteriology of Cheese, V. C. Vaughan and Julian T. McClymonds, Ann Arbor.

A Chapter in Peripheral Pathology; the circulation in the feet, Morris Longstretch, Philadelphia.

A Case of Chronic Infective Endocarditis with Streptococci Found in the Blood before Death Treated by Antistreptococcus Serum and Experimental Researches upon the Effects of Injections of Antitoxins upon the Kidneys, W. H. Thomson, New York.

Nephritis of Malarial Origin, W. S. Thayer, Baltimore.

Experiments upon the Localization of Micro-organisms in the Spleen and the Importance of a Lesion of an Organ for the Localization of Bacteria within it, S. J. Meltzer and T. M. Cheesman, New York.

Congenital Stenosis of Pylorus in Infants, S. J. Meltzer, New York.

Paralysis of the Left Recurrent Laryngeal Nerve in Mitral Stenosis, Wm. Osler, Baltimore.

Combined Symptoms of Myxedema and Exophthalmic Goiter, Wm. Osler, Baltimore.

The Renal Form of Enteric Fever, J. C. Wilson, Philadelphia.

Gastric Carcinoma associated with Hyperchlorhydria, D. D. Stewart, Philadelphia.

The Diffuse Infiltrating Form of Secondary Melanosarcoma of the Liver (by title), L. Hektoen, Chicago.

A Case of Myxedema and Albumosuria; Treatment with Thyroid Extract; Death, R. H. Fitz, Boston.

Some Usually Overlooked Physical Signs in Chest Diseases, Norman Bridge, Los Angeles.

Studies of Antitoxins for Tuberculosis, E. L. Trudeau and E. R. Baldwin, Saranac Lake.

Report of a Case of Madura Foot, J. H. Wright, Boston.

Antitoxin Treatment of Pneumonia, A. H. Smith, New York.

PUBLIC HEALTH.

The Teeth and the Soil.—Examinations of recruits in Bavaria and Sweden conducted on a large scale have confirmed the assumption that the richer the soil in lime and magnesia, the harder the drinking water, the more perfect the development of the teeth.—*Münch. Med. Woch.*, No. 3, 1898.

Health in Chicago.—The report for February gives 2023 deaths during the month, a rate of 1.26 per 1000. The rate for the corresponding month in 1897 was 1.09. Of these 2023 deaths, 525 were of persons under 1 year old and 231 between 1 and 5 years. The chief causes were: Pneumonia 296, nervous diseases 243, consumption 215, bronchitis 139, heart disease 126, acute intestinal diseases 106, cancer 75, diphtheria and membranous croup 64.

Detention of an Infected Ship at Quarantine.—Health Officer, Dr. Doty, New York harbor, has detained the steamship *Strabo* from Rio Janeiro because of the death of the cook by yellow fever during the voyage northward. The captain of the vessel was ill with that disease on the trip, but he recovered and was able to resume the command of the vessel. The *Strabo* stopped at Santa Lucia and was there disinfected. She was again disinfected under the direction of Dr. Doty and then allowed to proceed.

Progress in the Production of the Diphtheria Toxin.—L. Martin reports that he has succeeded in obtaining a toxin that kills at 1 to 500, and describes the special medium best adapted for the purpose, a permanently alkalin bouillon. But besides the importance of a well adapted medium, there is also the necessity of a particularly toxigenic race of microbes. He asserts that the toxigenic function and the virulence of a microbe are quite distinct properties. This fact explains the sudden fatal syncope in certain cases of apparently mild diphtheria, as even slightly virulent microbes may be capable of secreting powerful toxins. He therefore adds that in any case in which the exudate produces cultures in twenty four hours, resembling the diphtheria microbe in appearance and reaction to stains, the patient should be considered affected with diphtheria.—*Annales de l'Institut Pasteur*, January 25.

Prophylaxis of Diphtheria in Hospitals.—For two years Heubner has made a practice of having all the children in his pediatric clinic injected with 0.8 c.c. Behring serum, 200 units, every three weeks as a preventive against diphtheria contagion. During this period there has not been a single case of contagion except once, when to test the necessity of the measure, the injections were suspended for a while and four children were found to have contracted the disease imported by a visitor. The preventive injections were resumed and there has been no case since among the five hundred children that have been in

the hospital. The children bear these small but effective doses without disturbance of any kind, in spite of their feeble condition.—*Deu. Med. Woch.*, February 10.

Concentrated Diphtheria Antitoxin.—Bujwid announces that he has succeeded in producing an antitoxin of which 1.5 to 3 c.c. contains 1000 units. He accomplishes this by slowly freezing and then slowly thawing the antitoxin, which separates into a yellow lower and upper colorless layer. The lower layer contains almost all the immunizing properties, which are thus concentrated in it.—*Deu. Med. Woch.*, February 24, from *Przeglad Lekarski*, No. 19.

For the Prevention of Premature Burials.—In the New York legislature a bill is pending whose intent is to establish mortuaries, in all large cities, for the detention of all human bodies for a period of seventy-two hours after the supposed dying. This does not apply to cases where the cause of death is an infectious disease. In cities of the smaller size, namely those whose population is less than ten thousand, it is provided that no mortuaries shall be necessary unless the cemeteries thereat have more than one hundred burials each per annum.

Dispensary Statistics for New York.—The State Board of Charities of New York State will report to the legislature some rather startling statistics bearing on the dispensary abuses complained of by members of the medical societies, which have resulted in the introduction in the legislature of a bill to provide for the regulation of dispensaries in cities. Reports received by the board from sixty-six or more dispensaries in the borough of Manhattan for the past year indicate that not less than one-half of the people of New York city are receiving practically free medical attention. The following are the statistics for the seven largest cities in the State:

	Number of patients.	Per cent. of population.	Number of prescriptions.
New York . . .	1,077,140	71.0	1,699,468
Brooklyn. . . .	252,695	31.3	455,940
Buffalo	14,886	5.8	32,509
Rochester . . .	2,476	1.8	6,698
Albany	20,345	21.4	17,939
Syracuse. . . .	8,796	9.9	6,116
Troy.	715	1.2	716

Besides the medical relief furnished by dispensaries, various charitable and religious societies in the city of New York provide medical attendance for the poor at their homes, and it is a well known fact that a certain proportion of all city practitioners give gratuitous treatment to many patients without charge. It is said to be a not uncommon occurrence in New York to find families whose income ranged from $20 to $40 per week going to the dispensary for treatment, and in one instance a business man and real estate owner worth over $100,000, was one of the free patients.

A Radical Improvement in Water Filtration.—The fact is demonstrated that aluminum is as excellent a purifier of water as there is. The salts of this metal are insoluble in water, and, consequently, it is plain that when these salts are formed the water can be strained and the impurities removed therefrom. Perhaps the most practicable method of purifying water by this means is the trough method, as it is called, the trough being composed of plates of aluminum and zinc or iron, six or eight inches apart. One end of the tank affords an entrance for the volume of water which passes over the top of one plate and thence under the plate next to it, this being accomplished by the fact that the elevation of the several plates is different. In connection with this tank or trough, there is an electric generator of moderate size, and, though aluminum will not form the negative pole of a current, the other plates used will. Now, as it is always the case that when an electric current comes in contact with water in this manner it decomposes a certain portion of the fluid, as it were, the result of such decomposition is that ozone is formed and oxygen freed, the meaning of this being the absolute extinction of life in any microbes or organic matter which the water might contain, leaving it, after meeting the purification the salts of aluminum occasion, as clear and healthful as the water which flows from the purest spring.

The New York City Board of Health.—In no small measure is the administration of this Board a factor to the whole country, for that city is the gateway to commerce and immigration; it is the largest distributing point for manufactured supplies to the whole country. The appointment of Mr. Nathan Straus as President of the Health Board under the new administration gave a hope to the citizens that this important branch of the municipal government would be administered in the interests and for the protection of the people; for as has been well pointed out, he had as a private citizen done more than any other one man in the entire city to mitigate the evils generated by impure milk. He had studied certain phases of the problems of public health, and was equipped for the duties of the position as few men could be. Since he took office the Health Board has been made such a target for criticism from the Mayor's office that early in March he resigned as President of the Health Board, and within an hour the Mayor appointed Michael C. Murphy, previously a clerk in the first district court. The new appointee has been a Tammany leader of late years. Tammany discovered his versatility. He has represented his district in the Assembly and the Senate; he has been excise commissioner, and is now President of the Health Board. This appointment is generally regarded as unfortunate from a sanitary standpoint, and calls to mind a recent expression by the editor of *Public Health*, when speaking on the water scandals of Philadelphia, this event "*shows the utter helplessness of the people in the presence of political adventurers.*" The present administration is carrying its economies to the danger point in this department, especially in that line of retrenchment that has abolished its mercantile inspection service. It may be added that Mr. Straus was desirous of devoting his salary as president, and as much more as shall be needed, to erect a milk-sterilizing plant for the infants at the Randall's Island asylum, where the death rate has always been very high. An important legislative measure, affecting the future death rate of New York City, is the proposed establishment of a State sanitarium in the Adirondack Mountains for the treatment of pulmonary tuberculosis. The death rate from this scourge is very high throughout the entire country. In the State of New York alone, statistics show that thirteen thousand deaths occur annually as the result of this disease. The city of New York appropriated the sum of $60,000, for the Board of Health of the city, to be used in removing deserving persons suffering from tuberculosis from tenement houses and sending them to special institutions. A home for consumptives exists in Brooklyn; one has been recently established within the upper wards of New York. These are steps in the right direction, but science has proved that climatic conditions form as large a factor in the development of this disease as in its cure. New York State is fortunate in having within its bounds a region offering the right climatic conditions for the retarding and often for the cure of this disease. The suffering in the city, especially in the tenement house districts, is extreme, and to the ignorance of their denizens is largely due the spread of this disease. Nothing but the removal of a patient from a home will protect the inmates of that home from the danger of contagion. Public sentiment in this State must be aroused to the point of demanding that right provision shall be made for the care and possible cure of those suffering from consumption. Private enterprise has done much, but it can not do what the State can and should do. New York is fortunate in having had an experiment station under the best scientific control, which offers a precedent and is a proof of what may be done. Dr. Trudeau, who helped to establish and who now controls the sanitarium at Saranac, N. Y., has demonstrated the possibilities of caring for many of those persons who suffer and die because the State has not awakened to its duties in that direction.

BOOK NOTICES.

Record of the Class of '98, Keokuk Medical College. Cloth. Illustrated. Keokuk, Iowa, 1898.

This college annual contains illustrations of the college buildings, clinics, several classes and members of the faculty, with other matter usually found in college annuals. The volume is a credit to its publishers, the class of '98.

The Retrospect of Medicine. Edited by James Braithwaite, M.D., London, and E. F. Trevelyan, M.D. London, B.Sc., M.R.C.P. Vol. 116. July-December, 1897. London: Simpkin, Marshall, Hamilton, Kent & Co. Ltd., 1898.

This half-yearly journal contains "a retrospective view of every discovery and practical improvement in the medical sciences." The first 128 pages are devoted to abstracts of the "most practical articles in the volume." The remainder presents citations from diverse journals concerning practical medicine, surgery and obstetrics and gynecology, comprising 110 citations.

Transactions of the Ohio State Medical Society. Edited by R. Harvey Reed, M.D., Columbus, Ohio. Cloth. Pp. 488. 1897.

This volume contains the proceedings of the fifty-second annual meeting, held at Cleveland, Ohio, May 19, 20 and 21, 1897. There are five addresses, nine papers on surgical subjects, six on medical, five on mental and nervous diseases, with a number on gynecology and obstetrics, ophthalmology, rhinology and laryngology, dermatology, and forensic medicine. The minutes, constitution and by-laws, obituaries and reports comprise the remainder of the volume. A number of inserted tables add to the value of the papers. The book is on good paper, well edited, and a decided credit to the society.

Transactions of the Royal Academy of Medicine in Ireland. Vol. xiv. Edited by William Thomson, M.A., F.R.C.S., General Secretary, Surgeon to the Richmond Hospital, Dublin. Cloth. Pp. 420. Illustrated. Dublin: Fannin & Co., Ltd., Grafton St. London: Bailliere, Tindall & Cox. 1896.

Besides the lists of officers, fellows, members, student associates, and the rules, annual report and treasurer's report, this volume contains fifty papers read before the sections of medicine, surgery, obstetrics, pathology, state medicine, and anatomy and physiology. The illustrations and tables are gotten up in good style, the full page plates being especially noticeable additions.

Report of the Health Officer of the District of Columbia. 1897. Cloth. Pp. 339. Maps. Washington: Government Printing Office. 1897.

This volume contains the usual data found in reports of this nature and includes much valuable reference matter for the physician or student carrying out the investigations on sanitary and vital statistic lines. The book is well indexed and also contains an index to the laws and regulations relating to the public health. The maps are specially valuable additions to the book.

NECROLOGY.

William E. Clark, M.D., River Forest, Ill., died March 22, the result of a surgical operation. Dr. Clark was born at Lebanon, Conn., Feb. 22, 1819, of illustrious Puritan stock, was a graduate of Vermont Medical College, and practiced medicine at Rochester, N. Y., and Coldwater, Mich., before settling in Chicago in 1852. He entered the army in 1861 as surgeon of the Fourth Michigan Infantry, and in 1863 was given charge of the Washington Hospital, where he remained until the close of the war. He returned to Chicago in 1866 and practiced here until his illness of two weeks ago. Dr. Clark was a brother of Grace Greenwood, the Washington authoress, and of Major Charles E. Clark, a prominent retired army officer of Washington.

Elizabeth S. Dalby-Norred, M.D., born in Wells County, Ind., Oct. 14, 1843, died at her home in Minneapolis, Minn., March 21. She was married to Dr. Charles H. Norred in 1865 and in 1881 was graduated from the Woman's Medical College of Chicago. Her connection with various hospitals and activity in church work, added to her membership in the American Medical Association and several other medical organizations, contributed much to her reputation. The interment was at Elkhart, Ill.

Lewis Reed, M.D., born in Bridgeton, N. J., in 1806, died at Ocean Grove, N. J., March 22. After practicing in Millville, N. J., where he remained until 1856, he became the first mayor of Atlantic City, holding the office for four terms. He was afterward appointed postmaster of that city by President Lincoln and served through two administrations with signal ability. Seven children are his survivors, five of whom are sons, Dr. Thomas K. Reed of Atlantic City being one.

John Dwyer, M.D., New York University Medical College, 1871, of Hartford, Conn., died from rheumatism, March 20. He was unmarried, a native of Ireland, and, as far as known, without near relatives in this country. As a man and a physician he was highly esteemed.

Henry Bedell Crane, M.D., University of Pennsylvania, 1883, died at his home in Newark, N. Y., March 23, aged 42 years. A widow and four children survive him.

John B. Brooks, M.D., Reading, Pa., March 19, aged 65 years.——Joseph D. Couch, M.D., Cambridge, Mass., March 16.——C. L. Cudlipp, M.D., Richmond, Va., March 14, aged 33 years.——E. Dawley, M.D., Anamosa, Iowa, March 20, aged 50 years.——Joel Heldmann, M.D., Baltimore, March 23, aged 78 years.——S. G. Pickett, M.D., Elgin, Ill., March 21.——William H. Smith, M.D., Intercourse, Pa., March 16, aged 41 years.——John Mason Strong, M.D., Charlotte, N. C., March 16.——Assistant Surgeon George Clinton Hubbard, U. S. N., died in Washington, D. C., March 20; burial in Norwich, N. Y.

Deaths Abroad.—Dr. Mariano de la Paz Graells, one of the oldest professors in Spain and a distinguished naturalist, aged 90 years.——Dr. Oscar Hasse of Nordhausen, aged 61 years.——Dr. Didier, lecturer on physiology in the Catholic medical faculty of Lille, and vice-president of the Anatomo-Clinical Society of that town.

MISCELLANY.

University of Pennsylvania.—Certain graduates of the University of Pennsylvania of the class of 1848-49 have asked the editor to find out how many of the old class are still alive and their present address, as it is desired to have a reunion, if possible, in 1899. Any address sent to the editor of the Journal will be duly forwarded. Medical exchanges please copy.

Diphtheria from Laboratory Infection.—Riesman (*Phil. Med. Jour.*, March 5) reports a case of laboratory infection, of value in determining the period of incubation of this disease, about which there still exists much obscurity and which in this case was less than forty-eight hours, probably between forty and forty-three hours. In this infection the bacteria were of the highest degree of virulence possible and were deposited in large numbers directly on the surface that became the seat of the disease.

A New Pathogenic Chromogenic Bacillus.—Gorham (*Journal of the Boston Soc. of Med. Sci.*, March) describes a new bacillus resembling the bacillus pyocyaneus. It differs from it, however, in the following points: 1. It is provided with several flagella scattered over its whole length, while the bacillus pyocyaneus has but one or rarely two at one or both poles. 2. It has never been seen to grow out into chains or filaments of more than two elements, no matter in what culture medium it is grown. 3. The culture-media never show fluorescence

as do those on which the bacillus pyocyaneus is grown. The color is always green, with no trace of yellow, and only one pigment can be isolated; from cultures of the pyocyaneus two or three pigments can be isolated. 4. Indol is produced by the bacillus pyocyaneus, while tests of this form were negative. 5. In bouillon cultures this organism produces a cloudy medium with a thick mycoderma, unlike the corresponding changes of the pyocyaneus.

Diseases of the Nerves Consecutive to Suppurating Inflammations of the Fingers.—Gerhardt reports four cases of motor, sensory and trophic disturbances in the region of the nerves of the arm, and diffuse multiple neuritis, appearing a few weeks after a panaritium, necropsy furuncle or crushed fingers. Each gradually recovered.—*Deu. Med. Woch.*, January 20.

Women Students at Berlin.—A hundred and sixty-two women are now studying at the University, although by no means admitted to the full privileges of the University; three, in the theologic course; three, law; and one, medicine. There are twenty-six Americans among them. A separate dissecting and preparation room has been set apart for women students, with a special course of lectures by Professor Benda.

New Secret Order for Physicians.—The Mystic Order of Disciples of Æsculapius, is being organized by Frank C. Hoyt, M.D., superintendent of the Iowa Hospital for the Insane, Clarinda, Iowa. It is designed to work in conjunction with medical societies, and in no way supplant them, and the enterprise is fraternal, not commercial in character. Full information can be obtained by addressing Dr. Hoyt.

Amputations of Extremities without Ligatures.—Barber has used this method in six amputations (*Med. Age*, March 10), all acute, all of lower extremities, and all the result of crushing injuries. He asserts that the advantages are that no blood is lost, there is no oozing, and no time is lost in clamping, tying and applying hot cloths to arrest hemorrhage. He uses the ordinary rubber roller bandage and a section of rubber tubing wound tightly around the limb above this bandage before it is removed. After the amputation is made and the flaps nicely adjusted, he takes a long piece of catgut and with a good sized needle stitches into the muscles, next the bone, at one edge of the wound, and sews back and forth the same as in closing any wound by deeply buried sutures. Bringing the muscular tissue into snug apposition, not too tightly, he whips the outer and last row of stitches by the over-and-over method and then stitches the skin over all. The Esmarch is then removed.

Massage as an Occupation for the Blind.—Bennett (*Phil. Med. Jour.*, March 5) advocates this for the large number of blind in this country, which he estimates at 56,000 persons, the majority of whom are dependent on private benevolence or public funds. He addressed inquiries to every superintendent of a State school for the blind throughout the country and from their responses believes that the percentage of their pupils who become self-supporting after graduating are: Illinois, 6 per cent. of the males and 1.5 per cent. of the females; North Carolina, 80 per cent. of the male whites; Texas, 75 per cent. of the males; Wisconsin, 20 per cent. of the males and 5 per cent. of the females. He considers the mechanical trades barred to the women while in case of the men there exists a prejudice against employing the blind. The women's chances in the matrimonial market he considers *nil*. He says the blind can make massage their own particular occupation, and they possess some qualifications that eminently fit them to excel in this; among these qualifications delicacy of touch and the blindness itself.

Chronic Purulent Otitis Media.—Burnett (*Phil. Med. Jour.*, February 26) reports four recent cases of excision of the malleus and incus for this condition. The results were an immediate lessening of the discharge in all the cases, total cessation and cicatrization of the fundus in two, and improved hearing in three. He finds two years may be necessary for total cessation of discharge after excision. As a rule, the longer the duration of the purulency, the longer the after-treatment necessary before a cure of the chronic purulency is affected. While an improved state of the discharging ear can be promised immediately, from an operation, the time of total cessation of the discharge can not be accurately foretold. This operation of excision, with the better drainage it affords, and the more complete antisepsis permittted, the general health of the patient being improved, the hearing often benefited and the advance of caries and necrosis checked, he considers an efficient prophylaxis against deafness and serious intracranial lesions.

Recurrent Multiple Neuritis of Specific Origin.—In "Some Rare Affections," in the *New York Polyclinic* for February 15, is reported a case of this rare condition in a man 35 years old. There was marked paresis of both lower extremities, considerable atrophy of the anterior thigh muscles, weakness of these and the lower spinal muscles. The muscles below the knees were less affected, but distinct atrophy of both anterior tibial groups. The anterior thigh muscles did not respond to the faradic current and galvanic response was diminished. The knee jerks were absent. On mercurial treatment the right knee jerk soon returned, the left only by reinforcement. The volume of the thigh muscles of the right thigh improved more rapidly than of the left. In eight weeks the patient was able to walk without assistance, but there has been vacillating behavior of the knee jerks, immobility of the pupils, transitory ptosis and transitory palsy of the tongue during the succeeding two years, with subjective disturbances of sensation at intervals.

Control of Nasal Hemorrhage.—Gleason (*Laryngoscope*, March) reports having for a year used the following method in severe post-operative nasal hemorrhage: Wrapping a piece of cotton loosely about a probe he thrusts it, dripping with a fifteen volume solution of hydrogen peroxid, along the floor of the nose until the pharynx is touched. The mass of cotton should be large enough to completely fill the inferior meatus. It is necessary, in most cases, to hold the cotton in position for a few moments with the finger tip, during which time the probe is withdrawn. If necessary, the plug of cotton is then held in position by means of smaller pieces of absorbent cotton, saturated with peroxid, packed into the anterior naris in front of it. After the smaller masses of cotton are removed from the anterior portion of the naris, there yet remains a large plug of cotton, which, if removed quickly, suddenly removes pressure from the bleeding spot and causes renewed hemorrhage. This accident can often be prevented by removing the mass of cotton very slowly, with steady, gentle traction exerted at intervals of two or three minutes in order that five or ten minutes elapse before the plug is entirely withdrawn from the nose. In cases of severe nasal hemorrhage, it is well to allow at least twenty-four hours to elapse before removing the packing, and if hemorrhage then recurs to attempt to control it by the insertion of a smaller mass of cotton dripping with peroxid.

Myxedema—like Conditions in the Negro.—Berkley (*Am. Jour. of Insanity*, January) reports the results of an investigation carried out in 1897 on about 1600 inmates of the city asylum and the adjacent almshouse in Baltimore. Of the 1600 inmates, about 300 were negroes. Eight cases of a peculiar thickening of the skin, local in character, in the blacks, was noted, identical in all respects with that present in cases of sporadic cretinism in the Caucasian race, but less diffuse. Among the idiots four examples were noted, one in a case of paretic dementia in the third stage, one in a case of acute mania, one in a demented patient whose history was unobtainable, and one in an individual who exhibited no mental change beyond extreme slowness. Departures from the normal in the thyroid were always pres-

ent, in seven cases being non-palpable or below normal size and in one case enlarged. In two cases the hair was coarse, thin and rough. Abnormally broad bones existed in but one case, the idiot approaching a cretinoid state, but even in this case there seemed no defect in the growth lengthwise. The regions of the fontanelles had no abnormalities, though the skull development showed many abnormalities. The secretions of the skin seemed normal, with little dryness and roughness over the myxedematous areas. But two cases showed changes in the general bulk of the body, and one case pendulous abdomen. Trophic lesions and enlargement of the lymphatics was not found.

Pregnancy and Ovarian Tumors.—Swan (*Bull. of the Johns Hopkins Hosp.*, March) reports another case of solid ovarian tumor complicating pregnancy, and from a review of the literature on the influence of pregnancy on the growth of such tumors, draws the following conclusions: 1. Solid neoplasms of the ovary complicating pregnancy are exceedingly rare. 2. The diagnosis may be difficult. In certain cases it may be aided by recto-abdominal palpation under narcosis, using Kelly's method to gently produce artificial descensus of the uterus. The physical examination with the signs of pregnancy, and those which belong more particularly to solid ovarian growths, generally enable us to make a probable diagnosis and one sufficient to warrant an exploratory section. 3. The prognosis in case of solid growths of the ovary complicating pregnancy is much worse, both for the mother and child, than in those of cystic neoplasms of these organs. Abdominal section and extirpation of solid tumors during the early months of pregnancy produce equally good results, so far as the fetus is concerned, as in case of cysts. The result to the mother depends on the malignant or benignant nature of the growth. 4. In extirpation during the second to fourth month of gestation, the maternal mortality is but 5 per cent., due to hemorrhage, shock, sepsis, etc., whereas the fetal mortality due to abortion is only 20 to 22 per cent. as compared with 40 per cent. for the former, and 80 per cent. for the latter when these cases are left to unaided nature. 5. The compulsory operation (during the latter half of gestation, during labor, or the puerperium) will rarely be required.

Medical Board Can Appeal.—The Oregon statute of 1895, authorizing the organization of a board of medical examiners, empowers it, among other things, to revoke the license of practicing physicians for unprofessional or dishonorable conduct. In case of a revocation, the licentiate is given the right of appeal to the circuit court in and for the county in which the hearing was had. Either party may appeal from the judgment of the circuit court to the supreme court in like manner as in civil actions, within sixty days after the rendition thereof. Now how about an appeal by the board of medical examiners? The case of State vs. Estes developed the contention that the board of examiners not being a party to the action, as such had no authority to take an appeal from a judgment of the circuit court overruling the action of the board in revoking the license of the defendant. Even the supreme court of Oregon admits, in the decision on the point which it rendered Dec. 7, 1897, that it is difficult to determine from this crude piece of legislation just what procedure is meant to be established for taking and perfecting an appeal from the circuit to the supreme court when the judgment is in favor of the accused practitioner. The language of the act, that "either party may appeal," it says, would seem to allude more especially to the parties to the proceeding and not to the tribunal charged with the function of determining the cause as between them. But there is a further provision in the statute that is a plain recognition of the right, while not conferred in express terms, of the board also to appeal from the decision of the circuit to the supreme court in case the judgment should be adverse to its decision, and the supreme court thinks its effect is to empower the board to prosecute an appeal in vindication of its own findings, and it accordingly holds that the board may appeal in such case. Attorneys, the supreme court further holds, are sufficiently authorized to prosecute an appeal for the board when they have been directed to do so by its president, and the board has afterward ratified and confirmed their action in the matter.

Antitoxin Manufacture by Cities.—Dr. B. T. Whitmore of New York is out in a trenchant article against the manufacture of antitoxin by the municipality of New York city. This paragraph presents the fact and the essence of the argument: "The City of New York is engaged in the drug business at the expense—and it is a heavy expense, too—of the people, and in defiance of the principle and fact that it is no part of the business of government to engage in or be identified in any way with artistic, commercial or industrial pursuits. Attention has been called several times to this petty and pitiable attempt to fasten paternalism upon the administration of municipal affairs. But never yet have I seen the point made that New York City's identification with the drug business, in manufacturing and selling antitoxin, is maintained at a cost which is an absolute and foolish waste of public money. This is the truth, however, and it will take but a few moments and a few figures to estimate it." Dr. Whitmore then proceeds to show that "the city is paying $60,000 every year for $10,000 worth of antitoxin," from which it is clear that the New York taxpayer "is paying pretty dear for his therapeutic whistle." "Is there any reason in the world," the article continues, "why with these overwhelming facts against it, the city of New York should continue in the manufacture of antitoxin? None. A State law provides for the inspection of all antidiphtheritic serum by a board of examiners before its exposure for sale. It can not be urged, therefore, that the city is in the business for the protection of the public, for the board of examiners would offer that protection amply. It has not, therefore, a leg of any kind to stand upon." When the New York city enterprise was started there was no available supplies of reliable antitoxin and there was reason therefore for the city undertaking the manufacture of the article. Under present conditions, however, those municipalities which, like New York, entered the field in an emergency, can now well afford to withdraw in favor of private enterprise, providing such compensating legislation is passed as will insure pure and adequate supplies of antitoxin on equitable terms to the public. —*Western Druggist*, March.

Hypertrophy of the Prostate.—In the *Medical Record* for March 5, Meyer writes on the Bottini galvano-caustic operation for hypertrophy of the prostate. After the bladder has been carefully irrigated and emptied, the posterior urethra is locally anesthetized with cocain or eucain, 1½ drams of a 1 or 2 per cent. solution (eucain 5 per cent.) being injected. The incisor introduced, Bottini burns with his incisor one, two, or, better still, three grooves at one sitting; a short one toward the symphysis, another just opposite directly backward toward the rectum, and a third one through that lateral lobe of the prostate which appears to be the larger one. According to the number of grooves cut, the operation requires from two to five minutes. Soon after the operation most of the patients complain of a burning sensation when commencing to pass water. They may get up right after the operation in order to urinate, and can be permitted to be permanently out of bed on the second day, the general reaction of the operation being in most instances almost *nil*. If the bladder has been carefully irrigated, the patients will rarely develop any rise of temperature; bleeding, if there be any at all, is generally of minimal amount. The urine passed during the first night following the operation is often macro-

scopically free from blood. In more than eighty cases of this kind, Bottini has not seen a single serious hemorrhage. For this reason he warns against the use of a permanent catheter. Thus the after-treatment is comparatively very simple. If necessary, the bladder should be washed out daily in order to improve the present cystitis, best with a cold solution, as this will strengthen the contractibility of the detrusor muscles. Bottini's operation leaves the important anatomic parts absolutely intact, without destroying tissues which for certain periods of the life of the male subject are of great importance (vasa deferentia, testicles), and without sharing, to a great extent at least, the dangers of other radical operations (ligation of internal iliacs, total extirpation).

Book Announcements.—Messrs. Lea Brothers & Co. announce for early publication the following books by eminent authorities:

A MANUAL OF OTOLOGY. By Gorham Bacon, A.M., M.D., professor of otology in University Medical College, New York. With an introductory chapter by Clarence J. Blake, M.D., professor of otology in the Harvard Medical School, Boston, Mass. In one 12mo volume, with numerous illustrations.

THE TREATMENT OF SURGICAL PATIENTS BEFORE AND AFTER OPERATION. By Samuel M. Brickner, M.D., visiting surgeon at the Mt. Sinai Hospital, New York. In one volume of about 400 pages, with illustrations.

A TEXT-BOOK OF DENTAL PATHOLOGY, THERAPEUTICS AND PHARMACOLOGY. Being a Treatise on the Principles and Practice of Dental Medicine. By Henry H. Burchard, M.D., D.D.S., special lecturer on dental Pathology and therapeutics at the Philadelphia Dental College, Philadelphia. In one octavo volume of about 550 pages, with 400 illustrations.

THE PRINCIPLES OF TREATMENT. By J. Mitchell Bruce, M.D., F.R.C.P., physician and lecturer on materia medica and therapeutics at Charing-Cross Hospital, London. In one octavo volume.

DISEASES OF THE NOSE, THROAT, NASO-PHARYNX AND TRACHEA. A Manual for Students and Practitioners. By Cornelius G. Coakley, M.D., professor of laryngology in University Medical College, New York. In one volume, 12mo, of about 400 pages, with numerous illustrations, many of which are in colors.

DISEASES OF WOMEN. A Manual of Non-surgical Gynecology, designed especially for the use of Students and General Practitioners. By Francis H. Davenport, M.D., instructor in gynecology in the Medical Department of Harvard University, Boston. Third edition, thoroughly revised and enlarged, with many additional illustrations.

A TREATISE ON GYNECOLOGY. By E. C. Dudley, A.M., M.D., professor of gynecology in the Chicago Medical College, Chicago. In one octavo volume of about 600 pages, with 425 illustrations, many of which are in colors.

A TEXT-BOOK OF ANATOMY. By American Authors. Edited by Frederic Henry Gerrish, M.D., professor of anatomy in the Medical School of Maine. In one imperial octavo volume, copiously illustrated in colors.

MANUAL OF SKIN DISEASES. With Special Reference to Diagnosis and Treatment. For the use of students and general practitioners. By W. A. Hardaway, M. D., professor of skin diseases in the Missouri Medical College. Second edition, entirely rewritten and much enlarged. In one 12mo volume with illustrations.

THE PRINCIPLES AND PRACTICE OF OBSTETRICS. By American Authors. Edited by Charles Jewett, M.D., professor of obstetrics in the Long Island College Hospital, Brooklyn, N. Y. In one octavo volume, with many illustrations in black and in colors.

MESSRS. P. BLAKISTON, SON & CO., have in press the third edition of "Hamilton on Tumors," rewritten and enlarged; copious illustrations.

Against the Caffery Bill.—

ROOMS OF THE NEW YORK
BOARD OF TRADE AND TRANSPORTATION,
203 BROADWAY.
NEW YORK, March 26, 1898.

Hon. JACOB H. GALLINGER,
United States Senate, Washington, D. C.

Dear Sir:—The threatened invasion of this country by cholera in 1892 was the occasion for the appointment by the New York Board of Trade and Transportation of a special committee which investigated with great thoroughness the question of health protection by quarantine in the United States, and the Board cast its influence for the bill which became a law on Feb. 15, 1893, viz.: "An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service."

The epidemic of yellow fever last year in the Southern States, with the attendant loss of life and disturbance of commerce and travel, and the lack of harmony of action between the State, or local and the National Health Authorities, and the inability of the latter to enforce its regulations seemed to call for further legislation.

This Board, therefore, on Nov. 10, 1897, appointed a second able special committee to investigate the existing conditions, and that committee after four months of careful study and inquiry reported its conclusions on March 9, 1898.

The Committee addressed personal letters of inquiry to nearly one thousand professional men, sanitarians and men engaged in transportation and commercial pursuits.

The inquiries were directed mainly to the following points, viz.:

FIRST.—Quarantine status and administration in foreign countries furnishing precedents for the United States. A, Border; B, Internal.

SECOND.—The present status of quarantine in the United States. A, Border Defense; B, Interstate; C, State and Local.

THIRD.—The existing system of quarantine administration in the United States. A, Cost; B, Injury to and Restrictions Imposed on Commerce and Travel; C, Security afforded.

FOURTH.—Legislation needed for lessening injury to and restrictions on commerce and travel, and to afford greater security to the country. A, Increase Power of Marine-Hospital Service and How; or, B, Create a National Department of Health; or, C, Create a National Department of Commerce with a Bureau of Health; or, D, other suggestions.

FIFTH.—The power of Congress under the Constitution to regulate matters affecting the health of the people. A, National; B, Interstate; C, State and Local.

Hundreds of valuable replies were received to these inquiries and only thirteen of them endorsed the proposition to enlarge the powers of the Marine-Hospital Service. All of these thirteen letters contained the one chief argument that the Marine-Hospital Service was a good nucleus to build a National Health Bureau upon.

On the other hand a very large majority of the replies expressed the opinion that the National Government can never hope to create a successful national health organization based upon the Marine-Hospital Service, as a nucleus, because in many States the bitter hostility to the Marine-Hospital Service, engendered by its own acts, is so formidable as to preclude any possibility of harmony between it and such State and local authorities. The opinion was that to give the Marine-Hospital Service still more arbitrary powers, as proposed in the Caffery bill, without the obligation to consult or in any way regard the local authorities, would only widen the breach, intensify the bitterness and render resort to force necessary to carry out the Marine-Hospital Service regulations.

An officer of the Marine-Hospital Service, in his statement to our committee, admitted that under the conditions existing in the South last Fall, the Marine-Hospital Service would have been powerless to enforce its regulations "even if it had the entire standing army of the United States at its command." For this reason few attempts were made to enforce the law locally and none met with success except where State and local authorities co-operated.

The Caffery Bill if passed would be absolutely inoperative unless backed and enforced by United States Marshals or United States troops.

It does not seem possible that Congress contemplates carrying a war of conquest into any of the States of this Union, and it would be the height of folly to enact any health law which would be a dead letter unless enforced by armed officers or troops, and when there is no intention of so enforcing it.

The consensus of testimony before our committee was overwhelmingly in opposition to the letter and spirit of the Caffery bill. It stamped the bill as narrow and wholly inadequate to meet the very pressing needs of the country. The Caffery bill exaggerates the importance of quarantine, and makes no other provision for public health protection, while advanced sanitary science pronounces quarantine to be barbarous and obsolete. The practically uniform opinion was that the country is now ready for a law which will make quarantine of constantly decreasing importance as local sanitary administration shall be stimulated and perfected. And it was very clearly shown that any law that will successfully meet the situation and the needs of the country must of necessity have due regard for the wishes and views of the people, must foster and encourage good will, a spirit of harmony and co-operation between States and between the National authorities and local authorities for

the common well being. The Caffery bill is the antipode of this view. It is abnoxious in its spirit, and would be more so in its enforcement, to the great mass of the American people in all the States.

The Spooner bill, on the other hand, is in full accord with the most enlightened modern views of health protection. It does not abolish quarantine, but in time would bring about conditions which would make quarantine almost unnecessary.

It recognizes several departments of the National Government, and every State and Territory as interested and important factors in the scheme of health protection, and gives to each a voice in the framing of health regulations, and this is done by means of organization so simple as to be immediately moved to action in emergencies. It removes friction and hostility and promotes harmony and co-operation, which are essential to the success of any National health law. It violates no principle of National or local policy.

Our Committee went over all this ground with the greatest deliberation, and although their views upon taking up the question had a decided leaning toward the proposition to give the Marine-Hospital Service the absolute and arbitrary power it asks for, they finally and unanimously reached the opinion that the passage of the Caffery bill would be a serious injury to the people of the United States by delaying and hindering the broader, better, and more certain solution of the problem which the Spooner bill will afford.

Our Committee therefore reported favorably on the Spooner bill recommending some amendments which the Board endorsed most heartily, and, as we are informed, Senator Spooner and the friends of his bill have accepted and incorporated in it.

Our Committee knowing of the great interest you take in this question, and the value which everywhere attaches to your opinions regarding it, have desired me to hand you a copy of their report, which I have the honor to enclose herewith, and to ask for it your careful consideration. They requested me at the same time to make the foregoing statement regarding their investigations and some of the considerations which influenced their conclusions.

I can only add that when I served with you in the House I had the highest regard for the Marine-Hospital Service and still have the greatest respect for it, but conditions have changed and demand a broader and more comprehensive plan of health protection, and I therefore feel that the conclusions of our Committee are wise, practical and patriotic, and I sincerely hope that they will have some influence upon Congress.

I remain very respectfully,

DARWIN R. JAMES, *President.*

Colleges.

ENSWORTH MEDICAL COLLEGE, St. Joseph, Mo., at the twenty-first annual commencement, March 8, graduated twelve new doctors.——The St. Louis College of Physicians and Surgeons awarded 105 degrees March 16.——The graduates from Keokuk (Iowa) Medical College, at the annual commencement March 15, numbered eighty.——The Kansas Medical College, Topeka, conferred eighteen degrees at the annual commencement, March 22.——The eighteenth annual commencement of the University Medical College, Kansas City, Mo., was held March 23; the graduating class numbered sixty-nine.——At the Kansas City Medical College's twenty-ninth annual commencement, March 21, forty-one degrees were conferred.

Hospitals.

THE CHICAGO HOME FOR INCURABLES has received $40,000 from D. B. Shipman, making the erection of an annex increasing the capacity of the institution from 140 patients to 200, possible. — Emergency Hospital, Leavenworth, Kan., was burned recently; loss $8,000.——The Atlanta (Ga.) Hebrew Orphans' Home has received £1500 from the Baroness de Hirsch. The money will be devoted to establishing a hospital in connection with the orphanage.

Louisville.

PHARMACY.—Eleven graduates received diplomas at the annual commencement of the Louisville College of Pharmacy the 27th ult.

QUARTERLY.—With the April issue *Mathew's Quarterly Journal of Rectal and Gastro-Intestinal Diseases* will cease to be issued quarterly, but will appear as a monthly. At a recent meeting of the Louisville Surgical Society it was adopted as the official organ of that Society, its proceedings appearing in it exclusively. It will be changed in name to the *Louisville Journal of Surgery and Medicine*, taking in all branches of medicine and surgery, losing its distinctive characteristics as a special journal, though it is the purpose of the editor, Dr. J. M. Mathews, to include in it this department, as a special feature. Dr. Henry E. Tuley, who has been associated with Dr. Mathews in the *Quarterly*, will not be connected with the monthly.

TRUSTEES.—At the last meeting of the general council the following were elected as members of the Board of Trustees of the Medical Department of the University of Louisville: Drs. George W. Griffith and John Buschemeyer. The term of the incumbent is for ten years, service being without compensation. Dr. Griffith succeeds himself and Dr. Buschemeyer succeeds James A. Leech.

GRADUATES.—The Louisville Medical College held its twenty-ninth annual commencement on the afternoon of the 25th ult. Seventy-four graduates received diplomas.

LICENSE.—The ordinance creating a license of $10 yearly on physicians, dentists, midwives and chiropodists has been approved by the mayor and will at once become a law. The physicians unanimously protested against it by a petition, but to no avail.

Cincinnati.

A BILL has been introduced in the legislature to compel druggists to label all drugs or compounds sold as "poison," which contain poisonous ingredients. This does not apply to physicians' prescriptions.

A BILL has been introduced in the senate to abolish the present State Board of Medical Examination and Registration, and a new one is proposed with the reduction in the salaries of the secretary and members.

THE mortality report for the week shows: still-births, 8; zymotic diseases, 11; phthisis pulmonalis, 11; other constitutional, 7; local, 67; developmental, 7; violence, 4; total, all causes, 107; under one year of age, 20; between one and five years, 17; annual rate per thousand, 13.73; preceding week, 127; corresponding week, 1897, 110; 1896, 123; 1895, 134.

THE annual appropriations for Ohio State medical institutions is announced as follows: Athen's State Hospital, $137,450; Cleveland Hospital, $148,600; Columbus Hospital, $161,125: Dayton Hospital, $117,000; Longview Hospital, $123,000; Massillon Hospital, $150,000; Toledo Hospital, $161,050; Epileptic Hospital, $152,958.

THE senate last week passed a bill to reorganize the State Board of Health by giving it power to assume charge of affairs in localities where contagious or infectious diseases make their appearance and the local board fails to exercise proper precautions against an epidemic, by the establishment of a State bacteriologic laboratory where specimens are to be examined free, upon request, and by a new system of making uniform reports of vital statistics to the various probate judges.

Philadelphia.

PRESENT STATUS OF TYPHOID IN PHILADELPHIA.—The report of the Board of Health of this city for the week ending March 19, shows a rapid decline of the typhoid fever epidemic. It will be remembered that this epidemic started soon after the bursting of a sewer pipe, November 16, which contaminated the Wissahickon Creek and was pumped into the Queen Lane Reservoir. Although the leakage was stopped within fifteen minutes, yet the damage had been done and the outbreak of typhoid occurred until it had reached serious proportions, there being 212 cases in the city the week ending January 22, and 201 cases January 15. The week ending March 19 there were reported 57 new cases with 12 deaths, as against 81 cases and 7 deaths for the week preceding. The total number of deaths for this week were 484, an increase of 21 over last week and a decrease of 59 over the corresponding period last year. Of this number 175 were children under 5 years of age.

THE KLEBS-LOEFFLER BACILLUS AND QUARANTINE IN CITIES.—Gin Sing, a Chinaman, and his son 7 years old, are two citizens of Philadelphia. About three or four weeks ago the lat-

ter suffered from a sore throat but did not seem to be very sick. Cultures from swabs of the throat, made by the city bacteriologic department, however, revealed Klebs-Löffler bacilli. It was demonstrated that the father's throat also showed the presence of this organism, although neither have ever experienced any serious inconvenience from the disease. Gin Sing is now up in arms against the city authorities for having quarantined his laundry although he is not sick enough to go to bed. Dr. J. Howard Taylor, medical inspector of the Board of Health, stated recently that science had so far failed to make any absolute diagnostic differences between the Klebs-Löffler bacillus from certain other bacilli in throat, and that to be sure that no cases of diphtheria should go unquarantined that all cultures showing the former germs would be classed as diphtheria and a quarantine instituted for the proper period, the justice of which can be at once understood.

PHILADELPHIA PHYSICIANS READY FOR WAR.—The Philadelphia Emergency Corps recently adopted the following resolution, subsequently sanctioned by the Mayor:

WHEREAS, The Philadelphia Emergency Corps has always in the past been ready to meet any and all calls to duty in the interest of the public and humanity, be it therefore

Resolved, That its members, an organized body of physicians and surgeons, hereby tender their services to the National Government should the necessity arise for the same.

Signed: Thomas H. Andrews, Medical Director; G. R. Hulsizer, Commander; William H. Ziegler, Herman Bergin, George Sinnamon, Walter Strong and R. B. Judge, Committee.

PHILADELPHIA ALSO AFFLICTED WITH GRIPPE.—La grippe, which has been quite extensive here for the past several weeks, has begun to decline. It became more common toward the latter part of February, owing possibly to sudden changes in the weather. Taken as a whole, it may be said that of those affected the cases were accompanied by excessive coughing and as a rule confined to the respiratory passages. Neuralgic symptoms were common, and extreme prostration accompanied by great chilliness of the body with flashes of heat and cold. Many cases had previously suffered with the disease, which shows the nature of this terrible malady.

Societies.

The following meetings are noted:

Illinois—Champaign County Medical Society, Champaign, March 16; Chicago Academy of Medicine, March 18; Chicago Medical Society, March 30; Peoria City Medical Society, March 22.

Indiana—Montgomery County Medical Society, Crawfordsville, March 15; Vanderburg Medical Society, Evansville, March 15; Vigo County Medical Society, Terre Haute, March 17.

Iowa—Scott County Medical Society, Davenport, March 17.

Maryland—Baltimore County Medical Association, Baltimore, March 17.

Missouri—Marion County Medical Society, Palmyra, March 17; St. Louis Medical Society of Missouri, March 19 and 26.

New York—Syracuse Academy of Medicine, March 22.

Ohio—Erie County Medical Society, Sloane, March 17; Lucas County Medical Society, Toledo, March 18.

Pennsylvania—Gloucester County Medical Society, Woodbury, March 17.

CHANGE OF ADDRESS.

Allen, G. V., from Topeka, Kas., to Murray, Neb.
Birkofer, W. J., from Thor to Dickens, Iowa.
Booker, F. E., from 511½ N. 6th to 308 N. 12th St., Richmond, Va.
Brown, A. P., from St. Louis, Mo., to Elberfield, Ind.
Brashear, B. B., from 211 Prospect St. to "The Clarendon," Cleveland, Ohio.
Burkhart, J. R., from Keokuk to Fort Madison, Iowa.
Best, W. W., from Louisville, Ky., to Bolckow, Mo.
Cryer, M. H., from 1527 Arch to 1420 Chestnut St., Philadelphia, Pa.
Cheadle, C. M., from Keokuk, Iowa, to Buda, Ill.
Corr, A. C., from Chicago to Carlinville, Ill.
Crockett, E. N., from St. Louis, Mo., to Long Creek, Ore.
Furay, C. E., from 2237 Seward to 2409 North St., Omaha, Neb.
Gibbs, M. D., from Hartford to Mendota, Mo.
Griffin, J. M., from Lathan to Rocky Mount, Mo.
Germer, H. G., from Chicago, Ill., to Canastota, N. Y.
Hargrove, P. M., from Keokuk, Iowa, to Kidder, Mo.
Haines, J. P., from 10 E. 22d St. to Madison Av. and 26th St., New York.
Jorgeusen, P. P. M., from Iowa City to Zwingle, Iowa.
Kauffman, E. J., from Cincinnatti, Ohio, to 14 E. 17th St., New York.
King, D. H., from Keokuk to Abington, Iowa.
Kinueman, J. G., from Indianapolis to Mexico, Ind.
Kelsey, T. W., from Indianapolis to Converse, Ind.
Laibe, F. J., from 831 Milwaukee to 711 N. Claremont Av., Chicago.
Luehr, E., from 256 92d St. to 9241 Houston Av., Chicago.
Laymau, R. B., from Louisville, Ky., to Dandridge, Tenn.
Mills, W. A., from 33 W. Lexington to 302 Dolphin St., Baltimore, Md.
Mosher, M. D., from Keokuk, Iowa, to Sandwich, Ill.
McManus, E. A., from Detroit to Sherman, Mich.
Morrow, A. M., from Keokuk to Salina, Iowa.
McDougall, G. T., from 70 Farrell Av. to 588 11th St., Milwaukee, Wis.
Mott, B. I., from 705 Nicollet Av. to Sykes Blk., Minneapolis, Minn.
Nulton, Ida, from Keokuk, Iowa, to Hartford, Mo.
Patch, Wm., from Sibley to Ellsworth, Ill.
Pence, L. W., from Iowa City to Fertile, Iowa.
Parrington J. M., from Indianapolis, Ind., to Emporia, Kas.
Robinson, J. L., from Keokuk to Monroe, Iowa.
Ryan, W. C., from Keokuk to Croton, Iowa.
Rives, W. C., from New York, N. Y., to Readville, Mass.
Smith, L. E., from 70 E. Pine to 117 W. 8th St., Chattanooga, Tenn.
Stover, E. E., from Iowa City to Lucas, Iowa.
Sugfield, H. D., from Keokuk, Iowa, to Ferris, Ill.
Spiller, O. C. H., from Indianapolis, Ind., to Maynard, Texas.
Thielen, M. H., from Iowa City, Iowa, to Chanute, Kas.
Taylor, A. A., from 915 I St., N. W., to 1103 H St., N. W., Washington, D. C.
Walker, H. T., from Keokuk to 857 Delhi St., West Dubuque, Iowa.
Wright, John, from San José, Cal., to Clinton, Ill.
Williamson, A. A., from Indianapolis to Kingman, Ind.
Woods, E. A., from 720 14th Av., S. E., to 324 15th Av., S. E., Minneapolis, Minn.

LETTERS RECEIVED.

Allen, J. B. (2), Cambridge City, Ind.
Brown, A. P., St. Louis, Mo.; Burns, H. H., Athol, Mass.; Bouffleur, Albert I., Chicago; Bovee, J. W., Washington, D. C.; Barker, L. T., Baltimore, Md.; Burr, C. W., Philadelphia, Pa.; Brown Hotel Company, The, Denver, Colo.; Brewster, Q. E. Boston, Mass.
Cabor, A. C., Boston, Mass.; Cleveland, A. H., Philadelphia, Pa.; Capron, F. P., Providence, R. I.; Cheatham, Wm., Louisville, Ky.; Conuor, Leartus, Detroit, Mich.; Cuthbertson, Wm., Chicago; Cleveland College of Physicians and Surgeons, Cleveland, Ohio; Capp, S. B., Devon, Pa.; Cannaday, Chas. G., Roanoke, Va.
De Courey, J. O., St. Libory, Ill.
Elliott, H. G., New York, N. Y.
Frederick Co., Purdue, The, New York, N. Y.; Fox, L. Webster, Philadelphia, Pa.; Fowler, G. R., Brooklyn, N. Y.; Farics, Randolph, Philadelphia, Pa.; Feick Bros., Pittsburg, Pa.; Friend, Samuel, Milwaukee.
Gibson, Maris, Wilkesbarre, Pa.; Garber, J. B., Dunkirk, Ind.; Gerstein, Maurice, Boston, Mass.
Hemmeter, J. C., Baltimore, Md.; Hotz, F. C., Chicago; Hoyt, Frank, Clarinda, Iowa; Hare, H. A., Philadelphia, Pa.; Hall, Chas. Lester, Kansas City, Mo.; Hummel Advertising Agency, A. L., New York, N. Y.
Kelley Co, I. W., Chicago; Keiper, Geo. F., La Fayette, Ind.; Knapp, H., New York, N. Y.; Kane, Thomas L., Kane, Pa.
Lord, J. P., Omaha, Neb.
Laura Memorial Womau's Medical College, Cincinnati, Ohio; Lusk, Z. J., Warsaw, N. Y.; Lea Brothers & Co., Philadelphia, Pa,; Lockhart, J. W., Elo, Wis.; Loveland, B. C., Clifton Springs, N. Y.
Miller, Allen, Edgington, Ill.; Murray, J. A., Clearfield, Pa.; Mears, J. E., Philadelphia, Pa.; Miller, A. E. Boston, Mass.; Mastin, C. H., Mobile, Ala.; Makuen, G. H., Philadelphia, Pa.; Millbury, F. S., Brooklyn, N. Y.; Mayo, C. H., Rochester, Minn.; Monette, George M., New Orleans, La.; Mettler, L. Harrison, Chicago; Michael, Geo. J., Citronelle, Ala,
Newberry Library, The, Chicago; Newell, H. W., Baltimore, Md.
Penhall, F. W., Morton, Miun.; Pietrzycki, M., Dayton, Wash.
Roler, A. H., Chicago; Reynolds, Arthur R., Chicago; Root, E. H., Chicago.
Simmons, D. G. Adairville, Ky.; Shoemaker, John V., Philadelphia, Pa.; Steele, J. D., Philadelphia, Pa.; Stickler, J. M., Orange, N. J.; Sellers, C. P., Zanesville, Ohio; Seibert, W. H., Steelton, Pa.; Stearns, Frederick, & Co., Detroit, Mich.; Shimoueck, F., Milwaukee, Wis.; Schwab, L. W., Chicago; Sargent, E. H. & Co., Chicago; St. Charles Condensing Co., St. Charles, Ill.
Theleu, F. A. Arliugton, Ill.; Turnbull, Laurence, Palm Beach, Fla.; Trelease, Wm., St. Louis, Mo,; Tiemann, Geo., & Co., New York, N. Y.
Weaver, H. B., Asheville, N. C.; Watherill, G. H., Denver, Colo.; Woodhull, Alfred A., Denver, Colo,; Ware, Lyman, Chicago; Woldert, E. A., Philadelphia, Pa.; Way, J. Howell, Waynesville, N. C.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from March 19 to 25, 1898.

Major Heury McElderry, Surgeon, is relieved from duty at Ft. Leavenworth, Kan., and will proceed to Omaha, Neb., and report in person to the commanding General, Dept. of the Missouri, for assigument to duty as chief surgeon of that Department.

Major George H. Toruey, Surgeon, will be relieved from duty at the U. S. Military Academy, West Poiut, N. Y., on or about June 1, 1898, and ordered to Ft. Leavenworth, Kau., for duty.

Major John M. Banister, Surgeon, will be relieved from duty at Ft. Leavenworth, Kan., upon the arrival there of Major Torney, and ordered to the U. S. Military Academy, West Poiut, N. Y., for duty.

Capt. Robert J. Gibson, Asst. Surgeon, is relieved from duty at Ft. Thomas, Ky., and ordered to Ft. Meade, S. Dak., for duty.

Major Louis W. Crampton, Surgeon, will be relieved from duty at Ft. Meade, S. D., upon the arrival there of Capt. Gibson, and is ordered to Ft. McHenry, Md., to relieve Major Charles K. Winne, Surgeon.

Major Henry McElderry, Surgeon, now at Ft. Leavenworth, Kan., will proceed to Hot Springs, Ark., and report to the commanding officer of the Army and Navy general hospital for treatment therein.

Major Egon A. Koerper, Surgeon, the order assigning him to duty as chief surgeou, Dept. of the Platte, is revoked.

First Lieut. Charles Lynch, Asst. Surgeon, is relieved from duty at Ft. Sheridan, Ill., to take effect upon the completion of his examination for promotion, and ordered to Galveston, Texas, for duty.

First Lieut. John H. Stone, Asst. Surgeon, is relieved from duty at Ft. Riley, Kan., and ordered to Ft. Leavenworth, Kan.

Capt. Jeffersou D. Poindexter, Asst. Surgeon, is relieved from duty at Willets Poiut, N. Y., and from temporary duty at Ft. Hamilton, N. Y., aud ordered to report to Capt. William C. Gorgas, Asst. Surgeon, for the purpose of assisting him in examining recruits in that city, including the borough of Brooklyn.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on Cutaneous Medicine and Surgery at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY A. RAVOGLI, M.D.

CINCINNATI, OHIO.

It is extremely grateful to me on this happy and memorable occasion of the fiftieth anniversary of this great National ASSOCIATION, to have the honor of welcoming you to the City of Philadelphia as Chairman of this Section. This great city where the bell rang the first time for the freedom and the independence of the United States, has been the birthplace of the AMERICAN MEDICAL ASSOCIATION, one of the largest and most powerful medical organizations in existence.

To recall to you the beginning of this ASSOCIATION, its motives and its scope would be out of place, I will therefore limit myself to a few points of history concerning our special Section.

In 1869, at the annual meeting the assembly adopted a resolution which recognized specialties as a proper and legitimate field of practice. From that time several sections of medical branches were established, no one, however, showed the necessity of a section on the diseases of the skin.

If any work on dermatologic subjects was presented previous to the publishing of the JOURNAL, I was unable to obtain information as to its existence.

Dermatologic work appeared in 1883, when Dr. J. V. Shoëmaker of Philadelphia, read an elaborate paper, "Mechanical Remedies in the Treatment of Skin Diseases," to the Section of Practice of Medicine and Materia Medica at the annual meeting in Cleveland. He considered all the different applications and surgical operations on the skin from the dermatologic standpoint.

In 1884, in the same Section of Practice of Medicine and Materia Medica in Philadelphia, Dr. Louis A. Duhring read a paper on "Dermatitis Herpetiformis." He, for the first time, published his ideas concerning a group of bullous eruptions, which were wandering without a name between eczema, herpes and pemphigus. It is not necessary for me to make any comment on this work, all dermatologists in every country have accepted his views, and dermatitis herpetiformis type, Duhring, is an established group of dermatoses.

For some years I could not find that any papers concerning dermatology were presented to this ASSOCIATION, until in 1887 Henry J. Reynolds read to the Section of Medicine, Materia Medica and Therapeutics a paper on "A New Method of Producing Local Anesthesia of the Skin." The paper was one of great interest concerning the anesthetic action of cocain by cataphoresis. He showed that with the application of a sponge saturated in a 5 per cent. solution connected with the positive pole local anesthesia of an area of the skin, where a dermatologic operation had to be performed, could be produced.

At the same meeting Dr. L. Duncan Bulkley of New York, read a paper, "Infant Feeding, Especially with Reference to Subjects with Infantile Eczema," to the Section on Diseases of Children. This paper has remained a model on this important subject. Bulkley moreover read another paper on "The Treatment of Felon Without Incision," in the Section of Medicine, Materia Medica and Therapeutics.

As you see, at that time the dermatologic work could find no place; it was scattered in the different Sections without recognition.

It was at the meeting in Central Music Hall in Chicago in 1887, through the zealous and indefatigable work of L. Duncan Bulkley, it was determined by the general assembly to increase the number of sections, and the Section of Dermatology and Syphilography was formed. This was the first time that dermatology and syphilography obtained recognition from the ASSOCIATION, and very justly L. Duncan Bulkley was elected Chairman, and T. F. Dunlap of Danville, Ky., Secretary.

In Cincinnati, May 8, 1888, this Section was called to order for the first time. Dr. Bulkley, Chairman, read an interesting paper on "Syphilis as a Non-veneral Disease."

I beg to refer to a few words pronounced at that time by the Chairman, expressing plainly and thoroughly the scope of our Section of the AMERICAN MEDICAL ASSOCIATION. "We gather here today at the first meeting of the Section on Dermatology and Syphilography of the AMERICAN MEDICAL ASSOCIATION, and in a measure to celebrate the recognition of this branch of medicine as a special department by the great representative medical organization of America. It is therefore an occasion in which those interested in this department of study and practice should feel a peculiar interest, and should particularly rejoice, for it certainly indicates an advance in medical thought and liberality, a broadening of the field of work of our ASSOCIATION, and it is to be hoped a benefit to the profession and community. The present Section is organized for work for the practical consideration of topics related to diseases of the skin, and it is hoped that it will contribute greatly to making dermatology a more interesting and successful field of labor, not only to those particularly engaged in this line of practice, but also to the general practitioner, to whom this branch often presents unusual difficulties."

I am unable to express in a better way the scope of the work of this Section, and these lines given by my predecessor will remain as an unchangeable law.

The first meeting was an assured success; papers of scientific and practical value were read by Zeissler and Reynold of Chicago; Ohmann-Dumesnil of St. Louis; Corlett of Cleveland; Fleischner of New

Haven; Palmer of Louisville; Juler and Ricketts of Cincinnati and many others. Several discussions were opened on important topics, as the "Etiology and treatment of eczema," by Bulkley, and the "Limit of the period during which syphilis can be communicated by contagion or inheritance," by L. B. Bangs of New York. It would take too long to give even the titles of the papers, which were read and review the discussions, but there is no doubt that this Section at the first meeting did good and profitable work.

In 1889 the meeting was held in Newport, R. I.; L. Duncan Bulkley remained the Chairman and W. T. Corlett was elected Secretary. The Chairman opened the meeting with an able address on "Recent Advances in the Treatment of Diseases of the Skin." Discussions were opened, one by Wm. T. Corlett and Henry Fleishner on the treatment of tinea tonsurans, another by L. Duncan Bulkley on "The Indications for and duration of the Treatment of Syphilis." Interesting papers were read by J. V. Shoemaker, Fred Levisseur, George T. Elliott, Ephraim Cutter, Abbott Cantrell and many others, closing the work with a paper by Bulkley, "The Early Recognition and Treatment of Epithelioma."

At the annual reunion in May, 1890, in Nashville, Tenn., Dr. Bulkley was again Chairman, and W. T. Corlett Secretary. The first read an address on "The Relative Value of Mercury and Iodin Compounds in the Treatment of Syphilis," and the second spoke on "The Effect of Boracic Acid on the Skin." Dr. M. B. Ricketts of Cincinnati reported two cases of atypic herpes zoster gangrenosa, and a few remarks on dermatitis herpetiformis were made by Ravogli. No report was given by the Secretary for this year and not even the program could be found.

In the same way no report of the Section was given for the 1891 annual meeting, held in Washington, D. C. Dr. Bulkley was still the Chairman. He read an address entitled "Clinical Notes on Lichen Planus." A complete report of the year 1892 shows excellent work done by this Section at the meeting in Detroit. Dr. Bulkley was again the Chairman and Ravogli was elected Secretary *pro tempore*. Over 100 physicians visited our Section. Papers of great importance were read, opening with the address of the Chairman on "Recent Advances in the Treatment of Diseases of the Skin"; more than twenty different dermatologic topics were presented and discussed by the members present. At this meeting Dr. Louis A. Duhring was elected Chairman and Dr. W. H. Dunlap Secretary.

The place of meeting for 1893 was Milwaukee. An interesting address was delivered by the Chairman, Dr. Duhring on "The Scope of Dermatology," and over twenty papers on dermatologic subjects were read and discussed.

At the meeting in San Francisco in 1894, Dr. Ohmann-Dumesnil of St. Louis, was Chairman of the Section, and Dr. L. F. Frank of Milwaukee, Secretary. In 1895 Dr. E. Regensburger of San Francisco, was Chairman, and Dr. D. H. Raud of Portland, Ore., Secretary. No report of the work of this Section can be found in the JOURNAL for these years, and not even the programs appear in the records.*

In 1896, at the meeting of Atlanta, Dr. L. Duncan Bulkley of New York, was Chairman, and Dr. T. C. Gilchrist of Baltimore, Secretary. An interesting and elaborate address was read by the Chairman on the "Newer Remedies used in Diseases of the Skin up to Date," referring to all new remedies and applications from his own practical experience. The program was one of the most important by reason of the selections of subjects and the work done by their authors.

It was at that meeting that I received from you the honor of being made Chairman of the Section.

Now at the celebration of the fiftieth anniversary of the ASSOCIATION, we have reason to congratulate ourselves for the work done by our Section since it was formed and recognized by the AMERICAN MEDICAL ASSOCIATION. The work which has been done is such as no other dermatologic society could do better. Our work is more of a practical character, and has the scope of placing dermatologic questions before the general practitioner and interest him in this medical branch. For many years dermatology has been for the generality of practicing physicians a *terra incognita*, and its study difficult or distasteful. But when we choose plain subjects adapted to the knowledge of the generality of practitioners, then we make this branch of medicine pleasant and interesting to all. Jonathan Hutchinson in his address, "The Future of Dermatology" at the meeting of the British Medical Association said, that "the aim of all true-hearted specialists was to break down the walls of specialism." This assertion has been happily repeated by Bulkley in his second address to this Section, saying that the Section on Dermatology and Syphilography is organized for work in the line of practical dermatology, and as a Section of the AMERICAN MEDICAL ASSOCIATION it should be attended by members who are not dermatologists, and subjects should be presented which are of practical interest and value to the general practitioner.

The study of dermatology is, in fact, so intimately connected with general pathology, that it is impossible to establish a rational treatment, without considering the skin lesion in reference to the physiologic and pathologic conditions of the general system. Dermatology has contributed much to the advances of general medicine. The study of the different morbid processes in the skin has increased the knowledge of the internal alterations, and has removed many erroneous ideas of the metastases. The morbid phenomena which occur in the skin are seen during life, and place the observer in a position to compare these, with what happens in the internal organs, which can be observed only after death.

If we consider, for instance, the group of herpes which have given origin to the myth of an herpetic diathesis, we find it clearly demonstrated to be in connection with the disturbances of the peripheral ganglia of the nerves. In the same way cases of nevi, leucodermiæ, atrophy of the skin and scleroderma, have been referred to conditions of peripheral neuritis. Many skin eruptions of the great family of the erythema originate from disorders of the vasomotor nerves. And again, that which produces this disorder of the vasomotor nerves has been found to be the toxins or toxalbumins resulting from an imperfect digestion, or from a stasis of the feces in the intestines, or from imperfect chemic changes in the metabolism of the tissues, acting as a poisoning agent on the center of the vasomotor nerves, causing erythematous eruptions. In the same way a large number of medicines are capable of producing eruptions of the skin which may be mistaken for almost any kind of dermatosis from a iodic acne to an arsenic cancer.

* NOTE.—None of the papers were ever received by the JOURNAL.—ED.

Often, in cases of gangrenous spots, or of localized erythema, we find the presence of sugar in the urine and today we know xanthoma diabeticorum as a manifestion of diabetes.

Since the discovery of the tubercle bacillus by Koch, it has been demonstrated that lupus vulgaris and other ulcers are only localized forms of the tubercular disease in the skin. It has also been shown that the tubercle bacillus can remain circumscribed in the tissue of the derma without producing infection. The infectious power, however, is not lost by the bacillus, which has for some years remained encapsuled in those tissues, and at any period we find that fresh lupus eruptions take place in old scars, healed long ago.

In lupus vulgaris multiplex, where many patches are present, we have some infection, and we find that potency of infection exists as we may have a rapid spreading of the lupus lesions in many regions of the body. The tubercle bacillus, however, remains in the tissues which it has affected, and for this reason the local treatment of lupus gives no anxiety as to the reproduction of tuberculosis in other organs.

Lupus erythematosus, which could not find a nosologic place, has been found to be a variety of tuberculosis of the skin, and has been associated with lupus vulgaris as a result of tuberculosis.

The action of tuberculin on the tubercular tissues could not be demonstrated in any other way than in the tubercular affections of the skin, and the first experiments with Koch's tuberculin were made on cases of lupus, showing the local reaction of the tissues invaded by the tubercle bacillus.

The combination of diseases has made clear many obscure points of pathology and the possibility of the existence of tubercular affections mixed with cancer is an assured fact, in lupus cancer.

Indeed, many simple granulomata of the face, or limited inflammatory processes, in time are changed to cancerous growths, due to cellular predisposition.

The knowledge of the parasites of the skin has greatly advanced general medicine, and, moreover, bacteriology has shown the local origin of the infection of so many diseases in the different organs composing the skin. The rôle played by the staphylococcus albus, aureus, etc., in the production of the different kinds of sycoses, in the furunculoses, in impetigo, the streptococcus in erysipelas, etc., show plainly the intimate relations existing between the general practitioner and the dermatologist.

The knowledge of syphilis, which takes so great a part in producing cutaneous lesions, is a portion of dermatology, which widely concerns the general medical practitioner. It refers to an immense field of important questions, which have to do, not only with the affected individual, but also with the happiness of his family. In many cases we can not find much in the history of the patient, and only by the condition of the skin and from other accompanying symptoms can we come to a conclusive diagnosis. In every stage of syphilis the skin is more or less involved, and it affords us the explanation of symptoms which could be mistaken for different affections. It is not necessary to remind you of the different affections of the various organs due to syphilis, which the general practitioner sees more often than the specialist. The advice often asked in reference to marriage, gestation, lactation, and the condition of the offspring, touch at first the general practitioner, and only afterward the specialist.

The therapeutics of diseases of the skin has shown clearly the necessity of connecting the skin lesions with the conditions of the general system in order to obtain decided results. With the exception of arsenic, which has a peculiar direct action on the eruptions of lichen and in some bullous eruptions, and of mercury for syphilis, we can not point out specific remedies in the therapeutics of the dermatoses. One of the most important points for the dermatologist is to institute a general treatment directed to correct the prevailing systemic disturbances, which are the cause of the trouble in the skin. We often see cases of nervous eczema which have been treated with external applications unsuccessfully, and only after a well directed internal treatment and a well adapted diet can it be brought to complete recovery. What I have said of this single instance can be applied to a large number of skin affections, which for a time have been regarded too much as purely local.

From the above considerations we see that dermatology can not be circumscribed within the limits of specialism, but it is one of the medical branches of much importance for the general physician and surgeon. THE AMERICAN MEDICAL ASSOCIATION having formed this Section has opened and widened the field of medical knowledge. It has placed within the reach of the general physician the study of dermatology, and has interested all practitioners in its study. In nearly all of the best medical colleges of this country dermatology and syphilography is now a special chair, and the students are compelled to pass examination in it. Clinical lectures on dermatology are delivered in many hospitals to the students, and the young physicians are now well acquainted with this medical branch. I am sure that the lack of knowledge of the diseases of the skin in this country, so lamented by Dr. A. R. Robinson in his address to the Section of Dermatology and Syphilography, at the International Medical Congress, in Washington, in 1887, has greatly diminished, and the AMERICAN MEDICAL ASSOCIATION has contributed its share by recognizing this branch among the Sections. I would now ask, through this great organization, that every regular college in the Union have the chair of dermatology and syphilography, with a final examination in these branches. This we will surely obtain when the physician realizes the imperative necessity of a knowledge of this branch.

From all I have said you can see that our Section has done good and important work. At the fiftieth anniversary of the ASSOCIATION, although scarcely ten years old, it shows a number of papers and discussions on interesting dermatologic subjects.

There is no doubt that the work of the American dermatologists has been recognized in the scientific world, and every year important treatises, interesting observations and scientific pamphlets are issued from this country, so that American dermatology is second to no other.

By placing this study within the reach of all practitioners, by compelling the students to pass examinations in dermatology, breaking this wall of specialism, we are sure that the future of dermatology will be much more brilliant and important. From the past we can judge of the future; if this Section in less than ten years has achieved so much, we can foresee that in the future it will be of greater honor to the members, of greater importance to the general physician, and of greater benefit to suffering humanity.

MODERN METHODS OF MEDICAL INSTRUCTION.

In response to a toast at a dinner of the Rush Medical College. March 17, 1898.

BY HENRY BAIRD FAVILL, M.D.
CHICAGO. ILL.

Mr. President and Gentlemen of the Faculty:

My interest in this matter is not greater than my marvel at the enormous advance which has occurred within the short space of years, since 1880, when my medical college experience commenced. And yet in drawing the comparison, which so forcibly presents itself, I must declare that it is not to the discredit of the early day, any more than that day was a rebuke to its predecessor. I believe that you will agree with me, that medical education offered to students at that day was as nearly abreast of the education possible for them, as is our present exhibition an approach to the present possibility. The great difference in spirit which strikes me as occurring in respect to medical education in general, lies in the attitude of the public toward the profession or more exactly of the State toward the medical school. In this the change is very pronounced and I believe the advancement is very clear. It is on the whole a matter for congratulation both to the schools and the profession at large, that society has seen fit to demand that we require of the medical graduates as good an education, as we offer. That this change has been instigated by the profession, is to its credit and does not qualify the advantage so far as society is concerned. That the means and methods to this end have been at times unreasonable, inconvenient, and are in many respects meddlesome, is but a passing annoyance as compared with the final advantage, which resides in the fact, that while the public is properly protected the medical schools are relieved of the embarrasment of illegitimate competition, and the entire process operates as a measure whereby there is culled the unfit material.

When we come to consider our own more specific interests as educators we would designate amongst many improvements three features in particular which claim our earnest consideration: First, the laboratory; second, the clinic; third, the recitation.

Of the laboratory too much can not be said, little need be said. It represents the utmost development of the educational idea. To have incorporated it in our own affairs to the extent possibly of disproportionate development credits us naturally with the desire to be entirely *en rapport* with the march of education in every department.

To one who has not had the advantage of a technical laboratory training, but whose interest and ambition have led him to the acquirement of lame and half satisfying methods in furtherance of his desire for power, the idea of laboratory training is most alluring. Recognizing this, it suggests to me qualifications upon which I wish to comment. The laboratory factor is liable to over-estimate in two directions: 1, by many of those who have had no laboratory experience, to whom the revelations of the laboratory assume an exaggerated importance, in consequence of the mystery which surrounds them; and on the other hand, 2, by those whose training assures their position as laboratory experts and whose occupation is of that fortunate stripe, rare in medicine, which results in the demonstration of things. These men for whom I have the most profound respect, naturally regard things from the laboratory standpoint, and being engrossed in it and trained to the primary idea of truth as dependent upon demonstration, are not quite prepared for the consideration of subjects which have as yet no laboratory point of view.

Many of these men have neither the inspiration for, nor the tolerance of the field of speculative medicine, within which, however, occur those projected lines, along which the correlation of knowledge for its practical application must occur.

These two reservations are of minor significance except as considered in the light of curriculum, and serve to emphasize merely the indisputable fact, that in producing a balanced result, medical reasoners, as complementary to medical investigators, are indispensable.

Our enconium upon the laboratory can not be diminished when we take up the subject of the clinic. Here there opens before us the hope of the future. Though the clinic has always existed, it is today in form and in spirit, quite different. The general clinic with the full amphitheater, though it remains in the form, is no longer the arena for the demonstration of the prowess, or for the personal aggrandizement of the professor. It is solely for the purpose of bringing the student in intimate contact with conditions which are to be in the future his perplexities, and as such is capable of being made most effective. The thing, however, which we earnestly crave is the clinic for small classes, the smaller the better.

The first advantage claimed for this, is that the student being permitted to examine the patients, and required to make a diagnosis, becomes immensely strengthened. This is in a measure true, though I believe those who are teaching clinically would agree with me that even this is subordinate in importance to the fact, that the interchange of thought between the students and instructors, in immediate presence of the subject, is usual, to a degree which in a large class is impossible.

I approach that which is to me at this moment of somewhat more immediate interest, the recitation.

In this innovation, we find the most signal departure from time honored method, and properly administered the most promising foundation for broad education. I repeat, properly administered, because I am positive that improperly administered it is a source of weakness. I stipulate, among many things, four which are primary to its propriety.

First, that the classes should be small, because we accomplish thereby, in this compactness, manageability, which includes the greater facility in determining the current acquisition of the students. And second, I would stipulate that the text employed be various. It is necessary for obvious reasons to have a uniform text, designated as a skeleton upon which to build, but I am emphatic in my declaration, that students should be encouraged to seek the information preparatory to the recitation, from all available sources, and that this exercise should be the meeting ground upon which should be thrown all possible side lights, and upon which should be harmonized, as far as possible, whatever apparent conflict may arise. Thus we lay the foundation for breadth of view.

I approach the third requirement with hesitancy, yet I trust even by my colleagues who are touched by this, that I shall not be misunderstood. I believe that the instructors should be men of experience, more or less according to the subject involved, but

with the firm conviction that the more experienced the better. I am sure that no man is so capable of illuminating the obscure path, as one who has been lost in it.

The combination of intelligence and sympathy which results from such experience is invaluable to the teacher. To have these conditions satisfied ideally, particularly at the outset of the new regime, is impossible. To build toward them is imperative.

To this end I suggest, that every effort be made to retain in the service of the institution, the men who justify their relation to it, and at every hand to so dignify their relation, that the feeling of responsibility shall reinforce the interest which may flag under neglect.

Fourth, and most important, comes the question as to the relation of the instructor to his class. Shall he be a critic whose function begins and ends with an inquisition as to the presence and industry of his students as evidenced by their ability to recite, which function I would not underrate, or shall he be in addi tion, an expounder of the subject?

That the latter should be admits of no question.

In the first place because medical literature is unfortunately obscure and needs intelligent presentation. In the second place medical information is shifting and needs a current commentator for the correction of the misconceptions of the past. These facts being beyond dispute, the question simply remains, shall this important work be done by the instructors or by the professor at large, if I may use the term?

Assuming the competency of the instructor, I unhesitatingly select him for the function for two reasons: First, because with the assumed limited class one secures the psychologic advantage of man to man contact. Second, because the essence of instructive analysis is interrogation, which implies a slowness of procedure, and a quality of relationship, which is possible only in the class room.

It might be queried in the light of all this disposition of labor into the departments of subordinate instructors, what becomes of the chief faculty. Are they, in the new adjustment, mere figure-heads? I confess that in the extravagance of expression which one sometimes hears in discussion of the new regime, it might so appear. To me the assumption of higher achievement through the working out of the processes just discussed, implies a field of usefulness for the heads of the departments enormously elevated and dignified. It is true that much of the detail of their labor is cut off. It is true that much of the prominence of a certain kind is removed, but I call your attention to these facts.

In medicine as in no other field of research, there is at present no such thing as fixed authority. The dictum of no man is better than another's, except in so far as the depth of his research or breadth of his experience and the integrity of his reasoning process, justifies it. The profession has not to deal with an accumulated mass of settled fact. It has to deal with an enormous reservoir of knowledge, into which flow streams of more or less disconnected observation. But for every drop of fixed knowledge, there is a flood of interpretation, and upon the selection of the instrument of interpretation will rest the value of the store which the student may acquire.

Is the student about to be graduated capable of being his own interpreter? Is he sufficiently in possession of the facts, and has he the perspective to enable him to wisely select the theory and adopt the practice under such conditions? Assuredly, most assuredly not. Here then lies the highest prerogative of the department head.

To him let it fall to summarize knowledge, to analyze experience, to harmonize conflict. And in so far as he is fortunately possessed of personality, to so impress himself and his wisdom upon the students that he utter for their provisional guidance a working hypothesis, as indispensable here as elsewhere, which shall bear the stamp of the organic body, which launches its graduates.

ORIGINAL ARTICLES.

A CASE OF MENINGOMYELITIS, RESEMBLING IN SOME RESPECTS LANDRY'S PARALYSIS, WITH SPECIAL REFERENCE TO TUBERCULOUS MENINGOMYELITIS.

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Presented to the Section on Neurology and Medical Jurisprudence at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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The case which is reported in this paper was studied clinically by Dr. James Hendrie Lloyd, during one of his terms of service at the Philadelphia Hospital, and the clinical notes were taken by him.

J. H. A. was 40 years of age at the time of admission to the Philadelphia Hospital, June 27, 1894. He gave no history of hereditary disease, and stated that previous to his present illness. he had always been in good health, with the exception of a constant sick headache, which he had had since the age of 3 years. This was sometimes accompanied by vomiting. No treatment gave him relief. During the year previous the headache had been growing less severe, and during the two months before his entrance into the hospital it had ceased entirely. He denied having used alcohol, or having had venereal disease. In earlier life he had been a school teacher, later a grocer.

Eight weeks before his admission, a drunken man had entered his house and smashed a lamp. He had become greatly excited by this, and had had a severe nervous shock, as he expressed it. Inquiry elicited from his brother the information that the patient had had domestic trouble, and that this person said to be a drunken man was in reality the patient's intoxicated wife. There was evidently at this time a mental disturbance, due possibly, as indicated by the microscopic findings, to cerebral meningitis or bacterial poisoning. A few days later he says he had an attack of stomach trouble, and yet he could give no history of the symptoms of gastric disease. He had had no pain, had not vomited, and had been able to eat anything with impunity. Dr. Lloyd obtained from his friends the statement that his condition resembled that of typhoid fever. He was sick in bed for one month and recovered at the end of that time, but did not work. Two weeks later he had an attack of nervousness, as he expressed it, in which he trembled very much. During the two weeks previous to admis-

sion to the hospital, his arms became weak and he was unable to dress or feed himself. At nearly the same time weakness of the legs was noticed. He had absolutely no pain. When he sat down he could not rise without assistance. His bowels were regular and his appetite good. The report of the examination made by Dr. Lloyd at the time of admission, June 27, 1894, is as follows: The patient was found to have inability to pass his urine and it was necessary to catheterize him; later he developed incontinence.

He was a thin, anemic man, apparently not 40 years old. His speech was rather slow and not well articulated, and had been of this character for ten days, according to his statement. His eyes were injected. Spasms of the orbicularis palpebrarum were frequent. There was no nystagmus. His pupils were equal and responded to light and in accommodation. The visual fields were normal. Hearing was not impaired. His tongue was protruded in a straight line, was heavily coated, and presented some fibrillary twitchings. His chest was poorly developed, though the respiratory expansion was normal. The apex of the right lung presented dulness posteriorly, increased tactile fremitus and crackling râles. The left apex posteriorly also gave some dulness. The pulse was rapid and weak, and the arteries were very much thickened. The apex beat of the heart was in the fifth interspace outside the nipple line, and easily seen. A murmur, not transmitted, presystolic in time, was detected at the apex. The abdomen was scaphoid in shape. The liver and spleen were of normal size. Voluntary flexion and extension of the left upper limb at the elbow were impossible, and much impaired at the wrist. Pronation and supination of the left forearm were imperfect. Voluntary flexion was possible at the right elbow, but the power of extension was lost, otherwise the conditions were the same as in the left arm. The pectoral, supra- and infra-spinous muscles were intact. The dynamometer registered 20 in both hands. All the voluntary movements of the lower extremities were imperfect. There were no areas of anesthesia. The knee jerks were exaggerated, but sluggish; the muscle jerks were also exaggerated; ankle clonus was obtained but soon exhausted, wrist clonus was also observed. On mensuration the following figures were noted:

	June 27.	July 8.
Right upper limb at shoulder	13 inches	13 inches
Right upper limb at axillary fold	7½ "	7½ "
Right upper limb at mid portion of arm	7½ "	7½ "
Right forearm	8 "	8 "
Right lower limb at thigh	13½ "	11¾ "
Right lower limb at calf	10¼ "	7¾ "
Left upper limb at shoulder	13 "	13 "
Left upper limb at axillary fold	7¼ "	7¼ "
Left upper limb at mid portion of arm	7¼ "	7¼ "
Left forearm	8 "	8 "
Left lower limb at thigh	13½ "	11¾ "
Left lower limb at calf	10¼ "	7¾ "

The electric reactions to the faradic current were normal, to the galvanic they were as follows:

Forearm flexors, Forearm extensors, Forearm pronators	ccc > acc
Biceps	ccc < acc
Pectoral	ccc > acc
Lower limbs peroneal, Anterior tibial, Gastrocnemius	ccc < acc
Flexors of legs	ccc = acc
Muscles of thighs	ccc < acc

Considerable atrophy was thus observed in the lower limbs, which developed within two weeks, and reaction of degeneration, *i. e.*, change in the formulæ. was noticed in some of the muscles of both upper and lower limbs.

During the early part of July the patient appeared to be improving and regained considerably the power of moving the upper extremities, but during the latter five or six days of the month his disease took a decided turn for the worse. The temperature rose to between 101 and 102, and the hurried, labored respiration gave evidence of a marked pulmonary affection. Satisfactory physical examination at this time was impossible on account of the low condition of the patient. Death occurred Aug. 1, 1894.

The autopsy was made Aug. 2, 1894, by Dr. W. S. Carter, the condensed report of which is as follows:

The body was much emaciated. The entire vascular system had undergone a premature senile change, which in a man of forty years was remarkable. The aorta and other vessels, including the circle of Willis, were markedly atheromatous. The heart was hypertrophied. The leaflets of the mitral and aortic valves were thickened. The orifice of the mitral valve measured ninety-five mm., that of the aorta sixty-eight mm. The kidneys were small, tough and granular, presenting the appearance of interstitial nephritis. Decided catarrhal pneumonia was noticed at the base of the left lung. There were evidences of tuberculosis in various parts of the body. Tubercles were found in the lungs, spleen and liver. The bronchial, retro-peritoneal and mesenteric glands were enlarged and yellowish. There were some evidences of tuberculous meningitis. Apart from some congestion and perhaps slight adhesion of the pia, together with the atheromatous condition of the vessels previously mentioned, no macroscopic anomaly was detected.

The microscopic report by the writer is as follows:

In the lumbar region a round-cell infiltration, very similar to that seen in syphilis, is found within the meninges and spinal roots, and is somewhat more extensive here than at any other portion of the cerebrospinal axis. The round cells are more numerous in certain parts of the pia; they are also found about some of the vessels of the cord, and indeed here and there where no vessel may be observed. The vessels of the meninges and spinal cord are distended. Within the white matter, more especially in the anterolateral columns, numerous small spaces are found which possibly are the result of destruction of nerve fibers. Certain histologists have regarded these spaces as artefacts, others have been unable to accept this view. They have been noted especially in cases of pernicious anemia and in paralysis agitans. Axis cylinders may be found in many of these spaces, and in some they are surrounded by a medullary sheath, though in general the medullary sheath is swollen and transparent. Homén[1] has also described these spaces in the dog's cord in secondary degeneration.

Many of the motor cells of the anterior horns, especially in the lumbar region, are tumefied, rounded off, without protoplasmic processes and contain vacuoles. Some present a more normal appearance. In some the nucleus has taken a peripheral position. Marinesco[2] regards this displacement of the nucleus as very important. As a rule, the nucleus occupies the

[1] Homén: Atlas der pathologischen Histologie des Nervensystems Part VI.

exact center of a nerve cell, for it is at this part that nutrition of the cell is greatest. The migration of the nucleus, according to his view, is an attempt on its part to reach a portion of the cell where nutrition is better.

The vacuolization of nerve cells has given rise to endless discussion. Hitzig[3] has recently stated that he regards it as a manifestation of disease; others, and among them Nissl,[4] look upon this as a postmortem change. But it has been stated that even if the latter view is correct, it is probable that this alteration takes place during the process of hardening of tissue in the chromic salts, more commonly in diseased cells than in normal (Leyden and Goldscheider).[5] This view seems acceptable, for in spinal cords in which there has been no reason to suspect organic changes one does not find such vacuolization as seen in this case. The method of Nissl could not be employed, as Müller's fluid had been used as the hardening agent. Nissl [4] expresses the opinion that nerve cells may be restored as long as the nucleus has not been greatly altered. The cells in this case had apparently not reached this critical stage.

I have been surprised to find so many amyloid bodies, especially within the lumbar region. It is well known that these occur normally in the central nervous system, but usually in more limited numbers, except perhaps in the olfactory lobes. When stained with any of the ordinary solutions of alum-hematoxylin they are of a light purple color, homogeneous in appearance, of various sizes, round and considerably larger than the nuclei of the neuroglia cells. These bodies, as in this case, are especially numerous in the posterior columns, within the septa, near the vessels, about the central canal, and especially within the zones of Lissauer. They extend a short distance into the posterior roots and cease here abruptly. Redlich has studied these formations and states that they give the amyloid reaction with Lugol's solution and sulphuric acid. This is an observation which the writer has been able to confirm. Redlich does not regard them as of the same nature as the amyloid bodies of the prostate gland, or as ordinary amyloid infiltration, and the writer also has not been able to obtain the characteristic reaction with certain stains usually employed for amyloid substance. Redlich regards these bodies as derivatives of altered neurogliar cells; other histologists look upon them as formed from the axis cylinders. Homén[1] states that they come from degenerated fibers. They indicate a chronic, retrograde process. I have found them in large quantities in cases of tabes, syringomyelia, syphilis, senility, etc. It was with some surprise, however, that so many were observed in this case, for the history indicated rather an acute process, and the man was at that period of life in which they do not usually occur in such numbers. The patient had sclerosis of the vessels, but in the lumbar region the small arteries and veins present no notable thickening of their walls as is seen in the cervical region and at the base of the brain, and it is especially in the lumbar region that the amyloid bodies are so numerous. It does not seem reasonable to suppose that the arterio-sclerosis accounts entirely for their formation, but we may regard them as representing some form of degeneration not entirely acute, and possibly in connection with the tuberculous process.

In the thoracic region the findings are similar to those of the lumbar; in one portion near the periphery of the cord, peculiar, irregularly formed bodies, stained red with the carmin, are observed. They do not resemble cells, and may possibly be swollen fragments of axis cylinders or swollen neurogliar cells. Here and there in the gray matter of the thoracic region small hemorrhages are noticed. Some few of the vessels within the cord have thickened walls which have undergone hyaline degeneration. By the method of Weigert, apart from the many red blood corpuscles observed within the meninges, and the thickening of the vessels in the upper regions of the cord and at the base of the brain, nothing pathologic would be suspected.

In the cervical region in some of the small meningeal arteries, the intima is much thickened and the media and adventitia are infiltrated with round cells, but there does not appear to be a reduplication of the elastic membrane. The walls of the small meningeal veins are also thickened, and in some the lumen is much reduced. Throughout the meninges and not confined to the cervical region, there is an abundance of blood pigment and red blood corpuscles. The round cells are found scattered singly through the tissues or collected in groups, but the infiltration is only of moderate degree. In one section, for example, a collection of cells mingled with red blood corpuscles may be noticed about one of the anterior roots. Such a condition when existing in the lumbar region may explain, in part, the symptoms of weakness and the increased though sluggish reflexes. The vessels within the spinal roots are much distended, cellular infiltration is noticed in these parts and, to a moderate degree within the septa, sometimes spoken of as pial, though the connection of these septa with the pia has been disputed (Lenhossék,[6] Edinger[7]). Small collections of blood pigment are found within the cord. The number of the capillaries of the anterior horns appears greater than normal. Hemorrhage is also found within the gray matter. The method of Marchi reveals much pigment within the ganglion cells, but nothing which could be considered distinctly pathologic. This method is valuable for a study of the development of pigment, as the fatty nature of this substance causes it to be colored black by the osmic acid.

At the base of the brain, to which attention has been directed on account of the history of spasm of the obicularis palpebrarum, a moderate degree of round-cell infiltration has been found which may possibly have irritated some of the fibers of the seventh nerves. Similar accumulations of blood pigment and corpuscles are found at this level.

In those portions of the cerebrospinal axis which have been kept two years in Müller's fluid peculiar bodies have been noted. They are not to be observed to any notable degree in any portion of the cord which has been preserved in alcohol. They are small, round or oval, stain deeply with Delafield's hematoxylin and with thionin, even more deeply than do the nuclei of the round cells. They are intensely stained at the periphery, while the center is only faintly colored. These bodies are found within the cord, within

[2] Marinesco: Revue Neurologique, No. 21, 1896.
[3] Hitzig: Neurologisches Centralblatt, No. 20, 1896. p. 950.
[4] Nissl: Idem.
[5] Leyden and Goldscheider: Die Erkrankungen des Rückenmarkes und der Medulla Oblongata, p. 75.
[6] Lenhossék: Der feinere Bau des Nervensystems, p. 237.
[7] Edinger: Vorlesungen über den Bau der nervosen Centralorgane, fifth edition.

the neurogliar trabeculæ, along the small vessels, and within the pia, especially at its junction with the spinal cord, where they are arranged in long rows, although they are also found in groups. The fact that they are only to be seen, to any notable degree, in tissues preserved in Müller's fluid proves that they could not have been in causal relation with the morbid process. It has been my experience that Müller's fluid does not arrest the development of all low forms of life. Prof. A. C. Abbott, of the University of Pennsylvania, has given his opinion in regard to these bodies as follows:

"1. They are not spores, because they stain readily. Spores are also highly refractive.

"2. Unless they came from extraneous sources spores would not be likely to occur within the tissues.

"3. They are of oval shape. The irregularity in their size, the peculiarity of their staining, and more especially the appearance of budding that is frequently noticed, would seem to support the opinion that the bodies found here belong to the group of blastomycetes (yeasts).

"4. The peculiarity of staining consists in the accentuation of the enveloping membrane over the body of the cell.

"5. They can not be micrococci."

I have frequently found similar bodies in other material hardened in Müller's fluid.

Sections examined from the brachial plexus, the peroneal and sciatic nerves, show no notable degeneration of nerve fibers. Round-cell infiltration of very moderate degree is observed within some of the nerve bundles and their sheaths.

In view of the importance of determining the presence or absence of micro-organisms in this case. I requested Drs. Kneass and Taylor of the Pepper Laboratory to make an examination with this object in view. They have been unable to find any organic forms not already mentioned. A number of sections have been stained by the writer, in the hope of finding the tubercle bacillus, or some other form of micro-organism, but success has not crowned his efforts. Recently most interesting experiments have demonstrated that the injection of bacterial toxins into the lower animals may produce neuritis and meningomyelitis. Such experiments have been made by Claude,[8] Homén and Laitinen,[9] Marinesco,[10] and Remlinger.[11] Work bearing on this subject has been done in our country by Welch and Flexner.[12]

We may say in regard to the microscopic examination of this case that the condition is one of meningomyelitis, involving also the membranes at the base of the brain, with very imperfect evidences of neuritis. No cutaneous nerves were obtained for examination. Arterio-sclerosis, of not recent origin, is found in the vessels at the base of the brain, and in the smaller vessels of the upper part of the cord. The meninges covering the spinal cord and at the base of the brain are infiltrated by round cells and contain much blood pigment and many blood corpuscles. The motor cells of the anterior vacuoles and horns are swollen and rounded off, and many contain displaced nuclei; many however show no alteration. Round-cell infiltration and capillary hemorrhages are found here and there in the spinal cord. The lesions are rather more intense in the lumbar portion; in this part also, where the arterio-sclerosis is not marked, there is great excess of amyloid bodies. No tubercles, no giant cells and no low organic forms, except the blastomycetes, are found anywhere. What is the cause of this process? The writer is inclined to attribute it to tuberculosis.

With such a clinical history as the one given in this paper, it is not surprising that the diagnosis of Landry's paralysis was uppermost in Dr. Lloyd's mind, although there were certain atypical features in the case. It was undoubtedly a morbid process affecting the motor portion of the nervous system, and producing no symptoms from involvement of the sensory side. It could hardly be a neuritis as the word is usually understood, unless we mean that the cells of the anterior horns of the cord were chiefly diseased, and the peripheral part of the neurons only secondarily affected. Motor neuritis without involvement of sensory fibers does occur, as may be seen from the case of Dejerine and Sottas,[13] specimens from which have been given the writer. One would think twice, however, before making the diagnosis of pure, primary motor neuritis. It seems probable that the Charcot-Marie type of muscular atrophy is often a motor neuritis, and yet this is not acute or subacute, as was the process in the present case. This patient had no disturbance of sensation, no sensitive points along the line of the nerve trunks, and the exaggerated though sluggish knee jerks were not in favor of neuritis. Could the case have been a subacute form of anterior poliomyelitis? There was much in favor of such a view. The motor paralysis, the reaction of degeneration, the absence of sensory symptoms, even the vesical paralysis, could all be easily explained by such a theory. But exaggerated reflexes do not belong to this disease, and there was evidently some process here which both irritated and weakened the peripheral motor neurons. If we turn to the paper of Diller and Meyer[14] we find given as the cardinal points of Landry's paralysis: "1, flaccid paralysis of the muscles, spreading rapidly from one point over the rest of the body, generally beginning in the legs, but sometimes following the reverse order, as in the French zoölogist Cuvier; 2, absence of muscular atrophy and of electric reaction of degeneration; 3, tendon and superficial reflexes absent; 4, sensibility not, or only slightly impaired; 5, sphincters, as a rule, intact (exceptions rather frequent); 6, a criterion has been the absence of an anatomic lesion."

We will see that the very first requirement can not be met. The paralysis probably was not flaccid. The duration of the process from the time paralysis was first noticed until death occurred was about six or seven weeks. The upper extremities were first paralyzed, but very soon the lower were also affected. The patient was thin and anemic, and yet muscular wasting developed very rapidly in the lower limbs. There was reaction of degeneration *i. e.*, inversion of the formulæ, in all the muscles of the lower limbs, and in the biceps of the upper. The tendon reflexes not only were not absent, but were exaggerated and sluggish. As a case of Landry's paralysis the symptoms were atypical.

The findings permit a pathologic diagnosis of men-

8 Claude: Comptes Rendus Hebdomadaires des Séances de la Soc. de Biologie. 1896.
9 Homén and Laitinen: Idem.
10 Marinesco: Idem.
11 Remlinger: Idem.
12 Welch and Flexner: The Johns Hopkins Hospital Bulletin. ii, 107, 1891; iii, 17, 1892. The Johns Hopkins Hospital Reports, vi, 1896.
13 Dejerine and Sottas: Comptes Rendus Hebdomadaires des Séances de la Soc. de Biologie. 1896
14 Diller and Meyer: The American Journal of the Medical Sciences April, 1896.

ingomyelitis of moderate intensity. Is it possible to reconcile the symptoms observed during life with such a process? How shall we explain the absence of sensory symptoms? The clinical picture was not that of meningitis. In this disease, however, one must be prepared for the unexpected. The meningitis was only of moderate intensity in the case under consideration, and it is probable that the irritation was not sufficient to produce sensory symptoms. It may be that the central nervous system was overpowered by some toxin brought through the circulation, and that the symptoms were due more to myelitis than to meningitis. That certain poisons act on nerve cells and nerve fibers in such a way that they produce functional changes before organic alteration can be detected, even by the best technique, is a view which is probably correct. Wagner[15] has called attention to gastro-intestinal disturbances as a cause of polyneuritis and psychoses, probably produced by the action of some poison absorbed from the gastro-intestinal tract. Neuritis after infectious diseases is probably chiefly due to the toxins produced by the bacteria. Still earlier, Dercum[16] has spoken of the influence of auto-intoxication in psychoses, and more recently Allen McLane Hamilton[17] and Van Gieson[18] have written papers on this subject. It is doubtful whether we should find lesions in all such cases. But there was something more than functional disturbance in this case, for many of the motor cells of the anterior horns, especially in the lumbar region were much altered. The atrophy and reaction of degeneration were most evident in the lower limbs. A meningitis of moderate degree not infrequently fails to produce symptoms. The typhoid condition and the mental state preceding (Cavasse[19]) may have been due to such alterations as have been detected throughout the body. This patient had general tuberculosis; this alone would account for the resemblance of certain of his symptoms to typhoid fever.

Anyone who examines the literature will find a number of atypic cases of myelomeningitis, especially of the tuberculous variety. We may refer in this connection to Schultze, Goldscheider, etc.; Schultze[20] says that every symptom of meningitis and myelitis, even in histologically demonstrable cases of these affections, may be absent and the clinical picture may be one of acute ascending paralysis. It must be remembered also that meningitis in the adult may present a more atypic picture than in the child (Cavasse l. c). Chantemesse (quoted by Cavasse) has written a thesis on the atypic form of tuberculous meningitis. Oppenheim[21] tells us that an extensive purulent cerebrospinal meningitis may be without symptoms, and he speaks of the polymorphism of acute meningitis. The spasms of the orbicularis palpebrarum, the exaggerated but sluggish knee jerks, the fibrillary tremor of the tongue, are explained by the findings. There was no reason for suspicion of syphilis from the history and condition of the patient. Can we find any ground for believing that this case may be considered as possibly one of tuberculous meningomyelitis?

The involvement of the spinal cord in the tuberculous process has been known for many years. Among the early writers on this subject mention may be made especially of Liouville.[22] Erb,[23] in 1876, remarked that tuberculous spinal meningitis is not uncommon in connection with the basal form. Schultze[24] also has regarded the tuberculous spinal meningitis as by no means rare, and the association of it with the basal form as the rule in the adult. This view is held also by recent writers (Oppenheim,[25] Goldscheider,[26] etc.). Miliary tubercles were not found in the cord in all of Schultze's cases. His statements made in 1880 are to the effect that miliary tubercles are much less frequent in the spinal membranes than in the vessels and membranes of the brain; according to him, the posterior portion of the cord is the part most affected, although when the process is severe the anterior part of the cord may also be involved. The cord proper takes part in the morbid process, and the findings consist of edema, swelling of the axis cylinders, moderate tumefaction of the ganglion cells, more homogeneous appearance of the neuroglia, with more intense coloration under the action of stains, and cellular infiltration of the peripheral portions of the cord, chiefly noticeable in the lateral and posterior columns and in the thoracic and lower cervical regions. Cellular infiltration is common in the septa, and the cells may collect so as to form small tubercles. Small hemorrhages are frequently found. The roots present similar lesions.

Williams,[27] also, at an early date reported cases of cerebrospinal tuberculosis in which he found round-cell infiltration of the arachnoid, pia and cord. In two of his three cases it is stated that distinct miliary tubercles were not observed in the cord, although in one of these two cases they were found in the brain.

Goldscheider[28] has published a most interesting case. Violent contractions were observed in the muscles of the arm and forearm, shoulder and breast, while movements of the hands and fingers were free. There was lack of power and the reflexes were increased in the upper limbs. Sensation was normal. The patellar reflex was exaggerated. The only pain felt was that due to the violent contractions. At the autopsy in this case extensive pulmonary tuberculosis was observed. In the fresh state nothing was seen in the cord, oblongata or brain, but after the hardening the pia on the anterior part of the cord, from the fourth cervical to the first thoracic segment, was found to be moderately thickened and infiltrated with round cells. The anterior columns and periphery of the cord were also invaded by the round cells. The condition is described as anterior myelomeningitis. Similar cells were found within the anterior roots. Nothing abnormal was observed outside of the area mentioned, except a diffuse descending degeneration of moderate degree in the anterior columns. There was no tuberculous basal meningitis and no vertebral caries. No microorganisms of any kind could be detected and there were no signs of syphilis. This irritation of the anterior roots was supposed to have caused the contractions and exaggerated reflexes. The cervical meningomyelitis was thought to be tuberculous.

The tuberculous leptomyelitis, according to Raymond,[29] is not as rare as one might think. The diffuse

15 Wagner: Wiener klin. Wochenschrift, 1896.
16 Dercum: The Medical News, July, 1895.
17 Hamilton: The New York Med. Journal, October and November, 1896.
18 Van Gieson: State Hospital Bulletin, vol. i, 1896.
19 Cavasse: Revue de la Tuberculose, No. 3, 1896, p. 222.
20 Schultze: Abstract in Neurologisches Centralblatt, 1887, p. 238.
21 Oppenheim: Berliner klin. Wochenschrift, Nov. 9, 1896.
22 Liouville: Archives de Physiologie, 1870.
23 Erb: Ziemssen's Handbuch der speciellen Pathologie und Therapie, Bd. xi, 1876–78, 1, p. 229.
24 Schultze: Deutscher Archiv für klinische Medecin, 1880, 25, p. 297.
25 Oppenheim: Berliner klinische Wochenschrift, 1891, p. 1000.
26 Goldscheider: Idem.
27 Williams: Deutsches Archiv für klin. Medeciu, 1880, p. 292.
28 Goldscheider: Berliner klin. Wochenschrift, 1891, p. 935.
29 Raymond: Revue Neurologique, 1893, p. 98, and Revue de Méd., 1886.

infiltration is much more common than are the large spinal tubercles, and it has not attracted the full attention it merits, as it easily escapes detection. Few writers, indeed, have spoken of this infiltrating form. In very many cases where tuberculous patients have died from acute generalization of the process, or even, perhaps, from slower development, an infiltrating leptomyelitis may be found. Even though with the naked eye the cord in certain cases appears sound, the microscope often reveals tuberculous lesions. The tuberculous leptomyelitis may exist with similar lesions in the brain, but it may be alone. It is quite probable that the nervous symptoms which occur in the course of tuberculosis may be attributed to this complication, at least in a certain number of cases. He has in mind the neuralgia, myalgia and hyperesthesia, which form part of the ordinary symptoms of chronic or acute phthisis. The lumbar region is the portion usually most involved in the tuberculous process. Raymond divided tuberculous meningitis into the chronic and acute forms, and the latter still further into the infiltrating (or diffuse) and the nodular varieties.

In the diffuse form the miliary tubercles are rare, and in some cases it is only by chance that such a tubercle is found in a section. It is difficult to distinguish the infiltrating tuberculous myelitis from the early stages of the simple acute form, if some miliary tubercles are not observed. He described a case of Pott's disease in which, in addition to chronic meningomyelitis, the appearance of more acute changes with hematomyelia were noted. The dura, arachnoid, pia and spinal roots were infiltrated with leucocytes, in some places large groups of round cells were noticed. At no part of the cord proper or pia were specific tuberculous lesions observed. The arachnoid was thickened and infiltrated, and at the portion corresponding to the caries of the vertebræ contained tubercles with giant cells. Specific lesions were also found in the dura. Expressed in a few words, it may be said that this patient had slight diffuse chronic leptomyelitis, associated with an acute form of the process, and that this was known to be tuberculous from other findings. In the dura and arachnoid specific lesions were present.

In the report of a case of meningomyelitis by Raymond in the *Revue de Médecine*, 1886 (Case No. 2), the statement is made that no miliary tubercles were found with the naked eye or with the microscope. Congestion of the vessels and diffuse round-cell infiltration, slight thickening of the meninges, some swollen axis cylinders, obliteration of the central canal, tumefaction of the ganglion cells were observed. He says: "It is a diffuse general leptomeningitis of a diffuse and infiltrating form, evidently of tuberculous origin, as the clinical history shows, only this meningomyelitis has no characteristic anatomic features."

A still more recent writer on spinal tuberculosis is Haskovec.[30] He reports the following case from Charcot's clinic: The patient had phthisis but no evidence of syphilis. The nervous symptoms began with tingling in the feet, legs and anterior part of the thighs associated with some weakness in the lower limbs. After the lapse of a few months the legs became so weak within a few hours that the patient was unable to stand, and retention of urine and feces was observed. The paralysis in the lower limbs was flaccid and almost complete. This abrupt development of paralysis has also been noticed in tuberculous meningomyelitis by Hoche.[31] It is a frequent sign of spinal syphilis.

There was anesthesia of the lower limbs and lower part of the trunk in Haskovec's case, but no spontaneous pain and no fever. The upper limbs were not at first affected. The entire duration of the process was about four months. Leucocytic infiltration was found in the meninges, anterior and posterior spinal roots and cord, and especially within the septa and about the vessels. The neuroglia was proliferated. Disseminated tubercles were also observed. Examination was only made of the cord and sciatic nerves, but clinically there were no symptoms which pointed to cerebral involvement. Degenerated fibers, capillary hemorrhages and congested vessels were found in the cord. Haskovec could not succeed in staining the tubercle bacilli or any other micro-organism. He attributes the early numbness and weakness in the feet to the congestion of the meninges and the slight irritation of the posterior roots. This was essentially a case of spinal tuberculosis, for, although the base of the brain was not examined, no clinical symptoms had been observed which indicated cerebral involvement. There may, nevertheless, have been a latent basal meningitis. The case has many features similar to the one which forms the subject of this paper, though differing from it in certain details.

The thoracic region of the cord is the portion usually affected, according to Haskovec. He gives statistics from observations made in Prague. In 2090 autopsies on tuberculous patients the brain was found affected by the process in 100, brain and cord in 9 and in 6 of these cerebrospinal meningitis was found; the cord was affected in 12 cases, and in most of these caries of the vertebræ was observed. His statement in regard to the frequency of the process is contradictory to Raymond's, for he says that tuberculosis of the central nervous system is rare.

Haskovec states that until the time his paper was written, the tubercle bacillus had not been stained in any of the cases of nodular and infiltrating spinal tuberculosis which he had quoted, although it had been found in solitary tubercles. Schamschin says the bacilli were found in all his cases of tuberculosis, although in many of these solitary tubercles were present. Hoche (l. c.) with much difficulty was able to stain the bacillus in the pia, arachnoid, etc., in diffuse meningomyelitis.

Usually the nodular spinal tuberculosis presents the picture of acute myelitis. The picture given by Haskovec is as follows: The patient, who already has pulmonary tuberculosis, is seized abruptly with paresthesia, feebleness of the extremities, pain, etc. These symptoms last a certain time with remissions. Some day the patient is suddenly, partially or completely, paralyzed, sensation is altered, vesical and rectal trouble and trophic lesions are observed.

The fact that the tubercle bacillus has not been found in many cases of infiltrating and nodular tuberculosis (Haskovec) suggests the action of a poison upon the cord without the presence of the bacillus.

The effects of tuberculosis may be seen in the entire nervous system; it may not only cause minor forms of degeneration in peripheral nerves which produce no symptoms, but also severe inflammatory and degener-

30 Haskovec: Archives de Neurologie, 1895, xxx, p. 177.

31 Hoche: Archiv für Psychiatrie, xix.

itive processes with the symptom-complex of multiple neuritis (Oppenheim[32]). Carrière[33] has found neuritis n tuberculous patients when the cord was normal. As he was unable to find the bacillus and to produce uberculosis in guinea pigs after inoculation with portions of these altered nerves, he concludes that the neuritis was due to the tuberculous poison.

Case No. 4, reported by Schamschin,[34] is worthy of special mention. External tuberculous spinal pachymeningitis, with basal tuberculous meningitis was found. The meninges upon the pons were infiltrated with leucocytes. Specific tuberculous lesions—miliary tubercles and giant cells—were not observed microscopically in his sections from the pons, although macroscopically miliary tubercles had been noticed on the brain. Very little mention is made of giant cells within the cord. A slight degree of leucocytic infiltration was observed throughout the cord and its pial membrane. The spinal roots were also invaded by the cells. There were no miliary tubercles found within the cord or its pia, either macroscopically or microscopically. The statement is made that in the region of the pons the perivascular areas were infiltrated with leucocytes.

Hektoen[35] has called attention to the vascular changes in tuberculous meningitis. In all nine cases examined by him extensive vascular lesions were noted, and in only one of these was there evidence of mixed infection. In one of Hektoen's cases (No. 1) there were no distinct evidences of giant cells in any of the sections.

The findings in most cases of tuberculous meningitis, as given by Hektoen, are diffuse and circumscribed cell infiltration, with comparatively many giant cells and occasional districts of caseation and also much fibrinous exudate, all of which seems more marked at the base of the brain and in the beginning of the Sylvian fissures.

From the cases which have been quoted it will be seen that the absence of specific lesions in meningomyelitis, or the failure to stain the bacillus does not exclude the possibility of the tuberculous nature of the process. There are cases which seem to be due to meningitis and yet on examination no organic changes are found in the meninges. Some of these may belong to the form described by Quincke[36] as meningitis serosa. The French (Dupré) speak of *méningisme*. There are, on the other hand, mild grades of tuberculous meningitis which probably cause no symptoms.

In the case which forms the subject of this paper, tubercles were found in the lungs, spleen and liver, and some of the lymph glands were tuberculous. The brain and cord when examined in the fresh state were found congested.

We can only say with certainty that there was a condition of meningomyelitis of moderate intensity in a patient with disseminated tuberculosis, but we may add that just such a condition as this has been several times reported as tuberculous. It is true that tuberculosis, especially when the lungs and gastrointestinal tract are affected, is liable to be a mixed infection, and there is a possibility that the toxins produced by other micro-organisms than the tubercle bacillus may have called forth this condition of spinal inflammation. Such micro-organisms, however, are not to be detected within the central nervous system in this case, and we must be content for the present with the statements made by certain writers that tuberculous meningitis may exist when the presence of the bacillus can not be demonstrated in the nervous system.

[32] Oppenheim: Lehrbuch der Nervenkrankheiten, p. 333.
[33] Carrière: Archives Cliniques de Bordeaux, September, 1896.
[34] Schamschin: Zeitschrift für Heilkunde, 1895, p. 373.
[35] Hektoen: The Journal of Experimental Medicine, Vol. 1, No. 1.
[36] Quincke: Volkmann's Sammlung klin. Vorträge, N. F. 1893, Innere Medicin, No. 67, and Deutsche Zeitschrift für Nervenheilkunde, 9 Band, 3 u. 4 Heft.

DISCUSSION.

Dr. JAMES HENDRIE LLOYD—This was a case of mine at the Philadelphia Hospital. It seemed very evident from a clinical study of the case that the man was suffering from some form of blood poisoning. He had not, clinically, the history of a multiple neuritis. He had a very remarkable condition of thickening of the whole vascular system which, considering that he was only 40 years of age, was quite extraordinary. It seemed to indicate that the vascular walls had been subjected to some kind of irritant which set up some form of thickening. We diagnosed tuberculosis, but at the time it did not occur to me as a possibility that tuberculosis could produce that train of symptoms, which in his case seemed largely to be confined to the motor neurons. After Dr. Spiller's study of the segments, however, I came to that conclusion. He had no lesions of syphilis and it remained for us to fall back upon tuberculosis.

Dr. HUGHES—You will recall the distinction that Gowers makes between neural and adneural states as the result of syphilitic infection, and that it is upon this fact in the earlier stages of venereal implication that we found our hope of cure and based our confidence in the possibility of a successful prognosis. Syphilis is an extra-neural or adneural affection.

Dr. PATRICK—Many of the symptoms of meningitis, whether tubercular or of the ordinary cerebral spinal type, or of some other source of infection, are sometimes due largely to something else than the discoverable lesion; that the principal symptoms are due to the systemic affection, or the action of the toxin upon the nervous system and not directly to the inflammation of the meninges.

I have been engaged for a number of months in the microscopic examination of specimens from a case of superior and inferior encephalitis. The patient died after six or eight weeks, from respiratory insufficiency. Macroscopically there was absolutely nothing to be seen; microscopically there was not very much. There is a marked dilatation and injection of all the arterioles of the bulbo-pontine region, also marked dilatation of the smallest arterioles, the largest vessels being very little affected. The nerve cells are almost intact. In many of the nuclei corresponding to the paralyzed areas, it is a question whether the nerve cells are normal or not; as far as the nerve fibers are concerned there are very few places that are even doubtful, and they are nearly all unquestionably normal. This was a case of toxemia of some kind, although no such source was discoverable, which acted upon the coats of the vessels, and which filtrated through and affected the nerve cells and fibers, causing paralysis and death, without any marked changes that are discoverable to the present technic. The case seems to be one that shows the intimate relation between the recognized organic and the functional cases. We know of an asthenic bulbar paralysis, with no findings by the best of men; we know apparently of a toxic disease, Landry's paralysis, sometimes with no findings; and now we know of an encephalitis, with punctate hemorrhages, with evidence of disease of a gross nature. It seems to me functional cases are simply toxemic, though not recognizable as such.

Dr. MOYER—I have recently seen a case which I regarded as a case of Landry's disease. There was an ascending paralysis beginning in the lower extremities; there were three distinct invasions of paralysis; two partial recoveries; and the third attack rapidly advancing to the involvement of the respiratory muscles and death. The whole history of the disease extended over forty days. Unfortunately there was no autopsy. The reflexes were at all times exaggerated to some degree; that is, the knee-jerk and deep reflexes. There was no ankle-clonus, however. This case was one that had all the phenomena of an infectious disease; coated tongue, disturbed alimentary tract, in a word, all the phenomena that you would expect to find in an ordinary case of typhoid fever, except that at no time during the progress of the malady was the temperature raised above normal. I could not escape the distinct impression that I was dealing with some unknown infection, and that some ptomain, some poisonous product formed by bacteria, on being absorbed either generally or in a localized way, was poisoning the nervous system of the patient. I have now under observation a child, only about 6 years of age, who presents a typical picture of the patient last described, and the malady

seems to be progressing in exactly the same way. In this child also there is absolutely no increase of temperature.

These nerve cells are simply poisoned by some ptomain, some toxin, and they do not present any structural changes any more than they would with aconite or strychnia poisoning.

Dr. SPILLER—In regard to Dr. Patrick's statement, I would say that one case of asthenic bulbar paralysis has been reported in which lesions were found. Landry's paralysis is probably due to different causes and different lesions.

A CASE OF TRANSVERSE MYELITIS WITH AN UNUSUAL FORM OF DESCENDING DEGENERATION IN THE POSTERIOR COLUMNS.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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PHILADELPHIA, PA.

The patient was a man aged 65 years, of great mental and physical activity, and in good health with the exception of the illnesses arising during army service and two or three wounds, one of which was received at Antietam, a fragment of shell striking him between the right shoulder blade and the spine. He was seized suddenly with pain in the area of distribution of the seventh intercostal nerves on the right side, about May, 1896. There was very great tenderness upon pressure or touch and extreme sensitiveness to variations of weather. The pain exhibited an extraordinary obstinacy to treatment, so far as could be learned from the patient's statements.

He was treated by the family physician (a homeopath) for intercostal neuralgia without experiencing any relief. The pain continued in varying degrees of severity, but was never absent during the whole spring and summer; it was often so great as to practically incapacitate him, and he was obliged to give up his business and go away in the hope of getting better.

Other physicians saw him in the course of the disease and gave the opinion that he was suffering from intercostal neuralgia.

In September a pain of somewhat less violent character began in the same situation on the left side. The measures taken to relieve it included continuous pressure upon the painful points, which made it worse, and various drugs. He returned home and went to bed. There was no change in the general symptoms, except for a temporary increase or decrease of pain, until the latter part of November. November 30, upon attempting to rise in the morning, he was quite suddenly seized with loss of power in the legs. This loss did not seem absolute, however, as he could move the legs a little while lying in bed. There was no impairment of control of bladder and rectum.

The physician called in consultation (a homeopath) stated that the knee-jerks were decidedly present, and that the patient was able to move his legs a little.

One of us saw him first three days later. He was then lying upon his back quite unable to move and suffering constant acute pain in the intercostal nerves.

There was very slight knee-jerk on both sides, and the plantar jerk was also present, somewhat stronger upon the right than upon the left side; no cremaster reflexes were demonstrable. The bladder and rectal control was unaltered. There was fair localization to touch on both legs. He was beginning to complain of pain at the level of the sacrum, and the sacral region was quite sensitive. This sensitiveness increased upward over the whole abdominal region until it became hyperesthetic at the level of the intercostal trouble. There was no fever and the lungs and heart appeared perfectly sound to repeated and careful examinatien, a point of interest in view of the condition found at the autopsy. Upon examining the patient's back an ill-defined resistance on the right side of the column over an area which covered the levels of the fifth, sixth, seventh and eight dorsal vertebræ was readily made out. This increased resistance was decidedly less marked upon the left side than upon the right. Percussion over the same area gave a slight increase of dulness; the limitations were vague even with careful examination with the phonendoscope. No change in this condition was noticed for several days, but in less than a week the knee-jerk had entirely disappeared and no reinforcement was obtainable. Control of the bladder and rectum was now lost, the urine having to be drawn and the bowels moved by enemata. The patient still complains of pain in the intercostal regions and immediately below, especially if the bowels were not kept freely open. In that event an accumulation of gas would distend the abdominal walls and cause increasing pressure upward with consequent pain. One or two small bed sores appeared, but careful nursing resulted in healing for a time. In spite of care, however, after some weeks a large slough formed upon the sacral region and another upon the left buttock. These were followed by others, and the patient died from exhaustion January 15.

It had been our theory from the first that the trouble was in some indirect way due to the spinal injury received from the shell wound at Antietam, and this opinion was founded upon the observation of several cases previously seen, where spinal wounds which at first seemed to be only moderately severe concussion had many years after (twenty-seven years in one case, twenty-five in another) determined degenerative changes quite sudden in onset.[1]

The autopsy furnishes points of great interest. The specimens were stained by various methods to exhibit the several forms of degeneration and a full report of these studies follows:

Autopsy. Twenty-six hours after death. On exposing the column it presented no external deformity. After section the fifth, sixth and seventh dorsal vertebræ were seen to be surrounded with pus. A sac extended on both sides of the column from about the middle of the fifth to the lower margin of the seventh. It burrowed deeply on the ventral side of the column and extended irregularly in a lateral direction, but did not reach the level of the dorsal aspect. The laminæ were soft and broke under the saw; all the surrounding tissue, outside as well as inside, was matted and thickened with caseous material, resembling broken down tubercular deposit.

Dissecting the tumor away from the sides of the column, a finger could readily be passed into the posterior mediastinum at this level. The tumor had distinct outline but was not sacculated. The laminæ and spinous processes were all involved and much necrosed and disorganized. The fifth and sixth vertebræ were especially broken down, the spines less than the bodies. The posterior roots of the eighth pair

1 Several of these cases are fully reported in a small volume by Dr. K. Mitchell, on "Remote Consequences of Injuries of Nerves." Lea Bros., Phila., 1893.

nerves were much enlarged and thickened at their exit from the column, the sheath being especially indurated, and measuring one-quarter centimeter in diameter. The rib articulations to the fifth, sixth and seventh vertebræ were necrosed. It was necessary to separate the dura, by dissection, from the caseous mass of which it seemed to form a part, and even above the level of the tumor it was decidedly adherent. The vertebral destruction was much more marked on the right side than on the left.

Upon opening the cord the dura was found thick and tough, in many places more than one centimeter in thickness. In the region of the tumor the cord was flattened laterally. It was dotted with a creamy semi-fluid material in spots and so broken down that it could not be cut.

There was no other marked macroscopic change, except that the cord seemed to be gray in color. There were a few small tumors scattered throughout the lungs and many of the posterior mediastinal glands were enlarged. The other organs presented no abnormality. The appearance was very much like that of tubercular disease of the bone with exudation around the focus of the disease; but sections from the spinal tumors proved it to be a sarcomatous growth. The tumors in the lungs were evidently the result of metastasis.

The spinal cord was placed in Müller's fluid. The cord was so soft and disintegrated at the level of softening that it was not possible to make any sections from this part. This softening extended a distance of five to six centimeters. Sections were made immediately above and below the softened area and from other levels above and below and stained by the Weigert-Pal method, by carmine and by the Marchi method. The dura mater was irregularly thickened about the softened portion varying in thickness in the crossed section from one to nine millimeters. The cord was not greatly narrowed, but was somewhat flattened. In a recent state it was soft and pulpy.

Microscopic examination (Weigert-Pal method) gave evidence of extensive degeneration in the posterior columns immediately above the softening, involving the columns of Goll more intensely than those of Burdach. With the exception of a narrow band adjoining the posterior horns, the whole extent of the latter columns was involved. The direct cerebellar tracts were moderately involved. Gowers' columns were quite markedly degenerated, the direct and crossed pyramidal tracts remaining practically free. Above this in the lower cervical region the posterior columns were intensely involved, more especially the columns of Goll. Quite a distinct line could be observed between Burdach's and Goll's columns, but the former were also affected, though less severely. There remained many well stained fibres adjoining the posterior roots. The pyramidal tracts were exempt. On both sides the direct cerebellar tracts were involved to a moderate degree, and Gowers' column quite markedly, except at that portion adjoining the crossed pyramidal tracts. Farther up in the cervical region the degeneration was localized in the posterior columns, almost entirely to the postero-median columns, the line between these and the healthy postero-external columns being quite distinct. Gowers' and the direct cerebellar tracts were more intensely degenerated.

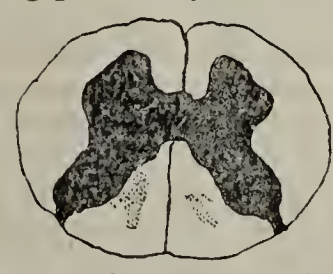
In the dorsal region a short distance below the softening, there was a moderate amount of degeneration in the postero-median columns at their anterior second and third fifths and this extended over on one side as far as the anterior horn and was quite marked; on the other side the process was slighter in degree. In the crossed pyramidal tracts there was a moderate degree of degeneration on both sides, extending well forward and also in the anterior pyramidal tracts. Lissauer's tracts on both sides were moderately involved. The posterior and the anterior roots were both degenerated at this level.

In the lumbar cord in the upper levels the posterior tracts were apparently exempt. The crossed pyramidal tracts were moderately degenerated, and the posterior root zones were involved.

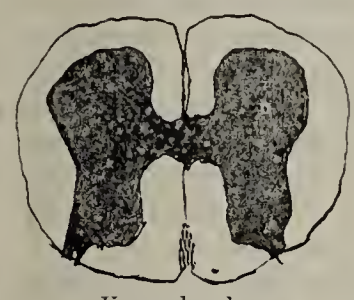
In the lower lumbar cord the lateral columns were still affected, the remaining portions of the cord staining well everywhere.

In the sacral cord the descending degeneration was still traceable in the lateral columns.

In the cervical region the anterior roots showed increase of the connective tissue, and degeneration of the nerve fibres, though this was not extensive. The same thing may be said of the posterior roots below the softening in the lower thoracic cord and also, to a much less extent, of the anterior roots. In the lumbar region the posterior roots were markedly affected, the anterior remaining practicaly free.



Showing Schultze's tract; 9th thoracic.



Upper lumbar.



Sacral.

Showing descending degeneration in posterior columns.

Microscopic examination by the Marchi method showed recent degeneration. Above the softening the whole extent of the cord showed recent changes but especially in the columns of Goll, Gower's columns, and the direct cerebellar tracts, where they were very intense. Higher up the degeneration was less marked, but still present everywhere. Around the periphery of the cord and in the posterior columns it was still quite extensive. Below the softening the acute degeneration invaded the entire cross section of the cord with the exception of a small focus behind the crossed pyramidal tracts. The degeneration was profuse throughout the posterior columns save centrally where the middle two-fifths seemed practically exempt. The anterior and posterior roots shared in this acute inflammation and the reflex collaterals were also involved. In the antero-lateral tract between the direct pyramidal and direct cerebellar tracts there was slight degeneration in an area corresponding to the descending antero-lateral tracts of Foster.

In the dorsal region further down there was slight degeneration on either side situated behind the knee of the posterior horns. Throughout the whole tract, however, there was a slight diffuse degeneration; and

on one side this was more intense in the area corresponding to the comma shaped tract of Schultze. This was about the ninth thoracic segment. In the upper lumbar region this had disappeared. A slight degeneration was seen, limited to that part of the postero-median column adjoining the posterior median fissure, more intense at the periphery, disappearing about half way between the periphery and the posterior commissure. Clarke's columns were not involved.

In the sacral cord the same degeneration was observed in the portion of the posterior column bordering on the posterior fissure. It was club shaped and extended slightly farther forward than in the upper level.

Carmine stain.—The carmine section showed much increase in the connective tissue in the posterior tracts. The nerve fibers had undergone extensive degeneration, were fused into masses and had lost all resemblance to their original appearance. There were numerous blood vessels with thickened walls, some were obliterated, the walls of others crowded with nuclei. This change existed, though to a less extent, in the lateral, and still less in the anterior tracts. In the gray matter there was intense change and the ganglion cells were profoundly degenerated. The angles were rounded, the prolongations lost in many; others showed granular change and appeared globular in form, containing elongated nuclei. There were numerous capillaries and small vessels and an extreme degree of round-celled infiltration existed. Occasionally a ganglion cell was found in fair condition, but this was rare. In the cervical region higher up, a similar change was observed. Hemorrhages into the gray matter were present, but the ganglion cells were less extensively involved, in many the prolongations persisting. There were numerous capillaries choked with red blood cells. The axis cylinders in the anterior roots were swollen in many places and some had disappeared. In the posterior roots there was an increase in the connective tissue and many swollen axis cylinders were present.

Immediately below the softening the condition was similar to that described, as existing immediately above it. The whole transverse area was degenerated in a diffuse manner. In the upper lumbar level the change in the gray matter was very much less extensive, most of the ganglion cells retaining their normal characteristics. In the sacral region the gray matter was the seat of slight inflammatory change. A number of capillaries filled with blood cells were seen and also a considerable amount of round-celled infiltration. A number of ganglion cells were rounded, but most of them retained their prolongations.

In this case the usual ascending and descending degenerations following a transverse lesion of the cord were present. The ascending degeneration involved the posterior columns, especially Goll's tracts, the cerebellar tracts and Gowers' columns. Below the lesion the pyramidal tracts were degenerated along the entire extent of the cord. There were a few fibers between the anterior lateral tracts which were diseased, corresponding probably to those described by Foster as the "descending antero-lateral tracts." In the posterior columns in the lower dorsal region was a wedge-shaped area of degeneration situated in the postero-external tracts just behind the knee of the posterior horns on one side, spreading faintly into a comma-shaped area corresponding in position to that described by Schultze. In the lumbar and sacral regions this was not present, but a small area of degeneration was seen adjoining the posterior fissure on each side at the peripheral half and taking the shape of a club in the sacral region.

This descending degeneration in the posterior columns is exceedingly interesting, corresponding in many respects with that already described by a small number of observers. The descending degeneration in the posterior columns which occurs in the cervical and upper dorsal regions was described first by Schultze[2] in 1883, who called it the "comma-shaped column." But Bastian[3] in 1867, Kahler[4] and Pick, and Strümpell[5] in 1880, had already described a descending degeneration in the posterior columns. This tract has since been described by Westphal,[6] Tooth,[7] Schmaus,[8] Brunn,[9] Pfeiffer[10] and Daxenberger.[11] According to Obersteiner this tract is seen when the cervical cord is destroyed and does not extend below the upper dorsal region. Daxenberger claims that it descends the entire length of the cord; but in Strümpell's case it did not reach below the seventh dorsal nerve; in Schultze's case not below the middle dorsal, and in Tooth's case it was not found below the eighth dorsal segment. Dexler[13] found the column (Schultze's) in the spinal cord of a dog which was compressed at the lumbar swelling. Bischoff,[14] in a case of compression of the cord in the upper thoracic region, described the comma-shaped tract in the posterior columns which did not extend below the eighth thoracic segment. Below this there was a diffuse degeneration about the middle of the postero-median septum. In the lumbar region the fibers were brought together and collected against the dorso-median border. This diffuse degeneration extended from the eighth thoracic segment to the sacral region.

In our case there was seen what was probably the terminal portion of this tract at the lower dorsal segment. Beginning a short distance below this was a second tract of descending degeneration, limited to that part of the posterior median tracts adjoining the posterior median fissure and extended from the periphery to half way between this and the posterior commissure. It occurred in the lumbar and sacral regions only. In the sacral region it was more marked and became club shaped. This tract has been described only by a few observers. Obersteiner mentions it in his "Nervösen Centralorgane." He states that it begins in the lumbar region as a small strip bordering on the posterior septum and takes the shape of a club in the sacral region, where it is particularly marked. It finally appears as a three-sided area along side the median line and corresponds to the oval field of Flechsig. Obersteiner calls it the "dorso-median sacral bundle." Tooth does not mention this tract in his Gulstonian lectures, delivered in 1889, though he refers to Schultze's tract, and it has also escaped description in Quain's "Anatomy." In a case recently reported by Bruce[15] and Muir, in

2 Schultze: Arch. f. Psych., 1883, p. 309.
3 Bastian: Med. Chir. Trans., 1867, p. 499.
4 Kahler and Pick: Arch. f. Psych., 1880, p. 178.
5 Strümpell: Arch. f. Psych., 1880, p. 676.
6 Westphal: Arch. d. Psych., 1880, p. 797.
7 Tooth: Brit. Med. Journal, 1889, p. 827.
8 Schmaus: Virch. Arch., 1890, p. 326.
9 Brunn; Arch. f. Psych., 1893, p. 759.
10 Pfeiffer: Deutsch. Zeit. f. Nervenheilk., 1891, ii, p. 345.
11 Daxenberger: Deutsch. Zeit. f. Nervenheilk., 1893, iv, p. 136.
13 Dexler.
14 Bischoff: Wiener Klinisch. Woch., 1896, p. 830.
15 Bruce and Muir: Brain, 1896, lxxiv-v, p. 333.

which there was an injury to the cord at the tenth dorsal vertebra, a descending tract was found very similar to that described in our case. The degeneration was irregularly spread throughout the greater part of the posterior columns in the upper lumbar region. It then became located in the vicinity of the postero-median septum and the periphery of the inner half of the posterior commissure and finally took the form of a wedge with its base toward the periphery and apex toward the commissure. Its fibers terminated in the gray matter at the base of the posterior horns on the same side. It seemed to Bruce and Muir that this tract was independent of Schultze's comma-tract and also of the cornu-commissural tract of Marie. They believed it to correspond to Flechsig's "oval field" and Obersteiner's "dorso-median sacral bundles." They call this the "descending septo-marginal tract," which seems a very appropriate name.

In the case reported by Déjerine and Spiller [16] in which there was a lesion of the cauda, an ascending degeneration was observed occupying the whole posterior column with the exception of the oval field of Flechsig; this could not be found above the first lumbar segment. It has been claimed that Schultze's tract is composed of the descending fibers of the posterior roots, but in a case reported by Tooth in which the fifth thoracic nerve was degenerated this tract was not present.

The absence of knee-jerks one week after the onset of spinal symptoms is interesting in relation to the question raised by Bastian,[17] who first called attention in 1882, to this association of absence of the knee-jerks with total destruction of the cord (Quain's Dictionary). The statement was viewed with a great deal of skepticism on the part of many observers and has not yet been universally accepted. Again, in 1890 [18] he reported cases illustrating this condition and also referred to cases of Tooth, Kahler and Pick, and Thorburn, in which the reflexes were lost in transverse lesion of the cord due to fracture dislocation. On the contrary, Gowers claims that reflex action is excessive except when the disease involves the lumbar enlargement.

Bischoff (*Wien. Klin. Woch.*, October, 1896), in a review of the literature of the subject collected thirty-one cases. He concluded that the reflexes are either lost from the beginning, or first increased and later lost in a certain percentage of cases. The reflexes were increased in two cases of complete destruction of the cord. An autopsy was made in only one of these cases in which the ganglion cells and crossed pyramidal columns were found diseased. In three cases of incomplete destruction, the reflexes were not lost. There was no autopsy in these cases. The author concludes that the reflexes may be lost when the lesion has not been complete, or may be present when the lesion has been total. He believes that the lessened reflexes are due to a condition independent of the spinal lesion, its completeness or its height, and of the ensuing degeneration. He holds that there is a paralysis of the vasomotor nerves supplying the abdominal viscera and the lower portions of the body and also of the motor and sensory fibers, causing dilatation of the vessels in these parts, and lowering of the general blood pressure. The anemia thus produced lowers the vitality in the lumbar region and hence the tendon reflexes are lost. On the other hand, Habel (Archiv f. Psychiatrie, 1897) reports thirty-one cases of which three were examined microscopically; in eight the reflexes were lost. He concludes that the tendon reflexes are lost when there is compression or total destruction of the cord, in the cervical and upper thoracic regions. He claims there is not constant loss of skin reflexes. The tendon reflexes in the case reported in this paper were lost and there was also degeneration of the gray matter and of the posterior root zones in the lumbar cord. Brunn (Archiv Psychiatrie Nervnhl., No. 25) reports a case of complete traumatic destruction of the spinal cord in the lower cervical and upper dorsal region in which the knee-jerks were lost. It is evidently essential to the decision of this question that a number of cases should be studied accurately, clinically as well as histologically. It is alike impossible to determine without an autopsy of any case of fracture, dislocation or compression myelitis, whether the lesion is limited to one spot, or to determine the amount of secondary degeneration which may follow destructive lesions.

[16] Déjerine and Spiller: Comptes Rendus d. l. Soc. d. Biologie, 1895, p. 27.
[17] Bastiau: Quain's Dictionary of Medicine, p. 1480.
[18] Bastian: Medico-Chirurgical Transactions, London, 1890, Vol. 73.

NEURASTHENIA ESSENTIALIS AND NEURASTHENIA SYMPTOMATICA.

Presented in the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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At the present day there exist, not only in the mind of the general practitioner, but even in that of the specialist, the most vague and ill defined notions concerning neurasthenia. Not only do we hear from physicians of the highest standing allusions made and views expressed in regard to neurasthenia which disclose that this all important affection has never received serious study or attention by them, but this is true to a very large extent of neurologists and especially alienists. A striking illustration of this proposition is furnished by the treatise on the pathology and therapy of neurasthenia, by Binswanger, which has recently made its appearance in Germany. This writer does not hesitate to say that under neurasthenia we are to group all neuropathic appearances which rest on a basis of a general functional disease of the nervous system but which can not be placed in the same category with the fully developed psychoses and neuroses because of their incomplete character. Surely the pages of medical literature have never before proposed, as the definition of a well defined and well known syndrome, such as neurasthenia certainly is, terms more vague or more unsatisfactory. It is largely because neurasthenia, to the superficial observer, seems uninteresting, that it is so little studied, and yet it is an affection so common, the number of cases so large, that we certainly owe it to ourselves to obtain clear, if not elementary, notions of this disease. In truth, neurasthenia is one of the most interesting affections which we can possibly study. As I will point out, its syndrome is as definite and fixed as that of any other disease with which we have to deal. Its boundaries instead of being illy defined are sharply delimited. The various symptom-groups occurring in neurasthenia, though differing widely in detail, always present

the same essential features and, from whatever standpoint they are approached, a harmonious clinical whole—a well proportioned and well defined syndrome—is seen. The work of Binswanger illustrates in reality a backward step. If it is to stand, the writings of Beard, Bouveret, von Hösling and others to whose labors we owe, in a large measure, our present notions of the disease, fall to the ground, and all the value of the pioneer treatise of Robert Whyte, now over a century and a quarter old, which differentiates this affection clearly from the allied conditions of hysteria and hypochondriasis, not to speak of the writings of Sandras, Bouchut and others, disappears.

Let us analyze briefly the essential features of neurasthenia. In the simplest form of the affection there exists a more or less marked and persistent diminution of nervous energy, and to these symptoms are added those of increased irritability both mental and physical. It does not seem that much mystery should attach to this condition; it hardly seems necessary to contend that marked chronic fatigue should present a special syndrome, and yet Binswanger would have us believe that we are dealing with a condition which presents the most vague and indefinite symptomatology. These vague notions of neurasthenia are based upon incomplete study and upon the apparent inability to systematically arrange and properly classify the facts presented. Neurasthenia is still in the position in which hysteria was until recent years in England and America, notwithstanding the French had demonstrated unmistakably the symptomatology of the latter affection. Too often neurasthenia is looked upon as a vague affection made up of numerous pathologic factors bearing little or no relation to each other. The difficulty partly arises from the fact that the symptoms of neurasthenia are in a large measure subjective, while even such symptoms as are objective lack the striking features observed in many other functional diseases. Another circumstance which has been most prolific of misconception regarding the nature of neurasthenia is that physicians have loosely described as neurasthenia symptoms which properly belong to other diseases. Thus the nervous symptoms associated with anemia, chlorosis and other diseases of the blood, the nervous symptoms associated with the diseases of the pelvic organs or with chronic diseases of the stomach, have been loosely termed neurasthenia. If the nervous symptoms associated with general somatic or organic diseases are to be termed neurasthenic, we should be careful to bear in mind that they represent something very different from true neurasthenia. I have proposed for this spurious neurasthenia the term neurasthenia symptomatica. If the fact that there exists a true neurasthenia separate and apart from symptomatic neurasthenia, is once firmly fixed in our minds, much of the confusion clinging to the subject passes away.

The next fact of importance to recognize is that in true neurasthenia, or as I prefer to term it, neurasthenia simplex or essentialis, in addition to symptoms primarily indicative of the disease, others make their appearance which are secondary in character and importance. Frequently these secondary or subsidiary symptoms are superficially evident or unusually prominent, and thus their importance is mistaken and overrated. Charcot also recognized these differences in the symptoms of neurasthenia, for he separated the symptoms into cardinal symptoms or neurasthenic stigmata and accessory symptoms. In Charcot's group the fundamental symptoms or stigmata are the following: 1, neurasthenic headache; 2, sleep disturbturbance; 3, rachialgia and spinal hyperesthesia; 4, muscular weakness; 5, the disturbances of digestion (nervous dyspepsia); 6, sexual disturbances; 7, mental symptoms. To these Charcot added the secondary or accessory symptoms, which group consists of all those not essential to the diagnosis of neurasthenia. Among them he placed such symptoms as giddiness, disturbances of the special senses, respiratory, circulatory and secretory, disturbances of general sensation, of motility and febrile conditions.

Charcot in his classification of the symptoms of neurasthenia merely grouped together as the stigmata, or fundamental symptoms, the most prominent clinical features of the disease. We will find by analysis that these symptoms are not of equal value, and this is also true of the secondary symptoms just enumerated.

If we grasp the conception of neurasthenia, that it is in reality a fatigue neurosis, the symptoms group themselves very readily in a logical and orderly sequence. Primary or fundamental symptoms then stand out boldly and with definite relations to each other. They are always symptoms which present the characteristics of weakness and irritability and which are always expressive of fatigue. The secondary symptoms are all such as are adventitious or mere secondary outgrowths of the primary. I can make my meaning clear by enumerating some of the various primary and contrasting them with some of the secondary symptoms. Beginning with the sensory disturbances we have, first, a general sense of fatigue. This sensation may be diffused throughout the entire body, but it is generally accentuated in special regions or limbs. It is characteristic of this sense of fatigue, whether it be referred to the head, to the back or limbs, that it is, in the simple and typical cases at least, always relieved or lessened by rest, and further, it is always brought on if absent, or made worse if present, by exertion. This readiness and general sense of fatigue I regard as the primary symptom, if indeed not the most fundamental of all the symptoms, of neurasthenia. Fatigue sensations when exaggerated become painful and are then described by the patient as aches of various kinds. It is frequently a headache, almost as frequently a backache, or the ache may be referred to a leg or to an arm. In the latter instance a few questions with reference to the avocation will almost always reveal the reason for the accentuation of the pain in one extremity. Thus, in a collector, the fatigue sensations were most pronounced in the legs; in a physician who used his right hand constantly and for many hours daily in laryngeal manipulations, the fatigue sensation was accentuated in the right arm.

These aches of various kinds are primary symptoms. Not infrequently, however, we have associated with these symptoms others which are secondary and which I have termed adventitious. Thus, the headache of neurasthenia may be accompanied by a sense of pressure or constriction or of fulness, lightness or distension. These sensations, depending as they probably do, upon disturbances of the circulation, are secondary and adventitious. They are not necessary parts of the neurasthenic headache and may or may not be present. Sometimes other sensations are noted, such as throbbing, sense of increased weight, whirling sensations, or vague and ill defined feelings of distress; all of these are secondary in value.

As regards backache, the simple feeling of fatigue referred to the lumbar region may be complicated by hyperesthesia, especially over the spinal gutter, where it may be distributed in patches; I refer to so-called spinal hyperesthesia or spinal tenderness. This I regard as a secondary symptom. It is a pathologic exaggeration or intensification of the fatigue sensation. The hyperesthesia, the sense of burning and the deep-seated boring pains sometimes complained of, are clearly adventitious and not primary. The achings referred to the legs or arms, present a similar illustration. It is very frequently found that in addition to, or in place of aching in the limbs the patient complains of throbbing and tremulous feelings. They are not necessarily present and are clearly adventitious. The various curious paresthesiæ of which neurasthenics complain, such as numbness, prickling, or of velvety sensations, all belong to the group of secondary symptoms.

If we analyze the various visual disturbances of neurasthenia we find that the same truth is evident. Here the principal symptoms are those expressive of fatigue. I will not analyze them in detail, but allude briefly to a few of them. One of the most common statements made by neurasthenics is that they are not able to read for more than a few minutes at a time, and if they persist, the letters become blurred and indistinct and the effort gives rise to pain, generally headache. It is probable that in this symptom there is involved a three-fold weakness of retina, muscular apparatus and cerebral centers. Irritability is noticed in the fact that many neurasthenics are unable to withstand any but the slightest exposure to light on account of the painful sensations produced. It is for this reason that so many neurasthenic subjects spontaneously begin the use of smoked glasses. Ready fatigue and irritability are primary symptoms; others are frequently present; thus, patients will declare that everything appears as though seen through a mist or veil, or that objects look exceedingly dull or unusually bright, or as though they were far away or at times excessively large. All of these symptoms are secondary in value; they are all adventitious to the primary symptom, visual fatigue.

The same difference also obtains with regard to the disorders of hearing. Slight impairment of hearing coupled with auditory hyperesthesia, great irritability to sounds, obtain in a very large number of cases, and these symptoms are primary and fundamental. In addition, paresthesiæ are frequently complained of. They consist of various forms of tinnitus, such as roaring, buzzing, whistling sounds and at other times of throbbing, beating or tickling sensations. These are beyond doubt adventitious and bear but a secondary relation to the fatigued condition of the auditory apparatus. I might point out similar disorders presented by the senses of smell and taste. I need only briefly allude to the excessive sensitiveness of some neurasthenic patients to odors and also to the fact that olfactory paresthesiæ sometimes occur. This is equally true of the sense of taste. The accuracy of the latter is often distinctly lessened and very frequently paresthesiæ are present, so that common articles of food present strange and often disgusting flavors.

When we turn to the motor phenomena we find that these also resolve themselves into primary and adventitious symptoms. Muscular weakness is so pronounced a symptom of the average case of neurasthenia that it was constituted by Charcot one of his fundamental symptoms or stigmata and termed by him *amyosthenia*. This is a primary symptom, and yet it is frequently associated with other symptoms, such as tremor, which may present itself in a characteristic manner as a fine intention tremor of the hands or it may be limited to certain groups of muscles or even to a few fibers of a muscle. When present as an intention tremor it is most readily demonstrated in the extended hands. When limited to special bundles of fibers it is most frequently observed in the muscles of expression, notably in recurring twitchings of the orbicularis palpebrarum or of a few fibers of the frontalis or the orbicularis oris. These intention and fibrillary tremors are evidently not primary but adventitious and secondary. The term primary should be restricted to the amyosthenia itself.

When we turn to the disturbances of digestion, of circulation, of secretion and of the sexual functions, the same general truth is noted. Regarding digestion, the primary symptom is that of digestion enfeebled and delayed, *i. e.*, atonic indigestion—an indigestion also associated with an atonic constipation. The secondary symptoms that sooner or later make their appearance are those of a gastric catarrh, the result of abnormal fermentation accompanied by the formation of abnormal acids. Evidently gastric catarrh with its abnormal acidity, excessive or diminished, is a secondary or adventitious condition. The disturbances of the circulation afford another illustration. The coldness of the extremities, the feebleness of the pulse, are primary symptoms and expressive of general weakness. The disturbances in the rhythm as manifested by irregular action of the heart or of cardiac palpitation, are to be regarded as adventitious symptoms. The circulatory apparatus, together with the nervous mechanism controlling it, is in a condition of irritable weakness and that, as secondary outgrowths of this irritable weakness, there should be gross disturbances of its rhythmic action, is not surprising, but these disturbances must be looked upon as secondary and not essential to the clinical picture of neurasthenia. The disorders of rhythm may be so great as to mount to most frightful attacks of tachycardia. The various heart murmurs that are occasionally noted in neurasthenic subjects are likewise to be relegated to the secondary group, as are also the loss of vasomotor tonus, as made evident by involuntary flushings of the face or other portions of the body, or on the other hand by such symptoms as aortic pulsation.

The sexual disturbances also reveal as primary symptoms, weakness and irritability, and in addition, as secondary symptoms, various paresthesiæ, such as pricking, creeping, throbbing or cold sensations. The secondary symptoms are indirect outgrowths of the primary weakness and irritability.

The psychic symptoms of neurasthenia can be isolated with the greatest readiness. The first symptom that we note is the diminution in the capacity for study or intellectual effort. To attempt to do mental work, sooner or later brings on in the neurasthenic symptoms of exhaustion. If the task be persisted in the fatigue sensations become very pronounced and in addition to headache secondary symptoms, such as sensations of constriction, giddiness and even vertigo, make their appearance.

The next symptom is also one indicative of weakness. It consists in a lack of the power of concen-

trating the attention, and this the patient frequently mistakes for loss of memory. Other symptoms of weakness are lack of spontaneity of thought, a diminution in the strength and emotional irritability. These symptoms are all referable to the primary group. In a large number of patients, however, other symptoms make their appearance, which are clearly secondary in character; associated with the general incapacity for exertion, the weakness of concentration and lack of spontaneity, there is often an apparently causeless, general sense of fear. This may be vague and ill defined and consist merely of a general feeling of anxiety. More frequently, however, it takes some definite form. The patient experiences a sudden sense of fear which is uncomplicated and may be slight or so intense as to be horrible and overwhelming, or instead, we may have the special fears which have been described by various writers, notably by Beard. They find an apt illustration in the fear which a perfectly healthy person experiences when standing at a great height, even though they know themselves to be in a perfectly secure position. In neurasthenics these special fears assume the most aberrant forms. It is hardly necessary in this connection to refer to agarophobia, claustrophobia and their congeners. Let it suffice to say that all the forms of fear, from the simple and purely generalized to the most highly specialized, all belong to the secondary group of symptoms. For some reason Charcot placed the various special forms of fear presented by neurasthenics in a third group of symptoms, but certainly, if we regard neurasthenia as a fatigue neurosis with secondary outgrowths and complications, this formation of a third group of special mental phenomena is not justified.

Neurasthenia is not a vague and ill-defined affection, as Binswanger would have us believe. I contend that it is an affection with a syndrome as well defined and established, as any with which we have to deal. The moment we regard neurasthenia in its true light, that of a fatigue neurosis, much of the mystery passes away and the essential symptoms, those directly expressive of fatigue, stand out prominently and give to the disease its clinical features. The failure to assign to the secondary symptoms their proper value has been a prolific source or error. Often these secondary symptoms are quite prominent but they should not throw us off our guard. If the case be one of neurasthenia some of the primary symptoms can always be found.

If time permitted I would invite your attention to the pathology of true neurasthenia, to the studies of Hodge with regard to the changes which nerve cells undergo during fatigue and also to the histo-chemistry of neurasthenia—upon the probable source of the uric acid which is so often found in excess and to point out how these factors enable us to draw still more clearly the differences between true neurasthenia and neurasthenia symptomatica. Finally permit me to allude to a condition which I have called "neurasthenia terminalis." It is well known that prolonged and persistent derangement of function may be followed by actual tissue changes. Thus a heart which is constantly overacting, the result of repeated and violent attacks of palpitation, may undergo hypertrophy, or the walls of the blood vessels may become thickened and if the case persists sufficiently long and be associated with deranged tissue metabolism, even atheromatous changes may take place in the vessels; or, if digestive disturbances persist sufficiently long, secondary terminal organic changes may occur in the digestive tract. That organic changes may also occur in other structures such as the muscles and even the bones, there can be little doubt. These changes are often suggestive of premature senescence. When any of these changes are present in a marked degree the case is classed by us, clinically, according to the diseased condition which predominates. In other words, simple and uncomplicated neurasthenia, if it persists long enough, results in actual tissue changes. and if the patient presents himself before these changes are accentuated in any one organ and they are slight and generalized the case should still be considered as neurasthenic, but be regarded as the terminal form. These are the cases which are largely intractable to treatment.

My object in this paper was merely to present in as condensed a way as possible my own interpretation of the symptomatology of neurasthenia and was prompted especially by the publication of Binswanger's untenable and retrogressive views. I intended to point out the difference between true and spurious or symptomatic neurasthenia and also to give to neurathenia its proper pesition in our nosology as a fatigue neurosis.

DISCUSSION.

Dr. THAYER—I had a patient suffering from headache and general prostration. She consulted various prominent neurologists and one pronounced it nervous prostration, another thought it was neurasthenia and another called it hysteria. These affections have symptoms in common, but neurasthenia must certainly rest upon definite symptoms and definite pathologic conditions of its own and must not be confused with hysteria or chorea or anemia.

Dr. CANFIELD—I think that when a physician has to deal with a neurasthenia of considerable duration he is often called upon to treat what has developed later as hysteria, and perhaps the reverse might be true. In some cases it is immaterial whether you diagnose it as hysteria or nervous prostration, so far as the treatment is concerned at the time. The "tired feeling" is the absolute criterion of neurasthenia.

Dr. LICHTY—From particular study of the secretions and of the blood in so-called neurasthenia, I have discovered that perhaps 50 per cent. of the patients suffering from this disease would be more properly classified as anemics or lithemics. When we go further into the study of neurasthenia we will reduce the number of neurasthenic patients and place them in the right category, neurasthenia essentialis being a clearly defined disease.

Dr. BELL—These cases suffer more or less from anemia in some form, and also from derangement of digestion, either stomachic or intestinal, and in order to locate the trouble it is absolutely necessary to interrogate every organ. There are cases in which the digestive difficulty is not present. I was under the impression that Dr. Vandusen of Kalamazoo was the first to describe this disease. The uric acid diathesis and the formation of chlorids are prominent factors in this disease.

Dr. MARGARET A. CLEAVES—I have found that careful attention to the matter of diet and the proper mental and moral care of these patients is of paramount importance. I have used for a number of years, with very great advantage, a combination of electric treatment with rest cure. I have known two cases of neurasthenia to go to the extent of exhaustion of the motor center so that for a long time it was impossible for the patient to stand or walk. There is no doubt that the factor of worry and anxiety has much to do with the production of the true neurasthenic state. In neurasthenia essentialis, due to exhaustion of the brain, I believe strychnia to be the worst drug that can be used.

Dr. HUGH T. PATRICK—I have come to the positive conclusion that there are at least two distinct groups of neurasthenics. The one is in every particular a fatigue neurosis—a nervous exhaustion produced by overtaxing the brain (not the spinal cord). Patients of the other class present almost exactly the same symptoms, but they arrive at the same goal by a different route, by the action of an inadequate cause. For instance, a laboring man overlifts and then develops, one by one, the cardinal symptoms of neurasthenia, by the action of sub-conscious conceptions in his cerebrum. Possibly the rest cure will benefit this man, but if it does it will only be because of its effect upon his mental state. Most of these patients

need not the rest cure, but education, occupation and gradually increased exercise, mental and physical. The business man, on constant strain, who after many years, breaks down, is a distinct type, as opposed to a nervous individual, always dominated by an idea, who receives a shock and from the effect of that develops the neurasthenic state. These two classes are certainly distinct and they should have different treatment.

Dr. Wm. G. Spiller—Neurasthenia may sometimes prove fatal; I have several times seen patients at the point of danger; I think the explanation of nerve exhaustion is applicable to such a condition and I would like to see the nervous system of such a patient examined by the method of Nissl. Within the nerve cells would be found, I think, some change of the chromophilic elements.

Dr. Moyer—My conception of neurasthenia is that of nerve fatigue; if that is not present the condition is not true neurasthenia.

Dr. Jones—The base of neurasthenia is cell-fatigue, and it makes no difference whether in a working man or a society woman. If the nerve cell is in a fairly stable condition, the patient has the neurasthenia described by Dr. Dercum; if he has an unstable nervous system, he has the form described by Dr. Patrick. The real question is as to the stability or instability of the nerve cell.

The complete exhaustion of a center seems to me rather common, although it has been looked upon, perhaps, as other than neurasthenic; but it can be very reasonably explained by the theory of absolute cell exhaustion, the cell being restored under certain conditions and the motor function returning.

Dr. Loder—There are two forms of neurasthenia as widely dissociated as any two diseases of the nervous system. I have yet to see one case of neurasthenia that did not show a very profound hereditary impress. I believe if we put the chromophilic gland under the microscope we will be able to differentiate these cases.

Dr. Augustus A. Eshner—Neurasthenia has varied causes. The susceptibility of the individual nerve cell must vary in the same individual under different circumstances. So, too, the designation of "cell tire" must be accepted as exceedingly vague. Perhaps we do not improve upon such a designation if we assume that from excessive or deranged function there result certain metabolic changes, certain alterations in cellular nutrition, which is the essential basis of these varying kinds of neurasthenia or of neurasthenia depending upon a variety of causes. This intoxication, in consequence of the obverse intracellular innutrition, may produce such alterations in neuronic, in ultimate cellular elements, as to give rise to these symptoms which we designate neurasthenia.

While many cases are susceptible to a general line of treatment, the basis of which consists in the re-establishment of internal equilibrium, and into which enter especially the elements of rest, over-feeding and the removal of general psychic disturbances, still the results of therapeutics seem to sustain the view that neurasthenia is dependent upon varied intoxications of the ultimate cellular elements, sometimes cerebral, sometimes spinal, sometimes cerebro-spinal.

Dr. W. J. Herdman—For ten years I have been studying neurasthenics with regard to their temperature. I have found it invariably abnormal; almost uniformly raised, but occasionally lowered. As elevations of temperature are known to cause deviations from the normal state of metabolism, this may become, finally, an etiologic factor. Fear is present in some cases as one of the sequelæ of neurasthenia. One patient who had recovered from this disease, suffered from a horror of elevation. It was impossible to make him go higher than the second story of a house. When in elevators it was necessary to restrain his mad impulse to try to jump out.

Dr. Cleaves—I have found that this sequel of fear has been relieved by Franklinization.

Dr. Dercum—Neurasthenia is a fatigue neurosis, and all that is not a fatigue neurosis is something else. Possibly it may be an obscure case of interstitial nephritis, in which it is necessary to make repeated search in the urine to find the proof; and you have other cases of pseudo-neurasthenia; the mere fact that they reveal some of the symptoms, though not the true syndrome, does not make them neurasthenia. There are certain persons who are born with a certain predisposition, and under certain strains become neurasthenic; these are the patients who become insane if the strain is prolonged, and who may become paranoiacs in later life.

It is possible to have neurasthenia from physical exertion. A fatal case of neurasthenia was of a college athlete who had overtrained. He broke down and became profoundly neurasthenic. It was a purely physical case; he did not study hard at college, but exercised very severely. He became a terminal neurasthenic, and grew to be like an old man. I could not get an autopsy, but as far as I could tell there was no disease of any one organ.

I have observed slight variations of temperature. It sometimes rises as a result of animal fatigue, and perhaps we have here a hint as to the temperature of neurasthenics being slightly above normal. I believe that fears are a secondary outgrowth. They belong to the secondary symptoms, and I suspect that in those cases in which they are so tenacious, and become a part of the individual, there is some neuropathic strain.

With respect to the pathology of neurasthenia, it seems to me very unfortunate that we have not paid more attention to the remarkable results of Hodge's experiments on the fatigue of nerve cells. Hodge first studied bees from the same hive. Several were penned in the hive; others were on their flight all day carrying honey. He killed one of each at the same hour, took the same ganglion from each and compared them. He always found that the cell from the bee that worked was smaller, and there was a tendency to vacuolation of the general cell contents, while the nucleus stained differently. He tried similar experiments with pigeons, and the cells showed the same changes. He excised the posterior spinal ganglia in cats. To exclude all possible sources of error he would take the same ganglion on the two sides, exciting one by the electric current. There were marked changes in cell substance.

The urine is never normal, and there is always some derangement as regards the uric acid. The excessive nuclear waste would account for the increase of uric acid in these cases.

The protonucleins stimulate these cases, but the amount of good has never been enough to make it an essential part of the treatment. It is probable that such benefit as has been obtained from the Brown-Séquard injections is due to the fact that the elixir contains a very large amount of the protonuclein in its active form.

I have come to the conclusion that strychnia increases the nervousness. I use it only occasionally and in small doses.

Generalized forms of fear get well without any trouble; specialized forms in my experience do not, except sometimes spontaneously. In some way perhaps the tissue metabolism is changed by the Franklinization.

Dr. G. Betton Massey—If neurasthenia is caused by fatigue, you would find it in the Adams expressmen, the trunk lifters and carriers. Nerve cells change under the expenditure of energy, but it is a mistake to attribute those changes as an exactly similar condition in neurasthenia. It seems to me that the fatigue neurosis is a relative one.

MELANCHOLIA AND ITS TREATMENT.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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The symptoms are despondency, sorrow, fear and despair in degree beyond the natural emotions. Anxiety, grief and fear are peculiar to the normal mind and it is only when they exist to such a degree as to be beyond the power of reason and not in harmony with the laws of logic that we may justly style them morbid or call them delusions. Melancholia, as a rule, does not come on abruptly; on the contrary it is a condition of slow growth, with bodily symptoms of so trivial a nature as to scarcely attract attention; notwithstanding, we believe it is more frequently due to physical conditions than otherwise. Melancholia does not necessarily follow neurasthenia. Observation of cases coming under our treatment strongly incline us to the belief that we should look for toxic causes, auto-toxic substances, poisons created within the body, which, step by step, exert a destructive influence over cell formation, while degenerative changes and insanity follow later. We do not pretend that there are no other than physical causes for mental diseases, or that insanity may not be the product of two or more generations or the outgrowth of arrested evolution, powers destroyed or undergoing changes retrograding; we do know that the various mental diseases

imply pathologic implications of the brain; that the brain is touched, in one way or another, and is no more normal in its functions; that its vascular apparatus, its cells, ganglia, meninges or other bearings are involved directly or reflexly. Admitting as we do that the brain is involved in insanity, that it gives expression, we do not concede that the brain is alone or always primarily at fault in mental disturbances, but rather that the mentality of the individual and all the conditions, both physical and psychical, that make up the impressions and expressions are, in fact, the phenomena of insanity.

The nervous symptoms and mental manifestations arising primarily from auto-intoxication due to retained fecal or urinary constituents do not directly produce the nerve reaction; in other words, nerve reaction can not produce infection, except by making infection possible by weakening the defense which a healthy organism naturally offers to the invasion of microbes, or by modifying nutrition so as to develop a medium favorable to low forms of organisms; a weakened or a disturbed nervous system produces defective nutrition, which in turn opens the inroads of infection. Not only are the inroads opened by disturbed nutrition and nerve action, but there also follows an interference in the distribution of the force, which liberates certain substances elaborated by the different organisms by modifying, augmenting or diminishing the normal proportions; hence myxedema is dependent upon perversion of the functions of the thyroids, as will be shown in our enumeration of cases in the course of this paper.

It may be truly said that within the human organism there exists a constant tendency to toxemia from accumulations, and that intoxication can only be avoided by a perfect performance of functional integrity. In melancholia it is the slight exhibitions or manifestations that are of prime importance. The early recognition of the initial symptoms affords an opportunity to ward off an attack that may later lead to insanity. In the melancholic we meet with the self-conscious, or with a lack of buoyancy and self-reliance; morbid fears are more or less marked, so much so as to be justly called delusions, out of which the individual can not be reasoned. Yet there may be no hallucinations whatever. He is aware of his defective judgment and anxious to rid himself of all, yet try as he may, the tendency is to recall, to revert to that which is troubling him whether there be any real foundation or not. There seems to be a lack of power to fix the mind upon anything else; strength of reasoning is gone, a dislike for association with others, a strong aversion to meet those they otherwise know to be their friends is fixed within them; with many there is a periodic aversion to those most dear to them. Instead of the usual marks of affection there are marked explosions of dislike and hatred, jealousy and suspicion. Jealous without the least provocation, jealous of everybody. If it be a married lady, she criticises every move of her husband, suspects every one of her own sex, imagines that all women want her husband, that every little courtesy shown to other women by her husband is meant as a slight to her. Such feelings dominate her entire nature, and her sufferings in consequence are indescribable; jealousy is a marked symptom in the melancholic, and when possible to trace melancholia to its actual source, a very large per cent. originates in domestic unhappiness, disappointed love and incompatibility. In the management of such cases much depends upon the environments: separation from all that has surrounded the sufferer during the period of development. Nothing so encourages or feeds the morbid feelings or fires up the outbursts of hatred and dislike as being in the presence of the object of that jealousy, or other unnatural feeling. While it is well and proper to cheer and sustain and soothe our patient by words and acts, it is equally necessary to check and reprove by denying certain indulgences. Separation from relations is ofttimes a cure in itself. The sympathizing acts of relatives tend to increase the morbid imagination already in the mind of the melancholic. We can no better express our reasons for believing it all-important to remove the melancholic from his home than to quote the language of Dr. Pinel. It is, he says, "generally so sweet to an invalid to be in the bosom of his family, there to receive the care and consolation of a tender and compassionate affection, that it is with pain I announce a sad truth, one established by repeated experience; namely, the absolute necessity for confiding the mentally disturbed to the hands of strangers and isolating them from their relatives." It is well to bear in mind that not infrequently family differences and domestic discord are closely connected with the origin of the mental disorder. The successful management of the melancholic not only requires separation from friends and home but the help of those trained to assist—a physician and nurse. To the trained or skilled nurse many of the details of treatment are dependent. A properly selected attendant, one possessing a large amount of patience and endurance, full of humanity, intelligent, zealous in his endeavors to carry out the directions of the physician, is invaluable, and no melancholic case has a reasonable chance of recovery without such constant help and attention as can only be afforded them through proper attendance. Attendants have many privations and discomforts to endure in addition to the responsibility accompanying such a position; and if they be conscientious and diligent, deserve words of commendation and appreciation from those in authority. It is the attendant that hourly hears the complaints, and he needs have a ready answer at all times for the poor melancholic, to offer cheer and to lead the perverted mind into brighter fields. Much, indeed, depends upon the tact of the attendant in imparting hope and in leading the patient to believe his disease is a physical one or dependent upon physical causes. A melancholic patient should never be allowed to understand that his disease is one of the mind. Their greatest fear is that they will become insane. A good attendant will never allow an intimation of mental trouble to be made in the hearing of his patient.

Treatment.—Medicinal therapeutics do not offer anything very satisfactory, although much can and must be done to ameliorate the suffering, imaginary and otherwise. Since constipation is an accompaniment and is either due to natural sluggishness or want of attention, we would commence by giving a brisk calomel purge to unload the accumulations and possible cause of auto-intoxication. Frequently the patient brightens up at once and remains so if the condition of the bowels is watched carefully; but if they are allowed to become inactive there will be almost invariably a relapse. So, in regard to the urinary secretions, careful attention is important. A kidney lesion may and often is an important factor in the accumulation of toxic products. The habit

of defecating at a stated time should be encouraged and required. Antiseptics, as salol, naphthalin, etc., are of value and can be used to some advantage for their local antisepsis on the intestinal tract. Insomnia is a feature of great importance and one controlled with difficulty in many cases. If the true cause of worry can be ascertained and removed an important point is gained; if the circulation is slow and extremities cold, static electricity will do more than all else in procuring sleep, by improving the circulation; if the skin is dry and husky, with coldness of the extremities, Turkish baths with the accompanying rubbing and manipulations are indicated; if such means together with judicious counsel by the physician giving moral support in words do not overcome the sleeplessness then drugs will have to be given. Kola, bromids and chloral are about the safest and best. Codeia we use with considerable success in doses ranging from 0.016 to 0.1 gram, it produces rest and sleep by its inhibitory power over nerve irritability. Hyoscin used hypodermically is of all drugs the one that soothes best and lasts longest. We have never seen an untoward symptom follow its use. It must be remembered that hyoscin is one of our most powerful relaxants, a cerebral sedative and hypnotic; especially indicated in melancholic frenzy and motor excitement.

Systematic exercise, occupying the entire time, is of great importance; giving exercise consistent with the patient's physical condition is very important and tends to divert the mind. Walking, riding, playing games, rowing, chest-weight exercise, dumb bells, etc., are excellent. Thyroid feeding reaches some cases. We have been using thyroid almost since it was first suggested or could be obtained. It has, in our experience, proved curative in one instance, which we shall give. At the present time there are diversified views as to its action. It is our opinion that it will be found of value only in the degenerate conditions and myxedematous cases with possible atrophy of the thyroids. There must, at least, be defective functional activity of the thyroids, since it would seem that they secrete something that acts as an antitoxin and in that way counteracts the tendency to intoxication and consequent mental impairment, or there is in the blood of the mentally disturbed a toxin that the normal thyroid is incapable of antagonizing; hence the necessity for supplying thyroid artificially. It is, we think, pretty conclusive that the thyroids supply to the circulation a substance that is required to maintain its proper composition to sustain brain nutrition, or their secretion prevents auto-intoxication by destroying the poisonous products of metabolism. The results of thyroid treatment at Riverview Sanitarium warrants, we believe, the conclusion that thyroid can not be looked upon as a remedy for mental disease or that it may be generally used in all cases; on the contrary, it is applicable in cretinism and mental degeneracy of insanity. Myxedema is comparatively a new disease, attention having been called to it only about twenty-six years ago, and is primarily a bodily disease. Mental impairment follows after a time. We had great hopes after reading the report of Dr. T. S. Clauston, medical superintendent of the Royal Edinburgh Asylum, in 1892, on the use of thyroid, that a means had been discovered that would reach a large per cent. of insanity cases. Later reports together with our own experience even in mild mental cases, show that our hopes were placed too high. It is, however, certain that thyroid extract is a therapeutic agent of value in selected cases and that cell changes are affected by it in a remarkable manner; the quickened circulation undoubtedly increases metabolism.

Case 1.—Miss A., age 28 years, admitted March 28, 1896; weight 185 pounds, German descent, American born; showed mental disturbance three years previous but seemed to recover, relapsed May, 1896; when admitted was at times erratic, at others stuporous; slow in decision; strong erotic feelings; myxedematous appearance. Thyroid was given in 0.32 gram doses, t. i. d., for a period of ten days; patient's circulation or pulse rate was increased with complaint of fulness in the head, palpitation, fibrillary twitching of hands, crawling sensations with increased erotic feeling. It was thought best to discontinue the remedy, as there was a general aggravation of the symptoms.

Case 2.—Mrs. R., age 46 years, had been an inmate of an asylum eighteen years previous, during her puerperal state, since which time had remained well. When admitted showed decided nervous symptoms, insomnia, meaningless laughter and extreme restlessness with outbursts of religious excitement. Thyroid was given in 0.32 gram doses the first three days and increased to 0.65 gram, t. i. d., with steady increase of insane symptoms; at the end of third week it was necessary to remove her to an insane asylum.

Case 3.—Miss P., age 33 years; admitted Oct. 12, 1896; had been ill over a year; whole disposition had changed from an active worker and unassuming maiden lady to the belief that she belonged to some man or ought to, showing marked erotism in various ways, whole mind seemed to be upon man, how this or that one could save her, etc. Thyroid was given in increasing doses, beginning with 0.32 gram, t. i. d., believing the extract might be indicated from the degenerate tendency of the mind; after the doses had been increased to 1 gram, t. i. d., the erotism had so increased as to make it necessary to watch the patient every moment, lest she, in her uncontrollable condition, would make a show of herself; every expression and movement as well as words showed intense sexual excitement; the thyroid was discontinued. Hyoscin and codeia was given in moderate doses and in five days the undue sexual feeling was gone. The patient remained under our observation and treatment for a period of three months, when she had recovered to such an extent as to be sent to her friends cured.

Case 4.—Miss A., again on thyroid, Dec. 18, 1896. She is of a neuropathic family, the history is, that an older brother had Basedow's disease at one time in life; at the age of 24 the patient received a shock that seemed to produce a condition of uncertainty and confusion of mind which unfitted her for her work, that of a typewriter and stenographer. For some months she continued to show nervous conditions and mental impairment, at times talked of others having an influence over her and that her thoughts were not her own. She was never truly insane nor so declared, neither was there any necessity for any special restraint; never suicidal or homicidal; sometimes excited, at others depressed, but never to a very unpleasant or unreasonable degree; in such a state she continued for a period of about two years. As time went on she showed signs, in various ways, of increasing erotism, delighting in relating her experience with men and her ideas of man and his relations to women, marriage relations, etc., often expressing the belief that marriage would be a cure for her; physically she presented no marked myxedematous appearance, at least there were no well-defined symptoms of myxedema: there was a strong tendency to increase weight, face was lardaceous and pasty, hands somewhat clubbed and finger strutted, skin greasy. Thyroid was given in increasing doses, commencing with 0.32 gram doses, t. i. d.; after the fifth day the doses were 0.65 gram three times a day; at the end of four weeks she was taking 4 grams per day, at which time the improvement was so marked in every respect that she was declared well by one of the leading neurologists of the country; the erotism had all disappeared, she was again the modest girl of former days, improved in every direction; yet we looked upon the case with some degree of suspicion, fearing that by the withdrawal of the drug she might have recurrent symptoms; the state of high tension in the circulation had been kept up for a number of weeks, pulse ranging from 90 to 120 a large part of the time, with but little elevation of temperature or other looked-for attendant symptoms while under the thyroid treatment; the urine presented nothing abnormal at any time; some nausea at times and one diarrheal attack during the first six days; under advice it was thought best to gradually withdraw the thyroid and let the circulation come down to its normal rate. The thyroid being reduced to a minimum amount, 0.32 gram per day, close observation was kept over the patient and after

she had been on the minimum amount five days, recurrent symptoms came on; she became disturbed and erratic and a complete relapse followed. After watching the symptoms a few days the thyroid treatment was returned to and given in increasing doses; no apparent change was noticeable until 3 grams per day were given. After the second week the maximum amount of 4 grams daily was given. Decided improvement followed and after being on the full doses one week and a half she showed none of her unnatural symptoms or feelings; in both instances the improvement under the thyroid treatment has been striking and progressive. There can be no doubt as to the cause of the change. We now believe it will be necessary to continue the thyroid treatment for an indefinite time and that her thyroids are defective in supplying a needed element.

While we have not seen such changes as Dr. Clauston of Edinburgh, Dr. C. K. Clark of Kingston, Ont., Dr. Chas. G. Hill of Mt. Hope Retreat, Baltimore, we do believe the thyroid should be tried even though myxedematous appearances are not apparent.

DISCUSSION.

Dr. CANFIELD—My experience with hyoscin in insomnia and melancholia has been very unsatisfactory and I have recently given it a very thorough trial. In one case, the insomnia seemed to vary more than with the dose of trional which I had advised, finding at the beginning that hyoscin was not powerful enough in itself to give any satisfactory sleep. I have found in some other cases that it is more uncertain than almost anything I know of as a hypnotic. Has Dr. Watson found any kind of diet efficient in these cases? I could get no satisfactory results along these lines.

Dr. WATSON—I have not found any line of diet that is worth mentioning as being reliable.

Dr. C. H. HUGHES—When hyoscyamus was first introduced into practice Merck sent me the amorphous hyoscyamus. I tried it to my entire satisfaction. After leaving the asylum I tried it considerably. I recollect a case that began with acute mania, in which the immediate effect was magical, after the ordinary doses of chloral hydrate had failed. I think the result was to prolong that and other cases. I began the use of hyoscyamus about 1872. It seemed not to do the case any good except to produce sleep. In a case of maniacal excitement there is nothing like hyoscyamus. In treating melancholia I always give codeia, in doses adequate to make an impression on the patient and change his psychic feelings; then I withdraw it. It is surprising how small a dose of codeia will suffice in many cases. Less than 0.065 gram is not effective, but 0.13 gram of codeia, combined with aloin given three times or twice a day, after the morning and midday meals, is generally sufficient.

Dr. KINDRED—I would favor hyoscin in preference to the other related alkaloid. I have found, as a point of difference in the histologic action of the two, that while hyoscyamus gives a most distinct action as a motor sedative, it does not cause sleep so surely as hyoscin. Hyoscin, in my experience, has acted much more happily than in that of Dr. Canfield. I usually expect to secure from six to eight hours' sleep from a full dose, which I would call $\frac{1}{50}$ grain (0.0015 gram) usually, or, if there be any idiosyncrasy or any danger from giving so much, a dose of $\frac{1}{100}$ grain (0.0007 gram). With regard to diet in melancholia, I would refer to the method employed by Professor Clauston, which he calls over-feeding. It is only a system of filling the economy with albuminous material. He uses pure milk and egg, sometimes combined with vegetable food in the form of liquid extract. He gives from a pint to a quart of this albuminous mixture, every three or four hours. That, I believe, has the advantage which he claims of building up the nutrition as rapidly as possible, as is necessary in melancholia, which is the result of mal-nutrition. But it has the further advantage of leaving as little residuum and debris in the intestinal canal as possible. Since, as Dr. Watson claims, this condition may even result from auto-intoxication, that is an important point in treating melancholia.

In reply to a query Dr. Hughes stated that he did not use hyoscin to the exclusion of chloral hydrate or some form of bromid, preferably bromid of sodium. He would not rely on hyoscin except as a pure hypnotic to coerce sleep in cases in which the necessity for bringing about sleep immediately is imperative. He did not use hyoscyamus at all.

Dr. WATSON—In regard to the use of bromid of sodium in such doses as 4 grams or more, I very frequently find that my patient seems to be more depressed afterward, while the less frequent doses of hyoscin seem to have a less disastrous effect. Bromid in combination with strong bitter tonics may sometimes be safely used.

RUMINATION IN MAN.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

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Merycism, or rumination in man, although described by ancient medical writers, has attracted but little attention until within the past few years. Hammond, who reported a case in 1894, said that only about fifty cases had been recorded up to that time. Since then, however, a number of additional cases have been recorded, both in this country and abroad. I have however been able to find only thirteen reported in America, but in Europe a great number of cases have been added to the literature in recent years. The American cases are:

Hubbard: *Medical Record*, 1886, p. 122, one case.
Max Einhorn: *Medical Record*, 1890, p. 38, two cases.
Charles Shattinger: *Medical Fortnightly*, 1892, p. 163, one case.
W. A. Hammond: Proceedings of American Neurological Association, 1894, one case.
D. W. Graham: *Chicago Medical Examiner*, 1894, Vol. xv, p. 118, one case.
Edward Runge: *St. Louis Med. Review*, 1894, p. 121, one case.
Edward Runge: *Boston Med. and Surg. Journal*, 1895, Vol. CXXXII, p. 575, three cases.
Albert Abrahams: *Medical News*, 1895, p. 405, one case.
David Riesman: *Journ. of Nervous and Mental Diseases*. 1895, two cases.

It is probable that a great number of mericoles exist whose cases have not been reported, being regarded by their physicians as cases of ordinary indigestion with vomiting. It is also likely that many persons who have the habit of regurgitation of their food are withheld from saying anything about it, either because they do not think it worth while to consult a physician, or because they are ashamed to speak of it. Brown-Séquard and Blanchard were mericoles, and the latter has written a treatise on rumination.

The disorder was described very fully by the great Italian anatomist, Fabricius ab Aquapendente, in 1687. He seems, however, to have been somewhat tainted with superstition in regard to the subject, for he describes two cases of merycismus, one of which was a nobleman alleged to have two horns on his forehead, and the other was a monk whose father had a little horn on the forehead (Lemoin and Linossier, *Rev. de Méd.*, 1894, p. 177). Pipelet wrote the first really scientific paper on the subject, in 1786.

Rumination or merycism must not be regarded as the simple regurgitation or vomiting of food. It is a return of the food shortly after it has been swallowed, unattended by nausea, retching or disgust. In many cases only the portions of food which need remastication are returned. The regurgitated food is either rejected from the mouth, or it is remasticated and again swallowed. The act of rumination in man is analogous to the process of rumination or chewing the cud in certain of the lower animals. This act in the herbivorous animal is probably the result of evolution. Blanchard (on rumination, "Handbook of the Medical Sciences," Vol. VIII) says that "the habit of rumination was acquired by certain animals at the time that the carnivora first appeared upon the earth. Fearful of attack, the ruminants grazed rapidly, ready for flight at the first intimation of danger; then, having reached a place of safety, their food was regurgitated and masticated thoroughly." "A similar condition"

he asserts, "is obtaining in man in this age of hurry, and unless we learn to be more deliberate in our eating, and masticate our food in the first instance more carefully, the interests of digestion will compel the regurgitation and re-chewing of the food which has been so imperfectly prepared for the action upon it of the gastric and intestinal secretions, and in time this process, which is now exceptional in man, will become habitual." This, we hope, is a fanciful idea on the part of the writer. Man will first have to acquire a digestive organ similar to that of the ruminants before he can begin the same process of digestion as they have. In the young of the ruminants, the stomach is a simple organ consisting entirely of the abomasum or rennet. As the animal grows older and begins to eat grass, the stomach becomes divided into other compartments, and in adult life the stomach is a large and complicated organ, consisting of four distinct compartments—the rumen or paunch, the reticulum or honey-comb bag, the psalter and the abomasum or rennet. The food, after its first imperfect mastication, passes into the first and second stomachs. After a short time, dependent upon circumstances, the food is regurgitated into the mouth where it is remasticated and then swallowed in a state of fine subdivision which permits it to pass through the narrow aperture between the reticulum and the psalter. Then the food passes into the abomasum or true stomach, and is there subjected to the action of the digestive juices. In the act of regurgitation two factors are present, one the lessening of the intra-thoracic pressure, and the other the aspiration of the gastric contents. The stomach itself is probably a passive agent in the act of regurgitation, as it is in the act of vomiting. There is, however, an anti-peristaltic movement in the esophagus as soon as the bolus enters this canal.

Rumination is a reflex act and is controlled by a center in the medulla oblongata. The nerves concerned are the pneumogastric, the phrenic, and the motor nerves of the abdomen, stomach and the esophagus. The process of rumination in man has been carefully studied by several writers, and is regarded by all as being practically identical in its mechanism with that of the herbivora; "the factor of paramount importance being the closure of the glottis and the descent of the diaphragm, but while the mode of its production has been quite fully elucidated, we are still ignorant of its ultimate cause."[1]

No constant anatomic lesions have been noted. The lower end of the esophagus has been found dilated in one or two cases, but this has not always been observed and, on the other hand, a dilatation of the cardiac end of the esophagus has been found in cases that did not present rumination.

The causes of rumination have been variously assigned by different writers, but the majority of observers agree that in nearly all cases of merycismus there is a neurotic diathesis, and that neurasthenia plays a large part in the production of the affection. Lemoin and Linossier (op. cit.), who have collected a number of cases, believe that the majority of mericoles are neurasthenic. These authors explain the process as a means of correcting acidity, the salivary juices diminishing it in each act of reswallowing. Singer ("xxx," *Deutsches Archiv für Klin. Med.*, 1893, No. 1, p. 503), in an elaborate article on the subject of rumination, gives the following conclusions: "1, rumination and regurgitation ought to be identical with each other; 2, rumination is the expression of a nervous constitution; 3, the next reason for the condition is the relative insufficiency of the cardia; 4, the mechanism consists of an aspiration of the stomach contents into the relaxed cardia by reason of the ramification of the air in the thorax, occasioned by a simultaneous expiratory act of the closure of the glottis; 5, the regurgitation of the food can be prevented by expiratory acts; 6, the *antrum cardiacum* corresponds to a widening of the esophagus, demonstrable in life; it occurs from stretching, by swallowing large pieces of food; 7, rumination is to be differentiated physiologically and clinically from vomiting; the only form that it can be allied to is nervous vomiting; 8, the relation of the function of the stomach is constant, and has the complex symptom of rumination in all the significance of an accidental occurrence; 9, regurgitation in diverticular formation and in dilatation of the esophagus is different from rumination in the predominance of difficulty in swallowing; 10, hasty eating and much fluid drink must be avoided; medication should be directed to tone up the cardia."

My own experience, and that of the writers above quoted, lead me to believe that in the great majority of cases rumination is dependent on a condition of either neurasthenia or hysteria and that it rarely occurs in healthy persons, although this may be the case. Heredity undoubtedly plays a part in the causation of the disease and this may be indirectly through a neurotic diathesis, or the disease may be directly transmitted as in the case recorded by Runge, (*Boston Med. and Surg. Jour.*, 1895, p. 515). In this instance a father, son and son's son were all mericoles. In a case reported by Lemoin and Linossier the patient had a brother who had the habit of merycism. Two varieties of rumination are observed; one which depends upon a previous condition of gastric indigestion and the other which is simply a habit or it may be the expression of a neurasthenic condition. In other words, there is a digestive and a neuropathic merycism. In most mericoles the process is perfectly natural and if this is interfered with they suffer some discomfort or some stomach disarrangement occurs. A German physician, Nacke (quoted by Riesmann), who is a sufferer from this affection and who has studied his own case carefully, is convinced of its relation to neurasthenia, for he found that whenever the nervous system was most unstable the rumination was most energetic. Singer (*op. cit.*) says, that the act of rumination is prevented by sexual excitement. Runge (*St. Louis Medical Review*, Aug, 18, 1894) has reported an interesting case of rumination and has advanced a very ingenious theory as to atavism as a cause of merycism. The arguments which he advances are the development of the stomach by the laws of natural selection by which the conditions of the animal are adapted to the environments. We can scarcely accept this theory, as the connection between man and the ruminant with his four stomachs is too remote. The manner of eating and the character of the food eaten has, no doubt, much to do with the production of rumination in persons predisposed to nervous disorders. Hasty eating and imperfect chewing and drinking much liquid with meals is a frequent cause. Rumination may be the result of imitation, as seen in the case of two children reported by Koerner (*Deutsches Archiv für Klin. Med.*, Bd. xxxii, p. 554). Their governess was in the habit of regurgitating her food and the chil-

[1] Riesman: Journal of Nervous and Mental Disease, June, 1895.

dren copied the practice; they were cured when the governess was sent away.

The symptoms of rumination are very constant. As a rule, at a period varying from a half hour to an hour after a meal, the patient begins to have a return of the food into the mouth. This occurs without any discomfort or nausea and generally without gas. The patient is usually unaware that regurgitation is about to take place. The food tastes pleasant and the patient usually swallows it again immediately, or if there be any large particles of food which have been imperfectly masticated, rechews and swallows them. Most patients declare that the different articles of food can be tasted and discriminated from each other. A patient, whose case is related by Riesman, said that when he drank beer it was returned and tasted more pleasantly than it did at first. Other writers have found that mericoles assert that the food tastes pleasanter when regurgitated. The period of rumination lasts from a half hour to two hours and then ceases. At times a condition of hyperacidity of the gastric contents is found, but a large number of examinations made by different writers show that there is no constancy in regard to this condition. In dyspeptic rumination the food which is rejected may have a sour and disagreeable taste.

The following cases of rumination have come under my own observation:

Case 1.—Robert G., aged 20 years, waiter, referred by Dr. Thomas C. Potter. The family history of the patient was practically negative with the exception of neurasthenia in a sister. There is no knowledge of nervous disease or of the disease from which the patient suffers. In his childhood he had measles, urticaria and subject to rheumatism. Syphilis is denied and he says that his habits are good regarding alcohol and tobacco. He applied at the Orthopedic Hospital and Infirmary for Nervous Diseases, September, 1896, for the relief of nervousness, insomnia, general trembling and indigestion. The extreme nervousness was of recent date, but the indigestion was of ten years duration. It was found upon inquiry that since the age of 10 years he had been in the habit of regurgitating his food soon after it had been taken. The regurgitation began at various periods after eating; often immediately after a meal and never later than a half hour after. The act occurred irregularly at first, but soon became a constant occurrence. The intervals have varied, and lasted from three to nine hours after eating, though usually the period was from two to three hours. The food is agreeable in taste at first, but toward the latter part of the period of regurgitation becomes disagreeable and the patient has some discomfort of digestion. The amount regurgitated usually fills the mouth. While in a recumbent position there is usually some abatement in the symptoms, but it is never entirely prevented. It never occurs during sleep, but may continue for a half hour after he has gone to bed. If he makes an effort to restrain the act there is pain in the epigastrium. The food often fills the mouth before he is aware of regurgitation, but there are times in which it may be felt rising from the stomach through the esophagus. If rejected from the mouth the food is found to be in a mushy or semiliquid state and if allowed to settle forms two layers; a liquid layer below and a white curdy layer above. Milk is returned curdled but not sour. He asserts that he has always been discreet in his diet, chewing his food thoroughly before and since the onset of the disorder, and he can give no explanation as to its development. An examination of the patient shows a generally neurasthenic state. He has the usual subjective sensations of the condition, such as a sense of bulging of the temples, pressure and pain at the nape of the neck and heaviness about the eyes. He is very nervous and exhibits a general tremor when excited. Knee jerks are active but not spastic and there is pseudo-clonus of the left ankle. Pupils are normal; there is no motor paralysis or sensory change. The heart and lungs are normal; the appetite is poor; the bowels constipated and the tongue is coated. An examination of the epigastric and hypochondriac regions disclosed no abnormality in the area of stomach tympany.

Case 2.—Harry B., aged 39 years, works in a butcher shop, married. Applied for treatment Nov. 12, 1894. Has had good health until somewhat more than a year ago, when he began to suffer from severe frontal and temporal headaches. These headaches answered the description of migraine and occurred after excessive use of the eyes or exposure to unusual excitement. His family history is negative as is also the personal history previous to the present trouble. He has been temperate in his habits and has had no serious illness. For a year he has had regurgitation of food, especially after taking any indigestible substances. The food is returned almost immediately after eating and is not disagreeable to the taste. It is usually swallowed without being rechewed. The patient has more or less indigestion and a sense of epigastric discomfort after eating. The condition on examination is as follows: General nutrition fair; tongue coated, flabby, glossy, and is tremulous on protrusion. The patient is in a general neurasthenic condition. He complains of fulness in the head; has a poor memory and the eyelids are tremulous. The attacks of headache occur about once a week. The eyes were found to be astigmatic. The reflexes were normal and the urine showed no sign of kidney disease. The act of regurgitation occurs now after almost every meal. The patient was treated with cannabis indica and regimen directed to the relief of his neurasthenic condition. The regurgitation was entirely relieved and had not reappeared when the patient was last seen after an interval of about six months

The two following cases are not instances of typic rumination because the food is not reswallowed after regurgitation from the stomach, but the process is allied to that of merycism.

Case 3.—Mary W., aged 5 years, was brought to the Orthopædic Hospital and Infirmary for Nervous Diseases March 18, 1895, with the statement that she had vomited every meal immediately after eating. The food was returned within about ten minutes after its ingestion; there was never any nausea and the food was but little changed in appearance; it was never remasticated nor reswallowed. There was nothing of note in the family history except than a maternal cousin was an epileptic. The patient was born at term without complications; speech was developed normally; she walked early and the teeth were cut in good time. Except an attack of measles and whooping cough at about 4 years of age, the patient has had no ill health. The patient's condition was as follows: Her general nutrition was fairly good; face flushed; appetite good; slept well; no headache; knee jerks were normal; heart and lungs normal; patient's mental state was slightly below par.

Case 4.—Miss G., aged 30 years, has for years been exceedingly neurotic and hysteric. Her mother is nervous and at least one of her sisters is of a highly nervous temperament. For years she has been eccentric in her eating and has refused to take food, except in the smallest amounts, for periods of several months, so that she has at times become emaciated to the last degree. She has been in the habit of taking champagne, to the amount of about a pint a day, for the past two or three years and for several months has taken chloral to induce sleep. She is irritable and exceedingly perverse. She has been in the habit for some years of regurgitating her food immediately after it is eaten. The food is brought up in large quantities, more by an act of vomiting than true regurgitation, but the act is performed without nausea or effort. The food is not disagreeable in taste or odor. There are intervals when the patient retains her food, but it depends rather more upon inclination than otherwise.

Prognosis.—The prospect of recovery in rumination is not good and this would naturally be inferred from the nature of the affection. Many cases improve to a great extent under appropriate treatment and often with no treatment there are intermissions of one to three years, but sooner or later there is a return of the habit. In many cases patients voluntarily return to the practice of rumination, either because they like to retaste the food or the regurgitation of the food relieves some gastric distress.

Treatment.—This consists mainly in attention to the general health of the patient. There is generally a neurasthenic condition and this should be relieved if possible by an appropriate line of management. In many cases the habit of rumination will be arrested as long as the patient's general health is up to standard and there a is a return of the trouble as soon as

there is any failure in the general health or recurrence of the neurasthenia.

In one of the cases which I have reported the rumination ceased when the patient's general health had improved and did not return as long as he was under observation, although the attacks of migraine, for which he had originally come for treatment, persisted. There are practically no therapeutic measures of use in these cases, with the exception possibly of nerve sedatives and tonics. If there is gastric indigestion this must be corrected. Lavage is an important procedure in the management of cases of rumination dependent upon indigestion. The diet should be carefully regulated, and what is of great importance, the amount of liquid taken with a meal should be reduced to a minimum. Thorough and complete mastication of the food is also an essential matter in this disease. The patient should be trained to control the inclination to regurgitation of the food. Hypnotic suggestion will probably prove useful in the management of such cases, although I have seen no record of any treatment by this measure. Hammond stated that the patient whose case he reported before the American Neurological Association was mentally defective, and with a view of relieving the psychical condition he trephined the skull, first in one parietal region and then in the other. The merycism ceased after the first operation and had not returned at the time that the case was reported. In this instance, no doubt, the checking of rumination was due to suggestion.

DISCUSSION.

Dr. JAMES HENDRIE LLOYD—This would seem to be a neurotic state allied to the condition of hysteric vomiting. I do not think in hysteric vomiting it is common to have true rumination, and there is constant attempt at retching—probably more a condition of esophagismus, a tendency to regurgitate through the esophagus. In an idiotic child that came under my observation there was regurgitation from the mouth, the food being disgorged, reintroduced into the mouth and eaten over again. The procedure resorted to in the case reported by Dr. Hammond seems hardly worthy of being followed. The treatment is by suggestion, and we can get ideas into people's skulls without making holes to put them in!

Dr. CHARLES H. HUGHES—I think the better treatment is by digestion rather than suggestion. I have been accustomed to associate the majority of these cases with conditions of dyspepsia in persons of neuropathic diathesis. I have seen these cases in neurasthenia. When I first read Trousseau on "Apepsia Nervosa," and subsequently gained a great deal of experience with nervous dyspeptics, I found that there were many of these conditions in which regurgitation took place and in some instances the food was rechewed.

Dr. SINKLER—I think the point is that rumination is not a condition of indigestion; the food when returned is sweet and pleasant. As soon as it becomes fit for intestinal absorption it passes out of the stomach and ceases to be returned to the mouth. Dr. Lloyd's remarks remind me that several cases of rumination have been reported in idiots. There is one suggestion that can be made in regard to this habit, that it is a form of digestive perversion like sexual perversion. I think a lack of thorough mastication is probably one of the primary causes.

A CLINICAL AND PATHOLOGIC REPORT OF A CASE OF PROGRESSIVE DEMENTIA.[1]

Presented in the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY CHARLES K. MILLS, M.D., AND MARY A. SCHIVELY, M.D.
PHILADELPHIA, PA.

The case under consideration presents the following history:

Patient aged 64 years; married; has had five children, three of whom are living and in good health. She was always of a nervous, somewhat irritable, temperament, but mentally bright and clever, with linguistic and other accomplishments. After the birth of her first child she had an attack of mania; when about 23 years of age she had an attack of chorea which lasted several weeks. At 35 years of age, apparently as the result of unusual worriment owing to sickness, she became more irritable and her temper was afterward capricious. For about ten years previous to her death she was subject to spells of excitement which almost amounted to transient derangement, but she had no tangible delusions, although she had a tendency to persecutory ideas, frequently believing without cause that she was abused and ill-treated by others. During the same period she began to show a decided amnesia for names, this gradually but surely increasing, so that for several years before her death it was almost impossible for her to recall the names of acquaintances, and occasionally of objects with which she was familiar. She had, however, no motor aphasia and could converse and write well, having an unusual facility for letter writing until within three years of her death.

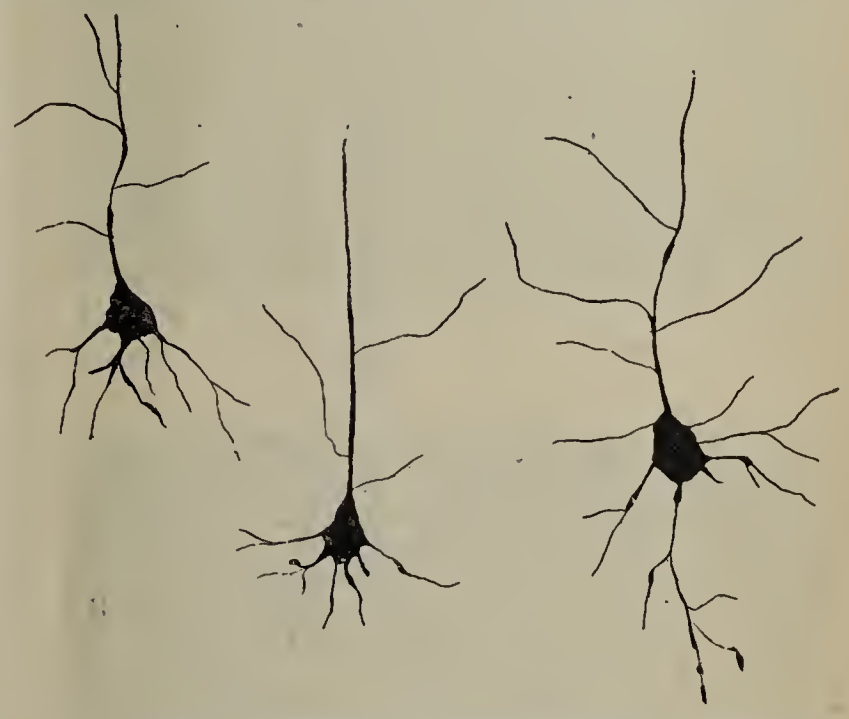


FIG. 1.—Long pyramidal cells, showing moniliform swellings of basilar and apical dendrites. Region of second frontal convolution.

Up to this time she had been less vigorous, but always attended to her business affairs, kept house and performed what other duties she had to do. During this third year previous to death she became so unreasonable that it was impossible to live peaceably with her, she having at times outbursts of uncontrolable passion. General failure of memory was first noticed about two years before death, during which time she became half bedridden.

In January, 1895, she had what appeared to be an attack of grippe; there was rise of temperature and she complained of intense pain in the right side of the head, also of pain in the back, extending down the legs in the course of the sciatic nerve. This attack lasted about a week and she apparently regained her usual health. In March of the same year she had a second attack, which was also accompanied by intense backache and pain in the head, the latter pain being persistent and always referred to the right parietal region. The patient did not improve as she

[1] An abstract of a portion of this paper, with other illustrations, has been published as a "Preliminary Report," in the Proceedings of the American Medico-Psychological Association for 1897.

had done after the previous attack, except that the lumbar pain diminished. There was marked insomnia.

After two or three weeks she began to have marked delusions, which related to her surroundings and also to her children. She believed that she had been taken away from home and was living in a strange house. She spoke of having visits from her father and mother, both of whom had been dead for many years. Sleep was only obtained by the use of hypnotics.

In April, 1895, a consultation was held by Drs. Sinkler and Mills. At this time the patient had marked delusions, talked volubly and at random; was unable to walk without assistance and if she attempted to do so staggered, always pitching to one side.

During the last eighteen months of her life she was confined to bed continuously. Her chief symptoms during this time were vertiginous attacks; difficulty in orientating; marked amnesia, not only for names but for recent events. She gradually became feebler mentally and a few months before her death was in a state of decided dementia, with occasional periods of excitement. Her attempts at conversation were childish and incoherent; she had numerous unsystematized delusions; she failed to recognize her children and attendants and lost memory of everything.

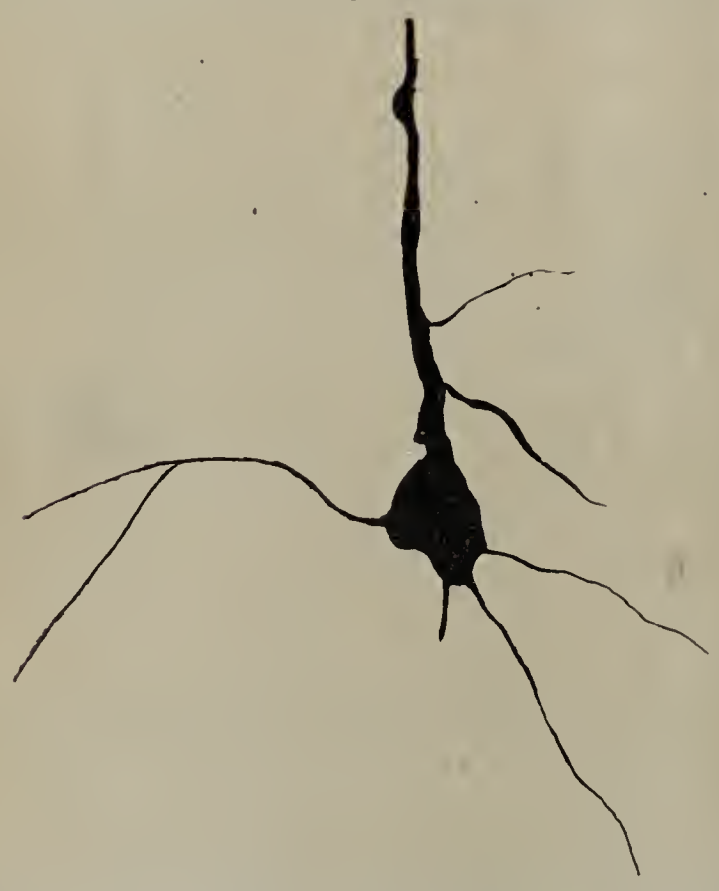


FIG. 2.—Long pyramidal cell from the second frontal convolution, showing roughening and swelling of the apical dendrite; deformity and loss of basilar dendrites; absence of gemmulæ.

An ophthalmoscopic examination made in April, 1895, and again in the early part of 1896, revealed no change in the fundus. One pupil was dilated. There were no bed sores, and no paralysis at any time.

November 5, 1896, she became suddenly comatose and died the next day. The case was one in which the entire fabric of the mind seemed gradually to break up, and step by step with failure of physical powers mental failure progressed.

The postmortem examination made by Drs. Burr and Kelly, November 7, revealed the following pathologic conditions: The dura was somewhat thickened; the pia-arachnoid opaque. The internal carotid, posterior communicans and basilar arteries were atheromatous; the left anterior communicans showed aneurysmal dilatation. Miliary aneurysms of the pial vessels were present on the ventral surface of the pons. Portions from six regions of the cortex were hardened in alcohol, the remainder of the brain was placed in Müller's fluid.



FIG. 3—Purkinje cells of cerebellum, showing atrophy of the dendrites; stumpy branches in place of feathery dendrites.

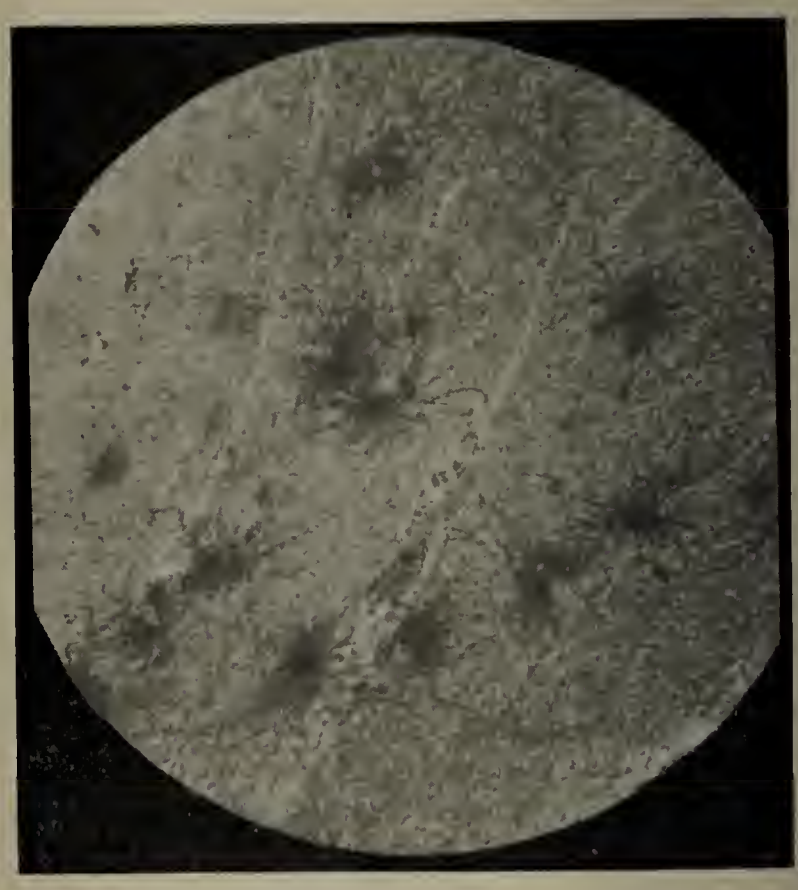


FIG. 4.—Protoplasmic glia cells from middle occipital region; some presenting a botryoidal appearance, others showing stages of disintegration.

The methods employed in the microscopic examination of the brain were the following: The silver phospho-molybdate method of Berkley; Nissl's methylene blue; thionin according to Lenhossek; Weigert Pal; eosin and hematoxylin; also hematoxylin, picric acid and fuchsin. (Van Gieson.)

Microscopic examination reveals the following pathologic conditions:

The neuron shows internal changes which consist in deeper staining of the cell body; the chromophilic particles are irregularly arranged; absent from some areas and aggregated in others, giving the protoplasm a vacuolated appearance. In most cases the chromophilic particles are arranged as a layer of fine dust around the nucleus, next there is a surrounding clear space and beyond this a layer, either continuous or interrupted, of chromophilic particles along the cell wall. The chromophilic particles of the cell processes are either wanting or sparsely scattered throughout. The nucleus is regular in contour; the larger chromophilic particles are absent, while the finer dust-like particles and normally clear karyoplasm stain irregularly. The nucleolus is somewhat increased in size and shows a markedly increased receptivity to stain.

External changes in the neuron are shown in roughening deformity and in some cases excavation of the cell-corpus. The basilar dendrites show moniliform swellings along their course, or are shortened, with

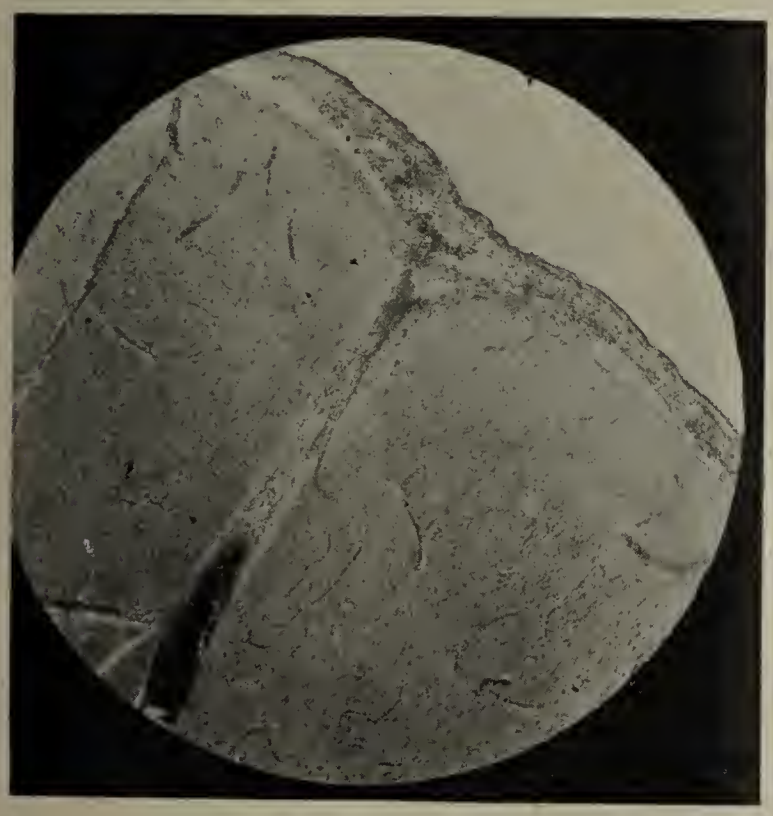


FIG. 5.—Section in region of second temporal convolution, showing thickening of the pia-arachnoid, stasis and over-distension of cortical vessels.

clubbed extremities, or some of the dendrites are absent. The apical dendrite is roughened and irregular in contour. The fine collaterals and terminals are wrinkled and irregular in contour. Gemmulæ are absent in the regions of moniliform swellings of the dendrites and at other points. The long pyramidal cells seem to be most affected, although similar changes do occur in the fusiform and polymorphic cells they are not so marked. These changes of the neuron are not limited to any special region of the cortex. The Purkinje cells of the cerebellum show thickened stems with short stumpy branches in place of the feathery dendrites of the normal cell.

The basilar and internal carotid arteries show an increase in the number of endothelial cells and a growth of new connective tissue derived from the endothelium. This growth consists of branching cells, proliferated nuclei and basement substance, the latter being very dense. Scattered through this new growth are areas of atheromatous degeneration. The elastic lamina is intact. Both vessels contain thrombi..

The left posterior communicans is twice the diameter of the right. In both, the intima, media and adventitia are equally thickened, and thrombi are present.

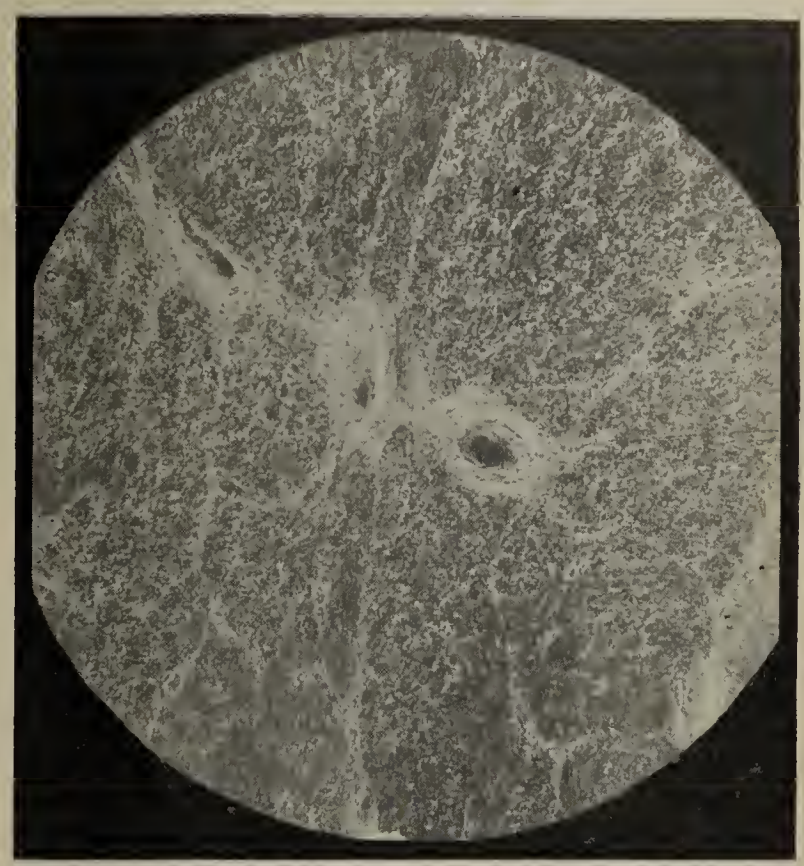


FIG. 6.—Section of the right optic nerve, showing similar changes to those found in the cortical vessels.



FIG. 7.—Section of optic chiasm; similar vascular changes.

The anterior communicans exhibits aneurysmal dilation; the endothelium is absent; there is proliferation of adventitial elements with increase in basement substance, the latter being so marked as to give the whole vessel wall a hyaline appearance. There are areas of atheromatous degeneration in this increased basement substance; the elastic lamina is absent. The vessel wall opposite to this thickened area shows.

absence of the media and thinning of the adventitia. The vessel contains recent and partially organized thrombi.

The pia is increased in thickness shows nuclear proliferation and evidences of extravasated blood in the form of groups of corpuscles and hematoidin crystals. The pial vessels show thickening of their walls and stasis; they are markedly tortuous and present aneurysmsal dilatations in their course. Miliary aneurysms found on the ventral surface of the pons have the appearance of grape-like clusters. On section the walls of these vessels show nuclear proliferation of the protoplasmic cells of the adventitia, also extravasation of blood corpuscles and pigment into the spaces between individual vessels. Stasis and over-distension is marked.

The cortical vessels of all sizes are over-distended with blood corpuscles; they are exceedingly irregular and tortuous in their course (many being twisted several times upon themselves); they appear much more numerous than normal. The perivascular lymphatics are distended, showing wide spaces between the vessel sheath and the brain substance. The pericellular lymph spaces are also enlarged.



FIG. 8.—Transverse section of vessels of anterior perforated space, showing stasis, thickening of their walls and distension of the perivascular lymphatic space.

The protoplasmic glia cells present a series of transitional changes; their fine mossy granulation appearance is lost; the pseudopodia show varicose swellings in their course, thus far they retain their vascular attachment. Many cells show an irregular botryoidal appearance and loss of vascular attachment. Finally, evidences of disintegration of cells is to be observed. Deiter's cells are numerous both in cerebrum and cerebellum.

Areas of softening occur in right ascending parietal region, they consist of a reticulated stroma surrounding a central cavity which contains portions of blood vessels; groups of blood corpuscles, hematoidin crystals and fragments of nerve and neuroglia tissue. Areas of coagulation necrosis are present in the left ascending parietal region.

Medullated fibers show different stages of myelin degeneration; these appearances are demonstrable in the ascending parietal region, the optic chiasm and in irregularly scattered areas of the pons and medulla.

The pathologic conditions occurring in this case of progressive dementia may be summarized as follows: 1, internal and external changes of the neuron; 2, changes involving the cortical and pial vessels, also the vessels of the base of the brain; 3, changes in the protoplasmic glia cells; 4, multiple areas of softening in the ascending parietal region; 5, myelin degeneration.

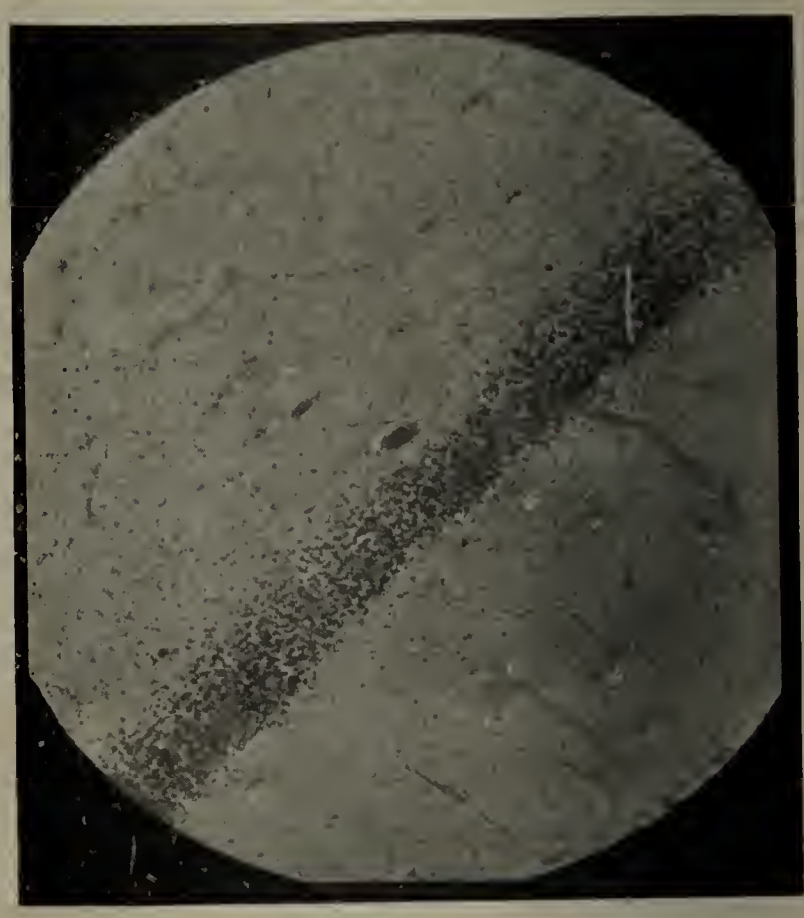


FIG. 9.—Section of cerebellum, showing over-distension and multiplication of vessels.



FIG. 10.—Tortuous vessels from the ascending parietal region.

The above described changes in the neuron correspond to those found by Berkley in experimentation upon alcohol poisoning, and in examination of cases of alcoholic dementia. They also correspond to the changes described by Andriezen as occurring in alcoholic dementia and other insanities. A survey of the views of these authors upon the pathology of insanity is therefore in order.

Berkley considers that conduction of the nerve stimuli to the cell corpus takes place principally through the medium of the gemmulæ, and that these are the

first division of the neuron to atrophy. If the gemmulæ lose their vitality or become diseased conduction of impulses is impossible. Inco-ordination of thought and motion would then result from loss of direction as well as from want of originative impulses. Permanent dementia would be the result of the degenerative process involving a large number of cortical neurons.



FIG. 11.—Section of atheromatous portion of the basilar artery.

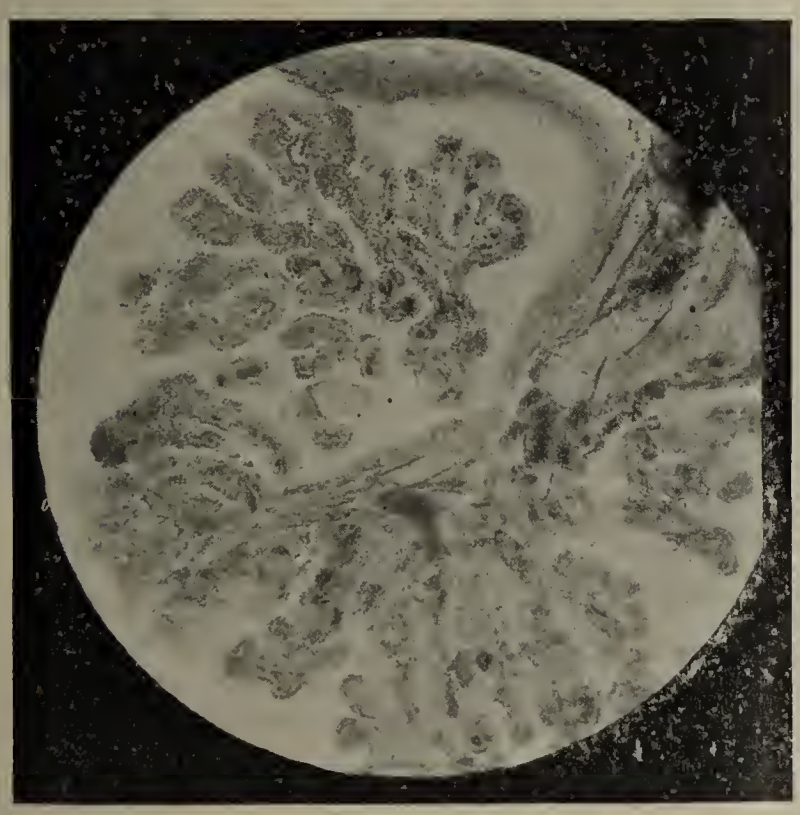


FIG. 12.—Miliary aneurysms, pial vessels ventral surface of the pons.

According to Andriezen the series of early changes in dementia illustrated by insomnia, amnesia, incapacity for attention and mental exertion and fatigue can be explained pathologically by progressive nutritive and dynamic changes. The nerve cell of the dement is stimulated beyond its average limits and at a greater pace than it would be in health. As he describes it, "The result is quickness, rapidity and overflow of ideas followed by fatigue and drowsiness, and this in turn by a sub-conscious condition in which there is a continuous and distressing whirl of nerve currents through the brain." The repetition of such attacks causes permanent damage to the nerve cell. Delusions of suspicion and maniacal outbursts are explained by him as the result of destruction of the neuro-protoplasmic plexus of the molecular and ambiguous layers.



FIG. 13.—Higher magnification of the preceding.

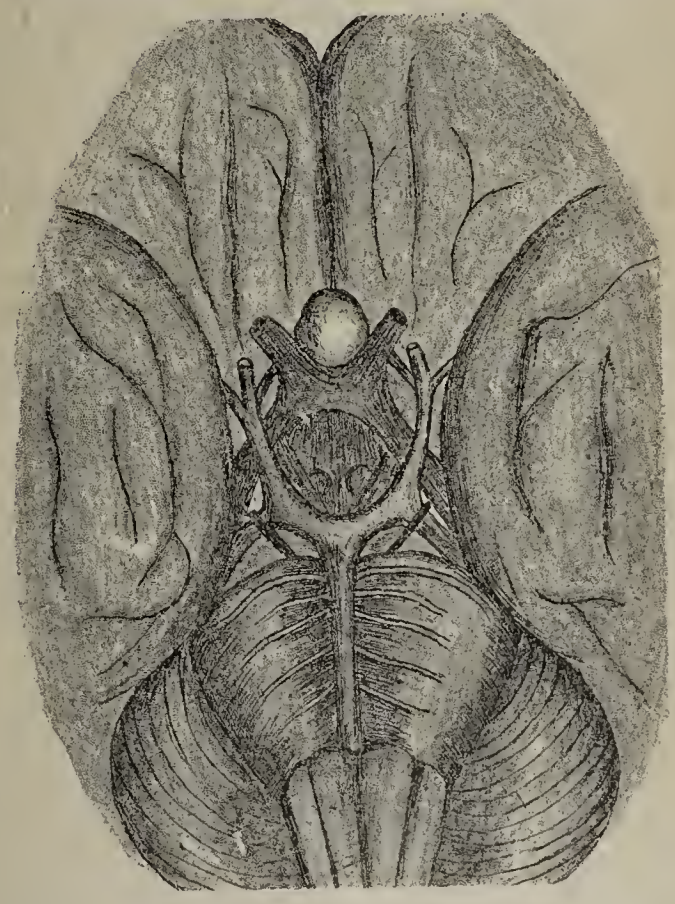


FIG. 14.—Aneurysm of anterior communicans artery.

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DISCUSSION.

Dr. CHARLES K. MILLS—The lady was a patient in private

practice. There was no possibility of either alcoholism, syphilis, or any of the common exciting or predisposing causes of insanity of this kind being present, so it furnishes us with a non-specific and non-alcoholic case. This case is interesting in connection with the entire question of neurasthenia, and also in relation to the pathology of melancholia and non-specific dementia. The paper bears out the views advanced by Dr. Dercum, which we endeavored to place upon a firm basis of the pathology of neurasthenia, and bears out the views as perhaps best elaborated in the remarkable series of papers which were eventually put into a monograph by Dr. Cowles of Boston, on "Neurasthenia and the Development of Insanity." Doubtless this patient had some inherent tendency to mental disorder, but that does not alter the question as to the bearing of these investigations upon the pathology of the subject.

Dr. F. X. DERCUM—My own conception of the pathology of insanity, presented some years ago, is about as follows: It embraced the changes more especially in the neurons, but especially did I lay stress on the possible toxic causes of insanity. There are a great many facts to prove that we have toxins circulating in the blood; certainly the toxicity of the urine is very pronounced in some forms of insanity, while it is diminished in others. It is diminished, for instance, in melancholia, while the toxicity of the blood is increased in mania.

It seems that these changes in the nerves and blood vessels are only referable to some irritant, something that necroses the collaterals, the dendrites, and that destroys the chemic constitution of the protoplasm in the nerve cell.

Here we have changes taking place in a non-specific and non-alcoholic case, and yet, to my mind, there must have been some substance in the blood which acted in this destructive manner upon these delicate structures in the brain and in the nerve centers. When we have a case that appears to be auto-toxic the general autopsy is of the utmost importance. In this case the most elaborate studies would have been repaid, including the study of the viscera as a whole, and of the bone marrow. Even studies of the blood in the dead subject might have been repaid. We see here terminal changes, resulting changes; the primary cause is still to be sought after. In the various laboratories of the State hospitals for the insane a large amount of work should be done, not only upon the dead brain, but upon the living individuals, and it should be largely experimental in character. We are still far behind in our knowledge of the chemistry of the urine, and we have to adopt coarse physiologic methods to determine the presence of toxic bodies there. Especially should there be experiments as to the changes which arise in the nerve cells of guinea pigs to see whether they are similar to the changes which occur in the human. In the same way we ought to experiment with the serum of the blood of the insane.

ALCOHOL AS A CAUSATIVE FACTOR IN DISEASES OF THE CENTRAL NERVOUS SYSTEM.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

BY T. D. CROTHERS, M.D.

SUPERINTENDENT OF WALNUT LODGE HOSPITAL, HARTFORD, CONN.

Next to syphilis, alcohol is the most frequent cause of diseases of the brain. In many instances it is more virulent, rapid and pronounced in its effects and is now fully recognized as a poison of the narcotic class.

Its general action on the system is seen in irritation, deranged functional activities, diminished force and narcosis. Some instances show marked narcosis from the beginning. The first effect of alcohol is to produce functional disturbance, and such poisons are called narcotic and neurotic, because their most conspicuous action is on the nervous system. Apparently this effect is transient, and the injury is supposed to be indicated by the repetition of the functional disturbances. A fatal dose acts like other tissue poisons, producing narcosis and necrosis. Alcohol while being carried to all parts of the body acts, like other poisons, on those parts which it reaches with the least amount of dilution, particularly the stomach and liver. Unlike other poisons, it seems to have a special affinity for the brain and nervous system. The vascular disturbance and consequent nutritional derangement are most prominent. The effects of alcohol in what are called chronic states, may vary widely in persons who are termed steady drinkers, and others who are not supposed to be injured by alcohol, up to those who are notoriously degenerated from its use, may be grouped as follows:

1. General temporary exaltation of the brain and emotional activities, followed by depression and feebleness, loss of memory and change of character and conduct.

2. General diminished power of attention and volition, particularly in the sensorial and kinesthetic centers and their connections.

3. Diminished energy and adaptability of conduct to the conditions of life.

4. Diminished muscular power and demand for help or stimuli to do the ordinary work of the system.

5. From the first a marked blunting and deepening obscurity of the moral and ethical sense.

6. Insomnia, diminished power of sleep and recuperation, with a nutritive break down of the stomach and brain.

7. The relations of the *ego* to the external world become disturbed followed by melancholy, suspicion, delusions, hallucinations and changed emotional states all merging into various chronic insanities.

These groups of symptoms are seen in all cases, not in a continuous order, but varying widely. Sometimes one is much more prominent than the other, but in all cases the psychical disturbances are present. The diminished sensory functions and the lowering and obscuring of the higher ethical sense of duty and the relation to the surroundings indicate a profound nutritive and dynamic failure of the nerve elements of the brain. While these are the well-marked symptoms of all cases who use alcohol excessively they are by no means absent in those who are supposed to use it in moderation. There are no dividing lines on one side of which the poisonous action of alcohol can be seen, while on the other it is absent. The fact is that alcohol, like other poisons, varies in its effects on different persons, producing in certain organs more prominent effects than in others; in certain cases concealed for a long time, then bursting out, revealing a degree of degeneration unsuspected; concentrating on the liver, stomach, kidneys or heart, or suddenly developing into serious lesions of the higher brain centers.

To understand more clearly the influence of alcohol in the causation of disease of the central nervous system, a study of some central facts of the dynamics of brain energy and force will be useful. All nerve force and brain activity is physical energy in motion. This energy is gathered and released and is technically only a variety of motion the same as is electricity. It is transmitted motion, but not electricity, although the latter is transmitted in the same way. It comes from nutrition, from chemic and molecular changes and is stored up and released by certain activities. It may be quickened, retarded, changed, increased or withdrawn.

It is the transmission of this energy along the nerve tracts to all parts of the body that constitutes life, and with all its attractions and repulsions and the continual readjustments of the delicate equilibrium necessary to sustain the work of life this is carried on with exact and absolute precision. Nothing in the

range of human knowledge can compare with the perfection and minuteness of these dynamic processes going on in the neurons and protoplasm of the brain. The force displayed in muscular activity, the contraction and expansion of the molecules as energy is liberated and transmitted along the fibers, well illustrates the marvelous mechanism of the brain.

This energy can be changed by foods, by drugs, by environments, all of these being new sources of energy, which may add to or pervert and exhaust the present sources, or more commonly may change the direction and power of this energy or depress it below normal levels. This is clear from a change of function and normal activity of the body. What we call disease is a change of the chemic conditions of the body and consequent alterations of nerve force and energy.

This is noted first in deranged functions and disturbed energies, which seem to act out of harmony with the surroundings. Functional disturbance may reach a point where it becomes convulsive and displays a flow of energy along new paths of discharge. What is called nerve-storms is the unrestrained convulsive concentration of nerve force and the repetition of this, in epilepsy, is disease. Drugs which change this release of energy may be dangerous, in not only destroying the equilibrium of forces, but the power of adding new energies and increasing or diminishing the direction and rapidity of the energy. This gives some conception of the mechanism of what is called inhibition and resistance. In early life the energies of the body may be easily augmented and perverted. The functional changes may register these states. In later life defective nutrition and chemic changes break up the normal flow of energy. This breaking up of nerve energy and irregularity of the movement of nerve force is most strikingly seen in epilepsy and convulsive irregular discharges of nerve and muscular power. This energy is renewed during a period of building up; then it is released in a convulsive discharge of force. These are some of the facts which bring us to a point of view where the action of alcohol can be seen more clearly. The fact that alcohol, even in small doses, produces functional disturbances in the brain and nervous system is very significant of derangement of nerve energy and motion.

Another fact admitted beyond all controversy is that alcohol has a special affinity and positive action over the brain and nervous system. Its effects are seen here more than any other part of the body. The increased heart action points to a release of energy, and the blurring of the senses show that energy has been diverted and changed from its normal channel.

In many cases alcohol is used up to the toxic limit of full narcotism. Then a period of absistence follows. After a time these cases become periodic, and the drink-storm occurs with regular or irregular intervals. The exciting causes of the return of the paroxysm are complex and uncertain. Each paroxysm is longer, more intense and followed by greater prostration. The first glass of spirits seems to both liberate and concentrate nerve energy in a convulsive demand for more spirits until narcotism comes, and even then the demand continues long after the capacity to retain it has passed away. This convulsive discharge of nerve energy as in epilepsy becomes a disease of the central nerve centers. Like epilepsy, it may continue for years before ending in death.

Alcohol may act as an exciting cause, exploding and concentrating unstable elements of nerve force, rousing up latent predispositions and precipitating degenerations. Periodic convulsive drinking belongs to the family of epilepsies, and has many symptoms in common. They are both central nerve diseases and follow a uniform course to the same end.

General paralysis is another disease which dates from the use of alcohol. In nearly all cases alcohol is used to excess at some time in the progress of the case. It is a symptom as well as a cause, and it is often difficult to separate one from the other. Pneumonia, nephritis, cirrhosis and other acute organic diseases follow the use of alcohol, and are the natural sequel of acute degenerations.

It is not possible at present to specify any particular diseases which are caused by the action of alcohol alone. Like the poison of syphilis, alcohol seems capable of producing the most complex degenerations in every organ and tissue of the body. It not only brings new abnormal force to the brain centers, but deranges and perverts that which exists. Pathologically the injury seems widespread and general, affecting cell and tissue alike, both retarding nutritive cell growth and waste elimination; physiologically deranging the functions of the organs and then the structure, diminishing their normal activity and capacity. Psychologically it effects the higher brain centers, with a literal general paralysis going on down to the lower centers and functions following a graded line of dissolution. Structural injuries of the peripheral nerves, which comes directly from alcohol, are common. In chronic cases these injuries are well recognized, but in moderate and periodic drinkers they are overlooked. They are called rheumatism and neuralgia in cases where the cause of alcohol is not prominent. I have found these lesions in persons who have abandoned the use of alcohol or have long free intervals of sobriety. The injury from alcohol, which begins as interstitial inflammation, becomes a parenchymatous degeneration, and is confined to the sensory nerves first, and the brain later.

Ataxia and loss of muscular power comes on in the later stages.

Alcohol seems to have a special toxic action over the peripheral nerves. Arsenic and other minerals have a like power, and we are able to differentiate a number of different forms of neuritis.

Alcohol as a factor in diseases has two very pronounced actions. One on the dynamics of nerve force and the other on the nutrition and source of supply and energy. The nerves are over-excited and depressed and then activity is perverted, and the power of restoration from nutrition destroyed. The two central processes of life, waste and repair, are affected, one increased and the other diminished. These facts seem to be sustained by a great variety of evidence which admits of no other interpretation.

In clinical studies of cases the inebriate, or the person who uses alcohol in so-called moderation, may not exhibit symptoms of well marked disease, or of diseases which are described and classified in the text-books, and yet the evidence of exhaustion, degeneration and general derangement is always present. There is present in these cases a profound lowering of nerve energy and vigor, associated with a prodigality of waste and delusions of strength that is not apparent to superficial observation.

The apparent recovery from the narcotism of single drunk paroxysm is never real. The convulsive discharge of nerve energy through the actions of alcohol

permanently derange the dynamic equilibrium of the nerve centers. Its repetition fixes this condition, and the power of resistance to disease becomes less. Local inflammation from infectious agents, from injuries, strains and drains, can not be overcome and death follows. Alcohol has been the factor which made these conditions possible, and destroyed the *vis medica naturæ*.

In this general outline of the facts concerning the power of alcohol as a factor in central nerve disease, the following facts may be restated:

1. Alcohol is a poison of the narcotic class, with a special tendency to act on the brain and nervous system.

2. In a general way the effects of alcohol are the same. Disturbing the functional processes and diminishing the sensory activities, ending in general muscular depression and mental enfeeblement.

3. A general psychical paralysis beginning with the *ego* and extending to all parts of the body, varying in some slight degree, but marked in all cases.

4. In dynamics of the brain there is a continuous gathering and discharge of nerve energy. This is increased, retarded and perverted by drugs, foods and environments.

5. The change of this nerve energy is seen in the functional disturbances of the body. In early and late life it is very prominent.

6. Alcohol produces marked functional derangements. It both releases and concentrates nerve energy. The increased and diminished vascular actions, with diminished sensory power, point to profound disturbances of the dynamic forces of the brain.

7. Periodic drinking is a convulsive disease like epilepsy, and is of the same family group. General paralysis is another similar disease, associated with exhaustion.

8. Alcohol acts on the body psychologically, physiologically and pathologically, and is a literal paralysis and dissolution.

9. No other substance known in common use has such a profound destructive action on waste and repair of the body.

10. This opens the door for many diseases by destroying the power of resistance and enfeebling all the powers of life.

INEBRIETY AND TUBERCULOSIS, ALLIED DISEASES.

Presented to the Section on Neurology and Medical Jurisprudence at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

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The very close relationship between these diseases has been noticed for many years.

In certain families, tuberculosis and inebriety alternate. Some of the members will drink to great excess, then abstain, contract tuberculosis and die. Others will have all the symptoms of tuberculosis, begin to drink and recover from the consumption, become inebriates and die suddenly of acute pneumonia or nephritis. It is very commonly observed that inebriates who abstain from all use of spirits, calling themselves cured or reformed, soon contract tuberculosis and die. Such cases are very acute and rapid in their progress and termination. Another fact never understood was the apparently abortive influence of alcohol in early stages of tuberculosis. The old-time prescription to drink all the spirits possible when lesions of the lungs were made out, always ended either in precipitating the disease to more rapid death or a low form of dementia and inebriety. The latter was always associated with delirium and exhaustion, and terminated in some acute disease.

The following case represents a class which will disappear in the near future when this subject is better understood:

A., aged 22, had incipient phthisis; he was given at regular intervals large quantities of whisky, and a year later recovered, but continued to use spirits. For the next five years he drank continuously and became demented. He was placed in an asylum and recovered; this was followed by bronchitis and fears of returning phthisis, and he returned to the use of alcohol. He is now a low imbecile inebriate. The frequency with which these diseases appear associated and following each other are attested by all students of inebriety.

In my experience with 2000 cases, fully 20 per cent. are associated with tuberculosis. I believe a much larger percentage of all cases of inebriety die finally from tuberculosis, of which probably there was no intimation until at the end of life. These associated cases have a common heredity and a great variety of common symptoms, which are apparent to all close observers. Dr. Maudsley, in "Pathology of the Mind," has described a class of cases which inherit qualities of mind and body that end in both tuberculosis and insanity. They are called phthisical insanities, and although they have no signs of tuberculous deposits or insanity, there is present a peculiar predisposition, which quickly merges into the one or the other from the slightest causes. These symptoms are marked in a large number of inebriates before inebriety is developed, and are of the same family type and identical in many ways. Such persons possess an intensely active nervous organization. They are quick, irritable, passionate, fanciful and changeable, eager in project and impatient of opposing delays, very idealistic and unstable of purpose, brilliant in flashes, but always wanting in breadth and calm depth of thought and in methodical steady perseverance. They are always quick in thought and intense in their energy; seeing the project of the hour they press toward its realization as the only important thing in the world. In a brief time they turn to some other scheme and abandon the first. In all they do there is the same fitfulness of energy and display of imagination, with hectic credulity and irregularity of thoughts, feelings and actions. There is another class, more of the imbecile type; they are dull, heavy, impetuous and unreasoning, with little or no self-control, usually gormands and have no other pleasure than to gratify the impulses of the moment; usually have marks of defective growth and degeneration, and sometimes are prominent in business enterprises and show much activity of mind and body. In both of these classes inebriety, insanity and tuberculosis are almost certain to appear alternating one with the other. They are heredities of the same class, states of defective and retarded growths, followed by exhaustion and low vitality. The ancestors of these persons were very largely inebriates, insane and tuberculous.

Insanity is not so frequent, and seems to depend on some peculiar exciting causes which can be traced, such as injury, sunstroke and some peculiar mental strain.

Inebriety is simply narcotism to remove the pain and suffering from the defective functional activities.

Heredity has left the person with low and defective vitality, with feeble power of resistance and inability to adjust himself to the changing surroundings. He is in a state of chronic exhaustion, continually using up nerve energy that is replaced with great difficulty. His defective brain is unable to conserve force and hold it in reserve for emergency. Hence the seductive relief which comes from the narcotism of alcohol. Inebriety is only a symptom of this central bankruptcy of energy and power to develop force for the functional activities of life. The same conditions of weakness and degenerations diminish the power of resistance to the attacks of microbes and tuberculosis. Also the same conditions make the narcotism of alcohol fascinating and create the impression of strength by concealing the physical pain and demands for relief. In the latter case the degenerations go on, more profoundly effecting the higher centers with sensory hallucinations and delusions and changing the metabolism of the body. While alcohol apparently checks the invasion of the microbes and changes the symptoms, it creates new centers of degeneration and destroys the powers of resistance to every condition of strain and drain on the body. The removal of alcohol rouses the predisposition and favoring conditions of the soil for the growth of the bacillus.

If the degeneration has not taken on acute forms in other centers as in inflammation, tuberculosis may follow. A great variety of facts attest these observations and suggest a wide field for more exhaustive studies. One of these facts shows that families of inebriates and consumptives are often very fecund and numerous. Where the degeneration of the parents is unmistakable, the number of children born are often very large, confirming the oft noted fact, that just before the final extinction of the race a supreme effort is made to perpetuate the seed and save it from final extinction. The oak tree about to die will be over-burdened with acorns. The mongrel dog, whose race is nearly run out, will have an unusually large litter of puppies, which will die in infancy. While the families of inebriates are often very large they do not live long. If they live through childhood, they carry with them into maturity defects which soon end in extinction. Two degenerate members of a famous family in New York married. Both were moderate drinkers. Of the thirteen children born five died in infancy and eight grew to maturity. Three of this number died of tuberculosis, and were inebriates, one succumbed to acute pneumonia, one became demented, two died of some low form of fever associated with rheumatism. One is still living, but is feeble-minded, and has been eccentric and partially demented all his life. All the decendants of these persons are dead.

Another typical illustration of this class came under my care. Three members of a family of nine came for treatment for inebriety. One relapsed and became insane; the second was killed by accident; the third is a low drunkard; two of the remaining children have died of tuberculosis; one is an eccentric reformer with extreme zeal and little wisdom; one is a paranoiac single woman. The parents of these children were wealthy, drinking persons, without business, who died in middle life from some acute disease.

These dying families are by no means uncommon, especially in the older sections of the country They appear in the two extremes of either great fecundity or barrenness. In one case a sudden large progeny will follow, in the other barrenness, and in both profound constitutional diseases appear with tuberculosis, inebriety and insanity in its obscure and modified forms. Where a general history indicates that the family is degenerating, growing weaker in appearance and conduct retrograding, tuberculosis and inebriety with hysteria, eccentricity, rheumatism, and a variety of nerve disorders are almost certain to follow. Inebriety and various forms of drug addictions come first, then tuberculosis or acute affections such as pneumonia, hepatitis, nephritis and affections of the heart. These facts are not observed carefully because often the person or victim manifests some unusual form of vigor and ability before these diseases appear. A son of one of these dying families took high honors at college and entered professional life with brilliant prospects. He attained eminence, suddenly became an inebriate and two years later died of tuberculosis. His inherited degeneration was overlooked in his precocious brilliancy, and display of vigor masked the early dissolution which concentrated in inebriety and tuberculosis. Not all these cases become tuberculous or inebriates; other organic affections appear. The heart and kidneys suffer with the stomach, and a great variety of nervous affections which are likely to concentrate on the lungs, or depress the nerve centers to such a degree as to demand narcotics for relief. This sudden or gradual lowering of the co-ordinating nerve centers in vigor and power may be felt first in the lungs, and then the microbe's soil is ready for the growth of tuberculosis. The inheritance of low vitality and a predisposition to seek relief in spirits and drugs that cover up and relieve this pain and physical unrest, still farther lowers the nerve centers of co-ordination, literally enfeebling the power of resistance to all microbic invasions, and making the possibility of tuberculosis more certain.

The neurotic origin of tuberculosis has been for many years urged by Dr. Mays of Philadelphia, in many able studies. He has shown conclusively that tuberculosis is far more common in feeble-minded neurotic families. He has proven that it follows more frequently in families of inebriates and those who are eccentric, hysteric and possess a neuro-psychopathic constitution. These facts are not new but have been observed by many competent authorities for years. Dr. Mays has restated them with much additional evidence and many new conclusions that are unquestionable, proving the neurotic origin of consumption.

The present great precautions used to prevent the transmission of tuberculosis germs overlook this fact. The common neurotic origin of tuberculosis and inebriety is also noted in the paroxysmal character of their progress and termination. Cases of tuberculosis come on suddenly, pass rapidly to a fatal termination, or are marked by long irregular halts and apparent recoveries, which are supposed to be due to certain remedies or means used. These halts are paroxysmal, irregular and followed by other diseases or death from the original disease. Climate cures, drug cures, food cures, are all secondary to nerve rest and hygienic measures which build up the brain and central nervous system.

Inebriety begins the same way, in many cases suddenly, and is followed by halts and paroxysmal changes. Then the drink crave breaks out again, subsides, then changes to acute inflammation of the lungs or kidneys.

A period of moderate drinking seems to prepare the nervous system for drink-storms and excesses.

In tuberculosis, bronchial catarrhs and irritations of the throat, lead up in the same way to pronounced tuberculosis. In many cases of tuberculosis a marked mania exists for drugs of some kind. This is the same craving for relief that possesses the inebriate. The former is filled with the hope of virtue in drugs, is credulous, expectant, ever ready to try every new thing, never doubting its possible good effects. Filled with delusions of strength and final cure of his malady, the inebriate has the same boundless confidence in his power to abstain and ability to use spirits at all times and recover from the effects. The similarity of these cases can be traced in a great variety of symptoms which are identical in both cases. In both of these diseases there are similar nerve degenerations which may concentrate on any organ of the body.

Dr. Alison, in an exhaustive paper on the etiology of cirrhosis and pulmonary phthisis among inebriates, found phthisis more common among those of active habits.

He studied eighteen inebriates in fifty-four cases of phthisis, and asserted (*Archives Générales de Médecine*, Paris), as his positive conclusion that the use of alcohol predisposed to consumption by lowering the powers of nerve resistance, and by creating a constant source of irritation in the bronchi and lungs from the elimination of the alcohol. He was also clear in his conviction that inebriety and consumption were interchangeable, one following the other from the same general causes and both more likely to occur before 40. After that, acute inflammations followed more readily.

Dr. Mays, in the *Journal of Inebriety* for 1889, reported a number of cases from German authorities where death occurred from some form of inebriety, and the postmortem revealed tuberculosis and lung degeneration. In the same paper he reports a number of cases of inebriety following in the children of consumptives, and of phthisis or consumption appearing in children of inebriate parents. Dr. Haycraft, in "Darwinism and Race Progress," declares that criminals, inebriates, lunatics and consumptives, are all born with neuro-psychopathic constitutions, and in no other affection does heredity play so important a part.

Dr. Irwell, in "Racial Deterioration," describes the neuro-psychopathic constitution as a permanent condition of defect and weakness of the psychical nerve centers, noted in instability of nerve and brain power, lack of persistency, headaches, insomnia, indigestion, great susceptibility to environments, exaggerated emotional activities and a general insane temperament.

Dr. Williams, in his work on pulmonary consumption, written some years ago, describes the close relation between inebriety and consumption, calling them members of the same family group of diseases, one alternating with the other.

The fact has been noted by many specialists that inebriety often terminates in acute inflammation of the lungs and kidneys, coming on suddenly, showing that exhaustion has a special tendency to concentrate in this way.

Dr. Clouston of Edinburgh, in a late report says, that it is surprising how often insanity, consumption and inebriety appear in the same family and follow down to extinction among the descendants.

When one of these diseases is present the others are most likely to follow. Dr. Payne, in his "Pathology of Chronic Alcoholism" says: "I can find no evidence to support the opinion that the free use of alcohol checks the progress of tuberculosis." On the contrary, the impression seems well founded and firmly held by many authorities that inebriety follows tuberculosis, and that they alternate one with the other frequently; at least there can be no question that they are very frequently associated.

Dr. Sharkey, in the London Pathological Society, claims that disturbances and lesions of the vagus nerve by lowering the nutrition of the lung, predispose it to become the nidus of the bacillus of tuberculosis. Hence all inebriates are predisposed to tuberculosis, and are more likely to contract this disease than any others.

The evidence of the neurotic origin of tuberculosis is often overlooked in bacterial study. The same extraordinary care to prevent infection in public places should extend farther back to heredity, alcohol and the great strains and drains that lower the vigor and lessen the power of resistance and make it possible for bacteria to find favorable soil for the destruction of the body.

THE INFLUENCE OF HYPNOTIC SUGGESTION UPON PHYSIOLOGIC PROCESSES.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1–4, 1897.

BY R. OSGOOD MASON, A.M., M.D.
NEW YORK, N. Y.

That hypnotism is a fact, and that the power of suggestion is marvelously increased while the patient or subject is in the hypnotic condition, are now truisms to all who have been students in that domain of psychology to which these subjects belong. The old rubbish of superstition, supernaturalism, and even of occultism, is in part at least swept away, and these two facts now stand out clear and distinct. It remains, by observation and experiment, to test their possibilities and ascertain to some degree the limit of their influence and usefulness.

Permit me to remark regarding the general drift of therapeutic practice in nervous diseases no less than in other departments of clinical work, that notwithstanding the tendency to specialization, and the multiplication of remedies in each special department, still amongst the wisest and most conservative in all directions the tendency is toward moderation and simplicity in the use of remedies; and thought is given especially to the repair of organs through physiologic processes, rather than the search for authoritatively endorsed specifics. Nothing can better illustrate my meaning than the treatment of epilepsy during the past thirty or forty years; there were first the salts of silver, then the salts of zinc, then the bromid of potash, and then that remarkable shotgun invented by Brown-Séquard, in which all the known bromids were combined; later the bromid of sodium alone was the favorite, and now the general feeling is that in the ultimate results bromids are harmful, and that diet, regimen, air, and regulated exercise are much the most important factors in the treatment of this formidable disease. In other words, attention is being directed from specifics to the consideration of what can best be done for the repair and healthy action of damaged nerve cells and imperfectly functioning organs.

I am aware that there is a very decided feeling in the profession that the uses of hypnotism and suggestion are extremely limited, and that a few nervous or imaginary diseases constitute their main field of utility. Let us inquire whether this impression is well founded; and as a single but most important department of that inquiry and one harmonizing well with the general trend of medical thought and practice, I will direct attention to the influence of hypnotic suggestion upon physiologic processes.

In studying this subject, as in all others claiming a scientific basis, the first thing is to present the facts. An abundance could be cited from well known and reputable authorities; I will, however, confine myself to those which have come under my own observation. I will briefly describe a few cases where physiologic processes have undoubtedly been so influenced.

1. The influence of suggestion upon the action of the stomach. M. M. was a public singer, and near the end of a New York season was thoroughly worn out and exhausted. Food was absolutely distasteful to her, and if taken was seldom digested, but generally vomited, and as might be expected under such circumstances, her voice had failed seriously. She was brought to me to see whether hypnotism could afford her any help. She proved an excellent subject and was put promptly into the deep sleep. I suggested that she would at once have a strong desire for food, would be able to take it freely, retain it and digest it perfectly; that her strength and vitality would, as a consequence, quickly return and that night there would be such an improvement in her voice and singing that it would be the subject of general remark, and that her friends would congratulate her.

Her midday meal occurred directly after leaving my office, and her friends were amazed at the food which she ate with enjoyment. It was retained and digested, her strength and vitality were at once improved, and the improvement in her voice and singing was actually, on that same evening, the subject of favorable comment. Two more treatments carried her through her engagement with comfort and credit.

2. The influence of suggestion on the function of the lower bowel. Miss A. was a bright, intelligent educated German, 26 years of age, free from any hysterical or unusual nervous symptoms. She was the subject of obstinate constipation, and seldom had a movement from the bowels without medicines or enemata, often going unrelieved four or five days, and it was then with difficulty that even partial relief was secured. She was easily hypnotized, and one evening, while in the hypnotic condition, was given a single teaspoonful of pure water, with the suggestion that it was a bitter dose but very powerful, and that it would give her a perfectly free and full evacuation at 7 o'clock the following morning. She took the water with many grimaces at its bitter taste, and the suggestion was realized with such promptness and energy as to awaken her suddenly from sleep at exactly 7 o'clock, and to be the occasion of serious inconvenience.

3. Its influence on the menstrual function. Miss F., 18 years of age, menstruated at 15 and was a fully developed and usually healthy girl. She consulted me on account of the absence of the menstrual flow, which had not appeared during the previous six months; she was, at the time, pale and anemic. She was put into the condition of light sleep, during which I suggested improved digestion and assimilation of food, causing the production of a richer blood and a better nutrition; also that her menstrual flow would occur at its proper date, two weeks from that time. I ordered her to continue asleep one hour and then awake. The same treatment was given twice more at intervals of four days. At the time suggested the menstrual flow returned; her health was improved and the improvement was permanent.

4. Its influence on lactation. Mrs. H. was a young mother, primipara. Her infant was two weeks old, and notwithstanding care had been intelligently given to secure a proper supply of milk, scarcely a drop appeared, and the child had to depend entirely on artificial feeding. The mother was anxious to nurse her baby and I proposed hypnotism. She proved a fairly good subject and went easily into a condition of light sleep, in which I suggested that the organs for supplying milk were perfect, and only needed stimulating to proper action; that at 1 P.M., it being then 11 A.M. she would take her bowl of hot gruel, and at 2 P.M. she would feel the milk coming freely into her breasts and that there would be an abundance for the baby. The suggestion was exactly fulfilled in every particular, and at 2 P.M. the babe had a full and satisfying meal from the mother's breasts, and artificial feeding was discontinued.

5. Its influence upon absorption. Mrs. X., 26 years of age, had been an invalid four years. Her condition was the result of pelvic cellulitis following a miscarriage. The right broad ligament and ovary were still involved; were greatly thickened by plastic deposit and very tender and painful on bimanual manipulation. Her menstruation was excessive in quantity, lasting seven or eight days, and was accompanied by large clots which were expelled with great pain. She was a complete invalid, constantly under the doctor's care, and though of an unusually active temperament was obliged to spend weeks at a time in bed. She was thin in flesh, badly nourished, nervous and anemic. A competent and conservative gynecologist had advised the immediate removal of the ovary as the only hope for improvement. Three days later she consulted me, and I advised delay, with the expectation that great improvement would speedily occur as the result of treatment.

She proved an excellent subject, and I suggested first, ability to take food, improved nutrition and the disappearance of pain and discomfort from the pelvic region; and these suggestions were promptly realized. Then followed the suggestion that the process of absorption would be stimulated and the adventitious deposit, from the old inflammatory process would be gradually taken up and removed; that the congestion of the uterus and pelvic viscera generally would be relieved, and that the circulation through these organs would be unobstructed. Then that menstruation, when it occurred, would be normal in quantity and free from clots and pain. This was eight months ago. Improvement commenced immediately in her nutrition with relief from pain; then followed a more normal flow at the menstrual periods; the thickening and tenderness of the adnexa of the uterus upon the right side were distinctly diminished and today very little difference can be detected in the two sides; menstruation is normal and painless. Very slight tenderness of the ovary of that side can be detected on bimanual manipulation, but her general health is good. She is well nourished, of good color, cheerful and hopeful.

It will be noted that the suggestions were not all made at once, but successively, as her condition demanded, and always with a distinct appreciation of the physiologic processes which should be stimulated or controlled in order to bring about the desired result. In making the suggestions it was not sought to use language adapted to the comprehension of the patient in her normal condition, and that used was never heard by her or at least never became a part of her usual consciousness.

I will not give a needless detail of cases, though they could easily be multiplied. I simply wish to call attention to the fact that in a great variety of cases and a multitude of instances physiologic processes have been influenced and controlled by suggestion.

Numerous cases have been reported by Liébault, Bernheim, Leigois, Dumontpallier, Burru, Krafft-Ebing and many others, where suggestion has produced changes in the physiologic processes of the body; changes in the heart's action, in temperature, in the vascular and vasomotor systems, causing the raising of blisters, bleeding from the nose or oozing of blood from designated points upon the surface of the body, and increasing or diminishing the various secretions of the body. With the knowledge of such facts before us, stigmatization, the reported cases of which now exceed 100, ranging from St. Francis of Assisi in the thirteenth century to Louise Lateau at the present time, becomes credible, and may be studied with interest and profit, and without loss of caste, even by persons of rigorous scientific orthodoxy. In fact, the old adage, "There is nothing that makes a man suspect, more than to know little," is most applicable to the matters here presented.

The field then in which hypnotism and suggestion are effective and may be made useful is not limited to nervous or imaginary diseases, but extends to a large class of functional disorders, and in some cases at least, and under some favorable circumstances, to serious organic disease; and the assistance rendered by suggestion in these cases is perfectly natural and scientific, and is due to its influence upon physiologic processes, stimulating, retarding and regulating with a certainty and success, varying according to the susceptibility of the patient and the knowledge and skill of the physician.

HYPNOTISM IN THE TREATMENT OF DISEASE.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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MILWAUKEE, WIS.

From the earliest period in the history of the healing art, there has always been a strong tendency to accept any mysterious or unknown agency in the treatment of disease; more especially is this acceptance favored by the less learned in science, and among those afflicted there is always found a large clientage who are ready to be operated on by anything surrounded by mystery or pertaining in any way to the occult.

Hypnotism, undoubtedly, owes to the mysticism that surrounds it its existence and practice. If it were better understood, no doubt it would be neglected and soon forgotten with the host of other agencies that have existed in the past and lost their charm as they became understood.

To the scientific physician it fails to create confidence enough to be of much use, and its employment is now apparently largely in the hands of that class of practitioners who seem to play on the credulity of the public more than to treat disease in a strictly scientific manner. I am well aware that I am open to severe criticism by some, but I base my statements upon my own experience and observation. With a large acquaintance with practicing members of my profession, I have failed to find but few who care to make use of hypnotism as an agency in their practice, and those who do use it appear to do so more as an experiment than as honest scientific treatment. In the use of it myself I have always felt some degree of guilt, and am sure I could have accomplished similar results with agents that are more scientific, more satisfactory, and with a feeling that I have not left behind conditions that may be harmful, for I am sure that the results of the use of hypnotism, in many instances, may be harmful.

If the nature of hypnotism be such as Maudsley describes, and I see no good reason to doubt his conclusions, surely we should think long and carefully before employing it in our practice. He says:

"What may we suppose to take place when a person is thrown into such a trance in which, machine-like, he is governed by suggestions which the operator makes, touching, tasting, seeing, hearing, thinking and doing just as he is bid? That by the special suggestions made, the fit tracts of his brain are stimulated to a separate and pretty nigh exhaustive activity, while the functions of the remaining tracts are suspended. Thereupon he can not choose but perceive as he has been made to think; must translate every impression on sense into the language of the solely activeidea, and shape to its features, or else have no consciousness of it at all. He can not possibly perceive in the terms of ideas that are entirely inactive. The one active cerebral tract is virtually the whole and sole mind which he then has, and to obey it in sense and act is a compulsive necessity. For the time being he is effectually severed from full mental contact with things as if he had been educated through life to exercise that tract and none other, or as if he were a madman, dominated by its morbid growth and function. There is good reason then, why persons of weak and unstable nervous temperaments can, while persons of strong, compact mental organism can not, be thus put out of possession of themselves, and why those who have frequently allowed their mental being to be thus dislocated become so unstable, at least as to fall out of mental joint at the least suggestion. Nay more, there are persons who under enthusiasm, or other mental excitement, can perform a self-hypnotism, and afterward so cultivate the acquired function by strain and practice, as to repeat the operation at will, with the greatest ease." Such is the character of this agency, which no doubt has existed as long as the history of the treatment of disease varying in degree of potency in different ages and under different conditions of the human family.

That we are living in an age where from the activity and strife and strain of life, in a severe struggle for position and existence, coupled with a heredity that is becoming more and more conspicuous, when there is

great weakness of the human mind and tendency to nerve deterioration and mental decay, no one who carefully studies the events of the times can fail to observe. This condition produces a large train of human minds that crave leadership, in other words, minds easily influenced by suggestion; hence we see hypnotism more easily practiced than in some other periods in our history. Human credulity seems to be at its highest point, the great masses of the people are capable of being easily led by the suggestions of the few, and such a condition can not be considered as a healthy one in the body politic. If it be true that by the practice of this agency, we weaken the subjective mind instead of giving it strength, if by repeated suggestions it becomes more and more easily affected, and dependent, surely such treatment can not be of advantage to the subject, but on the other hand, we are increasing the weakness of the will of the individual, and surely in this direction madness and mental decay lie.

To quote again from Maudsley, relative to hypnotism: "The compact consciousness of the supreme centers has become broken up, a discordant tendency fostered, and the disassociated centers are prone to continue their abnormal and independent action. This state frequently follows too oft repeated hypnotic experiments in the same individual, and assuredly that way madness lies."

Charcot said nothing of the therapeutic uses of hypnotism. He indeed pointed out that a woman who had hysterical paralysis of one leg, walked about and seemed cured during hypnosis, and that though he might temporarily remove the paralysis by suggesting its disappearance, that such a remedy did not treat the disease she labored under, but only allayed one symptom. He treated his cases of hysteria according to the best principles known, namely, seclusion, fattening foods, and the physiologic mode of living.

Dr. Robertson states that it is the general opinion of the medical profession in Nancy that while hypnotism has done some good, in many instances its general affect is more harmful than beneficial, inasmuch as the general belief by people in occult powers, and the power of one man's mind over the conduct of others weakens will power and thus becomes injurious.

There is no doubt but that outrage can be effected in the hypnotic condition, and although it may be doubted if crime can be committed, it seems that the weight of evidence is largely in that direction.

All writers on the subject condemn public exhibitions of this practice, and I believe the time will soon come when its use by the medical profession will entirely give way, as I believe it should, to safer and more scientific methods of practice, and by other therapeutic agents.

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DISCUSSION ON PAPERS OF DRS. MASON AND WINGATE.

Dr. T. D. Crothers—Suggestion is a physiologic, and not a pathologic process. I believe it is more absolutely certain than Rochelle salts or any other medicine that we are in the habit of using. I know that no man can practice medicine without suggestion; you may call it personality, or magnetism, or may attempt to define it, but in reality it is suggestion.

Dr. Twitchell—In the last few months I have written 100 letters to leading psychologists, both in this country and in Europe, and have received 41 answers, only 2 of which were opposed, not only to the use, but to a better teaching of this subject in our medical colleges. Solomon Solis-Cohen of this city wrote that he believed in an all-round study of the mental faculty both in disease and in its cure. I believe the time is coming when, not only will every physician throughout the land recognize this factor in treatment, but it will be taught in all our medical colleges. As to the injury done by hypnotism, how many of us are absolutely certain that any of our drugs does not produce evil effects? How many of us will use morphia, or any potent drug, and feel absolutely certain that in any given case he will produce no injury?

Dr. Moyer—I do not see the great dangers to be apprehended from hypnotism, and I suspect that suggestion, which I think is really what is understood by hypnotism, has been used almost from time immemorial, and that it explains a vast deal of the phenomena in the nervous system in disease which is not explicable on any other theory. It is only of late that I have been employing hypnotism at all extensively, and it is almost routine practice with me to hypnotize about all the patients that come to my clinic. I have yet to see any bad results. The number of cures that have been effected in this way is quite numerous. I can recall one striking case of hysteric paraplegia in a man who was brought to my clinic with great difficulty, partly carried up the stairway, and before he left was able to walk down the stairway. Another, an hysteric hemiplegic who had not been employed for four years, has resumed his work after four treatments of hypnotic suggestion. Suggestion has a wider range than that. Even in organic affections the patient becomes more hopeful and confident, and his general condition improves.

Dr. Mason—I had supposed that all were accustumed to look upon hypnotism as a fact, and one which we are gradually learning to apply scientifically, by means of methods of observation and drawing conclusions. Any statements in regard to the physical effects of hypnotism upon the brain are purely hypothetic, and there are no facts upon which to base any statement of this kind. Of course, from continuous hypnotism of one subject we might possibly have uncomfortable effects, but this is true of almost any other therapeutic procedure. I have used hypnotism twenty years, commencing before Charcot and Bernheim, and in all that time I have never seen an untoward effect of any sort whatever. Charcot endorsed hypnotism, and made use of it.

Dr. Wingate—I do not understand that hypnotism is suggestion in the true sense. I believe that everyone uses suggestion; but when you render a patient unconscious, put him into the true hypnotic condition, then you make an impression upon him of an entirely different character. There is always a class of patients with whom this is repeated over and over again. We hypnotize certain patients continuously because we find it easy to do so, and I maintain that that constant brain action is injurious. I believe that hypnotism will in time injure the patient, and will not accomplish the good that is hoped for and expected.

A STUDY OF THE STIGMATA OF DEGENERACY AMONG THE AMERICAN CRIMINAL YOUTH.

Presented to the Section on Neurology and Medical Jurisprudence at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

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CHICAGO, ILL.

The present contribution results from studies on young criminals made during 1895-96 at the State reformatories at Pontiac, Ill., and Elmira, New York. The investigation concerns especially the stigmata of the head and face. The stature and weight were noted, but other anthropometric data were not specially considered, as measurements had to be entrusted to others. It was therefore deemed advisable to avoid as far as possible elements of error concomitant on extensive detailed anthropometry. Only simple measurements easily obtained with accuracy were made. Inasmuch as facial and cranial development are, as a rule, most directly co-related with moral and intellectual evolution it was deemed natural that they should furnish sufficient data for discussion in an article of the present scope.

Since the inquiry dealt only with the physical stigmata of the head and face, the youngest inmates were, for obvious reasons (immature jaw and face development) excluded from consideration. The object of the inquiry was to determine the extent to which the

youthful criminal came from the ranks of the degenerate. The question whether a criminal type, distinct from other degenerate types exists, does not enter into the scope of this paper, and has not been considered. Besides the stigmata, age and race are included in the inquiry and discussion. Details as to parentage, heredity and antecedents would have been of interest, but could not be obtained with any accuracy. Certain data naturally lead to inference unnecessary to point out; for example, the predominance of the foreign born and those of foreign parentage, especially of certain nationalities.

The details as to those of foreign and native perentage mixed would have been of special interest for purposes of comparison. The mass of the youth examined came from the unskilled laboring class, and from the urban, as distinguished from the rural population. These facts are to be recognized when it is remembered that the two institutions are hundreds of miles apart and draw their population from differing communities. The two institutions have therefore been considered separately to eliminate elements of error. The total number examined was 414 at Pontiac, and 1018 at Elmira. The ages ranged between 15 and 30. The average at Pontiac was a little over 19 and 21 at Elmira. For purposes of comparison records were made as to weight and stature and these were tabulated according to age, nationality and color. Only three or four nationalities are represented sufficiently to be of value for statistical purposes. The others are given for the sake of completeness. The nationalities were tabulated by considering those of foreign parentage on both sides as foreigners and those with one American parent as native born. This was thought a better course than designating nationalities by places of birth. It was thought desirable to classify certain individuals by race rather than nationalities, but this was very difficult. The Jews, for example, in Pontiac are included among the Germans and Poles. Pontiac contained one full-blooded Indian, but many of the negro inmates had a considerable proportion of Indian blood. The negroes included all with an appreciable negro taint, but full blacks were in the minority. The two institutions differ in their constituents. Pontiac is more particularly a reform school and receives a larger number of misdemeanants, whom in New York are sent to Westchester, Rochester, etc., rather than to Elmira. From the tables it will be evident that an older class of cases is received at Elmira. In tabulating, only those inmates of Elmira of 30 years and under are included; in Pontiac, the oldest is 26. The first table gives data as to age, stature and weight in the two institutions. This table does not include the whole number examined since it was impracticable in a few cases to obtain weight and stature, while obvious stigmata could be easily tabulated.

The most striking fact shown by these tables is the inferiority in physique of the Elmira inmates, as compared with Pontiac. The latter compare very well with the average urban population and still more favorably in these particulars with the artisan class of the larger English towns.[1] This is due to the fact that the degenerates and less active unskilled artisans of European cities locate on the sea border, while the stronger seek the interior or the country. The more apathetic emigrants of both urban and rural European communities are dragged into the cities.

[1] Roberts' Manual of Anthropology.

In considering the difference between the inmates of Elmira and Pontiac the fact should be remembered, that for several decades subsequent to 1850 New York State maintained the suicidal policy of having an establishment especially for emigrant defectives on Wards Island. At the end of five years residence the epileptic, hysteric, pauper, prostitute and semi-criminal classes were turned loose to drift into city institutions., or to remain in the city itself. The insane and idiotic were directly turned into the New York City institutions. The defectives less than five years resident in the United States were returned from other States to Wards Island, thus causing an undue accumulation of defectives in New York City. The mere existence of the Emigrant Refuge led to the settlement of the less energetic emigrants directly in New York City. The ordinary tendency of careless charity had its usual effect in increasing the defective population of New York City, and hence of increasing the number of defective youth.

The number at the younger age in Elmira is too few to be compared with the results of Bowditch, but so far as they go, compare favorably. The New York figures under-run Roberts' results at nearly all ages and in nearly all nationalities. The difference is more marked in weight than stature, while very apparent in the latter. The American figures indicate that the rush and roar of city life attract active degenerates from the country, the more apathetic urban degenerates remain in cities, while the more active press westward. In a general way, the comparison between Elmira and Pontiac tends to show that the more robust and restless of the degenerates as well as of the eastern rural population press westward. It is certain from the studies of the defective classes that apathetic defectives like paupers and prostitutes have less tendency to wander.[2] The more active defectives like the paranoiacs, periodical criminals, etc., have a tendency to wander. The influence of climate and soil has been too recently exerted to be demonstrable in the difference between New York and Illinois.

Table two shows the difference between the reformatories more strikingly than can be done by words alone. In it the average stature and weight, according to nationalities of inmates over 20 years of age, are given. This table includes the adult averages only. It is possible that the stigmata of lipomatosis has to be considered relative to the question of weight. The difference in weight between the two reformatories is particularly noticeable. The inmates of the eastern reformatory are generally a more slender type. In considering the question of lipomatosis the fact should be remembered that the cases admitting of this possibility are comparatively few, and the light individuals are much more numerous. The range in this particular is much more evident in Elmira than at Pontiac. As regards stature, the range was much greater at the latter place. It would be too strong a statement to claim the influence of western soil in this particular, as has been done by some criminal anthropologists. Data of comparison with the stature of the races are wanting.

The cephalic index is one of the most interesting of the anthropologic data. The results at both Pontiac and Elmira are summarized in table three. The marked dolichocephalic in both institutions is very noteworthy. As it contrasts with the marked mesocephaly of the populations from whence these crimi-

[2] Eighth Annual Report, Massachusetts Board of Health.

nals are drawn it is clearly a stigma of degeneracy. This is true even of the negroes, since in 2,000 examinations I found but 6 instances of dolichocephaly in Chicago. The Irish in Pontiac, and the Germans in Elmira, appear to be the least dolichocephalic, though their average index is decidedly below the lowest mesocephaly. In a general way this result tends to confirm the opinion expressed as to the proclivity of the apathetic foreign degenerate to remain on the seaboard. It is notorious that the more active Irish of the rural class go eastward. The more apathetic of the Germans remain in the seaboard towns. In no case could there be said to have been notable exaggeration of the racial type. It is unfortunate, however, that the cranial index of the districts from which these populations were drawn could not be obtained. Both Ireland and Germany are stilled dotted with dolichocephalic colonies.[3] The fourth table gives the breadth of the upper jaw measured from the outside of the first permanent molars and corresponding measurements from the second bicuspids. This will aid in giving an idea of facial proportions and average contours of the dental arches. The fifth table shows the variations in the height of the palatine vault. The width of the jaws between the molars and bicuspids of the four or five leading nationalities at Pontiac was decidedly in excess of the corresponding width at Elmira. This indicates that, notwithstanding the younger age, the face was wider and squarer than at the eastern institution. The Elmira measurements average less than those of normal individuals [4] in the Eastern States. The Pontiac institution's average equals, or even exceeds the normal figure. By this fact the impression that the emigrant of better physique goes westward is confirmed. The height of the palatine vault averages a little higher at Elmira than at Pontiac. This fact, taking into consideration the importance that has been attributed to the height of the vault as a stigma of degeneracy is of decided interest. The difference however between the average of the two reformaties is too slight to be of much value, even were it certain that height of the vault had the importance attributed to it. As compared with what may be considered the normal vault,[5] the average height in both Elmira and Pontiac may be considered under the normal, but much importance can not be attributed to the slight difference. The measurements of the width of the jaws, and of the height of the vault are, on the aggregate, of value, but their range above or below the normal not remarkable.

A series of measurements was taken between the eyes, measuring from center to center of the pupils, $2\frac{1}{2}$ inches being the average. More accurate figures would have been obtained had the measurements been made between the inner and outer canthi. The variations between the reformatories themselves and between them and normal communities are not very striking.

The more accepted stigmata of degeneracy present striking facts in these institutions. It is advisable first to establish a normal standard, remembering that the average individual possesses degenerative stigmata to a minor degree, and that only combination and excess in a number of these mark the degenerate in the higher sense of the term. To furnish a normal standard a series of persons representing the average of the community was selected, and note taken of their stigmata, especially in the head and face. They were city residents of respectable standing, and were taken at random. The total number was forty-two; of these fifteen had subnormal, and seven excessive development of the occiput. Two had the bregma abnormally depressed; four had very low, and three receding foreheads; nineteen had an arrested, and seven excessive facial development; three had the nose sunken at alæ; twenty-six arrested, and three excessive, nasal development; one had the septum strongly deflected to the left; ten had abnormally small, and eleven very large orbital cavities, many of these also had the eyes sunken; four had V-shaped jaws; two partial V-, seven saddle-shaped and two semi-saddle-shaped jaws; six had irregular dentition: one hypertrophy, and one atrophy of alveoli; twelve had very large, and two abnormally small, development of the thyroid gland; not less than thirty-nine had one or more aural defects, either too large or too small, too widely or too closely set ears, adherent or excessive lobules, Darwin's tubercles, etc. Of the whole number there were only two with four stigmata each, one with five, six with six, seven with seven, six with eight, five with nine, four with ten, five with eleven, and four with twelve stigmata.

The average number of each individual was eight, and this may perhaps be accepted as approximately the normal figure, at least for the ordinary urban resident who does not belong to the defective classes.

Differences of opinion may arise in regard to the value of these defects as stigmata; yet, all elements of error considered, they furnish a fair method of comparison of the relative degeneracy of the respectable community and of the reformatory. Tables six and seven show that the stigmata of the average inmate of the reformatories are nearly double that of the average normal individual. In the New York institution the stigmata are double or more in nationalities of any number of those in the Illinois institution. The stigmata, hence, follow the same general rule as the physique. The inmates of the Illinois institution are noticeably less stigmatized by degeneracy than the New Yorkers. The native Americans of the New York institution presented an average of sixteen stigmata each. Those in Pontiac had only fourteen. While the difference was not so marked in the other nationalities, it was still sufficiently apparent. This corroborates the conclusion that the more defective degenerates remain on the sea border.

While stigmata other than those of the face and head were not considered in the studies for this paper at any length still the majority of the inmates were found to present an abnormal proportion of them. Marked bodily asymmetries, disproportion of members, flat feet, were more common than in the average normal population. Though reformatory inmates are usually considered as somewhat distinct from the ordinary population of the penitentiary, they present many of its physical characteristics. In this connection some recent studies of Dr. Charles E. Woodruff of Fort Custer, Montana, which are to form the basis of a work on degeneracy in regard to military service, are in point. Dr. Woodruff [6] remarks: "It is not often that criminals are enlisted, and the records, if gone over, will probably show that the number of crimes committed by soldiers is far less than those committed in any community among an equal number of young

[3] Taylor, Origin of the Aryans.
[4] Etiology of Osseous Deformities, 1894. [5] Idem, p. 74.
[6] Degeneration in Military Life.

men. If a city has 20,000 young men, say of ages from 20 to 35, it is quite possible that it has over 200,000 inhabitants, and I know of no city of that size where there are so few thefts and serious crimes as in the army. This should have been expected from the exclusion of the worst degenerates by the physical examination. A large number of common stigmata unfit the person for military service, and as criminals were believed to be physically below normal, this I made a personal test to determine. Through the courtesy of Superintendent R. W. McClaughry, of the Illinois State Reformatory, I examined 138 young convicts, just as I would recruits. I excepted the hearing and eye-sight, as these tests are subjective, and their notoriously untruthful answers could not be accepted. As eye and ear affections are known to be quite common, there would have been more disability for these troubles had time permitted of examination by objective methods.

"They were divided into the following classes:

"1. There were only two in whom there was no discoverable defects, there were two others with very trivial defects, and ten more who would pass but might be rejected by a careful surgeon; total, fourteen.

"2. In this class were placed those having minor defects sufficient to reject an unknown recruit, but which the surgeon himself would feel justified in overlooking if the man were very desirable (a good mechanic, clerk, etc.), or in the case of re-enlistment; total, thirty.

"3. In this class were defects so serious that the surgeon would not feel justified in overlooking, but would recommend that special authority be asked to enlist the man if he were extremely useful or were needed for special service, not in the ranks, or were needed in war; total, thirty-seven.

"4. Defects which would exclude in peace times, but would permit of special service, clerk, messenger, etc., in time of war, thirty-three.

"5. Totally unfit either in peace or war for special or general service, twenty-four. Total, 138.

"Several very boyish, immature men, evidently too young, were not included, nor were negroes. It must be remembered that these are the best grades of criminals in whom the judge believed there was chance for reform. Some of them are normal men who have been in bad surroundings, that is, they were taught to be criminals. The physical defects of confirmed criminals in penitentiaries are more marked, and from a very imperfect and casual examination of those in Joliet prison, I believed that very few were capable of military service.

"Then, again, quite a large number of criminals cease their active careers as executors of crime at the age of 25, or thereabouts, and then become contrivers of crime directing others,—they are the capitalists of crime, running brothels, saloons, become "fences," etc. Therefore, at the age at which the majority of men enlist in the army, the criminal is too actively engaged to think of enlisting. When one does slide in by oversight, it is surprising how quickly the soldiers of his company take measures to get rid of him. In some years the recruiting officers reject as many as 90 per cent. of the candidates for enlistment, only 10 per cent. being found up to the proper standard. In that 90 per cent. will be found the worst degenerates. It is rare to have more than 25 per cent. accepted.

"It is reported that forty newsboys were taken to the Brooklyn Navy Yard to enlist, and that thirty-eight were rejected as physically unfit[7]. This is to be expected when we reflect that these boys are thrust into the street as a result of parental degeneration, and must be degenerates of bad type and of markedly inferior physique. We have already called attention to the large number of criminals who have hernia (over 10 per cent.), tubercular history (perhaps 50 per cent.), and heart disease (25 to 50 per cent.), shortness of stature, underweight, defective senses and intelligence, and a restlessness incompatible with military discipline. From all the above facts I would make a rough estimate that 95 per cent. of confirmed criminals are physically unfit for military service.

"Knock-knee and flat-foot have not usually been considered stigmata but deformities due to mechanical changes, and sometimes due to perverted development of the bones. The conditions usually go together, for it is rare to find flat feet in bow-legged men. Flat-foot and knock-knee are much more common among degenerates than is generally supposed. In the 141 criminals I examined in Pontiac, there were the following deformities of all grades:

		Per cent.
Feet and knees normal	67	47.5
Knock-knee alone	14	10.0
Flat-foot alone	34	24.1
Knock-knee and flat-foot combined	22	15.6
Very bow-legged	1	.7
Bow-legged and flat-foot	3	2.1
	141	100

"From the lack of resistance of degenerate structures one should be prepared to find, therefore, that more than half of these men should present anomalies of the feet and knees. I have very frequently been astonished at the high degree these deformities assumed in undesirable recruits. I kept no record of the number of the above cases in which the deformity was of sufficient grade of itself to unfit for military service.

"Ancient statuary is remarkable for the number of flat feet in which the arch is in various grades of destruction. Ancient models must have been very poor to cause the artists to copy this condition so often.

"As a mild form of knock-knee is a normal feminine characteristic, we find it well marked in cases of femininism. The mild grades of flattened feet in women are also in part normal, and follow quite naturally both from the normal knock-knee and the naturally weak tissues. Both conditions in males may then be a result of femininism. The infant's foot is normally flat, and so is the negro's, and its retention in adults may be atavistic. In the Elmira Reformatory, of 529 men examined, the arch of the foot appeared to be normal in 58.42 per cent., unnaturally low in 18.71 per cent., and flat in 22.87 per cent.

"Faulty position of the foot may be produced by an anomalous position of the ends of the long bones of the leg and thigh. The toes may be thrown far out, causing a shuffling gait, as though the man walked on his heels, or the toes may be turned in. In civilized man the feet make an angle of about 30 to 45 degrees but in many savages it is a smaller angle, or, indeed, the feet may be parallel.

"All the above states of the knees and feet must not be considered stigmata, as they are not always due to unstable development; but they must be given weight as indicating faulty developments of the tissues, a

7 Medical News, June 20, 1897.

Averages of stature and weight according to age and nationality of the inmates of the New York State Reformatory at Elmira, N. Y. Stature given in inches, weight in pounds.

Age.	Americans.			Germans.			Irish.			Africans.			Jews.			Polish.			English and Canadian.			French.			W. Indian and Mexican.			Dutch.			Scandinavian.			Italian and Spanish.			Hungarian.			Scotch.		
	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.
15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	3	65	108	1	65	121	1	56	75	6	62	109	.	.	.	1	53	.	.	.	.	2	65	140	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	4	65	132	2	61	100	3	61	116	5	64	128	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	7	66	119	6	66	132	5	64	137	7	65	137	.	.	.	1	66	125	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	67	142
19	16	66	136	6	68	142	11	65	128	7	66	138	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	69	153
20	22	67	138	9	66	129	19	66	134	19	65	135	3	66	126	6	66	140	5	67	142	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	65	.
21	23	66	143	12	66	147	11	66	141	6	65	143	.	.	.	.	.	.	2	65	135	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	65	150
22	4	64	140	5	63	137	7	63	140	3	66	132	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	2	68	140	2	65	160	4	64	139	3	67	153	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	5	67	149	1	67	150	2	66	127	.	.	.	.	.	.	.	.	.	1	71	150	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Age.	Americans.			Germans.			Irish.			Africans.			Jews.			English and Canadians.			French.			W. Indian and Mexican.			Dutch.			Slavonic. Bohemian. Russian.			Swiss.			Bohemian.			Scandinavian.			Italian and Spanish.			Hungarian.			Scotch.		
	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.	No.	H.	W.
16	1	66	100	1	68	138½	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
17	15	65	122	5	64	126	20	63	112	5	66	134	4	63	110½	.	.	.	2	65	140	.	.	.	1	62	108	1	65	115	1	65	127½	.	.	.	.	.	.	.	.	.	.	.	.
18	19	63	121	15	64	116	30	64	119	3	64	127	7	66	125	.	.	.	.	.	.	.	.	.	1	66	130	1	62	130	1	64	114	.	.	.	.	.	.	.	.	.	5	64	112
19	32	64	123	36	65	125	36	64	123	3	67	127	7	63	129	2	66	133	13	64	126	7	66	135	.	.	.	1	62	107	.	.	.	.	.	.	.	.	.	1	64	104	2	63	99
20	39	65	122	24	65	128	50	65	124	5	65	137	9	64	126	1	65	120	5	65	125	4	64	122	1	66	134	1	69	133	1	64	103	.	.	.	.	.	.	1	65	120	5	64	122
21	31	65½	130	30	65	117	54	65	128	10	65	131	6	65	139	1	65	122	7	64	131	1	62	104	1	62	104	1	64	139	.	.	.	.	.	.	.	.	.	5	63	116	3	66	132
22	23	65	124	25	65	133	33	65	135	8	65	139	8	66	149	.	.	.	8	65	132	1	64	131	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4	63	131	3	66	118
23	20	66	129	15	65	132	33	66	133	4	66	138	8	61	120	1	72	160	8	65	127	5	65	134	.	.	.	.	.	.	1	63¼	141	.	.	.	.	.	.	2	68	147	2	66	124
24	17	66	135	15	66	136	11	64	129	2	66	158	2	66	124	1	68	100	5	65	135	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	66	130	2	66	130
25	9	67	134	8	64	127	8	67	142	1	68½	106½	2	65	142	1	67½	114	3	64	147	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	7	64	129	5	65	133	7	64	132	.	.	.	5	65	142	.	.	.	3	66	135	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	5	66	137	2	67	107	5	67	153	.	.	.	1	63¾	116	.	.	.	1	66	129	1	68	124	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	69	167	.	.	.
28	7	67	141	1	63	121	3	65	120	1	65¾	150½	.	.	.	.	.	.	1	70	152	1	65	141	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	4	64	134	4	64	126	1	66	150	1	64	123	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	68	147	.	.	.
30	4	65	134	1	65	134	4	66	139	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

TABLE 2.

Nationalities.	Illinois State Reformatory.			New York Reformatory.		
	Number.	Stature.	Weight.	Number.	Stature.	Weight.
Americans	59	66.18	145.5	166	65.69	128.24
Germans	36	65.5	141.1	130	65	119.84
Africans	28	65.8	141.1	32	65.28	132.9
Irish	47	65.38	142	209	65.2	130.4
English	14	65	138.42	41	64.97	127.29
French	6	66	149	16	64.7	134.38
Bohemian	6	66.67	142	4	64.37	124.25
Scandinavian	5	69	164.2	4	67.75	132.75
Scotch	3	65	150	18	65.88	130.5

This table is intended to give only the adult averages.

TABLE 3.—CEPHALIC INDEX.

Nationalities.	Illinois State Reformatory.			New York State Reformatory.		
	Max.	Min.	Ave.	Max.	Min.	Ave.
American	80	61	72.8	79	66	73+
German	79	62	72	84	68	74
German Jew	71	. . .	71	. . .	. . .	. . .
Irish	81	68	74	86	68	73
African	71.5	59.5	71	77	68	73+
English	77	68	73	77	68	72+
French	77	71	73	75	68	73+
Polish	76	71	73.3	75	71	74
Swede	74	68	71	74	71	72
Norwegian	77	71	73	74	. . .	74
Danish	71	. . .	71	77	74	75+
Indian	73	. . .	73	. . .	. . .	. . .
Greek	71	. . .	71	. . .	. . .	. . .
Mexican	71	. . .	71	74	71	72+
Bohemian	81	71	74	77	70	72+
Swiss	74	. .	74	74	71	72+
Scotch	74	73	73	80	68	71+
Spanish	. . .	. . .	. . .	77	68	72+
Jew	76	73	74	84	71	72+
West Indian	. . .	. . .	. . .	73	. . .	73
Italian	. . .	. . .	. . .	77	68	70+
Russian	. . .	. . .	. . .	68	. . .	68
Hungarian	. . .	. . .	. . .	80	73	76+

TABLE 4.

Nationalities.	Illinois State Reformatory.						New York State Reformatory.					
	Greatest width outside 1st perm. molar.	Least width outside 1st perm. molar.	Average.	Greatest width outside 2d bicuspid.	Least width outside 2d bicuspid.	Average.	Greatest width outside 1st perm. molar.	Least width outside 1st perm. molar.	Average.	Greatest width outside 2d bicuspid.	Least width outside 2d bicuspid.	Average.
American	2.75	1.75	2.19	2.25	1.84	1.98	2.50	1.75	2.09	2.87	1.12	1.82
German	2.50	1.84	2.25	2.25	1.25	1.91	2.75	1.75	2.16	2.25	1.12	1.83
German Jew	2.25	2.25	2.25	2	2	2	. . .	. . .	. . .	. . .	. . .	. . .
Irish	2.75	1.75	2.18	2.84	1.84	.97	2.75	1.75	2.12	2.37	1.12	1.20
Negro	2.75	2	2.30	2.25	1.36	1.95	2.50	2	2.17	2.25	1.75	1.96
English	2.25	2	2.17	2.12	1.84	1.93	2.50	1.75	2.15	2.12	1.50	1.86
French	2.75	2	2.26	2.12	1.84	2	2.75	1.75	2.18	2.12	1.50	1.91
Pole	2 25	2.36	2.33	2.25	1.84	2.06	2.75	2.12	2 24	2	1.37	1.94
Swede	2.75	1.50	2.20	2.36	1.84	1.93	2.25	2.12	2.20	2	1.50	1.79
Indian	2.36	2.36	2.36	2	2	2	. . .	. . .	. . .	. . .	. . .	. . .
Greek	2.25	2.25	2.25	2	2	2	. . .	. . .	. . .	. . .	. . .	. . .
Mexican	. . .	. . .	. . .	. . .	. . .	. . .	2.12	2.12	2.12	1.87	1.87	1.87
Bohemian	2.75	2.10	2.25	2.12	2	1.88	2.25	1.87	2.01	2	1.50	1.81
Norwegian	2.75	2.36	2.45	2.25	2	2.09	2.25	2.25	2.25	2	2	2
Swiss	2.25	2.25	2.25	1.84	1.84	1.84	2.25	2.12	2.18	2	2	2
Danish	2.25	2.25	2.25	2	2	2	2.25	1.75	2.08	2	1.50	1.75
Scotch	2.36	1.75	2.17	2.12	1 75	1.87	2.50	2	2.12	2	1.75	1.47
Spanish	. . .	. . .	. . .	. . .	. . .	. . .	2.37	2	2.02	2.12	1.75	1.91
Jew	2.50	2.50	2 50	2.36	2.36	2.12	2.87	1.75	2.16	2.12	1.50	1.73
West Indian	. . .	. . .	. . .	. . .	. . .	. . .	2.25	2.25	2.25	2.12	2.12	2.12
Italian	. . .	. . .	. . .	. . .	. . .	. . .	2.50	1 87	2.15	2.12	1.12	1.90
Russian	. . .	. . .	. . .	. . .	. . .	. . .	2.12	2.12	2.12	1.87	1.87	1.87
Hungarian	. . .	. . .	. . .	. . .	. . .	. . .	2.25	2	2.15	2.12	1.75	1.93
Dutch	. . .	. . .	. . .	. . .	. . .	. . .	2.25	1.75	2.12	2	1.50	1.52
Turk and Tyrol	. . .	. . .	. . .	. . .	. . .	. . .	2.25	2.25	2.25	2	2	2
Roumanian	. . .	. . .	. . .	. . .	. . .	. . .	2.12	2.12	2.12	1.87	1.87	1.87
Canadian	. . .	. . .	. . .	. . .	. . .	. . .	2.25	1.75	2.07	2.20	1.75	1.82

degenerate characteristic. It is quite likely that the fault is rickets, which recent investigations have proved to be almost the rule in degenerate children."

There can be no doubt that similar systematic research would reveal among the older criminals in the States prisons an exceedingly large proportion of

degenerates, as, indeed, incidental research has shown. There have, however, been very few systematic studies of the younger criminal as a class, or of those who for various reasons have been found by judges better suited for reformatories than true penal establishments. The few examinations that have been made were generally of a more juvenile class than that here considered, and hence not well suited for the study of stigmata. The notes on the stigmata involved a greater number than are represented in the other tables. This, as has already been explained, was due to the measurements being made by others. There is no doubt however as to their substantial accuracy.

No attempt was made at systematic craniometric data, the chief aim of the observations having been to note the facial stigmata. In a general way, some more striking cranial deformities are noted; the excessive, or otherwise, occipital or bregmatic prominence, and the relative height of forehead. The most notable peculiarity in these respects is the large proportion of cases of pronounced height of the bregma, more observable in the inmates of the New York State Reformatory than at Pontiac. While not pronounced enough in all cases to result in true oxycephaly, the tendency was in that direction. This fact is in accord with observations elsewhere on the criminal classes. The excess of development in the occipital region was likewise more common in the Elmira inmates, whose proportion of average normal heads was less than that of the western institution.

TABLE 5.

Nationalities.	Illinois State Reformatory.			New York State Reformatory.		
	Greatest height of vault.	Least height of vault.	Average.	Greatest height of vault.	Least height of vault.	Average.
American	.63	.44	.49	.75	.50	.54
German	.75	.42	.50	.75	.50	.52
German Jew	.62	.50	.50	. . .	. . .	. . .
Irish	.62	.50	.56	.75	.50	.54
Negro	.62	.50	.52	.87	.50	.76
English	.62	.50	.55	.75	.50	.58
French	.62	.50	.55	.75	.50	.53
Pole	.62	.50	.52	.62	.50	.54
Swede	.60	.50	.52	.62	.50	.58
Indian	.60	.60	.60	. . .	. . .	. . .
Greek	.62	.62	.62	. . .	. . .	. . .
Bohemian	.62	.50	.51	.50	.41	.48
Norwegian	.62	.50	.54	.62	.62	.62
Swiss	.62	.62	.62	.56	.50	.53
Danish	.62	.62	.62	.75	.50	.62
Scotch	.62	.44	.57	.62	.50	.54
Jew	.56	.50	.54	.75	.50	.54
West Indian	. . .	. . .	. . .	.50	.50	.50
Mexican	. . .	. . .	. . .	.62	.52	.57
Italian	. . .	. . .	. . .	.62	.50	.57
Spanish	. . .	. . .	. . .	.75	.41	.63
Russian	. . .	. . .	. . .	.50	.50	.50
Hungarian	. . .	. . .	. . .	.62	.50	.59
Dutch	. . .	. . .	. . .	.75	.50	.58
Turk	. . .	. . .	. . .	.50	.50	.50
Tyrol	. . .	. . .	. . .	.62	.62	.62
Roumanian	. . .	. . .	. . .	.62	.62	.62
Canadian	. . .	. . .	. . .	.75	.50	.53

TABLE 6.—Number of stigmata of degeneracy of entire body, in the Illinois State Reformatory.

No. of stigmata.	American.	German.	Negroes.	Irish.	Jew.	Polish.	English.	French.	Indian.	Swede.	Greek.	Mexican.	Bohemian.	Norwegian.	Swiss.	Danish.	Scotch.	Dutch.
9	. .	. .	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
10	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
11	. .	1	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
12	. .	1	3	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
13	1	. .	7	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
14	3	. .	5	3	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1
15	3	2	5	. .	. .	. .	1	2	. .	. .	. .	. .	. .	. .	. .	. .	2	. .
16	4	1	6	3	. .	. .	1	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
17	9	1	1	5	. .	1	2	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
18	11	13	8	12	. .	1	2	1	. .	. .	. .	. .	1	. .	. .	. .	1	. .
19	24	10	8	13	2	3	4	. .	. .	3	. .	. .	. .	1	. .	. .	. .	. .
20	18	12	6	9	. .	3	6	1	. .	3	. .	. .	. .	. .	. .	1	. .	1
21	28	11	8	10	. .	1	3	3	1	1	1	. .	. .	1	. .	. .	. .	1
22	11	8	3	15	. .	1	4	1	. .	. .	. .	1	1	. .	1	. .	. .	. .
23	4	4	1	10	. .	. .	. .	. .	. .	. .	. .	. .	1	. .	. .	. .	. .	. .
24	2	. .	1	5	. .	. .	1	1	. .	1	. .	. .	. .	1	. .	. .	. .	. .
25	2	2	. .	2	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
26	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
27	. .	. .	. .	. .	. .	. .	. .	. .	. .	1	. .	. .	. .	. .	. .	. .	1	. .
28	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Aver.	22.1	19.7	17.	21.8	19.	20.	18.5	18.6	21.	21.	21.	22.	21.	21.	22.	22.	18.7	18.3

TABLE 7.—Number of Stigmata of Degeneracy of Entire Body in the New York State Reformatory.

No. Stigmata.	Americans.	Germans.	Negroes.	Irish.	Jew.	Polish.	English.	French.	West Indian.	Swede.	Mexican.	Bohemian.	Norwegian.	Swiss.	Danish.	Italian.	Spanish.	Russian.	Hungarian.	Dutch.	Scotch.	Turk.	Roumanian.
9	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
10	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
11	. .	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
12	. .	. .	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
13	1	. .	. .	3	1	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
14	5	2	1	14	2	3	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
15	10	4	. .	14	1	4	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
16	9	11	6	12	5	1	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
17	22	16	5	21	4	3	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
18	30	20	6	43	5	3	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
19	31	26	5	64	6	3	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
20	46	34	11	59	13	1	5	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
21	36	36	3	33	10	1	3	. .	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
22	27	19	6	13	5	. .	4	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
23	18	10	. .	4	2	. .	3	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
24	7	5	. .	1	. .	. .	2	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
25	3	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
26	1	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
27	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
28	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Average.	20	19.4	18.8	17.2	19.2	19.5	17.7	19.5	20	20	17.5	20	17.5	22	19	19.3	20.2	19	15.4	21	20.7	17	18.5

As regards the face, the tendency seems to be more commonly toward an arrested than an excessive development, especially at Pontiac, where a fairly normal facial contour is more common. The height or prominence of the zygoma claimed as a criminal feature was most common in Pontiac. There was no predominance of unusually large orbits (as described by Lombroso) in either place. A diminished orbital capacity was the rule, and in Elmira deep sunken eyes were in the majority. Nasal development of moderate degree was the exception at Elmira, but the rule at Pontiac. In the more particularly known mandibular deformities, the results were striking. Well formed or normal jaws were decidedly in the minority. The proportion of abnormalties (V-shaped, partial V-shaped, semi-V-shaped, saddle-shaped, partial saddle and semi-saddle) was excessive in both reformatories, (63 per cent. at Pontiac, and 60 at Elmira). These deformities, common in criminals, by the flaring out of the posterior portion of the lower jaw, contribute to the square lower face in the criminal physiognomy. The teeth were only in a moderate proportion affected by irregularities aside from those connected with deformities of the jaw. The same is true of alveolar

abnormalities. In both respects the inmates were fairly normal, and as regards regularity of dentition, were rather better than the average. The types of aural stigmata have been discussed in my paper on "The Degenerate Ear."[8]

TABLE 8.

	Head.										Face.												Nose.											
	Occiput.			Bregma			Forehead.				Develop'm't.			Zygomata.			Develop'm't.			Width.			Length.			Develop'm't.			Septum		
	Arrested.	Excessive.	Normal.	High.	Low.	Normal.	High.	Low.	Receding.	Arrested.	Excessive.	Medium.	Arrested.	High.	Medium.	Low.	Excessive.	Medium.	Arrested.	Broad.	Narrow.	Long.	Short.	Arrested.	Medium.	Excessive.	Deflected to left.	Deflected to right.
Illinois State Reformatory	253	83	127	349	110	123	153	295	452	13	285	138	42	293	121	51	128	419		183	258	263	171	69	392	4	106	36
New York State Reformatory	412	496	133	952	89	220	205	646	1,015	26	586	30	425	398	. .	116				421	610	580	461	751	12	278	30	11

	Jaws.							Teeth.			Alveolar process.			Thyroid gland.			Arms.		Hands.				Legs.		Feet.		
	V-shaped.	Partial V.	Semi-V.	Saddle.	Partial saddle.	Semi-saddle.	Normal.	Irregular.	Irregular.	Present.	Absent.	Normal.	Abnormal.	Normal.	Excessive.	Arrested.	Long.	Short.	Long.	Short.	Left-handed.	Right-handed.	Long.	Short.	Large.	Small.	Medium.
													Hyper-trophy.	Atrophy.													
Illinois State Reformatory	75	71	3	66	63	16	171	123	342	13	452	371	93	1	155	173	37	136	326	137	41	424	327	136	37	106	360
New York State Reformatory	381	49	1	157	26	. .	422	220	821	26	1,015	968	73	. .	106	909	659	392	659	392	47	994	659	392	4	392	655

The percentage of deformities of this kind is rather under that observed in the non-criminal population. The size of ears was not very extraordinary. This may perhaps be due to the age of the patient, since growth of the ear is more or less continuous throughout life. The most striking peculiarity found among the juvenile criminals was the number of ears set at obtuse angles to the head, which has been noted as a criminal peculiarity by Frigerio. Although a very small number (about 1 per cent.) had very long ears, still this percentage was a large one considering the average age of the persons examined, and therefore merits attention since it may be an evidence of pre-

[8] Journal of the American Medical Association, Vol. XXVII.

mature growth so common in the defectives. A notable peculiarity at Elmira was the prominence of the thyroid present in nine-tenths of the inmates. In this the lesser development of the fleshy tissues played a part. The prominence included both the gland and the thryoid cartilages. At Pontiac there was nothing noticeable in this respect. The arms and legs were more excessively developed at the Pontiac institution. As a large proportion of the Pontiac inmates were otherwise well developed, this excessive development was evidently a stigma of the atavistic criminal type.

Complexion and color of eyes and hair was noted in each (Table 9) institution, those of negro descent being excluded from consideration. Decided blonds furnished about 12 per cent. of the inmates of Elmira, and 11 per cent. of those of Pontiac. The great majority were neither blond nor brunette, but had hair of varying shades of brown. An overwhelming majority had gray or blue eyes. Black eyes were in the minority. Decided red hair was uncommon, but most frequent in Elmira (about 1 per cent.).

The table (Table 10) giving statistics of crimes reveals no very striking difference other than accountable by the differing methods of the courts of the two States. The small proportion of pure crimes of violence (about 5 per cent. at Pontiac and very little more than that at Elmira) indicates that crimes of passion were the exception, and that those offenders were more truly criminals than might have been expected from their status as reformatory inmates. As to the extent of their responsibility and reformability, it must be remembered that degeneracy predisposes the majority to become easy victims of vicious tendency. Juvenile, moreover, when not of purely infantile type, is apt to be precocious criminality. As pointed out by Ferri, it is an indication that the individual falls rather into the class of "born criminals" (in Ferri's sense) than into that of the occasional type. The occasional crime, Ferri remarks, and the crime of passion do not occur, as a rule, before manhood, and rarely or never lead to relapse. In other words, there are the slips of conduct in an individual who has developed normally in the main. These reformatory inmates, as a class, have the potentialities of the habitual criminal, of which it is the aim of the institution to prevent development. They are the victims of environment, it is true, to a certain extent, but far more than is commonly supposed or admitted by philanthropists and reformers, are the victims of heredity. Every form of ancestral malnutrition and vice has undoubtedly played its part in their development. The results of my inquiry, so far as it has proceeded, may be summed up as follows:

The inmates of these two State Reformatories are, in the vast majority, of the degenerate class. Their physical stigmata are more than twice as numerous as those in non-criminal individuals. This is true in the particulars noted in the present inquiry. From Dr. Woodruff's results it is evident that further increase of the scope of the inquiry would have increased rather than lessened this proportion.

The very perceptible difference between the inmates of the two institutions as regards the degree of degeneracy shown in the number of stigmata presented is due to the causes already pointed out, and especially to the suicidal policy of New York State having so long maintained the pauperizing Emigrant Refuge. Here, as has already been pointed out, the defective classes of the European countries were deliberately

TABLE 9.—Aural measurements and variations.

	Length.												Width.												Helix.						Anti-helix.		
	1¾	2	2⅛	2¼	2⅜	2½	2¾	3	⅞	¾	1	1⅛	1⅜	1¼	1½	1¾	2¼	Development.			Form.			Root.			Development.		
																		Arrested.	Medium.	Excessive.	Folded.	Medium.	Open.	Normal.	Abnormal.	Arrested.	Medium.	Excessive.
Illinois State Reformatory.	1	18	6	5	90	248	83	16	2	1	66	105	17	221	45		1	236	55	174	181	48	236	157	308	195		270
New York State Reformatory.		15	3	4	205	682	113	17		1	34	170	155	603	70	3		771	52	206	294		747	907	134	317	13	722

	Tubercles of Darwin.						Lobule.						Tragus.			Anti-tragus.			Concha.		Angle.			Relation.		
	Middle third.		Upper third.		Lower third.	None	Attachment.		Shape.			Development.				Development.											
	Right.	Left.	Right.	Left.	Right.		Close.	Medium.	Broad.	Narrow.	Long.	Arrested.	Medium.	Excessive.	Arrested.	Medium.	Excessive.	Large.	Small.	Deformed.	Close.	45 degrees.	Right.	Right, higher.	Left, higher.	Normal.
Illinois State Reformatory.	195	167	70	47	2	307	309	163	334	104	33	255	12	198	117	244	124	310	59	76	22	137	305	198	152	115	51	93	821
New York State Reformatory.	309	285	82	80	2	701	831	191	671	361	35	481	25	513	534	70	427	693	21	316	657	266	118	285	567	187	1	2	1038

TABLE 10.—Crime.

	Illinois State Reformatory.	New York State Reformatory.
Burglary	263	499
Larceny	154	. . .
Murder	8	2
Rape	3	10
Assault to kill	10	. . .
Forgery	12	65
Grand larceny	12	309
Arson	1	4
Abduction	1	2
Malicious mischief	1	2
Violation of postal laws	2	4
Perjury	1	2
Horse stealing	2	. . .
Confidence game	1	. . .
Assault	. . .	42
Crime against nature	. . .	1
Robbery	. . .	68
Manslaughter	. . .	2
Bigamy	. . .	6
Receiving stolen goods	. . .	16
Possession of counterfeit certificate	. . .	1
Violation of election laws	. . .	2
Embezzlement	. . .	2
Obstruction on railroad	. . .	2
Attempt to escape from prison	. .	2
Unlawful marriage	. . .	1

selected out to form the population of New York State, while the other States received the more robust and less degenerate members. In addition to this, the attraction of a large city naturally held the weaker members of the emigrant community, while the stronger tended away from the sea-board.

While many of the special peculiarities claimed by various authors as characteristic of the criminal class were found, still there was no such predominance of any one or more of these features that would justify the creation of a criminal type as shown by particular and generally manifested features. The sole conclusion to be drawn in this particular is, that these younger criminals belong to the degenerate class, and are so handicapped by hereditary defects that they fall ready victims to criminal tendencies and environment.

ANTERIOR PILLARS OF THE FAUCES, THEIR ABNORMALITY, ETIOLOGY AND TREATMENT.

Presented in the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY GEO. T. CARPENTER, M.D., D.D.S.

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The anterior pillars are in my judgment, and from observation, disputed ground, belonging both to the oral surgeon and the laryngologist, but receiving little attention from either. The faucial arches are covered with mucous membrane. The anterior pillars are formed by the palato-glossus muscles. The blood supply comes from a branch of the descending palatine artery and is returned by the inferior palatine vein from a plexus surrounding the tonsil, and from the pillars and soft palate into the deep facial vein. The nerves are from the descending branch known as the small or posterior palatine nerves, which are conducted to the pillars, tonsil and uvula. The membrane, which is visible from the mouth, is thinner and slightly redder than that of the hard palate; but like it, is covered with a scaly stratified epithelium. The margins of the pillars are covered with the same epithelium. The posterior and upper surfaces are covered with ciliated columnar epithelium. Lymphatics are abundant on these surfaces and numerous small compound glands form almost a complete layer under the mucous membrane. Lymph follicles are true lymphatic apparatus whose juices and lymph corpuscles can pass into the nearest lymphatics. Great numbers of leucocytes continually pass out between the epithelial cells covering these follicles, through which, under certain conditions, microbes and other poisonous substances may enter.

It is not my purpose in this short paper to discuss the diseases in general that affect the fauces, such as syphilitic or ulcerative conditions, but it is the dark red, or reddish blue color which is a venous stasis of the pillars and uvula and their shining sticky mucous surfaces that I wish to consider.

I find that in a large number of patients visiting my office for dental services, this abnormal condition is present. These parts are easily brought to view by having the patient breathe through the mouth. The patients do not complain of sore throat but of a fetid breath, and sometimes of a disagreeable taste in the mouth. The condition of the teeth and gums (in the

absence of an erupting or impacted third molar) in many cases does not furnish cause for the existing condition of the fauces. The patient has not applied to a laryngologist but to a dental, or oral surgeon, and it is his opportunity to put the mouth in a healthy condition; I think it is his duty to have suitable instruments so as to make a proper diagnosis, and either give proper treatment or direct the patient where he can receive the same. The venous stasis of the pillars acts as a sentinel, the etiology of which, if not in the erupting molar, will be found either in the tonsil or post nares. The tonsil may have little or no inflammatory action and the crypts may or may not be filled with a cheesy exudate, and still their sluggish condition will produce foul smelling secretions, and absorption by the lymphatics will follow. Also stenosis and chronic catarrhal conditions of the post nares will produce a dropping in the pharynx and keep the pillars bathed with a foul secretion which will taint the breath and produce, through absorption, an abnormal appearance of the pillars. Frequent attacks of coryza which do not receive treatment, and are allowed to become chronic, produce the same result and thus become etiologic factors.

The treatment consists in antiseptic gargles, of which borolyptol, either in full strength, or diluted, is one of the best; also an alkaline and antiseptic wash, as Dobell's solution used as a gargle or spray for the throat, and spray for the nose. The tonsillar condition may be stimulated with nitrate of silver, grams 3.9 or 7.8 to aqua c.c. 30, or the electric cautery can be used to advantage. When the catarrhal conditions exist, any stenosis should be corrected, and the nares and fauces cleaned night and morning with an alkaline spray. In addition to this, two or three times a week, the iodin solution, grams 0.13 to 0.65 of iodin to the 30 c.c. of water with iodin of potassium and glycerin, will be found advantageous. I have found great satisfaction in the treatment of this affection as the condition is always improved, if not entirely cured.

TRACHEOTOMY IN DIPHTHERIA IN CONJUNCTION WITH ANTITOXIN.

Read before the Missouri State Medical Association, May, 1897.

BY E. VON QUAST, M.D.

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Of all diseases of childhood, laryngeal diphtheria or membranous croup is the most dreaded. Either the larynx is primarily the seat of affection or is secondary to tonsillar diphtheria. Sometimes the affection in both organs is simultaneous, or the post nares or tonsils have had a deposit which so rapidly spread to the larynx that the primary seat of infection was overlooked by parents until threatened asphyxiation called their attention to the fact that their darling was in danger and they sent post haste for medical aid. Whether the cause of membranous croup was identical with that of diphtheria or not, was for years a bone of contention in medical ranks. Volumes were written on the subject and differential diagnosis was a bugbear to the general practitioner. Gradually the profession became divided; one side believed in the duality of the disease and the other in the unity; and discussions *pro* and *con* were heard at meetings of medical societies in this and the old country. Infectiousness of true croup was doubted by a large and influential body of men, while others were firm believers in it, and only since bacteriology has thrown light on the subject and proven in the majority, if not in all, cases, the presence of the Klebs-Loeffler bacillus in the membranes and exudates, has the band of doubters been reduced to a very small body. It is to be hoped that soon the term "croup" and "membranous croup" will cease to exist in medical literature, cease to be posted in our cities as such, and cease to appear in our death reports; but simply be classified as diphtheria. Remedy after remedy for the treatment of membranous laryngitis was introduced, tried and extolled, but the death-rate remained enormous, even with tracheotomy, and soon it was condemned by a great number of the profession. O'Dwyer's tubes were hailed with delight by many operators, but even with their use the death-rate remained too high. This operation found more favor with the laity, while the profession used it more readily because the objections to the surgeon's knife were too great in many cases.

Intubation, universally used, failed to be the boon its champions claimed. Without discussing the merits or demerits of this operation, I will frankly state that I prefer tracheotomy as long as it gives the percentages of recoveries that I have had, both before and after the discovery and use of antitoxin in the treatment of this disease. Even before the introduction of antitoxin, my success in this operation was all that could be expected. It was not due to a selection of cases nor to a better understanding of the operation, but to the fact of its timely performance and the exercise of diligence in the after-attention and care of the patient. To do tracheotomy only as a *dernier ressort* is a grave mistake, for the vital forces of the child have been exhausted from the non-aeration of the blood. Still, I have met with success in two cases after sensation had ceased, by quickly opening the trachea and introducing a full sized tube, and performing artificial respiration. Breath and air is what is wanted at this critical moment. Minutes are hours and delay means death. Generally speaking the golden rule for performing tracheotomy is whenever dyspnea with cyanosis has manifested itself—the respiration murmur is faint or absent, with retraction of the chest wall, the attacks of extreme dyspnea becoming more frequent. Delay under such circumstances would be disastrous. The introduction of antitoxin into therapeutics marks a new era in the treatment of this affection.

In November, 1894, I read a paper on Antitoxin before the Jackson County Medical Society, by request, having closely followed the literature on the subject since 1890. A committee was appointed at the time, by the above named society, to investigate the use and action of the antitoxin, and a quantity was procured by the board of health. I was a member of this committee, and watched closely the effect of this remedy. At the end of a few months we gave a complete and unbiased report of our work. As usual with all new remedies, enthusiasm ran high in some quarters, while in others antitoxin was condemned as a fad and its use said to be dangerous. Now, after two years trial, enthusiasm has given way to sober judgment and it has received its place in therapeutics, has won friends and admirers in quarters where it was first bitterly opposed.

I believe that every unprejudiced physician must reach the positive conclusion that it is a valuable remedy and predict that the time will come when the

refusal to use this remedy in diphtheria in children will be regarded as criminal. It is to be regretted that it is not used by all physicians in these cases, and that there are still so many reports of death from membranous croup, where antitoxin, tracheotomy or intubation have not been used, children were allowed to suffer the horrible death of asphyxiation. Antitoxin is not a cure-all. Its early administration in membranous croup offers the best hopes of preventing the extension of infection, causes softening of the membrane and prevents septic infection. Frequently, indeed, it does away with the necessity of operative interference.

Reports from members of pediatric societies bear out the statement that, until the use of antitoxin, they had seen no case of recovery from membranous croup; and men of well known reputation have stated that by its use operations become less frequent. (O'Dwyer and Northup.)

A complete report of the New York Health Board shows that the mortality for operative cases has been reduced one-half as the result of serotherapy. To produce a satisfactory result in these instances, being the gravest of all forms of diphtheria, it must be given in very full doses. There is one great danger, however, in the loosening of membranes in large masses which are liable to obstruct the larynx or trachea and produce sudden asphyxiation. On this account the physician must not leave his patient until he is sure the membranes have come away, respiration is restored to a normal condition, and all signs of obstruction and cyanosis have passed away. If no improvement follows, no air enters the lungs, and thoracic breathing continues with a dusky or very pale countenance and a slow, weak pulse, it is better to do a tracheotomy at once than to wait for possible relief. By following this rule, I have, within the last ten months, performed five successive tracheotomies without a single death. The youngest of these children was $3\frac{5}{6}$ years, the others between 6 and 7 years of age. In two, intubation was performed first; in one, intubation, followed by an immediate tracheotomy; in the other, two days of respite were given; in the remaining three tracheotomy was immediately required. Three of these operations were done in three weeks. All but one were treated with antitoxin before the operation, one afterward; first dose administered immediately after the operation. All recovered without any paralysis or bad symptoms. The tube was worn from five to ten days, being removed as soon as air could freely pass through the larynx, and the wound allowed to heal by granulation. Very close attention was paid to the steps of the operation. In two cases chloroform could be administered safely; in the others it would have been dangerous. Strychnia was administered hypodermically in all but one case to stimulate respiration. Strict attention was paid to the after-care of the tube; the frequent removal and cleansing was ordered in every case where any sign of obstruction was noticed. This, together with keeping the tube moist if necessary, by the dropping of sterilized water into it, is the sheet-anchor of success in the operation. No medical treatment, except the use of strychnia, was given in these cases. The children were permitted to partake of wholesome and sufficient liquid nourishment with, occasionally, some stimulant. In all but one case the parents or near relatives did the nursing and performed it well. Such cases must never be left out of sight until all alarming symptoms have disappeared. The whole tube was removed once every day by myself, the trachea examined, loosened membranes removed and the wound cleaned before the re-introduction of the tube. In all, cultures were taken from the detached membrane and the presence of Klebs-Loeffler bacillus demonstrated.

AN IMPROVISED APPARATUS FOR FIXING BLOOD-FILMS AT EXACT TEMPERATURES.

BY L. BREMER, M.D.
ST. LOUIS, MO.

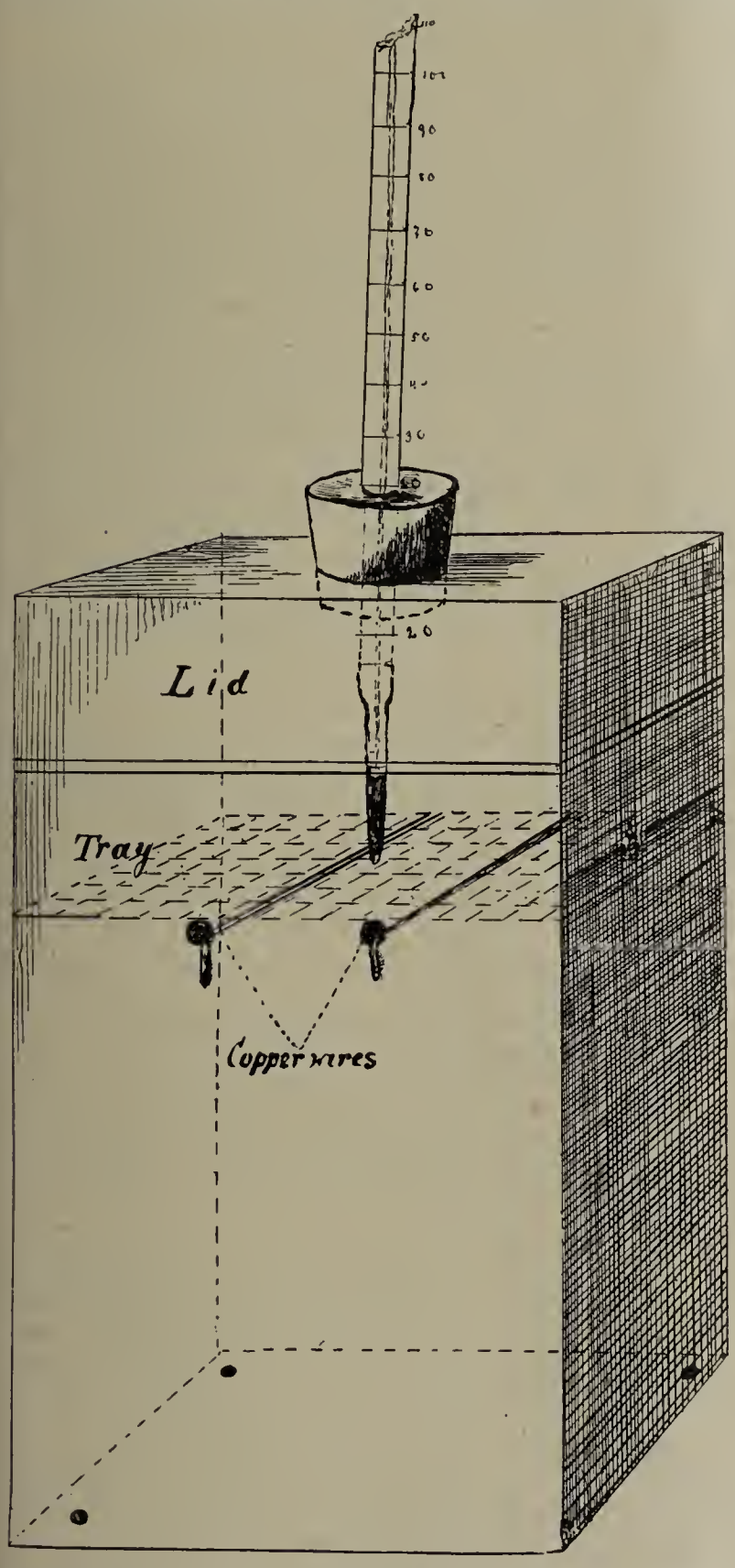
The greatest of the many difficulties attending and complicating the study of hematology is the recognition and interpretation of the artefacts. Being a fluid, the blood with its corpusclar elements is more vulnerable than the rest of the tissues. This vulnerability manifests itself in response to mechanical and chemic injuries produced on the plasma, but especially the corpuscular elements in the course of the several modes of hardening or fixing the blood-film preparatory to the staining process.

Different methods, however slight the difference may be, will yield different pictures owing to the delicacy of the selective affinities of the constituent elements of the blood-corpuscles. By using chemicals such as alcohol, ether, or formol, as hardening agents, an element of uncertainty is introduced rendering results unreliable and ambiguous because of the possibility of existing impurities or variations in the percentage of water. The ideal hardening method is by heat. The disadvantage of this procedure has been the variableness of the heat degrees when Ehrlich's copper plate is used and the loss of time, to which may be added expensiveness, when a copper or iron oven is employed. The observance of the rule laid down in the text-books, to heat the blood-specimens up to 110 or 139 degrees C. leads to varying and conflicting results, histologically as well as micro-chemically. Every practical worker in hematology will testify to the puzzling difference of color and structure-pictures obtained in specimens of the same provenience, and sometimes in different areas of the same individual cover-slip preparation. This difference is often seen, all conditions being apparently equal. It was during my investigations of the blood-test in diabetes by means of certain anilin dyes that I discovered the extreme susceptibility of the blood elements to slight variations of heat as affecting differential and selective staining. Sometimes a difference of a few degrees, when in the neighborhood of the upper and lower heat limits would mar the reliability of the test. In order to eliminate the uncertainties resulting from arbitrary and unsystematic heating I strove to find the optimum temperature for hardening the blood-film and fixing the hemoglobin, and the time requisite to obtain uniformly good results. I ascertained that 135 degrees C. is the optimum temperature for cover slip preparations and that the time requisite to reach this temperature in the heating apparatus is about five or six minutes. These figures apply specially to the little improvised oven represented in the cut.

HOW TO MAKE THE OVEN.

Take a five ounce quinin can; bore two small holes through two opposite walls at equal distances, four

inches above the bottom of the can. Draw through them two copper wires, to support a square piece of wire screen cut to fit the interior dimensions of the can. A circular opening is made in the lid large enough for a perforated cord holding a thermometer, registering about 250 degrees C. In the four corners of the bottom of the can, holes having approximately the diameter of half a line are bored. They serve the purpose of establishing a draft for the proper circulation and diffusion of the heat. Unless the cork fits



very tightly in the opening made in the lid no holes are necessary in the corners of the latter. The cover glass preparations, smeared side up, are arranged in rows on the tray, care being taken that they do not overlie each other. The point of the bulb of the thermometer is to be adjusted in the same plane with the specimens on the tray. An alcohol lamp or a small gas jet may be used as heat generators. The temperature is run up to about 135 degrees C. in from four to six minutes. It is advisable to place the oven on a tripod or other metal stand, in order to prevent shifting and overlapping of the coverslips. One or two degrees above 135 will not interfere with obtaining a good result. Have the cover glass slips or slides in a perfectly horizontal position.

With an apparatus like this, examinations of the blood may be made at the bedside. Another advantage of the contrivance is the facility and readiness with which the preparations may be heated; they will then retain their specific selective staining properties for months, whereas the film not properly hardened loses them in a short time. Its chemic properties are easily affected by the dampness of the atmosphere.

Exact temperatures are more easily obtained with the little apparatus described than larger and costlier ones.

SOCIETY PROCEEDINGS.

Denver and Arapahoe Medical Society.

Meeting of March 22, 1898.

THE SERUM TREATMENT OF TUBERCULOSIS.

Dr. F. E. Waxham reported a series of ten cases treated with antiphthisic serum T. R. (Fisch), and he prefaced the recital by the following remarks: "It is with very great reluctance and hesitation that I present this paper tonight. We all naturally dislike to advertise our failures, but in order to get at the true value of any remedy or mode of treatment it is not only necessary to tell the truth, but the whole truth. It is the honest desire to determine the value of the serum treatment and to elicit a discussion that may help us to arrive at correct conclusions that prompts me to present this paper. The unfavorable results will not, I hope, be ascribed to poor judgment or unskilful treatment. It does not require special skill to properly give hypodermic injections, and in proof that the remedy was properly given I would state that out of something like one thousand injections there has not been a single abscess or other evidence of careless administration. The remedies have been carefully given and the patients carefully observed, and in no case was there febrile reaction. In nearly every case, however, there appeared about the fourth or fifth day serum eruptions upon the back causing considerable itching and discomfort, lasting two or three days, then disappearing." The cases were reported *in extenso* in the Journal for March 19, 1898. The summary of the treatment is as follows: Number of cases treated, 10; cured, 0; died, 1; improved, 2; worse, 7; bacilli present in 9 cases, bacilli disappeared in 1 case. "Judging from these cases, we may safely say that the serum treatment in well-developed or chronic tuberculosis is a failure."

Dr. Bonney said that Dr. Waxham's conclusions are in perfect accord with his views on the subject. He has observed a good many cases under the treatment of his confrères. The subject should be considered from both the theoretic and clinical standpoints. The drift of opinion of the greatest clinicians in Europe is against the tuberculin treatment. In Professor von Leyden's clinic there has been absolutely no success with the treatment. He also quoted the statement that Dr. Huber, Leyden's assistant, attempted to immunize animals in the way in which Koch does, but he failed in every attempt. The experiments were carefully carried out, the dosage of tuberculin was exact and sufficient and the observations numerous enough to do away with the idea that perhaps coincidence played a rôle in the results obtained. Yet he failed to get the desired immunity. "After the supposed immunization all the animals died when innoculated with tuberculous material, and interestingly brought before the control animals innoculated with the same material at the same time." Not only does he consider the tuberculin treatment useless, but in many cases it is absolutely harmful. What the patients need is exercise, nourishment and fresh air. Patients receiving the tuberculin treatment have to see the physician daily, they have to come down town and wait sometimes for half a day in the close atmosphere of the waiting room. The patient is thus deprived of the fresh air, the sunshine and exercise. He has seen a good many cases who have improved after the treatment was discontinued.

Dr. A. M. Holmes said that he had had ample opportunity for investigation. He was one of the very first who took up the tuberculin treatment and he was greatly disappointed at the conclusions of Dr. Waxham. They do not accord

with his experience. He has reported in the JOURNAL a series of cases treated with the serum and they were of such a nature that all stages of the disease were represented. All of Dr. Waxham's cases fall within the category of one of his cases, namely, No. 8, which is by no means a favorable case for tuberculin. The pathology of tuberculosis must not be lost sight of. Like diphtheria, tuberculosis is a toxic disease, but in addition the tubercle bacilli are a new growth, which is entirely devoid of blood vessels. The tubercles undergo fatty degeneration and offer a nidus for further development of the disease. Being devoid of blood vessels the serum can not reach the seat of disease after it has advanced. It is only in early stages of the disease that we can expect to do some good. Because diphtheria under the antitoxin treatment shows a certain mortality there is no reason why we should abandon the treatment.

Dr. DENIM said: I read the report of the cases presented by Dr. Waxham in the JOURNAL received yesterday and at once concluded there was in these results a confirmation of an impression I had gained that we were more and more getting the transmitted effect of tuberculin as the dosage of the animal furnishing the serum was increased. In none of my cases reported to this society up to December 3 had I given the serum treatments every day, as in all these ten cases reported, but every second or third day. Even then, with less than half the total quantity used by Dr. Waxham in a given time, I began to notice increased reaction and effects. This was soon after reading my paper (December 14), and coincident with their reaching the largest immunizing dose given their horses in St. Louis (supposedly 100 c.c. of Koch's new tuberculin), I wrote to the manufacturers about this and tried to learn the dosage and time afterward that the serum of different dates was drawn. I received a reply from Dr. Fisch informing me that all the serum was made of the same strength but withholding the details I desired. For this reason, with the less favorable results I was then having, I gradually discontinued the use of the remedy.

Now Dr. Waxham's continuous two months' daily use of this serum was mostly since that time and therefore I say there is reason to suspect that either the dosage of the horses was getting to be too large, or the commercial demands for the serum may have led to the shortening of the period when the horses were to be bled.

This brings up the question I raised in my paper as to the possibility of there being a *transmitted* tuberculin or a *mixed* effect in antitubercular serums, and also whether this *indirect* way can be equal in immunizing power to the *direct* creation of antitoxin principle in a patient's blood. Thus far preference for the latter method is warranted by all the experience of which I can learn. My own results on this latter plan have been more satisfactory and lasting than by the indirect (serum) method. On account of the uncertainty involved it is a questionable procedure to crowd the use of this strong serum by *daily* use of the full doses advised. If there be, as with strong serum treatment there probably is, an uneliminated though indefinite reactionary influence left over from one injection to another, then there must eventually come a cumulative result which will be the reverse of what we are after. The affected system becomes surfeited with an effort, at first decidedly remedial, which is likely to be exhausting some time later.

The majority of these cases here reported for discussion are evidently too serious for such an heroic method. If, as the evidence seems to show, they were having a "good thing" during the first two weeks, they were getting decidedly too much of it during the seventh and eighth weeks. The ten cases reported would, in my judgment, have done far better even on crude tuberculin (given in very small doses with two or three days interval according to Dr. Whittaker's plan), not to mention the preference for the later improved derivatives of tuberculin, and I imagine the resulting immunity would be more genuine and lasting than that obtained by any serum yet discovered. Nobody knows exactly what we have in an antitubercular antiphthisic serum. The conversion of the tubercular toxin into an antitoxin in an animal's blood is not yet a clearly determined proposition either as to its completeness, the time required, or the quantity possible to be so converted. It may be that we are near to obtaining a pure antitoxin for tuberculosis created outside the affected human body. It may be that at the start Dr. Fisch was very near it, or that Dr. Hirschfelder may show that he has found the equivalent of an antitoxin; but as yet it seems that in any antitubercular serum we have only "mixed goods" and what we want is the pure article. So far as I can determine the conditions are not definitely known which will produce a pure antitoxic for tuberculosis, for instance as direct and pure as the diphtheria antitoxin.

For the present we had best content ourselves with the direct method which involves, or ought to be accompanied by, the strengthening of the individual resistance of the patient by every other possible means, such as climate, good feeding, exercise and a proper individualizing management suited to the case in hand.

Dr. WM. N. BEGGS—I happen to have come from St. Louis where, as you know, two serums for the treatment of tuberculosis are produced. The first was prepared by Dr. Paul Paquin. Mr. T. F. Milliken was his business manager. The second is the product of Dr. Carl Fish, Koch's T. R. tuberculin being the immunizing agent. Mr. T. F. Milliken is now his business manager. I have met both of the medical gentlemen.

It was my fortune to hear Dr. Paquin read the first report on the use of his serum before the St. Louis Medical Society. At that time I knew nothing of the cases, patients in the St. Louis City Hospital, and consequently could form no judgment as to the worth of the report. Since then I have learned, from some of the then assistant physicians of the city hospital, facts which led me to believe that the sources of error had not been eliminated. This I believe to be the case in nearly all of the cases of tuberculosis treated with serum throughout the country. I doubt the value of either serum in the treatment of tuberculosis. As we all know, the consumptives coming into charity hospitals are in the habit of knocking around the country, subject to all kinds of hardships and privations, until they have to give up and go into a hospital. Then, under the influence of quiet, rest, and nourishing food, they rapidly improve for a time regardless of the line of treatment pursued. Not until the full result of this hospital benefit has been reached is any opinion as to the effect of the medicinal treatment justifiable. The cases referred to as forming the subject of Dr. Paquin's first report were mostly patients in the St. Louis City Hospital, a charity hospital. They were taken as they entered the hospital, not after the full effects of the hygienic influence of the hospital surroundings had been reached, and placed under the serum treatment. Consequently that source of error (no small or unimportant one) had not been eliminated, and the general improvement can not be properly accredited to the serum.

Dr. Fisch's serum I have used in only two cases. Neither was a favorable case for any line of treatment and the results were correspondingly bad.

As Dr. Bonney had said, this subject must be considered from the scientific as well as clinical point of view. The question arises: Because the serum treatment has had most gratifying results in certain infectious disorders, must we necessarily conclude that that is to be the successful line of treatment in tuberculosis? There are certain differences between tuberculosis and those diseases in which the antitoxin treatment has shown conclusively successful results which it is well for us to bear in mind.

1. Those diseases are essentially acute diseases; tuberculosis is not.

2. Those diseases are strictly toxemic diseases; tuberculosis is a neoplastic disease as well as toxemic.

3. In those diseases the retrogressive changes are such as may be recovered from without loss of tissue; in tuberculosis there is always absolute destruction of tissue.

4. In those diseases the bacteria are not scattered through the tissues, but have a definite localization. The source of toxin formation is single, not multiple. In tuberculosis the opposite is the case.

5. In those diseases the source of the toxins is usually readily accessible to the therapeutic agents. In tuberculosis the bacilli are within a neoplastic tissue, a non-vascular tissue. This means that in them the movement of the tissue fluids is exceedingly sluggish, in the necrotic centers practically absent. Consequently the therapeutic agents fail to reach the source of trouble.

6. In those diseases the bacteria are usually destroyed or discharged from the organism quickly; therefore the administration of the antidote to the toxin is continued for only a very short time. In tuberculosis the tubercle bacilli are continuously present for great periods of time, and the administration of the antitoxin would necessarily be as protracted.

7. In most of those diseases (diphtheria is an exception) the survival of an attack confers an immunity to the individual. No such thing is known in tuberculosis.

8. Those diseases are all self-limited diseases. If the immediate intoxication is not too great and the patient survives for a really short time, he recovers. There is no characteristic self-limit to tuberculosis. The statements justify us in asserting that it is utterly impossible for an antitoxin to be the proper and specific therapeutic agent; but, in view of them, we are not justified in drawing the conclusion from analogy that it is the rational treatment.

Two other points raised in the discussion I wish to make.

The first is in reference to the degenerative change occurring in the tubercle. The characteristic and constant retrogressive change in the tubercle is not fatty metamorphosis, as has been stated, but coagulative necrosis. The other is in reference to the prognostic value of the number of tubercle bacilli to the field occurring in a cover glass preparation of sputum. I believe there is no more fallacious standard upon which to base our prognoses. I have repcatedly had the experience that in one film I would meet with untold myriads of tubercle bacilli, whereas in many other films from the same sputum they would be present in moderate numbers only. Again, it is not infrequently the case that in making daily examinations of the sputum in the same individual the bacilli would be comparatively few for a number of days, then for a day or two very numerous, to be followed by a period of comparative sparseness. I repeat that I believe this the most fallacious means of arriving at a prognosis.

Dr. SIMON has had three cases and none have shown signs of improvement. One case showed alarming symptoms at first which, however, soon subsided. He has given the treatment a fair trial. The cases were favorable for treatment.

Dr. EDSON—Early cases will do well under climatic treatment. What we look for is some reliable treatment in the advanced cases, and this everybody seems to admit that the tuberculin T. R. does not offer.

Dr. WHITNEY summarily deprecated the use of the serum. He followed closely the literature on the subject, and he concluded long ago that it would not be worth while to subject his patients to this experimental treatment.

Dr. MUSSEY—This discussion has been to me an apt reminder of the proverb that "a prophet is not without honor save in his own country." The trouble with this remedy seems, in part to be that it is produced too near home. The tone of the discussion, tonight, in reference to the remedy has been, in the main, condemnatory. This, I consider as uncalled for. I was sorry that the essayist did not elaborate more fully the cases reported, especially in reference to the action of this serum.

My own experience in the use of Fisch's serum has been limited to the treatment of seven cases. These cases, two in incipient, three in moderately advanced, and two in advanced stages, have been carried through an average of two and a half months' course of treatment. I will say that my experience has been disappointing only in that I have failed to obtain remarkably good results, not that any case has been injured through the treatment. Three of these cases gained materially in weight, one patient making a gain of twelve pounds in three months. That this remedy is in any regard a specific, is not in my opinion to be credited. It has failed to modify temperature, to check night sweat or to modify the character or quantity of the expectoration in the time we were lead to expect such results. Beneficial results have occurred only in those cases in whom we would look for improvement through our climatic advantages. Several of these cases have shown peculiar reactions from this serum. Rashes, localized and distributed urticarias, temporary enlargements of the axillary glands and on two occasions alarming symptoms have been manifested due to the too sudden ingress into the circulation, as embarrassment of the respiration amounting to extreme dyspnea, cyanosis, swelling of lips, eyelids and transitory circulation embarrassment. With the exception of these transitory reactions, no unfortunate results have occurred in any case, and nothing has transpired to lead me to believe that I was dealing with a dangerous remedy.

In going over to a theoretic discussion of a tubercle antitoxin it is hard to believe as has been suggested this evening, that a toxin can be carried through the body of a horse for months to reappear again in the serum of that horse's blood as a toxin, when the animal has for weeks recovered its normal condition of health. It is still more difficult of belief that a complete immunization of animals has been secured. It is my belief that the future specific will appear through the serum of artificially immunized animals, and I would deprecate the making light of work which is being conscientiously carried forward in this direction. As has been most ably presented this evening, the difference in the pathologic process of tuberculosis from other affections in which antitoxic cures have been perfected, the fact that here there is no self-limited affection, and that a neoplastic formation takes place in the tissues, argues only the difficulty of the problem, and presents only the barricrs which must be surmounted, but in no way proves that these difficulties may not be overcome, and science be made to score a new triumph.

Dr. M. H. MACK read a paper on the "Necessity of Early Operation in Cases of Abscess About the Rectum." Delayed operations, he said, are etiologic factors in fistula ani. The subject was discussed by Drs. S. D. Von Meter, Stover and Spivak.

Chicago Ophthalmological and Otological Society.

Regular meeting held March 8, 1898.

President, W. F. COLEMAN, in the Chair.

LARGE EPITHELIAL FLAP GRAFTED ON THE EYEBALL IN A CASE OF EPITHELIOMA OF THE CONJUNCTIVA.

Dr. F. C. HOTZ—I wish to present tonight a patient from whose right eye I removed a large growth February 7. The growth started in the conjunctiva near the sclerocorneal border. I have here two pictures showing how it appeared in August and in December. You will notice that the growth is very vascular, and there is a good deal of engorgement of the conjunctival and subconjunctival vessels. The tumor invaded the corneal margin to a slight degree, about a millimeter or a millimeter and a half. Below the growth the corneal margin showed a narrow stripe of thickened epithelium and the adjoining conjunctiva was also thickened just as we observe it in beginning pterygium. In removing this growth I dissected it off from the cornea carefully, and I also took out with it the suspicious-looking part of the conjunctiva below. This left quite a large defect on the eyeball; the sclera was exposed and the conjunctiva was much retracted so that there was no possibility of covering the wound by sliding the conjunctiva over it. I therefore resorted to grafting, and I should have done the Thiersch grafting, as I have done in a number of operations for large pterygia, had it not been for a suggestion Dr. Gifford made in a paper published in the December number of the *Ophthalmic Record*. I have always felt disinclined to use mucous membrane, because in cutting the flaps out with forceps and scissors you get more tissue than you want, and especially submucous tissue. You have then to prepare a flap, turn it over and clean it, a procedure which in such a delicate structure as the mucous membrane is not easily carried out. That is one of the reasons why I prefer Thiersch grafts, because they are so easy to handle. Dr. Gifford recommended cutting what is called an epithelial lip-flap with the razor, so as to get a thin strip of say one half thickness of the mucous membrane. I resorted to that method. After the operation on the eye was done I took the lid clamp and clamped the lower lip into it with the ring on the mucous side and used a drop of holocain, with which I anesthetized the area of mucous membrane within the clamp; as quickly as I can say it, anesthesia was obtained, and then with the razor I could shave off a flap without causing any pain. I took an epithelial flap about one centimeter and a half long and one-half a centimeter wide. This flap floating on the razor, in sterile salt solution, was carried to the eye and dumped down so that it floated from the razor with the proper side down on the eyeball and spread out. The graft was so large that I mistrusted somewhat its security by leaving it without tying it fast. After it was spread out I allowed the patient to close the eye and then open it again, and I saw it had shifted and wrinkled a little. To make sure I took fine silk sutures and fastened the graft to the upper and lower borders of the conjunctival wound, so as to have it fastened at these two ends to prevent its slipping. As you see, the eye has made a nice recovery, and the epithelial graft makes a perfect substitute for the lost ocular conjunctiva.

The case is very interesting from another point of view, and that is with reference to the nature of the growth. It was very vascular, and in dissecting it off bleeding was quite profuse. The micropscopic examination, which was made by Professor Herzog of the Policlinic, showed that it was an epithelioma of the conjunctiva. Dr. Herzog was kind enough to furnish me with this very nice drawing and several slides, but I am sorry I did not bring the slides with me tonight. The drawing shows the growth of epithelial masses down into the connective tissue. From the microscopic examination of the specimen we could come to no other conclusion than that it was an epithelioma of the conjunctiva. The epithelial cells are flat and cylindric toward the deeper part, showing plainly that the masses are growing into the subepithelial connective tissue. The growth is quite rare. Cases of carcinoma of the conjunctiva are not frequently reported. In looking over Graefe's *Archiv*, for instance, I could find reports of only half a dozen cases. One of the cases was reported by Graefe himself, who gave a description which is very much like the clinical picture presented in this case. It was a case which at first was thought to be a large and unusually obstinate phlyctenula, with marked injection of the surrounding ocular conjunctiva. He removed the tumor and Virchow made a microscopic diagnosis of epitheli-

oma. In that case, after a year there was no recurrence. In my own case I think the prognosis, on the whole, is favorable, inasmuch as the microscope shows that it is rather a slow growing tumor, and as I succeeded in covering the wound, which healed kindly, there is good chance for the eye to escape a recurrent attack.

Dr. FISHER exhibited an interesting case of

PARALYSIS OF BOTH ABDUCENS,

with contraction, not only of the muscles that rotate the eye inward, but of the orbital tissues.

Dr. J. E. COLBURN—Last winter a patient came to me with one eye very much in the same position that we find this patient's two eyes, and with a history that when 6 years of age the eye became convergent and had remained in its converged position ever since. When I saw him the conjunctiva was red from exposure. He was an out-of-door man. I advised enucleation, as the other eye was perfectly good and the affected one was very unsightly. Before advising enucleation, however, and after using cocain, I found I could not move the eye by forcible means any more than could Dr. Fisher in his case. I obtained the consent of the patient, and enucleated the eye. I found it about one-third longer than the normal eye in its antero-posterior diameter, and very irregular in form. I could not find the adductor muscle, and the abductor muscle was almost equally obliterated, but the connective tissue at the inner canthus was firm and cicatricial. The man assured me that so far as he knew he had never had any inflammatory condition of the eye.

PRIMARY CARCINOMA OF THE CONJUNCTIVA.

Dr. C. D. WESCOTT—I would like to describe a case recently seen in which as yet no microscopic examination has been made. The patient is 67 years of age, and presented himself with a tumor which overhung the cornea, evidently growing from the eye just up and out from the cornea, and which was beginning to slough. It was not feasible to remove the tumor from the eye, though the cornea appeared normal, and it was impossible to tell before the eye was removed whether the tumor was partly intraocular or not. Enucleation was performed, and upon making section of the eye no abnormality was found within the globe. The tumor had its origin from the conjunctiva just without the limbus, up and out. It is not pigmented and has the gross appearance of carcinoma, and I believe it to be primary carcinoma of the conjunctiva. The growth had extended back underneath the conjunctiva somewhat, and in making my enucleation I removed a portion of the fornix in order to get all the tumor. The specimen is now being hardened for microscopic examination, and I shall show a slide of it at some future time.

The beginning of the tumor was like that of the one described by Dr. Hotz. It appeared as a little reddened pimple and grew slowly, having reached the size it finally attained after three years. The man was a farmer, and remote from any physician, and nothing had been done for the eye until he came to see me, at which time the tumor had begun to slough at the apex. The tumor was so large that the lids were widely separated and it was constantly exposed and irritated.

EPITHELIOMA OF THE CONJUNCTIVA.

Dr. J. E. COLBURN—Some of the members may recall the case of a physician that I reported two years ago, from whom I removed a malignant growth from the cornea, or rather destroyed it. It involved the conjunctiva toward the inner canthus. I removed the growth the first time thinking it was a pterygium. The second time I removed it, knowing it to be a malignant growth, and the third time I destroyed it as thoroughly as possible with the galvanocautery. The tissues were so much involved that there was absolutely nothing that could be removed without destroying the sclerotic. I burnt over nearly one-third of the corneal surface and quite an area of conjunctiva. It has now been nearly three years this spring since I removed the tumor and there are no indications of its recurrence. There was a good deal of astigmatism following the burning, but the eye assumed its normal condition and the translucency of the cornea is good, and vision is better than it is in the other eye.

PRIMARY EPITHELIOMA OF THE GLOBE.

Dr. W. F. COLEMAN—I will relate a case that came under my observation some eight years ago. I can not describe it as minutely as I would like to do. The case was that of a man 40 years of age who presented himself with a growth on the left sclera between the cornea and external canthus. The growth was circumscribed and slightly pedunculated. I suggested snipping it off, but the man objected and did not report for about six months, when it had increased to the size of a small bean. It had grown so rapidly and was so vascular that I diagnosed an epithelioma and suggested its removal at once, telling him that he would lose his eye if he did not submit to an operation. I removed the growth and gave the specimen to Dr. Casey A. Wood, who examined it and pronounced it epithelioma. It is the only case of primary epithelioma of the globe I have seen.

Dr. C. P. PINCKARD—Dr. Tilley showed a case to the Society about a year and a half ago in which the cornea of both eyes were turned in and down, and in this case there was slight motility of both sides as in Dr. Fisher's case. Dr. Tilley's was, however, a congenital case.

Dr. W. W. WHEELOCK, Fort Wayne, Ind., reported cases and exhibited specimens.

RHINOLITH OR FOREIGN BODY.

Dr. WM. L. BALLENGER—I have a specimen which I did not intend to present tonight, but it has been suggested that I do so. This specimen was removed from the nose of a patient at the Eye and Ear Infirmary some two or three months ago. The case was in the service of Dr. Wilder. The man was 60 years of age, upon whom Dr. Wilder had operated for cataract, and noticing an offensive odor from the nose he suggested that he have his nose examined and treated while in the institution. One of the internes, Dr. Ainesley, examined the man's nose and made a diagnosis of rhinolith, and with his assistance I removed it from the nose. The offensive odor had been present for about thirty years. At the time I removed the foreign body I supposed it to be an ordinary rhinolith, as it had all the appearances of it. Some two months later I removed the exterior portions of the specimen and before I had gone very deeply into it I found a piece of iron. Upon cleaning it up a little more it was seen to be the breech-pin and nipple of an old-fashioned percussion-cap musket. The man stated that thirty years ago a gun had exploded, destroying his left eye. He is now in the State of Illinois somewhere and I intend to look up the record of the case more fully and ask him for all particulars concerning the explosion. This portion of the gun [exhibiting] passed in through the orbit and possibly lodged in the ethmoidal cells or in the antrum of Highmore. After a time the walls sloughed away and the specimen lay loose in the nose. It could be moved back and forth an inch and a half. With the aid of a strong pair of dressing forceps I succeeded in removing the specimen. The man objected to taking an anesthetic. The specimen is much smaller now than when I first removed it. It weighed at that time 325 grains.

CATARACT.

Dr. C. D. WESCOTT—I would like to recount another interesting experience which I have had recently. A woman came to have an operation for cataract. She was 73 years of age and gave a history of blindness in one eye for twenty-five years. There had been no involvement of the other eye until very recently. On examining the good eye I found beginning peripheral changes in the lens, with some senile changes in the fundus, and gave a very unfavorable prognosis in regard to the other eye. The patient was prepared for operation, however, and I proceeded to extract the lens. I expected to encounter a Morgagnian cataract, but when the thickened and opaque capsule was ruptured the contents proved to be entirely fluid and about the consistency of ordinary pus. There was a good deal of cholesterin present and some gelatinous matter, but there was absolutely no trace of solid nucleus. I coaxed it all away by gentle manipulation of the cornea without any difficulty and extracted the capsule entire with the iris forceps. Healing was ideal, with scarcely any hyperemia of the eye at any time. The bandage was discarded on the seventh day after operation, and vision with correction two weeks after operation is $^{20}/_{100}$, although the eye had been divergent for many years, and for twenty-five years she had seen nothing with it. It was interesting to see the eye straighten up and vision gradually come to it as the tests were made. Examination with oblique illumination shows a single thread of capsule across the pupil and a number of cholesterin crystals can be seen clinging to it. The iris is tremulous, just as we see it in cases of dislocation of the lens.

Dr. W. F. COLEMAN—I would like to ask if any of the members have had any experience in washing out the chambers after extraction. Personally I have had no experience with it. Possibly it may be an advantage in preventing the necessity for a secondary operation.

Dr. F. C. HOTZ—In regard to Morgagnian cataracts without solid nucleus, these cases are rare. Usually we find small solid lenticular nuclei, and if the capsule is clear the optical results are very good. It is surprising that Dr. Wescott did not get more vision than $^{21}/_{100}+$ in his case, and it would be interesting to watch it and see whether education will bring back the sight; whether it is a case of amblyopia from non

use, as this is still an unsettled question. It would be interesting to see whether the vision of the operated eye will gradually improve when the cataract in the other eye progresses so as to make its sight dim and useless.

Dr. C. D. WESCOTT—Undoubtedly vision will never be good, because of the amount of choroiditis in the eye. Both eyes are equally involved in senile changes of the choroid. However, as it is not uncommon to see vision of $^{20}/_{70}$ or $^{20}/_{100}$ two weeks after operation increase to $^{20}/_{30}$ and better, it may do so in this case.

Dr. COLEMAN—How long has the eye been divergent?

Dr. WESCOTT—I can not say positively, but she said a great many years. Sight failed slowly at first, beginning twenty-five years ago, and for a great many years the eye had been divergent.

Dr. W. F. COLEMAN—In talking with Dr. Lippincott two years ago he said he had tried physiologic salt solution, and had finally resorted to 0.5 per cent. solution of boric acid. He claims that it is very rare that a secondary operation is required. If this is accomplished I am sure the risks of cataract are very much reduced. So far as reports go the risk attending secondary operations is six times as great as that in primary operations.

Dr. F. C. HOTZ—You say, Mr. President, that you had a conversation with Dr. Lippincott two years ago?

Dr. COLEMAN—Yes, sir.

Dr. HOTZ—Last summer Dr. Lippincott told me that he had given up washing out the anterior chamber after operations. I have always regarded the washing out of the chamber as unnecessary, because removed particles of lens matter in the anterior chamber are harmless and get absorbed, and I have never washed out the capsule, because it looks to me a hazardous procedure to resort to these injections after the eyeball is opened, when there is nothing but the tender, slender posterior capsule to hold the vitreous back. To poke around with the nozzle of a syringe in the capsular sac for the sake of removing some lens matter adhering to the capsule is dangerous, and I do not think any gentle washing would remove the particles. Besides, these particles are eventually absorbed and do not play an essential rôle in the production of secondary cataracts. These are chiefly caused by wrinkling of the capsule and inflammatory processes.

Dr. W. F. COLEMAN—Has any one had any experience in removing the anterior capsule with forceps instead of using the cystitome?

Dr. GRADLE—I have tried it a number of times but did not always succeed. If the capsule is very much thickened then you can succeed, but in my cases there was not very marked thickening of it.

MORGAGNIAN CATARACT.

Dr. C. D. WESCOTT—I saw an interesting case of Morgagnian cataract in Philadelphia last June in the clinic of Dr. de Schweinitz. The patient was a woman about 75 years of age. After the iridectomy the capsule refused to be cut. Dr. de Schweinitz made two or three forcible efforts at incision, and then with a good deal of pressure delivered the nucleus, which was floating in fluid in the capsule. It was like a little pebble in a string sack containing fluid. He lost about six or eight minims of vitreous because his efforts at the delivery of the lens were necessarily quite forcible. He closed the eye after a hasty cleansing, and subsequently wrote me that the wound healed kindly. I have forgotten what the vision was, but it was good for such an eye.

Dr. C. P. PINCKARD—Did he take it out with a scoop?

Dr. WESCOTT—He simply depressed the upper lip of the wound with a spoon, making pressure upon the lower border of the cornea with a spatula and squeezing it right out. As it popped out some of the vitreous escaped.

Chicago Gynecological Society.

Regular Meeting held March 25, 1898.

The President, Dr. HENRY P. NEWMAN, in the Chair.

Dr. C. S. BACON showed a specimen of

HYDROCEPHALUS.

Sickle, he said, had collected statistics of 65,000 births, and found the frequency of hydrocephalus to be 1 in 6000. Lachapelle, in 50,000 labors, found the frequency of hydrocephalus to be 1 in 3000, while Winckel found its frequency to be 1 in 2000. The number of deaths following delivery was about 25 per cent., and of these about 13 per cent. of the cases were due to rupture of the uterus. The head measured after delivery, and after the fluid contents had been evacuated, in the occipito-mental circumference, fifty-one centimeters. The patient was a primipara in the thirty-eighth week of gestation. Forty-eight hours after the membranes had ruptured he saw the patient and found the uterus very much distended in its lower segment and in a state of tetanic contraction. The patient was anesthetized, the head punctured, a cranioclast applied and the head extracted. Following the extraction of the head, the contents of the uterus behind the child, which had become putrid, were expelled. The placenta was expelled by Credé. The patient was rapidly convalescing.

Dr. REUBEN PETERSON showed

FORMOL GUT IN HERMETICALLY SEALED GLASS TUBES.

When he began his abdominal work he feared the use of catgut on account of his inability to render it absolutely sterile, and he had used silk almost altogether. Increased experience, however, had convinced him that catgut should be used, if it could possibly be rendered sterile in any way.

Dr. ALEX. H. FERGUSON said that sometimes bad results from catgut were attributed to the catgut, but the catgut itself was not at fault. The fault might be with the nurse, the receptacle containing it, the assistant, or sometimes with the surgeon himself. The catgut prepared by Mr. Hollister, and put in sealed tubes, as advised by Dr. Peterson, recommended itself to him as being surgically ideal. The speaker had performed a number of experiments with a view to determining the length of time in which catgut would become absorbed, and finds that aseptic catgut becomes absorbed more rapidly than antiseptic catgut which is hardened with pyoktanin. That which remains the longest of all in the tissues is chromicized catgut. Very stout chromicized catgut remains in the tissues six weeks.

Dr. ALEXANDER H. FERGUSON read a paper on

URETERO-VAGINAL AND URETERO-ABDOMINAL FISTULÆ,

in which he reported two cases of ureteral fistula that occurred in his practice, and which led him to investigate this interesting and comparatively rare surgical affection. The essayist had collected sixty-five cases, which with the two of his own, made sixty-seven cases in all. Of this number sixty were uretero-vaginal, four uretero-uterine and three uretero-abdominal. This does not include fistulæ from the kidneys, nor the uretero-lumbar and uretero-inguinal varieties. No cognizance was taken of the various primary operations performed on patients, accidentally injured ureters while operating upon the pelvic organs. The ages of the patients varied from 19 to 64 years, excluding those persons having the congenital forms. The author then dwelt upon the etiology, and considered at some length operations and results, after which he reported his two cases in detail.

He drew the following conclusions from the sixty-seven cases of ureteral fistulæ reported:

1. The left ureter is more frequently the seat of trouble than the right.

2. The most frequent variety is the uretero-vaginal, and the rarest is the uretero-abdominal fistula.

3. The most common cause is difficult labor; and forceps delivery is a prominent etiologic factor.

4. Of all the operations performed in the pelvis, vaginal hysterectomy is the most frequent cause of ureteral fistula.

5. Other conditions being favorable, all cases of ureteral fistula are curable by operation: *a*, In all cases of uretero-vaginal fistula the direct method of operating should be selected and no particular operator's method is applicable to all cases. When the ureteral opening is situated close to the bladder, Schede's operation is the most surgical and is applicable to the greater number of cases; when situated far away from the bladder, as in my case, a plastic operation on the principles carried out by me should be tried before a graver or more mutilating procedure is thought of. Intraperitoneal operations are suitable for the abdominal fistulæ.

6. For the cure of uretero-vaginal fistula, it is in my opinion absolutely unjustifiable to perform hysterectomy, nephrectomy, or kolpokleisis. When septic infection of the kidney occurs it may be necessary to open or remove it. It bespeaks lack of surgical ability to remove a kidney, a uterus, or close a vagina in these cases of simple fistula.

7. Another procedure which I think uncalled for is transplanting of the cervix uteri into the bladder for the treatment of uretero uterine fistula, for it causes sterility and the menstrual flow is abnormally directed, and besides a disturbed bladder might cause a backward flow of urine into the uterus, Fallopian tubes or even peritoneal cavity, depending upon the condition of the organs.

8. Directing the urine into a bowel is only justified when any other operation can not be performed. While uretero-enterostomy has been successfully performed it has but little to recommend it on general principles.

Dr. FRANK A. STAHL read a paper entitled

SOME OBSERVATIONS ON THE TREATMENT OF ANTEMATURE LABORS, ESPECIALLY OF ABORTION,

in which he said that when the physician of experience is called to a case of mature labor, in the conduct of it he is guided by a policy, the fruit of a ripened clinical experience, which he indicates in the brief but expressive sense, "trust nature, interfere only when necessary." Therein he but reflects the scholastic doctrine, "interfere then when danger presents to mother or fetus." Nature teaches that in all forms of labor, whether at the first month or at the tenth, the stages and principles of labor are always the same, the details of technique only modifying to meet the indications of the case. Can these generalizations, applicable to labor at term, be applied with equal safety to antemature labors, the abortion, the immature and the premature labor? He thinks so, and further believes that if he will be so guided, the general practitioner or the experienced accoucheur will never be too late with his assistance, and less often guilty of dangerous though well meaning anticipatory assistance. The results, so far as the attendant is concerned, will always depend upon, 1, the significance attached to the indication; 2, the method chosen to treat the indication, both being interdependent.

In illustration of his line of argument three cases were cited by the author from the literature of the subject, one resulting fatally from too conservative measures, and the other two beautifully illustrating how the pendulum had swung to the other extreme of radicalism, where major operations were undertaken to overcome minor conditions. A method to be proper and successful, possessing sufficient elasticity to meet the requirements of all cases, must combine the elements of both the so-called conservative and radical procedures, but without the extremes of each, viz., be conservative in the presence of a normal course abortion; be radical in the presence of an abnormal course abortion.

The author divides abortions into:

Normal course abortions.—Those where (1), dilatation occurs without pathologic manifestations; (2), expulsion of fetus in abortion is of little or no importance; (3), expulsion occurs *en masse*, or where retention with dilatation of os continues no longer than twelve hours, that is, from morning till night, or night till morning, in both cases without pathologic manifestations. Here he favors the conservative method, to pack and wait, giving nature an opportunity to act.

Abnormal course abortion.—(1), Where dilatation progresses so slowly as to cause serious exhaustion, both physical and mental; this is an experienced sense; (2), where, with dilated os, retention continues longer than twelve hours. The dangers of exposure are too serious to chance anything, notwithstanding an exceptional favorable case; (3), all abortions where there is danger, regardless as to character, as from infection, serious hemorrhage, chill, sepsis, or any other condition indicative of danger. Here he favors the radical, empty-at-once method of treatment. These phases of abortion and their treatment were dwelt upon at length. In the treatment he divides abortions into two classes: *a*, those in which dilatation is incomplete or *nil; b*, those in which dilatation is complete. In abortion the first stage is only complete when it is such that the important passenger, the secundines, may pass.

To favor dilatation the author uses laminaria tents, notwithstanding objections raised to their use in many directions. He believes the unfavorable results of the laminaria tent have been due to the errors of the operator rather than to the use of the laminaria tent, *per se;* he rejects *in toto* the sponge tent. Often the secundines with dilatation may be simply removed with placental forceps, blunt curette or hooked out with finger.

In the manner of performing curettage, the author said there are those who prefer the blunt curette, and some the sharp curette. Personally, where there is a choice, he prefers the finger, and believes that in abortions, as in other forms of labor, to remove the secundines there is no instrument that for safety, information, thoroughness, and differential diagnosis, is equal to the finger. In the choice of the finger to curette, the speaker differs from Lusk, in that he uses the middle instead of the index finger, stating that it has a longer reach, swivels better, and is stronger. He claims, with the finger, to have always avoided the unpleasant necessity for secondary curettage with the dangers from primary secundine skipping, which is the especial and not seldom occurring danger with instrumental curettage. Thus vital energy is conserved and convalescence established with less exertion. Having emptied the uterus, he irrigates with warm (not hot) 2 per cent. carbolic solution, not especially for its germicidal effect, but for its cleansing, stimulating and alterative qualities. He has never found it necessary to pack the uterus after curettage, notwithstanding he has encountered many sapremic and septic cases. The speaker then reported six instructive cases.

DISCUSSION.

Dr. C. S. BACON said the dangers of abortion were chiefly two, sepsis and hemorrhage. He agreed with the essayist that the indications for hysterectomy in cases of sepsis in abortion, and after labor at term, must be extremely strict, although there was a tendency at the present time to remove the uterus when the indications were not sufficient to warrant it. The measures for the management of incomplete abortion were considered under three heads. 1. The method recently recommended and advocated by Dührssen, of packing the interior of the uterus with iodoform gauze, thus producing strong uterine contractions, expulsion of the entire contents of the uterus and the remaining portions of the egg. 2. Removing the remaining portions of the egg with the curette. 3. Removal of the egg by means of the finger. The advantages of the finger were the greater certainty of diagnosis of the exact condition, and the more complete removal of secundines. He called attention to the dangers arising from the use of the finger. Its use required a larger dilatation of the cervix than the curette. If the cervix was dilated by a rapid dilator there was danger of tearing it, and of producing injury. Sometimes rupture might take place. He believed the essayist was correct in objecting to rapid dilatation in order to introduce the finger. He referred to the danger from dilatation by laminaria tents. The curette could be used without dilatation of the cervix, and the uterus could be cleaned out at once with it, which was an important consideration when there was any infection or elevation of temperature. The only two objections to the curette were the danger of perforating the uterus and of leaving some of the secundines. With the proper kind of curette there was no special danger of perforation. The leaving secundines behind or portions of membrane was due to lack of care.

Dr. REUBEN PETERSON thought the time had gone by for the use of laminaria tents in gynecology. He thought no more dangerous method could be adopted for dilating the cervix, whether puerperal or non-puerperal, than the introduction of a laminaria tent. He considers every abortion as an abnormal condition of the uterus, and such patients were fit subjects for surgical operations, and that whenever he has a case of inevitable abortion he treated it as a surgical case. He was also convinced that there was a field for hysterectomy in certain cases of abortion. He agreed with Dr. Bacon as to the use of the finger in cases of abortion.

Dr. SAMUEL L. WEBER thought Drs. Bacon and Peterson were a little too severe on the use of the finger in cases of abortion. He agreed with them that in the majority of cases the physician could not get along with the curette alone, particularly in inevitable abortions before the second month, when the egg itself was small. However, there were many cases in which it was absolutely essential to use the finger. A curettement for incomplete abortion could no more be thoroughly done, in his opinion, without the woman being under the influence of chloroform than a curettement for endometritis.

Dr. ALEX. H. FERGUSON said he made a distinction between those cases that had and those that had not been tampered with. The cases in which a sound had been passed, either by the patient or a physician, were usually septic from the start.

Dr. HENRY P. NEWMAN directed attention to a paper read by him before the AMERICAN MEDICAL ASSOCIATION last year on abortions, in which he presented his method of dealing with these cases, believing that it was the adopted method of his *confrères* but found it was not. He regards abortion as a pathologic condition from the beginning, and deals with it promptly. He referred particularly to cases up to the third month, where in the majority of cases, the decidua remained and interfered with involution of the uterus, the uterus remaining hard and heavy. In such cases more or less damage was done to the uterus and to the woman. This was the source of many displacements and of chronic lesions of the uterus and its adnexa. He could not let the opportunity pass without cautioning those engaged in the practice of obstetrics, and in general work, not to trust to nature in this class of cases. His manner of dealing with them was similar to that mentioned by Dr. Peterson. He makes an important procedure of it, believes that it should be done deliberately and under strict antiseptic precautions, every little detail being carried out with exactness. The curette was a safe instrument if properly used. After thorough inspection and cleansing out of the uterine cavity, he uses a strong application of carbolic acid and iodin, so that if shreds of secundines are left they will be destroyed by the cauterizing effect of the acid. The uterus is then packed with iodoform wicking, leaving its lower section rather loosely packed

with a single strand or so extending through the cervix, inasmuch as we desire drainage and the stimulating effect of the tampon in the uterine cavity.

Dr. STAHL in closing, said the same objection could be urged against the introduction of the hand in forceps extraction or in turning, or in extraction of the placenta after mature labor. Physicians did not hesitate to enter the uterine cavity with their finger in such cases. Furthermore, in doing hysterectomy, the surgeon did not hesitate to enter the uterus with his finger, and it seemed to him that there was as much objection to doing this as there was in using the finger in cases of abortion. His results had been very favorable following the use of laminaria tents.

SELECTIONS.

The Plague-Spots of Bombay: the "Chawls" of the Native Sections.—In the London *Lancet* (February 26), we find an editorial review of some of the recent official investigations regarding the plague in Bombay. It refers to one reported condition that is comparatively new, namely "that the important factors to be remembered were the filthy and insanitary chawls" which are inhabited by 70 per cent. of the population of Bombay. These "chawls" are mostly great tenement buildings, many of them from five to seven stories high, built on the flat system. Through the length of each flat runs a corridor, the interior of which is dark and unventilated, in which are situated latrines and out of which open on either side the doors of the numerous tenements. The rooms are about 8 by 12 feet in area, and each one is generally occupied by from six to eight persons or even more. So crowded are these chawls on any given area that window openings in respective blocks look one into another; they are therefore commonly kept covered, and apart even from this the rooms are so dark that, according to one inspector, artificial light had to be used in them by day. Between two rows of chawls is a species of back passage into which the inhabitants throw filth from the floors of the chawls, each of which is referred to as often containing from 500 to 1200 inhabitants, and these passages, it is said, are rarely scavenged. It is also pointed out that these chawls were erected to meet the demands of the cotton industry, and hence they are the outcome, not of native ignorance, but of Western civilization so-called. The same reporter estimates that the overcrowding due to these chawls is three times worse than anything that could be found in London, and his astonishment was, not that plague had become epidemic in Bombay, but that the disease had not carried away half the population. Sir Richard Thorne has emphasized the fact that the influence of soil in its widest sense was one of the first considerations to be held in view as regards a filth disease, such as plague, and he has pointed out that these chawls afforded precisely the soil needed for the maintenance of the epidemic. Even ordinary garden soil teems with micro-organic life, and pathogenic organisms find in soil a favorable medium for life and multiplication. One point only did he appear in any way to criticise in a certain official paper recently published, namely, the assertion that anxiety must remain unless science can suggest some effective means of eradicating the plague bacillus. As to this he contended that there were times when the appeal should be to practice rather than to science, and that so long as the chawls of Bombay remained what they are it was of no use to call upon experts or to wait for advance in science. Although it is doubtless a mistake to believe that the great fire of London freed that metropolis from its plague, yet, if medical considerations were alone in question, the destruction by fire of the chawls of Bombay would, he insisted, in the long run end in gain. "So, also, as regards the eradication of the plague bacillus, this is not what is wanted; it is rather the removal of conditions which enable an accidentally imported specific organism to multiply and spread. Action on this principle has all along been our English practice. We are prepared to receive any number of vessels from western ports of India; we never propose to quarantine them lest they should carry plague bacilli; but we aim at receiving those vessels under conditions which are inimic to foreign pathogenic organisms."

Neuroses of Gout.—In a paper upon this subject presented to the Mississippi Valley Medical Association, Dr. L. Harrison Mettler of Chicago takes the position that the uric acid is not the cause of the familiar nervous manifestations of gout. He states that in the main, there are three general theories in regard to these neuroses. The followers of Haig believe that they are due to uric acid in the blood (chemic theory). Others think that they, as well as true gout itself, are but expressions of a neurotic diathesis (neurotic theory). Still others, with whom the author places himself, hold the view that a nervous taint, acquired or inherited, is the essential cause for gout and all the gouty manifestations; whereas these manifestations may be enhanced or made to assume variable characteristics by the auto-intoxication which is itself a result of the faulty metabolism produced by the original faulty innervation. With Cullen and Duckworth, therefore, he maintains that the gouty manifestations primarily are the result of a trophoneurosis. Faulty innervation, inherited or acquired, deranges the metabolic functions of the tissues, certain toxic excrementitious products are over-elaborated or uneliminated, and these reacting again upon the various nervous apparatus give rise to the said neuroses. These excrementitious products, as seen in the urinary alloxuric substances, consist of uric acid in combination with certain xanthin bases. In the gouty state the uric acid is frequently diminished in amount, but the increase of the xanthins explains the total increase of the alloxuric substances. With Kolisch and some other investigators, the author believes that the retention of the xanthins, rather than of the uric acid, is responsible for the general symptoms of gout. The uric acid which is now known to be formed only in the kidney and when found in the blood is reabsorbed from that organ, enters into combination in the blood to form the biurate of soda which for some unexplainable reason is deposited in the joints. The symptoms of lithemia and of certain forms of neurasthenia are also due to the retained xanthins and not to the uric acid. Hence neurasthenia, lithemia and gout have many features in common, auto-intoxication being the chief. The uric acid is significant only in one of these, namely, true gout, in which it goes toward the formation of the arthritic deposits. The retained toxins, especially the xanthins, are responsible for the general complexus of symptoms characteristic of all three diseases.

Upon this theory it is an easier matter to explain the numerous bizarre features of these three sets of diseases and to account for the variableness of the results ofttimes obtained from similar treatment in apparently similar cases. In elaborating these ideas in the early half of this paper Dr. Mettler refers to some of the more recent studies upon uric acid, quoting largely from Futcher, Neusser, Kolisch and others. Cases were then cited to illustrate the neurotic nature of the diseases in question and the extreme difficulty of deciding whether the neurotic constitution is the cause or the result of the so-called lithemic state. In the case of the 12 year-old child the lithemic condition was especially pronounced and its amelioration naturally ameliorated the neurotic manifestations, nevertheless there was a marked neurotic inheritance and there is every evidence that this underlying vicious nervous apparatus was the primary cause of both the lithemic and neurotic manifestations. The latter half of the author's paper enumerates some of the principal neuroses associated with the gouty diathesis. Among these neuroses the author has seen cephalalgia, epilepsy, cardiac arrhythmia, chorea, convulsions, vertigo, pain including neuralgia and psychic pain or mental depression, hysteria, exophthalmic goiter, asthma, nervous dyspepsia,

diabetes, facial paralysis, multiple neuritis and sciatica, cerebral apoplexy and aphasia. The aphasia case referred to was especially pronounced. In a case of nervous prostration on the road to recovery an acute attack of rheumatoid arthritis in the right shoulder suddenly supervened. As the rheumatic pains were about to subside under the vigorous use of the salicylates, distinct amnesic aphasia occurred for three days. There was complete loss of the names of things (nouns) so that the patient would begin a sentence with one or two simple words and then suddenly stop with evident dissatisfaction at her inability to speak. With this there were slight delusions and illusions and such hallucinations as the hearing of footsteps and bells that did not exist. It could not have been the medicines employed that gave rise to these manifestations, for though the treatment was continued the aphasia, etc., terminated gradually the third day.

It will then be seen that the author agrees with Haig and Munchison in assigning lithemia as a cause of many neuroses, but he differs from them in giving credit to the retained xanthins rather than to the uric acid.

PRACTICAL NOTES.

Artificial Menopause Induced by the Sneguirev Steam Treatment of Menorrhagia.—Baruch reports a case of severe menorrhagia promptly cured with the steam treatment, but followed by the symptoms of the menopause, although the patient was quite young, II-para; eighteen months later the uterus was found hard and small, the fundus adherent and retroverted, the cervical canal completely obliterated.—*Sem. Méd.*, February 9.

Electrotherapeutic Treatment of Painful Fissure of the Anus.—The *Bull. de la Soc. d'Electrotherap.* for February, contains a detailed description of the remarkable cures effected by Professor Doumer in eleven cases of extremely painful fissures with obstinate constipation and hemorrhoids, with from two to four local treatments with the "high frequency" current. Relief was immediate, the sphincteralgia diminished, the fissures healed over and the constipation and hemorrhoids subsided.

Treatment of Impetigo with Franklinization.—Fourteen cases rapidly cured with "electric effluvation" are reported by Doumer and Levezier of Lille, all children from six months to 12 years of age, accompanied by marked improvement in the appetite and health. The seances were repeated three times a week, lasting ten minutes each time, two to eight being generally required, and a machine powerful enough to emit sparks eight centimeters in length.—*Sem. Méd.*, February 9.

Thallium Acetate in the Night Sweats of Phthisis.—Combemale has obtained fine results with a single pill containing ten centigrams of thallium acetate administered about an hour before the sweats usually appear. The effect is quite lasting, and the drug must not be given longer than four days at a time, with an interval of eight days before commencing again. The chief accident observed from its use was a sudden alopecia, which requires supervision.—*Prog. Méd.*, February 26.

Treatment of Professional Eczema of the Fingers.—Edlefsen has been very successful for years with the following solution, with which the hands are painted once or twice a day and gloves worn for a while: Metallic iodin 10 centigrams, potassium iodid 25 centigrams, glycerin 12.5 grams. Especially effective in curing eczema due to repeated contact with water. Rózsás states that the direct application of lunar caustic after moistening the parts, will cure rebellious cases of professional eczema, the excess neutralized in a few moments with salt solution and after being wiped dry, the following salve applied: Salicylic acid 2 grams, zinc oxid and talc powder āā 24 grams, and yellow vaselin 50 grams. For external use.—*Sem. Méd.*, February 9.

Contagion of Chancre by Caustic Pencil.—A healthy 12-year-old lad, son of healthy parents, was treated for a polyp in the right nostril by a physician who cauterized it a few times with molded nitrate of silver, which in this case fully deserved the name bestowed upon it by the Germans, "hell-stone," as its use was followed by typic syphilitic infection, soon destroying the tip of the nose, nostrils and septum, when its course was arrested by antisyphilitic treatment.—*Deutsche Med. Woch.*, February 10.

Perpetually Sterile Bandage Box.—The bandage roll is placed in a small metal box with tight fitting metal cover. Between box and cover there is a narrow slit through which the end of the bandage emerges like the tape in a winding tape-measure. No space is left around the bandage strip, which pulls out with moderate effort. The protruding piece is cut off and thrown away, and the following portion of the bandage is found permanently sterile, as no bacteria can find their way into the air-tight box, which does not require to be opened until the last scrap of the bandage roll has been used up.—*Deu. Med. Woch.*, March 3.

Dangers of Artificial Respiration.—Brosch has described a case of sudden death in which artificial respiration was practiced, and at the necropsy the bronchi were found filled with the contents of the stomach. This can be easily accomplished in the cadaver, and is possible in the limp condition of drowning persons. To avoid all danger from this source, M. Buch advises first wiping out the mouth with the finger wrapped in a cloth, and then in the course of the artificial respiration avoiding all pressure on the stomach, confining the efforts to lateral pressure.—*Deu. Med. Woch.*, March 3.

Iodin Injections for Malarial Hypertrophied Spleen.—Parona considers hypodermic injections of the following solution the simplest and most effective treatment for hypertrophied spleen of malarial origin at our disposal to date. Metallic iodin, 25 centigrams; potassium iodid and guaiac āā 2.5 grams; pure sterilized glycerin, 25 grams. Inject one gram in the flank or back, the patient remaining in bed during treatment, suspending it as the organism becomes saturated with iodin. Four cases of enormous tumefaction of the spleen are reported practically cured, although one case required splenectomy later, on account of the mobility of the organ.—*Sem. Méd.*, February 9.

Rapid Process of Double Staining the Blood.—A drop of the blood is placed on a cover-glass and with it a drop of simple sterilized bouillon, then mixed together with the platinum loop, first passed through the flame and cooled. The mixture is dried and fixed over an alcohol lamp, in less than a minute, the cover-glass placed on a glass slide to protect it from the direct action of the flame. He then stains with eosin and then with methyl blue; the entire technique requiring scarcely five minutes.—*Cron. Med. quir. de la Habana*, xxiii, 23; *Sem. Méd.*, February 26.

Hernias During Pregnancy and Parturition.—H. Fischer has been studying the twenty-four cases on record with eight of his own, and confirms the general assumption that severe hernias under such circumstances are particularly troublesome, although the usual rest, etc., of the women favors the cure of slight pre-existing hernias. He has seen two cases of femoral hernia entirely cured with an English truss and the reclining position during pregnancy, and also cases of umbilical hernia held with strips of plaster, over which a good-fitting bandage was worn. He does not believe in postponing a necessary operation on account of the pregnancy or child-bed, but advises an immediate operation after delivery, without waiting for the collapse from incarceration to supplement the operation shock, always using the Schleich method on account of the danger from vomiting after general narcosis, which produced abortion and death in one of his pregnant cases.—*Deutsche Med. Woch.*, March 3.

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SATURDAY, APRIL 9, 1898.

THE ASSOCIATION OF THE MILITARY SURGEONS OF THE UNITED STATES.

The events of the day are the strongest possible indorsement of the necessity for such an organization as that of the Association of Military Surgeons of the United States. In fact, the medical officers of the various branches of the military and naval services of the country are not associated as they should be, or in any way, officially or nominally, in one harmonious whole. The enthusiastic founders of this body, first and foremost among whom was our own illustrious NICHOLAS SENN—then Surgeon-General of Wisconsin, and now, and for long, we hope, Surgeon-General of Illinois—wisely foresaw that military surgery could not attain its highest development if left to the haphazard methods of independent and inexperienced individuals, and they instituted this Association for the improvement of military surgery, and it is evident that this can only be accomplished when the medical departments of every branch of the national defence shall have common methods of operation and interchangeable apparatus and personnel. While the army and navy are the right and left arms of this national defence, it must be borne in mind that the National Guard is the head, trunk and legs, and even though the arms and legs may be lusty and strong, can this be said of the other parts of the military medical body? Is it not the fact that in most of the States of the Union there is no such thing as a medical department of the National Guard?

In every State, it is true, there is a Surgeon-General, who is presupposedly the head of such a department as the Surgeon-General of the Army is chief of the medical corps of the Army, and a Surgeon-General of the Navy, who is the chief of the bureau of medicine and surgery of the Navy Department, but is the Surgeon-General of Maryland, or Virginia, or Ohio, or Georgia ever titular head of the medical department of the National Guard of these States? Is he not really only an ornamental member of the staff of the Governor of the State, appointed by the incumbent of that office without regard to eminent qualifications or previous service and experience, and holding his position only during the gubernatorial term? Has he any official relationship, control or authority over the medical officers of the National Guard of the State? If he is not such a chief or head is it not because there is no department of which he can be chief?

A medical director in a certain important State of the Union, whose title to the medical directorship arose only from his being the senior medical officer of a brigade, when asked concerning his preparations for active service in the event of the brigade being called into service, as had actually twice happened, explained that he had an arrangement with an apothecary in the city of his residence, who engaged to supply him with such stores and appliances as he thought he might require. There was no State medical purveyor's office, no central depot of ambulances, no bureau of supplies of surgical and medical equipments, no organized hospital corps and no field hospital appointments; and what is true of this State is true of most others.

The Association of Military Surgeons of the United States is aiming to remedy these lamentable deficiencies by inducing the organization of a medical department in the National Guard of each State upon a uniform basis with the medical department of the Army and Navy, having (1) a *personnel* in which admission shall be gained only after a rigid physical and professional examination as assistant surgeon (or better, junior surgeon, for the title assistant is considered a misnomer in the national services) with assured promotion based upon merit and length of service from the lower to the higher grades, the Surgeon-General being selected for his eminent fitness from the medical directors or brigade medical officers and to be the head of a corps in which all the officers are associated and related as parts of a military whole; with (2) an organized *hospital corps*, enlisted and drilled for field service especially; and with (3) a central *depot of supplies*, including ambulances, field (skeleton) hospitals, surgical apparatus and appliances and medical stores, for issue and distribution on approved requisitions.

The advantages, and in fact, absolute necessity for such a uniform system are self-evident, and just as the title, National Guard, implies a community of purpose, its medical department should be in all respects and in every State one and the same, the State initials, like the letters U. S. A. and U. S. N., alone indi-

cating local relations as to source, responsibility and immediate control. It is to be hoped, therefore, that the appeal of the President and Secretary of the Association of Military Surgeons to the governors of the several States to send officially delegated representatives to the annual meeting at Kansas City on June 1, may meet with a general response, inasmuch as the occurrences of this year have demonstrated the need for just the objects the Association aims to accomplish. It is fortunate that the several special committees appointed at the Columbus meeting last year, to consider these questions of uniformity of organization and methods, are expected to report and from the high character and experience of the chairman and members of these committees, it may be expected that something definite may be evolved which will not only be of interest and value to all the States represented, but may result in the establishment of a well-organized and well-equipped and outfitted medical department all over the United States, rendering unnecessary in future cases of hostile operations the philanthropic assistance of sanitary commissions, Christian aid societies and other volunteer bodies. The axiom that there can be no efficient military establishment without a properly organized medical department was never better illustrated than in the recent wretched Greek fiasco, which was an object lesson of the helplessness of an army in which a medical department was considered a mere civil appendage, if, in fact, it was given any consideration.

THE DECREASING FREQUENCY OF TYPHOID FEVER.

There is perhaps no subject more interesting to the devotee of hygiene or the practical physician than the study of the frequency and mortality of diseases which occur with such constancy that all persons in all sections of the country are liable to be affected by them. It is a well recognized fact today that several of the great endemic and epidemic diseases of earlier centuries are decreasing in frequency and virulence and this decrease is of course largely due to the maintenance of strict modern quarantine, better knowledge of the means by which diseases are spread, and the institution of proper regulations controlling the individual who is afflicted. Other diseases more chronic in character, producing grave ravages throughout the human race by slower progress, as for example syphilis, are also known to be decreasing in frequency and virulence, and physicians of many years experience are constantly remarking upon the fact that syphilis in its malignant forms is rarely met with, at least as compared to its frequency twenty or thirty years ago. This decrease in syphilis is partly due to the fact that physicians understand the methods that should be used in combatting it far better than they did in the early part of the century, and, again, the pharmaceutic fraternity working in league with chemists have produced preparations of the great specifics for these diseases in such forms that they can be readily administered and utilized by the physician in a manner which is impossible with crude pharmaceutic products. It is true that the "great white plague," tuberculosis, still reaps its harvest with a frequency and constancy which is most disheartening to those who come frequently in contact with it. But one disease of more rapid course as a rule, which has had a high mortality in the past, and to which all persons are subject with a certain degree of constancy, is typhoid fever. There is no doubt whatever that this disease is decreasing in its frequency, its virulence, and consequently in its mortality in nearly every portion of the civilized world. It is unfortunately only too true that it is almost endemic in most of the large cities of the world. But at the same time the number of cases which are affected by it are diminishing in a manner which is almost startling. Less than fifty years ago it was commonly recognized that the mortality of typhoid fever was about 25 per cent.; whereas it is evident now that the mortality varies from 10 to 15 per cent., and in those portions of the world where good drainage and a pure water supply have been provided to the inhabitants of cities, this mortality has been still further decreased, until it is below that which used to be obtained in hospitals in which the very best and most enlightened treatment was carried out. In one of the "Systems of Medicine" which has been recently published, Mosny is quoted as showing that the death rate of Vienna decreased from 12.05 per 10,000 to 1.1 after a pure water-supply was provided that city, and a similar decrease has also taken place in Dantzic. In Stockholm a somewhat similar fall is shown by the statistics of that city.

In Munich the mortality has fallen from 334 per 100,000 inhabitants in 1858, the highest mortality which that city has had during the last fifty years, to 3.4 per 100,000 inhabitants in 1896. In London the last twenty years has seen a drop from 267 deaths in the million to 161. In Manchester from 450 in the million to 250, and in the whole of England the death rate has decreased from 1228 per million in 1838 to 137 per million in 1892, and this in face of the fact that the rules of health boards in regard to the notification of diseases are maintained and obeyed better and better as each year goes by, and that the training of physicians and the increasing aids to diagnosis, probably result in the reporting of more cases of obscure typhoid than have ever been reported before.

Billings tells us that in Norway from 1888 to 1891 the mortality was less than 10 per cent. In the present Maidstone epidemic in England it is 8.5, and in France it has fallen from 21.5 to 13.5 per cent.

In our own country the mortality of this disease has decreased in Boston during the last fifty years

one-third; in Philadelphia one-third and in New York almost one-half.

Naturally we would expect from this showing that the frequency of the disease would probably be very much decreased, and this is shown in the health records of a number of the cities which keep sufficiently careful records to afford us valuable information in this respect. In New York and Philadelphia, for example, the frequency has decreased almost one-half, and an examination of a number of individual hospital records shows a corresponding improvement.

The next question which arises, is to what is this much desired result to be ascribed? Is it that the present generation are gradually becoming immune to a disease which has seriously affected their forefathers, or that medical skill has improved to such an extent as to cause this vast improvement in life-saving, or, finally, are we to attribute these beneficent changes to a diffusion of knowledge in regard to the means by which this malady is spread, a diffusion which has been as necessary amongst the body of the profession as it has been amongst the laity, both of which classes are at the present time beginning to realize to the fullest extent the amount of pain and suffering and death which can be put aside by the use of even moderately severe measures looking toward the disinfection of discharges, the avoidance of the contamination of water-supplies by the sewage and the carrying out of those simple rules of hygiene with which even the poorest should be familiar. Admitting that the first two possible causes are exciting factors in producing the results which we have named, it is an undeniable fact that to the hygienists belongs the credit for the marked changes which have occurred. Immunity acquired through heredity is theoretically beautiful to contemplate, but practically scientific analysis and the best informed physicians are willing to admit that while a certain number of lives are saved by the employment of rational methods in the treatment of enteric fever no such decrease in mortality as has occurred can be attributed to improved therapeutics. Some one has well said that every death from typhoid is a case of homicide, for undoubtedly it has been proved by bacteriologic research and by frequent experiment upon enormous bodies of people that each case of typhoid could have been avoided by proper disinfection of the discharge of a patient who has disseminated the poison, by proper treatment of the ingesta taken by the individual. Under these circumstances it is evident that physicians should not only use ordinary means to destroy the bacillus of Eberth in every case of typhoid fever to which they are called, but that they should impress by every means in their power upon their patients and upon the popular officials the necessity for preventing this disease by means which are so easily carried out, and so blessed in their results that he who ignores them is guilty of the gravest sort of mistake.

MIGRAINE AND EPILEPSY.

The pathologic etiology of migraine has been long enough the subject of speculation, but we are still in the phase of conjecture or at least theory; our positive acquisitions of knowledge as to the essential pathologic process are so far practically nothing. The notion that it is a vasomotor neurosis has been largely abandoned, and neurologists at the present time are inclined to class it with epilepsy as a fulgurant cortical neurosis, a symptom of cortical instability associated, it may be, with some conditions of morbid metabolism, such as the uric acid or arthritic diatheses. While it may be assumed that it is a derangement to some extent of the function of the sensory cortical elements due to various irritations arising from the digestive organs, the sexual apparatus, the general or spinal sensory tracts, etc., etc., its ultimate cause must be looked for somewhere back of all these in some more profound systemic condition, the exact nature of which we are only able to conjecture at the present time.

Dr. B. K. RACHFORD, who has, during the past few years, advocated the theory of leucomain poison as the essential cause of this disorder, publishes in the April issue of the *American Journal of Medical Sciences*, a further paper on the subject reiterating his former views and supporting them by additional arguments and facts. His former findings of xanthin and paraxanthin in the urine of sufferers from migraine, have, he states, been confirmed by continued observations during the past two years, especially as regards the latter. In normal urine paraxanthin is present in too minute a quantity to be readily detected, and this is true also of that secreted in ordinary attacks of headache, which have not the clinical features of what we recognize as migraine. He does not, therefore, believe that cephalalgia is itself necessarily or directly associated with this excess of paraxanthin; it is the special condition that gives rise to the peculiar migrainous attack. An over-production and accumulation of this product in the blood from some recondite neurotic condition appears to be his theory, and the migrainous explosion is the attendant of its periodical excretion. It is the most toxic of all the leucomains of the uric acid group, and some of the symptoms it produces are suggestive of those of migraine. From all the data thus far obtained, Dr. RACHFORD deems it reasonable to assume that paraxanthin is to be considered as an important factor, at least in the production of true migraine.

The relations of epilepsy and migraine suggested in the theory stated as just now prevalent, are quite strongly suggested by certain clinical facts familiar to neurologists and to whoever has any extensive experience with these neuroses. Epileptiform migraine with loss of consciousness, more or less complete, in some of the attacks, and even with convulsive manifestations, is a well known condition, and the disorder has

unquestionably a close relation with the more formidable affection, as do also certain forms of vertiginous attacks, themselves apparently related to migraine. The pathology of epilepsy, considered as a disease of itself, is also obscure, but when it is reckoned only as a symptom of various pathologic states it is possibly more comprehensible, or at least more easily explained in a theoretic way. Dr. RACHFORD makes this point in his paper and indicates the distinctions between organic or mechanical, reflex and toxic epilepsies, the first being readily comprehensible, the second due to lack of inhibition from defective development due to inheritance or malnutrition, and the last as yet imperfectly understood, but probably not the least in importance of the three general types. As a special form of toxic epilepsy he recognizes that from paraxanthin intoxication, which according to his investigations forms a small but appreciable proportion of the whole class, and has some special features of its own, though hardly enough to characterize it clinically as a definitely marked type. It is more common in women than in men, in middle than in early life, and always in cases that have suffered from, or are still subject to, migraine, thus indicating clearly the common causal factor. It is compatible with unimpaired intellectual powers, thus differing from most of the other forms of epilepsy, and is generally more amenable to treatment, thus rendering an early diagnosis the more important.

It would appear from the facts that RACHFORD has collected that there is a common cause in certain cases of epilepsy and of migraine, and that, as he is inclined to believe, this is to be found in the toxic action of certain leucomains of which paraxanthin is probably the most important. That these do not invariably cause epilepsy or migraine may be admitted, but that is one of the very common facts for which we can have as yet no explanation, and which does not vitiate the conclusion that there is sometimes a causal relation between their occurrence and that of these disorders.

There are undoubtedly other autotoxic factors in epilepsy, those, for example, from the intestinal organs, and the analogy of drug epilepsies is sufficient to make this probable. It is an interesting fact, none the less that we can in this way find a plausible explanation of the long recognized affinities of migraine and epilepsy, and the line of investigation here indicated is well worthy of being further followed out. It may throw light not only on the causes but also on the essential lesions and the practical questions of treatment and prophylaxis.

THE CARDIO-VASCULAR SYSTEM AND ITS RELATIONS TO DISEASE.

A well-known clinician of wide experience in scientific medical societies once remarked that the two most active societies devoted to the study of pathology were to be found in London and Philadelphia. Whether this be true or not matters little, provided either of these bodies provides the general profession from time to time with the results of their studies in such a form that there is direct benefit to physician and patient. Such a function we think was performed by the Philadelphia Pathological Society when at a recent meeting, it devoted its attention to the presentation of a symposium on the "Pathology of Diseases of the Cardio-vascular System," which contained contributions upon the pathology and morbid anatomy of the heart. vessels and blood. Perhaps the most interesting of these papers was that of PACKARD, who dealt with vascular changes and who pointed out ("Transactions of the Philadelphia Pathological Society," March 15, 1898) that not only do we grow old in proportion to our vascular changes but that arteries are vessels which are not only subjected to insults from the exterior but also very often have to carry blood which is capable of exercising harmful effects either from its chemic characteristics or by reason of its containing bacteriologic infections. PACKARD calls attention also to several communications, made recently to medical literature, which he thinks indicate that the endarterium is perhaps equally susceptible with the endocardium to infectious processes or at least inflammatory changes. In the *Bulletin et Mém. de la Soc. Méd. des Hôpitaux*, for Oct. 28, 1898, THOINOT and GRIFFON reported a case of a woman of 53 years who suffered from several attacks of erysipelas of moderate local severity, but severe systemic manifestations from which she eventually died some weeks after the last admittance to the hospital. The autopsy showed old and new lesions in the aorta, the latter being composed of fibrinous, gelatinous deposits of amber-yellow material slightly elevated above the aortic surface. These plaques were formed essentially of a fibrillary substance running parallel to the axis of the vessel, and masses of cells penetrated the internal coat of the vessel as if arranged about a blood vessel. Further the degenerative processes extruded into the media and adventitia, in which near the changes in the intima were areas of intense inflammation. In another instance, recorded in an abstract in the *Gaz. hebdomadaire de Méd. et de Chir.*, Oct. 8, 1897, by ISELIN, a man of 54 years, after exertion, was seized with pain at the base of the neck and severe dyspnea. Death came suddenly and a clot was found plugging the left subclavian artery, and the entire thoracic aorta was the seat of acute aortitis with great thickening. There were no other morbid changes elsewhere save early tuberculosis at the apices of both lungs. Then again we may quote the experimental studies of BOINET and ROMARY (*Arch. de Méd. expérimentale et d'Anatom. pathologique*, 1897, p. 902). These observers injected various micro-organisms into

the blood stream and thereby caused aortitis after producing aseptic trauma of the intima. They found that Eberth's bacillus, the bacillus coli communis and streptococci all caused aortitis when so injected, nor did they stop here but also discovered that anthrax bacilli and tubercle bacilli produced similar effects, as did also those of tetanus and diphtheria. Again the toxins of diphtheria, of streptococci and of the bacillus of tuberculosis, when injected caused aortitis, as did that of cholera. Various metallic poisons did likewise.

These instances combined with three cases examined in which human beings were the victims of infection seem to prove very conclusively that PACKARD'S belief in the susceptibility of the endarterium is correct and, if more evidence be needed to prove the fact, we find LEVY (*Archives*, as already quoted for 1896), recording a case in which a grayish tubercle was found in the subendothelial layer of the aorta, and STROEBE (abstract in the *Centralblatt für Allg. Path. und Path. Anat.*, Nov. 1, 1897) reporting the case of a boy, with general miliary tuberculosis, who had a caseating polyp of a tubercular nature in his ascending aorta. Still further proofs are found in the case of a burned child mentioned by HOLLIS, whose aorta was found at the postmortem to be the seat of early atheroma. It is evident that endarterial disease is still, comparatively speaking, an unexplored field, and that it offers one of the most interesting sources from which we can gather new ideas as to the pathology of vascular changes and the perversions of nutrition depending upon them.

CHARAKA-SAMHITA.

We have received fasciculi 17 and 18 of the Charaka-Samhita, translated into English by AVINASH CHANDRA KAVIRANTA, Calcutta, which is the Hindu medical work corresponding to the Hippocratic treatises. (See JOURNAL, Vol. XXI, p. 465.) Section 17 contains a continuation of lessons 5, 6 and 7, which are aphoristic utterances on the body and medicines, including food and drink. In the 18th fasciculus we find less of how diseases are to be conquered by the physician, and first he says: "If an intelligent man, who knows the difficulty, the lightness of all acts, the results, immediate and remote, of acts, and place and time, desires, impelled by proper reasons, to become a physician, he should then, at the outset, select the particular treatise he should take up for study. Divers treatises pertaining to the profession of the physician are in circulation;" and, after a eulogy of the Rishi, a very ancient work, he describes the qualifications of the preceptor, which, he says, should be: "He should be one whose doubts have all been cleared in respect to medical scriptures. He should be possessed of experience. He should be clever. He should be compassionate toward those who approach him. He should be of pure conduct. He should have a practiced hand. He should have all the implements of his profession. He should have all the organs of sense. He should be conversant with the nature of health, of disease, of medicaments, of time, of place, of man, etc. He should be conversant with the tendencies and acts of the healthy and of the diseased. He should be one whose knowledge of the medical science has been supplemented by a knowledge of other branches of study. He should be without malice. He should be without a wrathful disposition. He should be capable of bearing privations and pain. He should be one well affected toward disciples and disposed to teach them. He should be capable of communicating his ideas. A preceptor possessed of these qualifications very soon succeeds in equipping an intelligent disciple for the requisite characteristics of a physician; like a cloud belonging to the proper season, equipping a fertile field for an abundant harvest. Approaching such a preceptor, a pupil desirous of quoting him, should attend on him with heedfulness like one revering one's sacrificial fire, or one's deity, or one's king, or one's father, or one's patron. Then study the entire treatise through his grace. The pupil should duly strive to comprehend the relations of the different parts toward one another and of each part toward the whole; to understand the consistency and correlation of the words employed to apprehend the sense of the author and to acquire facility of exposition."

The means for achieving these ends are, as follows: "Study, teaching and conversations.

"The following is the method to be observed in study in health and observance of the rule regarding time: The pupil should rise at daybreak or a little before, going through the necessary morning rites, performing his ablutions and bowing under the deities, the Rishis, the cow, the preceptors, those venerable for age, those that have been crowned with success, and professors. Then, seating himself down at his ease on a level and clean spot of ground, he should repeatedly cite the aphorisms in due order with his mind set on the recitation."

CHARAKA advises the preceptor, who will set his mind on teaching, to examine the person that presents himself for becoming a pupil. The disciple should be as follows: "He should be of mild disposition; noble by stature; not mean in acts. His eyes, mouth and nasal lines should be straight. His tongue should be thin, red and unslimy; his teeth and lips should have no deformity. He should not have a nasal voice. He should be possessed of intelligence; free from pride, with a large understanding, power of judgment and memory, and a liberal mind. He should belong to a family the members of which have studied medical scriptures, or followed medicine as a profession. He should have a devotion for truth; his senses per-

fect; free from haughtiness, disposed for solitude, and a thoughtful disposition. He should not be defective in respect to any limb. He should be free from wrath, fond of study, devotedly attached to both theory and practice; free from cupidity, without sloth, and should be endowed with excellent character, purity of behavior, devotion, cleverness, compassion for all; should seek the good of all creatures, and should be prepared to obey all the commands of his preceptor, to whom he should be attached. One adorned with such qualifications has been declared to be worthy of acceptance as a pupil."

We fear that some of our modern medical students would find it difficult to compete with the ancient Hindus in possession of these very moral attributes. This fasciculus is of very great interest not only to the medical historian, but to Hindu scholars in general.

THE WEEK IN CONGRESS.

With the exception of the rather tedious speech of Senator CAFFERY recommending his bill, sanitary matters received little attention. Estimate of deficiency in the appropriation of the Quarantine Service was received in the House and referred to the Committee on Appropriations. The naval appropriation bill is under consideration.

CORRESPONDENCE.

The Serum Treatment of Tuberculosis.

DENVER, COLO., March 29, 1898.

To the Editor:—I note in your last issue a criticism of my report of cases, published in the JOURNAL of March 19, by Kenneth W. Millican, M.D., B.A., M.R.C.S., which I feel deserves a reply. Dr. Millican states that antiphthisic serum T. R. (Fisch) "is recommended in the so-called pre-tubercular stage, in the first stage and the early part of the second stage prior to disintegration and in these alone." He criticises the report sharply, because all the cases were chronic cases and not applicable to serum treatment. The Doctor has forgotten that in the February 5 issue of the JOURNAL there appeared two articles on the treatment of tuberculosis with antiphthisic serum T. R., in which sixteen cases were reported, of which fourteen were chronic cases, having existed from one to eleven years, and yet no criticism was made on account of their not being appropriate cases. Why? Was it because the reports were more favorable?

It was because I believed that the deductions drawn from these cases were not justified that I reported my cases, feeling that not only the "truth, but the whole truth," should be recorded. I admit that in reporting these cases more could have been added in the way of detailed account of symptoms and physical signs, but in practicing brevity, which is the chief value of many papers, something may have been omitted that would have rendered the case clearer to the critical mind. Dr. Millican decides that all, except possibly one or two cases, were cases of mixed infection. In reply I would say that in only one case were streptococci found in addition to tubercle bacilli upon commencing treatment, and this was the only case accompanied by fever and other symptoms of mixed infection.

It is not only proven, but admitted, that the serum treatment is a failure in long-standing chronic cases of tuberculosis. The question remaining is whether incipient or early cases will recover in spite of the remedy or whether it hastens recovery. As early cases invariably recover, and indeed many of the later cases, by proper climatic treatment it must therefore remain with our Eastern colleagues to solve this problem. I would, however, sound this warning far and near. Do not keep incipient cases on serum treatment until all chances of recovery from a change of climate has passed in perhaps the vain hope that they may be cured by this means. Test the serum treatment on those who can not make the sacrifice incident to a change of climate. All early cases that can possibly make the sacrifice send westward, until the full value of this treatment has been proven and you will never regret the results.

Very truly yours, F. E. WAXHAM, M.D.

Homing Pigeons as Medical Messengers.

ELIZABETH, ILL., March 31, 1898.

To the Editor:—For several years the undersigned has had under consideration homing pigeons as medical messengers. My correspondence with doctors who use them for this purpose, and also information obtained in medical journals and books bearing on the subject, so encouraged me that I was induced to invest in some of the "Belgian Homer" pigeons, and now have established a loft of aerial messengers as part of my equipment as a medical practitioner.

The young birds now under training encourage me to say to the JOURNAL readers that my expectations have not been dimmed, and I am convinced that if medical men will look into this matter, if they have not already done so, they too will find it feasible. In order to have the homer pigeon serve me in an efficient manner, I am having the entrance to the loft connected with electric bob-wires, so that when a bird returns home with a message from a patient, the alarm will be given at my office and residence, just as soon as the bird returns and is passing under the bob-wires into the loft.

Just inside the bob wires is a cage or box, placed in such a manner as to make the pigeon messenger a prisoner until the message is secured. Professor Marion of the U. S. Navy Academy has invented a capsule in which the message to be sent is placed, and then the capsule is fastened to the pigeon's leg.

The loft need not be expensive; a space in the barn eight by twelve feet and six feet high and about ten feet from the ground is room enough for thirty homing pigeons. If a special house is constructed, for want of room in the barn, the writer had constructed a loft as follows: Size, six by eight feet with eleven feet studding. Five feet from the ground a floor was placed, leaving the up stairs, or loft proper, six by eight by six feet. The down stairs is inclosed with poultry wire; the up stairs, first with tar paper, then ship lap. Trap doors through the floor permit the birds to come down to the ground, a much needed recreation for the old birds that can not be given their liberty, since they will leave you if an opportunity presents itself. It is the young birds hatched from your loft, or those you get when just old enough to ship (about six weeks old), that can be trained for messenger service, when three or four months old, by taking them several miles from their loft, east, west, north and south, and let them fly back home. This is to be repeated and each time the distance increased, until the remarkable distance of 100 to 1000 miles may be attained, at the rate, for the shorter distances, of an average speed of one mile per minute.

Fraternally,

PHILIP ARNOLD, M.D.

Strongylus Gigas. One More Case.

CHICAGO, March 30, 1898.

To the Editor:—Anent the report in the JOURNAL of March 26, my own observations may be of interest. In 1854, while

residing in St. Louis, early in the spring my husband, then an animated amateur huntsman, complained of sudden darting pains in the region of the kidneys. They would however not persist, but give way to a rather dull ache and come and go. Then at once he became chilled and felt very sick. Our physician pronounced it malaria, contracted on his hunting grounds in the so-called bottoms of Illinois opposite St. Louis. He and his friends had been in the habit of drinking the water of the brooklets in the bottoms, though "disinfected" by whisky, as they thought. Soon he became delirious, diarrhea and hemorrhage from the bladder set in, and consultation was obtained. The second doctor, an old resident of this country, pronounced it bilious fever of the worst form. Indeed, excessive hemorrhage from the bowels, bilious vomiting and high fever took his strength rapidly away. However, he pulled through, and as soon as he was able we removed him to the so-called "bluffs," near St. Louis, in Illinois. The people there had no other water then a strong sulphuretted well, and in the second week of our stay he complained of trouble in urinating, and after several efforts, passed a worm about five to six inches in length; in the course of several days, five or six more of various length. I immediately recognized them as *strongylus gigas*, well described in Aken's "Natural History," as occurring in the kidney's of animals. I had found them in swine kidneys before.

Did this parasite cause the whole affair? Did he drink the eggs with brook water? Did the sulphur water drive them off? Very likely; we never observed any after that.

Respectfully, ROSA H. ENGERT, M.D.

Concerning the Norway Lepers.

PARIS, March 19, 1898.

To the Editor:—In reply to Dr. Hansen's letter in the JOURNAL of February 26, I would say that I got my information as to the number of lepers in Norway from a guide book (I believe Murray's), which I thought at the time was reliable, but which it seems was not.

Now the information as to the other points in my letter, including the number of lepers that Dr. Hansen saw in America, and our profound ignorance, as a profession, of the whole subject of leprosy, I got from an attending physician in the Bergen hospital.

Up to this time, I did not know that Dr. Hansen had ever been in the United States, or that he was the eminent authority on this subject that he is.

I had before seen considerable of leprosy in the East, in its worst form, but it was only after I visited this leper hospital at Bergen that I appreciated the many different phases in which the disease may manifest itself. I am quite willing to classify myself among those who know very little about this terrible disease. Yours truly, W. S. CALDWELL, M.D.

Anemias.

CINCINNATI, April 3, 1898.

To the Editor:—It was with pleasure that I read your editorial upon "The Differentiation of the Anemias," but as there was one statement that does not harmonize with my experience, I offer such in the form of a friendly scientific criticism.

You state that the megaloblast is diagnostic of pernicious anemia if it exceeds the normoblast in number. This statement is misleading, as is also your summary, for often we may have a pernicious anemia in which the differential count will not reveal a single megaloblast; when the *megaloblasts exceed the normoblasts* the *prognosis is fatal.*

Recently I made the examination of a case in which there were neither megaloblasts nor normoblasts found but the summary made the diagnosis. The examination revealed the following: Red, 1,200,000; white, 4,000; hemoglobin (Fleishl) 35 per cent.; color index 1.45.

Red cells: poikilocytosis, polychromatophilia.

WHITE CELLS.

Adult.—polymorph. neutrophiles, 33.8 (normal 60 to 70 per cent.)

Young.—(Large mononuclear 1.8, transitional 2.6, small mononuclear 59.4. Total, 63.8 (normal 20 to 30 per cent.)

Old.—(Eosinophiles) 1.8 (normal ½ to 4 per cent.)

Myelocytes.—.6 (normal only in bone marrow).

(The full report of this case appears in the transactions of the Academy of Medicine of Cincinnati published in the Cincinnati *Lancet-Clinic* of March 19, 1898.)

A proper summary for pernicious anemia should be as follows:

Red, 1,200,000 or less; white, less than 5,000; color index, high, above 1.00; poikilocytosis, polychromatophilia.

Increase of young white cells; decrease of adult white cells.

Prognostic: Proportion of megaloblasts to normoblasts.

Respectfully yours,

W. EDWARDS SCHENCK, M.D.

Aut Rush Aut Nullus.

PITTSBURG, PA., March 28, 1898.

To the Editor:—Is it not possible to broaden "The Rush Monument" project into "A Monument to American Medicine?" Rush would still be the central figure, to which could be added medallions, or panels, honoring McDowell, Wells and Sims. It has been repeatedly urged that we are not as loyal to our profession as the homeopaths, who have erected such a fine monument to Hahnemann. But scientific medicine is not founded on any one man, no matter how great he may have been. I feel sure contributions would flow in faster if such a memorial to American medicine was contemplated. The three I have named made discoveries and instituted operations that have revolutionized surgery, and so, surely deserve a place on such a monument. The profession here have recently subscribed $500 to the fund, but I have heard many doctors express a wish that the monument might be wider in its teachings. Respectfully,

THOS. D. DAVIS, M.D.

Esophagostomy vs. Esophagotomy.

PHILADELPHIA, March 29, 1898.

To the Editor:—I find the remarks made by me in the discussion of Dr. Roe's paper in the issue of the JOURNAL (March 26, page 716), as reported, are so at variance with the idea that I wished to convey, that I hope you can find it possible to correct them. I distinctly said that *esophagostomy* is more desirable than esophagotomy, because the dangers of entering the posterior mediastinum are thus removed and we are enabled to remove the foreign body, if there be such, or divide the stricture through the external opening, thereby inflicting the minimum amount of force in the ulcerated region.

Yours faithfully, L. J. HAMMOND, M.D.

Examining Committee Connecticut Medical Society.

NEW HAVEN, March 29, 1898.

To the Editor:—In your issue of the 26th inst., you give a list of the States that require an examination before a State board before admission to practice, but failed to mention Connecticut. You will see by a perusal of the enclosed copy of our State law that an amendment, approved by the Governor on May 25, 1897, provides that no one can now begin to practice medicine in this State without passing an examination before one of the examining committee, diploma or no diploma.

Very truly yours, MAX MAILHOUSE, M.D., Sec'y
Examining Committee of the Connecticut Medical Society.

PUBLIC HEALTH.

The Colored Race in Life Assurance.—The Atlanta University has examined into this subject and issued a pamphlet giving statistics of results. In general, the conclusions are as unfavorable as those that have formerly been made public. The prevailing causes are scrofulous, infantile and pulmonary diseases, the following comparison being from Richmond, Memphis and Charleston combined; by consumption and pneumonia the colored showed a rate of 75.5 as compared with white 32.8, being an excess of 130.5 nearly. In fevers, as typhoid, scarlet, malarial, etc., the excess was 30 per cent. on the same side; in cholera infantum, convulsions, etc., it was 165.1. Consumption and pneumonia thus appear the most deadly. As to the former alone, the percentage of excess of deaths per 10,000 in case of blacks over deaths of whites, covering periods of four years each, from 1881 to 1895, was from 143 to 172 in Atlanta, from 90 to 137 in Memphis, from 162 to 239 in Charleston, from 128 to 149 in Baltimore and from 87 to 114 in Richmond. This is an unhappy condition, but not necessarily a hopeless or even a discouraging one. The evolution of the long depressed race must be slow, but it is none the less sure under environments that are no more unfavorable than we know them to be in the area of this inquiry. The Prudential Company has had an experience in both equal and discriminated insurance for blacks and whites. For a term of years it has been in the habit of giving one-third less insurance, for the same money, to colored than to white "adults," or 12 to 70 years. During the period in question mortality was separated and tabulated by color and special search and study among health reports and census reports was made. From 1884 to 1893, inclusive, the company's experience showed an average loss per $1000 at risk of $16.96 among whites and $21.63 among blacks. The causes were found to be four: Comparatively higher actual mortality resulting from lack of physical vigor, inherited tendencies to disease, neglect in sickness, improper food, unwholesome habits of life, unhealthy localities; a heavy lapse rate, in which the "selection" was against the company as usual; a low moral sense; ignorance of its attendant evils, although this last-named cause might seem included in the others. Even among the small number of negroes who are thrifty, intelligent and on a high comparative level of moral and social living the Prudential is satisfied that mortality still exceeds that of whites, owing to low vitality and inherited weaknesses of constitution. The Sun Life of Louisville has reported a similar experience and belief, adding that Southern whites object to joining any company which accepts negro risks freely, not from race prejudice, but because they do not believe insurance of the two races on equal terms to be equitable. The lowest of Northern laborers may possibly have as high a mortality as among the negroes, but no proof can be had because the mortality of the low Northern whites is inextricably merged in the general mortality. The negro lapse rate alone would make him an undesirable risk. The reporter of the company believes that the negro generally insures out of vanity and the love of novelty; the notion of a showy funeral impresses him, but wears off in time, when he is ready to drop out; he is with difficulty persuaded to revive an insurance, but readily consents to "join over," often proudly exhibiting as trophies a collection of policies.

The Limitations of Formaldehyde as a Disinfectant.—Dr. Harrington of the Harvard Medical School, recently undertook a series of experiments to ascertain the efficiency of formaldehyde as a disinfectant, its penetrating power under varying conditions and its action on higher organisms. His experiments show that while formaldehyde has extraordinary power as a surface disinfectant, greater than that of any other known substance, it is not absolutely thorough in all cases even as a surface disinfectant in room treatment. The penetrating power of the gas depends largely upon the conditions as to moisture. Through dry pervious substances, as cotton cloth, absorbent cotton, hair, etc., it appears to penetrate more or less easily, but not always in sufficient amount to exert germicidal action, as is shown by the results with the tube cultures and flasks of decolorized fuchsin, which were stoppered in exactly the same manner. In the presence of moisture the penetrating power is practically *nil*. The experiments can lead to but one conclusion, therefore, that formaldehyde must be regarded and employed as a surface disinfectant and can never be anything else, in spite of its power of penetration under favorable conditions. This conclusion is in accord with that of Aronson, Pfuhl, Nieman, Bosc, Roux and Trillat, and Vaillard and Lemoine. It has been asserted by a number of authors, among them Aronson, Pfuhl and Posenberg, that formaldehyde exerts no deleterious action on higher organisms. The results produced by the gas on the two rabbits used in the first experiment were sufficiently certain to demonstrate the falsity of this theory. The experience of several others, who are daily engaged in the work of house disinfection, has shown that animals such as dogs and cats that have accidentally been confined in rooms undergoing formaldehyde disinfection, rarely survive the operation when the latter is properly carried out. On the other hand, the experience of these same persons is that insects such as roaches, flies and bedbugs, are not much affected. His observations in this direction have been limited to the cases of occasional flies, and one dish of cockroaches, all of which were killed.—*American Therapist*, February.

NECROLOGY.

OLIVER ALBERT JUDSON, M.D., Jefferson, 1851, of Philadelphia, who has just died, was a volunteer surgeon during the war. He was a member of the Military Order of the Loyal Legion, the Sons of the Revolution, a Fellow of the College of Physicians, a member of the Academy of Natural Sciences, vice-president of the Pennsylvania Institution for the Instruction of the Blind, a manager of the Children's Hospital, a consulting physician at Blockley Hospital and a physician of the Philadelphia Dispensary and of the Howard Hospital.—*New York Tribune.*

GEORGE STEBBINS LITTLE, M.D., of Brooklyn, died March 30, in his 73d year, of capillary bronchitis and valvular disease. He was born in Middletown, N. Y., in January, 1826. He was graduated at the New York University school in 1848. He was assistant surgeon in the Nineteenth and Ninety-seventh Regiments, New York Volunteers, for nearly two years, and full surgeon of the latter troops until the muster-out at the close of the war. In 1864, he returned to Brooklyn and resumed medical practice. He was a member of the Kings County Medical Society and prominent in Grand Army matters. Since 1894 he had been an assistant sanitary inspector of Department of Health. He leaves a widow and one daughter and a son. His final illness was of about two weeks' duration.

MORTIMER A. R. F. CARR, M.D., Cumberland, Md., March 24, aged 68 years.——F. P. Carter, M.D., Wauwatosa, Wis., aged 26 years.——A. F. Henry, M.D., Alamo, Ind., March 29. ——George T. Hough, M.D., New Bedford, Mass., March 24, ——E. D. Lipscomb, M.D., New Market, Ala., March 29, aged 34 years.——Carpenter Weidler, M.D., Mechanicsburg, Pa., March 25, aged 70 years.——Hugh Hagan, M.D., Atlanta, Ga., March 22, aged 35 years.

DEATHS ABROAD.—Staff-Surgeon Gottfried Lenhartz, Editor of the *Deutsche militär-ärztlichen Zeitung.*——Max Dahmen, well known by a series of publications on bacteriology, and for many years director of a bacteriologic laboratory at Krefeld. ——Franz Lörinczy, Editor of the *Közégeszegügyi Kalauz*,

ged 52 years.——Carlos de Silóniz y Ortiz, Professor of Anatmy in the Medical Faculty of Barcelona since 1847.——Gayaud, sometime Agrégé Professor of Surgery in the Medical 'aculty of Montpellier, a former President of the Montpellier cademy of Science and Letters, and author of several important articles in Dechambre's *Dictionnaire Encyclopédique es Sciences Médicales.*——Du Brueil, Physician to the hositals of Rouen.——A. D'Ambrosio, Extraordinary Professor f Orthopedic Surgery in the Medical Faculty of Naples.

BOOK NOTICES.

he Surgical Complications and Sequels of Typhoid Fever. By Wm. W. Keen, M.D., LL.D.; based upon tables of 1700 cases compiled by the author and by Thompson S. Westcott, M.D., with a chapter on the Ocular Complications of Typhoid Fever, by George E. de Schweinitz, A.M., M.D., and, as appendix, the Toner Lecture, No. 5. Philadelphia: W. B. Saunders, 1898. Pp. 386. Price $3 net.

"The province of the physician and that of the surgeon," ıy the authors, "are in general sufficiently sharply defined nd differentiated, yet they have many points of contact. While ɔme diseases belong exclusively to the province of the one nd some of them to the other, other diseases may fall with ıual propriety under the care of either practitioner. Still nother class of cases from the beginning, in the domain of ıedicine may terminate in that of surgery, and we may lack a ery complete history from the very fact of this division of ıeir care and interest. Among the diseases classed as rictly medical, none deserve the appellation more definitely ıan the continued fevers, especially typhoid fever; yet the resent work shows that these fevers are not infrequently the ıuse of the gravest and least expected surgical troubles, menon of which is generally omitted even in our best text-books ı medicine, still more rarely noticed in works on surgery, and here noticed, it is only with the greatest brevity."

The authors discuss the pathology of the disease, particurly the behavior of the typhoid bacilli outside and inside the uman body, and the wide diffusion of typhoid bacilli in varius organs and tissues of the body; the results of mixed infecon of typhoid bacilli, and pyogenic and other bacteria; the yogenic faculty of typhoid bacilli; typhoid infection of differıt organs without typical typhoid lesions in the intestine. hen follows a chapter on typhoid gangrene, giving its state ! onset and its pathology. Chapter 4 describes typhoid affecon of the joints, such as rheumatic typhoid arthritis, septic 'phoid arthritis, typhoid arthritis, polyarticular and monarcular; pathologic dislocation after typhoid fever. Chapter 5 escribes typhoid affections of bones. Chapter 6 speaks of 'phoid abscesses. Chapter 7 is devoted to typhoid hematoata, of which only a single case is given, but an analysis was ade of seventeen reported cases. Chapter 8 deals with the rebral complications of typhoid fever, and twenty-two cases e analyzed. "It is noteworthy," say the authors, "that a ıcteriologic examination was made in fifteen of the cases of eningitis, and without exception the bacillus of Eberth was und in pure culture in twelve." In 2.87 the bacillus of Eberth as found. Chapter 9 analyzes thirty-one cases of otitis media typhoid fever. Chapter 10 refers to fifty cases of typhoid ırotitis, tabulated by Dr. Westcott, and 375 cases in the ɔner Lecture of Keen. Chapter 11 refers to typhoid affecɔns of the thyroid gland. Chapter 12, of the larynx, and in the tter it may be stated that necrosis of the cartilages is a most mmon and most dangerous form of laryngeal infection from is cause. Chapter 13 speaks of typhoid affections of the eura, lungs and heart. Chapter 14, typhoid affections of the ophagus and stomach. Chapter 15 is devoted to intestinal rforation in typhoid fever. Chapter 16 takes up typhoid fections of the liver and gall bladder. Chapter 17, of the spleen. Chapter 18 of the male and female sexual organs. Chapter 19 is devoted to a discussion of specific mixed infections, such as tetanus, erysipelas, anthrax, malignant edema. Chapter 20, by George E. de Schweinitz, is on the ocular complications of typhoid fever. Chapter 21 gives the conclusions.

For the appendix to the work we are indebted to Dr. Keen and the Smithsonian Institute for the reprint of his Toner Lecture on "The Surgical Complications and Sequels of the Continued Fevers," delivered in 1876, which lecture had a more limited circulation than it is likely to attain as an appendix to this volume. We congratulate the authors on this valuable addition to American medical literature.

Diseases of Women. A Clinical Guide to their Diagnosis and Treatment. By George Ernest Herman, M.B., London, F.R.C.S. With 252 Illustrations. New York: Wm. Wood & Co. 1898. Pp. 886. Price, extra muslin, $5 net; leather, $5.75.

If every one who wrote a book were as careful that clinical experience should precede the writing of it as Dr. Herman has been, our medical literature would largely gain in usefulness and authority. This excellent work has seven introductory chapters on general topics, such as neurasthenia, hysteria, headaches, pain in the back, chronic abdominal pain and methods of investigation. Part II discusses chronic pelvic pain, such as chronic ovarian pain, chronic uterine pains, subinvolution and chronic metritis, uterine displacements, prolapse, retroflexion, etc. Part III discusses pelvic inflammations, namely, acute general peritonitis, perimetritis, serous perimetritis, perimetric abscess, salpingo-ovaritis and parametritis. Part IV is given to internal hemorrhage, as internal hemorrhages, pelvic hematocele; Part V, general considerations of uterine hemorrhage, hemorrhages without pregnancy or new growth, hemorrhages with round tumor in the vagina, hemorrhage connected with early pregnancy, adenoma of the uterine body, cancer of the cervix, malignant disease of the uterine body, bleeding fibroids; Part VI, general considerations as to leucorrhea, leucorrhea in children, in virgins, in married women, in old women; Part VII, disorders of the vulva, pruritus, inflammation and ulceration, swellings; Part VIII, disorders of menstruation, menstruation; dysmenorrhea, obstructive, membranous, spasmodic and congestive; amenorrhea, retained menses, menstruation absent; Part IX, disorders of the sexual functions, sexual troubles and sterility; Part X, disorders of parts adjacent to the sexual organs, too frequent micturition, painful micturition, retention of urine, incontinence of urine, painful defecation, and incontinence of feces; Part XI, abdominal tumors, ovarian tumors, clinical history of ovarian tumors, diagnosis of ovarian tumors, ovariotomy, after-risks of ovariotomy, solid abdominal tumors, treatment of subperitoneal fibroids, ectopic and complicated pregnancy, inguinal hernias.

It will be seen that the scope of the work is extensive, and that the subject-matter is fairly well covered. It is no disparagement to the many excellent works on the market, to say that this book of Dr. Herman will occupy front rank among them.

Mammalian Anatomy; A Preparation for Human and Comparative Anatomy. By Horace Jayne, M.D., Ph.D. Part I. The Skeleton of the Cat, its Muscular Attachments, Growth and Variations Compared with the Skeleton of Man; With Over Five Hundred Original Illustrations and Many Tables. Philadelphia: J. B. Lippincott Co. 1898. Pages 816.

This work belongs to a class of which we have had too few in America, and the manner in which the publishers have brought out this beautiful volume can not be too highly praised. The type is large and clear; the paper is of the best, and the illustrations are in the highest style of the art. This treatise, of which this is the first part, is a monograph on a typical mammal, and is employed as an introduction to general comparative anatomy. The cat has been selected as furnishing a structure of the inferior animals which in certain anatomic respects approaches more nearly to man than a dog, and

is not specialized for any one mode of life, is of convenient size and easily obtained.

The introductory chapter treats of the structure and classification of bones, features, practical methods of study, with an explanation of the general terms used in the description. This introduction is then followed by a systematic study of every bone and the regions which they form when articulated. The description of a bone includes an explanation of its name, the areas for muscular attachment, its articulations, rules for rapid identification, the centers of ossification from which it is developed, its growth and its variations. The corresponding bone in the human skeleton is then carefully compared with it.

Although this volume is complete in itself, yet we shall look with interest and some impatience for the second one.

Proceedings of the American Medico-Psychological Association. Paper. Illustrated. Pp. 380. Published by the Association, 1897.

This volume has to do with the fifty-third annual meeting held in Baltimore, May 11–14, 1897. The papers included are: "Improvements of the Medical Service of Prisons, Reformatories and Penitentiaries;" "A Sketch of Psychiatry in the Southern States;" "Advances in Neurology and their Relation to Psychiatry;" "General Questions of Auto infection;" "Clinical Aspects of Auto-intoxication;" "Demonstration of Various Types of Changes in the Giant Cells of the Paracentral Lobule;" "The Development of the Higher Brain Centers;" "The Genesis of a Delusion;" "The Psychology of Insane Delusions;" "Preliminary Report, Clinical and Pathologic, of a Case of Progressive Dementia;" "Some Observations on the Use of Hyoscin;" "Aphasia, with Report of a Case;" "Hospital Records;" "The Medical and Material Aspects of Industrial Employment for the Insane;" "Insanity Following Surgical Operations;" The Commitment and Detention of the Insane with Especial Reference to the Laws of Maryland;" "Katatonia;" "The After-care of the Insane;" "Training Schools for Nurses in Hospitals for the Insane;" "Myxedema-like Conditions in the Negro;" "The Constructive Forces;" "The Practical Lines of Work Needed for the Advance of Psychiatry." A number of full-page plates in colors add much to the perspicuity of the volume.

Studies From the Department of Pathology of the College of Physicians and Surgeons, Columbia University, New York. Vol. v, part 1. Paper. Illustrated.

This volume comprises reprints of studies made during the collegiate year 1896-97. The studies included are: "Milk as an Agency in the Conveyance of Disease; and Low Temperature Pasteurization of Milk at About 68 C.;" "A Machine for Tubing Bacterial Media;" "A Contribution to the Study of Acute Ascending (Landry's) Paralysis;" "A Further Study of the Biology of the Gonococcus (Neisser) with Contributions to the Technique;" "Bacterial and Allied Tests as Applied to the Clinical Diagnosis of Typhoid Fever;" "Dangers of the Domestic Uses, Other than Drinking, of Contaminated Water, with Special reference to Milk and Oysters as Carriers of Bacteria;" "Report on two Cases of Tumor of the Spinal Cord, Unaccompanied by Severe Pain;" "The Lymphatic Constitution, and its Relation to Some Forms of Sudden Death;" "Notes on Polychromatic Photomicrography, with Plate in Color."

Transactions of the Medical Society of the District of Columbia, Vol 1, 1897. Paper, pp. 243.

This volume covers the period from March, 1896, to January, 1897, and is edited by Drs. W. W. Johnston, G. M. Kober and J. D. Morgan. Sixty-eight papers, the most of them with discussions, and "Arguments Against Bill to Prevent Vivisection," the bill regulating testimony of physicians in courts of the District of Columbia, also the bill regulating expert evidence in courts of the District of Columbia, and the Medical Practice Act are included, with the minutes of the various sessions of the society during the period named.

MISCELLANY.

The Sins of the Pessary.—F. L. Neugebauer has collected 364 cases of injuries from pessaries, and states that in 112 there was perforation of a neighboring organ, the rest due to abuse, neglect, being forgotten, etc.—*Wien. klin. Woch.*, February 24.

Length of Time Carbon Dioxid Remains in the Blood After Intoxication.—Experimental research shows that forty-one minutes is the longest period, and sixteen the shortest, in which carbon dioxid can be detected in the blood of animals exposed to its toxic action.—*Deu. Med. Woch.*, February 24.

Infiltration of the Nerve Cells by Leucocytes.—In the investigation of the tissues of some old dogs it was found that the leucocytes had penetrated into the interior of the nerve cells, especially those of the ganglia of the posterior roots, producing peculiar alterations in the neuron as the leucocyte gradually invaded and destroyed the nerve cell.—*Presse Méd.*, March 2.

Effects of the X-rays on Osmosis.—In some recent experiments the ascent of the liquid was checked almost entirely by the action of the rays from the Crookes' tube. This effect on the osmosis may be the explanation of the alterations produced in the tissues by the X-ray.—*Presse Méd.*, March 2.

Study of Epilepsy.—The formation of a National association for the study of epilepsy and the care and treatment of epileptics is being advocated by William P. Spratling, superintendent of the Craig Colony, Sonyea, N. Y. The Doctor will be glad to hear from any who favor such a society or have any suggestions to offer.

New Publication.—*Medical Libraries*, Vol. 1, No. 1, February, 1898, has reached us. This publication will be issued monthly and is "devoted to the interests of medical libraries and bibliography." Dr. C. D. Spivak, Denver, is the editor, and the subscription price is 50 cents per annum.

Extra-uterine Pregnancy Lasting Twenty-three Months.—A fully developed fetus was exhibited at a recent meeting of the Brussels Anat. Path. Society, which had grown in the tube, in which also the placenta was inserted. After the rupture of the tube the fetus had passed into the abdomen where it had contracted adherences with the intestines and peritoneum.—*Presse Méd.*, February 26.

Mycosis of the Nerve Centers.—J. Roux and Paviot describes in the *Presse Méd.* of February 23, the observation of a case resembling Landry's disease with the exception of a few particulars, but at the necropsy a parasite was found in the nerve centers of the spinal cord and medulla, resembling a streptothrix, which seemed to have affected the nerve centers mechanically by its enormous growth.

Placental Infection of Anthrax.—Rostowzew had occasion to observe three cases of pustula maligna faciei in pregnant women, in the fourth, seventh and eighth month, all fatal. The anthrax bacilli were found in the fetus, showing that there must have been placental infection, although they were much less numerous and paler in color. Under the influence of the infection the epithelial coat of the chorion villi loses it impermeability, so that the bacilli can pass directly through it, as Rostowzew also confirmed experimentally. He notes that this affection seems more fatal to pregnant women, as three similar cases in non-pregnant women terminated in recovery.—*Ztschft. f. Grb. u. Gyn.*, Vol. 37, No. 3.

An Extensive Operation to Remove an Enormous Vesical Papilloma is described in the *Ann. de la Soc. Méd.-Chir. de Liège* of January. It included the total ablation of the genital organs, male, and the total resection of the bladder and urethra, requiring symphyseotomy and a wide opening between the pubes, besides an opening in the perineum. The ureters were implanted in the rectum, with sounds removed forty-eight

hours later, but one of the ureters became partially detached from the rectal wall, causing some of the urine to trickle through the perineal wound. Except for this the patient seems quite restored and has gained in weight during the six weeks since.

Section on Materia Medica, Pharmacy and Therapeutics.—Dr. C. C. Fite, late Secretary of the Section on Materia Medica, Pharmacy and Therapeutics, has resigned. Dr. Leon L. Solomon, 323 West Walnut Street, Louisville, Ky., has been appointed Secretary of the Section.

Papers at the Association Meeting.—Gentlemen intending to contribute papers to the various Section meetings are respectfully informed that by a rule passed by the ASSOCIATION many years ago, all papers read at the meetings are considered the property of the ASSOCIATION and are to be published only in its Transactions. This, however, does not preclude the right to publish short abstracts of the papers in other journals.

Pathologic Anatomy of Hemorrhoids.—Microscopic examination of fifteen cases of hemorrhoids operated on, confirms the assumption that hemorrhoids are not simple varices, but angiomas, complicated secondarily by the venous stasis. The starting point is undoubtedly a local infection produced by intestinal microbes.—*Beiträge z. Klin. Chir.*, xxi, 1.

A Remarkable Leucocytosis in Whooping-Cough is one of the first manifestations of the disease, preceding the coughing paroxysms. Meunier found, in 102 numerations, that the average was 27,800, with a maximum of 51,250; the usual proportions between the lymphocytes and the polynuclear leucocytes reversed. He suggests that this remarkable leucocytosis may be found valuable in differentiating the affection for the prophylaxis of whooping cough in schools, hospitals, etc.—*Presse Med.*, January 26.

Myelocytes in Pneumonia.—W. Türk has recently published the results of a systematic and comprehensive study of the blood in the course of various infective diseases, sixty cases. In regard to mononuclear neutrophile cells, myelocytes, he asserts, that they are especially typic in pneumonia. They are rare during the fever process, but increase always at the time of the crisis, frequently as much as 10 per cent. and over. He noted a new form of cell which he calls the "stimulation" form (Reizungsform), a mononuclear cell distinguished by the fact the protoplasm takes a peculiar brown color with the "triabid stain."—*Wien. klin. Woch.*, February 3.

Rigidity of Anchylosis of the Spine is an affection recently described by von Bechterew for the first time, his monograph being based on the observation of six cases; no necropsies. The anchylosing process affects the bones and later the meninges, causing compression of the roots of the spinal nerves and determining various sensory, motor and trophic disturbances. As the spine becomes rigid it assumes a posterior convex curvature, usually confined to the superior dorsal region. Three of his cases had nervous antecedents and the other three attributed the affection to traumatism. No infective disease nor intoxication could be discovered.—*Deut. Zetschft f. Nervheil.*, xi, 3, 4.

Effect of Extreme Heat on the Nerve Cells.—Experimentation with rabbits exposed to extreme heat showed that the motor cells in the spinal cord were altered, the protoplasmic prolongations tumefied, color changed, etc., and the necropsy of two patients succumbing to tetanus and scarlet fever, whose fever had risen to 102 and 106 degrees, disclosed similar alterations. When the animals survived the heat, the cells were restored to normal in three days.—*Klin. Therap. Woch.*, January 30.

Permeability of the Eschar Produced by the Cautery.—Experiments in this line are reported from both Holland and Germany, in which the ear or peritoneal cavity was cauterized and micro-organisms placed on the outside of the resulting scab. Ten Brink found that the staphylococcus easily penetrated the scab from the hot iron and was found in the subjacent tissues, but Cohn reports that the eschar from nitrate of silver protects the tissues beneath, and also that its bactericidal properties killed anthrax, diphtheria germs and streptococci in contact with it. The eschar resulting from the use of cuprum sulfuricum proved equally effective.—*Nederl. Tijd. v. Ges.*, January 29, and *Berl. klin. Woch.*, 1897, No. 52.

Removal of Large Exostosis During Pregnancy.—W. Kramer reports an unusual case in which a large exostosis had developed on the inside of the pubic bone, closing the canal and rendering a natural birth impossible, when the woman arrived at the hospital already in labor. Cæsarean section was successfully performed and the woman advised to return after a few weeks to have the bony growth removed. She did not appear again for a couple of years, when she was already in the sixth month of a second pregnancy. To avoid interference with the pregnancy, Kramer extirpated the tumor through the pelvic outlet, although this did not allow full inspection by the eye, and curetted the space left on the bone, 5 to 6 cm. in diameter. Dismissed perfectly recovered in a month; normal delivery in due time.—*Cbl. f. Chir.*, March 5.

Europeans not Immune Against the Plague.—The death of an English nurse, Miss Morgan, at the Poona Plague Hospital, from that disease, the death of a European nurse at the Parsee Plague Infirmary, and the severe attack sustained by Dr. H. W. Bruce of Malegaum, together with a number of similar events, have shown quite conclusively that the supposed immunity of whites againsts the plague is not proven. As a general rule, Europeans are so placed as to be under comparatively slight dangers of infection, as compared with the poorer classes of natives, and their habits of life safeguards them from contracting, or succumbing to, the disease. When Europeans are seriously and repeatedly exposed to infection, as is the case with hospital attendants, the frequent occurrence of cases contradicts the supposed invulnerability.

Pathology of Acromegalia.—Strümpell concludes from a case he has been observing for years and from the necropsy, that acromegalia is probably an endogenic affection due to the congenital malformation of certain organs with it remains to locate. The pituitary body has been incriminated by various authors and, in fact, there is scarcely a case on record with entire absence of all tumor of the pituitary body. In the present case nothing abnormal was found outside of the simple hypertrophy of the bones, subcutaneous cellular tissue and of the skin, but a soft tumor, sarcoma, in the pituitary region, which had invaded the nasal fossæ and right orbit after destroying the sphenoid bone. He adds in conclusion that acromegalia can be considered the exact opposite of sclerodermia; one, hypertrophy, the other, atrophy, resembling the antagonism noticed between Basedow's disease and myxedema.—*Deu. Zt. f. Nerv.* xi, 1, 2; *Sem. Méd.*, February 26.

Glycogenesis in Normal and Pathologic Tissues.—In a recent communication to the *Presse Méd.*, January 20, A. Brault proves that glycogenesis is a property inherent to all the cellular protoplasms at different periods of their existence, and although apparently they may have lost it, yet when incited to a more active nutrition they regain this property of elaborating and storing glycogen. The animal cell, he asserts, manufactures glycogen directly, as the vegetable cell manufactures starch, with the difference that it is not indiscriminately produced; it always corresponds to certain distinct nutritive processes. He shows that Claude Bernard was mistaken in assuming the liver to be the sole glycogenetic organ, as he has established that glycogen is found normally in the muscles and cartilages as well as in the liver; it is absent from almost all the other organs. It is, therefore, reasonable to

suppose that it is especially valuable to the liver and muscles, and he considers that the glycogen found stored in the cells is designed for an alimentary reserve, a local provision to be utilized on the spot. His important conclusions in regard to glycogenesis in neoplasms as an indication of their rate of development have already been noted in the JOURNAL (Vol. xxviii, page 1093).

Work of the Muscles in the Pneumatic Cabinet.—G. v. Liebig describes some tests on different persons in which the number of times a given weight could be lifted with the outstretched arm, in pneumatic cabinet (at a pressure of two atmospheres), and also outside, were compared. The tests showed that the muscles could accomplish nearly 50 per cent. more work with the double supply of oxygen, which confirms the experience that miners can do work in the compressed air of the iron mines much beyond their strength outside, and with less subsequent fatigue. A. Mosso believes that the extra supply of oxygen affects the brain also, rendering it less susceptible to the sensation of fatigue. In some lifting tests with the middle finger when the muscles refused to act, he continued the exercise by electric stimulation of the nerves involved, and in a few minutes found that he could continue the exercise without the electric stimulation, which he thinks indicates that it was the brain, the will, that became fatigued, rather than the muscles.—*Deu. Med. Woch.*, March 3.

Pathogenesis of Affections of the Articulations.—The synovial membrane not only differs from other serous membranes by the lack of endothelium, but by a peculiarly rich and elbow-shaped vascularization, according to a recent study by Hofbauer. The capillaries are extremely numerous and penetrate close to the surface, under which they bend and extend in a tortuous course parallel and very close to the outer surface. This arrangement of the capillaries explains the tendency of the articulations to be early involved in the course of any infection of the blood, owing to the great afflux of blood and of the contained irritant substances, leading to accumulations of the microbes or toxins in the synovia and joint. The extremely thin partition is soon traversed by chemicals or microbes, in the same way as they pass into the urine through the glomeruli, although less easily. The contaminated fluid has then no outlet and everything favors the development of the germs, as absorption from the articulations is extremely slow.—*Wien. klin. Woch.*, January 27.

Anytin, the new substance that renders insoluble substances soluble, is obtained from a hydrocarbon containing 10 per cent. sulphur treated with sulphuric acid, then neutralized with ammonia and precipitated with alcohol, which removes all the insoluble elements. The brown sulpho-ammoniacal salt thus obtained (with the addition of 33 per cent. water) has been named anytin by Helmers, its discoverer, and has the property of rendering otherwise insoluble substances in combination with it easily soluble in water. The anytols, as these combinations are called, have been studied by Loeffler during the past year, especially the aromatic group, phenols, cresols, ethereal oils, camphors and iodin, although his most comprehensive investigations were with m-cresol-anytol and iodin-anytol. In respect to diphtheria and anthrax bacilli and streptococci, anytin alone is as strongly bactericidal as ichthyol and in about the same degree, but does not affect other germs any more than ichthyol, but the meta-cresol-anytol (40 per cent. m-cresol to 60 per cent. anytin) destroys all pathogenic germs with equal effectiveness. It has also the peculiar property of preventing the coagulation of albumin at a boiling temperature by the addition of even 4 per cent. A 1 per cent. solution of m-cresol-anytol has the same bactericidal power as a 3 per cent. carbolic solution, while the 3 per cent. solution is much more powerful, killing all cultures almost totally in less than a minute. Virulent anthrax spores were killed in a 5 per cent. m-cresol-anytol solution in thirty-six hours, which suggests its application to the disinfection of catgut, as it does not injure the catgut to remain in it for forty-eight hours although eight days is destructive. A 1 per cent. solution does not affect the tissues (a 3 per cent. solution is slightly irritating) and is harmless and effective in disinfecting hands and wounds, and has been found more beneficial than any other substance in treating fifty cases of ozena with "most satisfactory results." A 3 per cent. solution was found extremely effective in arresting fresh experimental diphtheritic processes, neutralizing the toxins as well as killing the germs, which recommends it for local applications in diphtheria.—*Deu. Med. Woch.*, March 10.

Protest Against the Gallinger Bill.—To the Hon. Edward Murphy, Jr., United States Senator. *Dear Sir:*—The Academy of Medicine of Syracuse, N. Y., respectfully asks you to give serious attention to *Senate Bill 1063, Calendar No. 136*, a bill purporting to prevent further cruelty to animals in the District of Columbia. The bill is delusive. It is but an entering wedge, having as an ulterior object the prohibition, practically, of vivisection in the District of Columbia, and as an ultimate object the prohibition of vivisection throughout the United States. The passage of the bill is favored by many well meaning but misled people, who have been influenced by persistent misrepresentation and exaggeration on the part of certain persons whose fanaticism is aimed at the foundation of scientific progress in medicine. Only too few investigators are engaged in that practical study of physiology and pathology which demands for its profitable pursuit in interests of suffering humanity, perfect freedom in the matter of vivisection. We protest against the passage of a bill which is a part of a cunning scheme intended, first to hamper, and then to stop the most important investigation scientific medicine has ever attempted. We hold, rather, that the government should liberally encourage in every proper way the continuation of the work, impossible without vivisection, begun by such men as Pasteur in France, Lister in England, Koch in Germany, and Sternberg in the United States. (Signed by the officers and Fellows of the Academy.)

Closing Exercises of the Fourth Session United States Army Medical School.—The closing exercises of the session 1897-98 of the Army Medical School, Washington, D. C., took place in the hall of the library of the Surgeon-General's office at 3 P.M., Friday, April 1, 1898. The walls were handsomely draped with the national colors, which festooned the portraits of former Surgeons-General of the Army and other professional notabilities. Many ladies were present in the audience, which consisted mainly of medical men of the city and the national services. Fewer military men were present than on former occasions of the kind, probably on account of the intensity of the interest just then felt in the strain of our relations with Spain. Colonel Charles H. Alden, Assistant Surgeon-General, president of the faculty of the school, opened the proceedings. In the course of his remarks he said:

"It is hardly necessary for me to tell you anything of the organization and objects of the Army Medical School, as these subjects have been fully made known in the Annual Reports of the Surgeon-General for several years past, and in articles in the medical and general press.

"When the present class leaves the School there will be twenty-four medical officers who have taken the entire course of instruction immediately after their appointment and before going out to their future stations, and about an equal number of assistant surgeons of older date, either on leave or stationed in the vicinity of Washington, have taken partial courses of instruction, chiefly in the laboratories. It will be seen, therefore, that quite a considerable number of assistant surgeons of the Army have felt the influence of the School. The beneficial effects of the course of instruction here held in promoting the efficiency of the medical department and therefore benefiting the Army at large have been noted by many officers of the line, of other departments and by friends of the Army in civil

life; and their appreciation, I am sure, must be very gratifying to the founder of the School, as it is to the corps of instructors.

"The order of daily duties at the School during the present term has been substantially the same as that in former years. The morning hours from 9 A.M. to 12 M. have been passed by the class in the Microscopic Laboratory; the hours from 1 to 3 P.M. in the Laboratory of Sanitary Chemistry, and at 3 o'clock there has been, for five days in the week, a lecture on the 'Duties of Medical Officers,' 'Military Surgery,' 'Military Medicine,' or 'Military Hygiene.' Instruction in hospital corps drill and first aid has been given at Washington barracks at 9 o'clock on Saturday mornings, and later in the morning the Class has been instructed in riding at Fort Myer, Virginia, by Lieutenant Herbert White, 6th Cavalry, through the courtesy of Colonel Sumner the commanding officer. Weekly surgical clinics have been held at the Barnes' Hospital by the Professor of Military Surgery, and instruction in optometry has been given by Captain De Shon, one of the Staff of the School, aided by clinical instruction by Dr. W. N. Suter at the Episcopal Eye Hospital, and also by Dr. L. H. French. Several other auxiliary courses of lectures have been delivered as in former years; one on 'Military Law,' by Lieutenant Colonel Davis, of the Judge Advocate General's Department, Professor of Military Law at West Point, N. Y.; a clinical course on 'Mental Diseases' at the Government Hospital for the Insane, by Dr. George W. Foster through the courtesy of Dr. W. W. Godding, the Superintendent; on the 'Army Medical Library' by Dr. Robert Fletcher, F.R.C.S., and on 'Parasites in Man' by Prof. C. W. Stiles, Ph.D., Department of Agriculture. Two new features of the present course should be noted: one, that the session was extended from March 1 to April 1, to give more time for the completion of the course of instruction; the other, the foundation of the Hoff Memorial Prize Medal. This subject will be explained and the medal awarded by Surgeon-General Sternberg later in the exercises.

"Gentlemen of the Class of 1898: Upon the close of the present exercises you are relieved from further attendance upon the duties of the School, and become subject to the operation of the orders of the War Department assigning you to your future stations. In passing out from this institution you have the warmest wishes of your instructors for your future success and welfare. We feel confident that you will acquit yourselves as officers and gentlemen and efficient surgeons, and that you will do credit to the School, to your Corps, to the Profession and to the Army."

Colonel Alden then introduced Prof. P. S. Conner of Cincinnati, Ohio, who, as a member of the Army Medical Department, had rendered meritorious services during the war of the rebellion, and who has never ceased to maintain his interest in military surgery and in the Medical Department of the Army.

Professor Conner, in his address, reviewed the history of the Medical Corps of the Army from the early times when its members spent their lives on the advance line of our western civilization to the present, when the isolation of the Army surgeon has come to an end, along with the conditions that necessitated the establishment and maintenance of military posts in the wilderness. He reviewed the work of Allison, who as post surgeon of Fort Washington, Ohio, was Cincinnati's first physician. He spoke of the advances made by the early medical officers in our knowledge of the topography, climatology, ethnology, geology, zoology and botany of the country, and reviewed the contributions of the members of the Corps to the literatures of medicine and surgery, mentioning with eulogy many names that are familiar not only in the Army but to the profession at large; and he made honorable mention of many who, like himself, went out into civil life carrying with them those principles of honor and integrity and devotion to duty which are the very life and soul of an Army officer. He congratulated the class on the completion of its academic labors, and testified to his appreciation of the advantages provided for the younger members of the Corps by the establishment of the special courses of the School, which he regarded as one of the best works done by the Surgeon-General of the Army. In concluding he urged the graduates to keep in touch with the general and local profession, taking their places as members of the greater and higher medical Corps which embraces all the good men and true who are advancing medicine and benefiting mankind.

The certificates of attendance were then presented by Surgeon-General Sternberg to the members of the class in the order determined by the results of the examinations held at the close of the term, as follows: 1st, Lieut. Brainard S. Higley, Jr.; 2d, Lieut. Henry Page; 3d, Lieut. Jere B. Clayton; 4th, Lieut. Bailey K. Ashford; 5th, Lieut. Henry A. Webber; and 6th, Lieut. George Rauchfuss.

Dr. Higley is to be congratulated on his success. At the competitive examination held in October last for entrance into the service he was fifth on the list of six accepted candidates; but his earnest work during the session has made him the first recipient of the Hoff Memorial Medal founded recently by Major J. Van R. Hoff, Surgeon United States Army in memory of his father, a surgeon of United States Volunteers during the war, and afterward a member of the regular medical corps, to be awarded annually to the student officer who attains the highest general average at the School.

After some appropriate remarks by the Surgeon-General the members of the class were introduced to Professor Conner, and the exercises ended with an inspection of the museum, library and laboratories.

Louisville.

HEALTH.—The following ordinances, suggested by Health Officer Allen, have been adopted by the Common Council: An ordinance regulating sanitary affairs in manufacturing establishments, lodging houses, boarding houses, etc. The first paragraph of the ordinance is designed to prevent the crowding of persons into one or more rooms; the second paragraph provides that these buildings be adequately provided with ventilation and closets. An ordinance requiring birth certificates to be returned to the health office by accoucheurs, physicians and midwives, with a penalty of from $5 to $20. An ordinance requiring clergymen, magistrates and all having right to perform marriages to report all marriages to the health office. This includes a penalty as the previous one.

Philadelphia.

A PAY HOSPITAL for contagious diseases to be erected in Philadelphia. A company has been formed in the city of Philadelphia for the purpose of building a hospital for the treatment of contagious diseases. The company is now endeavoring to raise $100,000 to be expended for the grounds and building. One new feature of the proposed hospital is that all patients must pay according to their means, and may be attended by their own private physicians. Should success crown the efforts of the incorporators it will necessarily be a boon to those afflicted with any disease of a contagious nature, besides affording the greatest relief and, too often, inconveniences in treating these cases at their homes. The officers are: W. M. Ashman, president; Justus C. Strawbridge, secretary; Clara T. Dercum, treasurer. Among other directors may be mentioned Drs. George M. Gould, J. Madison Taylor, Frederick P. Henry, Edwin E. Graham and Edwin Rosenthal.

MEETING OF THE PENNSYLVANIA HEALTH AUTHORITIES AND THE STATE MEDICAL SOCIETY.—The fifth annual meeting of the Associated Health Authorities of Pennsylvania will be held at Lancaster, Pa., May 18 and 19. At this meeting "Educational Hygiene" will be the principal topic of discussion. By invitation of the State Board of Health, the Associated Health Authorities and the State Medical Society will, on May 20, pay a visit to the Marietta vaccine farms. It is expected that Governor Hastings will be present at the opening ceremonies.

SEPTICEMIA FOLLOWING A CHILD'S BITE.—While doing an intubation upon a child suffering from membranous croup, Dr. Dowling W. Benjamin of Camden, N. J., was unfortunate in having his finger caught by the child's teeth, causing a severe lacerated wound from which septicemia followed. An operation was very promptly done and the wound thoroughly cauterized. At last accounts the Doctor was resting easy.

Detroit.

Wayne County Medical Society—At the regular meeting of this society, held March 31, Dr. W. Warren read a paper entitled "Tracheitis and Chronic Bronchitis." The Doctor explained how a pharyngeal inflammation can pass downward into the trachea without affecting the vocal chords or the structures immediately adjacent. This, he said, is because of certain histological conditions present in the larynx, viz., that portion of the larynx near the true vocal bands is more dense in structure, the glands are diminutive in size and number, the blood vessels are smaller and less numerous and the mucous membrane is in close apposition with the perichondrial wall; it is for this reason less susceptible to attacks of inflammation than the loose mucous membrane that extends above and below it. The author gave as factors influencing the character and severity of bronchitis, age, city life and humid and severe climates. In discussing the diagnosis, he dwelt particularly on the difference between this disease and pulmonary tuberculosis, the chief points being the presence or absence of Koch's bacillus in the sputum, early or late emaciation the condition of the skin, and the age. The treatment he divided into climatic and medicinal; the latter into general and local. The climate best adapted to these patients is one characterized by mildness, equability and comparative dryness with moderate elevation above the sea level, such regions being found in the mountainous parts of Tennessee, the Carolinas, in the Gulf region and the table lands of the Southwest. In regard to the prophylaxis the Doctor said that persons with any tendency to the bronchial habit should be carefully instructed regarding the matter of clothing and bathing; that treacherous contrivance known as the "chest protector" ought to be discarded and patients should be taught that a well-groomed skin is of more value than any artificial contrivance. By cold sponging and friction of the neck, chest and back one can so temper the skin as to become more or less indifferent to the character of the wind. In the matter of internal medication we must seek to modify the bronchial mucous membrane so as to alter the secretion and combat the congestion; expectoration must be facilitated; the cough must be allayed, and the general health be improved. Among remedies mentioned were the balsamic preparations and liquid extract of hydrastis Canadensis, this last being found of much value given in doses of 20 to 30 drops four times daily. For local treatment the author recommended the intralaryngeal injections of a solution of alumnol and preparations of oleum petrolati with menthol, eucalyptol and essential oils. These are introduced by means of the laryngeal syringe, a sample of which he exhibited to the society. Dr. I. L. Polozker followed with a paper on "The Treatment of Vaginitis in Children." The author stated that in his experience 70 per cent. of the cases of vaginitis in young girls was due to the specific germ of gonorrhea. The essential features of the Doctor's paper were the poor results and disagreeable effects attending the use of such preparations as permanganate of potassium and silver nitrate, and the recommendation to the profession of the employment of a solution (1-500) of formaldehyde locally, containing glycerin to prevent irritation after its use.

Health Report for the week ending April 1 is as follows; Total number of cases of diphtheria remaining, 7, 1 death having resulted from the disease: scarlet fever, 15, no deaths; number of births, male, 40; female, 34; deaths, 85; under 5 years 32.

Hospitals.

The Framingham Hospital, by the will of the late Mrs. Caroline McKinstry, South Framingham, Mass., receives $5000. ——A recluse, William J. Headlam, who recently died in Philadelphia of nephritis, and who had lived in great simplicity at the foot of an alley, left his fortune of $50,000 to the Pennsylvania Hospital.——Charlotte Quincy of Beverly, N. J., recently bequeathed $500 to the children's ward of the Pennsylvania Hospital.—The will of the late Amos R. Eno, for many years the owner of the Fifth Avenue Hotel, provides that the Demilt Dispensary and the New York Cancer Hospital shall receive $5000 each. The Society for the Relief of the Ruptured and Crippled and five other charitable organizations receive a like amount.

Colleges.

The Graduating Class at the Michigan College of Medicine, Detroit, numbered eighteen.——The nineteenth annual commencement of Central College of Physicians and Surgeons, Indianapolis, was held March 23. There were thirty-five in the graduating class.——From the Medical Department of Iowa State University, March 30, were graduated fifty-four young doctors.——Beaumont Medical College, St. Louis, granted twenty-eight degrees at the annual commencement, March 25.——The graduating class of the Wisconsin College of Physicians and Surgeons, Milwaukee, numbered twenty-two at the annual commencement held March 29.——The fortieth annual commencement of Atlanta (Ga.) Medical College was held March 28, with a class of forty-six graduates.——The Southern Medical College, Atlanta, Ga., held its nineteenth annual commencement March 30, with twenty-eight graduates. ——There were seventy-three graduated from the Louisville Medical College, March 25.——The graduating class of the Medical College of Indiana, Indianapolis, numbered seventy-five.——Vanderbilt University, Nashville, Tenn., awarded the degree of M.D. to sixty-six on March 30.

Societies.

The following meetings are noted:

Illinois.—Chicago Medical Society, April 6; East St. Louis Medical Society, March 21.

Iowa.—Northwestern Iowa Medical Association, Ida Grove, March 22.

Michigan.—Saginaw County Medical Society, Saginaw, March 28.

Minnesota.—Ramsey County Medical Society, St. Paul, March 28.

Missouri.—St. Louis Medical Society of Missouri, April 2.

Ohio.—North Central Ohio Medical Society, Mansfield.

Wisconsin.—Central Wisconsin Medical Society, Madison, March 29.

CHANGE OF ADDRESS.

Arthur, H. M., from Indianapolis to Glen Dale, Ind.
Beaudoux, H. A., from Winona, Minn., to Fargo, N. D.
Campbell, C. E., from Columbus to Grafton, Ohio.
Clement, W. R., from Paducah to Princeton, Ky.
Cohee, W. H., from Indianapolis to Burnsville, Ind.
Engle, H. P., from Iowa City to Newton, Iowa.
Fleemer, O. F., from Indianapolis to Knightstown, Ind.
Hakanson, A., from 7746 Coles Ave. to 153 92d St., Chicago, Ill.
Harvey, D. M., from 911 Laguna St. to 419 3d St., San Francisco, Cal.
Kilgore, F., from Indianapolis to Yorktown, Ind.
Kercher, J., from 104 E. 18th St. to 117 Sedgwick St., Chicago, Ill.
Lawrence, F. F., from 103 N. Fourth St. to 328 E. State St., Columbus, Ohio.
Maxwell, C. L., from Hardy to Forestburg, Texas.
McCall, N. J., from Indianapolis, Ind., to Elkton, Mich.
Petzke, E. A., from Racine, Wis., to Evanston, Ill.
Runkel, A. E., from Milwaukee to Jefferson, Wis.
Roler, A. H., from 2843 to 2330 Indiana Ave., Chicago, Ill.
Thomason, H. D., from Albion, Mich., to Missoula, Mont.
Walker, F. E., from Iowa City to Ladora, Iowa.

LETTERS RECEIVED.

Ashmead, A. J., New York, N. Y.; Arnold, Philip, Elizabeth, Ill.
Bridges, J. R., Kahoka, Mo.; Brennecke, Herman A., Aurora, Ill.; Bowerman, W. G., Cohoctah, Mich.; Brown, Mark A., Cincinnati, Ohio.
Cokenower, J. W., Des Moines, Iowa.
Eldridge, E. F., Grand Junction, Colo.; Eby, H. W., Elida, Ohio; Egbert, Seneca, Philadelphia, Pa.
Furay, C. E., South Omaha, Neb.
Graham, J. W., Denver, Colo.
Hay, E. C., Hot Springs, Ark.; Haggard, W. D., Jr., Nashville, Tenn.
Kelso, J., Woodland, Pa.
Laplace, Ernest, Philadelphia, Pa.; Lyons, J. B., Charlestown, Mass.
McFarland, D. W., Stamford, Conn.
Presbyterian Hospital of the City of Chicago, Chicago, Ill.; Procter & Collier Co., The, Cincinnati, Ohio.
Root, E. H., Chicago, Ill.; Rixford, Emmett, San Francisco, Cal.; Rawlins, John A., Galena, Ill.; Reagin, C. G., Du Quoin, Ill.
Suiter, A. Walter, Herkimer, N. Y.; Saunders, W. B., Philadelphia, Pa.; Smart, Charles, Washington, D. C.
Welch, William H., Baltimore, Md.; Wingate, U. O. B., Milwaukee, Wis.; Waxham, F. E., Denver, Colo.; Weirick, C. A., Chicago, Ill.; Wellner, H., Concord, N. H.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from March 26 to April 1, 1898.

Major Charles K. Winne, Surgeon, leave of absence granted on surgeon's certificate of disability is further extended six months on surgeon's certificate of disability.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending March 26, 1898.

Surgeon L. G. Heneberger, detached from the "Maine" and ordered home to wait orders.

Surgeon S. H. Griffith, detached from the museum of hygiene, Washington, and ordered to the "Mayflower."

UNIVERSITY OF ILLINOIS

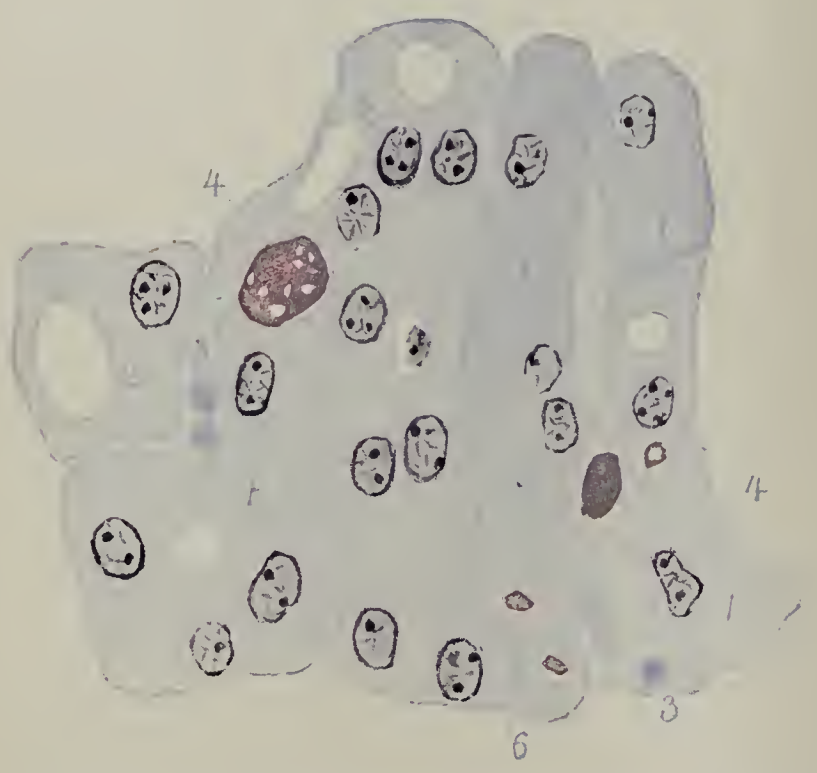


FIGURE 1.—Yellow fever liver amebæ, with commencing destruction of liver-cells, from part of liver with better preserved liver-cells; strong staining with para fuchsin seven parts, methylene blue and green each three parts, discoloration with xylol anilin oil mixtures; 1, liver-cells nearly normal, nuclei mostly divided; 2, liver-cells with vacuoles; 3, leucocytes; 4, amebæ, free and in liver-cells; 6, smallest amebæ, embedded in liver cells.



FIGURE 2.—Yellow fever liver amebæ, in progressed stage of destruction of liver cells; same coloration as in FIGURE 1; 1, liver-cells vacuolated; 2, leucocytes invaded by amebæ; 3, same, much enlarged, protoplasm stained red, nuclear preserved and stained blue; 4, same, with nucleus and vacuoles; 5, amebæ; 6, leucocytes.

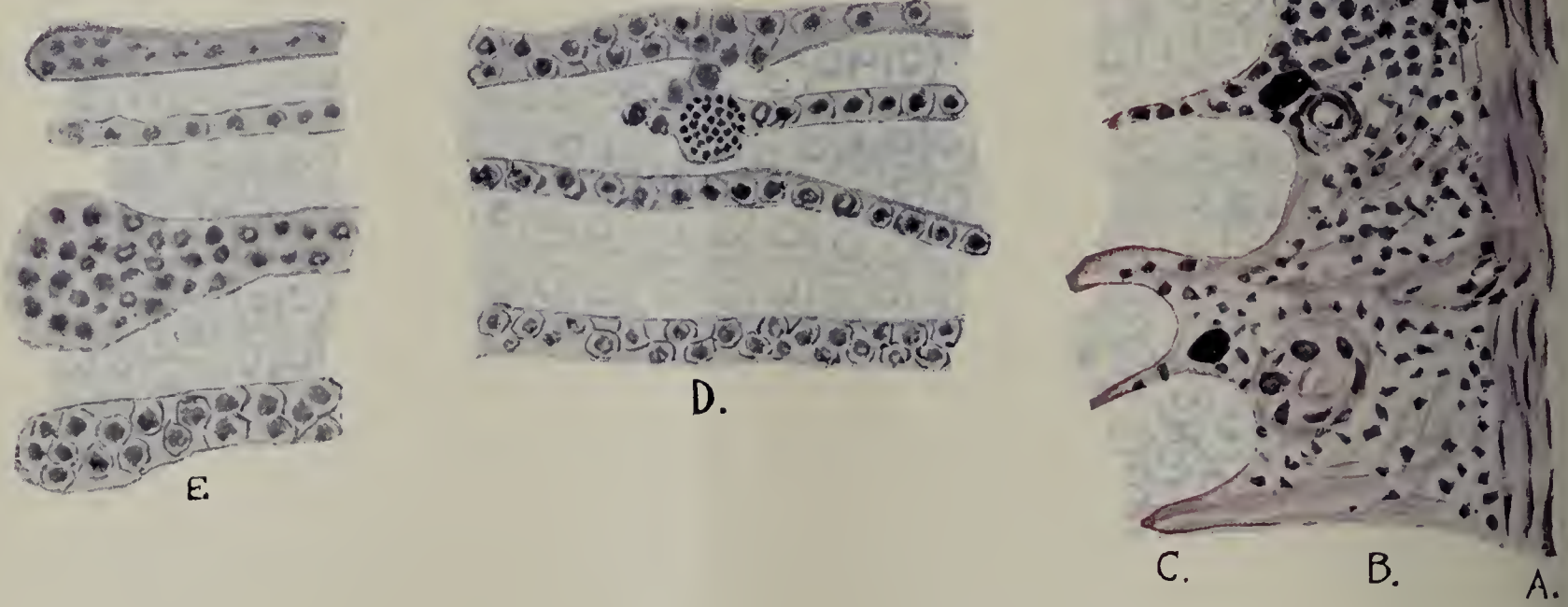


FIGURE 3.—Yellow fever duodenum, amebæ, blackberry body, cell infiltration. A, muscular layer of mucous membrane; B, connective tissue, with arterial vessels; C, deepest part of glands, two oval bodies deeply stained; D, medium part of mucous glands, one blackberry body, sporulating form; E, external part of the glands, fibroblasts in the whole interstitial tissue.

FIGURES 1 and 2, Zeiss ap. 1½, comp. oc. 4; FIGURE 3, Zeiss ap. 4, comp. oc. 6.

ANATOMIC RESEARCHES ON YELLOW FEVER.—EDWIN KLEBS, M.D.

The Journal of the
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ORIGINAL ARTICLES.

ANATOMIC RESEARCHES ON YELLOW FEVER.

BY EDWIN KLEBS, M.D.

PROFESSOR OF PATHOLOGY RUSH MEDICAL COLLEGE AND POST-GRADUATE MEDICAL SCHOOL.

CHICAGO, ILL.

Yellow fever, a true American disease, originating in the West Indies, is a permanent menace to the United States. So long as unhygienic conditions persist in Cuba, supported by a state of, it seems, permanent revolution and destruction, the southern parts of this land will never enjoy the security so necessary for the development of a general happy state of the population. But it may be asked, Is the terror excited by such invasions and the rigorous quarantine executed in consequence of this feeling of the population really necessary? We have learned in the last years by a more intimate knowledge of the causes and the manner of infection, that the severest diseases lose most of their danger and cease to excite the population. Relying on the possibility of securing himself against the infection, man will no more relinquish his home in blind terror. I might refer to the "Go-not-away-Club" of Mobile and possibly other localities in the infected parts of the South as a commencement of a deeper and more sure insight into the nature of this disease and infectious diseases in general.

Indeed modern bacteriologic science has shown us that very few infectious diseases are disseminated through the air. The big fires burning in the streets for the purpose of cleaning the air in times of bubonic pest, are seen no more. Only the quarantines remember this old idea that the person of man is the conveyor of the disease and must, as such, be retained under observation as long as the disease is not broken out.

The more cruel house quarantine, surrounding an infected inhabitant, which prohibits every movement of the persons included, together with the general quarantine, the so-called shot-gun quarantine, has been in general use, in the broadest way, in the last epidemic of yellow fever in the Southern States of the Union; the first exposing the sound members of a household to the infection; the second compelling the well-to-do people to leave the country before they should become prisoners in their own homes.

Science has corroborated the old, popular conviction that the body of the sick contains the germs of the disease and can spread them in different manners, depending upon the parts in which the germs are developing and from the biologic conditions of these germs. No better opportunity for dispersion of germs can be found than in diphtheria, where the bacilli are developing on the surface of the mucous membranes of the mouth, the pharynx or the nose and throat. Doubtless these germs will be spread around the diseased person by cough and expectoration, but we do not on this account confine the whole family. We have done enough if we seclude the patient in a well aired room and with disinfectants destroy the germs in the immediate surroundings, and prohibit contact with him by other persons except well trained nurses. No other means are needed in typhoid fever and Asiatic cholera.

As to the general quarantine, used for the seclusion of towns and lands, its insufficient character is shown by so many experiences, that no modern hygienist will now advise it. That this measure is only efficient in a few instances in which a despotic ruler secludes himself and his court by closely posted soldiers, is shown by the experience of Zarskoje-Selo at the time cholera spread over the world in spite of all quarantines on the frontiers of the different states. Instead of this insufficient quarantine, in the last epidemic of cholera in this decade, the European governments, Germany first, organized a system of medical observation in all directions in which the floating population moved, in the streets, the railroads and the rivers, one observation line following the other at due distance. The infected persons could be detected and retained in a much surer way than by the old fixed quarantine. This same system was executed with full effect in our land when smallpox invaded the South. Why should it not be in a yellow fever epidemic? The answer lies in the blind terror, provoked by this disease, only sustained by our ignorance of the natural manner of the dissemination of this disease. So every addition to our knowledge on the nature of the disease must help to abolish a very natural, but also very dangerous feeling.

To understand the manner of dissemination of yellow fever we must bear in mind the following facts:

1. The disease is transported by sick people, not by goods and not by water. The two latter are absolutely excluded, as no case is known in which it was imported by the products of West India, Central or South America. It is introduced largely in the warmer regions of North America, Africa and Europe. The epidemics in 1817 (Spain, Livourne), must have originated by lingering diseases on board the ships. Without this suggestion it can not be understood why the same accident did not occur in our times with a much greater commerce. The few cases that arrive in Europe are promptly caught in the landing harbor; the goods are not infectious.

That water does not act as a propagator of the disease is shown by the fact that an epidemic never follows a river downward, but spreads upward, as in the Mississippi Valley. In smaller towns, as in Mobile, Ala., different centers of infection are formed, in which are found the first cases imported. That was demonstrated to me by Dr. Hermann Mohr, who visited with

me all parts of Mobile in which cases of yellow fever had occurred.

2. The personal contagion is not direct or confined only to a very near contact. In many cases of supposed direct contagion the infection was taken up before and in another manner. The best proof for this opinion is given in the recent publication of Dr. Hamilton R. Jones of the Isolation Hospital in New Orleans (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1898, No. 9). He writes: "No case of yellow fever was traced to the Hospital in spite of the fact that three of the Sisters had not had it. The ambulance superintendent had never had it, and was frequently covered with black vomit. Fourteen cases passed through the wards, who did not have the disease, none of whom contracted it, and of the army of pioneers engaged in destroying the infected buildings and in general cleaning up, numbering in all considerably over a hundred persons, not one contracted the disease."

Certainly, the greatest antiseptic precautions were taken in the Hospital, but the contagion by the air, this bugbear of yellow fever, favored also by physicians, would not have been excluded by such means.

3. The contagion, emanating from an individual, must be deposited in his surroundings before it can infect other individuals. That this is so is shown by a yellow fever case originating in Whistler (near Mobile), in December, 1897, long after the epidemic in Mobile was extinguished. A workman of the railroad moved to a house in which there had been cases months before, and which had been cleaned and disinfected; there he was infected and died suddenly.

4. The yellow fever often develops very slowly in certain places; the nature of the disease is only detected later, when graver cases follow the lighter ones. So in Ocean Springs, where the first cases were considered as dengue.

The State Board of Health of Mississippi declared that the first case was yellow fever imported from Guatemala in March. The same statement was made in Mobile.

The older observers, as Gérardin of New Orleans (1817), speak of endemic and epidemic forms of yellow fever. The first form was at this time present in New Orleans, as it is now present in Havana, and many places in Central America and Brazil. Near Bahia, therefore, the German-Lloyd steamship line has a station for its sailors, to which they are removed immediately after arrival.

We must conclude from all this, that the desinfection of the sick and their surroundings is fully sufficient to destroy the germs and check the disease.

We come now to the second part of our subject; the germs of yellow fever.

G. M. Sternberg has made a very careful examination of the question and has shown that all the bacteria which he and others before him had found, seemed not to be the true causes of the disease. Only when Sanarelli published his researches did he doubt, and think that his X-bacillus was probably identical with the bacterium discovered by Sanarelli, inclined to this opinion, it seems, by the apparent results of inoculations made by the Italian author. But in carefully studying the various publications of Sanarelli, I could not suppress some doubts. If the relatively large and slightly stainable bacillus, known as Sanarelli's bacillus icteroides, was the true cause of yellow fever it would be curious if it had not been detected before. Years ago I had examined preparations received from Rio de Janeiro and could not detect any bacillus in the fatty degenerated liver. Sanarelli could not find his bacillus in every case, which seems strange, if the bacillus is so easily stained and cultivated. Further, Sanarelli's is a pronounced water bacillus, and I must accentuate that yellow fever is not conveyed by drinking water. If I had not in younger years fallen into possibly the same error, I would not venture an opposition, the more as I am not quite sure whether Sanarelli has infected men with his bacillus or only with the toxins prepared from his cultures. I hope the last, for the first experiment would seem to be unjustifiable, the more as it would be futile, if executed in a place in which yellow fever was present. As this may be, I will tell my own error. As I worked, more than twenty years ago in Italy, with Tommasi-Crudeli on the causes of malaria, we found a bacillus in the malarial earth which cultivated and injected into rabbits, gave intermittent fever with enormous swelling of the spleen. We were very sure that we had found the true cause of this disease, for, what better proof could be thought of than the reproduction or synthesis of such a characteristic disease as malaria? But we were very soon undeceived by Marchiafava, who as assistant of my friend, had followed our researches. He found the plasmodium in the blood, and it was sustained by that glorious anatomic discovery the older, but at this time slighted observation of Laveran.

Naturally, in our cultures we had, besides our bacillus, the malaria protozoa, that is as yet not known or ever detected outside of the body. Could not the same error occur in the experiments of Sanarelli, as yellow fever is by no means as typic an affection as malaria?

How can we go out of this trap that nature has placed in the way of truth-searching pathologists? Only by anatomic research, which has built up our science, and will accomplish it if perfection is at all attainable; what we can observe with our eyes can not be delusion.

Among the organisms vegetating in higher animals the protozoa or protists seem to play a foremost rôle. They have the property to act as cell parasites. I have shown, as the young assistant of Virchow, that the psorospermia, developing in the epithelial cells of the intestines and the gall ducts of rabbits (seen first by Remak), were living bodies, not eggs of worms, and that they promote, after having penetrated into the epithelial cell, a progressive hypertrophy of these elements. The two constitute a sort of partnership. Much later the plasmodium malariæ, living in the interior of red blood corpuscles, was detected. A third form are the amebæ in dysentery and tropic liver-abscess, on which Kartulis in Cairo (Egypt), and Councilman in Boston, Mass., have done excellent work. These are not intracellular, but appear as the psorospermia (or coccidia) in the passage from the intestine to the liver, a fact that will also be of high value in the study of yellow fever.

As I commenced to study yellow fever preparations, received from Dr. Hermann Mohr in Mobile, Ala. (from two cases, preserved in alcohol; stomach, duodenum, pancreas, spleen, liver, kidney and heart), I thought to try the different anilin dyes in combinations, hoping that if the organs contained foreign organisms these, like the body cells, would have a different power of election for one of these stains.

I was not deceived. First, using mixtures of methylen blue and saffranin, I found a very surprising pic-

ure in the liver of yellow fever. But the best results were given by a mixture of seven parts of my para-uchsin kresol solution for tubercle bacilli, mixed with hree parts of methylen blue (concentrated solution n borax 5 per cent.), and three parts methylen green, l per cent. This mixture, which is somewhat thick, an be used full strength or diluted with equal parts f distilled water. If diluted, the staining must be prolonged. The decoloration and differentiation must e made very carefully, if alcohol is used; the blue olor of the slice, which should not be thicker than /100 millimeter, must never be eliminated. The use f anilin oil and xylol (Weigert) is far better for the ecoloration.

If this method is applied correctly, the preparations f the liver give a very surprising picture. Between he lines of the bluish tinged liver cells one remarks ntensely stained red masses, oftentimes forming stripes nd masses larger than the liver cells. The last are ansformed and nearly destroyed by fatty degenera-on in the median parts of the acini, and compressed y the red masses, whereas in the center and peripheral arts only isolated red spots are disposed between the ver cells. The red masses consist of round or oval-aped, or irregular balls which will not conglutinate.

With higher powers, one remarks two constituents these red masses, very deep stained round, oval or gg-shaped bodies, and slightly stained masses, sur-unding the first. Oftentimes in one red mass are cluded two or more of these bodies, somewhat larger an a human red blood corpuscle, but oval-shaped id of quite homogeneous structure. It is not diffi-lt to demonstrate that the greater, slightly reddened asses are no other than very enlarged and, in their loring qualities, deeply changed leucocytes. Often-nes they contain the blue stained nucleus, some-hat altered, elongated or otherwise deformed. We n seldom detect well conserved leucocytes, which ntain the red body included in the blue stained pro-plasm. But not all of these red bodies are included cells. We also find them free between the liver lls, and observe here the largest forms, which meas-e more than thirteen mikres in length and twelve in eadth, mostly egg-shaped, with one broader and one aller pole. These contain, mostly, a greater or aller number of vacuoles and brownish pigment. ese larger bodies are not alone situated between, t also in the interior of the liver cells.

When this dislocation takes place, the liver cells ow degeneration in the form of clear round spaces, entimes melting together, as is seen in Figure 1, on left side. If these spaces are all filled up with fat ps it can not be decided, the preparation having been ated with alcohol, but is not very probable, as the ges of these spaces are not infrequently ragged and gular. Later only it seems to follow the deposit fat, converting the whole protoplasm to a network h round meshes, as seen in Figure 2.

The question now arises, in what manner do the red lies penetrate into the interior of the liver cells? ure 1 gives the answer. In the second cell row n the right side we remark two small, red, oval-ped bodies, measuring only two or three mikres in neter, which lie imbedded in the bluish protoplasm he hepatic cell, surrounded by a small clear space. hese foreign bodies, as may be suggested, are living nisms, one must suppose that the oval-shaped ies, first developed in the leucocytes, lying in the rstitial tissue, may divide and penetrate, in their earliest forms, into the interior of the liver cells, there growing more and more; they eat up and destroy the protoplasm of the liver cell. This destructive process results only in the demolition of the cell substance, which seems, in the commencement of the process, to be somewhat swollen, so that the lines of demarcation, principally in the radial direction, are effaced. The nuclei only show a slight proliferation and usually contain two or more nucleoli, often of excessive dimension.

It is very difficult to decide in which part of the interstitial tissue the oval bodies are primarily deposited. As the gall ducts and vessels seem to be free from them (I found such a body in a thrombosed central vein only once), it must be supposed that they are lying in the lymphatic spaces, which suggestion is supported by the fact that usually where the oval bodies are lying thronged in rows, leucocytes are present in the same spaces (Fig. 2), which show the usual form of lymphocytes, with great round, dark stained nucleus and small protoplasm.

Inflammatory processes are observed only in a small extension around the portal veins.

I am not informed as to the general conformation and aspect of the two livers examined, which gave me identical results, but I think that they were of the same aspect as described by Hamilton P. Jones as yellow, dead-leaf or boxwood in color, and bloodless (l. c., p. 460). Possibly they may have been flabby in this stage, with somewhat wrinkled surface; should this be so, the resemblance to some forms of acute yellow atrophy of the liver would be complete. But I will refer the question to the pathologic anatomists who have made postmortems in yellow fever cases. Possibly this affection will show the way to the detection of the true cause of these obscure diseases, so often originating from a seemingly simple catarrhal icterus.

The sharply defined form of these bodies, their different staining, their disposition in the interstitial tissue and in the liver cells, their forming of vacuoles and pigment in the more advanced stages, certainly indicate them to be parasites of the class of protozoa; but, having only dead material before me, I will not decide the question, unless they could be found in other organs in physiologic connection with the liver.

The spleen, pancreas and heart and the blood contained in these organs gave negative results. The stomach and duodenum always show deep alterations in yellow fever. "The mucous membrane of the stomach," says Jones, "was intensely congested, softened and eroded—the duodenum, as a general rule, presented the above conditions, intensified. This condition, however, in the majority of cases extended only down to the opening of the common bile duct" (l. c., pp. 459 and 460). What do our preparations show? We can only say, an intense gastritis and duodenitis, the latter more developed than the former, but the distribution of the emigration foci is of the same character in each. The infiltration of leucocytes always commences around the vessels, penetrating the superficial layer of muscle fibers. In the duodenum these infiltrations are larger and extend oftentimes to the surface of the mucous membrane. But in the two organs the higher parts of the interglandular tissue are filled up with small-edged cells, the nucleus not so deep stained as in the emigrated cells, fibroblasts (Ziegler) or hyperplastic connective tissue cells. The same oval-shaped and red staining bodies were always

present in the emigration centers of these organs, not in very great numbers, but never absent. The same were also found nearer the surface, in the hyperplastic part of the interstitial tissue, but seldom in a gland, and if present, were external to the epithelial cells (Fig. 3). But here another highly interesting form not present in the liver was also found, namely, nearly circular groups of small round bodies, stained in the same manner as the oval bodies. It may be remarked here, that all these bodies in the duodenum and stomach stain a deeper blue than in the liver. The red color is perceptible only after protracted decoloration.

I might suggest that these blackberry forms represent sporulation. If these spores, developed in the higher layers of the mucous membrane, are set free, they may penetrate into the mucous glands or lymphatic vessels and be transported by the way of the bile ducts or lymphatics to the liver, but this can only be ascertained in a postmortem examination. It seems very probable that the infection is transferred to the liver in one of these ways.

By these observations, to be completed by observation on the living and dead, we can very well understand the source of the disease, which is first a true gastro-duodenitis, remaining such in the milder, lingering or endemic cases of some countries, but the danger of the epidemic form commences with the immigration of the protozoa into the liver.

That the infection with these organisms, showing the nearest relation to coccidia and amebæ, which immigrate into the liver from the duodenum, deprives yellow fever of its terror, is natural, as watery fluids, fruits, vegetables and greens only can be considered as carriers of the infection.

The kidneys are always altered in the graver cases of yellow fever. In 202 cases of yellow fever observed by Jones, albuminuria was found in 125 of the non-fatal, and in all the fatal cases (45), in all 170, or 84 per cent. The amount of albumin varied from a trace to 80 per cent. Yellow stained casts and scanty urine were considered unfavorable symptoms, according to the same observer. The kidneys were generally a "brownish-yellow, larger and softer than normal, loaded with fat, and were generally intensely congested" (in the medullary substance probably). This is the general aspect in every septic kidney, very similar to the kidney in acute atrophy of the liver.

The microscopic examination shows no inflammation of the kidneys (it is wrong to speak of parenchymatous nephritis in these cases, as there is no proliferation of epithelial cells, nor any migrative process in the interstitial tissue). The convoluted tubules of the cortex alone show alterations, being filled up and vastly distended by a granular exudation; the epithelial cells here are ragged, and often compressed by the exudation. The glomeruli are free, and are also sometimes compressed by the same exudation. In my cases, casts were not formed in so great a quantity as is found in true nephritis.

This affection could be considered as a toxic one, but the differences in the effects on kidneys by true bacteria toxins is very remarkable, affecting the glomeruli in scarlatina (glomerulo-nephritis), and in Asiatic cholera promoting the destruction of the nuclei of the secreting epithelial cells (karyolysis). With exception of the exudation into the glomeruli and tubules, only the fatty degeneration of the cortex in phosphorus and other intoxications resembles this affection in yellow fever.

This condition indicates a true dissolution and hindered oxygenation of the blood, beginning in life; but we should expect then to detect free hemoglobin in the urine.

I will repeat, that this new theory of yellow fever, announcing the affection as a gastro-duodenitis, with consequent atrophy of the liver, originated by certain protozoa, must be supported by the examination of yellow fever patients. I hope to fulfil this task, but I think that we will now be better prepared to meet this work of high pathologic and hygienic importance to the United States.

SUMMARY OF PATHOLOGIC AND BACTERIOLOGIC WORK DONE AT ISOLATION HOSPITAL, NEW ORLEANS, LOUISIANA.

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In presenting this paper I will limit its scope to the pathologic conditions found, and to the bacteriologic work done with the cultures obtained from the cases of yellow fever at the Isolation Hospital, principally to corroborate the claims of Sanarelli.

The pathology comprises the examination of urine and the blood, the autopsies and the bacteriologic research of Sanarelli's bacillus icteroides.

There were 348 specimens of urine and 154 of blood examined, and 51 autopsies were held. The 154 specimens of blood represent as many patients from whom blood was taken and examined. The examinations of urine were made as they generally are in the pathologic department of the Charity Hospital, only they were made oftener as a guide in the treatment of the cases. Albumin was found in all the cases of yellow fever during the course of the disease. It usually appeared before the fifth day, seldom after. Bile was also present in all the cases, usually appearing before the albumin or concomitantly. Except in mild cases renal casts were found and include the different varieties.

Blood examinations were made in every case when possible. These were made: 1, to determine the presence or absence of the malarial hematozoon; 2, to determine the influence of yellow fever on the bacillus of typhoid, Widal's reaction; 3, to determine the proportion of red and white blood corpuscles; 4, to determine the changes taking place in the blood; 5, to determine special reaction of yellow fever blood with the bacillus icteroides of Sanarelli; 6, to determine the percentage of hemoglobin; 7, to make cultures from the living blood.

The malarial hematozoon was frequently found, especially during the period of convalescence. The variety most frequently seen was the crescentic form, which belongs more especially to the estivo-autumnal type of malaria.

Though Widal's reaction was tested in all cases when practicable it invariably gave negative results. The method employed was Johnson's modification of that of Widal, *e.g.* one part of dissolved dried blood to ten parts of an attenuated pure culture of bacillus of typhoid, and the time limit was fifteen minutes. The solvent for the dried blood was either sterile bouillon or filtered sterilized rain water. In all cases

of yellow fever examined the test was invariably negative, and the few cases in which a positive reaction took place was found to be typical cases of typhoid fever.

The blood count made in yellow fever cases never gave below 4,280,000 red blood corpuscles, and in one case that proved fatal gave 5,000,000 to 1 cubic millimeter of blood. The white cells varied from 20,000 to 4.660.

The changes in the yellow fever blood were studied in fresh preparations and in colored specimens, these last being colored with the Ehrlich's Biondi's stain, and others with an aqueous solution of methyl violet beta; for these stained preparations four cover-glass smears were taken from each patient. In the fresh preparations, as a rule, no alterations could be detected in the corpuscles. Occasionally the corpuscles appeared vacuolated and crenated, but as these changes were more marked at the edges of the preparations and took place twenty to twenty-five minutes after they were made, these appearances were considered artificial and due most probably to evaporation and changes of temperature.

In the stained preparations the red corpuscles retained their normal aspect generally; occasionally a few vacuoles were found. The red corpuscles stained normally and the usual white corpuscles, lymphocytes, large and small, polymorphonuclear neutrophiles, and eosinophiles are found. In a few specimens a few myelocytes were found, also normoblasts and extruded nuclei. I could not detect any increase in eosinophiles. In many of the preparations stained with methyl violet beta, these being made especially for the detection of bacteria, short rounded-end bacilli were found. Besides these, in a few preparations, long chains of slender bacilli were found associated with micrococci, usually in groups of two, and short rounded-end bacilli.

The agglutination reaction was applied to the following specimens of blood with the bacillus icteroides. The method employed was that of Wyatt Johnson, and the solution of dried blood was made in one series with sterile bouillon, and in the others with sterilized distilled water. In some, ordinary slides were used and in others hanging drops. The solution being one to ten the result was as follows:

Specimens examined on ordinary slides with sterile bouillon as solvent.

1. Ward No. 1, bed No. 2; preparation made at 4:08 P.M.; bacilli are less active at 4:55; no clumping at 5:00; a few clumps at 5:25 P.M.

2. F. Stellano; preparation made at 4:25 P.M.; bacilli are still active at 5:00; at 5:10 less active; at 5:18 P.M., clumping.

3. Chisolm; preparation made at 10:50 P.M.; examined until 12:10 P.M. without clumping or immotility.

4. Bed No. 9; preparation observed for thirty-two minutes; bacilli still active; slight clumping.

Second preparation from Chisolm prepared at 11:25 A.M.; observed until 12 M.; ringed with vaselin and then put into incubator until 3:40 P.M.; bacilli were still active; no clumps.

Third preparation from Chisolm at the same time, and solvent used being sterilized filtered water, and tested as above, the bacilli were found less active; no clumps.

5. My own blood, first preparation, solution one to ten made at 4:10 P.M.; observed twenty minutes ringed with vaselin; no clumping; bacilli active; put in incubator at 4:40 P.M.; next morning at 11:30 found majority of bacilli immotile.

Second preparation, one to five, made at 4:24 P.M.; observed fifteen minutes, ringed with vaselin; no clumping; bacilli active; put in incubator at 4:40; at 11:30 next morning majority of bacilli immotile.

6. Blood of Locassio, prepared at 11:15 A.M.; at 11:22 a few bacilli clumped; majority motile; at 1 P.M. put in incubator and examined at 4:45 P.M.; clumping still persisting; bacilli less active.

Ward No. 1, bed No. 9, made at 11:20 A. M.; at 11:27 some clumping; majority of bacilli motile; 12:02 P.M. bacilli still motile; examined until 1 P.M., when preparation was put in incubator and examined at 4:45 P.M.; bacilli less active; clumps persisting.

7. Frank French; preparation at 9:40 A.M.; examined for thirty minutes; bacilli forming; then small clumps; others motile; examined at intervals until 12 M., during which time bacilli were less active with clumps still persisting.

Hanging drops preparation:

8. Mary Stellano; first preparation; solution made with sterile bouillon at 4:40 P.M.; examined until 5:15 P.M, when a few clumps were noticed; other bacilli motile; examined until 5:25 P.M.; clumps persisting, while other bacilli were motile.

9. Will Kynion; preparation made at 10:22 A.M.; solution with sterilized distilled water, one to ten; examined until 1 P.M.; found bacilli clumping during that time, but bacilli in clumps are motile and majority of free bacilli motile; put in incubator until 4 P.M.; re-examined until 5 P.M.; clumping persisting; bacilli less active but still motile.

Mary Stellano; second preparation with sterilized distilled water, made at 10:35 A.M.; examined until 1 P.M.; clumping occurring, but majority of bacilli motile; put in incubator at 1 P.M. and re-examined at 4 P.M.; until 5 P.M. the clumps persisting and bacilli less active.

Locassio's blood; second preparation made at 4 P.M., as above; examined until 5 P.M., during which time slight clumping appeared; bacilli still motile; put in incubator and re-examined next day, finding persistance of clumps; bacilli less active.

10. Bed No. 25; preparation made at 4:04 P.M.; examined until 5 P.M.; no clumping; bacilli motile, and after being put in incubator were found motile next morning; no clumps.

11. Bed No. 9; prepared at 4.02 P.M.; examined until 5 P.M.; bacilli yet motile when put in incubator, and next morning found same condition; no clumps.

12. Bed No. 19; prepared at 4:22 P.M.; examined until 5:05 P.M., during that time a few clumps; found bacilli motile; put in incubator and re-examined at 9:30 next morning; bacilli motile though clumps persisted.

These are the only cases that I have had opportunity to test and the number is too small to allow any conclusions.

The percentage of hemoglobin was estimated with Gower's hemoglobinometer, using as a control test the percentage of hemoglobin obtained from one of the physicians of the hospital; this control gave 90 per cent. hemoglobin. The hemoglobin was tested in recent cases, during course of disease, and in convalescents. In the recent cases, and during the course of the disease the percentage of hemoglobin never exceeded 72 per cent., except in one case, which proved fatal, where it was found as high as the control, 90 per cent.; the lowest percentage in this series was 50. In convalescents the lowest percentage was 64 and the highest 80. These percentages show a decided loss of hemoglobin during the disease and a slow return to the normal in the convalescents.

The autopsies, fifty-one in number, are classified as follows: There were thirty-one in which none but the typical pathologic lesions of the disease were found; fourteen in which there were evidences of pre-existing chronic changes in the liver, the kidneys and blood vessels, these were more especially alcoholics; six that did not present any of the pathologic lesions of yellow fever. Of these last, one was a case of typhoid fever; the second one of general peritonitis from rupture of pus tubes; a third, general acute tuberculosis with chronic endocarditis, in an old negro man; the fourth, septicemia following pelvic peritonitis due to pus tubes; the fifth, tertiary syphilis; in this last case the culture tubes inoculated remained perfectly sterile; the sixth, was pneumonia in an alcoholic.

In all the autopsies from yellow fever cases the typical jaundice was uniformly present, more marked in some cases than in others, and the marked bluish

pink postmortem hypostasis about the dependent parts of body, face and neck was also noticeable. These appearances of the yellow fever cases formed a marked contrast with the other five, where the jaundice was not observed and the hypostasis less marked. All the tissues were generally found bile stained, in some instances very intensely.

On opening the bodies one of the first things that attracted attention was the marked fluidity of the blood contained in the heart and large vessels, and the congestion of the tissues.

The heart was usually full of blood, myocardium paler than normal, and fatty degeneration the rule. A special point of interest here was the intense congestion of the vasa vasorum of the large vessels at the base of heart, and also the congestion of the pericardium. In a few cases atheromatous changes of the valves of the heart and of the vessels were found.

The lungs were unusually free from chronic changes; the absence of tubercles, in the yellow fever cases, was the rule. In several where the mucous membrane of the trachea and bronchi was examined, it was found markedly congested, but not more than the surrounding organs.

The spleen was usually normal, except in a few cases where there was evidence of previous attacks of malaria, and chronic changes taking place.

The liver was generally found fatty, in some cases extremely so. The large vessels were usually dry but the portal capillaries congested to the extent, at times, of forming a marked delineation of the lobules. The gall bladder contained, as a rule, a small quantity of fluid and was seldom full. Besides these changes in the liver, in ten autopsies the organ was found cirrhosed.

The mesenteric vessels were generally full and gorged with blood and the different folds of the peritoneum universally congested. The mesenteric glands were usually normal.

The stomach presented the most characteristic congestion of its mucous membrane, which was swollen, red, eroded and contained hemorrhagic points in its substance. This congestion and changes, though universal throughout the organ, was more especially marked on the anterior wall of the organ and in the cardiac extremity, fading away as it reached the pylorus.

This congestion, less in intensity, extended as a rule to the mucous membrane of the duodenum, as far as the entrance of the common bile duct, beyond which it ceased in the majority of cases.

In a few cases the same condition observed in the stomach was found in the intestines, from cardiac extremity of stomach to rectum. In these the contents were of a dark meconium-like matter, of a black color and of very thick consistency. The same lesions found in the stomach were repeated in the mucosa of the whole intestinal tract.

The kidneys usually presented an acute inflammatory condition being congested, at times intensely so. In some cases infarcts were found, and also interstitial hemorrhages; these hemorrhages, usually small, attained in some the size of a pigeon's egg. Although generally in the substance of the organ, these hemorrhages were sometimes found in the pelvis and calices of the organ. The fatty degeneration was well marked, as a rule, and characteristic in its situation in the majority of autopsies. It was more marked in the cortex immediately at the edge of the malpighian pyramids, forming arches around that border and radiating toward the cortex of the organ. In a few cases this degeneration was contrasted by the intense congestion in the same situation. This peculiar arrangement of the fatty degeneration was noticed in the first autopsy on a yellow fever case held in this city during the last epidemic and was afterward noted in every case. Out of the forty-five cases of yellow fever on which an autopsy was held at the Isolation Hospital this characteristic arrangement of the fatty degeneration occurred in thirty-five. In the ten remaining cases, I am told that it did occur, but as I did not find it recorded in the notes of the autopsies, I have not included them. Besides these marked changes, the kidney presented evidences of chronic changes in fourteen cases.

The brain was examined in only one case and the same congestion prevalent in other organs was also marked here. The meninges and surface of brain were intensely congested; the puncta vasculosa in the centrum ovale were decidedly marked and the whole organ was intensely congested; there was, however, no other sign of any inflammatory condition. The lack of time prevented us from making a more systematic examination of the nervous centers.

An average of five primary cultures were made at every autopsy; one from the blood of the heart and large vessels, one from the liver, one from the spleen, one from the kidneys and one from the lungs. In several cases, pieces from organs (liver, kidneys and spleen) were carefully removed and enclosed in antiseptic and aseptic wrappers and incubated for twelve to fourteen hours, and then inoculated in culture media.

As these did not give as a rule, any better results than the cultures obtained at autopsies, on account of the great loss of time entailed and the difficulty in transporting these pieces to the laboratory, the practice was abandoned. This made an aggregate of 255 primary cultures obtained from autopsies; of these a few remained totally sterile. Those that gave cultures were plated as soon as practicable after the autopsy. The primary cultures considered the best for the purpose were chosen for these plates, and cultures were made to test their purity. Several of these second cultures had to be plated over, in the attempt to eliminate the contaminating bacteria. The bacillus coli communis was found omnipresent, and difficult to eliminate, also in a few autopsies, a form of proteus with fluorescence. Several autopsies continued to produce the bacillus coli communis after several platings. The tests applied were the cultivation in ordinary bouillon, in peptone solution for the indol test, in litmus milk, in glucose and lactose bouillon, in gelatin, the plating of pure cultures, staining by Gram's method, replanting in tubes and inoculation of animals.

After having plated all the autopsies and recognizing that in several plates characteristic growths were present it was impossible to carry through all of them. I chose three that from their appearance and examination led me to believe that I had obtained a pure culture, and subjected them to the different tests described above, and carried on the experiments on animals with them. In all the different tests a pure culture of bacillus icteroides Sanarelli was used as comparison. These cultures, when subjected to the tests as described by Sanarelli, in his memoir, were found to be of slow growth in ordinary bouillon, showing a slight

cloudiness in twenty-four hours. It is a short automotile bacillus and produces marked fermentation in glucose bouillon; in lactose bouillon a very faint fermentation; in peptone solution, after twenty-four and forty-eight hours growth, gives no indol reaction, without addition of nitrites, and, when these are added, the reaction is very faint after twenty-four hours incubation; cultivated in litmus milk, even after twenty days incubation, there is no coagulation of milk and the color is not apparently changed; when subjected to Gram's method, they do not take up the stain.

In one of the autopsies (No. 40) the growth was obtained with difficulty, being exceedingly slow in ordinary bouillon, and on agar the growth was scant. This culture, inoculated in a rabbit, gave a pure culture more active and vigorous than the first, and after again subjecting it to the tests it was used as a pure culture giving better growths. These cultures in gelatin did not liquefy.

The experiments on animals were eighteen in number. In the inoculation of animals one is generally inoculated with a twenty-four hours bouillon culture of bacillus icteroides Sanarelli, as control, and the other or others with the same quantity of a bouillon culture of the same age, from the cultures to be tested.

The animals injected were two guinea pigs, fourteen rabits and two dogs. Of these the two guinea pigs were injected with juice of organ mixed with sterile bouillon: No. 1 from juice of liver from autopsy No. 2; and No. 2 from kidney of same autopsy. The result is as follows: Guinea pig No. 1 was injected on Oct. 1, 1897, at 5 P.M., with 1.17 c.c. of an emulsion of equal parts of sterile bouillon and liver juice, in the peritoneal cavity. Animal did not eat at evening feeding; Oct. 2, 1897, did not eat and is quiet, does not care to move; at 12 M. animal in dying condition; at 12:30 P.M., found dead in cage, being nineteen and one-half hours after inoculation. Autopsy at 4:30 P.M.: postmortem rigidity marked; peritoneal cavity contains good quantity of fluid; membrane ecchymotic and congested; is smeared with purulence and the ecchymotic patches on diaphragm; lungs congested and ecchymotic; heart contracted and contains slight amount of blood; liver congested with ecchymoses in organ; kidneys, ecchymoses on surface. Cultures were made from different organs. Guinea pig No. 2, injected in same manner, presented same lesions.

Four rabbits were injected with pure cultures of Sanarelli bacillus icteroides; two with pure culture from ausopsy No. 46, one with culture from postmortem No. 11, one from postmortem No. 6, two from autopsy No. 1, one from autopsy No. 40, two from autopsy No. 37 and one with Sternberg's bacillus X.

The four rabbits injected with Sanarelli's bacillus presented the following appearances at the autopsy:

Rabbit No. 2, weighing 1740 grams, injected Nov. 5, 1897, at 11:37 A.M., with 1.23 c.c. icteroides bacillus, seventh day bouillon culture, in vein of ear, died during night of November 6, and being found dead in its cage at 7 A.M. Autopsy at 8:20 A.M.; the weight was 1575 grams, being a loss of 165 grams from time of injection twenty-three and one-half hours. Postmortem rigidity marked; small amount of fluid in peritoneum, otherwise normal; liver congested and studded all over with yellowish spots; on section, foci of suppuration were found; spleen full, enlarged and congested; kidneys congested and yellowish; heart filled with blood, organ somewhat pale; lungs intensely congested; urinary bladder contained 2 c.c. of urine, albuminous, with casts and renal epithelium.

Rabbit No. 3, needle having slipped, was injected in subcutaneous tissue of ear, Nov. 5, 1897, with 1.23 c.c. of bacillus icteroides. It died during night of 10th. The same yellow spots appear in liver as were found in No. 2; spleen congested; kidneys appear smaller; heart and lungs apparently normal; urinary bladder greatly distended, contains 25 c.c. of urine; stomach contracted and contains no food, but a dark brownish fluid, walls apparently normal; had convulsions before death. Urine contains 20 per cent. moist albumin, hyalin and granular casts and renal epithelium.

Rabbit No. 8, weighing 1485 grams, injected Dec. 19, 1897, with 4.5 c.c. of a twenty-four hours bacillus icteroides in bouillon, died Dec. 20, at 5 P.M. At autopsy, December 21, 9:30 A.M., weight 1470 grams; rigidity marked; conjunctiva injected; lungs, petechiæ on surface and congested; heart, petechiæ on surface and congested at base, filled with partly fluid blood; liver congested, some yellowish discoloration disseminated throughout organ; spleen congested and enlarged; kidneys congested, yellowish spots throughout organ; bladder contains 10 c.c. albuminous urine and gives reaction of bile; stomach, mucosa intensely congested, swollen, petechiæ in mucosa and eroded, especially marked around cardia; all tissues are intensely congested.

Rabbit Mo. 11, weighing 1827 grams, injected Jan. 1, 1898, at 11 A.M. with 5 c.c. bacillus icteroides bouillon culture sixteen hours old, died at 10:30 A.M. January 18; postmortem same day. Postmortem rigidity marked; subcutaneous connective tissues intensely congested; heart filled with black fluid blood; liver congested; spleen intensely congested and enlarged; kidneys congested; stomach is intensely congested and contains blackish brown fluid mixed with food. During life conjunctiva were intensely congested.

Rabbits No. 6 and 12 were injected with cultures from autopsy No. 46. No. 6, weighing 1780 grams, injected at 11:40 A.M., Dec. 19, 1897, with 3.5 c.c. of 24 hours bouillon culture, from postmortem No. 46, died between 8 and 9 A.M., December 20, weighing 1735 grams. Autopsy that A.M., showed rigidity marked; conjunctiva injected, can see through cornea streaks of injected vessels; gums, small red lines over incisors; lungs, petechiæ on surface; heart filled with fluid blood; liver congested, organ appears granular from the intensity of the congestion; gall bladder empty; spleen congested and enlarged; kidneys congested with petechiæ on surface, contains whitish yellow spots, stomach mucosa intensely congested and contains petechiæ and erosions filled with food; urinary bladder distended with 16 c.c. albuminous urine. Rabbit No. 12, injected with same culture presents same lesions Jan. 16, 1898.

Rabbit No, 1, which was injected with culture from autopsy No. 6, did not present any characteristic lesions, except the liver, which contained a large number of yellowish foci resembling tubercles undergoing cheesy degeneration: spleen normal in size.

Rabbit No. 4, injected with a culture from postmortem No. 11, presented nothing of mark, except the same lesions of the liver as were found in rabbit No. 1, and in both the urinary bladder was empty.

Rabbits Nos. 7 and 13 were injected with a culture obtained from postmortem No. 1.

Rabbit No. 7, weighing 1680 grams, was injected Dec. 19, 1897, at 12 M. with 4 c.c. of twenty-four hours bouillon culture from postmortem No. 1, died between 8 and 9 A.M. Dec. 20, 1897, weighing 1650 grams. At autopsy which was held the same morning, postmortem rigidity marked; conjunctiva congested; heart filled with partly fluid blood, congested at base; lungs congested, marked petechiæ, which are large; liver congested and many yellowish spots, capillaries congested: spleen congested and enlarged; kidneys are congested and appear swollen, some yellowish discoloration; stomach mucosa intensely congested, contain petechiæ, especially around cardia; duodenum, mucosa swollen and markedly congested; urinary bladder distended with 20 c.c. albuminous urine which gives bile reaction. Rabbit No. 13 gives same lessions.

Rabbit No. 14, weight 2151 grams, was injected Jan. 15, 1898, at 11:40 A.M. with 5 c.c. bouillon culture sixteen hours old, from postmortem No. 40, and died during the night of January 20, weighing 1930 grams. Postmortem January 21, at 12:30 P.M., showed pericardium very much congested; heart dilated and filled with fluid blood; spleen congested and enlarged, of dark color; liver congested, appears enlarged and contains yellow spots throughout, probably fatty degeneration; kidneys congested; lungs very much congested; stomach intensely congested.

Rabbit No. 10, weighing 1551 grams, was injected Dec. 27, 1897, with 3½ c.c. bouillon culture twenty-fours old from postmortem No. 37. For several days thereafter temperature ranged from 105 to 106 degrees; never had bile nor albumin in urine, which was obtained by catheterization; became cachectic and emaciated, and on January 8, could not stand up. January 9, it was chloroformed to death. The weight was 1300 grams; all organs appeared pale but did not present any marked

changes: stomach contained food and was normal; bladder extremely distended with urine, but could not measure quantity as it ruptured on opening animal.

Rabbit No. 5, weighing 1130 grams, was injected Nov. 5 1897, at 11:27 A.M., with 1.23 c.c. of a twenty-four hours bouillon culture of Sternberg bacillus X. Twenty-four hours after the animal was sick, refused to feed and remained quiet, and after forty-eight hours began to eat some, but was still quiet and did not care to move. Emaciated gradually and became unable to stand up November 21; died on the 25th. At autopsy animal was found very much emaciated; liver contained a few small yellowish spots disseminated through the organ, which was red; heart filled with clotted blood; lungs dark red; spleen normal; kidneys swollen; stomach contains food; gall bladder distended, urinary bladder contained 50 c.c. urine, which was not albuminous.

Rabbit No. 9, though injected, is still alive and has a small abscess of ear. Was injected with culture from autopsy No. 37.

From the foregoing it will be seen that the cultures obtained from autopsies Nos. 1, 40 and 46 give the same lesions as that of the bacillus icteroides of Sanarelli, and these three cultures also give the same bacteriologic reaction when submitted to the different tests characteristic of the bacillus icteroides.

Besides these rabbits two dogs have been inoculated.

Dog No. 1, unfortunately, died of chloroform narcosis while he was being injected, but is interesting on account of the rapidity with which the bacilli were disseminated through the organs. He had been injected in a vein of the hind leg, and five minutes hardly elapsed between the time of injection and the time that the organs were reached, during the autopsy, yet all the organs gave pure cultures of bacillus icteroides and the blood from left heart was found swarming with bacilli.

Dog No. 2 was also injected Jan. 11, 1898, with 5 c.c. of a 72 hours bouillon culture of bacillus icteroides, partly in the circulation and partly subcutaneously, as the animal moved and the needle slipped out of the vein. During the first twenty-four hours it was sick and nauseated; temperature reached 105 degrees, but it gradually recovered, and on January 16 was re-injected subcutaneously with 10 c.c. lactose bouillon culture bacillus icteroides. It became sick as at first, but to a less extent. After three or four days it had sufficiently recovered to break loose from its place of confinement and was allowed to escape.

With the exception of two, the cultures made from living blood obtained from ten patients remained sterile. The blood was obtained from the veins of the patient through a sterilized glass syringe. One or two c.c. were drawn and immediately inoculated from the syringe into culture tubes. One specimen was obtained from a patient that was bled and several tubes inoculated. Of these two cultures obtained from the blood we have not yet obtained any definite results.

From the foregoing we may conclude:

1, that albuminuria and presence of bile in the urine is a constant symptom in yellow fever, appearing about the fourth day in mild and earlier in severe cases; 2, that the presence of the malarial hematozoon does not preclude the possibility of yellow fever; 3, that in solutions one to ten the yellow fever blood does not give any reaction with pure cultures of the typhous bacillus; 4, that if we except the diminution of hemoglobin, the blood does not show any marked changes; 5, that the most characteristic pathologic changes in the organs are the marked steatosis and congestion of liver, kidney and heart, the marked congestions, erosions and hemorrhages of the stomach and intestines and, usually, absence of lesions in the spleen and lungs. The other tissues present a marked icterus and congestion; 6, that the bacillus which we isolated and with which we have experimented is identical with that reported by Sanarelli as the bacillus icteroides, and the results obtained would justify us in considering it the special cause of yellow fever.

NEUROTIC ECZEMA.

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The recognition and management of eczema must ever be an interesting and profitable study to the physician, because practically it forms a very large share of the cases of skin disease coming under his care. Even in dermatologic practice, where the rarer diseases and also the minor ailments of the skin contribute to make a considerable proportion of the whole number, it constitutes nearly one-third of all cases. In a recent analysis of 10,000 miscellaneous skin cases in the writer's private practice, there were 3201 patients with eczema, they forming 32.01 per cent. of the whole number. In ordinary private general practice, where many infantile cases occur, this disease undoubtedly forms over one-half of all the cutaneous diseases coming for treatment.

Neurotic eczema is particularly interesting to the general physician, because if recognized and rightly treated not only are the results commonly very satisfactory, but the patient also receives much improvement in general health by the measures calculated to benefit the eczema. Neurotic eczema should always be recognized as the signal flag of danger and should never be passed over with attempts to gain relief from local treatment alone, which can only be of minor and temporary benefit.

The influence of the nervous system in the production of skin lesions of various kinds has long been recognized and is now abundantly established, both by pathologic and clinical proof. Its influence in producing and prolonging eczema was very fully elaborated by the present writer[1] some time ago, and reference will here be made to some of the evidence then collected, as well as to more recent clinical experience.

Neurotic eczema is seen in both sexes and in all ages, from the cradle to the grave, although it is much more common in certain periods of life than in others. In infancy it is frequently observed in connection with cutting of the teeth, fresh eruptions occurring as each new tooth presses on the swollen and tender gum. In childhood it is less common, but may appear with each occurrence of nerve-strain, whether from overwork in school or over-excitement in recreation. The same is true in youth, where the changes of puberty come in as a factor, especially in females. But its most frequent time of occurrence is during that active period of existence between 20 and 55 years of age, when the strain and burden of life falls heavily on so many and when the strongest constitutions too often show many evidences of breakdown, both in the nervous system and in other directions.

Something can be learned of this from the following tables. The first relates to nearly 6000 cases of eczema, occurring among 20.000 miscellaneous skin cases in my public and private practice. The second table is constructed to show the percentage of eczema patients at different periods of life, as compared with the number of individuals alive at the same age, as shown by the life tables of insurance companies.

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1 "On the Relation of Eczema to Disturbances of the Nervous System." —Medical News, Philadelphia, Jan. 31 and Feb. 7, 1891.

TABLE 1.—Ages of eczema patients.

	MALES.			FEMALES.			Totals.
	Private	Public.	Total.	Private	Public.	Total.	
Under 1 year. . .	107	110	217	61	82	143	360
1 to 2 years . . .	37	52	89	38	37	75	164
2 to 3 years . . .	33	48	81	25	37	62	143
3 to 4 years . . .	22	35	57	16	39	55	112
4 to 5 years . . .	14	33	47	22	17	39	86
Infantile . . .	213	278	491	162	212	374	865
5 to 10 years. . .	48	67	115	58	88	146	261
10 to 15 years. . .	41	43	84	63	66	129	213
15 to 20 years. . .	51	59	110	110	92	202	312
20 to 25 years. . .	99	111	210	148	134	282	492
25 to 30 years. . .	136	112	248	131	99	230	478
30 to 35 years. . .	187	103	290	113	72	185	475
35 to 40 years. . .	196	93	289	109	104	213	502
40 to 45 years. . .	187	68	255	105	99	204	459
45 to 50 years. . .	158	73	231	88	110	198	429
50 to 55 years. . .	169	85	254	88	109	197	451
55 to 60 years. . .	107	52	159	49	62	111	270
60 to 65 years. . .	99	41	140	51	50	101	241
65 to 70 years. . .	62	30	92	35	25	58	150
70 to 75 years. . .	52	31	83	23	15	38	121
75 to 80 years. . .	25	8	33	10	6	16	49
80 to 85 years. . .	7	2	9	5	2	7	16
85 to 90 years. . .	3	0	3	2	0	2	5
90 to 95 years. . .	2	0	2	0	0	0	2
95 to 100 years . .	0	0	0	0	1	1	1
Unknown age. . .	6	1	7	3	10	13	20
Totals	1,848	1,257	3,105	1,353	1,354	2,707	5,812

TABLE 2.—Comparison of percentage of eczema patients at different ages, with the percentage of individuals alive at those ages as shown by the census.

Ages.	Per cent. living, at all ages.	Per cent. of eczema patients.	Relation between the two.
Under 1 year.	2.2	6.1	+3.9
1 to 2 years	2.0	2.8	+0.8
2 to 3 years	1.9	2.4	+0.5
3 to 4 years	1.8	1.9	+0.1
4 to 5 years	1.8	1.4	−0.4
Infantile	9.7	14.8	+5.1
5 to 10 years.	8.7	4.4	−4.3
0 to 15 years.	8.4	3.6	−4.8
5 to 20 years.	8.2	5.3	−2.9
0 to 25 years.	7.9	8.4	+0.5
5 to 30 years.	7.5	8.2	+0.7
0 to 35 years.	7.2	8.1	+0.9
5 to 40 years.	6.7	8.6	+1.9
0 to 45 years.	6 3	7.8	+1.5
5 to 50 years.	5.9	7.3	+1.4
0 to 55 years.	5.4	7.7	+2.3
5 to 60 years.	4.8	4.6	−0.2
0 to 65 years.	4.1	4.1	. . .
5 to 70 years.	3.3	2.5	−0.8
0 to 75 years.	2.4	2.0	−0.4
5 to 80 years.	1.5	0.8	−0.7
0 to 85 years.	0.7	0.2	−0.5
5 to 90 years.	0.2	0 08	−0.12
0 years and over	0.07	0.05	−0.02

Examining these tables it is interesting to note the ıdden increase in the frequency of eczema during the eriod from 20 to 25 years of age, and the continuıce of the large number through those of 50 and 55 ears in spite of the diminishing numbers alive at the lvanced age. By the second table it will be learned ıat the greatest actual percentage of cases of eczema, ı comparison with the individuals living, after the :st year of life, was in the period between 50 and 55, here it was represented by + 2.3, while between 60 ıd 65 years the percentage was exactly equal; in the ɔriod between 10 and 15 years the disease is relatively e least frequent, the difference being represented / —4.8.

It is also interesting to note the large increase in e number of cases in females, in private practice, tween 20 and 25, where they form nearly 11 per nt. of all the females, whereas the males at this same riod form only a little over 5 per cent. of the class. ıring the two decades, between 20 and 40 years of e, when the strain of life is the greatest, there were less than 1947 cases of eczema, or almost exactly e-third of the entire number; this is the more remarkable considering the very large number seen in the first years of life, and the diminished proportion of persons living during the later period, as shown in Table 2.

Various forms or phases of nerve disturbance are seen in connection with neurotic eczema, and they may be considered under the following heads: 1, neurasthenia, or nerve exhaustion; 2, nervous and mental shock; 3, reflex phenomena; *a*, of internal origin; *b*, peripheral; 4, neuroses; *a*, structural; *b*, functional.

1. *Neurasthenia or nerve exhaustion.*—First in importance, both from its frequency and its seriousness is nerve strain, which is a fertile cause of neurotic eczema. In many cases the direct connection may not always be immediately traceable, but watching the same patient for a length of time it will be found that with each period of nerve exhaustion, from varied causes, the eczema crops out. I can not do better than to quote a few illustrative cases which I reported in the article previously alluded to.

An unmarried lady, aged 53 years, was the executive officer of a charitable institution, and her duties were arduous and exacting. On Tuesday of each week she was particularly tried on account of the weekly meeting and inspection of a board of lady visitors, and that night was often sleepless. Her eczema of the face and hands was always aggravated on the succeeding morning; indeed, the eruption, which would often yield very satisfactorily to treatment during the week would burst out afresh on the Wednesday morning succeeding the visit. This had been the case for some months before I saw her and was verified by myself again and again.

A prominent clergyman, aged 52 years, had for many years an eczema of the head and face, which was always greatly aggravated on Monday after the Sabbath's mental work and strain. This I observed on a number of occasions, the eruption greatly improving each week until Monday, when he would present himself with an aggravation of the eruption. The same occurred sometimes during the week, whenever extra work, as a public address, was called for, and has been repeatedly observed in other patients since.

In another case, that of a lady, aged 22, any nervous excitement, or household disturbance and hysteric crying, would be followed by a fresh outbreak of eczema on the hands.

Since these cases were reported I have seen a number almost as striking, and have frequently observed business and legal worry followed shortly by eczema. Mentioning the matter to an exceedingly intelligent gentleman, aged 47 years, whom I have attended in attacks of eczema for ten or more years, he remarked on the truth of the observation, and said, "you may quote me as a striking illustration of the effect of nervous strain in producing eczema again and again."

While writing this article, a gentleman aged 60, who has had eczema occasionally for fifteen or more years, also corroborated this statement very strongly.

Prolonged and severe household strain will produce the eruption repeatedly, in women, and continued loss of sleep, often only from sickness in others, will now and again be followed by eczema. My notes show numerous cases where the nervous exhaustion following the grip caused the eruption to appear.

2. *Nervous and mental shock.*—The effect of nervous shock and violent emotions, such as grief, anger, etc., in the production of eczema has long been recognized by writers on dermatology, and the well authen-

ticated instances of this on record are so numerous that it can not be questioned that this form of nervous disturbance often operates either to produce the disease or to excite an attack in one susceptible to the same. A single very striking illustration may be cited from Leloir,[2] a most careful authority.

"A young woman who never had any eruption previously, except a pustular disease of the scalp, at 2 years of age, but who was very nervous and impressionable, and who was in perfect health, suffered a mental shock as follows: Approaching her home she saw her little child leaning out of the window, and on the point of falling; she cried out, and the child being startled let go her hold and fell, strangely enough, directly into the mother's arms, so that it received no harm. But the mother lost consciousness, and was completely broken down by the shock, and within three days developed a sharp attack of eczema, beginning on the upper extremities and invading much of the surface. Some time afterward she had a second and a third attack, each time following mental disturbance."

The same writer records several similar cases and Tommasoli[3] reports the occurrence of eczema after long grief and sudden shock.

Mental and moral shock occurring in many different manners have been observed to be followed quickly by attacks of eczema. Thus Radouan[4] reports that cases occurred in immediate consequence of the siege and commune of Paris, in 1871, and I saw more than one case ascribable to the financial panic in Wall Street, known as "Black Friday" several years ago.

3. *Reflex phenomena, (a) of internal origin, (b) peripheral.*—The influence of reflex irritation in the production of disease has long been an established fact, although opinions have varied in regard to details and individual cases.

Many writers have related cases illustrative of the production of eczema by this means, and in certain directions it is of not very infrequent occurrence. This reflex irritation may come from within, from some other organ, or part of the system, or it may result from external irritation of the skin; in either case the eruption excited may cease with the removal of the cause, or may persist indefinitely.

(*a*) *Reflex eczema of internal origin.*—The most common illustration of this is the eczema observed in teething infants, where each accession of a tooth will cause a fresh outbreak of eruption on the cheeks, forehead, chin, or elsewhere. Another rather frequent form of reflex eczema is seen in that accompanying eye troubles. Many have reported cases of the eruption, which were cured by wearing proper glasses. I saw a very striking instance in a lady aged about 50 years, in whom attempts to use the eyes has repeatedly precipitated attacks of eczema of the lids and chin, also on the forehead. Intestinal irritation has been observed to produce attacks of eczema, and also tapeworm and the oxyuris. Menstruation is likewise a frequent exciting cause as observed by Danlos[5] and others, and as I have repeatedly witnessed.

(*b*) *Reflex eczema of peripheral origin*—This form of disturbance is more difficult to make out, but a number of observations are on record where severe cutaneous irritation, as burns, etc., were followed by eczema. Scratching is a fertile cause of eczematous eruption in those predisposed thereto. Not only does this result from the direct scratching of an affected part, but the irritation of a certain part by scratching or otherwise can excite a reflex irritation in a distant part, which may be followed by eczema in that locality.

4. *Eczema dependent upon neuroses, (a) structural, (b) functional.*—Eczema has been observed to follow structural nerve changes, as after injury, amputations, etc., and also in connection with functional neuroses, as neuralgia. It is not necessary to develop this part of the subject greatly, but I will mention one case where the connection of eczema and neuralgia was very marked.

Mrs. B., a widow, aged 30 years, was thrown on her own resources for the support of her mother and herself. She took to literary pursuits, and became the editor of a magazine requiring a large amount of personal work, she using the pen almost constantly. After some months she began to suffer from neuralgia of the right arm, and at the same time a papular eczema developed on the back of the arm and radial side of the forearm, attended with the most intense itching. When she ceased for a time from her great use of the hand the neuralgic pain lessened and the eczema diminished, but a return to her severe mental application would cause a return of both. This continued for some time, and treatment for either condition seemed to have very little effect while the arduous labors were persisted in, but both yielded when work was relaxed or suspended.

We have now reviewed some of the principal relationships of eczema with nerve disturbance, but the subject is a very much larger one than would appear from what has been said. The literature of it has already reached very large proportions and has hardly been alluded to. But enough has been said to show clearly the importance of the subject. We will now consider some of its more practical aspects.

Neurotic eczema does not differ very greatly from other forms of the eruption, but a trained eye can generally suspect the true character of the case.

The eruption is apt to come first upon the hands and face, less commonly on the feet. But from its starting point it may extend over large surfaces, and after scratching, or irritation by treatment, may present quite the features of gouty eczema.

Neurotic eczema on the hands is very apt to exhibit vesicles, but on the adult face the eruption is quite as likely to assume and maintain the erythematous form, without vesicles, and often without moisture, unless scratched. The groups of lesions of neurotic eczema have a tendency to be pretty sharply defined, in more or less herpetic patches which may present mainly solid papules, or, when torn, a raw surface. The areas affected early in the eruption are not apt to be very large, but the eruption is composed of a number of patches of aggregated lesions.

Neurotic eczema is intensly itchy, and the patient will often scratch where there are no apparent lesions, and so develop the eruption in one place and another. The scratching indulged in is commonly of the most severe kind, it seeming almost impossible to reach the seat of the trouble until the deepest portions of the epidermis are reached. The spasms of itching are sometimes fearful and utterly uncontrollable. I remember the case of an elderly lady whose two

2 Leloir: Des dermatoses par choc moral. Ann. de derm. et de syph., 1887, p. 367.
3 Tommasoli: Monatsh. für pract. Dermatologie, 1886, p. 432.
4 Radouan: Etude théor. et pract. sur l'Eczema. Thèse de Paris, 1875, p. 41
5 Danlos: Etude sur la Menstruation, etc., Paris, 1874.

daughters were not able, when the spasms seized her, though they used much force, to prevent her tearing her face and neck till the blood literally ran down, which I witnessed at my first visit.

Treatment of neurotic eczema.—This will often tax the patience and skill of the physician to the utmost, and the broadest principles of medical knowledge and judgment will often need to be put in operation and maintained, if the patient is to have great and permanent benefit. The treatment includes both constitutional and local measures; the former are essential, the latter are helpful.

Constitutional treatment.—Naturally every case requires to be studied and treated on its own merits; no two cases could be treated alike from beginning to end.

There is some danger of error, in approaching a case of neurotic eczema, in supposing that because of its nerve element it will require at once, and mainly, drugs which are known to have an influence on the nervous system. At times the treatment may be that of ordinary gouty eczema, for neurotic symptoms are exceedingly common in gouty subjects, and often largely dependent upon an existing gouty state, and unless that element is reached and rectified the progress will be poor. The strictest attention should be paid to the digestive system, the action of the bowels and kidneys, and above all to the diet; and this should be done, not only at the first visit, but on each subsequent consultation, and proper remedies and measures continually given.

But in all the treatment there is to be a continual regarding of the nervous system, and use of remedies and measures calculated to strengthen that. Arsenic undoubtedly finds an important place in the treatment of neurotic eczema. but should never be relied on alone, and I seldom administer it in the form of drops, the Fowler's solution so universally given by the profession for every case. Iron, nux vomica or strychnin, quinin, the phosphates, ergot, oils, and many other remedies may come into play in the management of the disease. In occasional cases much benefit will be obtained from digitalis in strengthening and regulating the capillary system, and so improving nerve and cellular nutrition, while other cases will require the sedative action of aconite in proper and free doses.

A few words may be added in regard to the attempt to give relief to the itching and securing sleep in neurotic eczema, by the administration of internal remedies, hypnotics. While the eruption is in an aggravated condition, it often seems almost impossible to effect much by this means. Opium and its preparations only aggravate the itching, and if sleep is secured it is of an entirely unrefreshing character. Codeia seems to be the least injurious of them all. Sulphonal and trional in large doses will sometimes be effective, but are often followed by further nervous exhaustion, in the end aggravating the complaint. Phenacetin in full doses, repeated in an hour or so, will sometimes prove most effective, and antifebrin, with hot water and a trifle of whisky, will often secure very refreshing sleep; in milder cases urethan in one gram doses is effective. Tincture of gelsemium, given in repeated and increasing doses, even every half hour, has in some instances proved most serviceable in my hands, as also cannabis indica. The bromids have relatively little effect, although when combined with a very small dose of morphia and aconite, have at times proved very valuable. A large warm drink at bedtime will often aid these remedies and may be valuable alone.

The diet must always be carefully directed. Not only should ordinary rules be given as to the avoidance of unnecessary and injurious articles of food and pleasure, which by deranging the digestive system, can greatly hinder the progress of the case, but the diet should be so arranged that it shall furnish the best possible nerve nutriment, and in a form easily assimilable. For this purpose I always order an increase in the digestible fatty matter and phosphates. Some caution may be required in regard to the former, but with a little care the amount of the fat of meats and oils, and also fresh butter, can be added to the dietary. Articles commonly called greasy, or where the fat is combined with starchy matter, as in pastry and fried articles, are to be avoided, but well browned bacon is often a very valuable addition to the meal. The phosphates are found abundantly in the preparations of whole wheat, such as crushed wheat, wheatena, wheatlets, wheat germs, Pettijohn's breakfast food, etc., as also in bread made from the whole wheat flour, some of which should be taken if possible three times daily. Fresh fish (not fried) is also serviceable.

But the one article which contains the elements necessary to nourish the nervous system and proves of the most signal advantage is milk, if properly taken. This should not be used at all with meals, nor after or in connection with the least particle of food, otherwise it undergoes caseation and may embarrass the liver, which is too often at fault in these cases. My plan is to have the milk taken warm, pure and alone, one hour before each meal, and also at bedtime, if sufficient time has elapsed for the stomach to be perfectly empty, which is at least four hours after a hearty meal. When the digestion is sluggish, and the milk meets the late products of digestion, it is curdled and then its digestion requires some considerable time and we do not get the benefits desired. But if it can be taken on an absolutely empty stomach, when the alkaline tide has already set in, it is then absorbed almost immediately and affords a refreshment to the whole system, including the nerve elements, which can hardly be obtained in any other way, and which must be observed to be thoroughly appreciated. It is understood that this precludes the possibility of adding liquor or an egg to the milk, and especially should there never be a cracker or anything else eaten with or near it. When taken in the manner described not only does it not diminish the appetite, but increases it; whereas if by any chance the milk has become caseated in the stomach, the necessary digestion may, and generally does, impair the appetite, as well as disturb the liver action. This plan I have followed for many years, in hundreds of cases, and I am very positive of the vast benefit resulting, when it is strictly carried out.

Local treatment.—The indications for local treatment differ so materially in different cases that it would be impossible within the limits of this paper to afford even the briefest outline of all that might be required; a few practical hints, however, may be given.

First, there is danger of doing too much in the attempt to get relief from the itching, which can seldom be obtained by local measures alone. The plan of treatment should be a soothing and protective one, and the mildest applications should be made first. Zinc ointment with 1 or 2 per cent. of carbolic acid or

creosote, or with 5 to 10 per cent. of ichthyol, or tincture of camphor, is always a safe and generally beneficial dressing if well and thoroughly applied. But to be of service it should be kept thickly applied, spread on a lint in most places, and bound on firmly. In the acutely inflamed and especially in the erythematous forms of the eruption, there is nothing better than the well known calamine and zinc lotion, freely sopped on many times in the day. Ichthyol in watery solution, 10 to 20 per cent., freely bathed on the part, often gives great relief, or if the skin is too dry it may be used in oil in the same strength.

On more chronic patches the permanganate of potassium, 2 per cent. solution in water, painted over the part will sometimes arrest the itching very well; it may either be used alone, or the calamine and zinc lotion may be sopped on after the surface has dried, or an ointment may be applied if the skin is at all hard.

In the erythematous eczema of the face a tannin ointment, 1.95 to 3.9 grams, to the 31.2 grams, with 2 per cent. of carbolic acid is effective; a mixture of camphor, 1.95 grams to 31.2 grams of zinc ointment also forms a good antipruritic. In still more chronic states the tar and zinc ointment, as recommended by the present writer many years ago, when thickly spread on lint and bound on, will often also serve admirably to control the itching.

The use of very hot water for a brief application, followed by an appropriate ointment, should never be forgotten. In old cases of eczema of the scrotum the effect of this treatment is sometimes very remarkable. Menthol will often prove a valuable addition to ointments, in the strength of 2 to 4 per cent., with about half as much carbolic acid, which latter serves both to heighten the antipruritic effect and also to overcome some of the chilly sensation caused by the menthol.

In bringing this brief and rather imperfect study of neurotic eczema to a close, I wish to again emphasize what was intimated early in my remarks; namely, that I do not regard eczema as a local condition or disease of the skin, but that it has constitutional and general relations which should always be considered and studied. The neurotic relations of eczema are especially interesting and important because of the excellent results which follow a careful and correct appreciation, interpretation and treatment of them; whereas, a neglect of this aspect of these cases will lead not only to their chronicity and rebelliousness, but also to an injury to the patient and further nerve exhaustion, whose ultimate result may be most deplorable.

4 East 37th St.

DISCUSSION.

Dr. SCHAMBERG—I will narrate briefly the history of a case of neurotic eczema. A young woman suffered great mental strain nursing her husband through a protracted illness. His death was a shock which prostrated her entirely. She thereafter suffered from a profound neurasthenia which lasted for a considerable period of time. She subsequently became restored to health by taking a rest cure. This woman consulted me for a recurring papular eczema of the hands and forearms. A peculiarity of this case was the extremely rapid evolution of the lesions. During an attack of mental excitement the papules would spring up almost under the eye of the observer. They were closely aggregated in patches and were intensely itchy. They disappeared in as short a time as they appeared. A noteworthy fact in this case is that a hysterical daughter was also the victim of eczema. There would thus seem to be an apparent tendency to heredity in this case.

Dr. FLEISCHNER—I saw a case of a young man of phlegmatic temperament, all depressing nervous elements entering into the disease of no apparent import. No treatment constitutional or local had any effect. It was found out indirectly that he was engaged to be married, and on being advised to ignore his disease altogether and fix a date for the wedding, his eczema abated without further treatment from the day of this advice being given. It is held that whenever the cause can be removed that alone will overcome the disease and unless that is done no amount of local or constitutional treatment will be of any but the most meager effect.

Dr. RAVOGLI—I had an experience with one patient who, whenever he smoked a cigar had an attack of eczema scroti.

Dr. BULKLEY—Tobacco will sometimes occasion attacks of eczema and I have repeatedly known it to be the cause of a relapse.

MYCOSIS FUNGOIDES; WITH REFERENCE TO A CASE.

Presented in the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Associaton held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN V. SHOEMAKER, M.D., LL.D.
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A married woman, 60 years of age, who, upward of a year ago, was for some time under my care, gave the following history: The disease from which she suffered began four years and three months prior to her first visit. The first manifestation occurred in the form of red patches situated upon the back. They were accompanied by intense itching. They were rather bright in color. From the back the lesions gradually spread to the breast, abdomen, neck and limbs, attacking even the soles of the feet. Some, after a certain degree of development, healed. According to her statement, the skin had been more seriously affected than it was at the date of the examination. Itching had throughout been a prominent symptom. The lesions were also the seat of considerable pain. They often bleed when rubbed or scratched.

The patient's appetite was poor, she was habitually constipated, and had lost flesh. She suffered also from insomnia. No case of inveterate skin disease had ever occurred in any member of her family. The patient is ignorant of any cause of this disease. When examined, Dec. 20, 1895, the greater part of the woman's body was found to be covered with patches and tumors of various sizes and stages of development. The face was comparatively free. A red, infiltrated patch was present upon the right upper eyelid. The thyroid gland was decidedly enlarged, more particularly upon the right side. The goiter had existed for many years before the appearance of the skin disease. Upon the skin covering the gland were several fungous excrescences. Numerous similar outgrowths were situated upon both sides of the neck. The upper part of the chest, the mammary glands, abdomen, and axillæ were extensively diseased. It is scarcely possible to describe the lesions in detail for the reason that their numbers, size and proximity left but little of the surface unaffected. The lesions consisted of patches and tumors. The former were of various sizes and shapes, of rather a bright red color, and more or less elevated. The latter were prominent outgrowths, some bright and others rather dark red, excoriated and often bleeding. They were broad at the base. A growth about four inches in average diameter, the base of which was rather oval than circular in outline, was seated upon the upper part of the left breast immediately in front of the axilla. Upon the right breast, in a nearly corresponding situation, was a long, oval, slightly elevated, bleeding patch. The anterior and posterior surfaces of the arms and forearms were studded with patches. Upon the back the lesions, though abundant, were not as

numerous as upon the front of the body. Behind the right axilla there was a large fungous tumor. Upon the right side a similar large mass was observed. The largest tumors were found in the groins. They were of the same character as those already described, raw, bright red, fungous and bleeding at the slightest pressure. Upon the buttocks, thighs, calves, legs and feet elevated patches and excrescences were abundant. On account of the excessive itching the surface of the lesions were constantly torn, irritated and bleeding.

The patient lived at a distance, but visited me at stated intervals for perhaps eight months. During this period the disease seemed at times to improve, but relapse invariably followed. The general health slowly declined and the patient succumbed in the summer of 1896, during my absence from home.

The report of a microscopic examination of pieces taken during life from the tumors, reads as follows: "Scrapings of the surface showed single epithelial cells of the squamous variety, together with some column-like cells with indistinct concentric rings or layers. Section revealed that the tumor was made up for the most part of epithelial cells with a vascular connective tissue, stroma or framework supporting the epithelial elements, each extending through the entire depth of the section of the specimen, dividing in some portions into epithelial columns with occasionally small interspaces. At and near the surface the epithelial cells are large and somewhat decreasing in size from surface or margin as we descend into the body of the tumor, forming irregular cell columns and collections or nest-like arrangements."

The foregoing account certainly depicts an unusual condition of the skin. The existence for several years of prominent lesions of so extensive and well nigh universal distribution, with such slow decline of the general health, is not in consonance with our experience of malignant disease or severe infectious processes. The microscopic examination was suggestive neither of syphilis nor tuberculosis. The abundance and arrangement of epithelial cells and the presence of a fibrous stroma points rather to carcinoma, but we can not admit the possibility of so many cancerous tumors existing for several years upon the surface without causing visceral involvement and cachexia. If, therefore, we are unable to place implicit dependence upon the revelations of the microscope, it only remains for us, relying upon the clinical manifestations and natural history of the case, to pass in review



Mycosis Fungoides (from Nature).

those diseases capable of producing large and numerous fungous growths.

1. *Syphilis.*—The lesions undoubtedly bore no resemblance to the ordinary manifestations of syphilis. Nevertheless, the latter disease does sometimes give rise to fungous growths. Moist papules or mucous patches may sprout luxuriantly, but they do not cover the entire surface. The ulcerated tubercular syphilide may also assume the appearance of a vegetating growth, but this transformation is limited in locality and not so widely generalized as in the case which I have described. Furthermore, there was neither a history nor preceding evidence of syphilis. In doubtful cases we are accustomed to rely with some confidence upon the touch-stone of treatment. In this case anti-syphilitic treatment revealed nothing; it caused not the slightest improvement.

2. *Frambesia.*—Syphilitic excrescences sometimes assume a berry-like form to which the name "frambesioid" syphilide has been applied by some writers. The disease, whose lesion is distinctively likened to a raspberry, is frambesia, or yaws, endemic in certain tropical countries, and occasionally seen in our extreme southern States. My patient had never lived farther south than Pennsylvania. The lesions of yaws are not so widely distributed, do not itch, frequently cause deep ulceration and unsightly cicatrices, is contagious, and is generally spread by sexual intercourse.

3. *Tuberculosis.*—Like syphilis, tuberculosis is the cause of obscure and intractable cutaneous affections. These, however, usually assume the forms of an infiltration tumor, followed by ulceration. If we accept lupus as the type of a mitigated tuberculosis of the skin, we can trace no resemblance either in the history or course of lupus with the case of which I now speak. It is true that papillary outgrowths sometimes occur in connection with lupous lesions, but these proliferations in themselves point to no individual disease. They develop whenever there is morbid hypernutrition of the papillary layer of the integument. There is a form of tuberculosis accompanied by warty growths, known as tuberculosis verrucosa, but it is exceedingly rare, generally attacks the backs of the hands and occurs in those whose duties require them to handle cattle.

4. *Pemphigus.*—A variety termed pemphigus vegetans exhibits papillary excrescences, but these develop upon the basis of bullæ and this form of disease likewise is extremely rare. Here we have had no bullæ.

5. *Sarcoma.*—The tumors of this case certainly bore a considerable resemblance to sarcoma. As a rule, sarcoma advances rapidly, does not cause itching, and seldom manifests any tendency to spontaneous cure. There is, however, a generalized form of this disease, usually developing at or after middle age, beginning as hard edema, upon which nodules subsequently arise and grow slowly; these ultimately become tumors, which are at first hard and smooth but ultimately may ulcerate and assume a fungous aspect. These lesions may progress or retrocede and some may undergo spontaneous cure. The disease may finally involve mucous membranes and cause death. In other cases generalized sarcoma may begin with a solitary growth at some point, the single lesion being followed by other tumors. In this variety of disease the skin prior to ulceration is generally of a livid, brownish or brownish-red color. The tumors of the skin may also coexist with lesions of internal organs or lymphatic glands.

6. *Mycosis fungoides.*—There remains, finally, another rare affection, characterized by fungous tumors and corresponding more closely in lesions and symptoms to the present case than any of those hitherto mentioned. This is the disease known as mycosis fungoides. A synonymous title by which it has been designated, viz., multiple sarcomata, significantly points to the resemblances between the two maladies. Nevertheless, certain clinical distinctions are definitely marked. Mycosis fungoides does not always involve the lymphatic glands, and it never attacks internal organs. It pursues a tardy course, may last for many years and death is at last due to exhaustion, complication or intercurrent disease. Individual patches or tumors may subside without leaving any trace.

Mycosis fungoides usually begins during or after middle age. In a number of cases it has been preceded by some other cutaneons affection, as erythema, erysipelas, eczema, urticaria or furunculosis. The first phase of its development is by no means significant of its nature. Recurrent attacks of erythema, eczema or dermatitis occur for a long time; it may be for years. In the beginning these attacks are amenable to treatment, but with the lapse of time they become more and more intractable. Throughout the course of the disease itching is a prominent characteristic. In accordance with its clinical history mycosis fungoides has been divided into three periods or stages, the eczematiform, the lichenoid and the neoplastic. They all pursue a very tedious course. The patches of seeming eczema are of a dark or light red color. As the case progresses they become more or less raised above the surrounding surface and there may be a little scaling. In the commencement only the superficial layers of the skin are affected, but the deeper parts are at length involved. The affected surface gradually grows rougher and assumes an aspect which bears some resemblance to lichen planus.

Finally, the most distinctive stage, that of tumor formation, arrives. One or more of the lichenoid patches takes on increased development, and bulges forth as a veritable tumor of irregular or hemispheric form, somewhat firm consistence, bright red color and as a rule, smooth surface. At this stage the tumors were compared by Alibert, who first described the disease, to ripe tomatoes. Subsequently the surface becomes excoriated or ulcerated, rough and fungous. Even at this advanced stage of development fungous tumors may be absorbed and disappear, leaving no trace.

The division into stages is a broad and general one the scheme of development is marked by many deviations. Lichenoid patches may, as in my case, coexist with numerous and large tumors; the three phases of the disease may be present upon the surface at the same time; the tumors may originate without any preceding manifestation. In a case reported, sheet-like infiltration was observed upon the base of the tongue, palate and in the larynx.

The duration of each stage is indefinite and the entire course of the disease is notably slow. It continues for several or many years. Sooner or later the patient begins to fail in general health. Death at length occurs either from gradual exhaustion, uncontrollable diarrhea or some other complication.

The actual cause of mycosis fungoides is still unknown. It is generally supposed to be of parasitic

origin, but no constant organism has yet been demonstrated.

The treatment has not been very satisfactory. Arsenic, mercury, iodids and other remedies have been employed with variable degrees of success. At the present time we are only able to mitigate the symptoms or lesions of the disease without, probably, exerting much influence upon its course. External applications should be of a sedative and anti-pruritic character.

DISCUSSION.

Dr. DUHRING—Nine cases out or ten are fatal. The diagnosis of the early stage is often very difficult even to an expert. The disease is more common than is generally supposed. The early lesions simulate other diseases very closely, and particularly the erythematous form of eczema. I recall one case which was treated for eczema and within two years the patient died. So it is of great importance to be able to diagnose a case before the fungoid condition makes its appearance, after which it is fatal. I remember a case which was almost clinically like Dr. Shoemaker's, with the exception of the face lesions. The patient was treated with thyroid extract for three or four weeks and the lesions had largely disappeared. The family physician said that the patient had been able to follow his occupation (carpenter) up to two months ago and the main tumors had almost all disappeared. Then the patient suddenly became worse, the tumors increased in size, especially on the neck, axilla. and chest, and within one month he sank very rapidly. There was extreme languor and the patient would not leave the bed, after which death occurred in two or three days. There is no hesitation in classing this affection as a distinct disease. I have seen two cases of sarcoma which were generalized and there was no suspicion of their being mycosis fungoides. Both cases died within three months.

Dr. GOTTHEIL—I had a very similar case and all forms of treatment were useless. The pruritus was so obstinate that the patient almost became insane. There were pinkish elevated plaques which itched very much and spread all over the body. The characteristic tumors appeared later. Numbers of previous cases had been diagnosed as eczema, psoriasis, tumors, etc. Every case of an intractable itching cutaneous disease should be suspected as a mycosis fungoides.

Dr. ALLEN—More attention ought to be paid to the premycotic stage. Sometimes the earlier leaions would be like a papular leprosy.

Dr. GILCHRIST—Coley's fluid, which is used in inoperable sarcomata, was tried on a case of mycosis fungoides, fungoid stage (a colored woman), in the Johns Hopkins Hospital, but although some temporary reduction in the size of the tumors had followed, yet no permanent good effects had resulted. I have examined a number of sections taken from three cases of mycosis fungoides and would not diagnose them as sarcomata as some observers have done.

ULERYTHEMA SYCOSIFORME (LUPOID SYCOSIS) WITH REPORT OF TWO CASES.

Presented to the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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The following report is deemed worthy of presentation on account of the rarity of the disease and the obscurity that has until recently surrounded it. About 1865 the disease was described by Milton under the name "lupoid sycosis." This author says "I have seen in some rare cases (of sycosis) a slow superficial form of ulceration beginning with minute tubercles and attacking the hair follicles causing falling of the hair and slight though indelible cicatrices, a disorder which seems to me to be nothing more than lupus non-exedens." Unna, in 1889, described a disease which he terms *ulerythema sykosiforme* and reports a case in considerable detail. By ulerythema the latter writer means a pathologic process which goes on to the formation of atrophic scars without intermediate suppuration or ulceration; in other words, through the resorption of the cellular infiltrate. We append a full record of the case reported by Unna in order to show the similarity to the case which we describe.

Unna (*Monatshefte f. Prak. Derm.* 1889, ix, 134), records the case of a man 40 years of age, in whom the disease began in 1877 as a small pustule upon the left cheek, which soon developed into a suppurating furuncle. A roundish, reddened, slightly elevated patch about the size of a German thaler gradually formed. This wept and was covered with an accumulation of crusts. The next year there appeared upon the hairy border of the left temple a similar patch covered with crusts. The weeping and crusts continued and the process gradually involved the whole of the left cheek. The hairs of the affected part became loose and could be easily lifted out. Upon extraction whitish nodules were visible upon the hair roots. After the disappearance of the hairs the affected area became pale and there developed smooth flat scar tissue. Two years later a patch developed in the beard of the right side while upon the left the process came to a standstill. Later the patch upon the left side spread over the whole cheek, thence down to the neck. At the same time the moustache became involved upon both sides. Upon the reddened and slightly swollen skin there appeared crops of white vesicles with thick fluid whitish contents. These dried, were scratched open and formed branny crusts which resembled a starch-like dust and the face looked as if it had been powdered. From the beginning the patient shaved to prevent spreading of the affection, but now he rather believes that new points were thereby inoculated.

Present condition.—The patient looks robust and has a good healthy color. The hair of the scalp is blond and thick. The beard, which is likewise blond, is only present on the chin and neck. Both cheeks are bald except a small border on the rami of the jaws and there is evident extensive scarring. From a distance even these areas can be distinguished from the normal skin by a bluish red tint, an abnormal smoothness, and an almost satin-like shimmer. On closer examination numerous fine whitish fibers of cicatricial tissue are seen traversing the bluish red background in a sieve-like manner. On the right side of the face the borders of the patch are quite elevated. Here are seen scattered brownish scales penetrated by hairs.

In the middle of the left upper lip there is a patch one-half to one centimeter in diameter in which there is total loss of hair. There is here smooth superficial scarring.

From the middle of the chin a reddish line of small firm papules descends toward the neck and thence turns to the right. On the left side of this line the skin is diffusely reddened and is covered with small round white scales. Near here is a group of five mustard seed sized exfoliation vesicles, three of which are pierced by hairs while the other two are not, but correspond however to follicular openings.

Course.—The course of the disease as well as the above description shows that this affection has nothing to do with ordinary sycosis. Sulphur, resorcin, potassium soaps of all kinds not only did no good but actually inflamed the already cicatricial areas. A constant symptom was the appearance of large numbers of whitish superficial, peri-follicular exfoliation vesicles which rapidly dried and formed crusts. The mercurial preparations alone (mercurial carbolic plaster mull and sublimate in lead water) seemed to do good. On the whole the treatment which produced local anemia was the best. The use of energetic remedies was followed by increased inflammation. At times the parts appeared passive, shortly afterward a high degree of inflammation would ensue after the use of an indifferent remedy. It was evident that there was a deep disease masked by the superficial scarring. Never were any primary purulent vesicles present. The pustules were always due to secondary infection due to pus cocci.

Furthermore the appearance of the pustules did not occur during the acme of inflammation. The patient became improved but not cured. At present there is a very slow amelioration taking place.

Brocq, in his treatise upon diseases of the skin says, "the variety to which I have given the name of 'sycosis lupoide' is observed chiefly in the beard and the morbid process presents a great degree of intensity. The inflammatory lesions are characterized by large peri-follicular pustules, by redness, by thickening of the skin and by the production of crust and scales. There is here a confluence of the neighboring elements. In a word, the affection resembles a non-parasitic sycosis which has arrived at an intense degree of inflammation and infiltration. It differs from it by the constant tendency to a regular centrifugal extension and a total atrophy of the pilo-sebaceous system. All the hairs of the affected region are radically destroyed. There persists after the evolution of the process a central cicatrix more or less hard and thickened, sometimes keloidal. It may however be smooth and soft. Often it presents upon its surface little fibrous bands more or less elevated and irregular. As the affection spreads the center clears up and the pustules, scales and crusts disappear, while on the periphery there is a halo of reddened tissue thickened, inflamed, covered with points of folliculitis, crusts and scales. This is the zone of activity of the affection. The disease thus constantly progresses in the hairy region leaving after it a skin deprived of its glandular and pilous elements, in other words a permanent alopecia.

The diseased areas are rarely multiple, there being seldom more than one or two. They may attain the greatest dimensions unless checked by the most energetic treatment. This affection differs from non-parasitic and parasitic sycosis by its peculiar course and by the characteristic tendency to leave after it a permanent alopecia. One might compare this affection with certain other diseases, until now included under the head of lupus, which also produce irremediable loss of hair: nevertheless, it differs from them by its limitation to hairy regions, by the constant absence of lupoid nodules and the bacillus of Koch. Furthermore by its aspect which is neither that of lupus vulgaris nor lupus erythematosus. French dermatologists have made the diagnosis of "lupus acneique" in the presence of typical cases of this affection. Certain foreign authors have perhaps denominated it lupoid acne but we (Brocq) prefer the name "sycosis lupoide." The most efficacious treatment is that of lupus vulgaris.

Case 1.—L. H., male, age 55 years, native of Philadelphia, a seaman in the United States Navy, now an inmate of the Naval Home, has always enjoyed excellent health with the exception of an attack of pneumonia about twelve years ago. In 1886 the patient suffered from a pustular disease of the beard which lasted two years and then became well. In 1893 he presented himself at the skin dispensary of the Hospital of the University of Pennsylvania with a condition which was diagnosed by Dr. Hartzell, as an ordinary non-parasitic sycosis. The patient stated at the time that he had had an eruption about two years. He remained under treatment for a considerable time, but was later lost sight of. In March 1895 he presented himself to our view at the Philadelphia Polyclinic. At this time the following appearances were noted: The diseased areas involved both cheeks but the condition was more marked upon the right. Upon this side the diseased area was pyriform in



CASE 1.

shape, with the base downward extending from the angle of the jaw to the zygoma, four inches in length. The diameter at the base was two inches, at the stem one inch. The patch presented a pinkish red color, which here and there faded into the surrounding skin, while at other places there was a defined border. Perhaps the most striking peculiarity of the skin over this region was its smooth, glistening, atrophic appearance. Instead of the normal epidermal covering there was a soft shining wrinkled pellicle. Beneath the diffuse redness there was evident throughout the patch, a whitish stipling. The surface gave to the finger passed over it a velvety sensation, but it was evident upon firm pressure that there was increased resistance of the derma beneath. At first sight it appeared as if there were no follicular openings over this area, but upon closer investigation short hairs could be seen piercing the fine epidermis. Some portions of the patch showed complete loss of hair, especially toward the center. Near the periphery there was less hair loss. No follicular suppuration as evidenced by the presence of pustules was noted. The diseased process involved

the inter-follicular region just as much as the hair follicles. Scattered over the patch were perhaps half a dozen vesicles and blebs, varying in size from a pea to a cent. These were very flat, being not more than one-sixteenth of an inch above the level of the skin. The epidermal covering was very thin. Their contents were invariably viscid and transparent. After rupture the vesicles and blebs collapsed and formed brownish crusts which exerted traction upon the surrounding skin throwing it into radiating folds. Some of these crusts subsequently became purulent as a result of accidental infection. Upon their removal there were denuded surfaces which exhibited serous exudation. Here and there was a fine furfuraceous scaling. The entire patch was slightly depressed beneath the surrounding healthy skin. Upon the left side of the face the patch was irregular in shape, about one inch square and one inch above the angle of the jaw and one-half inch internal to the lobule of the ear. There were a few small outlying areas connected with the larger patch by isthmuses. The patch was redder, more sharply defined, less atrophic, and depressed than upon the opposite side of the face. Within two weeks a new patch, about the size of a silver quarter, has made its appearance above the previously described area, but not in any manner connected with it. This patch simply shows hyperemia. As upon the right side there were vesicles, blebs and crusts, remains of former lesions. The course of the disease has been extremely obstinate during the six months that he has been under our observation and there has been absolutely no improvement. On the contrary the patches are actually larger than they were upon his first presentation at the clinic. At certain times there seemed to be an improvement, namely a reduction in the amount of hyperemia and lessened number of vesicles and blebs. This amelioration however seemed to be spontaneous and not the effect of treatment. Crops of vesicles and blebs appeared at intervals of a day or two. They would spring up in a few hours and be attended by such intense itching that the patient would be obliged to rupture them. Sulphur was used, both in solution and as an ointment, without effect. Sedative lotions especially those containing calamine and zinc oxid seemed to give most relief. The patient for a time was placed upon Fowler's solution, 0.25 c.c. thrice daily. Within four or five days a marked aggravation of the condition occurred. There was very rapid spreading of the patch, increased hyperemia, increased bleb formation, and augmentation of the subjective phenomena. Upon the cessation of the drug rapid improvement followed and the face became better than it had been for months.

It will be seen from a comparison of these reports that the disease described is one and the same. The minor differences result probably from the cases having been seen in different stages.

The disease consists essentially of a follicular and peri follicular inflammation which goes on to the destruction of the hair follicles and the formation of atrophic scars. Brocq does not mention the formation of vessicles or blebs but had he kept his cases under observation long enough these might have made their appearance. Unna regards his case as having been from the start an ulerythema; our case had a distinct antecedent history of an ordinary non-parasitic sycosis. There is a general agreement as to the marked rebelliousness of the affection to treatment.

Microscopic examination.—Biopsies were made upon several occasions, small portions of skin being excised from the center of the patch upon the right cheek. The greatest care was necessary to prevent detachment of the thin epidermis. This was so loosely adherent to the corium beneath that a simple vertical incision was sufficient to separate it. In two excisions, the epidermis came off before the biopsy was completed. In the third, by excising a larger piece of skin the epidermis remained adherent to the corium except at both ends. The excised block of skin was hardened in successive strengths of alcohol and imbedded in paraffin. The sections were stained with the Biondi-Ehrlich-Haidenhain stain, hematoxylin and eosin, and by Gram's method.

The stratum corneum and stratum lucidum are absent. The stratum granulosum is present and well marked. The rete mucosum presents no pathologic changes. It is detached from the papillary layer of the corium at both ends of the section; in the center it remained adherent; the point of adhesion corresponds to the mouth of a hair follicle. On examining the specimen under low power there is at once apparent an intense sharply defined cell infiltration. Innumerable nests of varying sizes and shapes filled with deeply stained cells are scattered throughout the corium. Their walls consist of fibers of connective tissue. This cell infiltration is most marked around the hair follicles, of which there are several in the section; furthermore, the infiltration is densest near the mouths of the follicles. The papillary layer of the corium shows great overgrowth of connective tissue, between the fibers of which are scattered cells. The papillary blood vessels are obscured from view by this fibrous tissue. These nests of cells extend from the sub-papillary layer down to the deepest portions of the corium. In certain places fibrous connective tissue seems to have replaced previously existing hair follicles and sebaceous glands. The sections, in all, show but three hair follicles and no sebaceous glands. As the piece of excised skin was quite large and taken from the center of the bearded region it is evident that there is considerable pilo-sebaceous atrophy. The sweat glands appear normal. Numerous sudoriferous ducts are seen coursing through the corium and are, for the greater part, normal although a few present some cell infiltration.

The cell infiltrate is composed chiefly of leucocytes although there are also present cells derived from the connective tissue corpuscles. The round cells however are in great preponderance. Giant cells are absent. The examination for tubercle bacilli is entirely negative.

While this affection simulates lupus vulgaris both clinically and pathologically it is evident that it is not identical with that



Case 3.

disease. The cicatricial appearance, the extreme rebelliousness to treatment and the circumscribed cell infiltration are certainly suggestive of lupus; on the other hand the absence of lupus nodules and ulceration clinically and the absence of giant cells and tubercle bacilli in the microscopic section prove it to be something else. We agree with Unna in regarding this disease as a distinct entity and accept his name "*ulerythema sycosiforme*" as the best one from our present knowledge of the disease.

Two years later this case shows the following appearances: The patch on the right side was markedly white and atrophic, the border was slightly infiltrated and raised, there was absence of vesicles and blebs. The entire process seemed to be inactive.

Upon the left side there was peripheral spreading of the patch, the border being marked by red inflammatory pustules. The patient stated that for a period of two months the disease seemed to have been cured.

Case 2.—J. Q., aged 35 years, laborer, six years ago noticed pustules in the beard of the left cheek. He states that since then the affection has been gradually growing worse.

Present condition.—The diseased area upon the left side is irregularly oval shaped, being about three inches by one inch in diameter and extending from the zygoma to a point one inch below the angle of the jaw. The epidermis of this region is smooth, shining and atrophic; by pressure it is thrown into radiating folds. The patch is whitish but presenting a mottled reddish appearance due to a superficial telangiectasis. The aural border of the patch is considerably raised above the level of the skin and exhibits, to the touch, marked infiltration, keloidal in character. The hair follicles and the mouths of the sebaceous glands are entirely absent over this area.

Upon the right side there was a triangular patch one and a half inches by three-quarters of an inch. The border is markedly infiltrated as upon the opposite side. There is atrophy of the hair follicles but the atrophic appearance of the skin is not as marked as on the left side. Below this patch are several follicular pustules and the disease seemed to be spreading in this direction. Acne lesions were present upon other portions of the face.

There were no vesicles or blebs present.

DISCUSSION.

Dr. Allen—There exists a disease, call it lupoid sycosis or ulerythema sycosis, which differs from lupus erythematosus. I am surprised to hear that this disease resembles lupus vulgaris, but to me, the lesions appear more like lupus erythematosus than lupus vulgaris. Lupoid sycosis is in my opinion a distinct disease.

Dr. Duhring—The experience with this disease has been so limited that we have to view the clinical appearances with much care. I have seen a few cases, some of them ill-defined and others well marked. Both cases I thought were characteristic examples of this disease. Lupoid sycosis was a disease which presented many clinical pictures; some writers describing it as resembling lupus vulgaris, others as lupus erythematosus and others as acne. When I looked at the first case I thought it presented features more like lupus vulgaris than lupus erythematosus; so it might be mistaken for the former disease. The second case resembled more an acne and resembled a case which had been under my observation for a year and the man was getting well under mild treatment (sulphur ointment). The hairs were returning, which showed that the hair follicles had not been destroyed. Others who had seen the case were surprised at the return of the hair. I had been inclined to class it with the sycosis but now altered my opinion. The prognosis in this disease was not so unfavorable as others had supposed, since in one case I have seen the hair return. In the second case the idea of parasitism had not occurred to me except perhaps in connection with the lesions on the neck.

Dr. Fordyce—Until we know more about the pathology of lupus erythematosus it will be difficult to classify this disease. The case is very like lupus erythematosus because of the sharply defined edge of the lesion. The microscopic picture also resembles closely the same disease. The presence of nests of small cells and the absence of giant cells would cause me to group it under lupus erythematosus rather than sycosiform.

Dr. Schamberg—These cases present different types of the disease and they agree in many respects with Dr. Duhring's case. In the latter the skin was soft and there was no interfollicular scarring. All the cases of this disease are preceded by sycosis and one case was more like lupus erythematosus, but there had been no scales, whereas in the other patient blebs had made their appearance at one time, a lesion which never appears in lupus erythematosus. Blebs did not occur in Duhring's case; I think that pressure of the collection of cells on the neighboring nerves might have caused the bleb formation. I have never seen such deep infiltration of cells, in the corium, in lupus erythematosus.

THE SYMPTOMS AND NATURE OF ERYTHEMA MULTIFORME.

Presented to the Section on Cutaneous Medicine and Surgery at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY LOUIS A. DUHRING, M.D.
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By the term erythema multiforme I understand a disease characterized by certain tolerably well-defined erythematous lesions upon the skin, which undergo a variable evolution with a tendency to run an acute course and to recover spontaneously. The lesions are chiefly erythematous in type and are superficial, their seat being in the corium, especially in the papillary layer. They are not hyperemic but are distinctly exudative in character. They consist of macules, maculo-papules, papules, papulo-vesicles, vesicles and blebs. They manifest a disposition for one form to pass into another, thus frequently, but not always, constituting a multiform eruption, hence the name erythema multiforme, originally proposed for the disease by F. Hebra. While therefore a notable variety of lesions frequently, but not always, characterize the disease, it must not be supposed that every exudative erythema is necessarily an erythema multiforme. There are certain polymorphous erythemata which are to be classed as erythema exudativum which are not instances of erythema multiforme, as for example erythema scarlatinoides. In the several cutaneous manifestations of erythema multiforme there are characters common to all the varieties of lesions, as regards their form, shape, outline, their occurrence together or in proximity, color, evolution and involution, which stamp them as being merely different inflammatory expressions of one process. They constitute a group of peculiar inflammations, for the most part erythematous lesions, to which we give the name erythema multiforme. They may be distinctly marked in their general features, constituting easily recognizable dermatoses, or only faintly pronounced, so that possibly the diagnosis can be made only by observing the case for a few days and noting the evolution of the process. In my own field of observation many more of the latter than the former cases present themselves. Well-defined cases, such as are usually selected by authors to illustrate atlases of the diseases of the skin, are comparatively rare in Philadelphia. There occur, as I view the subject, a number of cases of acute, ill-defined erythematous diseases which are difficult to classify because they show so little that is distinctive, and yet if they are followed from the beginning to the end of the cutaneous manifestations, will usually give evidence that they are actually faint expressions of erythema multiforme. In defining disease authors, I think, are inclined to adhere too closely to recognized types of diseases and do not allow sufficiently for variations. Having only defined types in mind the clinician may fail to recognize the disease before him because it falls short of the accepted sharp definition.

As already intimated the predominant idea the world over of erythema multiforme comprises an acute disease, running usually a course extending from one to three weeks and which may relapse or recur at shorter or longer intervals. The lesions, whether in the form of macules, papules, vesicles or blebs, are inclined to be sharply circumscribed, and especially in the case of macules, to be marginate. The color is a bright, vivid or deep red, often a raspberry red. The maculo-papules, papules and papulo-vesicles are three forms frequently occurring together or in sequence, are peculiar in that they almost invariably undergo in the course of their evolution central superficial necrosis. As they grow and extend in size they break down in the center, forming a slight or marked depression and a crust, the latter often being insignificant. This is one of the characteristic features of the maculo-papular, papular and vesico-papular varieties of the disease. It is not only a clinical but also a histo-pathologic feature. Where the process inclines to manifest itself on the skin as a broad erythematous lesion, occu-

pying a small area, or, it may be, the greater part of the general surface, margination in the form of arcs and segments of circles is common. This is often, but by no means always, due to the confluence of several lesions. The mere fact of confluence will not give rise to these peculiar forms, other factors, in connection especially with nerve influence, being, I believe, accountable for it. The angio-neurotic or vasomotor nature of the disease is exemplified not only in this feature but in many other ways. But this observation does not inform us of the intimate nature or the cause of the manifestation. I may here refer to features which every clinician has observed, but what authors fail to dwell upon sufficiently, that the nervous system influences the cutaneous manifestations of the disease in a remarkable manner. There exists in connection with most of the somewhat diverse lesions a notable tendency to spread on the periphery while healing or disappearing in the center. It presents many of the features of herpetism. The process in its course is much like that of tinea circinata due to the presence of a fungus. It has often occurred to me to query why the natural lesion and the evolution of these two processes, due to entirely different causes, so far as we are able to determine this point, should be so much alike in many particulars. One is due to some unknown cause acting from within, the other from a well-known cause acting from without, yet the lesions and their evolution possess features which link them from a clinical standpoint So much so is this the case that until within the last thirty or forty years these diseases were confounded by the most experienced dermatologists. The question of interest is to determine what part, if any, the peripheral nerves or the central nervous system play in the production of the circinate lesions of tinea circinata.

Having decided in outline the general character of the local manifestations, it may be inquired what, if any, are the constitutional or general symptoms. Do the latter always occur and thus form a part of the disease? In approaching this subject I desire to lay special stress on the observation that in the descriptions of erythema multiforme in text books, very little is said about the general symptoms. They are, I think, oftener present than is usually conceded. If this be true it would show that they are almost as much a part of the process as the cutaneous manifestations. This I believe to be the case in many instances. The general symptoms, however, are more variable in form than the manifestations upon the skin, and for this reason probably are overlooked or are not taken into account in viewing the entire process In mild cases, of which a goodly number have come under my observation, they may be trivial. I will refer first to the milder symptoms. They naturally vary somewhat with the age of the patient, but in adolescents or young adults consist of malaise, lassitude, aching in the limbs and trunk or joints, loss of appetite, furred tongue, constipation, fever in a variable degree, often slight, parched lips, and the like. It may be observed that such symptoms are in no way peculiar, being seen in a multitude of acute diseases. This is true, but they nevertheless constitute in many instances, a part of a process of which the cutaneous symptoms are the most striking. The amount of the cutaneous disturbance, however, by no means always indicates the gravity of an entire disease. Thus, by way of example, in dermatitis exfoliativa the cutaneous manifestations may be severe and the general symptoms slight, while on the other hand in some cases of the eruptive febrile diseases, as measles, the cutaneous are slight and the general symptoms pronounced. If we note the general symptoms in a sharp attack there may exist distinct rheumatoid symptoms, including articular stiffness, swelling or pain, localized or fugitive, together with all the symptoms enumerated as liable to be present in the milder forms of the disease. These and other, sometimes graver, symptoms may make their advent suddenly or gradually before or with the appearance of the eruption. I would interpret them, as I would the eruption itself, as being in many instances due to an infection, similar in nature to that which occurs in certain other erythematous efflorescences upon the skin, as for example, rubella and pityriasis rosea. I believe, then, that what we call erythema multiforme is in reality a general diseace, in many instances, of an infectious nature. Of the precise nature of the infection we know little or nothing. I venture the opinion, however, that the cause is probably allied in nature to those which give rise to influenza and similar diseases, and probably to those which occasion some cases of so-called pityriasis rosea. I say advisedly some cases because I think it will be found that several diseases have been included under the heading pityriasis rosea, some acute, others chronic in course.

There is another group of cases, much smaller than those mentioned, that are well known, and which generally pursue a chronic course. The symptoms are more general and graver in character than in erythema multiforme, the lesions being hemorrhagic. The general symptoms are similar or like those I have briefly outlined as occurring in some cases of severe erythema multiforme, but they are more pronounced, and in addition hemorrhages occur, slight or severe, which may relapse or recur in the intestinal tract or elsewhere The cutaneous lesions are hemorrhagic and not erythematous; that is to say, that take on a hemorrhagic character either in the beginning or soon after, the erythematous character being for the most part or wholly wanting. These cases belong to the hemorrhages of the skin rather than to the erythemata. They possess much in common with infectious purpura, and I think should be regarded as examples of that disease. I make this observation because some writers of late have been disposed to consider them as erythema multiforme. Thus, we note that Osler has recently reported an interesting series of these cases, designating them erythema multiforme. The latter title, in my opinion, is inapplicable to these cases, which if they are investigated will be found to possess the symptoms of purpura rheumatica much more definitely than of erythema. If we group these purpuric cases with the erythemata it will become necessary to change the definition of erythema, which we are by no means prepared to do. I grant that the causes which may give rise to some cases of erythema multiforme may in like manner be concerned in the production of some forms of purpura, and I am of opinion that such is sometimes the case. But this fact does not make them one and the same disease. One cause may give rise to several diseases, in one case involving internal organs, in another instance the integument. The points to which I have directed special attention are the following:

1. That erythema multiforme is a disease of the skin, having a clearly outlined definition as regards the cutaneous lesions.

2. That general or systemic symptoms are often obviously recognizable, and occasionally are severe.

3. That we should distinguish between erythema multiforme and other forms of exudative erythema, not every exudative erythema being an erythema multiforme.

4. The term erythema multiforme should be confined in its employment to characteristic inflammatory manifestations, especially of the superficial strata of the skin, and that where pronounced hemorrhagic lesions occur in the integument, as well as elsewhere, the disease should be viewed as purpura.

5. Erythema multiforme is probably not infrequently an infectious disease, both the general and local symptoms pointing to this conclusion.

DISCUSSION.

Dr. BAUM—I have seen both varieties of erythema multiforme on the same patient, *i. e.*, the erythematous variety on the upper extremities and the hemorrhagic lesions on the legs. I think the disease due to a vasomotor disturbance. I recall a case of this disease in which there were present alternating bullous and hemorrhagic lesions. A relapse had occurred after the death of a sister and it presented the large bullous variety in the hands. I think there were lesions also in the bowels, because there was marked irritability there.

Dr. BULKLEY—I consider it an infectious disease and due to an auto-intoxication. I have seen many cases of this disease in recently landed immigrants. I advise the administration of Startin's mixture and a calomel purge. The rheumatic element occurs sometimes and I regard it as another symptom.

Dr. HARTZELL—All the cases classed under this disease do not belong there. Erythema multiforme exhibits special features of an infectious disease. There are joint affections which are rheumatoid in character, but it is not rheumatism. I do not think the course of the disease is at all influenced by treatment. A number of cases are due to various poisons, *e. g.*, drugs, but the lesions should not be classed as erythema multiforme.

Dr. POLLITZER—The cutaneous lesions are only symptoms of a general disease and the affection is due to some disturbance of the blood vessels. Pathologically there is an erythema accompanied by an exudate and the hemorrhagic form is only one of degree. I do not think it correct to classify the purpura which sometimes follows the ingestion of quinin, with the thrombosis of endocarditis.

Dr. COOK—I think erythema multiforme a group of diseases due to neurotic influences.

Dr. GILCHRIST—I consider the cutaneous lesions are probably the expression of a general affection. I have examined numbers of microscopic sections taken from four or five cases of the erythematous variety of this disease and also from one case of the bullous form. The results of my observations seemed to point to the fact that the cutaneous lesions were brought about by some toxin or some micro-organisms which could not be demonstrated, forming or developing directly beneath the epidermis. The polynuclear leucocytes wandered out into this region and appeared, in the vesicular variety, to become disintegrated or killed as soon as they had wandered out. This condition seemed to point to the fact that the poison was a powerful one. This remarkable microscopic picture could not be explained by any neurotic influences, nor by any alteration in the vessels. The bullous and hemorrhagic varieties of the disease were only one of degree.

With reference to immigrant dermatitis, a good deal of experience was had with this affection in Baltimore, since it was a considerable port of entry for immigrants. I would not class this group with erythema multiforme but would consider it as a separate affection. In the treatment of erythema multiforme I have found sodium salicylate very efficacious.

Dr. DUHRING—Most of the speakers agree with me that there is more in this disease than appears on the surface. I consider Hebra's definition, which was given thirty-five years ago, just as applicable today and could not be improved upon. Hebra, however, did not touch upon the constitutional symptoms. Erythema multiforme is not hemorrhagic. Although the causes are identical, yet all the varieties are not infectious. Immigrant dermatitis I would call erythema exudativum. The cases of erythema multiforme I have seen in Philadelphia are milder than those seen in New York, London, etc.

ON VARIOUS FORMS OF CUTANEOUS TUBERCULOSIS.

Presented to the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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The affections of the skin produced by tuberculosis have shown such a variety of form that they offer nearly the same interest as those arising from syphilis. On account of the complex construction of the skin the tubercular lesions must present a different appearance according to the organs and tissues of the skin involved. When the glands of the skin are affected we see lichen scrofulosorum or folliculitis; when the lymphatics are affected, the disease manifests itself in the form of tubercular gumma, and as verrucous cutaneous tuberculosis, or lupus, when the papillary layer or the derma is invaded.



Figure 1.

The cause of these eruptions is the tubercle bacillus, which is found in the structure of the skin. We have, however, other cutaneous eruptions where no tubercle bacilli are present, and they are the result of its toxic products. The toxic power of the tox-albumins has been already demonstrated, and it gives the explanation of those forms of lupus erythematosus and of lupus pernio of Hutchinson. In these cases the tubercle bacillus may be in the internal organs far from the skin or in the mucous membranes near the affected skin, and the toxins are the cause of the eruption which is only symptomatic and persistent on account of the persistency of its cause.

The most superficial form of tubercular erythema is considered a serious symptom for the future of the patient. Erythematous eruptions in form of roseola

remaining from twenty to thirty days have been observed by Bayet and Schlangreieff, in individuals affected with acute pulmonary tuberculosis. Last year I attended a lady with a superficial form of lupus erythematosus of the face and hands, suffering with advanced pulmonary tuberculosis. The eruption on the face appeared two months after the pulmonary symptoms became manifest remaining for over one year and when the pulmonary symptoms increased in severity, the eruption had nearly disappeared.

Those forms of cutaneous tuberculosis, in which the tubercle bacillus and the tubercular process is present in the skin, are the subject of this paper. In many of these cases we find the individual in good general health, in spite of the cutaneous ulcerations. Some of these forms are the result of auto-inoculation, the tubercle bacilli from the same person inoculating the skin, others are the result of outside inoculation as in verruca necrogenica.

H. Hallopeau[1] calls these forms *tuberculoses cutanées bacillaires* in order to indicate that they are the



Figure 2 *a*.

direct result of the presence of the tubercle bacillus in the skin. In these cases we have the alterations in the papillary layer with accompanying lesions of the epidermis and often also of the derma. The lesions of the papillary layer take on a vegetating form, for which reason they were called by Riehl and Paltauf, *tuberculosis verrucosa*, or *tuberculosis papillomateuse* by Besnier, Deboue and Brissaud.

The illustrations are of three cases of cutaneous tuberculosis of this kind, where the infection came directly from the same individual, and in each the affection showed a different course and appearance.

Figure 1 shows an extensive tubercular eruption in a lady 52 years old, suffering with pulmonary tuberculosis for over three years, accompanied with profuse expectoration. The eruption has now completely disappeared and only superficial scars show the spots formerly occupied by the eruptive plaques.

[1] Sur le rapports de la tuberculose avec les maladies de la peau, autres qui le Lupus Vulgaire, Third International Congress of Dermatology, 1896.

The examination of the sputa revealed a large number of tubercle bacilli. The eruption began on the extensor surface of the right arm near the wrist joint, with an intense itching and an erythematous patch which became somewhat swollen and was soon covered with small pustules, forming dirty brown crusts. While the pustules were spreading superficially in the middle, ulcerations formed which gradually gave place to vegetating granulations, showing the verrucous appearance. Almost contemporaneously patches of the same nature affected the lips, spread upon the nose, cheeks and forehead, scalp and both sides of the neck. On account of the itching sensation she often rubbed the spots and the other hand was inocculated on the dorsal surface of the third finger in the form of a large eruptive spot with the same characteristics as the spots on the face. From cut one can easily see the three zones described in the typical patches; the outer zone erythematous, slightly raised above the level of the normal skin, the middle zone, which consists of a dusky livid infiltration with scattered ulcerations, and small abscesses, somewhat



Figure 2 *b*.

raised above the former; the inner zone shows fissures and sprouting up from them are small warty projections making this zone somewhat higher than the others.

I was not allowed to make microscopic examinations of the case, but the attending physician asserted that he found tubercle bacilli in the secretion of the ulceration. The most remarkable feature in this case was the relatively acute course and the recovery. The eruption lasted from three to four months, recovering gradually like any other superficial ulceration, leaving a red parchment-like scar. The lady has also improved considerably in her general health.

Figure 2 is another case of tuberculosis verrucosa cutis, which lasted over four years in spite of strong and constant treatment. At present the ulcerations have nearly all healed. The patient is a man of strong physique, molder by trade, has always enjoyed good health, never had syphilis. Five years ago he had an abscess on the internal region of the left leg

with caries of the tibia. In the cut an irregular scar in this region shows it plainly, and at this point was the beginning of the cutaneous ulceration. It spread from the edges of the wound and gradually extended, covering the whole extent of the limb, to the dorsal surface of the foot. At the same time another abscess of the same nature, with caries of the bone affected the right leg. Under surgical treatment the bone healed, the surface was covered with granulations, but no healthy scar could be obtained. The ulceration spread with exuberant vegetations, encircling the whole calf of the leg, reaching the opposite side in the malleolar and tarsian region. The vegetations were in the form of a mass elevated above the level of the normal skin, easily bleeding in some places, covered with crusts, in others with thick epidermic masses. The detritus was often examined for the tubercle bacilllus, but it was never found. In a few sections the epidermis was much thicker, red and of verrucous appearance, the papillæ greatly enlarged, with an enormous infiltration of small round cells, in some places arranged in foci, resembling the tissues affected with tuberculous inflammation. In some, few giant cells could be found surrounded by numerous nuclei of a tubercular character.

In this year after a tonic internal treatment the patient has gained considerably in flesh. The patches have been cauterized with Vienna paste, in other places have been curetted, and gradually with the application of a resorcin and creosote salve the ulcerated surface began to appear more healthy and had nearly all healed, leaving scars and an atrophic condition of the affected regions.

Bacillar infection may be carried from the lymphatic glands to the skin as we often see in the scrofuloderma. The same infection can at times be spread from the inguinal glands to the skin and surrounding tissues in the form of phagedenic bubo. Figure 3 shows a young colored man with an enormous ulceration of the right groin spreading down to the internal region of the thigh, on the penis and on the scrotum, and another beginning on the other groin.

He is 20 years old; his father is living and in good health; his mother died of consumption. He has been affected with scrofula, and the condition of the cervical glands, swollen and covered with scars, attests it. He was admitted to the hospital for inguinal bubo. He stated that nearly eight weeks before entering the institution he noticed a small ulceration at the end of prepuce. A few days after there appeared a swelling of the left groin. The skin soon became tense and painful, broke down and discharged a foul sanguinolent and purulent fluid. He stated that the sore on the prepuce appeared two months after the last intercourse. When he was admitted Nov. 7, 1896, he appeared to be well developed and nourished, only his neck showing many scars of old tubercular glands. Both lungs gave mucous râles at the apex in prolonged expiration, no dulness. The body was free from eruption, no sore throat, no alopecia. The right inguinal region showed a swelling of about the size of the fist, two small openings gave issue to some blood and pus. The base of the swelling was hard for some distance. Glands of left groin were also enlarged. There was a small, hard, superficial ulceration on the free end of the prepuce. Under chloroform the right groin was opened, thoroughly curetted and packed with iodoform gauze. Instead of obtaining cicatrization, the whole surface began to show a large ulcerated surface, with fungous growths affecting the inguinal region to the internal region of the thigh, the scrotum riddled with sinuses, the skin of the penis showed hard lymphatic vessels like small gummæ, which gradually formed abscesses and ulcerations with the same fungous appearance. The left inguinal glands were hardened and formed a large mass with points of suppuration beneath.

February 1 the patient was again placed under the anesthetic; the sinuses were opened, the glands removed, the granulations thoroughly curetted and the whole surface was cauterized with the thermo-cautery. Succeeding dressings were made with acetanilid. Although no symptoms of constitutional syphilis had so far appeared, yet liquor Van Swieten had been administered, together with tonics and reconstituents. Mercurial plaster had been used on the ulcerations without result. In order to observe the reaction to tuberculin, injections were given of from 1 to 5 mgr., and at every injection he had fever ranging from 101 to 103 degrees F. When I went out of service the ulceration was somewhat healed, the granulations appeared healthier and the patient was able to go about. Symptoms of pulmonary tuberculosis were more apparent.

I have referred to this case as an example of mixed infection, and from many cases of phagedenic ulcers I must come to the conclusion that tuberculosis of the glands and lymphatics is often mixed with the virus of chancroid or syphilitic lesions, producing the dreaded destructions of phagedenism.

This boy was affected with tubercular glands, and when the glands broke down on account of the other infection, tubercle bacilli came in contact with the ulcerated surface, causing a tubercular ulcer in place of the bubo. The gummous tuberculosis is in many instances the cause of the cutaneous tubercular ulcers; this is a kind of intermediary between the deep-seated tuberculosis and the superficial of the skin. In all tubercular forms we must see a mixed infection, as the cocci of the pus appears in every tubercular process as secondary elements, so that we find in the middle a cheesy, degenerated point with a purulent softening, as referred to by Leistikow.[2] In cases of phagedena we may have not only the staphylococcus pyogenes and the tubercle bacillus, but also the syphilitic virus or the micro-organism proper to chancroid, which are the commencing agents of the ulceration.

In our case it is rather difficult to establish with certainty whether the ulcer which started from the prepuce was a chancroidal or a syphilitic one. The patient after six months has not yet shown any syphilitic symptoms, with the exception of the phagedenic bubo. It is also hard to believe it a chancroid, when the patient asserts that the ulcer appeared two months after the last intercourse. It seems to me that an accidental sore of some nature, has started the inflammatory process in the lymphatic vessels of the penis and inguinal glands which, affected already with tubercular process, broke down, causing extensive abscesses, and the tubercle bacilli from the tubercular glands have infected the surrounding tissues, causing a cutaneous and subcutaneous tubercular gummous ulceration. The ulcers of the dorsum penis and scrotum are due to tubercular lymphangitis, as we found the affection to start directly from the lymphatic vascular trunks. They appeared at first hard

[2] Über Skrofuloderma, Mon. Hefte für Pract. Dermatol., ix Bd. 1889.

like stems under the pressure of the finger, then they became larger, of dusky color, breaking down into a quantity of purulent and sanguinolent fluid and a great discharge of lymph. In this case two conditions could have been the cause of the process. Either the ulcer itself was of tubercular origin and infected the lymphatics, or the lymphatics were already infected with tubercle bacilli, as were the inguinal glands, and therefore the staphylococci started the inflammatory process around the already infiltrated tubercular tissues producing tubercular ulcerations with papillary growths.

I referred to these three cases of tuberculosis verrucosa cutis on account of their peculiar origin. The first was the result of the inoculation of the tubercle bacilli from the sputa; the second was produced by the tubercle bacillus from the diseased bone; the third from the bacilli contained in the tubercular glands.



Figure 3.

Each one has some important features. The first in which the papillary layer and the epidermis only was superficially affected, healed in about four or five months, leaving superficial scars. The second which affected the derma deeply formed thick vegetating papillæ which lasted nearly four years, stubborn and persistent in spite of the surgical means employed. The third, a type of mixed infection affecting the skin in its deepest layers and the fascia, with vegetating and papillomatous appearance, equally resisted the cautery and the curetting. There is no doubt that the layers of the skin affected have much to do with the more or less persistent character of these affections.

I now call your attention to two cases, which I classify among the the scrofulo-tuberculosis, according to the distinction proposed by Maurice Vallas.[3] In these cases we do not find any outside inoculation; they are bacillary in their nature like lupus, and are primary, showing no trace of their origin. They could be ranged with Leloir[4] among the atypic varieties of lupus.

Figure 4 is a good specimen of this variety of cutaneous tuberculosis. It is of a man 30 years old, of good physique, blond, lumber-yard hand by occupation. No history of tuberculosis nor cancer exists in his family. He never had syphilis, has always enjoyed good health. Dec. 29, 1896, he came to the hospital for ulcerations of the skin. The eruptions had begun fifteen months previously, at first in the form of a little indurated red patch over the crest of the left ilium extending internally. It gradually spread and began to break down in the center, forming an irregular ulcer, tender and slightly painful. When the ulcerated patch had attained the size of a silver dollar, healing began at the center, leaving an irregular thick and superficial scar. The peripheral ulcerations continued spreading and after assuming the size of the palm of the hand, stopped and after some months healed. Other patches of the same character after an interval of two months appeared, one on the right leg near the knee, one on the abdominal wall to the right of the umbilicus, one in the right axilla and shoulder, and one on the right side of the mouth, involving both lips. The eruption consisted of nodules deeply seated in the derma and coalescent at the periphery of a thick cicatrix, resembling the lupus scars. Some of these nodules were

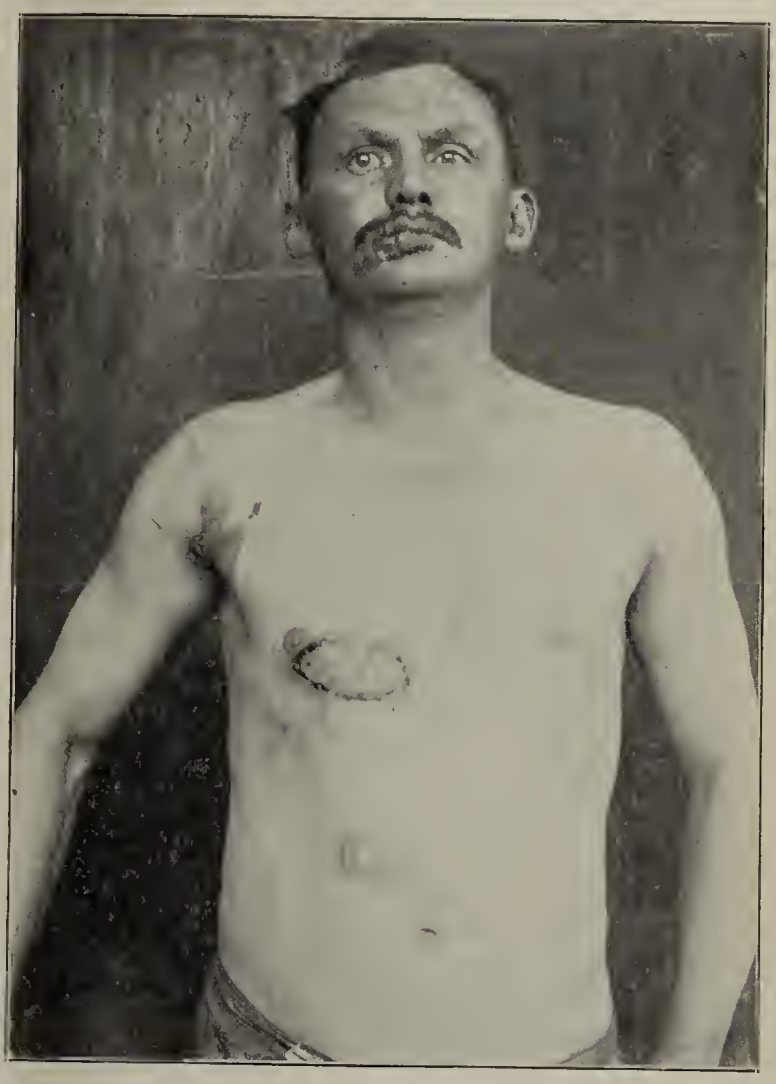


Figure 4.

[3] Les ulcères tuberculeuses de la peau, Thèse de Lyon, 1887.
[4] Ann. de Dermat., 1888.

already ulcerated and covered with thick brown crusts, and some with thick epidermic scales.

Under the microscope the corium appears affected with round foci infiltrated with small cells grouped together. The same cells are infiltrating the connective tissue, and the fascicles appear in a reticular manner separated by the cellular infiltration. Small blood vessels appear enlarged and some are plugged with infiltration, showing a kind of endo-arteritis. In some places the papillæ have been destroyed by the infiltrating elements, and where they remain appear enlarged and hypertrophic.

Tubercle bacilli were not found. No doubt this was a tubercular form of cutaneous disease, which had a great resemblance to lupus, and which we can refer to as an atypical variety of lupus.

The treatment consisted in tuberculin injections of from 1 to 2 mgr. every other day. The first injections were followed by fever and local reaction. The temperature rose three hours after the injection to 102 F., with symptoms of general malaise, pain in the spinal region, and sometimes vomiting. On the local spots, the reaction was exceedingly marked, an intense vivid purplish color showed all over the patches and nodules, and the ulcerated spots appeared of dark brown color, as after cauterization. After the third injection the temperature rose only to 99 with very little general disturbance, but the local reaction was always marked. Locally a dressing of sterilized vaselin was used. The crusts were soon removed; the ulcers began to be covered with good granulations, and on January 9, the ulcerations having completely healed, the patient was discharged.

Figure 5 shows another superficial tubercular skin eruption of ulcerative nature, which can be referred to the same class of tuberculosis lupoides. The patient was admitted to the hospital Jan. 11, 1897, for a diffuse ulceration on the left thigh, coursing nearly the entire gluteal region and abdominal wall. Another patch of the same nature is in the left mammary region. He was 44 years old, of poor physique, had suffered a long time with pleuro-pneumonia, no history of syphilis can be found. The present eruption began three years ago as a small hard patch, somewhat elevated above the level of the normal skin which soon broke down, causing an ulceration. This enlarged in a serpiginous way, healing slowly in the center and ulcerating at the edges, until in nearly three years it had taken on the proportions referred to. The ulcerations after healing left very superficial scars, depressed in the center and atrophic, which gradually became very white.

The examination of the chest did not reveal marked dulness nor râles.

The affection had been treated previously as a syphilitic one with iodid of potassium and local application of mercurial plaster, with little results.

As soon as he entered the hospital he had tuberculin injected from 1 to 3 milligram. The fever was not marked, but the local reaction was very striking. The whole affected surface became a purplish red, and the ulcerated places appeared as though they had been cauterized.

In this case also, the whole treatment consisted in tuberculin injections alternate days. Elixir of iron, quinin and strychnia internally, and locally a simple dressing with sterilized vaselin.

Under the tuberculin the progress was so rapid that March 18 he left the hospital entirely recovered.

This case was somewhat different from the preceding. The infiltration was much more diffused and superficial, resembling more lupus erythematosus than lupus vulgaris, while the other was more like a case of lupus vulgaris.

The marked reaction to the tuberculin injections is an important point for the diagnosis of the tuberculosis of the skin, and the result obtained under its use is a guarantee that the affection could not be from any other cause.

Prof. V. Bergmann, at the meeting of Freien Vereinigung der Chirurgen in Berlin, November, 1890, referred to a case of tubercular ulceration of the lower jaw and palate, which healed entirely after a few injections of tuberculin 0.1, 0.2. He noticed slight general but very marked local reaction on the first day.

After the tuberculin injection the tubercular nodules appeared much smaller and the ulcerations as if they had been cauterized. Dr. C. Schimmelbusch[5] stated that he could not find true necrosis in the tubercles of the skin after tuberculin injections, but the tissues showed only an inflammation and an exudation process, causing a sloughing of the ulceration.

The important feature in these last cases is the curative effect of the tuberculin: only simple vaselin dressings were applied to the local ulcerations.

I have referred to these cases, which lately came under my treatment, on account of the interest which they offer to the dermatologist. The first three cases, tuberculosis verrucosa cutis, are of scientific importance on account of the source of infection, and the course and extension of the lesions. Suppuration is the principal cause of spreading of this tuberculosis and miliary foci are formed, so that the pyogenic cocci cause the extending of these eruptions. In these forms tubercle bacilli are difficult to find and Riehl and Paltauf believed the cause of this affection to be due mostly to a mixture of the infectious germs. Nearly all cutaneous tuberculoses end with ulceration; in some, however, the ulceration is a most remarkable phenomenon, showing a tendency to proliferation.

The two last cases have more resemblance to lupus, and especially the last case can be compared with lupus tuberculosus superficialis, as described by W. Dubruille at the Society of Medicine and Surgery of Bordeaux. In these cases we find small superficial tubercular gummata, which after ulcerating have a tendency to recovery, leaving a superficial scar.

In the tuberculoses of the skin, with the exception of the tubercular ulcers, which are developed near the natural orifices in advanced consumptive patients, and which have a destructive nature, the other mentioned forms usually recover. It seems that the tubercle bacillus in the skin is somewhat modified, has not much tendency to multiply, and is not easily inoculable. The derma does not offer to this bacillus a fertile ground and its infectious properties remain limited to the skin, without showing general infectious phenomena. At times the infectious power of this germ, when encapsuled in the tissues, may remain latent for years, ready to break out at any time in the form of lupus from old scars.

In all our cases we have seen recovery of the cutaneous tubercular form. In the forms of tuberculosis verrucosa, by means of curetting, the cautery and various dressings we have obtained recovery. In the

[5] Mikroscopische Befunde der Tuberculose der Haut, und der Sichtbaren Schleimhaute nach Anwendung der Kochschen Mittels. Deutsch. Med. Woch. 1896.

two other cases, the tuberculin injections produced beneficial influence on the tubercular cutaneous forms. No other dressing was used than vaselin, and yet after several injections the ulcerations healed promptly.

I will say in conclusion, that cutaneous tuberculosis occurs not very rarely; that it is not always accompanied with general tubercular infection; that it has a tendency to recovery; that it may yield to local as well as to general treatment; that tuberculin injections for some ulcerative forms have a beneficial influence.

THREE CASES OF TUBERCULOSIS CUTIS VERRUCOSA.

Presented in the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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Although that form of tuberculosis of the skin first described by Riehl and Paltauf, under the name of tuberculosis cutis verrucosa can no longer be regarded as a rare affection, and usually presents such well-marked and special features that its diagnosis is ordinarily made without any difficulty, I have thought that it might be of interest to report the three cases the subject of this paper, since each of them presents features, clinical and histologic, which are uncommon. The first case reported, presented in its early stages a form of cutaneous tuberculosis to which attention has not yet, so far as I am aware, been called.

Case 1.—R. L., about 40 years of age, was referred to me for advice concerning an affection of the thumb which had existed for three years, in spite of much and varied treatment. The disease consisted of an irregularly outlined, noticeably elevated, bluish-red patch, whose surface was covered with numerous small papillæ and scanty adherent grayish and brownish scales, occupying the greater part of the extensor surface of the terminal phalanx of the right thumb. This wart-like patch was surrounded by a smooth violaceous border about an eighth of an inch wide, less elevated than the patch itself. The thumb-nail was also considerably deformed, the imperfect growth of the nail being due to the manner in which the disease began, to which further reference will be made. On close examination a number of small openings could be seen between the papillæ which studded the surface, from which pressure caused a few drops of thick pus to escape; pus could also be pressed out from beneath the nail-fold at the root of the nail. The history of the malady, obtained from the patient, was as follows:

About three years previously the root of the nail became red, swollen and slightly painful, and remained so without material change for some months. Gradually the skin of the thumb became thickened, violaceous in color, and finally covered with small papillæ from between which, in places, cheesy pus could be expressed. Pain was never at any time a prominent symptom, and the patient was annoyed quite as much by the unsightly appearance of the member as by any disagreeable sensations in it. The patient's general health was far from good; he had a chronic cough, somewhat paroxysmal in character and accompanied by free expectoration; he was hoarse, and had been losing flesh for some months past. The treatment consisted in the destruction of the entire patch by means of a plaster containing 40 per cent. of pyrogallol, which was followed by an ointment of resorcin—1 to 16—until cicatrization occurred. An apparent cure was thus obtained within three or four weeks; but two months later there was a slight relapse, two split-pea-sized, brownish-red translucent nodules appearing in the cicatrix. It is of interest to note that these nodules presented the typical "apple jelly" appearance of lupus vulgaris, indicating, if this were any longer a matter of doubt, the etiologic indentity of these two clinically quite distinct forms of cutaneous tuberculosis. As to the mode of inoculation in this particular case, it was noticed that the patient was in the habit of frequently biting his thumb, unconsciously, and this habit taken in connection with the chronic cough and progressive loss of weight suggests a possible way in which the skin may have been inoculated. The chief point of interest, however, is the form which the malady assumed in its early stages. It began as a paronychia, and remained such for some months without showing any of the features characteristic of cutaneous tuberculosis. Some six months after coming under my care the nail-fold about the root of the left index finger became red, swollen and moderately painful; after a time, minute openings made their appearance in the swollen tissues, and a small quanity of thick pus escaped. This affection of the index finger did not differ in appearance from ordinary paronychia, but was absolutely uninfluenced by the treatment advised—application of mercurial ointments chiefly. The patient, who was a more than ordinarily intelligent person, declared positively, that the disease of the thumb began in a precisely similar manner. I think it is evident from this case that we must include among the manifestations of cutaneous tuberculosis a form of chronic paronychia, which in its early stages at least resembles, clinically, paronychia due to other causes.

Case 2.—T. B., 44 years of age, employed by a railway company to clean freight cars, in which live stock had been transported, came under observation in November, 1896, having upon the back of the right hand, near the metacarpo-phalangeal joint of the index finger, a circular elevated patch in which were a number of pin-head-sized openings, some of which contained small horny plugs which could be picked out with the forceps; others gave exit to a drop of pus when pressure was made upon the lesion. This patch had existed for some months, was only slightly painful, and was slowly growing larger. It had followed a slight injury to the hand received by knocking it against the end of a board while cleaning a cattle car. This trifling wound had at first promptly healed, but later became slightly painful, swollen and gradually assumed its present aspect. The patient was in excellent general health, weighing about 175 pounds, and so far as could be learned, had never been seriously ill. After his first visit the patient was not seen again for a considerable time; and upon a second later examination the patch was seen to have undergone a notable alteration in its appearance. Beside having increased in size, its surface had become verrucose, and the horny plugs spoken of had disappeared. The diagnosis of tuberculosis cutis having been made, the lesion was destroyed by the application of a strong pyrogallol plaster for ten days, a 20 per cent. resorcin plaster being afterward employed. Within one month a complete and permanent cure was obtained. The patient was seen one year later and the hand was perfectly sound; but his general health had changed very greatly for the worse. He was emaciated; had a persistent and frequent cough, accompanied by abundant expectoration; his midday temperature at the time of this examination was 101.5 F. Examination of his chest revealed decided dulness at the left apex with numerous râles.

In their paper published in 1886, Riehl and Paltauf called attention to the resemblance, in some cases, between their tuberculosis cutis verrucosa and the "*perifolliculite suppurée et conglomerée en placard*" described by Leloir; and in the case just reported the resemblance to this form of follicultis was so marked that the diagnosis was for a time in doubt. In the more recent descriptions of this form of tuberculosis by other authors, little or no mention is made of the possibility of confounding these two affections; but the resemblance may, at times, be so close as to make the possibility of error considerable. A microscopic examination of an excised portion of the patch in this case showed that the follicles were markedly involved in the morbid process, there being numerous miliary abscesses in the perifollicular parts which communicated in some cases with the follicle. The macroscopic and microscopic appearances justify the assumption that the malady began as a perifolliculitis, and later invaded the interfollicular tissues.

Case 3.—The last case I report—in some respects the most interesting of the three—is unfortunately very defective in its clinical details, since I have been able to procure but very few facts as to its history, which is as follows:

Mrs. F., aged 67, had a circular, considerably elevated, wart-like lesion, the size of a quarter, which had existed for about one year upon the flexor surface of the fore-arm, about two inches above the wrist. This, according to her statement, had begun as a small "pimple," which steadily enlarged and became covered with numerous enlarged papillæ. The entire lesion, together with a portion of the surrounding tissues, was excised and submitted to me for microscopic examination. The excised lesion presented the macroscopic appearances of a verrucose tuberculosis, but having been in alcohol for some days before coming into my hands, a positive diagnosis from the naked eye appearances was somewhat difficult. Examination

of sections showed a considerable increase in the horny layer of the epidermis, numerous plugs of cornified epithelium in the follicular ducts, enlargement of the papillæ of the corium, particularly in the longitudinal direction, and many down-growing, branching prolongations of the interpapillary portions of the rete. In the corium were numerous areas of round and epithelioid cells with a moderate number of multinucleated giant-cells. In addition to these were many variously sized tracts of epithelial cells. In short, while there were the usual histologic features of tuberculosis of the skin, there was also the epithelial proliferation characteristic of epithelioma, so that we may conclude that we have here one of those infrequent cases in which a tuberculous lesion becomes the seat of malignant epithelial proliferation.

Marked increase of the interpapillary prolongations of the rete are common in lupus vulgaris; but in infrequent cases the tuberculous tissue or the cicatrix at the site of an old tuberculous lesion becomes the seat of actual epithelioma. Desbonnets, who has recently studied this subject, was able to collect the reports of eighty-six cases in which epithelioma occurred either in the lupus tissue itself or in the scar of lupus, but in only a single one of these cases was the verrucose form of tuberculosis cutis associated with epithelioma. According to this author this form of epithelioma may assume the vegetating or ulcerative form, and is more rapid in its progress than that occurring in non-tuberculous tissue.

In conclusion, these three cases illustrate: *a*, a form of paronychia chronic in course, tubercular in origin, terminating in a verrucose tuberculosis of the skin; *b*, the follicular origin of some of the cases of tuberculosis cutis; *c*, the concurrence of tuberculosis cutis and epithelioma.

DISCUSSION.

Dr. CAMPBELL—I saw a case of the disease which had involved the middle finger and right patella. There was no history of tubercular infection, nor were there any lung symptoms. The eruption had continued for three years. I used guaiacol with good results.

Dr. GOTTHEIL—I have noticed, in some patients, purplish patches occurring on the hands which lasted for years. Atrophy of the tissue followed, but no ulceration.

Dr. SHOEMAKER—I recall one case of tuberculosis cutis which was atypical and the diagnosis was made as the result of the condition of the internal organs. I have used tuberculin in seven cases of lupus vulgaris and no good results followed.

Dr. DUHRING—Much confusion has arisen in the writings of surgeons and dermatologists on tuberculosis of the skin. Many descriptions are vague and confounding. They have gone to extremes in their deductions and beyond the old landmarks, and since they have discovered the tubercle bacillus all cases of lesion of the skin where the micro-organism is, or thought to be found, are classed by them simply as tuberculosis cutis. The clinician, and even the pathologist, now becomes very much confused by the various pictures. The material just presented has not elucidated the question. If only 1 tubercle bacillus can be found in 200 sections, as one observer has reported, then I would doubt very much if the tubercle bacillus was the cause. I consider it a great mistake to include all the forms under tuberculosis cutis. I would divide the subject into the two usual heads and then make another class where the presence of tubercle bacilli had been demonstrated and which presented rare clinical forms. Those described this morning would belong to this latter class. Grouping all these varieties under one term, tuberculosis cutis, dispensed with any classification, so that much confusion was now arising. This question of retention of old terms does not interfere with any of the valuable additions made by pathologists, but I am opposed to doing away with valuable clinical pictures which have been used so long and are so useful for teaching purposes.

Dr. GILCHRIST—I recall two cases of pseudo-tuberculosis of the skin where the tubercle bacilli were absent, but in their place were found blastomycetes, bodies allied to yeast fungi. In the second case, pure cultures were obtained and successful inoculation in numerous animals carried out. Examinations of the tissue from all tubercular cases for blastomycetes should be made. A simple method of demonstrating the presence of these organisms is by soaking the unstained sections in liquor potassæ when the blastomycetes appear as refractive, doubly-contoured bodies, whereas the tissue becomes blurred. I do not consider any case of cutaneous disease tubercular until the presence of tubercle bacilli has been demonstrated. The best plan for detecting the presence of tubercle bacilli in lesions of the skin is by a smear taken from the lesion on a slide, then dry and stain in the usual way. There is a much better chance of finding the organism by this method than seeking for them in sections.

With reference to the variety of tubercle bacilli in tuberculosis lesions, smear preparations will probably demonstrate the presence of larger numbers. It has been lately thought that some tubercular cutaneous lesions might be due to the effect of the toxins of the tubercle bacilli and not entirely due to the presence and growth of the bacilli themselves. One authority has expressed the opinion that lupus erythematosus might be due to the toxin alone.

In numbers of cases there is a great similarity between tubercular and syphilitic lesions of the skin, and one can then only make a diagnosis by further examination for the presence or absence of tubercle bacilli. In the sections from miliary gummata the pathologic picture is very like that of a typical tubercle. With reference to tuberculin, it has been used in the Johns Hopkins Hospital with negative results.

Dr. RAVOGLI—Tuberculin was used, at first, as an aid to diagnosis, but I then noticed its good results and have continued its use.

Dr. HARTZELL—I reported the three cases because they were different from the usual type. The diagnosis of tuberculosis cutis was made, but the presence of tubercle bacilli was not demonstrated. I tried the test for blastomycetes, but they were not present, so this disease was excluded in the diagnosis. I believe in retaining the old clinical classification of tuberculosis of the skin. Lupus vulgaris represents a distinct clinical picture, but tuberculosis cutis is also a definite term.

ANGIOMATOSIS, WITH LESIONS OF THE SKIN AND MUCOUS MEMBRANE.

Presented to the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY J. F. SCHAMBERG, M.D.

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J. B., aged 80, came under observation about nine months ago. He is both physically and mentally infirm, the latter preventing me from obtaining any history concerning the duration of the lesions presently to be described. The patient sought medical aid on account of an "itching of the body."

There is great relaxation of the muscular tissues of the body, as is evidenced by the existence of ventral and inguinal herniæ. The patient has also multiple lipomata of the forearms, a pedunculated fibroma on the left thigh and numerous small vascular nævi scattered over the trunk.

The itching of which the patient complained, is the result of a discrete inflammatory papular eruption distributed extensively over the trunk and extremities. This eruption is indistinguishable from an ordinary papular eczema. Upon the inner aspects of the thighs, however, are papules of a deep red color which do not disappear upon pressure and which resemble small angiomata.

The condition of interest is situated upon the scrotum. This is the seat of numerous pin-head to split-pea-sized violaceous and bluish elevations. They are more numerous on the antero-lateral aspects of the scrotum and are arranged in a linear manner, apparently following the lines of the superficial veins. Hyperkeratosis is entirely absent, the summits of the lesions being smooth and soft. No subjective symptoms are present.

Lesions of a similar nature are present in the mouth. On the buccal mucous membrane of the left

side are numerous bluish, pin-head-sized tumors. A few small discrete lesions are present upon the right side. On the internal aspect of the left oral commissure are three purple, split-pea-sized, aggregated elevations. The inferior surface of the tongue presents a varicose appearance and is the seat of numerous lesions of the same nature as those described above. They are for the greater part studded along the outer borders of the lingual veins, which are distinctly enlarged.

Around the orifices of the duct of the sublingual gland are grouped a half dozen small angiomata.

Upon the palpebral border of the right lower eyelid is a circumscribed enlargement of capillaries resembling an angioma in course of development.

Biopsies were made upon two occasions, an inflammatory papule from the thigh and a small angioma from the mouth being excised. It was the intention of the writer to remove also a lesion from the scrotum for histologic examination. The sudden demise of the patient, however, prevented all further study of the case.

The sections were hardened in successive strengths of alcohol, imbedded in paraffin and stained with hematoxylin and eosin and picro-carmin.

The papule from the thigh exhibited under low power a moderately intense leucocytic infiltration of the papillary and subpapillary regions of the corium. The papillary blood vessels are enlarged and surrounded by a round cell infiltration. Dilated lymph spaces are present in the subpapillary layer. The epidermis appears to be normal.

The lesion from the buccal mucous membrane presents the following appearance:

The rete mucosum seems to have an unusual depth, and yet it can scarcely be said that it is hypertrophied. The epithelial layers above present no unnatural thickening. The body of the tumor is made up of loose fibrous stroma containing blood vessels. The number of blood vessels is greatly augmented and their caliber increased from two to twenty times their normal diameter. Some of these run directly upward and seem to penetrate the malpighian layer. The majority, however, slope upward to the summit of the tumor, being lost in a number of loosely arranged rete cells. In the lower part of the rete mucosum, and just above the central summit, is a large oval blood space. Arched over this is a layer of flattened, elongated cells which seem to belong higher up in the tissues.

There are no signs of inflammation.

As intimated in the title of the paper, the writer prefers the designation of "angiomatosis" rather than "multiple angioma." The former name indicates the presence of a tendency to the formation of angiomata, and this tendency was certainly manifest in the present case. Angiomata were present upon the scrotum, the conjunctival mucous membrane and in the mouth.

A cavernous angioma is always the result of a weakened condition of the vessel walls, and its formation is favored by the proximity of large veins. I saw recently similar angiomata upon the inner aspect of the foot, in a woman with marked varicose veins of the leg. Cavernous angiomata are not at all uncommon in the livers of elderly individuals. Pathologists agree in attributing this condition to varicosity of the veins of this organ.

The arterio-sclerosis accompanying senility was the primary etiologic factor in the case under consideration. The localization upon the scrotum and the inferior surface of the tongue was determined by the varicosity of these regions.

So far, scrotal angiomata have only been observed in individuals past the age of 50.

But one instance of a similar case has, to my knowledge, been published, and in that case the condition was localized to the scrotum. At a meeting of the American Dermatological Society, in 1896, Dr. Fordyce of New York read an article on "Angiokeratoma of the Scrotum." His chromo-lithograph represented a condition identical with my own case. I do not believe that the name "angiokeratoma" was justified in the above instance.

After all, angiokeratoma is merely a compound process, a super-position of keratosis upon ordinary angioma. Whenever the lesions are located upon parts where keratinization is normally active, as upon the hands, we have a hyperkeratosis. Upon other parts, no such process is superadded. Angiokeratoma is observed only upon exposed regions, and particularly the hands and feet. The etiologic factor in these cases is repeated chilblain, which serves to weaken the vessel walls by producing an arterio-sclerosis.

Angioma of the scrotum is not as rare a condition as the paucity of recorded cases would seem to indicate. Dr. Hyde of Chicago and Drs. Morrow and Klotz of New York informed me that they had each observed cases of this peculiar affection. Furthermore, as the condition is unattended by any subjective phenomena, there exist no doubt many cases that are never seen by the physician.

The conclusions to be drawn from this paper are as follows:

1. Arterio-sclerosis is a prerequisite to the formation of cavernous angiomata.
2. This condition of the vessel walls may result from senility, repeated chilblain and other causes.
3. The term angiokeratoma should be restricted to the cases in which the keratosis is a prominent feature.
4. There may exist in the aged a tendency to the formation of angiomata upon the cutaneous and mucous surfaces.

THE TONGUE AS IT INTERESTS THE DERMATOLOGIST.

Presented in the Section on Cutaneous Medicine and Surgery, at the eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

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NEW YORK, N. Y.

For a number of years I have made note in my case books of the appearances presented by the tongue in dermatologic, syphilitic and other cases, and have been impressed with the relative frequency with which this organ is involved in one way or another.

At times the tongue lesion has no connection with or bearing upon the skin affection under treatment, while at others, and habitually in syphilis, it has important bearings. The subject is so large I must content myself with generalities and general conclusions.

The statistics I present cover several series of observations made at intervals covering a period of ten

years. Thirty-nine hundred tongues were examined with the object above mentioned.

The importance of diagnosis in affections of the tongue need not be dwelt upon in addressing men who are constantly seeing the ravages produced in neglected cases of syphilis, tuberculosis and leucophakia going on to cancerous development.

The tongue has not, however, received the study its importance calls for in the more benign affections closely allied to or identical with cutaneous diseases.

The surface of the organ has such close similarity to the skin's surface that it is not a matter of surprise that analogous disease processes attack both, or that it is to the dermatologist that tongue cases are so frequently referred by general practitioners. Many skin diseases present simultaneously their effervescences upon this organ's surface, and indeed the lesions may appear here before they develop upon the skin. This is true at times of pemphigus, variola, varicella, lichen planus and syphilis.

At other times the tongue will give the cue in obscure instances.

The differential diagnosis between scarlatina and surgical scarlet or septicemia, can at times be established by the brownish or *café au lait* furring in the latter giving way to a smooth glazed surface, or one over which large rounded papillæ stand out like a bed of mushrooms.

In varicella presenting so few lesions upon the skin surface in an early stage, that diagnosis is doubtful, a group of lesions on the tongue consisting of round yellowish white, firm-looking lesions, interspersed with rounded excoriations corresponding to the vesicles whose walls have ruptured and become rubbed off, is at times so characteristic as to remove all doubt. Such a group may be found beneath the tip, in which situation I have observed a group of six separate vesicles. The fleshy-appearing papule is to my mind the characteristic feature of these tongue lesions of varicella.

In variola an early vesicle may be found upon the tongue, though more commonly in the roof of the mouth.

A vaccine vesicle has been observed upon the tongue (*Journ. C. and G. U. Diseases*, 1889, p. 359).

Vesicles are also to be observed in impetigo herpetiformis, as in Hartzell's case, reported at the last American Dermatological Association meeting; in pemphigus and in burns from taking too hot water into the mouth. These may go on to ulceration.

Herpes occurring upon the lips is accompanied at times by vesicles whose walls are naturally of short duration and the lesions are usually observed first in the stage of excoriation. It is confined almost entirely to the tip and anterior edges of the tongue, and the lesions are red, tender and slightly indurated.

The differentiation is to be made from a form of recurrent herpes in syphilitics in which the lesions are of various size and upon the dorsum as well as the edges. They occur mostly in smokers, in those taking mercury by the mouth and in whom the mouth hygiene is not good. The succeeding areas are polycyclic.

The list of skin diseases which may at times present actual lesions upon the tongue is large. Confining myself to those that I have seen or those that have been recently reported, I enumerate: Lepra, syphilis, lupus vulgaris, lupus erythematosus, lichen planus, lichen ruber, dermatitis exfoliativa, pemphigus, herpes, ringworm (Kinnear)? purpura, purpura hemorrhagica, keloid, vascular nevus, xanthoma, erysipelas, anthrax, Addison's disease, myxedema, zoster (Fournier), xeroderma pigmentosum, urticaria, eczema, eczema seborrhoicum, impetigo, filaria medinensis (Guinea worm disease), impetigo herpetiformis (Hartzell), ichthyosis? erythema multiforme (Crocker), molluscum fibrosum (Crocker), pityriasis rubra (U. S. Navy), dermatitis herpetiformis, angio-neurotic edema, one-sided swelling, keratosis follicularis (?), angioma, phthiriasis (pigmentation).

The terms ichthyosis, psoriasis, keratosis and tylosis may best be dropped in discussing and describing lingual lucoplasias.

Leucokeratosis is a term at once sufficiently comprehensive and descriptive under which the various forms of white plaques may be included, and need occasion no confusion as to the identity of a given process with any dermatosis known by the same name Leucokeratoses especially interest the dermatologist, since their frequent occurrence in the stages consecutive to that of acute infection from lues brings up constantly the question of differential diagnosis. The importance of the latter lies in the well known frequency with which leucoplakias of benign aspect, existing for years without inconveniencing the patient, suddenly assume malignant features and necessitate amputation of the tongue, in whole or in part, to preserve life. The question of treatment in the early stages and the methods best adapted to prevent this unfortunate ending, comes up before the dermatologist for solution. I can not enter into the opposing views as to the advisability of early radical operation, or of leaving such plaques wholly without treatment and preventing so far as possible irritations which may hasten malignant degeneration. My personal experience leads me to believe that smoking, the use of alcoholics, faulty mouth hygiene and mercurials administered by the mouth play a most important rôle in the development, continuation and recurrence of luetic and paraluetic white plaques in late stages of the disease.

In the non-specific forms mild applications do harm rather than good, and such means only as will destroy the plaque *in toto* should be resorted to. At the earliest manifestation of cancerous change, excision widely beyond the clinical limits of the plaque should be performed. The signs of danger should include papillomatous outgrowths, ulceration and fissuring.

A condition of frequent occurrence in skin cases is that presenting wandering rings and plaques, best designated *exfoliatio areata linguæ*, but commonly known by the misleading name of ringworm of the tongue. While it may occur in subjects of ringworm it has no more to do with the skin affection than it has with lupus, lepra, syphilis, psoriasis, eczema, eczema seborrhoicum, keratosis pilaris, rosacea, and impetigo contagiosa, in all of which conditions I have seen it, as well as in the exanthematic fevers. Its importance is chiefly derived from the fact that Parrot taught that it was a manifestation of syphilis when seen in children. I have convinced myself, from many instances in absolutely non-specific cases, of the fallacy of this view, and I can unhesitatingly pronounce it erroneous. It is often present in several children of a family. That this geographic tongue is not universally known as it should be I may cite a recent communication to the London *Lancet*, asking the meaning of a map-like appearance of the dorsum linguæ which the writer had observed a number of times in young children.

The term glossitis often used in speaking of it is not applicable, since there is no inflammation and in

many instances absolutely no subjective sensations attending the condition unless green nuts, strong acids and the like are eaten. The yellow ring-like border may extend upon the under surface of the tongue and independent rings may here develop, contrary to the statement in books. I have seen it undergo spontaneous cure and have observed it so frequently in adults who assured me that during their whole life they had never seen it present before, that I must believe it capable of developing at any age. It is most frequent in those whose tongues are naturally fissured in many directions and of uneven surface. The statement made by authors that it is chiefly an affection of infancy is also not strictly correct, since a fairly large percentage is noted in adults.

Stomatitis aphthosa implicating the tongue interests the dermatologist, because it not infrequently happens that lesions due to the affection occur upon the skin surface about the mouth, and Hertwig has recorded an observation of the identical eruption upon the hands from drinking infected milk.

Stomatitis ulcerosa as it occurs in scorbutus and in mercurial salivation comes to, if the latter is not laid at, the door of the dermatologist and syphilographer. The conditions brought about by those and similar causes for systemic depression favor the activity of mouth organisms in an ill-directed way. The ulcer of stomatitis is irregularly rounded and grayish. Tuberculous ulcer is not, as usually stated, invariably painful.

The tongue in syphilis.—The tongue furnishes one of the most reliable means of diagnosing syphilis, past or present. The frequency of mouth lesions in all stages of syphilis is well known. To determine what this frequency is, I have taken 100 consecutive histories of syphilitic patients from my office records and find that in just 50 per cent. mouth lesions are noted. Those of the tongue are for the most part mucous patches and recurrent leucomas, but include five instances of specific leucoplakias; one of gumma of the tongue; one of exfoliative glossitis; three of fissures. In two instances there was present that peculiar wandering ringed condition which I think is best named *exfoliatio areata linguæ*, and which has nothing to do with syphilis in any except an incidental way. There exists, however, a very similar exfoliation due to syphilis, occurring as one or two smooth patches, usually upon the dorsum, in the early consecutive stage. These have no limiting yellowish ring and are stationary; last for a long time, and subsequently leucomatous plaques often occupy the areas covered by them.

The lymphatic tissue at the base of the tongue has a very decided interest to us, since it may not only undergo important changes in the early stages of lues, giving rise to hemorrhages, cough, etc., but the diagnosis of the elevated projecting teat-like follicles separated by furrows which form the "lingual tonsil" must be at times differentiated from malignant new growth and from vascular tumor which sometimes develops in this situation from angioma and varix.

Specific leucokeratoses are not always easily differentiated from non-specific. A man came to me several years ago, presenting about the center of the dorsum a rounded elevated papillary white plaque. The entire dorsum surrounding this island was red, glazed and somewhat sensitive. There was no history of syphilis, but one of a soft sore and suppurating bubo having occurred at the age of 17 years. Subsequent observation and treatment proved its specific nature. Small painless, pearly patches along the edges of the tongue are usually specific.

A beginning leucoplakia is often hard to distinguish from a condyloma or hypertrophic papular plaque.

In one instance of leucoma occupying the tip and anterior margins, extending slightly to the inferior surface, in a man who smoked about thirty cigarettes daily and who denied syphilis, I was for some time in doubt as between smoker's patch alone or smoker's patch plus lues. The general surface was smooth and grayish, but in places there were radiating whitish lines which decided me in the latter view.

The luetic plaque as well as the non-specific may degenerate into cancer, though the former more rarely does so.

The small white, rounded or oval plaques which so constantly occur in some subjects of late lues, and which are removed and prevented with such difficulty while the patient continues to smoke and drink alcoholic beverages, and even in the absence of these habits while mecurial treatment by the mouth is persisted in, I have found to be readily managed under treatment by intra-muscular injections of soluble salts of mercury. Stomatitis "luetica" is often only an evidence of a depraved state of constitution in which the active agent of lues plays little or no rôle.

Psilosis, a condition of the tongue which might readily be mistaken for syphilis, has been described by Thin as occurring in the tropics and affecting those suffering from intestinal disorders. I have seen an instance resembling it in a gentleman suffering from chronic dysentery contracted in India who came under my care upon arriving in New York. At first the lesions are much in the nature of herpes, leaving denuded areas. There are subsequently formed deep clefts and the dorsum is cut up into glazed areas.

Chancre of the tongue.—The tongue holds the third place in frequency of location of primary syphilis of the mouth. It may be single or multiple, and most commonly near the tip. It is rounded, elevated and soon becomes ulcerated, though marked induration may not occur, or the chancre may be of the erosive or fissure type. The diagnosis may have to be postponed until the consecutive roseola appears, and at times the differentiation from a mucous patch is scarcely to be made. From chancroid the diagnosis is made by the relative infrequency of the latter and by the result of inoculation.

Emery and Sabouraud have recently reported a chancroid of the point of the tongue occurring simultaneously with chancroids of the penis, having the same appearances, running the same course, giving the same inoculation results and accompanied by bubo.

The bubonic enlargement which accompanies chancre is of early development, involves several glands as a rule and does not suppurate.

Gumma is not uncommon when we take into account those nodules of small size located far back upon the dorsum which only careful inspection brings to light. The diagnosis from incipient epithelioma may be closely simulated when a single gumma has a lateral situation. Deep-seated gummous tumors within the parenchyma may have to be differentiated from abscess, foreign body, intramuscular tuberculosis, epithelioma, sarcoma, myxoma, adenoma, lipoma, fibroma, angioma and cystoma, all of which neoplasms occur in the substance of the organ. Gumma is more frequent in men than women, usually has a central situ-

ation, is accompanied by other signs, tends to ulcerate and melts away under iodid of potassium, establishing the diagnosis in a positive manner.

The intra-lingual tuberculous hard nodule always arises in the muscular, gumma in the connective, tissue. It is an earlier form than the superficial ulcerating tuberculosis.

Lichen planus is at times limited to the tongue. I have never observed an instance, but have had one case referred to me in which the only other portion of the body affected at any time before or since, so far as I know, was the glans penis. This case was very promptly cured by gradually increasing doses of arsenic, and so far as I am informed there has been no recurrence. A similar instance has since been reported by Hallopeau and Schroeder. Here, however, the buccal membrane was coincidently affected with the glans. The diagnosis rests between this disease, leucoplasia and syphilis.

The characteristic appearance is one of radiating or star-shaped lines of pearly hue, indolent and not pruritic. If lesions occur upon the tongue as they often do when the skin surface is freely covered, the diagnosis is not difficult and, as Fournier believes, the wafer-like appearance of dull white character is as characteristic as the striated plaques.

Lichen ruber.—According to Unna this is capable of producing lesions upon the tongue in the form of multiple erosions. These differed wholly from the sharply defined, white, rounded or slightly irregular spots of lichen planus.

Dermatitis exfoliativa is thought by Brocq to be accompanied by irregular white plaques due to the same general process as that affecting the skiu.

Zoster of the tongue must be regarded as a rarity. Fournier has recorded one instance.

Herpes is of common occurrence both in the acute and chronic recurrent forms. It accompanies certain instances of herpes febrilis of the lips, or occurs as an independent recurrent affection. The vesicular stage is so brief that a distinct wall is scarcely ever to be seen. A red tender round denuded spot marks the vesicle's site, and surrounding it may be an area of slight induration. The tip and edges are the parts affected.

In recurrent herpes the lesions may not be much larger than a pin's head, but a group often gives a polycyclic outline to the inflamed patch.

Pemphigus may first show itself by the occurrence of a bulla upon the tongue, and in the course of the disease tongue lesions have occasionally been observed. That the bullous wall is much less ephemeral than is usually the case with vesicles I am convinced by observing a number of times a hemorrhagic bulla with intact walls, from an unknown cause, in an old syphilitic.

Erythema exudativum multiforme.—According to Rosenbach (*Deutsche Med. Wochens.*, June 28, 1894), all local pemphigus of the tongue, so-called, is strictly speaking an erythema bullosum and is often accompanied by a similar eruption about the genitals. This combination of tongue and glans penis eruption as seen frequently in lichen planus, might lend weight to this opinion.

Probably some of the cases belong in that class of hereditary predisposition to bullous formation now so well known under Köbner's designation of *epidermolysis bullosa hereditaria.*

Lupus of the tongue alone is rare. In association with lupus of the contiguous mucous membranes and skin it is not uncommon. It occurs mostly upon the posterior portion near the epiglottis, as small isolated nodules having a soft granular surface.

When it ulcerates the tuberculous sore is simulated, but the steadily progressing ulcer is free from painful sensations. Spire reported fourteen observations upon tongue lupus (*Archives Cliniques de Bordeaux*, 1895), adding three of his own, and a number have been added since then; Audry reporting two cases, in one of which the point of the organ was alone implicated. There may occur a group of tubercles, the center being more elevated than the periphery, and surrounding this may be a somewhat raised limiting band of tissue. There is little tendency to ulceration and so little discomfort may be caused that the patient is scarcely aware of the plaque's existence.

Lupus erythematosus is more rarely seen, though its occurrence upon the lips and inner surfaces of the cheeks is not so unusual in connection with its appearance upon the face. Elliot has shown a case at the New York Dermatological Society.

The appearances upon the vermilion border of the lips is much the same as upon the skin surface, but where continually moist the appearances are more those of a diffuse marginated mucous plaque.

Impetigo contagiosa is said to occur upon the tongue. I am not sure that I have seen it, though I have recently observed an instance of exfoliatio areata in a child with impetigo of the face.

Sevestre and Gaston (*Bul. de la Soc. des Hôp.*, 1891), speak of an impetiginous stomatitis, in debilitated infants having impetigo, as well as intestinal and other disorders. The staphylococcus aureus was found in eight instances.

Purpura I have noted in a number of instances of purpura simplex and in one case of hemophilia dating from the age of 3 years.

Lepra may present tubercular lesions, fissures, groups of small papilliform tumors in rounded or oval plaques and conditions of chronic glossitis very similar to those of syphilis.

Urticaria may produce serious enlargement of the tongue. I have seen the organ so swollen in giant urticaria, following the use of some of the coal tar antipyretics, as almost to cause suffocation.

A distinct wheal upon the tongue is said by Laveran to have pointed to the correct diagnosis in an obscure suffocative affection of the throat at a time when the cutaneous surface was free.

Xeroderma pigmentosum lesions have been observed by Keating upon the tip of a child's tongue.

Xanthelasma may show one or more soft raised patches upon the tongue. The color is yellowish white, but under the microscope the appearances are said to be identical with that of disseminated skin xanthoma (*Lancet*, Feb. 7, 1874).

Keloid has been observed in subjects of cutaneous keloid. I have within the past year, seen a young woman with two rosy plaques of spontaneous keloid upon the chest, who also had a hard nodule in the substance of the tongue projecting slightly above the surface, which might well be of the same nature of growth.

Leucokeratoses.—Aside from the numerous leucomas of syphilis the dermatologist is frequently called upon to pass judgment upon a bluish-white or silvery plaque of the tongue which is not specific. If it be a beginning plaque the diagnosis is required; if of long standing advice as to removal or treatment.

The great tendency shown by the tissue of these plaques to undergo cancerous degeneration is ever to be borne in mind.

Treatment.—While it is possible for certain superficial, soft, pliable, bluish-white leucomas to disappear spontaneously or under local and constitutional treatment, the thicker and older plaques rarely if ever do so. There are those who maintain that every leucoplakia should be cured, if possible, even by surgical means if necessary, because of the danger from tongue cancer. While I am not prepared to admit that the resulting cicatrix and deformity, which may prove an object of irritation and be subject to many of the same dangers as was the original patch, is greatly to be preferred to a plaque which gives no trouble, still I am strongly of the opinion that all such tongues should be regularly inspected by a physician, and a radical operation undertaken at the first evidence of approaching danger. Perrin regards the best line of treatment in any case to be the total destruction of the white patch with the thermo-cautery or the galvano-cautery, and such a course seems to me much to be preferred to any attempt to remove the plaques by acids or other caustic applications.

[The reader showed a series of water-color drawings in illustration of certain affections mentioned.]

DISCUSSION.

Dr. GOTTHEIL—There is no account of lesions of the tongue from the dermatologic standpoint. Water-color drawings or colored sketches are very insufficient. I have made models in clay and wax of the open mouth and tongue and molded them as near nature as possible. A series of models of diseases of the tongue would be of great value.

Dr. CAMPBELL—In syphilitic lesions of the mouth, if they do not yield to the usual mode of treatment, will promptly do so to hypodermic medication. Locally I also use chromic acid from 2 up to 20 per cent. in chronic cases, and it has acted very successfully.

Dr. BULKLEY—I have used this method for years up to a 4 per cent. solution. Its application also checked mucous patches.

CASE OF PRIMARY COMBINED COLUMN DISEASE.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN K. MITCHELL, M.D., AND
J. H. WALLACE RHEIN, M.D.
PHILADELPHIA, PA.

The patient, A. R., a farmer, when first seen Jan. 19, 1895, was 42 years of age. He had never suffered from any serious disease, had led a moderate life and denied syphilis. His hair was almost white but his complexion clear and unwrinkled. Four months previously (September 1894), he began to be troubled by numbness in the toes and fingers, which became worse after the first of December, 1894. His condition when first examined January 19 was as follows: He complained of numbness of both legs and of the body up to the manubrium. There was a subjective sense of numbness of the left arms and in a slighter degree of the right, ill-defined, but felt to and above the elbows.

There were girdle pains in the lower abdomen, slight swaying on standing, but no staggering when walking; and a decrease of sexual desire. The knee-jerks were active, and sensation everywhere to touch, pain, heat and cold was good. There was slight pain on pressure over the third dorsal vertebra. No difficulty with the bladder or rectal sphincters was observed. By March, 1895 (under treatment with iodids, faradism and massage) the numbness had disappeared. There was still a sense of tightness about the knees and ankles. During the summer he improved very much in his general condition. In November, 1895, there was some disturbance of the bladder and rectal functions. The knee jerks, which in January had been normal or slightly increased, were now decidedly exaggerated and ankle-clonus was present on both sides. The station too was not quite so good as before. Sensation to touch was still normal in the hands and feet, and it was not until January of the next year (1896) that he began with some suddenness to grow more and more uncertain on his feet. The girdle pain increased and with a sense of tightness about the knees and ankles there was marked weakness of the lower limbs. From that time until his death there was progressive failure of motion and sensation. He was soon confined to his bed, when bed sores developed rapidly; there was bladder and rectal incontinence; he had at last vomiting whenever food was taken and finally died, much emaciated, from exhaustion. For some weeks before his death no knee jerks or clonus could be developed.

The diagnosis was made at first as congestion of the cord, with a possible indication of tabes. Upon the development of the acute symptoms this was reconsidered and the case held to have been a slight chronic myelitis, with acute inflammatory symptoms superimposed, but this opinion had again to be changed in the light of the histologic study.

Autopsy was made six and a half hours after death. The body was extremely emaciated, the abdomen distended with gas, extensive sloughing of the back and buttocks was present, and postmortem discoloration of all the dependent parts. There was moderate rigor mortis.

On removing the spinous processes, the cord-membranes were found baggy and distended with an excess of cerebro-spinal fluid. The dura was not unduly adherent to the vertebral canal. The membranes were dense on section. On cross-section the cord was gray in appearance especially in the thoracic portion. This became less marked above in the cervical region and below in the lumbar and dorsal cord. The organs displayed no evidence of general disease. The cord was hardened in Müllers fluid and stained by the Weigert-Pal and Marchi methods and with carmin. The result of the staining by the Weigert-Pal method was as follows:

Cervical enlargement.—In the direct pyramidal tracts beginning degeneration was observed in the right side a short distance from the periphery. On the opposite side the process was nearer the periphery and much more anterior. Though in extent the process was slight in degree it was well marked. Large spaces were visible where the nerve fibers had disappeared, the line between the limit of this process and the tissue which was well-stained, being quite sharp. In the antero-lateral ascending tracts a few spaces were observable anteriorly, but the remainder of these columns and especially the posterior parts were profoundly diseased. The nerve-tissue was entirely destroyed in a large area.

The anterior ground-fibers were fairly well stained, but in the crossed pyramidal and direct cerebellar tracts only occasionally were stained fibers to be seen. This change was most intense in the periphery of the cord. Adjoining the anterior portion of the posterior and the

posterior portion of the anterior horns the tissue had taken the stain well, except at the tips of the posterior horns where there remained but a few stained fibers. The process had progressed equally on both sides. In the posterior tracts not a single healthy fiber remained in the postero-median columns except at the extreme anterior part, just bordering on the posterior horns where a few scattered fibers had taken the stain.

The posterior root zone and the zone of Lissauer were free from disease. The posterior roots had escaped. The fibers of the anterior roots had stained well.



Cervical enlargement, combined sclerosis. (Weigert-Pal).

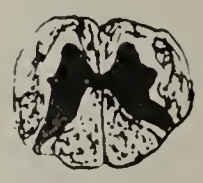
Upper dorsal cord.—The direct pyramidal tracts displayed a remarkable increase in the extent of disease. All the fibers seemed to be entirely lost. The border line between this extreme degeneration and the fairly well stained tissue was quite distinct though less sharp than in the cervical levels. There were a few spaces now visible in the part of the cord between the pyramidal and the antero-lateral ascending tracts. The process was greater in extent than in the cervical cord. There were fewer fibers that took the stains and larger empty spaces.

The columns of Goll were not so profoundly but more extensively involved than in the cervical cord. A few fibers remained which took the stain. Burdach's columns were severely affected. Large spaces were visible and much less tissue was stained than higher up. The zone of Lissauer still remained free.



Upper dorsal, combined sclerosis. (Weigert-Pal).

Lower dorsal—A few fibers in the posterior roots had disappeared. The degenerated areas in the anterior pyramidal and crossed pyramidal tracts were separated by a band of lesser degeneration which diminished in degree toward the periphery, although it remained quite intense there, and centrally, where a small number of stained fibers remained, bordering on the anterior horns. In the lateral columns the process was less pronounced immediately adjoining the posterior horns at their peripheral portion but everywhere in the antero-lateral columns there was evidence of disease.



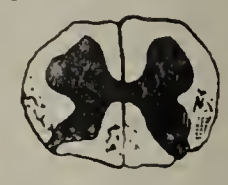
Lower dorsal, combined sclerosis. (Weigert-Pal).

In the posterior columns only a slight band of fibers around the posterior margin of the posterior horns, was stained, except at the posterior internal root-zones which still appeared to have escaped to a moderate degree. Clarke's columns had in large part disappeared, only a few cells remaining.

Lumbar enlargement.—The change in the antero-lateral columns was now mainly limited to the crossed pyramidal tracts. Anteriorly the anterior marginal tracts of Marie were slightly diseased. The process was quite moderate, many well stained fibers remaining, and fewer spaces were discoverable.

In the posterior columns, many stained fibers were seen in Goll's columns. The stained fibers were greatest in number along the posterior commissure anteriorly and posteriorly, while centrally the degeneration was still very marked.

Burdach's columns were still involved but to a less degree. In the posterior external root-zones appeared many healthy fibers.

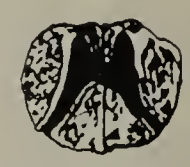


Sacral, combined sclerosis. (Weigert-Pal).

Sacral cord.—Remains of the disease in the lateral and posterior columns were seen. The process was least advanced at this level, the affected areas corresponding to the more intensely diseased ones above, but the change was only moderate in degree.

Marchi method; Cervical region.—Recent degeneration was present to a slight degree in the direct pyramidal tract, especially around the seat of the old sclerotic change. In the lateral tracts the degeneration was intense, mainly confined to a broad band encircling the sclerotic areas. The part around the focus of old degeneration was intensely involved.

In the posterior columns there were degenerated fibers found scattered everywhere, but the process was most intense on either side of the postero-median fissure, at the central and peripheral portions of the columns of Goll.



Middle dorsal, combined sclerosis. (Weigert-Pal).

Dorsal region.—The degeneration in the anterior pyramidal tracts was more intense and degenerated fibers were visible in greater numbers in the anterior portion of Gower's columns. In the other portions of the cord the same condition existed as above described, except that the process was more intense. A few degenerated fibers in the posterior horn which could be traced into the anterior horn were seen.

The Westphal "Wurzel-eintritt" zone was comparatively free, but a few degenerated fibers existed. In the lower dorsal region, where it will be remembered the chronic process was farthest advanced, there was a corresponding prevalence of acute degeneration.



Lumbar and sacral regions showing acute degeneration. (Marchi)

Save the postero-median root-zones, which were but slightly involved, the whole transverse section of

the cord was dotted with coagulated myelin, especially in the areas around the old degeneration. Many fibers running into the anterior horns were degenerated.

Sacral region.—The acute degeneration was much less extensive than either in the dorsal or cervical regions. The Westphal-eintritt zones were especially degenerated, the reflex collateral of Koelliker being profoundly involved. These degenerated fibers were easily traced far into the anterior horns. In the anterior part of the cord the degeneration was mostly in the periphery bordering on the antero-median fissure but scattered degenerated fibers were found everywhere. The process was quite marked in the crossed pyramidal tracts, in the posterior external columns and the central two-thirds of the postero-median columns.

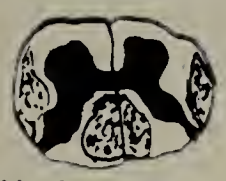


Cervical region, showing recent degeneration. (Marchi).

The posterior root-zones were diseased slightly; the anterior roots slightly involved, but the posterior roots remained free.

Carmin stain.—The pia was very much hypertrophied and contained many vessels whose walls were greatly thickened. Many of them were filled with blood cells. This change was uniform throughout the whole extent of the cord. The infoldings of the pia into the cord were more numerous than normal, and were thickened and the seat of round-celled infiltration. Numerous blood vessels, whose walls were thickened and which were filled with blood corpuscles could be observed. In the lower cervical segment this process was more intense and especially at that part around the lateral and posterior columns. The change in the pia was less pronounced in the dorsal, lumbar and sacral levels.

The branches of the anterior median artery were thickened and in many places distended. This change was not, however, confined to these arteries but could be found in the posterior median artery and indeed in the entire vascular system of the cord.



Lumbar, combined sclerosis. (Weigert-Pal).

In the direct pyramidal tracts there was an increase n the number of vessels. Some were obliterated, ome had thickened walls, some seemed to be of ecent formation. The signs of sclerotic change were ery marked. The cord was traversed by bands of onnective tissue forming trabeculæ. Of the spaces o formed, some were empty, but many were filled vith compound granular cells and quite frequently vith degenerated nerve-fibers. Surrounding these ntensely degenerated areas were fibers showing more ecent change and among them a number of healthy nes. Many were seen with enormously swollen axis ylinders with granular material around a few.

There were many areas of granular accumulations n the midst of which shriveled axis cylinders could e observed.

A similar condition was noted in the lateral tracts. In the center of the most intense change fibrous tissue and compound granular cells alone were seen, except in very rare instances when a few fairly healthy fibers persisted. Surrounding this sclerotic area there was a granular layer from which appeared to be crystalizing compound granular cells. Very few fibers were seen, those that persisted presenting some stage of degeneration. Then, receding from the center of the disease, more and more healthy fibers were visible with many granular cells, among which the blood vessels showed the same change as above described. In the white matter were found many capillaries distended with red blood cells. The ganglia cells had suffered considerable change. A number was still normal, but often the nucleus was elongated, with irregular contour and sometimes scarcely visible at all. The cell itself in such cases was rounded and shorn of its prolongations. No hemorrhage could be found. Many of the blood vessels appeared to be old and the walls thickened, with increase of nuclei, while others seemed to be of more recent origin.

In the middle dorsal region the sclerosis was more intense. The bands of fibrous tissues were thicker, the spaces larger. In other respects the change was similar to that in the cervical region, except that there were obliterated blood vessels in the midst of the intensely degenerated areas. In the gray matter there was the same vascular change as found in the cervical region, but it was more



Middle and lower thoracic regions, showing acute degeneration. (Marchi).

intense. Obliterated blood vessels were visible. The ganglion cells were more intensely affected, many of them having undergone profound alteration. It was difficult now to find a cell with prolongations persisting, or to make out the nucleus. Nearly all were rounded and had lost their characteristic shape. One cell was seen in which the nucleus had undergone vacuolization, and another where the entire cell had suffered a similar change. Some had suffered vitreous degeneration. The central canal was choked with granular cells.

The lower dorsal cord.—The gray matter had suffered intense change. There was scarcely a ganglion cell which was entirely healthy. Many capillaries were seen, all distended with red blood cells. There were still no hemorrhages visible. The lateral columns were the seat of a change similar to that described above. Bands of fibrous tissue traversed the affected area and formed spaces which were filled with granular cells. The process already described existed, but it was more intense. In the posterior columns the amount of sclerotic tissue, on the whole, was less than that which was seen in the lateral columns. In the midst of the most intense disease there was a total absence of anything resembling nerve tissue.

Lumbar cord.—The anterior portion, adjoining the median fissure showed a moderate increase in the connective tissue. In the lateral columns, correspond-

ing to the seat of change in the upper levels, there were a number of fibers in which the axis cylinders were swollen and a slight increase of connective tissue was perceptible. In the gray matter there was still evidence of considerable vascular change; numerous capillaries were seen, not more however than in any other level, while the evidence of old vascular change was less apparent. The ganglion cells were mostly exempt from disease; but a few had lost their prolongations, were rounded and exhibited an irregularity in the contour of the nucleus, and very rarely showed vacuolization.

To sum up the pathologic findings in this case, there was a sclerosis involving the direct pyramidal tracts, Gowers' columns, the crossed pyramidal and direct cerebellar tracts, the columns of Goll and Burdach, Clarke's columns, and showing involvement of the gray matter and the posterior roots; a sclerosis which was not entirely systemic, but crept over the limits of the several tracts and tended at certain levels to become quite diffuse. The degeneration was most profound in the middle and lower dorsal segments, becoming less intense in the cervical and still less in the lumbar segments.

The disease involved the lateral and posterior portions of the spinal cord to a greater degree than elsewhere. The gray matter was most severely affected in the cervical region, the posterior roots and the reflex collaterals in the lumbar region. Beside the old sclerotic change there was visible an acute process which was especially noticeable about the areas showing the most intense chronic change.

It is interesting to note that the root zones did not appear to be greatly involved in the chronic process as shown by the Pal staining. It would be difficult to explain the absence of knee jerks late in the disease on the strength of the findings shown by this method. But by the Marchi process, these zones as well as the reflex collaterals show extensive involvement, easily accounting for the final disappearance of the knee jerks.

The acute process was located around the seat of the old degeneration and extended the whole length of the cord. In the midst of the areas of advanced chronic degeneration there were seen only a few acutely degenerated fibers, but this was because but few fibers remained exempt from the chronic process. Our specimens did not bear out the diagnosis made during life but led us to consider the case as one of those which have been described by Rothman as "primary combined system disease." It is true that the disease was most intense in the dorsal region, suggesting the possibility of a chronic diffuse process in this district with resulting ascending and descending degeneration. A study, however, of the distribution of the sclerosis above, in the cervical, and below in the lumbar and sacral regions, does not disclose the presence of ascending and descending degeneration. In the upper dorsal and cervical regions the degeneration in the posterior columns was diffuse and lacked the characteristic distribution of ascending degeneration in these tracts. Moreover, the pyramidal tracts at these levels were extensively diseased. In the lumbar region the degeneration in the posterior columns was quite extensive and not limited to the areas of descending degeneration which follow transverse lesions in the dorsal cord. The distribution of the lesions corresponded quite accurately to that of primary combined sclerosis. It was most intense in the lower dorsal region; less in the cervical and least in the lumbar region. This same distribution of the disease was well illustrated in a case reported by one of us in the *Journal of Nervous and Mental Diseases*, November, 1896. In that as well as in the present case there was a small strip in the posterior columns, round the posterior horns, which had escaped degeneration at all levels. In the present case the acute process, however, had attacked this area quite intensely, especially in the dorsal cord. It is interesting to decide what significance the presence of the acute process possessed. That it had the same distribution as the old process and bordered on it so closely would suggest an intimate relation between the two—was it an acute exacerbation of a chronic process?

A review of the literature of this subject leads us to think that many of the cases described as combined sclerosis do not agree either clinically or pathologically. In some, the spastic symptoms seem to predominate—in others, the ataxic symptoms. Arnold,[1] in 1892, divided the combined scleroses into the spastic and paraplegic forms. In 1878 Westphal[2] called attention to the variability of the symptoms and conditions, which Rothman has since emphasized. Kahler and Pick[3], in 1878, were the first to observe the symptoms of combined system disease, which they described as follows: "Combined system disease in the spinal cord is one in which numerous systems are diseased at the same time and from the same cause."

Marie's[4] classification is as follows:

1. True systemic sclerosis; *a*, typical tabetic disease of the posterior columns with degeneration of the lateral columns in general paralysis; *b*, disease of Goll's and Burdach's with the cerebellar tracts.

2. Systemic sclerosis of the posterior tracts with diffuse myelitis of the lateral tracts due to leptomeningitis.

3. Diffuse myelitis with ascending and descending degeneration.

4. Diffuse myelitis of pseudo-systemic character.

Ballet and Minor[5] (*Archiv. de Neurol.*, Vol. VII, 1884) divide the combined sclerosis of lateral and posterior columns into, 1, diffuse sclerosis of pseudo-systemic character; 2, typic tabes with disease of the direct cerebellar tracts; 3, tabes with leptomeningitis, the inflammation attacking the lateral tract; 4, interstitial diffuse myelitis, particularly of the thoracic cord, with ascending and descending degeneration; 5, true combined system disease.

Rothman[6] refers to six groups of combined sclerosis; 1, Friedreich's disease; 2, cases of old tabes in which there is involvement of the lateral tracts; 3, spastic spinal paralysis with primary degeneration of the lateral tracts and secondary degeneration of the posterior columns. He cites as examples the cases of Westphal,[7] Reymond,[8] and Popoff,[9] Strümpell[10] and Dana;[11] 4, spastic spinal paralysis with disease of the pyramidal and cerebellar tracts with slight involvement of ganglion cells in the anterior horns, the posterior columns remaining normal. Minkowski's (*Deutsch. Arch. f.*

1 Arnold: Virch. Arch., 1892, p. 18.
2 Westphal: Arch. d. psychiat., 1878.
3 Kahler and Pick: Archiv für Psychiatrie, viii, 1878.
4 Marie: Lecons sur les maladies de la moëlle, Paris, 1892.
5 Ballet and Minor.
6 Rothman: Deutsch. Zeit. f. Nervenhheilk., 1895, No. 7, p. 171.
7 Westphal: Arch. de physiol. norm. et path., 1877, p. 764.
8 Reymond: Arch. de Psych., 1882.
9 Popoff: Arch. d. Neurol., 1885.
10 Strümpell: Ibid., Bd. xvii.
11 Dana: Brain, 1888.

Klin. Med., 1884) and Münzer's cases (*Wien. Klin. Woch.*. 1892), are cited as examples of this disease. Rothman believes that these cases belong to the last group, being in the early stages of the disease; 5, combined sclerosis of the lateral and posterior tracts in progressive paralysis; 6, a group which he has termed "primary combined column disease," having collected twenty-seven illustrative cases. His conclusions from the study of these are: 1, that primary combined system disease must be considered a disease by itself; 2, that clinically it is distinguished by symptoms pointing to the disease of the posterior and lateral tracts; 3, that the patellar reflexes remain either present until death or disappear in the last stages of the disease; 4, that the pupillary reaction is in almost all the cases present; 5, that usually the process first attacks the lower extremities and extends later to the upper extremities; 6, that the disease runs a moderately rapid course, extending not over three years. In the spinal cord there is degeneration of the posterior tracts, the posterior roots remaining almost always free; there is a moderate involvement of the posterior root zones and crossed pyramidal, and usually also of the direct pyramidal and direct cerebellar tracts. An irregular slight degeneration of the remaining parts of the anterior lateral tracts was present. In a great number of cases there is disease of the gray substance. The cause of the process is best found in the primary affection of the gray substance. Concussion and pernicious anemia are particularly to be thought of in the etiology, while syphilis seldom plays any part. The cases of old tabes with degeneration of the lateral tracts in the last stages and of spastic paralysis with degeneration of the crossed pyramidal tracts and secondary inflammation of the columns of Goll and the direct cerebellar tracts, are to be differentiated from this disease.

Leyden (*Zeitsch. f. klin. Med.*, 1892, p. 23) has divided chronic disease of the spinal cord as follows: 1, chronic myelitis with sclerosis of the spinal cord: *a*, circumscribed form; *b*, disseminated form; *c*, diffuse form; 2, systemic disease: *a*, tabes dorsalis; *b*, the spinal form of progressive muscular atrophy and bulbar paralysis (type-Aran-Duchenne); 3; Friedreich's disease; and 4, syringomyelia.

We are inclined to believe that the cases diagnosed as chronic myelitis are often, if not always, examples of combined system disease, as Oppenheim[12] claimed. It was his belief that many of the cases reported as myelitis by Leyden must now be considered as cases of combined sclerosis.

The change in the spinal cord in our case, demonstrated by the carmin sections, showed enormous involvement everywhere of the blood vessels, especially in the gray matter. It will be remembered that the blood vessel walls were thickened; in some the lumen was obliterated, and in places there were numerous capillaries of recent formation. There was also some round-celled infiltration in the membrane and gray matter, though this was not very marked. In many places the appearance suggested an inflammatory change. There was, besides degeneration of the nerve tissue, increase in the connective tissue. We believe the process was vascular in origin, thus agreeing with the opinion of Ballet, Minor and Marie, and contrary to the opinion of Rothman, who argued that the primary seat of the disease was in the ganglion cells of the anterior horns. The process seems to be a rapid one. According to Rothman, the duration of the disease is never over three years. In the case reported in the *Journal of Nervous and Mental Diseases*, above referred to, the patient died three years after the onset of the disease, and in the present case the duration was a little over two years.

The possibility occurs to us that the cases collected by Rothman, those described by Gowers[13] as ataxic paraplegia; a small group of cases reported by Westphal, Reymond, Popoff and Strümpell in which first the lateral and secondly the posterior columns appeared involved, belong to the same class of spinal degeneration. On the other hand, Gowers claims that both the nerve elements and interstitial tissue may be involved, and that when the process extends beyond the tracts especially diseased, and symptoms such as girdle pains and loss of sensation are present, the cases should be classed as examples of chronic myelitis.

[12] Oppenheim: Berliner Klin. Wochensch., 1891, p. 761.

GASTROSTOMY—PRESENTATION OF ILLUSTRATIVE CASE.

Read before the Illinois State Medical Society, held at East St. Louis, May 19–20, 1897.

BY J. A. BAUGHMAN, M.D.
NEOGA, ILL.

Mrs. R. E., 20 years of age, in August, 1895, swallowed an indefinite quantity of a solution of potassium hydrate, commonly known as concentrated lye, of uncertain strength. Whether any of the chemical reached the stomach is not known, but its escharotic effect was markedly exerted in the esophagus. I did not see the case for some weeks after the accident and am unable to say what, if any, constitutional effects the drug produced. The attending physician treated the case by quieting pain, giving demulcent drinks and liquid food. No attempt was made to preserve the lumen of the esophagus by the systematic passage of bougies during the time cicatricial contraction was taking place. While such a procedure is advocated in many of our text-books it is of doubtful utility; for gradually and persistently stenosis and atresia succeed each other.

In December, 1895 the case was referred to me, as one of stenosis of the esophagus with threatened starvation. What would be more natural than to attempt the passage of an esophageal dilator. I could pass it no further than ten inches below the edge of the superior incisor teeth. I tried bougies and tubes of different caliber and rigidity without avail, as we sometimes do in urethral stricture. I tried the insertion of two instruments at the same time, thinking one might occupy a false pocket, thus giving direction to the other through the stricture. Foiled in this I used some degree of force with the instrument. I had no way of measuring the degree of pressure, simply trusting to touch and judgment; but in traumatic contraction of the esophagus the walls of the organ are greatly thickened and there is much less liability of rupturing it than in cancerous contraction, the most common form of stricture in this locality. The close relation of the esophagus with important organs would make perforation of its walls an extremely dangerous accident. I despaired in opening the canal, and had I succeeded in passing a bougie, it is very doubtful if dilatation would have accomplished any permanent benefit.

[13] Gowers: Diseases of the Nervous System, 1892.

My patient was rapidly starving. I explained gastrostomy to her. This operation was first performed by Sédillot forty-eight years ago, but the first success was scored by Sidney Jones, of England, as late as 1874. My patient submitted to operation in January 1896.

In cases of this kind, where stenosis is due to an escharotic, an operation, if not a duty, is much more commendable than in cancerous stricture, and even in malignant contraction I believe the operation should be done.

I performed gastrostomy by the method known as Von Hacker's, by some authors credited to Howse. This method consists of making the opening in the abdominal wall at a point about three inches below the ensiform cartilage and a little to the left of the median line. The incision in the skin was two and a half inches and that through the peritoneum one and a half inches long and almost vertical in direction.

The two principal reasons for selecting this point for the opening, are its relation to the stomach and that we may go through the body of the rectus abdominis muscle, hoping to utilize the muscular fibers of this body as a sphincter to our artificial os. In my case I was compelled to go a little lower than desirable on account of the liver and a transverse tendinous intersection in the muscle that would have afforded very few muscular fibers.

The transverse colon first presented, this was pushed down, the stomach was seized with forceps, drawn into the wound in such a manner as to avoid tension at the cardiac and pyloric ends. It was found very clean and empty and somewhat contracted. A hairlip pin was passed through the upper fold of the organ both to hold it and serve as a guide in making the gastric incision a day or two later. This pin is a very valuable part of the operation for the reason that in a few hours the wall of the stomach and the whole bottom of the wound lose all their former appearance, only showing a mass of lymph and other inflammatory products that are very confusing. The peritoneal surfaces of the stomach and abdominal wall were sewn together with a continuous silk suture. I consider this a mistake as it is next to impossible to remove the thread a few days later, so completely is it buried and held by the exuded lymph. An interrupted suture with long free ends or an absorbable animal suture would be greatly preferable.

The suture was passed through only the serous and muscular coats of the stomach and an area of the sac about the size of the thumb nail left exposed. The opening into the stomach was made three days after the primary operation. This is easily and painlessly done by first dropping a few minims of a solution of cocain into the bottom of the wound and then, in about five minutes, with an ordinary cataract knife cutting out the hair-lip pin which was previously passed entirely through the wall of the stomach. Deferring the secondary operation was for the purpose of admitting of the formation of inflammatory adhesions between the stomach and abdominal wall at the seat of the operation, thus isolating the gastric opening from the general peritoneal cavity and preventing leakage into the latter. Statistics show that the operation in two steps, thirty-six to seventy-two hours apart, is a great advantage in avoiding peritonitis and death. The patient's recovery was uneventful. There was no elevation of temperature during convalescence.

Our first method of introducing food into the stomach was by the introduction into the fistula of a soft catheter. To the patient this method of feeding was very unsatisfactory on account of the pain produced when inserting the instrument. She insisted that the tube be left in the opening from one feeding to another; and being a person of strong will she had much her own way about it.

I then had made for her a tube of sterling silver about an inch long and three-eighths of an inch in diameter with a retaining flange on one end and a cap or lid on the other. This tube was inserted and retained by the flange on the other end and elastic belt.

I have tried many times to open the esophagus, both from below through the gastric fistula and from above, but have long since ceased my attempts, as we now have a complete atresia of the esophagus under the middle of the sternum, not a drop of fluid having passed through the esophagus for sixteen months. With an ordinary bicycle pump we constructed a good strong syringe and with this she forces custards, mashed potatoes, crushed fruits, etc., into the stomach and keeps herself nourished well enough to be able to suckle a robust baby, to which she gave birth about eleven months after the operation. The patient goes about her household duties and shopping much as she did prior to the injury.

I can not defend leaving the tube permanently in the opening with any good reason, except that the patient demands it. I am perfectly aware that the instrument is liable to cause atrophy of the tissues in juxtaposition to it, and possibly an ulceration of the stomach; but as there are two parties concerned in the matter so are there two opinions to be respected.

Thus far there has been very little leakage of the gastric juice and very little irritation of the margins of the opening. If there were soreness alkalin washes and stable unguents would be in order.

I believe if I had another case to operate upon I would adopt a different method. While this has so far been practically a success, theoretically we reason that a valve method, such for example as practiced by Albert, would be better. Yet in cases where we hope to subsequently do retrograde dilitation, the mode selected in this case is no doubt the best.

I have been very anxious that my patient masticate her food and economize the saliva, but in the last year she has practically had no saliva in the stomach. Chewing the food causes a distressing spasm of the pharyngeal muscles and she absolutely refuses to try mastication. To check the secretion of saliva she has constantly taken belladonna. The size of the dose does not need to be increased. She has consumed about a pound of the fluid extract within the last year. Our text-books teach that an absence of saliva in the process of digestion and nutrition can not long be endured. So far my case does not verify this statement, yet I have apprehensions of trouble in the future.

Note.—April 5, 1898.—There has been no material change in the case since this report was given.

The Watch-Spring and the Gigli Wire Saw.—Watch-springs have an eye in the outer end, and their extreme flexibility, without lateral motion, adapts them ideally for a carrier of the wire saw, Lauenstein asserts in the *Cbl. f. Chir.*, February 26; *vide* Journal, March 5, page 558.

ANTITOXINS.

Read before the Michigan Academy of Science at Ann Arbor, Mich., April, 1, 1897.

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As we note the army of workers in the field of bacteriology, and the vast amount written on the subject, we can hardly realize that it has been scarcely twenty years since the germ was first demonstrated as the cause of a disease, and less than three years since Behring and Roux published perfected methods for preparing and administering diphtheria antitoxin. During this short period of discovery, recognized but unexplained truths have been elucidated, and many new facts have been brought to light. Many of the facts of immunity have been known since prehistoric ages, but prevailing theories regarding these questions were at fault; consequently, clinical interpretations and treatment have been fallacious.

Before studying the antitoxins, it will be well to take a brief historical survey of the knowledge already acquired regarding the facts of immunity and the theories put forth to explain these facts. Pasteur in 1880 began his studies on chicken cholera, and reached the conclusion that it would be possible by a process of vaccination, "for man to eradicate every contagious disease from off the face of the earth," and, from his researches, he formulated the theory, that where a susceptible animal was treated with attenuated cultures, something which was necessary for the development of the disease germ in the animal body was destroyed. The exhaustion theory, as the hypothesis of Pasteur was called, almost as soon as announced, was disputed by Chauveau, who believed that bacteria ceased to grow, and finally died in culture flasks, and that men and animals recovered from bacterial infection when the excretory products of the disease germs had accumulated in sufficient quantities to destroy the invading microbes, in the same manner as higher plants and animals are destroyed by their own excreta. Immunity, it was explained, was due to the very slow elimination of these bacterial products from the organism of the subject. This theory was accepted by Koch to explain the curative results of tuberculin. Klebs and others endeavored to find similar remedies for other of the infectious diseases, but today we repudiate the explanation although the facts hold true. These investigations paved the way for the discovery by Behring and Roux, that something is formed by the tissues of the animal body, which enables the animal to withstand the invasion of pathogenic bacteria, or destroys them after they have gained an entrance; and that the immunity of one animal can be borrowed and conferred upon another. The scientific world was awakened; more light was needed; the dawn of a new era in medicine showed forth; ideas and experiments took a more definite form; new facts opened the way for long series of discoveries. Ehrlich succeeded in immunizing animals against the most potent vegetable poisons, and in obtaining from the blood of the treated animals a protecting substance, which, when administered to other animals, protected them against harm from many times the fatal dose of the poisons; he also devised a method for quantitatively estimating the value of the protecting substance. The commonly observed fact that nursing babes are much less susceptible to microbic disease than are bottle-fed infants was satisfactorily accounted for when it was found that the young of animals immune to a certain disease were much less susceptible to that disease than the young of unprotected animals, and many of the common facts of natural and acquired immunity were satisfactorily explained.

The crisis of the revolt against old ideas occurred, when in August 1894, at the World's Congress of Hygiene, at Buda-Pesth, Behring and Roux convinced many a doubting Thomas, that diphtheria antitoxin was nature's remedy for treating that dread disease. In the two years and over that have elapsed since then the field has been broadened, the army of workers has greatly multiplied, exhaustive researches have been undertaken and accomplished, new antitoxins have been discovered and much capital has been enlisted to supply these remedies at a reasonable price. With the exception of anti-diphtheritic serum, and perhaps one or two others, all this class of remedies yet remain in the experimental stage. Probably many of them will be greatly modified, and some rejected, before medical opinion becomes settled as to the value and limitations of serum therapy. Definite conclusions can not yet be drawn from the immense amount of experimental evidence, often conflicting which has already been submitted regarding the exact chemic nature of the bacterial and other products employed in treating animals, the resulting antitoxins, and the biologic factors concerned.

We will review the various antitoxins, calling attention to some of the salient points connected with their production.

Anti-diphtheritic serum.—Since this antitoxin is of chief importance, and will serve as a type of the methods of producing the others, a somewhat detailed description will be given.

To Klebs belongs the honor of first pointing out the specific germ of diphtheria. Löffler soon confirmed his work, and concluded that this specific germ was always present in true cases of diphtheria.

Many of the most important boards of health in this country and in foreign lands are now taking the results of bacteriologic examination, as the main criterion in deciding whether a given case of sore throat is diphtheria. Even the smaller towns and country hamlets are asking for assistance. Sooner or later every physician, who claims to be up with the times, will be obliged to know how to make bacteriologic examinations, not only of diphtheria but of many other diseases.

In preparing the serum it is of paramount importance to have virulent cultures from which to obtain the toxins to be used in the immunizing process. Most of the cultures grown from specimens taken from the throats of patients are mixed with other forms of bacteria and must be purified by appropriate methods. When pure, or when properly purified, these cultures must be tested for virulency on the guinea pig; if they prove rapidly fatal to these animals when injected in small quantities it will not be necessary to exalt their virulency by passing them through a series of animals, as must be done when the toxic properties of the cultures are very slight. It has been found that the best methods of keeping the cultures in a high state of cultivation is to transplant them daily into fresh bouillon possessing an exact degree of alkalinity. In this way very luxuriant cultures are obtained, which remain virulent for many months. The tested and approved pure cultures of bacteria are planted in large flasks of beef bouillon, which are placed in the incubator and allowed to remain about

seven days, when they are taken out and examined microscopically to make sure that no foreign bacteria are present; then a small per cent. of carbolic acid, or trikresol, is added to prevent the development of other germs which have accidentally gained access to the flask. The approved culture is finally filtered with strong pressure through sterilized porcelain filters, which take out all bacteria present, leaving a clear brown, or straw-colored (depending on the color of the bouillon used) transparent fluid, which is called diphtheria toxin; the specific poison of the germ, however, represents but a very minute portion of this fluid, which contains approximately 98 per cent. water, besides salts, peptones, etc. The virulency of this toxin must be determined before it is used to immunize the horses. Its poisonous properties may be so great that 1/50 to 1/10 of a drop will suffice to kill a half-grown guinea pig. Indeed, not long since, a healthy 1200 pound horse under the writer's care died with the symptoms of diphtheritic paralysis from the effects of an initial injection of only two drops of the fluid. Two years ago it was only possible to produce after many months a toxin 1/50 as strong as can be produced in one week's time at present. Park and Williams find that this difference in the strength of toxins is due to the difference in the alkalinity of the bouillon in which the germs are grown. They recommend that the bouillon should be so thoroughly alkaline as to require 7 c.c. normal acid to the liter to make it neutral to litmus. Phenolphthalein is, however, a much more reliable indicator than litmus for making the titrations.

The greatest care should be exercised in selecting the horses that are to be immunized. Only young, healthy animals should be used and be carefully inspected by a competent veterinarian, tested for tuberculosis and glanders, and kept under observation for several days before they are accepted.

Many methods have been employed, at the suggestion of different investigators, for producing immunity in these animals.

Behring and Roux both use practically the same method—the one generally employed at the present time. Small initial subcutaneous injections of the toxin are made; 1/10 c.c. of the strong toxin now in use diluted with sterile physiologic saline solution to 1 c.c. is quite sufficient. The degree of reaction is very variable in different horses. Some will show almost no local or general reaction, while others in apparently as good condition are rapidly prostrated with even the smallest injections. The temperature may be 5 or even 6 degrees above normal and marked local swelling occur. In the writer's experience, if the temperature rises more than 4.5 degrees the horse will surely die, either from the primary injection or subsequently if treated farther, unless antitoxin is administered. This fact suggested to me the possibility of producing immunity in such animals by combating the marked symptoms with injections of antitoxin. Pawlowsky and Maksuton report, since my experiments began, that they have succeeded in immunizing horses in forty to fifty days by first treating them with antitoxin and then with toxin. It is too early to say what the outcome of my experiments will be, but I have been able to save the lives of several animals with antitoxin and they are now standing the treatment with the toxins very satisfactorily. The great difference in reaction to the toxin on the part of different horses has been shown by Bolton to be probably due to the fact that the blood serum of some unimmunized horses contains antitoxic substances. Among other animals a similar variation in resistance to other poisons is observed. The intravenous method of injecting the toxin has been employed quite extensively, with varying results. The local and general disturbance, contrary to what might be expected, is much slighter when the toxin is introduced directly into the circulation than when injected subcutaneously.

Klein found that by beginning with a small injection of attenuated culture of diphtheria germs and gradually increasing the quantity and virulency of the germs at the subsequent injections, the animal is able to take large quantities of the most virulent cultures in three or four weeks time. This method of producing immunity is quicker and less dangerous to the horses than the method of Behring, but it has been found impossible, thereby, to produce a very strong serum, even after long continued treatment.

Wassermann has recently shown that if an animal be immunized with virulent cultures of bacillus pyocyaneus its blood will acquire strong bactericidal but weak antitoxic properties. On the other hand, if the animal be immunized with the toxins instead of with the germs the resulting serum has both germicidal and antitoxic properties in marked degree.

By all of these methods strong immunity can be produced. It may be that a combination of methods will be found ultimately to be more satisfactory than any one method alone. Horses, as human beings, have their own individual characteristics, that must be taken into consideration in order that the best results may be produced. Occasionally a horse will, while under treatment, show all the typical symptoms of post-diphtheritic paralysis, some even regurgitate their food. Such cases recover very slowly, or may suddenly die of heart failure, as do so many human patients. The horses that do take the treatment satisfactorily become sleek and well nourished. One horse under the writer's care gained over 300 pounds while under treatment. Exercise, sunshine and fresh air—in fact the best hygienic conditions—are all essential factors.

The amount of toxin and the length of treatment necessary to immunize animals so they will produce antitoxins of a given strength vary within wide limits. Some horses will produce a strong antitoxin for a time, and then, notwithstanding the fact that we can inject very large and increasing quantities of toxin, the serum will become much weaker. To illustrate: one horse under my observation shows very little disturbance from an injection of 1200 c.c. of a strong toxin, enough to kill several thousand unimmunized horses, yet its serum is not over one-half as strong as it was a year ago, and not nearly so strong as the serum obtained from a horse which shows marked reaction after much smaller doses. Behring has noted that a horse in the course of treatment may become highly susceptible to the toxin and yet produce very strong serum. The variabilities and difficulties connected with the production of antitoxin are well-nigh distracting.

After the animals have been treated for a considerable time, and are able to resist large quantities of the toxins, test quantities of blood are drawn from the jugular vein, under aseptic and antiseptic conditions, into sterilized flasks, or tubes, and placed in the refrigerator. After some hours the clot contracts and squeezes out the clear, straw-colored serum,

which contains the antitoxin. This serum is drawn from the flasks, or tubes, into a sterilized container, some preservative, trikresol, camphor, carbolic acid, etc., added, allowed to stand some time, and is then passed through sterilized filters into sterilized containers.

The antitoxic value of the serum must now be determined, before it is finally filled into the bottles, or bulbs, and finished for marketing. Several methods of standardizing the serum have been proposed, but that of Behring and Ehrlich has been most generally accepted in this country. It is carried out as follows:

Half-grown guinea pigs are the animals employed. Ten times the fatal dose of diphtheria toxin is mixed with variable quantities of the serum containing the antitoxin, then injected subcutaneously into the animals. To illustrate: Suppose we find that 5 milligrammes of a given toxin is the fatal dose for the test animals; in testing, 50 milligrammes of the toxin are measured out, mixed with, say, 1 milligramme of the serum containing the antitoxin, and injected into pig No. 1. Pig No. 2 receives a like amount of the toxin, mixed with $\frac{1}{2}$ milligramme of the serum. After a few days we find that pig No. 1 is well and healthy, in fact has never been sick, while pig No. 2 died in forty-eight hours. We would say that 1 milligramme of the serum, $\frac{1}{1000}$ c.c., is sufficient to protect a guinea pig against 50 milligrammes of toxin ($\frac{1}{20}$ c.c.) and that each cubic centimeter of the serum contains 100 antitoxic units—an antitoxic unit being ten times the quantity of serum necessary to protect a medium-sized pig against ten times the fatal dose of diphtheria toxin. The definition of what constitutes an antitoxic unit has been so differently stated by medical writers that much confusion has arisen as to what is meant by so many units strength. Two years ago the strongest serums on the market contained only about 100 units per c.c. At the present time we are able to make serums five times as strong.

Finally, the completed and tested antitoxin is filled into sterilized containers, and is ready for distribution. Some firms prefer to put up several grades of serum. using containers holding from 2 to 20 c.c. of fluid, Others believe it is better to keep the average dose as small as possible, and list the number of units, irrespective of the amount of fluid, never allowing the latter to exceed 5 c.c.

The question is often asked, "How long will serum keep?" If properly prepared it should keep indefinitely, in the sense of putrefying; but undoubtedly, like other complex albuminous bodies, it begins to deteriorate, or lose strength, as soon as prepared. This loss in strength, however, takes place very slowly when the serum is kept in a cool, dark place. Manufacturers generally add sufficient excess of serum so that the package will contain the number of units claimed on the label at the end of six months.

Vaccine.—Vaccine, not because of its time-honored place as a prophylactic agent against smallpox, but because of the recent work of Beclère and others, deserves mention. Some time after the pustules have disappeared from vaccinated heifers their serum shows decided immunizing properties, proved by the fact that when it is injected into fresh animals and vaccination immediately performed, fewer pustules develop, those that do appear are rudimentary or abortive, and the lymph obtained is very inactive. If, on the other hand, vaccine virus is injected subcutaneously into the animal just before vaccination, the vaccine lesions remain unmodified. However, if the injections of vaccine lymph precede the vaccination several days, slight immunity is conferred. If the serum is injected within forty-eight hours after the vaccination, little or no reaction is manifest. Consequently we may say that the serum, in contrast with the lymph, possesses not only an immunizing property, but a curative one also. Whether the serum from vaccinated animals will be of value as a preventive, or in the treatment of smallpox, remains yet to be demonstrated.

Anti-venomous serum.—Sewall (1887) succeeded in immunizing pigeons against rattlesnake poison by administering gradually increasing quantities of the venom, so that finally the birds could withstand seven times the fatal dose. This immunity lasted for several months.

Fraser (1895) found, from very extended experiments with venom from the cobra, rattlesnake, and many other poisonous snakes, that animals immunized against one venom were immunized against the other venoms also—that neither local nor general reaction follow inoculation with many times the fatal dose. Some of the animals gained in flesh and seemed benefited by the treatment. Calmette and his coworkers in the Pasteur Institute confirm Fraser's work, and have added many new facts bearing on the question. The protection of man from the bites of serpents, by artificial treatment with their poison, has been known and practiced for ages, by the snake charmers of India. How well they have kept their secret need not be told. The importance of this work can be appreciated from the fact that reports show that every year over 20,000 people die, in India alone, from the bites of venomous snakes.

Abrin and ricin antitoxin.—Ehrlich succeeded (1891) in immunizing, and obtained a strong antitoxin by feeding larger and larger doses of the poisons, ricin (from the castor bean) and abrin (jequirity bean). These antitoxins are specific in the true sense, since the one antitoxin does not protect an animal from the poisonous effects of the other. These results are of great importance from a scientific point of view, but of little practical importancce to the physician, although the abrin poison may be of some use to ophthalmologists.

Calmette, in concluding his recent researches on toxins not containing microbes, abrin, ricin, snake venom, etc., says: "The antitoxic function is independent of immunity, since it can exist, although the antitoxic function does not manifest itself. The hen and the tortoise resist large doses of these poisons, but their serum is entirely inactive against abrin poison. Natural and acquired immunity are the result of a special property of the cell."

Anti-tetanic serum (lockjaw).—Kitasato (1889) showed that tetanus was due to a special germ, which, if injected into susceptible animals produced typical symptoms of tetanus; this germ could be obtained from the body of a person dying from the disease. Shortly afterward he succeeded in immunizing rabbits, whose blood serum was found to contain antitoxic substances. These results were confirmed by Tizzoni and Cattani in 1891. Behring and others, in 1892, detailed a method for immunizing horses and obtaining their serum, which was used experimentally on man. The same year Brieger and Ehrlich immunized

goats and found that the protecting substance was present, not only in the blood of the animal but also in its milk. Later he obtained the antitoxin in an impure form as a dry powder from the milk. The potency of the poison of this germ, even in an impure form, can be scarcely realized, a few grains being sufficient to exterminate a whole army of men. Of the greatest importance to the physician was the demonstration that it requires thousands of times as much antitoxin to cure an animal, after the symptoms have developed, as it does to prevent the development of the disease by giving antitoxin soon after the animal is infected; hence the necessity of prophylactic injections in cases of suspicious wounds. This serum is dispensed as a fluid, or in a dry form.

Anti-tubercle serum.—This serum is prepared in the usual way, from the blood of horses that have been immunized against attenuated cultures of the tubercle germ, or their poisonous product (tuberculin). Maragliano and Paquin have made considerable claims for this serum as a curative agent, but at present I believe it should be regarded merely as an experimental remedy.

Anti-streptococcic serum.—It is now generally assumed that erysipelas, puerperal fever, and certain septicemias are due to streptococci of the same or closely related species, and that these germs often attack the weakened tissues and complicate such diseases as scarlatina, diphtheria, tuberculosis, etc. It was early perceived that a serum efficacious against these germs, or their toxins, would have a wide field of usefulness. Marmorek first succeeded in producing such a serum, but his results thus far have not been confirmed, either in this country or in Europe. However, there is quite a demand for the preparation in this country; whether it will prove of value remains to be determined.

Anti-typhoid serum has been prepared, but thus far the results are not very satisfactory.

Anti-bubonic serum is perhaps the latest and most important addition to serum therapy. The results obtained by Kitasato, Yersin and others from the use of this serum are very encouraging. It is prepared from the blood of horses immunized by some one of the methods already mentioned.

Anti-syphilitic serum has been tried, but at present the prospects of success are very meagre.

Anti-rabic, anti-choleric, and other serums have been prepared, but it is not necessary to mention them here, since they are prepared along the same general lines as the others.

We find, briefly, that immunity can be conferred against a great variety of substances of animal, vegetable and bacterial origin. This immunity may be produced by feeding the poison, or by injecting it subcutaneously or intra-venously; it can be borrowed from one animal and loaned to another to aid the tissues in their efforts to prevent the entrance of disease organisms, or to destroy such organisms after they have gained access to the citadel of life. The immunizing substance is found to be present in varying quantities in the different fluids and organs of the animal body. At present we are unable to say where this protecting substance is formed in the animal body. Much of the recent work shows that the white corpuscles have much to do with its production. One of the latest investigators asserts that he has evidence that it is formed in the marrow of the bones.

The great practical importance of antitoxins in the treatment of disease justify the conclusion that rational medicine may justly claim to be one of the most progressive of the sciences.

A METHOD FOR THE QUANTITATIVE ESTIMATION OF INDICAN AND INDIRUBIN IN THE URINE.

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The methods in general use for the detection of indican in the urine are too well known to require recapitulation; they are qualitative and are of little or no value for clinical diagnosis; all are based on the breaking up of the indoxyl sulphate with hydrochloric acid, oxidizing the indoxyl into indigo, dissolving in chloroform, when the blue coloration obtained is utilized to estimate the excess. Errors arise in this method from a variety of causes. If the total quantity of urine passed in the twenty-four hours is small, a deep coloration may be obtained in the test tube, while the total amount may be normal; on the other hand, if the quantity for twenty-four hours is large, little or no coloration may be obtained, and yet the total quantity may be in excess of normal. Another point is the varying difficulty of breaking up the indoxyl; sometimes the mere addition of hydrochloric acid may produce a coloration, at others the color will only appear after standing some time. The various oxidizing agents used, viz., sodium or calcium hypochlorite, hydrogen dioxid, potassium permanganate, etc., will give different results with the same urine. If iodin or salicylic is present, the results are unreliable.

The quantitative estimation by the method of color comparison must necessarily be inaccurate, as no two observers see shades alike, and even the same observer will not always arrive at the same result. Again it is very difficult to oxidize to the exact point, any excess of the reagent bleaching the indigo.

It is evident that if the determination of indican is to be of any use in clinical diagnosis, a more accurate method is required.

The writer's method is based on the precipitation of indigotin by boiling the urine with hydrochloric acid and ferric chlorid, filtering and estimating the nitrogen in the precipitate.

Method.—The urine should first be filtered to remove any mucus that may be present, and if the specimen contains albumin it must also be removed.

Take 500 c.c. of the filtered urine, add excess of hydrochloric acid and ferric chlorid, boil for one hour, cool, filter (preferably with a suction pump), wash well with boiling water, and estimate the nitrogen in the precipitate by the Kyeldahl method. The nitrogen multiplied by 17.9285 will give the amount of potassium indoxyl sulphate, and the nitrogen multiplied by 7.0 will give the amount of sulphuric acid in combination as indoxyl. As indoxyl is often present, not in combination with sulphuric acid, the latter figure is not reliable. If it should be desired to estimate the indirubin separately, the precipitate should be washed with 97 per cent. alcohol, which will dissolve out the indirubin. The alcoholic solution of indirubin is evaporated and the nitrogen estimated by the usual method.

The following are a few results obtained by the authors:

Case of Chronic Mania.—Total quantity of urine passed in twenty-four hours, 1900 c.cm.; specific gravity, 1015; sulphuric acid in conjugate sulphates, 0.1008 per cent.; indican, 0.0125 per cent.; sulphuric acid in indoxyl, 0.0049 per cent. This specimen showed no reaction by the ordinary test.

Case of Melancholia Attonita.—Total quantity of urine in twenty-four hours, 900 c.cm.; specific gravity, 1025; sulphuric acid in conjugate sulphates, 0.0336 per cent.; indican, 0.027609 per cent.; sulphuric acid in indoxyl, 0.01078 per cent. This specimen showed a marked excess by the ordinary test.

Case of Morphin Habit (Convalescent).—Total quantity of urine in twenty-four hours, 1400 c.cm.; specific gravity, 1028; sulphuric acid in conjugate sulphates, 0.042 per cent.; indican, 0.02886 and indirubin 0.01505 per cent., total, 0.04391 per cent.; sulphuric acid in indican, 0.01127 per cent., and in indirubin, 0.00588, total, 0.01715 per cent.

Case of Gastric Cancer.—Total quantity of urine in twenty-four hours, 480 c.cm.; specific gravity, 1018; indican, 0.03513 per cent. Qualitative test showed very marked excess.

The normal amount of indican eliminated in the twenty-four hours is variously given by different writers. Dr. Charles Simon of Baltimore gives 0.0066 as normal, while Allen gives 0.004 to 0.019. As these quantities have been estimated by the color method they are probably below the normal amount, the author's analyses showing that even where no coloration was given by the qualitative test there was a total elimination of 0.0125 per cent., equal to 0.2365 cubic centimeters in the twenty-four hours.

The proportion of indoxyl to the total quantity of conjugate sulphates may, after a sufficient number of estimations have been collected and compared, be of great diagnostic value in gastric and intestinal diseases.

NOTE ON DRY CALCIUM SULPHYDRATE AS A DEPILATORY.

Presented to the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY ALEMBERT W. BRAYTON, M.D.
INDIANAPOLIS, IND.

Calcium sulphydrate can be made by heating a granulated mixture of plaster-of-paris (calcium sulphate) with granulated wood charcoal (to take off the oxygen). A high temperature is necessary and it is best obtained by means of gas. A muffler is used, i.e., set in cinders or bone ash and the mixture is heated to redness.

By this method neither sulphuric acid or sulphid of iron is used. The dry, rose-colored or whitish product is applied to the skin in a wetted condition, or it may be put on dry and then wetted. Hydrogen sulphid is given off, which causes a rather foul smell. The substance is perfectly harmless to the skin and may be left on any length of time and does not even irritate abraded surfaces. It is not patented and can be made cheaply.

PRACTICAL NOTES.

Tereben Glycerin or Tereben Water is warmly recommended in the Russian *Medycyna* for the treatment of infected and gangrenous wounds. They are prepared by mixing and forcing air into the mixture through a rubber bulb and the tube which forms hydrogen dioxid by oxidation of the tereben (7 parts glycerin, 4 parts tereben and 1 part dest. water). Set aside for a few days until a sample of the lower layer gives a deep blue reaction mixed with ether and chromic acid, when it is ready for use. Keep in tightly closed receptacles. The wound is covered with gauze moistened in the tereben glycerin, an ordinary dressing applied outside.—*Cbl. f. Chir.*, March 5.

Intestine Guard and Holder.—K. Roser describes in the *Cbl. f. Chir.* of March 19 a simple little contrivance which automatically holds the intestines out of the way during an operation without requiring elevation of the pelvis or the assistance of another person, while the field is kept clear for the surgeon to operate with both hands free. It consists of an oval ring of soft elastic wire, 25 cm. long by 10 wide, slipped inside a tricot sheath, tied beyond it at each end. The oval ring is then bent over in the middle forming an elastic saddle-shaped guard which is fitted over the intestines, pushing them back and confining them like a diaphragm and held in place by its gentle pressure against the abdominal walls. Two can sometimes be used to advantage and a mull compress can be interposed if the pressure is feared. The amount of "spring" can be regulated by bending the guard, which is also easily sterilized.

Local Steam Treatment of Suppurating Wounds.—A case of extensive, chronic, subpectoral abscesses and fistula into which a sound could be inserted for 12 cm., consecutive to suppuration of the lymph glands of the axilla, is reported in the *Deu. Med. Woch.* of March 3, interesting on account of the improvement and cure that followed the local application of steam, 53 degrees C., from a distance of half a meter, for fifteen minutes, followed by a fifteen-minute bath of the whole trunk at 27 degrees R., with a final douche, finishing with airol gauze packed into the fistula. As the writer remarks, we find nothing so good as steam for disinfecting instruments, clothing, etc., and why should it not be equally effective in disinfecting wounds and, by stimulating the circulation, promote healthy granulation?

Localization of the Pains in Inflammation of the Accessory Cavities.—Weil considers the information thus derived quite important in diagnosing, as they are a projection of the inflammation on the surface by the patient. The closer the *locus morbi* to the surface the more distinct and constant the localization of the pains. Fleeting neuralgic pains and disturbances in the nasal passages must be differentiated. The latter can be eliminated by cocainization. The pain from inflammation of the deeper lying sphenoidal sinus is frequently felt in the back of the head, still oftener in the middle of the brow, between the eyebrows and the frontal eminences. He treats all such affections by irrigating through the natural openings. *Wien. Klin. Woch.*, February 24.

The Sweating Form of the Grip.—Marquié has had occasion to observe seven cases of the grip in adults, distinguished by extremely copious sweats and a marked tendency to the formation of adipose tissue. The cases commenced with bronchial disturbances; some were accompanied by distressing cardiac palpitations, all with constipation, lack of appetite and scantiness of urine. The sweats continued for months and left a neurasthenic condition, which in some cases persisted years. He noted that the sweats and bronchial disturbances alternated, one diminishing as the other increased and *vice versa*. All recovered but one, a young soldier with an evident tuberculous lesion in the right lung. A tuberculous meningitis supervened, rapidly fatal, and as the appearance of the meningitis coincided with the suppression of the sweats under the influence of atropin (one-quarter mm. *per diem*), the friends attributed the death to this medication, which always seemed to produce a general sense of suffocation and uneasiness. The grip toxin evidently affects the sweat-producing centers in this form of the disease.—*Jour. de Méd. de Bordeaux*, February 6.

Treatment of Chronic Intestinal Catarrh with Charged Lime Water.—Professor Jaworski of Cracow reports very favorable results from the use of water charged with carbonic acid, each liter also containing two grams of lime carbonate and two grams of lime

salicylate, in chronic intestinal catarrh with defective appetite, pain and tympanism, also in the diarrhea of consumptives and of the uric diathesis. In the severer cases he combines with it a stronger solution (four grams carbonate and three of the salicylate). Half a glass of the stronger solution is taken an hour before breakfast, and half a glass of the weaker after each meal. Before drinking it the excess of gas should be allowed to escape. When the gastric disturbances are severe, the half glass of the stronger is added to half a glass of boiling water, and taken hot four times a day. As the benefit is felt, the stronger solution is omitted and the weaker continued for a month or two. The effect is astringent and antiseptic, and very few cases of chronic diarrhea have resisted this treatment. —*Semaine Méd.*, February 16.

Comparative Study of Ether and Chloroform in Parturition.—H. Hensen announces that the superiority of ether over chloroform for the narcosis of parturients resides in the fact that while both suppress the action of the abdominal muscles, the effect of the ether rapidly passes away and the uterus resumes its contractions in five to twenty minutes, while the effect of chloroform is felt for a couple of hours, preventing contractions and thus postponing the expulsion of the fetus and favoring hemorrhage from atony of the uterus. His numerous tests with primiparæ and others, covering several years, were made with a bulb in the uterus connected with a barometric tube. He found that the energy of the uterine contractions increases progressively till the rupture of the bag of waters, to subside then until after the expulsion of the fetus, when the pressure increases again to reach its highest point, a remarkable phenomenon which may be due to the increase of thickness in the uterine wall at this moment. He found that five milligrams to two centigrams of morphin have no effect upon the contractions of the uterus and of the abdominal muscles.—*Sem. Méd.*, February 26., from *Arch. f. Gyn.*, lv, 1.

Treatment of Psoriasis and Eczema with Systematic Scarifications.—Jacquet has thus treated several hundred cases, but in his report restricts his description to eleven cases followed to date in the last two years. The success has been complete and permanent. The patches disappear without leaving a trace, a fact much appreciated by society women unable to appear *decolletées* previously, and artists whose hands had been affected. He only attempts this treatment in disfiguring, chronic, well-defined lesions, especially in psoriasis, after the failure of other methods. In eczema he finds the resistance to the desired effect increases progressively from the acute to the lichenoid form. He first softens the part with a permanent, soft potato cataplasm, not warm, frequently renewed, without antiseptics or oiled silk. The patient comes to the seance still "under the cataplasm." The scarifications are made in parallel lines, one to three millimeters apart, never crossed, in the superficial layer of the derma. The surface is allowed to bleed *ad libitum*, the bleeding promoted by tepid water, after which a folded piece of moist mull is applied and the patient returns to his cataplasm until the next seance. Six to sixteen are required. The scarifications are very slightly painful, even to children.—*Presse Méd.*, February 26.

Treatment of Puerperal Infections with Aromatic Essences.—A Spanish confrère has been following this method of treatment with "surprising and immediate success." He states that a single thorough application should be followed by a fall in the temperature in a few hours and he has never observed any secondary effects. He uses turpentine or essence of bergamot, and was led to attempt the treatment by his success in treating infected ulcers and wounds with turpentine. The essence is applied on a wad of cotton, inserted with curved forceps and the intrauterine surface painted with it, squeezing the essence well into the tissues, but never leaving it permanently. No speculum is required, although a preliminary vaginal irrigation is advisable. This treatment has been applied to all cases at the Maternity and in his practice for over a year, with invariable success. One application a day is sufficient, except in case of gangrene or diphtheritic patches. He begs those who wish to observe the results of the treatment to apply it first in cases of infection of the vulva or entrance to the vagina, when they will see the aspect of the ulcerations alter before their eyes. Wherever applied the fall in the temperature is constant.—E. Corminas, *Rev. de Cienc. Med. de Barcelona.*

Myeloma of the Tendon Sheaths.—A. Venot calls attention to the danger of overlooking the pedicle which almost invariably extends from a myeloma in the sheath of a tendon into the adjacent articulation, although there is no evidence of it from without.—*Rev. de Chir.*, March 10.

The Favorable Effect of Calcium Carbid on Cancerous Growths has been confirmed by experience. In contact with moisture it splits into lime and acetylene gas, and applied to cancers of the cervix, the hemorrhage, fetid discharges and pains cease at once as if by magic. Livet and Guinard report many cases thus kept in a "happy *statu quo*" by an application every four or five days or at still longer intervals. (*Nouv. Remèdes*, February 24). There is a slight burning sensation which soon passes away.

Superiority of Japanese Paper Water Bags, etc., Over Rubber.—The expensiveness and lack of durability of rubber water and ice bags has led to much fruitless research to discover an efficient substitute for rubber. Jacobsohn announces that the Japanese rice paper articles of the kind are a distinct advance in the technique of the care and comfort of the sick. They are made of several layers of the soft, flexible rice paper used for so many purposes in Japan, with resin between, finished on the outside with a coat of the famous Japanese lacquer. He exhibited some air cushions thus made, at the meeting of the Berlin Society of Internal Medicine, March 7, demonstrating that the cushions were absolutely air-tight, flexible, "feather-light," remarkably enduring, bearing a permanent weight of 150 kilograms, folding into extremely small compass when not in use and costing less than a sixth of the corresponding rubber articles now in use. His report was made after long and careful personal tests.

Treatment of Chronic Coughs.—Dr. Adolph Goldhammer of New York, in the *Medical Record*, reports very favorable results in guaiacol treatment, in cases where no tuberculous element could be recognized. His first case was one in which the cough had existed for two years, and numerous other drugs had been used without avail. Under the use of guaiacol daily for one month the cough disappeared, and the patient has been entirely free from it ever since, a period of ten months. Since then he has used guaiacol in every case of congh of more than two weeks' duration, irrespective of origin. He has found it of decided value in cases of chronic bronchitis with or without asthma. In the chronic coughs of children guaiacol has proved especially beneficial. He has employed it even in several cases of whooping-cough with excellent results. The paroxysms were rendered less severe and less numerous, and the duration of the attack was cut short to two or three weeks. For children of a delicate temperament, who have a poor appetite and who occasionally have a slight cough, guaiacol is a valuable remedy. It stops a cough entirely in a short time, increases the appetite and causes the patient to gain in flesh. It is his opinion that many a case of incipient tuberculosis could be prevented if every old cough, no matter how slight, were treated by the administration of guaiacol. In acute coughs guaiacol does not act beneficially and should not be employed. In thirty cases of cough of varied origin and description he reports that twenty-six found the symptoms disappear entirely after the drug was used for periods of from two to six weeks. In the four remaining cases the cough was decidedly improved, although not entirely cured. Eighteen of these cases were in children under 10 years; nine were in adults, three of whom were over 65 years of age.

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SATURDAY, APRIL 16, 1898.

CADAVERIC SPASM.

It has been occasionally observed in cases of sudden death after great and prolonged muscular tension and excitement that the body becomes instantaneously rigid in the position assumed at the moment of dissolution; thus a soldier is killed in action and remains fixed in the position of firing his piece, a lunatic after a prolonged period of excitement is found dead in the exact attitude of a convulsion or some other equally striking condition. Few have probably had the opportunity to observe this phenomenon, but its occurrence is incontestible though it has received little mention in physiologic or medico-legal treatises. Its explanation is not altogether easy on the usual theories of rigor mortis, notwithstanding the fact that the essential conditions are, in part at least, the same. There is the same muscular rigidity lasting a longer or shorter time and probably the coagulation of the myosin, which is assumed to be the cause of rigor mortis, also exists or very quickly supplements the muscular spasm that continues so strikingly in these cases. Rigor mortis notoriously appears quickly in hard-run animals killed in the chase and this is, except in degree, a strictly analogous condition. The condition appears to require a combination of three factors for its accomplishment— a sudden or rather an instantaneous death, a profound excitation or lesion of the nerve centers presiding over movement and an intense muscular contraction at the moment and article of death. Thus, these conditions are most often satisfied upon the battle field, where sudden death, excitement and muscular tension are all, we may say, normal happenings and the ghastly similitude of vitality is hardly noted as out of the common course of events. Its rarity in civil life, if one may so call it, is the reason why it has so far escaped the sensational story teller, to whom it might afford, it would seem, a very appropriate climax for some tragic narrative. But even SAMUEL WARREN and CONAN DOYLE hardly appear to have utilized it.

A recent French thesis of Dr. MAZELLIER, a student of Professor LACASSAGNE, has treated the subject of cadaveric spasm from a medico-legal point of view, and offers some facts that are worthy of notice here. It gives the results of a series of experiments by LACASSAGNE and MARTIN on the possibility of this spasm being utilized in hiding homicide or in its detection. A murderer might, for example, put a weapon in the hand of his victim to suggest a suicide or to transfer the evidence of guilt of, it may be, still another crime. They find that it is possible to recognize the simulated grasp of a factitious suicide and the real cadaveric spasm of the hand with which, more often than is perhaps generally supposed, a real suicide holds the weapon. In the latter all the articulations of the hand combine to grasp the arm as in life and it is difficult to detach them, while in the former it is held stiffly between the rigid fingers and the palm. The fact that a localized cadaveric spasm of the hand sometimes occurs in suicides who have shot themselves in the head is itself a medico-legal fact of some considerable importance.

Another medico-legal point is that that cadaveric spasm itself is direct evidence of an instantaneous death. This need not be due to traumatism alone; it is in a certain proportion of cases due to an apoplectic stroke occurring suddenly while the subject is engaged in more or less strenuous muscular exercise of any kind. In these cases it is held that there is a sudden escape of blood into the ventricles causing by their sudden and excessive dilatation the same phenomena as were in the other instances due to the laceration of the brain substance by the gunshot wound. Whether this is exactly what occurs in all cases may be a question, the nervous shock from any sudden hemorrhage into the brain and more especially into those parts where such an accident would be instantly fatal, superimposed upon a condition of the muscular system induced by intense exertion, might easily have the same effect as a suddenly fatal gunshot wound of the brain. The fact is, however, of importance as it furnishes sometimes an indication of the cause of death where other and exterior signs are lacking. Such an instance is reported in M. MAZELLIER'S thesis, where the medico-legal consultant was able before the autopsy to state the cause of death.

The important facts brought out in regard to this rare but occasionally happening phenomenon in this French physician's thesis, are that it may occur local-

ized in one member as in the cases of suicide alluded to, and that it is at times a possible and reliable indication of the lesion causing death when other indications are lacking. It is therefore something more than a mere medical curiosity; it has or may have at times a decided medico-legal importance.

THE VALUE OF THE SALIVA IN DIGESTING FOOD.

Even the merest tyro in physiology is familiar with the fact that the saliva not only prepares the food so that it can be readily swallowed and acted upon by the gastric and intestinal juices, but that it contains a ferment which possesses to a high degree the ability of commencing and even carrying to completion the transformation of starch into sugar, or in other words, the preparation of carbohydrate materials so that they can be readily absorbed and appropriated to the various uses of the economy. For many years when patients came to a physician complaining of symptoms of indigestion it was the custom to administer pepsin and hydrochloric acid under the erroneous idea that it was the proteids in the food which were not properly treated by the digestive juices and that relief could be obtained by aiding the stomach in the manner indicated. Only comparatively recently has the importance of pancreatin digestion been recognized as surpassing that carried out by the gastric juice and still more recently has the profession come to realize the fact that in many cases the predigestion of starchy foods or the administration of diastatic ferments capable of aiding in their digestion, is in a certain proportion of cases far more important than the administration of pepsin or pancreatin for their proteolytic action. Recent studies which have been made in the laboratories of Yale University emphasizes the value of the saliva as a digestive juice. They were carried out by Professor CHITTENDEN, who reported his results at the last meeting of the American Physiological Society in Ithaca. This investigator showed that great variations in the amyolytic power of the human saliva take place. Thus, he found that saliva collected before breakfast is stronger in amyolytic power than that secreted after breakfast. He also found that this greater power before a meal is not due to any increase in alkalinity but to the greater concentration of secretion coming from glands that have been resting. He also discovered that stimulation of the mucous membrane of the mouth by the vapor of ether or chloroform, or by any other substance which irritates that mucous membrane, causes a secretion richer in digestive powers and solid matters than that caused by mere mechanical stimulation. These observations are of interest not only because the importance of amyolytic ferments, both real and artificial, is attracting more and more attention from the profession, but also because two habits, supposed to be particularly prevalent among Americans, seriously influence the secretion of saliva, namely, the chewing of tobacco and the use of chewing-gum, the latter having become particularly common since the introduction of the bicycle. Professor CHITTENDEN'S experiments indicate the fact that those persons with deficient digestion of the starchy articles of food should avoid chewing any such substances for a considerable period of time prior to a meal, as by this means the salivary glands will have an opportunity to rest and the liquid which they pour out when starch is taken will then be competent to digest its share of the meal. Where tobacco and chewing-gum are placed in the mouth and kept there until the time of the meal the salivary glands are not only unable to secrete enough amyolytic ferment to aid in the digestion of the starch, but are also unable to secrete enough fluid to thoroughly soften and disintegrate the food and as a result the indigestion of all articles of food ensues, since the pabulum when swallowed is not in a fit condition for gastric or duodenal digestion.

DOCTORS' BILLS.

There is probably at this moment no inconsiderable number of practitioners who are contemplating the gradually diminishing amount of their incomes, and not from the depths of easy chairs either. It warms the cockles of our hearts, no doubt, to read of the beautiful natures of our twin friends, "The Doctor of the Old School" and "Doc Sifers," and we are inclined to pass their imperfections or rather their impracticalities by, with but small censure. And that these dear old fellows are not entirely creatures of the imagination has been proven by the published accounts of the hundreds of letters from various parts of the English speaking world, each claiming a physician of the immediate neighborhood as the hero of MACLAREN'S beautiful story. But it will be remembered that while lax in exacting payment, indeed often never asking any, this worthy pair were themselves the sole sufferers of their loose business methods. Did they have a collection of hungry mouths to fill, a contemplative reader, a business man, would be apt to look upon such neglect as criminal carelessness. The physician has always been looked upon as the poorest business man of any class in the civilized world. Even the clergyman has the good sense to look after his fee when performing the most sacred of all offices, and is not thought of any the worse. We need not mention the other of the great professional triumvirate, the lawyer. Yet should a doctor ask as to the forthcoming of his money before consenting to visit or take a case, the whole community would rise in arms at his heartlessness, and the rebuffed patient, the habitué of a dozen doctors' offices, which he has honored with his presence but not with his money, makes it his main purpose in life for the time being to circulate that story, with each repetition a little

more exaggerated, to the ruin of that particular physician's practice. The doctor, while preparing his satchel for attendance, could ask all necessary questions as to when and how he is to be paid. He owes it to himself, he owes it to his family, he owes it to his brother practitioners, lastly, he owes it to the patient himself that he be not made a pauper. Because his patient is unable to pay, that need not interfere with his going—ye countless thousands of cases of daily self-sacrifice on the part of physicians bear witness—but if there is ability to pay, even moderately, he should know it and when the indebtedness is to be met.

Do not put off sending bills quarterly, half yearly; you are giving your clients' warm gratitude too much time in which to cool. You yourself receive regularly every month your bills from the grocer, the tailor, the landlord, and are expected to quickly liquidate; yet the writer has many times seen people visit upon their devoted physician's head their greatest displeasure that he should venture to send them a statement under three months, intimating that they were in the habit of paying their bills, and that they did not expect in the near future to change their places of residence. In vain the argument here suggested was pleaded as an excuse. They refused to be mollified. It is too late for some of the old ones to change, but the young doctors should see to it that they make a good start. Accustom the few patients that they have to expect statements on the first of every month, and to provide for just as they do for their other creditors, or you will not infrequently find that their quarterly bill has become so large that they give up all hope of ever being able to meet it. At such a time you will call to mind too late the old story of its being cheaper to move than pay rent. "In all your gettings," get business methods. This latter is one of the many valuable points general practitioners might copy from the specialists, and for which they have not been given sufficient credit. We stand aghast at their comparative success in collecting and feebly try to convince ourselves that the people will always pay specialists. Do not believe anything of the kind; there is always a feeling of disinclination to pay for anything which no visible collateral has been offered, the specialist as well as the general practitioner. Study the systematic business-like manner, the former goes about collecting his money and go thou and do likewise.

Another evil which should be promptly remedied: the habit of large business houses of sending injured employes to neighboring physicians and calmly repudiating the small bill rendered by the latter, is a matter of such common occurrence as to hardly need mentioning except to seek its remedy. The physician commonly makes the mistake of sending the bill to the injured party; he had then better give up all hope, for that act relieves the firm of all responsibility in the matter and the patient either does not pay at all or only at a great discount. The cure is simple; it will take but a minute to call up by telephone the firm and find out definitely their responsibility in the case. Those who live in smaller towns, insist on your patient bringing you a note on the next visit, signed by someone connected with the house, stating that John Smith was injured in Mr. Jones' factory, and for Dr. Blank to kindly give him such attention as he may need. But in spite of the utmost precautions, there will remain a considerable percentage of what might be called "gross earnings" which will be as hard to get as blood out of the traditional turnip. Nevertheless be a business doctor, command your patients' respect in this regard no less than in your professional capacity, and you will be occasionally surprised in finding your efforts crowned with success, and a new book or coveted journal will be your witness to an honorable striving. Let us repeat, "with all thy gettings," get business methods.

THE WEEK IN CONGRESS.

In sanitary matters but little has been done. Dr. GALLINGER has succeeded in passing, through the Senate, bill 4190 "Authorizing the Secretary of the Interior to issue a permit to the American Invalid Society of Boston, Mass., to occupy and use 160 acres of land, being part of the abandoned Fort Stanton Military Reservation in New Mexico, for the purpose of a National sanitarium for the treatment of pulmonary diseases."

From documents accompanying the bill, it is understood that the "American Invalid Society of Boston. Mass.," is a society that has in its membership such men as Rev. EDWARD EVERETT HALE, Dr. CHARLES R. NICHOLS, SOLOMON SCHINDLER (who is at the head of the Hebrew charitable societies of Boston), HEZEKIAH BUTTERWORTH, Mrs. JULIA WARD HOWE, Mrs. MARY A. LIVERMORE, and others.

This Society has already sent a great many poor people to the Rocky Mountain region at the expense of the Society, and they now purpose to equip this sanitarium. The bill as originally introduced proposed to grant the entire reservation of over 10,000 acres of land and the buildings thereon, but it was amended so as to grant 160 acres, which would seem to be ample for the purpose. There was no objection in the Senate to the passage of the bill.

RATES FOR THE DENVER MEETING.

On Saturday last the Special Committee of the Western Passenger Association reported to the general body in favor of allowing one fare and two dollars as the special rate to and from the meeting of the AMERICAN MEDICAL ASSOCIATION at Denver.

The question of time, which has been raised, was

not considered, although it is understood that the time limit will be thirty days, so as to allow of opportunity to attend the Omaha Exposition.

The route selected by the Committee of Trustees for the special train from Chicago to Denver, will be announced next week. In the meantime we respectfully request our readers to make their arrangements to go by the JOURNAL "special" from Chicago in preference to other routes.

CORRESPONDENCE.

Gynecology and Gynecolgists in Paris.

PARIS, March 1898.

To the Editor:—It is an unfortunate attribute of human nature, that our thoughts and our actions, instead of flowing on in a steady and even current, are too often marked by great tidal waves that, rising to a certain height, settle back again to their original level. We seem in this respect to be governed by the same laws that govern the progress of great, wide-spread epidemics, like, for instance, the influenza which beginning at a certain point disseminates itself until it encircles the entire globe. Following the same law, we see level-headed men, who have amassed a fortune by their economy and industry, seized by a speculative craze, and squander the savings of a lifetime in a single day. Religious epidemics attack communities and during their prevalence, men of small caliber are able to convert their thousands, while, when this wave of excitement has subsided, it takes a Sam Jones or a Booth to arouse the least spark of religious zeal.

Unfortunately for humanity, we, as physicians and surgeons, are not exempt from these periodic impulses, during the prevalence of which we lose our heads and resort to lines of practice that are contrary both to science and to sound judgment. One of the worst epidemic manias that ever struck the medical world, began about a decade and a half ago in Europe, and spread rapidly until it affected the profession of two continents. Abdominal surgery had just opened up a new field. The peritoneal cavity, which a few years before was a *terra incognita*, was invaded on all sides and by nearly everybody. The ovary was the point of attack. If not really diseased, it was accused of being the focus from which originated all the nervous phenomena to which that neurotic specimen of humanity, woman, was addicted. In their onslaught upon this organ, men vied with each other to see which could make the largest record, and then the foremost man in the contest, like the fastest horse on the trotting course, tried to beat his own record. Things went on in this reckless manner for half a score of years, and then men began to regain their reason, and only removed these important organs when they were seriously diseased.

About 1890, I believe, Dr. Péan advanced the idea that when the uterine appendages were diseased, and required to be removed, the uterus should be included in this operation.

This new departure appears to have been received with enthusiasm by a majority of operators here in Paris, who seem to be possessed with an irrepressible mania to remove the uterus, do a vaginal hysterectomy to relieve symptoms that viewed by the knowledge and light that one has attained away from here, seem most ridiculous and absurd. Up to this writing I have the notes of twenty-five operations of this kind, not including those done for fibroids and malignant growths, with the symptoms of the patients, and the pathologic appearances of the tissues removed.

As an example of the views held by prominent men on this subject, Paul Segond in a long article in the *Revue de Gynécologie* for 1897 lays down this rule: "When the annexes on both sides are diseased and require removal, then remove the entire uterus, for of what use is it to leave a few grams of muscular tissue behind that has no function?" A more perfect drainage is another argument that he advances in favor of what he calls the complete operation.

Dr. E. Jayle in an article in the same journal says: "If the ovaries and tubes are removed, the uterus should also be. If the uterus and tubes are removed, leave the ovaries, if they are not involved in the morbid process."

Dr. V. Panchet in a late thesis, gives the results of 600 hysterectomies performed by Dr. Richelot at the St. Louis, about one-half of which were done by the abdomen, and the other half via the vagina. He was able to follow up about half of these cases and thus ascertain what the after-results of the operations were. 1. The sexual functions were not altered in a vast majority of these cases. 2. In one-fourth of the cases the pelvic and abdominal pains that the patients complained of before the operation were not relieved, owing probably to peritoneal adhesions that the operations did not remedy. Ninety-four per cent. of diseases of the annexes operated on by the removal of the womb, as well as the appendages, were cured while Dr. Richelot's operations done on the tubes and ovaries leaving the womb untouched, he had only 64 per cent. of recoveries.

Dr. Pozzi, to the American profession, is probably the best known gynecologist in France. As a teacher and a writer he has few equals, and though a skilful operater he can not be called the very best in Paris. He is a man 55 years of age, but looks ten or fifteen years younger, and has a bright, intelligent face and an eye that sparkles with intelligence and vim. He has probably the largest clientage among the wealthy of Paris, of any man in the city, has lately been elected to the senate, and all in all seems too busy to give that careful attention to his hospital work that other surgeons do. His teachings in the last edition of his "Traité de Gynécologie," in regard to the indications for the removal of the uterus with the annexes when the latter are diseased, seem to be wise and judicious. After remarking that following the practice of most American authorities on the subject, he usually prefers to open the abdomen in cases of diseases of the tubes and ovaries that require to be operated on he adds, "A vaginal hysterectomy ought to be preferred to a laparotomy in all cases where the annexes are strongly adherent to the uterus, and in cases where the suppuration surrounds the wound itself." (*Peri-metro-salpingite suppurée*). He further says that: "During the last two years I have practiced more frequently than formerly the removal of the uterus with the ovaries and tubes when the latter were diseased." Any one, however, who will follow Dr. Pozzi's work at the Broca, will at once be struck by the fact that his present practice in regard to the subject I am discussing is quite different from that taught in the last edition of his excellent work on gynecology. I give my notes on the first operation I saw him do this winter:

Patient, aged 35 years, has borne three children, the last one a year ago, since which date she began to complain of pelvic and abdominal pains, and her menses have been too profuse; no increase of temperature until within the last two weeks, since which she has had a temperature of 38.5 degrees C. every evening.

Diagnosis.—Metritis, salpingitis, ovaritis, and probably pus in both tubes. Vaginal hysterectomy done. Womb found slightly enlarged, and inner surface covered with dark granulations. Ovaries nearly healthy. Left tube enlarged to about double its natural size and closed at its uterine extremity. Right tube was about equally large and presented a slight protuberance at its center, and when opened was found to contain ten or fifteen drops of pus.

If this case had been curetted and the patient put to bed and free hot water injections used, would not this have had a tend-

ency to relieve the endometritis, to have opened up the left tube, and then if the lesion in the right tube had grown worse, could it not have been removed through an incision in the Douglas' pouch, and left the woman with her uterus, as well as one ovary and tube?

Prof. Jule Emile Péan, born sixty-eight years ago in one of the small provincial towns of France, has died. When a boy, in his early teens, his father had occasion to come to Paris to consult some professional celebrity on account of some disease from which he was suffering. The old gentleman was horrified at the size of the fee he was charged, and on his return home he patted his boy on the head and said: "My son, you must be a doctor, there are millions in it." The young man heartily embraced the idea advanced by his father, and if his professional confrères here in Paris do not falsify his character, he never lost sight of the motive that his father had in view when he launched him out into the world as a doctor.

From some cause or other Péan was thoroughly disliked by many of his professional colleagues here in Paris. A prominent gynecologist speaking to me of him on the day of his funeral, remarked: "His audacity and industry were unbounded." Whatever prejudice may have existed against him while living, his contributions to gynecologic surgery and his *forcipressure* for the control of hemorrhage, are honors of which no one can rob him and which will render him immortal as a surgeon. Still, when all this is said in his favor, I think it can be affirmed with perfect truthfulness that his death left no blank in the profession that others can not fill better than he did.

Though the originator of many new ideas, he never would accept any modification of any procedure that he himself had devised. I saw him do, at the Hospital International, I believe the last operation he ever performed. It was the removal of a large fibroid through the vagina by *morcellement*. The operation was a long and tedious one, and perhaps justifiable when no better technique was known for the performance of an abdominal hysterectomy than that devised by Freund, but certainly not a justifiable one when viewed in the light of our newer modes of doing this operation. I have seen considerable of Dr. Péan from first to last. He was a prominent figure at all our International Congresses and with his giant frame and manly bearing attracted universal attention. While he was a professor of surgery in the School of Medicine of Paris, and taught at the St. Louis, I saw considerable of his work, and though he was a brilliant lecturer and a daring operator, viewed from my Anglo-Saxon standpoint, I never considered him a safe model to follow. To illustrate, some years ago a patient was put upon the table, suffering from an empyema of the left side of the chest. He was chloroformed and a portion of a rib resected, and than a free incision was made into the pleural cavity from which gushed two or three liters of pus. In three minutes more the patient was dead. Had he used less anesthetic, or substituted ether for his chloroform, and removed this fluid more gradually, perhaps this man's life might have been saved.

Professor Richelot is a man about 50 years of age, quiet, modest and unassuming in his manner and thoroughly devoted to his work. He operates three times a week at the St. Louis and if one follows him, he will see more gynecologic work than can be seen at any other operating clinic I ever followed. Whatever other operations he does, you can generally depend upon seeing a hysterectomy, either vaginal or abdominal, on any one of his three operating days during the week. Dr. Richelot has done nearly four hundred abdominal hysterectomies, a record that I suppose few, if any, have exceeded. I asked him what had been his mortality in this operation. His reply was: "Dr. C., do you want me to lie to you, as men generally do when giving their statistics? If you do, I will say 2 or 3 per cent., for that is the fashion, but if you want me to tell you the truth, I will tell you that my mortality in my first hundred cases was 7 per cent., or over, but now in the uncomplicated cases I am only losing about 5 per cent."

To illustrate how even so good a diagnostician as Dr. Richelot is, may be deceived and make an erroneous diagnosis, I cite the following case:

Patient aged 42 years, mother of seven children, looks fairly well nourished, complains of pain in back and loins and has been flooding for three months. Diagnosis: Uterine fibroid with retroversion. Vaginal hysterectomy done. When the cervix was opened it was found to contain a large blood clot. When the uterus was opened, out burst a fetus of about three and one-half months. This accident did not at all unnerve the Dr., who justified himself by giving examples in which eminent men had committed the same blunder.

The following case will illustrate the difference in the practice of the Paris school of operators, as compared to that pursued by Dr. Tuttle of New York, and many other Americans: Patient aged 32 years, aborted six months ago, since which she has had pains in her back and loins, and a slight rise of temperature every afternoon. Vaginal examination showed uterus to be fixed and immovable, with a hard mass filling Douglas' pouch and extending toward the left side. A vaginal hysterectomy was done, but before the operation was completed, a large pus sac situated behind the uterus was ruptured. The ovaries and tubes were matted together in this inflammatory exudation, and neither these nor the pus sac could be removed. So the Doctor finished the operation by packing the abscess cavity with gauze, explaining that he did not deem it essential to remove the abscess walls. Dr. Tuttle would have opened up this abscess by a free incision behind the uterus, drained it with gauze, and hoped to cure his patient, leaving her uterus, tubes and ovaries intact. If one reads his text-books or witnesses the operations of different operators, he will be struck by the lack of uniformity of the teachings of the former, and the practice of the latter in their technique for doing a vaginal hysterectomy.

It is understood that in France, as far as my observation goes at least, the forceps are always used as a means of controlling hemorrhage. Richelot's mode of operating strikes me as a good one and is as follows:

1. Draw the uterus well down with your forceps and make a circular incision around the entire neck, usually about one inch above the os, and let this incision be deep enough to include all the tissues down to the muscular substance of this organ.

2. Dissect loose all the connections between the cervix and vagina upward, until you can feel the pulsation of the uterine arteries on each side.

3. Open up widely the vesicovaginal connections in front, and the rectovaginal connections behind, until you have entered the peritoneal cavity at each point.

4. Clamp the uterine arteries on each side and continue your dissections upward, until you have reached the union of the body of the uterus with the cervix. Introduce a retractor into the anterior space between the bladder and the uterus and raise the former well upward.

5. Split open the cervix and amputate it at its junction with the body, at the same time keeping firm hold with your forceps of the lower part of the latter. With your retractor in place and the tissues raised well upward, you have a plain view of the whole anterior aspect of the body of the uterus.

6. Begin now and split this open with your scissors, and as you do so draw the organ down, so that by the time you have reached the fundus with your incision, the uterus is delivered outside through your vesicovaginal opening. Pull the body forward and continue your incision until the womb is split into two halves.

7. Introduce your fingers between these two halves of the

uterus, and pull one of them well forward. You have now the broad ligament, the tubes and ovaries on one side in plain view.

8. Clamp now, with a pair of long forceps, from *above downward*, the broad ligament, and cut away the one-half of the uterus. Repeat this on the other side.

Richelot lays great stress on this mode of applying the forceps, and by this manner of procedure avoids the accident of wounding the ureters, which he has only done once in 300 operations. The field of operation is now carefully inspected, and all bleeding points are caught by forceps, so that when finished there are generally from eight to ten forceps applied. The vagina is then tamponed as high up as the peritoneal opening with tampons of sterilized wool on which iodoform is well sprinkled. The forceps are removed after forty-eight hours, but these tampons are left for six days longer, or until vaginal injections can be safely used.

While the above technic for doing a vaginal hysterectomy is that adopted by a majority of those I have seen do this operation here in Paris, the several men I have seen perform an abdominal hysterectomy seem each to have a procedure peculiar to himself. However, as I like that adopted by Richelot better than anything I have seen elsewhere, I will briefly give his mode of operating: The patient is put in the Trendelenburg position. The incision in the abdominal walls is made large enough to easily deliver the uterus on the outside.

1. Catch the uterus and have an assistant raise it well up, at the same time putting in a wide retractor at the lower angle of your incision that will spread the parts well asunder.

2. Make an incision laterally through the serous and cellular tissue of the uterus at its anterior aspect, some distance above the bladder.

3. Separate these tissues with the fingers, down as far as the cervix.

4. Begin now on the side and put two clamps on the broad ligaments side by side, and make your incision between these clamps. The structures on the sides are then clamped and cut away until the uterine artery is reached, and this is caught with a small pair of forceps, drawn upward and cut away from its attachment to the cervix.

5. The uterus is now tilted backward and by dissecting from above downward, keeping close to the neck of the uterus, the anterior aspect of the cervix is separated from its vaginovesical attachment and thus the whole anterior aspect of the uterus is freed.

6. Tip the uterus forward and divide the tissues at its posterior aspect laterally, as you did in front, and dissect these down behind until you have entered the vagina as you had down in front, and this done you have entirely separated the uterus from all its attachments.

7. Sew up the vaginal opening in the floor of the pelvis.

8. Lastly, unite with catgut sutures your flaps of serous tissue that you have peeled from the sides of the uterus.

When your operation is done the floor of the pelvis is one continuous even surface, with nothing to show that it had ever been disturbed except the two united surfaces of your serous membrane.

W. S. CALDWELL, M.D.

(To be continued.)

Acute Pyelonephritis after Ovariotomy.

OCONOMOWOC, WIS., April 10, 1898.

To the Editor:—Mrs. F., aged 28 years, mother of five children came Jan. 3, 1898, for the removal of an ovarian cyst. The patient was in fair condition—weighing 130 pounds. She complained of the usual symptoms caused by the presence of a cyst only to a moderate degree. The usual very strict preparations were carried out by our nurses during the three days previous to the operation. The A.M. and P.M. temperature was normal and the interne found nothing abnormal about the urine, making several tests. A trial aspiration proved the contents of the cyst to be opaque and gelatinous, the cyst multilocular; there were no adhesions and a well formed pedicle. The operation consumed, therefore, but a short time, and the patient was in bed in twenty-five minutes.

After the operation the patient complained of a great deal of pain in her back and limbs, in fact all over; more so than usual in such cases. The temperature fluctuated between 99 and 100 degrees. There was no tympanites and no pain on pressure over the abdomen, but she was more or less uneasy and the urine had to be drawn as the patient was unable to void it during the first week. The urine was drawn under the most strict precautions, the passing of the catheter was however continually uncommonly painful to her, and the nurse reported that the patient had complained quite a little of pain in the urethra, when the urine was drawn before the operation. After the seventh day she began to void urine, but in connection with much tenesmus and quite frequent, these symptoms increased the next two days, and it became evident that the patient suffered from acute infectious cystitis. During the last ten years we never had a cystitis developed after an operation and I was at a loss how to account for it, as I have absolute faith in our matron and nurses.

The patient suffered quite a little from the cystitis, which was nearly well at the end of another week under the usual treatment and strict diet; the temperature had become nearly normal. However, on the seventeenth day after the operation very severe pains set in in the left side, together with a rise in temperature, some vomiting and great prostration. The urine again contained pus and blood cells, showing that the infection was passing up the left ureter. In spite of the continuation of the bland milk diet, etc., the application of ichthyol ointment to the left side and the administering of boric acid, urotropin, etc., the pain gradually traveled upward, several chills followed and the left kidney became also affected. The patient was now in a very deplorable condition; and temperature 104.5 degrees; pulse 106; respirations 22 to 28; profuse perspiration, anorexia, nausea and feeling of hopelessness. The continuous pain caused the patient to collapse decidedly, as urotropin, boric acid, alkalin mineral waters with hot milk, etc., had apparently no effect on the progress of the disease. Pyoktanin was given in capsules by the mouth, but not tolerated by the stomach, then benzoate of sodium was given, all without effect. We despaired of saving our patient. As the bladder was less sensitive we began to irrigate it with lactate of silver Credé 1-1000 twice a day, to destroy what germs we could in that organ; an ichthyol mercurial ointment was applied thickly over the region of the affected kidney, and over it hot fermentations with a diet of hot milk and selzer, somatose, almond emulsion and, as an internal germicid, salol gr. xv, four times a day.

In urotropin I was disappointed, as it always had very beneficial effect in cases of subacute and chronic cystitis before; in this case it failed. Perhaps it passed the kidneys too quick, and the continuous acid reaction of the urin in this case may have had an influence upon its not acting. For the next two days the patient remained in the same condition, then the temperature went down to 101 degrees, and the pain lessened. The patient had some refreshing sleep and the urine improved from day to day, pus and blood cells diminished, and January 26 the patient again had a normal temperature. The convalescence was not again interrupted and on February 10 the patient was able to go home.

How did this infection of the urinary tract originate? A number of microscopic examinations of the urine revealed mostly streptococci. An infection from the vagina was excluded. as there was no discharge from either uterus or vagina; besides the vagina had been sterilized, and in addition lysol douches had been used daily. On questioning the patient, she said,

that for several years she had had frequent and painful micturition. As soon as the patient was well enough, a careful examination of the urethra was made, when the source of the infection was at once revealed. The posterior third of the urethra was found ulcerated up to the neck of the bladder. This experience taught us, that it is wise to investigate the urethra of patients who complain of painful micturition, before undertaking a laparotomy or an operation, after which a catheter is expected to be used.

The urethral ulceration was treated twice a day with a 1 per cent. solution of lactate of silver, and healed rapidly. On leaving, the patient received a 5 per cent. solution of lactate of silver and an eye dropper and was instructed how to inject her urethra twice a day at home.

The stitches of the abdominal incision were removed eight days after the operation, union being by first intention.

J. H. VOJE, M.D.

Post-Graduate Extension Lectures.

BELLOWS FALLS, VT., April 9, 1898.

To the Editor:—In reading your editorial of March 26 (page 739), on "Post-Graduate Lectures at Home," I was much pleased with the suggestions you offered. It is a plan that has been carried out, in part, by our Society for a good many years. We have had such men as Prof. Conner of Cincinnati, Prof. Hanks of New York, and others. Of late years we have had in operation a plan that has been more fruitful of results in every particular. The Society of which I am Secretary, viz., the Connecticut River Valley Medical Association, with White River Medical Association and the White Mountains Medical Association, have, through the kindness and generosity of Dartmouth Medical College, held a joint meeting at Hanover, and the Professors have given us lectures on their special branches. We have also had some specialists from outside. The expense of printing, etc., has been arranged between the three mentioned societies, and it has been practically nothing. We have a plan which, it seems to me, is a step in advance of the good one suggested by you in the JOURNAL, and could be made of general use in all parts of the country by other local societies. It is a plan that I have never seen or heard of before, although it may have been in operation for years. Dr. Godfrey would not have to ask for volunteers for their next meeting as they could then join with others and meet at some convenient place and do as we are doing now.

Fraternally, J. SUTCLIFFE HILL, M.D.

ASSOCIATION NEWS.

Medical Societies Entitled to Representation in the American Medical Association, Jan. 1, 1898.—

"The delegates shall receive their appointment from permanently organized State medical societies, and such county and district medical societies *as are recognized by representation in their respective State societies*, and from the medical departments of the Army and Navy and the Marine-Hospital Service of the United States.

"Each State, county and district medical society entitled to representation shall have the privilege of sending to the ASSOCIATION one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *Provided*, however, that the number of delegates for any particular State, Territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the ASSOCIATION.

"*Members by Application.*—Members by application shall consist of such members of the State, county and district medical societies entitled to representation in this ASSOCIATION as shall make application in writing to the Treasurer, and accompanying said application with a certificate of good standing, signed by the president and secretary of the society of which they are members, and the amount of the annual subscription fee, $5. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms."

In accordance with the above extracts from the Constitution, this list is prepared as certified by the secretaries of the State and Territorial medical societies.

Any societies that are omitted should send to the office of the Permanent Secretary notice to that effect *accompanied by a certificate from the secretary of the State society that said society is so recognized in accordance with the above quoted law.* WM. B. ATKINSON, Permanent Secretary,
1400 Pine Street, Philadelphia.

ALABAMA.

Alabama State M. S.

ARIZONA.

Arizona Territory M. S., Maricopa Co., Pima Co., Yarapai Co.

ARKANSAS.

Arkansas State M. S., Baxter Co., Crawford Co., Hot Springs M. S., Lee Co., Phillips Co., Prairie Co., Sebastian Co., Southwest Arkansas M. S., Washington Co.

CALIFORNIA.

California State M. S., Alameda Co., California Acad. of Med., El Paso M. S., Fresno Co., Humboldt Co.. Los Angeles M. S., San Diego Co., San Joaquin Co., San Francisco Co., Santa Barbara M. S., Southern California M. S., Ventura Co.

COLORADO.

Boulder Co., Cripple Creek M. S., Denver Clin., Denver Clin and Path., Denver and Arapahoe M. S., Fremont Co., Lake Co., Pueblo Co., Weld Co.

CONNECTICUT.

Fairfield Co., Hartford Co., Hartford M. S., Lichfield Co., Middlesex Co., New Haven Co., New London Co., Norwich M. A., Tollond Co., Windham Co.

DELAWARE.

Delaware State M. S.

FLORIDA.

Florida State M. S., Alachua Co., Duval Co,, Hillsborough M. S., Osceola Co., St. John Co.

GEORGIA.

Georgia State M. S., Atlanta Soc. of Med., Macon M. S.

IDAHO.

Idaho State M. S.

ILLINOIS.

Illinois State M. S., Adams Co., Æsculapian S. of Wabash Valley, Aurora M. S., Belleville M. S., Brainard Dist. M. S., Bond Co., Bureau Co., Cairo M. S., Calhoun Co., Capital Dist. M. S., Central Dist. M. S., Champaign Co., Chicago Academy of Med., Chicago Gynecological, Chicago M. S., Chicago Medico-Legal, Chicago Ophthalmological and Otological, Chicago Pathological, Clay Co., Clinton Co., Coles Co., Crawford Co., Decatur M. S., Dewitt Co., Douglas Co., Egyptian M. S., Fox River Valley M. S., Galva Dist. M. S., Galesburg M. S., Green Co., Hancock Co., Henry Co., Iowa and Illinois Cent. Dist. M. S., Jackson Co., Jersey Co., Kankakee Co., Lake Co., LaSalle Co., Macoupin Co., Marion Co., Massac Co., McLean Co., Medical and Surgical S. of Western Illinois, Military Tract M. A., Monroe Co., Morgan Co., Moultrie Co., North Central Illinois, Ogle Co., Ottawa City, Perry Co., Pullman Dist. M. A., Rock River Valley M. A., Saline Co., Scandinavian M. S., Chicago; Scott Co., Shelby Co., Southeastern Illinois M. S., Southern Illinois M. S., St. Clair Co., Stephenson Co., Wabash Co., Washington Co., Western M. and S., Whiteside Co., Williamson Co., Woodford Co., Will Co.

INDIANA.

Indiana State M. S., Allen Co., Bartholomew Co., Benton Co., Blackford Co., Boone Co., Carroll Co., Cass Co., Clark Co., Clinton Co., Daviess Co., Dearborn Co., Decatur M. S., DeKalb Co., Delaware Co., Dubois Co., Elkhart Co., Fayette Co., Floyd Co., Fountain Co., Gibson Co., Grant Co., Green Co., Hancock Co., Henry Co., Hendricks Co., Howard Co., Huntingdon Co., Jackson Co., Jay Co., Jefferson Co., Jennings Co., Knox Co., Kosciusko Co., Lagrange Co., Lawrence Co., Madison Co., Marion Co., Marshall Co., Martin Co., Miami Co., Montgomery Co., Morgan Co., Newton Co., Noble Co., Owen Co., Parke Co., Peoria City, Perry Co., Pike Co., Porter Co., Putnam Co., Randolph Co., Ripley Co., Rush Co., Shelby Co., St. Joseph Co., Steuben Co., Sullivan Co., Switzerland Co., Tippecanoe Co., Tipton Co., Vandeburg Co., Vigo Co., Wabash Co., Wayne Co., Wells Co., White Co., Whitley Co.

INDIAN TERRITORY.

Indian Territory M. S.

IOWA.

Iowa State M. S., Blackhawk Co., Buchanan Co., Botna Valley M. S., Central M. S., Clinton Co., Council Bluffs M.S., Des Moines Co., Dubuque M. S., Fayette Co,, Fort Dodge M. S., Jasper Co., Julien M. S., Lyon Co., Missouri Valley M. S., Mitchell Co., North Iowa M. S., Polk Co., Ringgold Co., Southwest Iowa M. S., Wapsie Valley M. S., Wapello Co., Warren Co., Washington Co.

KANSAS.

Kansas State M. S., Bourbon Co., Eastern Kansas M. S., Golden Belt M. S., Leavenworth Co., Wyandotte M. S.

KENTUCKY.

Kentucky State M. S., Boyle Co., Central Kentucky M. S., Clark Co., Hardin Co., Lexington and Fayette Cos., Marion Co., Muhlenberg Co., Northeast Kentucky M. S., Owensboro, M. S., Paducah M. and S., Southeast Kentucky M. S.

LOUISIANA.

Louisana State M. S., Orleans Parish M. S.

MAINE.

Maine State M. S.

MARYLAND.

Maryland Medical and Chirurgical Faculty (the State Society).

MASSACHUSETTS.

Massachusetts State M. S., Barnstable Dist. M. S., Berkshire Dis. M. S., Bristol North Dist. M. S., Bristol South Dist. M. S., East Hampden M. S., Essex North Dist. M. S., Essex South Dist. M. S., Franklin Co., Hampshire Dist. M. S., Hampden Dist. M. S., Middlesex M. S., Middlesex East Dist. M. S., Middlesex North Dist. M. S., Norfolk Dist. M. S., Norfolk South Dist. M. S., Plymouth Dist. M. S., Suffolk Dist. M. S., Worcester North Dist. M. S., Worcester South Dist. M. S.

MICHIGAN.

Michigan State M. S., Bay Co., Calhoun Co., Cheboygan Co., Detroit Academy of Medicine, Detroit Gynecological Society, Grand River M. S., Grand Rapids Academy of Medicine, Kalamazoo Academy of Medicine, Marshall Academy of Medicine, Northeastern Dist. M. S., Pontiac M. S., Washtenaw Co.

MINNESOTA.

Minnesota State M. S., Minnesota Academy of Medicine, Minnesota Valley M. A., Hennepin Co., Ramsey Co., Southern Minnesota M. S., St. Louis Co.

MISSISSIPPI.

Mississippi State M. S.

MISSOURI.

Missouri State M. S., Atchison Co., Cedar Co., Central Missouri Dist. M. S., Chariton Co., Franklin Co., Grand River Dist. M. S., Hannibal M. S., Henry Co., Hodgen Dist. M. S., Howard Co., Independence M. A., Jackson Co., Jasper Co., John McDowell Dist. M. S., Kansas City Academy of Medicine, Kansas City M. S., Lafayette Co., Limton Dist. M. S., Macon Co., Memphis M. S., Montgomery M. S., Northwest Missouri M. S., North Missouri M. S., Pettis Co., Pike Co., Putnam Co., Rolla Dist. M. S., Saline Co., Santa Cruz M. S., Shelby Co., Southwest Dist. M. S,, Southwest Missouri M. S., Springfield, M. S., St. Louis M. S., St. Charles Co., St. Joseph M. S., Western Surgical and Gynecological.

MONTANA.

Montana M. S., Park Co.

NEBRASKA.

Nebraska State M. S., Lincoln M. A., Loup Valley Dist. M. S.

NEVADA.

Nevada State M. S.

NEW HAMPSHIRE.

New Hampshire State M. S., Central District M. S., Cheshire Co.

NEW JERSEY.

New Jersey State M. S., Atlantic Co., Bergen Co., Burlington Co., Camden Co., Cape May Co., Cumberland Co., Essex Co., Gloucester Co., Hudson Co., Hunterdon Co., Mercer Co., Middlesex Co., Monmouth Co., Morris Co., Ocean Co., Passaic Co., Salem Co., Somerset Co., Sussex Co., Union Co., Warren Co.

NEW MEXICO.

New Mexico State M. S., Bernalillo Co.

NEW YORK.

New York State M. A., Hornellsville M. and S. A., Kings Co. M. A., Ontario Co.

NORTH CAROLINA.

North Carolina State M. S., Buncombe Co., Charlotte M. A., Raleigh Acad. Med.

NORTH DAKOTA.

North Dakota State M. S.

OHIO.

Ohio State M. S., Adams Co., Allen Co., Ashland Co., Ashtabula, Lake and Ceaugua Cos., Belmont Co., Brown Co., Butler Co., Gallia Co., Champaign Co., Cincinnati Acad. of Med., Clarke Co., Clermont Co., Cleveland M. S., Clinton Co., Cuyahoga Co., Defiance Co., East Liverpool M. S., Eastern Ohio M. S., Erie Co., Fayette Co., Greene Co., Hancock Co., Hempstead Mem. Acad. of Med., Highland Co., Hildreth Co., Holmes Co., Jackson Co., Jefferson Co., Lawrence Co., Lorain Co., Lucas Co., Mahoning Co., Mansfield Acad. of Med., Marion Co., Meigs Co., Miami Co., Miami Valley M. S., Montgomery Co., Morrow Co., Muskingum Co., North Central Ohio M. S., Northwest Ohio M. S., Pickaway Co., Pike Co., Posey Co., Portage Co., Ross Co., Sandusky Co., Shelby Co., Stark Co., Stillwater M. A., Toledo M. A., Trumbull Co., Tuscarawas Co., Union M. A. N. E. Ohio, Union M. A., Warren Co., Washington Co.

OKLAHOMA.

Oklahoma Territorial M. S., Oklahoma Central M. S.

OREGON.

Oregon State M. S., Portland M. S., South Oregon M. S.

PENNSYLVANIA.

Pennsylvania State M. S., Allegheny Co., Armstrong Co. Beaver Co., Bedford Co., Berks Co., Blair Co., Bradford Co. Bucks Co., Butler Co., Cambria Co., Carbon Co., Centre Co. Chester Co., Clarion Co., Clearfield Co., Clinton Co., Columbia Co., Crawford Co., Cumberland Co., Dauphin Co., Delaware Co., Elk Co., Erie Co., Fayette Co., Franklin Co. Greene Co., Huntington Co., Indiana Co., Jefferson Co. Juniata Co., Lackawanna Co., Lancaster Co., Lebanon Co. Lehigh Co., Luzerne Co., Lycoming Co., McLean Co., Mercer Co., Mifflin Co., Montour Co., Montgomery Co., Northampton Co., Northumberland Co., Perry Co., Philadelphia Co., Schuylkill Co., Snyder Co., Somerset Co., Susquehanna Co., Tioga Co., Venango Co., Warren Co., Washington Co., Westmoreland Co., York Co.

RHODE ISLAND.

Rhode Island State M. S.

SOUTH CAROLINA.

South Carolina State M. S., Anderson Co., Greenville Co. Laurens Co., Medical Society of South Carolina, Richland Co. Sumter Co., Union Co.

SOUTH DAKOTA.

South Dakota State M. S., Minnehaha M. S.

TENNESSEE.

Tennessee State M. S., Chattanooga M. S., Gibson Co. Knox Co.

TEXAS.

Texas State M. S., Austin Co., Austin Dist. M. S., Brazos Valley M. S., Central M. S., Cooke Co., East Line M. A. East Texas M. S., Fannin Co., Hill Co., Houston Dist. M. S. Johnson Co., North Texas M. A., South East Texas M. A. South Collins and Rockwell Cos., Terrell M. S., Waco M. A. Western Texas M. A., Williamson Bell Milan Co.

UTAH.

Utah State M. S., Salt Lake Co., Salt Lake Acad. Med. Weber Co.

VIRGINIA.

Virginia State M. S.

WASHINGTON.

Washington State M. S., Kings Co., Pierce Co., Spokane Co Thurston Co., Walla Walla Co., Washington M. S. Wapello Co

WEST VIRGINIA.

Charleston M. and S.

WISCONSIN.

Wisconsin State M. S., Wisconsin Central M. S., Ashland Co., Brainard M. S., Brown Co., Central M. S., Fox River Valley, Inter Co., La Crosse Co., Milwaukee M. S., Northwest Wisconsin M. S., Sheboygan Co., Waukesha Co.

Section on Ophthalmology.—The preliminary program of the Section on Ophthalmology comprises the following papers:

An Easily Overlooked Form of Keratitis, by Henry Gradle, Chicago.

Remarks on DeZeng's Refractometer, by Frank Allport, Chicago.

The Clinical Aspects of Toxic Amblyopia, by Casey A. Wood, Chicago.

Some Experience with Extirpation of the Lachrymal Sac, by J. E. Colburn, Chicago.

An Additional Case of Double Microphthalmus, by Cassius Wescott, Chicago.

The Treatment of Corneal Ulcers with Pure Oxygen, by T. H. Woodruff, Chicago.

Some Uses of Electricity in Ophthalmic Practice, by H. M. Starkey, Chicago.

Treatment of Disorders of the Lachrymal Apparatus, by Leartus Connor, Detroit.

Glaucoma and Detachment of Retina, by W. Cheatham, Louisville.

Phlyctenular Keratitis, by D. S. Reynolds, Louisville.

The Treatment of Blepharitis with Formalin, by Herbert Moulton, Ft. Smith.

The Dynamics of the Extrinsic Ocular Muscles as the Result Obtained by the Examination of 100 Medical Students, by F. B. Tiffany, Kansas City.

Regular Astigmatism is not always Congenital, Neither is it Unchangeable, by Wm. C. Bane, Denver.

The Use of Large Probes in Strictures of the Lachrymal Duct, by G. M. Black, Denver.

Galvanism in Choroiditis, by R. F. LeMond, Denver.

The Treatment of Suppurative Dacryocystitis, by Arthur Prince, Springfield.

A New Perimeter, by C. H. Williams, Boston.

Eye Muscle Tests with Colored Glasses, by Frank B. Eaton, San José, Cal.

Report of a Few Cases of Acute Glaucoma, by H. Bert Ellis, Los Angeles.

Report of a Case of Quinin Amaurosis, by J. M. Ball, St. Louis.

Extirpation of the Lachrymal Sac and Gland, by C. R. Holmes, Cincinnati.

The Field of Fixation or the Home of the Guiding Sensation, by G. C. Savage, Nashville.

Additional Notes on the Employment of Absorbable Sutures in the Operation of Looping the Tendons of Ocular Muscles, by J. O. McReynolds, Dallas.

The Pathology of Toxic Amblyopia, by G. E. de Schweinitz, Philadelphia.

The Frequency of Senile Opacity in the Crystalline Lens and the Proper Definition of Cataract, by Edward Jackson, Philadelphia.

The Treatment of Epiphora and Affections of the Lachrymal Apparatus, by Samuel Risley, Philadelphia.

The Uses of Electricity in Ophthalmology, by S. Lewis Ziegler, Philadelphia.

Use of Aluminium for an Artificial Vitreous, by D. C. Bryant, Omaha.

Some Severe Cases of Tobacco and Quinin Amblyopia, by E. C. Ellett, Memphis.

Unsatisfied Sexual Desire a Cause of Heterophoria in Both Sexes, by L. R. Culbertson, Zanesville.

Report of a Case of Hemorrhagic Retinitis (idiopathic?), by Vard H. Hulen, Galveston.

A Demonstration of the Sideroscope of Asmus, by A. Barkan, San Francisco.

Amblyopia from Auto-intoxication, by Henry B. Young, Burlington.

SOCIETY NEWS.

New York State Medical Association.—The fourteenth annual meeting of the New York State Medical Association, Third District Branch, will be held at Syracuse, N. Y., June 2, 1898. F. W. Higgins, Secretary, Cortland, N. Y.

Southwest Missouri Medical Association.—The twenty-second annual meeting of the Southwest Missouri Medical Association will be held at Cape Girardeau, Mo., May 3, 4 and 5. M. Rosenthal, Corresponding Secretary, Kennett, Mo.

Tri-State Medical Society.—The following officers were chosen at the recent meeting in Dubuque, Iowa: President, C. E. Ruth, Keokuk; Vice-president, Dr. Murphy, St. Louis; Treasurer, Dr. Fairchild, Clinton, Iowa; Secretary, Dr. Fowler, Dubuque.

Kentucky State Medical Society.—Dr. H. K. Adamson, the Chairman of the Committee of Arrangements, reports progress in his arrangements and believes that the indications give promise of a full and profitable meeting in Maysville on May 11, 12 and 13. That city has always sent a large and influential delegation to the meetings in other towns, and there is no doubt that the compliment will be returned with interest. Moreover, Maysville presents peculiar features in that it is the most northern and eastern point available for State society meetings. A large number of physicians from Cincinnati and other Ohio cities may be expected, while the blue grass contingent may be expected to turn out in full force.—*Am. Practitioner and News.*

American Microscopical Society.—The next meeting of this Society will be held in Syracuse, N. Y., Aug, 30, 31, and Sept. 1, 1898. The Society is invited to meet in Syracuse by the Academy of that place. The daily sessions of the Society will be held in the new building of the College of Medicine, Syracuse University. The building is centrally situated, has commodious lecture-rooms well suited for the work of the Society. Its laboratories are ideal rooms for trade displays of apparatus or for a working session; and in the evening an exhibition soiree, which will probably be made an important part of the exercises. The time of this meeting has been so fixed as to make it convenient for members of the American Society for Advancement of Science, on leaving Boston, to attend the Syracuse meeting on their way home.

Society of Internal Medicine.—A meeting of Chicago physicians was held in the Chicago Medical Society Rooms, Thursday evening, April 7, 1898, to organize a Society of Internal Medicine, devoted especially to the interests of the general practitioner. Dr. J. H. Hollister was elected Chairman of the meeting, and Dr. John A. Robison, Secretary. The question came up as to whether a separate society should be formed, or whether it should be a department of the Chicago Medical Society. Speeches were made *pro* and *con* by Drs. Ware, Davis, Jr., Lyman, Thomas, Billings, Hollister, Robison, Favill, etc., the consensus of opinion being that it was desirable to have the Chicago Medical Society so broadened as to include all branches of medicine—a very sensible conclusion. A committee of five was appointed to confer with the Chicago Medical Society relative to broadening its scope.

American Medico-Psychological Association.—The fifty-fourth annual meeting of the American Medico-Psychological Association is to be held at the Southern Hotel, St. Louis, May 10 to 13 inclusive. The program for the meeting includes a large number of papers of interest, and the annual address will be delivered by Dr. J. T. Eskridge of Denver, the subject being "The Mutual Relations of the Alienist and Neurologist in the study of Psychiatry and Neurology," certainly a living question at the present day, and one that will be interestingly handled by the speaker. The meetings of this organization have of late years been more and more attended by neurologic specialists, and the coming one in such a medical center as St. Louis, will probably have a larger attendance of those not directly connected with the specialty of psychiatry than has been always the case.

PUBLIC HEALTH.

International Prophylactic Measures are not restricted to the bubonic plague and cholera alone in Europe. The principality of Montenegro has established a military cordon and quarantine along the border to protect the country from an epidemic of smallpox now raging at Scutari, a town of 36,000 inhabitants over the line in Albania.—*Sem. Méd.*, March 19.

Sanitaria for Tuberculous Patients.—In Germany Stettin already has an institution with accommodations for eighty inmates, erected at an expense of 350,000 marks; one in Thuringia is to be opened in July, and others at Wiesbaden and Munich

are progressing favorably. The Congress of Naturalists and Physicians, which is to convene at Dusseldorf in September, has appointed a standing committee for this matter. We notice in this connection the negative results obtained from an exhaustive study of the vital statistics of the region surrounding Davos in the Engadine, from which it appears that the population living in and around tuberculosis resorts are not exposed to greater danger of contagion than others elsewhere.

Smallpox in Alabama.—Smallpox was declared to be present in epidemic form in Birmingham, Ala., as long ago as in July, 1897, by the Board of Health of Jefferson County. At the close of 1897 there had been reported 406 cases, with 15 deaths. The epidemic has been of mild type, and chiefly confined to the negro population. As a writer in the *Medical News* explains, there is in every county in Alabama a Board of Health which has well-defined powers and a legal status. Every county health officer in the State is required by law to furnish vaccine free of cost at all times. There is, however, no compulsory vaccination law in the State code. There is a large proportion of the population who will not submit to vaccination when it is voluntary. Under the charter of the City of Birmingham the Council has power to pass a compulsory vaccination law, and upon request of the Board of Health proceeded to pass it as soon as smallpox was declared epidemic. A corps of vaccinators, house disinfectors and inspectors was appointed without delay, and during the next three months the vaccination corps went over the city four times. Daily reports were published and sent to the journals. After some three months the epidemic was so well under control that most of the inspectors and vaccinators were discharged, and later, when no new cases were reported during four weeks, the epidemic was declared to be at an end. Cases, soon, however, began to appear, being imported into the city and country, and the health machinery, consisting of pest-houses, detention-camp, inspectors, ambulances, etc., was for a time continued in operation. Good and efficient work has been done by Dr. McGruder, one of the ablest officers of the Marine Hospital Service, but perfect results have not been attained, for smallpox has not been eradicated. More than $20,000 has been expended by the county and city authorities, and a vast amount by the Marine-Hospital Service. The reasons for this failure are plain: absence of a State compulsory vaccination law, a prejudice against vaccination and, lastly, the mildness of the disease during the present epidemic. Had the disease been of the ordinary type, as regards severity, it is safe to assume that systematic concealment of cases could not have been practiced by the colored population. The truth has been that many of them seemed to dread the sore arm incident to vaccination more than they did the mild smallpox, which, in not a few instances, did not even confine them to bed. This mildness was especially observed in children, contrary to the usual rule. Regular detective work was required of the Government inspectors in their efforts to find the cases, such were the expedients employed to conceal them. When smallpox will be eradicated from Alabama and adjoining States is problematic; certainly not until compulsory vaccination laws are passed, accompanied by large appropriations for their enforcement. The disease has been in lower Alabama for nearly a year and a half, having been introduced from an adjoining State. From a medical standpoint the interesting feature has been the extreme mildness of so many of the cases.

BOOK NOTICES.

Surgical Pathology and Principles. By J. JACKSON CLARKE, M.B., F.R.C.S., with 194 Illustrations. Longmans, Green & Co., London, New York and Bombay. 1897. Pp. 440.

This work is divided into two parts, the first of which is devoted to general surgical pathology, and contains chapters on repair, inflammation, infective inflammation, new growths, dermoids and malformations. Part II is given to diseases of special tissues and organs, and contains chapters on diseases of bone, jaws and teeth, joints and bursæ, muscles and tendons, nerves, diseases of arteries, diseases of veins, lymphatic vessels and glands, mouth, tongue and alimentary tract, abdominal hernia, intestinal obstruction and peritonitis, diseases of salivary glands, liver and pancreas, respiratory tract, thyroid gland, acromegaly; brain, ear, eye; spinal column and cord; deformities of the extremities; urinary tract, testes, etc.; female generative organs, the breast, and the skin.

This work is very concise and contains the essentials on the subject of surgical pathology. There are few omissions, and if there are any errors we have not encountered them. The work is well printed.

Atlas and Essentials of Pathological Anatomy. By O. BOLLINGER, M.D., Volume 1. Circulatory, Respiratory and Digestive Apparatus, including the Liver, Bile Tracts, and Pancreas; with 69 colored figures upon 60 plates, and 18 illustrations in the text. New York; Wm. Wood & Co., 1898. Pp. 246.

This little volume is one of the Wood Series of medical hand atlases. For beauty of illustration, interest of subject-matter and practical value, it can hardly be surpassed. The second volume of this atlas is in press and will soon be issued. This volume includes pathologic anatomy, circulatory apparatus, lymphatics and blood vessels, diseases of the respiratory organs, diseases of the digestive apparatus, the liver, bile ducts, and pancreas. The illustrations are beautiful and the coloring extremely natural. Appended to each plate we find an explanatory text, together with a brief clinical history of the case from which the specimen was taken. We commend the book

Studies From the Yale Psychologic Laboratory. Edited by EDWARD W. SCRIPTURE, Ph. D. Vol. iv, 1896. Paper. Pp. 141. Illustrated. Yale University, New Haven, Conn.

The following papers are included in this volume: "Reaction time in Abnormal Conditions of the Nervous System," by A. G. Nodler; "Researches on Reaction-time," "Researches on Voluntary Effort," "New Apparatus and Methods," and "Elementary Course in Psychologic Measurements," by E. W. Scripture; "Influence of the Rate of Change Upon the Perception of Differences in Pressure and Weight," and "Weber's Law in Illusions," by C. E. Seashore.

The International Medical Annual and Practitioner's Index; A Work of Reference for Medical Practitioners; Sixteenth Year. New York: E. B. Treat & Co. Pages 740. Price $3.00.

The Annual for this year surpasses in excellence of material the general make-up of any previous issue of this well known reference book. It is an excellent lexicon of our literature and the low price at which it is sold makes it especially desirable. Among the several year books the International justly takes front rank.

Transactions of the Nineteenth Annual Meeting of the American Laryngological Association. Cloth. Pp. 200. Illustrated. New York: D. Appleton & Co., 1898.

This volume covers the work of the session held in Washington, D. C., May 4, 5 and 6, 1897, and contains the following papers: "Guaiacol as a Local Anesthetic in Minor Operations on the Nose and Throat;" "Sub-mucous Hemorrhage of the Vocal Cords;" "Hysteric Dysphagia;" "Remarks on Treatment of Chronic Affections of the Faucial Tonsils, with Demonstration of Instruments;" "On the Treatment of Chronic Frontal Sinusitis by Means of an Opening Through the Anterior Wall of the Sinus and Drainage Through the Nose;" "Papillary Edematous Nasal Polypi and their Relation to Adenomata;" "A Case of Adenocarcinoma of the Nose;" "Atrophic Rhinitis; Its Nature and Symptoms;" Remarks on Atrophic Endorrhinitis;" "Treatment of Atrophic Rhinitis;" "Tertiary Ulceration Simulating Sarcoma of the Tonsil;" "A New Method for the Relief of Certain Enlargements of the

Turbinated Bodies;" "Case of Angeioma of the Tonsil, with Recurrence Three Years after Removal;" "Case of Sub-glottic Fibroma; Removal by Tracheotomy and Curetting;" "Contribution to the Study of the Treatment of Laryngeal Phthisis;" "Primary Lupus of the Larynx;" "Sarcoma of the Nasal Passages;" "Angeioma of the Nose;" "Nasal Bacteria in Health;" "Supplementary Note on a Case of Martin's Bridges for Depressed Nose."

Transactions of the Berks County Medical Society, for the year ending Dec. 31, 1897. Paper. Pp. 121. Reading, Pa., 1898.

The volume contains, in addition to society data usually found in transactions, the following papers: "Address of President;" "An Essay on Sanitarians and Sanitation;" "Pulsating Empyema;" "Tubal Pregnancy and Appendicitis;" "A Case of Simulated Pregnancy Going on to Labor;" "Uterine Fungosities and the use of the Curette;" "Pleuritic Effusions;" "Intestinal Hemorrhage in Typhoid Fever;" "Fever in its Treatment;" Cystic Liver;" "Foreign Bodies in the Eyeball;" "Refraction Errors as a Cause of Reflex Disturbances;" "Treatment of Croupous Pneumonia."

NECROLOGY.

Wm. H. Johnston, M.D., New York University Medical College 1867, of Birmingham, Ala., died there April 3. He served on the Confederate side during the war, before which he was for one year a medical inspector of the department of public charities, New York city.

Ambrose M. Miller, M.D., Lincoln, Ill., died April 2. Doctor Miller was a former member of the Legislature and superintendent of the State asylum for the feeble-minded. He was graduated from the Washington University Medical School in 1853, and a member of the Illinois Army and Navy Medical Association.

William Bland Bird, M.D., Baltimore, Maryland University 1892, April 4, aged 25 years.——Charles A. Brun, M.D., Columbus, Ohio, March 29, aged 28 years.——Henry G. Buckingham, M.D., Clayton, N. J., April 4, aged 61 years.——A. F. Chase, M.D., Philadelphia, April 2, aged 60 years.——John J. Cullinane, M.D., Buffalo, N. Y., March 31, aged 31 years.——J. M. Dunlap, M.D., Manheim, Pa., Jefferson 1845, April 4, aged 76 years.——Lloyd H. Smith, M.D., Easton, Md., April 3, aged 45 years.——Elbridge G. Stevens, M.D., Old Orchard, Me., March 26, aged 87 years.——John Albright, M. D., at his residence in Madison, N. J., April 2, aged 82 years.

MISCELLANY.

State Board Examinations.—The Journal of March 26 contained a list of States requiring all graduates to stand examination before the State Board. We are informed that Massachusetts also requires examinations of all except graduates from its own schools.

Prizes for the Investigation of African Diseases.—A gift of $5000 to be used in promoting the study of the diseases of the Congo, has been received by the Society of Colonial Studies of Brussels, and the Society offers two prizes of $500 for some notable addition to the knowledge of the evolution of the hematozoon of Laveran and for the discovery of the origin of hemoglobinuric fever.

Irregular Hours and Small Pay.—The stranger remarked: "I think I can tell what your business is." "What?" "Night watch." "No, friend, you are mistaken; they can go to sleep on their beat and they draw their wages regularly." "Well, then you're a fireman, ain't you?" "Worse than that; no such regular pay or sleep for me." "Well, what are you then?" "Why, I'm a doctor; one of those unfortunate fellows who are called up so often that they don't know night from day, excepting when they get out of town, and never draw their pay while they are away, either."

A French Commission on Tuberculosis.—On the motion of M. Brouardel, the Paris Academy of Sciences has appointed a commission to study the question of propagation of tuberculosis. The commission is to consist of the six members of the section of medicine and surgery, the two permanent secretaries and MM. Brouardel, de Freycinet, de Jonquières, Chauveau, Duclaux, Arm, Gautier.

Leukemia in a New-born Infant.—L. Pollmann reports a case of pronounced leukemia in an infant born of healthy parents, without syphilitic antecedents. On account of the verrucous endocarditis found at the necropsy the nineteenth day after birth, Pollmann is inclined to ascribe the origin of the leukemia to some infective process which affected the mother during her pregnancy, but which remained latent as far as she was concerned.—*Muench. med. Woch.*, January 11.

The Brooklyn Ambulance System.—Dr. Robert A. Black, who, under the title of an Assistant Sanitary Superintendent, is the highest sanitary official in the borough of Brooklyn, city of New York, has been compelled by lack of funds to discontinue two ambulances that have for twenty-five years been run by the Brooklyn Health Department as "City Ambulances." Their stations were at the Long Island College Hospital and at the Eastern District Hospital for service in the two main districts of the city, or borough, respectively. If these two institutions are to have ambulance stations of their own in the future it is probable that they will be compelled to find their own funds for that end, as is done by various other hospitals that have their private ambulances.

Rush Medical College out of Debt.—The affiliation of Rush Medical College with the University of Chicago is now practically assured, the debt of $71,000 on the college having been paid off by members of the faculty and friends of the institution. Principal among those who rendered this assistance are: Drs. Ephraim Ingals, Nicholas Senn and E. Fletcher Ingals. When the affiliation was announced by President Harper of the University of Chicago (*vide* Journal, p. 101), it was conditional on the wiping out of the debt of $71,000, the change in the methods of choosing trustees, and the advance requirements for students.

Donation to the East Brooklyn Dispensary.—Mr. Henry Batterman, a public-spirited merchant of Brooklyn, has notified the trustees of the Bushwick and East Brooklyn Dispensary, that he is prepared on demand to give them an unconditioned gift of $25,000 in memory of his dead daughter. Upon receipt of the news the trustees at once selected a committee to obtain plans for a new dispensary building. The present one is located at the corner of Lewis and Myrtle Avenues and consists of buildings that were formerly frame residential property.

Result of Examinations taken before the Illinois State Board of Health during the years 1895, 1896 and 1897 by physicians required to supplement their diplomas by examination, by non-graduates and midwives:

1895. Supplemental, 45; passed, 24; failed, 21. Non-graduates, 35; passed, 13; failed, 22. Midwives, 108; passed, 42; failed, 66. Total passed, 79; total failed, 109.

1896. Supplemental, 13; passed, 9; failed, 4. Non-graduates, 36; passed, 14; failed, 22. Midwives, 102; passed, 30; failed, 72. Total passed, 53; total failed, 98.

1897. Supplemental, 35; passed, 27; failed, 8. Non-graduates, 41; passed, 12; failed, 29. Midwives, 77; passed, 50; failed, 27. Total passed, 89; total failed, 64.

Total for three years: Passed, 221; failed, 271.

Kryofin, an Antipyretic.—A new antipyretic, an analogue of phenacetin, is under trial in Germany and Switzerland. It is a para-phenetidin derivative, being the condensation product obtained from heating that substance with methoxyacetic acid, phenacetin being an aceto-para-phenetidin. Dr. Hermann

Eichorst says this is the most reliable antipyretic with which he is acquainted. This conclusion was arrived at after careful test by Dr. Bischler at the medical clinic of the University of Zurich. Kryofin forms white, odorless crystals, which have no taste, and are, therefore, conveniently taken in powder form or in wafers. It is soluble 1 to 52 in boiling, and 1 to 600 in cold water. In concentrated solution kryofin tastes bitter and biting. A reliable active dose is seven and a half grains. —*Deutsche Med. Wochenschrift.*

Introduction of the Crookes' Tube into the Natural Cavities for Radiography.—The *Presse Méd.*, March 9, reproduces some radiographs taken with a long and slender Crookes' tube inserted in the vagina (Destot diaphragm Crookes' tube). The harmlessness of close contact of the tube with the tissues was carefully tested beforehand by personal experiences, by L. Bouchacourt, who states that "no after-effects follow the use of the static machine in the place of the Ruhmkorff coil, as has been demonstrated by Destot, Free of Chicago and Monell of New York." The tube was inserted within a wooden speculum or tube, with an adjustable cap at the distal end. The rays started from a point not far from this end and the patients radiographed did not feel the electricity at all, at any time during the ten to thirty-five minute tests and exposures. No after-effects have been perceived during the month since. The positive pole was in contact with the ground, with which the patient was also in contact. The body therefore served only as a support and no sparks nor sensations of any kind were experienced. Bouchacourt suggests that special tubes and instantaneous exposures may result in radiographs taken with the tube in the œsophagus, trachea or other cavities, while the buccal cavity, the rectum and the vagina can already be radiographed in this way.

Pathology of Epilepsy.—N. Krainsky of Charkow asserts that there is a close and constant connection between the excretion of urea and epilepsy. Every attack is preceded, twenty-four to forty-eight hours, by a diminution in the amount of urea excreted, and as long as an epileptic excretes 0.6 to 0.8 urea during the day there is no danger of an attack, but if the excretion falls to 0.45 or 0.35, one is imminent. He therefore suggests that epilepsy instead of being a purely nervous affection may depend upon anomalies in the metabolism. Attempts to influence the excretion of urea with piperazin and lysidin were ineffectual, but lithium carbonicum, 1.0, three times a day, produced a decidedly favorable effect. Animals injected with the blood of epileptics drawn during an attack were affected with paralysis and periodical attacks, terminating fatally in four to eight days. As injections of carbamic acid ammonium produced exactly similar effects, Krainsky is inclined to ascribe the attacks to an accumulation of this salt in the organism. During the attack it is transformed into urea and water. This assumption harmonizes with the known favorable effect of potassium and sodium bromid, as they form with it the harmless potassium and sodium salts of carbamic acid.—*Wien. klin. Woch.*, February 24.

The Laporte Case.—The French supreme court of appeals has reversed the decision of the lower court condemning Dr. Laporte to three months imprisonment—the particulars were given in the JOURNAL at the time, Nov. 13, 1897, page 1029—considering that the extenuating circumstances were sufficient to free him from penal responsibility. Commenting upon the lack of suitable gynecologic instruments which was the primary cause of the fatal lesions in the case, a writer in a Paris daily urged that the public authorities ought to equip young physicians with proper instruments for the practice of their art, at the public expense: "We spend millions to supply our young soldiers with all the latest appliances to *destroy* life, and not a cent goes to the infinitely more important work of equipping our young professionals to *save* life." As a consequence of this affair many physicians summoned to a case of difficult delivery shrink from assuming the responsibility, and on one pretext or another decline to attend. Professor Pinard thus relates a case in which the patient sent for seven physicians in turn without securing one, and was finally carried to the hospital at 11 P.M., dying before morning, which he thinks would not have occurred if prompter measures could have been applied.

The Siphon Drainage of Large Cavities.—Heaton describes a familiar apparatus for the continuous siphonage of the contents of large cavities, with an important modification. As is well known, siphonage is commonly seriously interfered with by the sucking of the soft walls of the cavity against the openings in the rubber or glass tubes employed, and consequent interference with the action of the siphon. Heaton has employed with success an outer perforated tube, and an inner tube which is connected with the siphon. Fluid trickles into the outer tube through the perforations and is then sucked up through the open end of the inner tube. This apparatus has answered its purpose well in six cases in which it has been employed.—*British Medical Journal.*

Abstention from Alcohol in Hospitals for the Insane.—Dr. Schlangenhausen of Villach, writing to the *Lancet*, March 5, refers to the views of German alienists as expressed at their recent convention at Hanover, regarding the *rôle* of alcohol in hospitals for the insane. This subject of the employment of stimulants in asylums was discussed by Dr. Hoppe of Allenberg, who concluded his discourse by expressing the opinion that alcohol should not only be kept out of the reach of drunkards by establishing in asylums a so-called drunkards' department, but should be kept altogether out of asylums, milk or lemonade being substituted for it. "If alcoholists," contended Dr. Hoppe, "were not to be allowed to have alcohol, then the other patients should also not be allowed to have it, as otherwise it would be impossible to make alcoholists practice total abstinence." The greater portion of the alienists present were in favor of Dr. Hoppe's views; and some of these alienists, amongst others Forel of Burghoelzli, and Mocli of Berlin, have already introduced the system of total abstinence into the respective asylums of which they are the medical superintendents. At this convention was passed a resolution directed principally against a criticism contrary to facts on the part of the Reichstag in January, 1897, having reference to the actual condition of German asylums. This resolution is as follows: "This meeting concurs in the proposal adopted at the sitting of the Reichstag for regulating in conformity with the laws of the empire the supervision of lunatic asylums. But this meeting considers it a duty to point out once more that the most important reform consists in the establishment of independent boards of supervision directly subordinate to the minister and at the head of which stands a specialist occupying that post at headquarters."

What is Fame?—A correspondence, which doubtless will be highly amusing to Mr. Frederic Treves, is at present in progress in the pages of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Two practitioners have been and are discussing the subject of appendicitis and its treatment, and they differ. In a recent communication one of them in support of his contention aspired to silence his opponent by quoting Mr. Treves. But the effect was scarcely that which was expected. The opponent retorted by saying "my friend quotes Treves and Thalamon, both of whom had limited experience with the operation of appendicitis, and whose opinions should not count alongside of such men as Robert Morris, J. B. Murphy, Joseph Price, Fowler and Deaver, men who have had hundreds of operations and seen the terrible results of procrastination." Again, the writer adds, "my friend will accept the dictum of a general surgeon with a very limited experience

in abdominal surgery, like Treves, or some young man, also with a quite limited experience, like Thalamon, while I prefer the views of men who have operated on a couple of hundred cases each, like Price, Deaver, Murphy, Fowler, Morris and others." After this, English surgeons who have ventured to admit that they have operated upon appendicitis cases will have to hide their diminished heads. In passing, however, it might be observed that if the capacity of a surgeon is merely one measured by the numerical index of his operations, then competition with a "great country" like America is quite impossible. But it is worthy of note that soon after appendicitis was discovered it became in the United States a new disease. Judging from the literature upon the subject, we suppose that it has since become hereditary; for to be fashionable in America everyone must have had appendicitis and have been operated upon.—*Med. Press and Circular*, London, March 9.

Version Extraordinary by Ramsbotham.—The *Reminiscences* of the venerable Dr. Robert Barnes of London, as given by him in current issues of the *Scalpel*, afford us the following anecdote: My recollections of the London Hospital are pleasant. I was elected assistant obstetric physician in 1859, and so had at first to serve under Dr. Ramsbotham. We worked very well together, but he continued to hold office longer than was expected. I may relate one instance, illustrating the anomalous position in which the obstetric physicians were held. A case of gestation, demanding delivery by Cæsarian section, occurred. Obviously this was an obstetric case, but under the surgical law, delivery requiring the knife was within the right or duty of the surgeon. Ramsbotham and I had to look on while the surgeon operated. The surgeon laid open the abdomen, laid bare the gravid uterus, made an ample incision in it. The fetus came into view, its long axis corresponding to the long axis of the uterus. He seized an arm, dragged it, expecting to lift the fetus easily out of the uterus. He was foiled, but tugged at it till uterus and fetus together came through the abdominal wound. At this crisis Ramsbotham had to intervene and do the obstetric work. He put the arm back, by a delicate maneuver, seized a foot, and holding this with one hand, whilst he applied counter-pressure with the other hand upon the head and upper part of the trunk, he turned, and extracted the child with the greatest neatness and ease. A more beautiful and artistic demonstration of the problem of turning than this completely visible performance it is impossible to imagine. One thing it proved was that the surgeon was not qualified to practice obstetrics.

Sexual Origin of Neurasthenia and Psychoneurosis.—Sigmund Freud announced a while ago that every case of psychoneurosis, fixed ideas, etc., had for its predisposing cause some abnormal occurrence in the sexual life before the age of eight years, consciously or unconsciously remembered. He now asserts that every case of neurasthenia has a similar basis, some abnormal occurrence or occurrences in the sexual life of the patient at the present time or since puberty. He scouts the idea that mental overwork or excess of household cares can alone induce neurasthenia, although any depressing factor may favor its development. He even insists that absorbing occupations, especially intellectual, protect against the evolution of neurasthenic affections. He divides them into: 1. Neurasthenia proper, which he claims can always be traced to excessive masturbation, unnatural sexual intercourse, etc. 2. "Anxiety neurasthenia," distinguished by dread, restlessness, agoraphobia, vertigo in walking, sleeplessness, etc.; this form he states can also invariably be traced to sexual influences in the nature of unsatisfied impulses, coitus interruptus, abstinence with inflamed desires, etc. He protests against the prevailing hypocrisy in regard to sexual matters, and urges the physician to assume an abnormal sexual life as his guiding star in the etiology of neurasthenia, as this alone will help him to treat it rationally, after winning his patient's confidence. In cases absolutely impossible to trace to any abnormal sexual occurrences, he decides that the affection is not neurasthenia, and by eliminating this conception he has discovered unsuspected local affections, in one instance a latent suppuration in one of the accessory nasal cavities, which had only produced neurasthenic symptoms, entirely cured by an operation.—*Wien. klin. Woch.*, 1898, Nos. 2, 4, 5 and 7.

Untutored and Barbarous Medical Practice in the Orient.—It is estimated that exclusive of medical missionaries who are sent to uncivilized lands there is only one qualified physician to every two or three millions of the peoples of Asia and Darker Africa. The following are some of the heathen conditions and practices mentioned by missionaries in their reports: "Eighty families with smallpox in one street in a Burmese city and no physician attending them." "A prescription given by a Chinese physician with the remark: 'This contains so many ingredients that it will cure anything,' and numbering among these twenty ingredients a centipede, a scorpion, a horned toad and a beetle." "A Chinese girl, on entering a foreign hospital, reported having taken by prescription 200 boiled spiders, besides serpents' eggs." "Bricks piled on a broken leg to keep down the swelling." "Babies stuck all over with red hot needles till hardly an inch of unpunctured skin remained." "A man coming for help to missionaries in Africa dragging a broken limb, no surgeon to set it." "Women in India, in their direst need, driven out of the house and left alone or given over to the care of ignorant, superstitious women of the lowest caste."

Gleanings.—Soothing and healing effect of mentholized collodion in extensive contusions of the soft parts, highly lauded in the *Tribuna Méd.*, December 30, 1897.—Several cases of hydrops universalis accompanying malaria cured with antimalarial treatment (*Wien. klin. Woch.*, February 24).—Copious hemorrhage and extensive iridodyalisis during an operation for cataract; recovery (*Tribuna Méd.*, December 15).—Twenty-one cases of puerperal tetanus on record since 1890; only one recovery. First symptoms are trismus and difficulty in swallowing (*Arch. f. Gyn.*, liv, 1).—Case of combined migraine, unilateral paralysis of the cervical sympathetic and Basedow's disease in a woman of 38 years, showing the importance of vasomotor disturbances in the pathogenesis of the latter. Migraine appeared first at 17 years (*Deu. Med. Woch.*, February 17).—Typical case of Addison's disease cured with suprarenal extract and capsules, reported by Béclère. No recurrence in three years since (*Presse Méd.*, February 26).—Widal and Nobécour have confirmed the antitoxic properties of the nerve centers in the case of strychnin intoxication, already established by Wassermann in regard to tetanus, although with less positive results (*Ibid.*, *vide* JOURNAL, February 19, page 449).—Absolute failure of serodiagnosis in fatal typical typhoid fever in an epileptic (*Ibid.*)—Delezenne asserts that peptone, usually harmless, injected into the veins of a dog becomes fatally toxic, producing paralytic manifestations if heated to 120 degrees C, although still retaining its marked coagulating properties (*Ibid.*)—Cracked nipples successfully treated without inconvenience to the mother or nursling with the assistance of orthoform (*Ibid*). Sage of Bordeaux reports the first case in France of the birth of a healthy child at term, the mother having commenced to menstruate at 12 years and eight months, and conception occurring one month later, delivery at thirteen and a half (*Sem. Méd.*, February 9).—Negative results of lumbar puncture in chronic hydrocephalus reported by Raczynski; twenty-six cases. Slight transient relief was obtained only in five cases consecutive to epidemic meningitis (*Przeglad lekarski*, 1897, 33).—Inflammation of the navel and penis in an infant after circumcision, found to contain the Loeffler bacillus, and cured with antidiphtheria serum (*Ibid.* 51).—The intensity of the mercurial treatment required in syphilis varies not only for each individual, but for different lesions on the same individual. Instance reported in which hypodermic injections of five centigrams

calomel promptly cured all the lesions except one on the lip, which was not affected by the treatment until the dose was doubled, when it also vanished (*Ann. de derm. et de Syph.*, February).—Case of pulmonary gangrene consecutive to ether narcosis reported by Dumas, in patient affected with chronic bronchitis (*Journ. de Méd. Int.*, November, 1897.)

British Army Medical Department Report for the Year 1896.—The strength of the European troops of the British Army serving at home and abroad in 1896 was a little over 200,000 men, of whom rather less than one-half were on duty at the home stations; 75,000 served in India, 8000 in Malta, 4000 each in Gibraltar, Egypt and South Africa, with smaller commands in various other parts of the world. The rate of constant sickness for the whole army was 60.71 per thousand men, with 8.14 deaths and 16.26 discharges for disability. The average sick time to each soldier was 22.22 days and the average duration of each case of sickness 23.61 days. Among the troops serving in the United Kingdom the rates of sickness and mortality were lower than usual. The constant sickness was 38.52 per thousand of strength with 3.58 deaths and 21.20 discharges, the average sick time to each soldier being 14.10 days and the average duration of each case 21.85 days. Our United States rates for the same year, with the exception of the death rate, were considerably lower than these. We had 33.97 constantly sick, with 5.44 deaths and 10.15 invalided per thousand of strength, the sick time to each man being 12.43 days and the duration of each case 11.19 days. As regards the smaller death rate of the British home service, it is to be observed that if men suffering from such a disease as consumption are promptly discharged the death rate is lessened at the expense of the rate of invaliding. Not the death rate alone, but the death rate added to the discharge rate, is the measure of the disabling character of the sickness affecting an army. The admissions for enteric fever numbered 94 and the deaths 22, an exceedingly high rate of fatality, but the mortality rate per thousand of strength was low, .21 as compared with our rate of .63. At Pembroke Dock there was a well marked outbreak. The water closet, sink and bath of a building in which a fever case was undergoing treatment, emptied into a common drain beneath which was a lead pipe, corroded and leaky, supplying drinking water to the hospital. Twenty cases with two deaths occurred among persons using the hospital water-supply; and the last case was taken on sick report seventeen days after the condition of the water-supply pipe was discovered and remedied. The occurrence of 806 cases of malarial fever and 2 deaths from remittent fever is accounted for by "the return of troops from service abroad." The only reference to malaria of indigenous origin is found in a remark on the sanitary condition of Lincoln: "A few cases of ague, due to local causes, were noted during the year." The fens of Lincolnshire, as is well known, were in former times the headquarters of the malarial parasite in England. The constant sickness from all forms of venereal disease was 13.94 per thousand of strength as compared with 5.26 in the U. S. Army.

The number of recruits inspected during the year was 54,574, of whom 423.48 per thousand were rejected as unfit for service; the rejections during the same year by U. S. recruiting officers were 371.65 per thousand examined. Nearly one-half of the accepted recruits were under 19 years of age; 1372 were boys under 17 years of age. Omitting these boys the average age of the recruits was 19.3 years, the average height 5 feet 5.9 inches and the average weight 125.8 pounds.

The highest rates of constant non efficiency from sickness among troops serving abroad were 93.85 per thousand of strength in India and 87.57 in China; the lowest 26.86 in Bermuda and 28.36 in Canada. The lowest rate of discharge for disability was 31.29 in China, with 61.22 sent home as invalids. The longest sick time to each soldier of the command was 34 35 days in India, the shortest 9.83 in Bermuda. No yellow fever was reported during the year from Barbadoes or Jamaica, and only six cases of cholera occurred among the troops in Alexandria and Cairo, Egypt, although the civil population suffered severely. Both cities were placed "out of bounds" during the prevalence of the disease.

In India there was an increase in the sickness from enteric fever, other continued fevers and cholera; malarial fevers accounted for one-fifth and venereal diseases for one-third of the reported cases of sickness. Enteric fever caused 1795 admissions into hospital, or 25.5 per thousand of strength, with 445 deaths, or the very large death rate of 6.31. The largest number of cases occurred at Quetta, 140 admissions with 22 deaths. The water-supply of this station is brought in pipes from an uninhabited mountain district thirteen miles distant. The febrile outbreak was attributed to exposure in the insanitary brothels and drinking shops of the neighboring native town. At some of the posts the type of the disease is said to have been very severe, as although the sufferers were very young men, their constitutions had already been undermined by syphilis, and their chances of recovery thus greatly lessened. The pinking of the water-supply by potassium permanganate was employed as a preventive measure at several posts during the outbreak, but without satisfactory results. In fact, at Agra enteric bacilli were found in a flourishing condition in the pink water. "This," says the reporter, "was a great disappointment to me, as I was beginning to think that a panacea had been found for this scourge. The situation was now desperate, so after consultation with Professor Hankin, we commenced making experiments with micrococcus ghadiallii, found by him to be antagonistic to the enteric microbe. This micrococcus is quite harmless to human beings, so I had no hesitation in trying it as the enteric cases were increasing daily. It was first tried at the swimming bath at the Fort, which was found to be infected with the enteric microbe. In four days there were none. About the same time it was taken into use at the Agra Club; then the water-supply at the Fort was treated, with an almost immediate cessation of cases, and lastly the water of the whole cantonment, and the disease at once began to ameliorate in a very marked manner. From the time the water-supply was treated with the micrococcus the number of admissions fell rapidly. I have not been able to follow out the research desirable in this line, as Professor Hankin has left the station for the purpose of investigating the plague at Bombay, and I am thus deprived of his assistance. The matter is, I think, well worth further investigation." Of the several measures adopted for sterilizing drinking water, with a view to the prevention of water-borne diseases the most efficient was boiling. Cholera caused 70 admissions and 63 deaths during the year. The constant sickness from malarial fevers numbered 10.15 per thousand of strength. The admission rate for venereal diseases was 511.6 per thousand and the constantly sick 44.87, representing a loss of 3162 men to the efficient strength of the Indian command. The hypodermic injection of mercury was freely resorted to with excellent results. "This treatment enables many men, who would otherwise be in hospital, to perform their usual duties; it brings the patient more quickly than the old method under the influence of the drug and does not derange the digestion." The result of the voluminous discussions in and outside Parliament on venereal diseases ended in the promulgation of the amended Cantonment Act, which gives greater power to local authorities over the prostitute population, but falls short of the registration and periodical examinations which many experienced officers advocated. It is noted that no case of bubonic plague occurred among the garrison of Hongkong, although more than 1100 of the native population died of this disease.

Several valuable papers are appended to this report, among others a résumé of the progress of hygiene during the year 1897 by Surgeon-Colonel J. Lane Notter, who gives a summary of Prof. V. C. Vaughan's paper on the prevention of tuberculosis, read at the Twelfth International Congress of Medicine, and discusses the progress made in sewage disposal by biologic methods at Exeter and Sutton. A paper on the operations performed at the Royal Victoria Hospital, neatly illustrated by some good skiagraphs of fractured bones. Surgeon-Lieut.-Colonel, J. A. Gormley reports on the operations of the forces in Southern Africa, and Major-General T. Mannsell, C. B., gives an interesting account of the difficulties experienced by the medical department in the Chitral Relief Expedition. The emergency ration known as "Armebis" was condemned as not being safe. Many of the tins "went bad," and one man nearly died with symptoms of ptomain poisoning after eating the contents of one. Even when good the biscuits were a possible cause of diarrhea owing to imperfect milling of the envelope of their wheaten constituent. Lieut. D. W. Sutherland gives the particulars of a number of cases of wound by the Lee-Metford rifle bullets. These wounds were generally characterized by slight shock, slight pain, free hemorrhage, simple perforation of bone and rapid healing. The natives reported that those shot in the head died at once on the field; those wounded in the abdomen often died on the field, but some reached their homes to die a few days later; all the others recovered promptly. Surgeon-Lieut.-Col. A. T. Sloggett reports on the Dongola Expedition, the chief medical interest of which centers in a

typhoid fever epidemic and an invasion of the Command by cholera. A full account of the proceedings of the Seventh Annual Session of the Association of United States Military Surgeons held at Columbus, Ohio, in May, 1897, is given by Deputy Surgeon-General W. S. Oliver, and a report on the Twelfth International Medical Congress held at Moscow in August, by Surgeon-Colonel W. F. Stevenson, in which he gives prominence to Surgeon-General Van Reypen's proposition for a hospital or ambulance ship in the care of the wounded of modern naval wars, and to Surgeon-General Sternberg's report on operations for the radical cure of hernia in the United States Army.

Decision Concerning Osteopathy.—The following is a decision concerning osteopathy, by District Judge H. H. Rolapp, of Utah.

State vs. William Hartford: The defendant is charged by an information with practicing medicine without a license from the State Board of Medical Examiners.

Section 1736 of the Revised Statutes provides that "Any person practicing medicine . . . within this State without holding . . . a license shall . . . .be deemed guilty of a misdemeanor."

Section 1737 provides that "Any person shall be regarded as practicing medicine within the meaning of this title who shall treat, operate upon, or prescribe for any physical ailment of another for a fee."

The defendant admits having manipulated with his hands upon persons for physical ailments, for a fee, and without a license; but insists that inasmuch as he uses no medicine or surgical instruments, or any other agencies except his naked hands, that he does not come within the prohibited class named in the statute. He does not hold himself out as a doctor, physician or surgeon, but denominates himself a diplomat of osteopathy. He further insists that his science does not belong to any recognized school of medicine; or, if it does, that the present State Board of Medical Examiners is not legally constituted, it being admitted that no osteopathist is a member of such Board—while Section 1728 of the Revised Statutes provides that said Board "shall consist of seven members, who shall be representatives of the various recognized schools of medicine."

The latter point, I apprehend, can not be determined in this case. The whole inquiry, then, recurs to whether the defendant is practicing medicine within the meaning of the act.

Counsel for defendant invites attention to the case of Smith vs. Lane (24 Hun., 632) which seems to be in point, if the statutes upon which that decision was founded were as broad as ours. But in the New York statute it is simply provided, in specific terms, that the practice of medicine or surgery should be a misdemeanor, unless authorized by a certificate setting forth such person's qualifications to practice all of the branches of the medical arts. Under that provision it was undoubtedly the duty of the Court to interpret the words "practice of medicine and surgery" in the common acceptation of those words; and they therefore said "the practice of medicine is a pursuit very generally known and understood, and so also is that of surgery. The former includes the application and use of medicine and drugs for the purpose of curing, mitigating or alleviating bodily diseases; while the functions of the latter are limited to manual operations usually performed by surgical instruments or appliances."

That is undoubtedly a good definition of the words in the statute then before the Court. But our statute goes farther, and says that, "any person shall be regarded as practicing medicine . . . who shall treat, operate upon, or prescribe for any physical ailment of another for a fee." The word "treat" as defined by Webster, in this connection, is synonymous with "manipulation," "handling," "mode or manner of checking and destroying disease." That is exactly what the testimony in this case shows the defendant did; and the legislature must have intended that the words thus used by them should have some significance, and be used in connection with "ailments." There is no suggestion in the section that the word "treat" referred to treating with medicine, or with any other specific agencies of a similar kind. If such treatment was done by the naked hands and for the purpose of curing ailments of another, and was done for a fee, it seems to come logically within the intention of the statute, which defines such treatment, handling or manipulation as practicing medicine. That the section is sweeping, I admit; but the power of the legislature to thus enact is undoubtedly possessed.

My attention was also called to the case of State against Eastman, decided in Indiana. While I can not fully concur with the learned judge in the interpretation placed upon the statute then under consideration by him, yet all he suggested was that the words "other agencies," named in that statute, referred to drugs and medicines, and as osteopathy does not include the use of such agencies the practitioners of that science did not come within the prohibition of that statute. Granting the premises in regard to the interpretation of the statute, of course the conclusion was right; but in addition to that the Indiana statute only prohibited the direction or recommending for use by another of drugs, medicines or other agencies, but said absolutely nothing about the personal treatment by a person upon another for the curing of ailments. Such treatment is directly covered by our statute.

I think the decision in Illinois, in the case of Eastman against The People is the most valuable, because it concerns itself with a statute identical with ours. Says the court in that case: "It appears that the appellant was engaged in the practice of 'the profession of osteopathy' as it is termed in the briefs; that he had an office where he received patients, and that he visited patients at their homes; that he advertised his system and his skill therein, and that he professed ability to understand and treat human ailments intelligently and successfully. So far as shown his treatment consisted wholly of rubbing and manipulating the affected parts with his hands and fingers and by flexing and moving the limbs of the patient in various ways. It is insisted on his behalf that because he used no medicine or instruments he is not amenable to the statute, which reads: 'Any person shall be regarded as practicing medicine within the meaning of this Act who shall treat, operate on or prescribe for any physical ailment of another.' It is urged on behalf of the appellant that this provision must receive a reasonable interpretation and to 'treat' implies the use of medicines or drugs of some sort. This is not so necessary. Many of the minor operations are effected without the use of instruments by mere pressure, extension and flexing. This of course implies some knowledge of anatomy and some skill. It is said by counsel that if the statute reaches this case, it must include treatment by Turkish baths, massage and the like. We think not. The evidence shows that the appellant claimed to be competent to treat and cure numerous diseases. He represented himself as a graduate of the new school of ostheopathy and qualified to examine and treat all who might seek his aid. Herein he differs from those who give Turkish baths, massage and the like. He professes to be able to diagnose and advise in respect to a long list of diseases, and to furnish discriminating and efficient treatment to those who may come to him, and while he may rely wholly upon manipulation, etc., yet he professes to have skill and judgment in these methods so as properly to adapt the treatment to each case, giving it what is appropriate in amount, and with repetition at such times and to such extent as may be dictated by his knowledge and experience. By his skill in the use of his peculiar remedy or methods he claims to be competent to relieve and cure various ailments, and therefore he invites patronage.

"Medicine is the art of understanding diseases and curing or relieving them when possible. It is that branch of physics which relates to the healing of diseases. This art is not restricted to any particular methods or remedies. These are innumerable, considering what are used and have been discarded. We are of opinion the proofs bring appellant within the Act and that he is liable to the penalty imposed for practicing medicine without a license."

I think the same reasoning applies in the case at bar.

A number of other questions were raised at the trial, but I consider it wholly immaterial whether the legislature of Missouri has declared osteopathy not to be the practice of medicine, because that does not bind our legislature. Nor can I consider here the benefit the defendant may have been to the citizens of this community (which fact I do not doubt), or that the medical fraternity are the instigator of this prosecution.

The legislature is the proper tribunal that should be applied to in permitting the engaging in any science or art that will be of benefit to humanity; but until they do, or while they have specifically enacted laws to the contrary, I am simply called upon to interpret the law as I find it; and I can come to no other conclusion than that the treatment or manipulation engaged in by the defendant requires him to take out a license. Having failed to do so he has violated the statute. I must therefore find the defendant guilty as charged.

Louisville.

Society.—The Kentucky Midland Medical Association held its ninth quarterly meeting on April 14. The following program was observed: "Acute Nephritis," J. R. Ely of Frankfort; "Cholera Infantum," S. J. Anderson of Midway; "Gonorrhea," U. V. Williams of Frankfort; "Surgery of the Uterus and Adnexa, per Vaginam," W. H. Wathen of Louisville;

"Ether Anesthesia in Subjects Suffering from Bronchitis," Thad. A. Reamy of Cincinnati; "Asthma," J. M. Rees of Cynthiana; "The Serum Test of Typhoid Fever," D. J. Healey of Lexington and C. C. Lewis of Stamping Ground; "Quinsy and Its Treatment," J. A. Stucky of Lexington and J. M. Ray of Louisville; "Obstinate Neuralgia of the Mastoid," Robert Sattler of Cincinnati and John E. Pack of Georgetown; "Acute Nephritis," C. W. Kavanaugh of Lawrenceburg; "Cholera Infantum," T. M. Beard of Shelbyville; "Gonorrhea," John C. Lewis of Georgetown: "Surgery of the Uterus," Louis Frank of Louisville; "Ether Anesthesia," T. H. Willis of Shelbyville; "Asthma," S. E. James of Frankfort. Dr. W. E. Sleet, President, Medway, Ky. Dr. J. B. Powers, Secretary, Lawrenceburg.

MEDICO-CHIRURGICAL SOCIETY.—The regular meeting of this Society was held on the 8th of April, as the guest of Dr. Wm. Bailey, the title of whose essay was "The Inadequate Kidney."

GRANT.—Dr. H. Horace Grant is quite seriously ill as the result of septic inoculation at an operation.

HEALTH OFFICE.—The weekly death report shows 54 deaths, the greatest number, 5, being due to phthisis. Thirty-seven were white, 17 colored, 34 males and 20 females. Typhoid fever caused 4 deaths.

Cincinnati.

AT THE REGULAR MEETING of the Academy of Medicine April 4, Dr. H. W. Bettman read a paper on "Enteroptosis." The author's studies and measurements were taken from hospital cases during a period of over two years. The discussion showed the opinion of the society to be against the establishment of this trouble as a clinical entity, and especially against the stand taken by the author of the frequent accompanying ptosis of the right kidney. Dr. Joseph Ransohoff reported a case of inguinal hernia operated on by him, in which on opening the sac a milky fluid to the amount of about a pint, apparently from the abdominal cavity, escaped. The examination of the fluid showed it to be chyle. There were no symptoms of any trouble with the thoracic duct and the ascites had not been of sufficient quantity to attract the attention either of the putient or his attending interne. On the contrary, he seemed to be in the best of health, entering the hospital only to have his hernia operated upon.

THE CHANGES in the administration of city affairs will undoubtedly result in the deposition of Dr. John M. Withrow, one of the most competent health officers the city has ever had. Though serving but a short time he will be held in grateful remembrance for his untiring efforts in quarantining the city against yellow fever last fall, and especially for his recent active crusade against diphtheria and consumption. His map of the city illustrating the prevalence of these two diseases, show that contrary to general opinion the heart of the city, by far the most densely populated, is the most healthy as far as these two diseases are concerned, and that cases are far more numerous along the river and in the outlying districts.

THE CINCINNATI HOSPITAL will show that admissions for treatment were far less numerous in 1897 than the previous year by over four hundred; this falling off is not due to less applications but to a more rigid system of examination and inquiry as to their circumstances and right to the city's charity.

THE PHYSICIANS of Campbell County, Ky., just across the river, have volunteered their services to the medical director of the G. A. R. encampment for use during the meeting here of September next.

Detroit.

WAYNE COUNTY MEDICAL SOCIETY.—At the regular meeting of this Society held on April 7, Dr. E. D. Rice of Flint, Mich., read a very able paper on "The Physiological Functions of the Liver and their Relations to the Digestive Process." The Doctor reviewed the histology and physiology of the liver, and showed how intimately the disturbances of this organ are co nected with the disturbances of the stomach and duodenur The most interesting function of the liver referred to by th author is the power it has of eliminating toxins from the sy tem, produced in the intestinal canal or by the process of met bolism in any part of the body. Dr. Fritz Maass, illustratin the wonderful resistance of this organ to disease, recited a cas recently occurring under his own observation. The patien was a man of 50 years; previous history negative; had bee suddenly, while in apparent good health, seized with a sever pain in the region of the liver. The attending physician ascribe the pain to gall-stones and administered a hypodermatic inje tion of morphin, which relieved the suffering at once and th man returned to his work. In exactly eight days the pain re turned and was again relieved by the needle. This was repeate in another week; but at the fourth attack, some twenty-or days after the first attack, the pain was more agonizing and th morphin failed to relieve. Chills, fever and unconsciousnes supervened and the man died. At autopsy the liver presente no apparent evidence of disease sufficient to cause death, th stomach and bowels appeared healthy, a few very small gal stones were found in the gall-duct, and there was a slight conge tion of the meninges of the brain. Blood from the heart and sec tions of the liver were preserved and from these cultures wer made. Streptococci in pure cultures were found in abundanc from both the liver and the blood, leading to a diagnosis c pyemia with origin in the liver.

HEALTH REPORT for the week ending April 8: Number c cases of diphtheria remaining, 2; scarlet fever, 14; total death 103; under 5 years, 37; births, male 42, female 46.

Philadelphia.

STUDENTS AND THE WAR MEDICAL STUDENTS who are abou to graduate at the University of Pennsylvania are clamorin for early final examinations in order that they may enlist in th hospital corps of the army and navy should their services b needed in a war with Spain. Dr. M. T. Stout, who formerl served in the United States Navy, recently put the question t the class as to how many would enlist in the hospital corps an two-thirds of the class stood up. The source of inspiration i the movement is to avenge the sad death of Osgood the athlet of the University who lost his life in Cuba battling for Cuba independence. Professor John Guitéras, lecturer on patholog at the University and a prominent leader in the Cuban junta is watching the enthusiasm of the class with much grat ification.

CHARITY ABUSE IN PHILADELPHIA.—At a meeting of th Medico-legal Society of Philadelphia plans were discussed rela tive to influencing legislation to regulate the use of free hospi tals by the community at large. The object of the society i to first organize the medical profession through the influenc of the County Medical Society and afterward the State Medi cal Society. Another meeting will be held this month an recommendations presented looking to the introduction o the subject into the County Medical Society. Dr. J. H. Dripp is president of the society.

VACCINATION SAID TO HAVE CAUSED DEATH.—Alice Dempsey a girl six years of age, was recently vaccinated and it is sai that septicemia subsequently developed from the effects o which she died a few days later at the Germantown Hospital

THE TRUSTEES of Jefferson Medical College have divided th chair left vacant by the death of Professor Parvin and have elected Dr. E. E. Montgomery professor of diseases of women and clinical gynecology and Dr. E. P. Davis professor o obstetrics.

A CASE of smallpox of mild type and unknown origin wa discovered in this city early last week and at once removed t the Municipal Hospital and the premises disinfected. The city had been free from this disease since 1895 and has had n epidemic of smallpox for nearly ten years.

The Trustees of the Medico-Chirurgical College have petitioned the State legislature to amend their charter so that they may add a department of pharmacy as well as a department of dentistry, and become duly authorized to confer the degree of graduate in pharmacy as well as that of doctor of dental surgery and of medicine.

The Proposed Health Protective Hospital, or pay hospital for contagious diseases, it is hoped will soon be an accomplished fact, as active efforts are being put forth to obtain the much-needed funds for ground and buildings. Dr. J. Madison Taylor is treasurer and Judge William N. Ashman president of the board of trustees.

The Polyclinic Hospital and School for Graduates in Medicine announces a week in diagnosis, beginning May 9. Lectures and demonstrations in the clinics and laboratories of the Polyclinic on various special topics, including the Clinical Use of the Microscope, Chemic and Bacteriologic Methods and X-Ray Examinations, it is thought will interest experienced practitioners as well as recent graduates. Dr. Charles K. Mills has been elected to the newly created chair of neuro-pathology, having resigned from the chair of nervous diseases, which was abolished.

Washington.

Health of the District.—The report of Health Officer Woodward for the week ended April 2, shows the total number of deaths to have been 93, of which number 52 were white and 41 colored. Among the principal causes of death were: nervous diseases, 14; circulatory, 7; genito-urinary, 10. One death from diphtheria and one from whooping cough. A case of smallpox was reported at Freedman's Hospital. The patient, a colored boy, aged 20 years, left Knoxville, Tenn., on the 14th ultimo, and with three companions worked his way to this city on a freight train. He was taken sick on reaching this city and was admitted to the wards of Freedman's Hospital, whence he was removed to the smallpox hospital, after the nature of his disease was determined. There were three cases of smallpox on the "pest-boat" at Knoxville, Tenn., when he left. There were 28 cases of diphtheria and 55 cases of scarlet fever under treatment at the close of the week. The Health Officer has placed Freedman's Hospital under strict quarantine and has carried out the most approved methods of disinfection.

Washington Obstetrical and Gynecological Society.—The 278th meeting of the Society was held on the 18th ultimo, at the residence of Dr. Deale. Dr. H. L. E. Johnson presented the essay of the evening, "Vaginal Hysterectomy for Procidentia," case and specimen. He reported a modification of his own for vaginal hysterectomy in which he combines the clamp and suture methods. The broad ligaments are clamped in the usual way and the anterior and posterior vaginal flaps are stitched to the peritoneum and broad ligament, the flaps being then stitched together. He claims by so doing that subsequent vaginal prolapse would be avoided. An interesting discussion followed. At the meeting held April 1, Dr. E. E. Morse was elected to membership.

Sewage Disposal.—Commissioner Black has, in reply to a request by Senator Gallinger, written the latter a brief description of the proposed sewage-disposal system of the District of Columbia, and recommends the reclamation of the Anacostia Flats.

Hospitals at Old Point.—Assistant Secretary Meiklejohn of the War Department is authority for the statement that the removal of the hotel Chamberlin and the Hygeia hotel is no part of the present project of preparations for the National defence at Fort Monroe, Va. These large hotels were built on the Government reservation at Fort Monroe with the condition that the Government may, without liability for a claim for damages, remove them in case of necessity in case of war. A strong argument for their retention in case of war is that the two large buildings would be of great service as hospitals.

Annual Meeting of the District Association.—At the regular stated meeting of the Medical Association of the District of Columbia, held on the 2d instant, the following were elected: President, Dr. George M. Kober; vice-presidents, Drs. Cuthbert and L. Elliot; secretary, J. R. Wellington; treasurer, Frank Leeck; councilors, Drs. Mayfield, T. R. Stone, Acker, McLain, Ober, Carr, D. O. Leech, H. L. E. Johnson and Holden; censors, Drs. Woodward, Cook and Glazebrook; delegates to the meeting of the American Medical Association, to be held in Denver Col., Drs. Heiberger, Stone, H. L. E. Johnson, Crosson, Portman, Moran, Belt, Kober, Koones, Reyburn, Kleinschmidt, Middleton, Carr, Shouds, Franzoni, Hazen, S. S. Adams, Myers, Huinche, Cook, Brehend, Bovee, L. Eliott, D. O. Leech, Bowen, Mackall, Jr., Wellington, Barker, Fox, J. Eliot, Butler, Glazebrook, Godding, Cole, Hunt, Sillers, J. D. Morgan, Hegar, Duffey and Woodward. The following new members were elected: James T. Arwine, Grafton D. P. Bailey, William T. Burch, DeWitt C. Chadwick, James W. Hart, Isabel Haslup, J. M. Heller, T. Y. Hull, William P. Mills, John B. Nichols, John L. Norris, Jesse N. Reeve, William N. Suter, Joseph S. Wall and William Edward West.

Hospital Abuses.—A special meeting of the Medical Association was called on March 15, to consider the report of the Standing Committee which has been investigating the matter of Hospital Abuses. The Association is determined that all abuses of this character shall be checked, and after hearing the partial report of the Standing Committee, the following was adopted:

Whereas, The object of the amendment adopted by the Medical Association of the District of Columbia, May 16, 1897, is, and always has been to check the growing abuse of Medical Charities in this city, and

Whereas, It appears from the report of the Standing Committee that the Staffs of several Medical Charities have not complied with these amendments, be it

Resolved, That the Standing Committee be instructed to notify the individual members of the staffs of such Medical Charities that unless satisfactory evidence be furnished on or before April 1, 1898, that the letter and spirit of these amendments are complied with, the Standing Committee will proceed to arraign the members of the various staffs for violation of these rules, and to report its findings to this Association.

In pursuance of the above, the Standing Committee, through its Secretary has sent to each physician who is connected with one or more hospitals, the following queries, and have requested a prompt reply: 1. Do you require evidence before attending a patient in the medical charity with which you are connected, that the applicant for relief, except in emergency cases, has furnished a certificate as required in Article 1 and 2 of the Amendments of the Medical Association? 2. What are the exact methods pursued by the staff of the institution with which you are connected to limit gratuitous services to the indigent sick? 3. Does the hospital with which you are connected grant you and all other members of the Medical Association the privilege of attending private patients occupying private rooms? 4. Do you, as a member of the medical staff of the Hospital with which you are connected, when attending medical or surgical cases in private pay rooms, insist upon proper payment for your services, except when such patients are clearly unable to pay for the same? Do the Hospital authorities permit you to do this, and what are the methods pursued to sustain your demands?

Medical Society.—At the meeting of the society held on the 6th instant, Dr. Charles W. Richardson read the essay for the month, entitled "The Acute Mastoid Abscess." The following were elected to membership: Drs. E. Barry, A. W. Boswell, L. A. French, G. W. Foster, M. Griffith, A. B. Hooe, M. D. Magee, H. S. Medaford, M. G. T. Motter, J. B. Nichols, L. S. Savage, W. P. Tucker, J. R. Tubman. The following were elected members by invitation: Drs. A. H. Glennan, Marine Hospital; C. H. White, U. S. N.; J. B. Parker, U. S.

N.; P. Fitzsimmons, U. S. N. A committee consisting of Drs. T. C. Smith, George N. Koeber and W. W. Johnston, recently appointed by the society, read congratulatory resolutions to the president, Dr. Samuel C. Busey, on his completion of fifty years practice of medicine.

Dr. Busey's Fiftieth Medical Anniversary.—At Dr. Samuel C. Busey's fiftieth anniversary of his graduation from the University of Pennsylvania, Friday evening, April 8, his residence was thronged with admiring friends representing the medical profession, the Senate and House of Representatives, Supreme Court, U. S. Army and Navy and Marine-Hospital Service, eager to extend their congratulations and show their appreciation of the man who stands first in his profession and first in the hearts of all who know him.

Hospitals.

Mt. Sinai Hospital, New York, is a a non-sectarian charity that has been in operation as a hospital since June, 1872, at its Lexington avenue site. These quarters have been outgrown and a new plot of land, comprising about twenty-five city lots, has been purchased on 100th and 101st Streets, fronting Central Park nearly the whole block, with the exception of the Madison Avenue front. This plot, very desirably located for hospital purposes, is valued at $350,000.——The plans for a new medical building at the Johns Hopkins Hospital, Baltimore, have been completed. The physiologic and chemic laboratories will be removed from the university to the hospital grounds. One floor of the new building will be devoted to pharmacology.——By the will of George S. Pepper of Philadelphia, who died in 1890, several hospitals become beneficiaries. The University Hospital receives $19,750; Presbyterian Hospital $18,500; Jefferson College Hospital $18,500; Orthopedic, Charity, St. Joseph's, Children's, St. Christopher's and Maternity Hospitals $9,250 each. Dr. William Platt Pepper, John S. Gerhard and James B. Leonard, who are the trustees for the estate, report that there is a total increase of the estate since the testator's death of $199,836.84.

Colleges.

The Medical College of Syracuse University, N. Y., is to receive $1000 for enlarging the medical library.——The following commencements of medical colleges, with the number of graduates, are noted: April 7, Baltimore University School of Medicine, 54; April 5, Baltimore Medical College, 17; April 4, Birmingham Medical College, 9; April 1. Medical Department State University of Georgia, Augusta, 27; March 28, Missouri Medical College, St. Louis, 85; March 28, College of Physicians and Surgeons, Kansas City, Kan., 24; April 1, Medical College of South Carolina, Charleston, 14; April 5, Ohio Medical University, Columbus, 95; April 6, Iowa College of Physicians and Surgeons, Des Moines, 21.

Relief for Shawneetown Sufferers.—The General Committee appointed by the Hon. Carter H. Harrison, mayor of Chicago, to take measures for the relief of the sufferers from the disastrous flood at Shawneetown, Ill., has selected the undersigned as a sub-committee to solicit aid from the physicians of Chicago. We know too well the kind and charitable motives governing our profession to think it necessary to do more than point out that this calamity which has befallen the unfortunate people of Shawneetown demands immediate relief and we respectfully request that contributions of money be sent immediately to Dr. A. R. Reynolds, Commissioner of Health, City Hall. Checks should be made payable to Treasurer Relief Committee.

John B. Hamilton, M.D.
Frank Billings, M.D.
J. H. Etheridge, M.D.

Chicago, April 11, 1898.

CHANGE OF ADDRESS.

Andrews, G. M., from St. Louis, Mo., to Stella, Neb.
Anderson, F. E., from Iowa City to 130 W. 13th St., Davenport, Iowa.
Allen, F. H., from Iowa City to Shelby, Iowa.
Becker, B. A., from St. Louis, Mo., to Elgin, Ill.
Curtis, A. M., from 2842 Dearborn St. to 226 25th St., Chicago.
Cassidy, W. W. Jr., from Chicago to Wabasha, Minn.
Dennis, E. J., from Kansas City, Mo., to 114 Dearborn St., Chicago.
Eidenmuller, W. C., from 14 Grant Ave. to 630 Green, San Francisco.
Forsythe, E. A., from 64 W. Huron to 348 Franklin St., Buffalo, N. Y.
Franklin, G. W., from Des Moines to Jefferson, Iowa.
Giles, G., from Keokuk to Stiles, Iowa.
Gooch, W. H., from St. Louis to Goldsberry, Mo.
Hill, C., from Indianapolis to Fraukfort, Ind.
Hooper, V. J., from 2021 Jefferson to 1486 Mack Ave., Detroit, Mich.
Hill, W. H., from Keokuk, Iowa, to New Castle, Mo.
Johnston, E. A., from Champaign to Danville, Ill.
Jones, P. R., from Nashville, Tenn., to Frankfort, Ala.
Johnson, L. M., from 503 W. 4th St. to 629 W. 4th St., Williamsport, Pa.
Kirby, R., from Detroit to Hermansville, Mich.
Kenefick, T. A., from New York to Newport, R. I.
Kneedler, W. S., from San Diego, Cal., to West Point, N. Y.
Lenty, A., from Des Moines to Rock Rapids, Iowa.
Law, J. C., from Summerfield to Topeka, Kan.
Luburgh, J. M., from Stafford to Elba, Ohio.
Malott, J. D., from Indianapolis to Amboy, Ind.
Meck, J. H., from Columbus to Glencoe, Ohio.
Mahon, J. B., from Pittston to 58 N. Franklin St., Wilkesbarre, Pa.
Martin, W. C., from Detroit to Emmet, Mich.
Mathewson, E. H., from Chicago to N. Manchester St., Battle Creek, Mich.
Philips, W. S., from Columbus to Belle Center, Ohio.
Rollins, F. H., from White Rock, S. D., to West Salem, Wis.
Replogh, J. A., ftom Iowa City to Centerville, Iowa.
Rugg, D. F., from Saranac Lake, N. Y., to Hartland, Vt.
Ross, G. H., from Richmond, Va., to Durham, N. C.
Snyder, J. F., from Iowa City to Hawkeye, Iowa.
Schneider, A. J., from 120 N. Illinois St. to 592 W. Morris St., Indianapolis, Ind.
Scholtes, T. W., from Chicago to Reade's Landing, Minn.
Stout, J. C., from San Francisco to Oakland, Cal.
Tabor, F. A., from Indianapolis to Terre Haute, Ind.
Wiue, R. E., from Richmond to Quicksburg, Va.
Whiting, A. D., from 1223 Spruce St., to 1523 Spruce St., Philadelphia.
Zeller, H. R., from Columbus to Beansville, Ohio.

LETTERS RECEIVED.

Ashmead, Albert S., New York, N. Y.; Allport, Frank, Chicago; Armour & Co., Chicago.

Bonwill, W. G. A., Philadelphia, Pa.; Burroughs Wellcome & Co., London, Eng.; Breuer, C. H., Hallettsville, Tex.; Brewster, Quincy E., Boston, Mass.

Chestermau & Streeter, Philadelphia, Pa.; Carabana Co., The, New York, N. Y.; Crawford, S. K., Chicago; Clement, W. R., Princeton, Ky. Ellis, H. Bert, Los Angeles, Cal.; Ewing, S., Salt Lake City, Utah; Egbert, J. Hobart, Holyoke, Mass.

Forsythe, Jessie P., Winfield, Ill.; Frame Food Co. (Ltd.), London, Eng.; Frankish, John K., Philadelphia, Pa.; Fairchild, P. H., Passaic, N. J.; Freeman, J. W., Lead, S. D.

Gerstein, Maurice, Boston, Mass.; Gifford, H., Omaha, Neb.; Gibson, Maris, Wilkesbarre, Pa.; Gapen, Clarke, Madison, Wis.; Gilbert, L. L., Pittsburg, Pa.

Hertzler, A. E., Halstead, Kan.; Hall, C. Lester, Kansas City, Mo.; Harvey Co., The G. F., Saratoga Springs, N. Y.; Hooper, Henry, Chicago.

Jones, John F. & Co., Paris, Frauce.

Kastle, Martin, South Beno, Ind.; Krüger & Co., Leipzig, Germany.

LeFevre, Edwin, Boston, Mass.; Lewis, Robert C. M., Centerburg, Ohio; Lyman, F. A., Madison, Wis.

Mowery, H. A., Marietta, Pa.; Mercer, A. C., Syracuse, N. Y.; McLaren, Archibald, St. Paul, Minn.; Morse Adv. Agency, Lyman D., New York, N. Y.; May, J. W., Kansas City, Kan.; Mattison, J. B., Brooklyn, N. Y.; McClelland, T. M., Chicago; Maddox, W. H., Columbus, Ohio.

Patton, Ella M., Quincy, Ill.; Palmer, H. C., Utica, N. Y.; Palmer, F. A., Chicago; Pneumachemic Co., The, Cincinnati, Ohio; Postum Cereal Co. (Ltd.), Battle Creek, Mich.

Rawling, J. A., El Paso, Texas.

Sander, Enno, St. Louis, Mo.; Solomon, Leon L., Louisville, Ky.; Spencer Lens Co., Buffalo, N. Y.; Scott, W. I., Kokomo, Ind.; Stearns, F. & Co., Detroit, Mich.

The New York Pharmacal Association, New York, N. Y.; Turnbull Thomas, Jr., Allegheny, Pa.

Wellner, H., Concord, N. H.; Woldert, E. A., Philadelphia, Pa.; Western News Co., The, Chicago; Wilkes, B. A., St. Louis, Mo.

Trade Pamphlets.

Diabetes Mellitus, An Old Remedy for. Thomas Pharmacal Co. New York.
Edison Manufacturing Co's. Catalogue, New York.
Eosot and Geosot. Fischer Chemical Importing Co., New York.
Extracts Concerniug Radlauer's Antinervine. S. Radlauer, Berlin.
Formaldehyde. Fries Bros., New York.
Galvano-Faradic Manufacturing Co's. Catalogue. New York.
How to Obtain a Patent. Copp & Co., Washington, D. C.
Hysteria, etc., Battle & Co., St. Louis.
Practical Therapeutics, Vol. 1, No. 1. H. K. Mulford Co., Philadelphia.
Sanose, etc. Schering & Glatz, New York.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from April 2 to 8, 1898.

First Lieut. George Rauchfuss, Asst. Surgeon, resigned April 2, 1898.

First Lieut. Bailey K. Ashford, Asst. Surgeon, the order assigning him to station at Ft. Sam Houston, Texas, is revoked, and he is ordered to Ft. St. Philip, La., for duty at that post.

Capt. Edward Everts, Asst. Surgeon, upon the abandonment of Whipple Bks., Ariz., is ordered to Ft. Apache, Ariz.

First Lieut. Alexander S. Porter, Asst. Surgeon, is relieved from duty at Whipple Bks., Ariz., and upon expiration of his present leave of absence is ordered to San Diego Bks., Cal., for duty.

Capt. Joseph T. Clarke, Asst. Surgeon, is relieved from duty at Columbus Bks. Ohio, and ordered to Madison Bks., N. Y., for duty, relieving Capt. Paul Shillock, Asst. Surgeon. Capt. Shillock, upon being so relieved, will proceed to Key West, Fla., and report to the commanding officer Twenty-fifth Infantry for duty with that regiment.

Capt. Paul Shillock, Asst. Surgeon, so much of the order as directs him to proceed to Key West, Fla., and report to the commanding officer Twenty-fifth Infantry, is amended so as to direct him to proceed to Chickamauga National Park and report to the commanding officer of that regiment for duty with the first detachment thereof that may proceed to take station at Ft. Jefferson, Fla.

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ADDRESSES.

ADDRESS AT THE CLOSING EXERCISES OF THE ARMY MEDICAL SCHOOL, WASHINGTON, D. C., APRIL 1, 1898.

BY P. S. CONNER, M.D.
CINCINNATI, OHIO.

Gentlemen of the Army Medical School: With ıe appointment in 1789 of a surgeon and four surgeon's mates to the regiment of infantry and battalion f artillery begins the history of the Medical Departıent of the United States Army. For more than a undred years it has had the respect of the country ıd the profession; especially since 1832, when the ıle was established that entrance to it should be ırough examination, severe yet fair, having regard) professional and general education and to physical ıd mental aptitude for service, a rule that so far as know has never but once been set aside, except with ference to Medical Inspectors during the rebellion. What has this picked body of medical men done to ıtitle it to such respect, and what in deeds and words as it added to the stock of professional knowledge pon which all the world is drawing? Of its special ork, its care of the soldier, it does not become me to ›eak, a long-time civil practitioner, who yet counts one of the joys of his life that he was for a while the service, and when he thinks of the Medical taff repeats to himself with pride, *pars minima fui.* pon a medical officer of the Army, or at least an ficer of the Army must devolve the duty of showing ›w in peace and in war, in camp and on the march, lowland and in highland, in city and in country, on e desert or on the sea, in many places and under rying circumstances, the members of the Corps ıve ever had regard to the welfare of the soldier, ıve protected him from outside and oncoming phyal ills, have professionally cared for him when sick wounded, and by proper feeding, clothing and ıusing have secured to him such health and strength have made him in the highest possible degree the fender of his country and the conserver of the public ace.

But of what has been done for the community large, for Medicine, its art and its science, I may éak, and that all the more freely, because of personal lings. Almost simultaneously with the organizaın of the Department began the march of that army occupation that has swept over and taken possession the interior valley of the Mississippi, the region of ə great plains, the mountain ranges of the contiıtal backbone, the seeming desert lands between the ckies and the Sierra Nevada, the fertile lands of the stern slope, all that imperial area that stretches from › Lakes to the Gulf, from the Alleghanies to the cific. In the front line of the on-going thousands pioneer settlers, and generally well in advance of went the Army, establishing here and there little permanent posts, centers from which offensive movements could be made, rallying points where protection could be had, the beginning of not a few of our crowded cities in the midst of great States full of people and abounding in wealth. To the medical officers at these various forts for longer or for shorter time the growing civil populations had to look for care in sickness and when injured and in many a place that today boasts, and with reason, of the eminence of its physicians and the skill of its surgeons the early chapter of professional history is the record of the deeds and the influence of the surgeons of the Army. From one know many. Dr. Richard Allison, who on Sept. 29, 1789, was commissioned surgeon of the infantry regiment, was at once ordered to the just organized post of Fort Washington, which for "seven years became the headquarters of all the armies that fought against the Indians under Harmer in 1790, St. Clair in 1791, and Wayne in 1794." He was Cincinnati's first physician; and Drake, who knew him well, says of him: "Whenever stationed here (i.e., in Cincinnati) he gave such assistance to the people of the village as made him a general favorite." Resigning in 1798 he spent the rest of his life in or near the city and was the first physician who died within its limits. "Though not profound in science, he was sagacious, unassuming, amiable and kind." (Drake.) Besides Allison, there lived and practiced at Fort Washington and in "the young village" during the first years, Carmichael, Phillips, Sellman, Elliot and Strong, of whom Sellman, after his resignation in 1794, remained in practice until his death in 1827, and Elliot, after the disbanding of his regiment in 1802, settled in Dayton, Ohio, and died there seven years later.

At quite an early day this outside practice must have been viewed with little favor by the authorities of the War Department, perhaps because it may have been found to conflict with the proper discharge of official duties, perhaps because sufficiently interfering with local physicians to give rise to political complications. Whatever the reasons therefore, the Regulations for the Medical Department established in 1814 directed that "No Surgeon of the Army shall be engaged in private practice," and like prohibition had place in the Regulations of 1821. On this subject, Surgeon Harvey Brown ("The Medical Department of the United States Army from 1775 to 1873") writes: "Probably the retention in the foregoing regulations (those of 1821), of the paragraph forbidding officers of the corps to engage in private practice will excite some surprise. It certainly did at the time, for although it was originally incorporated with the regulations of 1814 it had never been enforced; in fact the position of the frontier posts and the comparative scarcity of physicians fifty years ago rendered it often an act of humanity for them to afford professional assistance to citizens living in the vicinity of the garrison." After the distribution of these regulations,

Post-Surgeon McMahon wrote to Dr. Lovell on the subject and the Surgeon-General replied that "the regulation forbidding army surgeons to engage in private practice was intended to prevent neglect of duty by entering extremely into it, as well as an improper application of public property, which often occurred. There would be no objection to this practice provided the officer desiring it would make an application to the Secretary of War, through the Surgeon-General, setting forth clearly the circumstances, in which case especial authority would be granted." As late as 1845 the physicians of Sackett's Harbor, N. Y., protested to the War Department against the surgeon at Madison Barracks attending patients in that village. The protest was not very favorably received, if we are to judge from the letter written by the Acting Surgeon-General.

But not alone for professional aid is a debt due by many of the communities in the Middle, Southern and Western States. Scattered here and there in medical and scientific journals, and especially gathered together in the two volumes of the "Medical Statistics" issued in 1840 and 1856, and in the reports of the various departments and bureaus in Washington, is much information respecting topography, climatology, ethnology, geology, zoology, botany, each and all of these departments of what for the time being may be called local science; information gathered up and communicated by the medical officers of the army, greatly increasing the amount and accuracy of the general knowledge of the sections and districts over which the army had traveled or in which for longer or shorter time it had rested.

The debt of the physicians of the country is yet greater, for while owing as much as citizens at large for what has been given along the lines indicated, they have been the recipients of not a few technical, professional, scientific and practical contributions each of value, some of value hardly to be worthily estimated. Take from our present knowledge of malaria, of cholera, of yellow fever, of typhoid fever, of mountain fever, of dysentery, of diarrhea, the published results of the observations, experiments and studies of Sternberg, of Porter, of Pitcher, of Woodward, of Smart, of Tripler, of Coolidge, of Hammond, of Bartholow, of McClellan, not to mention many others, and the resulting gap would be wide and deep. It will be long before in any discussion of the scientific place and practical value of hygiene and hygienic studies due notice will not be taken of the labors of Billings, of Hammond and of Smart, or before any student of the history of hospitals or the methods of their construction with associated merits and demerits overlooks the published writings and the special work of Billings and of Cowles. The literature of surgery is full of the outcome of the genius and the skill of the officers of your corps. It is with no little astonishment that I read of some of the work done in pre-anesthetic and pre-aseptic days, with no skilled assistants and with most limited appliances; as Pitcher's successfully suturing a completely divided ileum and of Beaumont's conducting to a satisfactory termination a case of lacerated and contused wound in which a charge of duck shot blew off "integuments and muscles of the size of a man's hand," fractured and carried away the "anterior half of the sixth rib," fractured the fifth, lacerated "the lower portion of the left lobe of the lung and the diaphragm," and perforated the stomach.

Passing by for the present the various reports made to the Surgeon-General and published by the War Department, let us notice some of the work done, the results of which have been given to the world in journals, monographs or more formal books. I have had neither time nor opportunity of so examining the periodical literature of our country as to learn how many medical officers of the army have been contributors, to what extent and upon what subjects, a task that would have been a pleasant one had it been possible for me to undertake it; but I have found that the *American Journal of the Medical Sciences* during its sixty years' life as a quarterly, nearly fifty of the corps contributed articles (some one, some many) on very varied topics, medical, surgical, therapeutical, obstetrical even, and if to these were to be added those who had once been in the corps but having resigned were at the time of writing in civil practice, the number would be a much larger one. In the Transactions of several of the medical congresses, international, national and special, that have been held in the last twenty-five years can be found able papers by officers of the Corps. At Philadelphia in 1876 Woodward delivered one of the general addresses, as did Billings in London in 1881; at the "Pan-American" in the city Surgeon-General Sternberg was chairman of the Section on Military Medicine and at Denver in June he will preside over the meeting of the AMERICAN MEDICAL ASSOCIATION.

To the various systems and handbooks that have appeared lately a few of the staff have been contributors. Your distinguished chief, who has received many honors at home and abroad and deserved the all, who has been especially concerned with the causes of things and has aided much in their discovery, who after a long and broad training in the school of practical work turned to the experimental side of medicine and has made himself *facile princeps* among American bacteriologists, he, with a number of his colleagues (Adair, Bache, Greenleaf, Huntington, Pilcher, Smart, Smith, Taylor, Woodhull and Woodruff) contributed to the "Reference Hand-book." Billings, scholar, writer, organizer, man of affairs, more widely known perhaps and certainly academically more honored than any other medical man our country has ever had, was one of the writers for Pepper's "System of Medicine" (on hygiene) and for Dennis' "System of Surgery" (on the history of surgery); and to the latter your professor of surgery (Forwood) contributed a masterly article on "Military Surgery." For Ashhurst's International Encyclopedia Clemens wrote on the "Field Duties of Millitary Surgeons" and Bill on "Saber, Bayonet and Arrow Wounds" the latter a clear, interesting paper, the last perhaps that will ever be written upon these subjects, almost certainly so upon that of arrow wounds.

The books that have been written on professional subjects by medical officers of the Army, though few in number, have been of decided value. As early as 1813 Surgeon-General Tilton published his "Economical Observations on Military Hospitals and the Prevention and Cure of Diseases Incident to our Armies" and three years later was issued Dr. Mann's "Medical Sketches of the Campaigns of the War of 1812, together with a dissertation on dysentery and on broncho-pneumonia, both books of much interest not only to army surgeons but to those of the profession at large who may wish to know what was seen and thought and done in the earlier years of American Medicine. In 1833 appeared what may properly be regarded

the most valuable medical contribution from the Army prior to the publication of the great Medical and Surgical History of the War of the Rebellion, Dr. Beaumont's "Experiments and Observations on the Gastric Juice and the Physiology of Digestion." The case already referred to of wound of the anterior left chest and stomach under Beaumont's care was practically healed in two years' time, and a year later (May, 1825) the Doctor commenced his first series of "Gastric Experiments" at Fort Mackinac. "In the month of June following," he writes, "I was ordered to Fort Niagara, N. Y., where, taking the man with me, I continued my experiments until August. About this time (August, 1825) I took St. Martin with me to Burlington, Vt., and from thence to Plattsburg, N. Y. From the latter place he returned to Canada, his native place, without obtaining my consent." Four years later through the aid of the agents of the American Fur Company "after considerable difficulty and at great expense" the Doctor had the man with his wife and two children brought to him at Fort Crawford, at the mouth of the Wisconsin River, "a distance of nearly two thousand miles." From now on for about two years there was carried on uninterruptedly another series of experiments on the stomach and gastric fluids. Then followed an interval of about eighteen months during which the man was at his Canadian home, after which from November, 1832, to March, 1833, the experiments were carried on again at Plattsburg and in Washington, the man being "constantly subjected to a continued series of experiments on the interior of the stomach; allowing to be introduced or taken out at the aperture different kinds of food, drinks, elastic catheters, thermometer tubes, gastric juice, chyme, etc., almost daily and sometimes hourly." The opportunity was an unique one, and Dr. Beaumont appreciating the situation had the genius to inaugurate and the patience to execute a series of experiments which, rendering him famous, was of immense importance in determining the physiology of digestion. All of his conclusions are not today accepted, but everywhere and by everyone his facts are and his labors are acknowledged and appreciated.

Years afterward the profession received from the Army another contribution of much value on physiologic subjects, the "Physiological Memoirs" of Surgeon-General Hammond, made up of various papers written during his term of service as assistant surgeon, one of them a prize essay of the AMERICAN MEDICAL ASSOCIATION. At about the same time this author, who has written so much, so well and on so many different topics, gave to the Army and the country a treatise on "Military Hygiene." The medical staff carried off another of the AMERICAN MEDICAL ASSOCIATION prizes when in 1876 Assistant Surgeon Culbertson (retired) submitted an essay on "Excisions," a volume in size, the preparation of which necessitated enormous labor, which will long remain as one of a few books that must be consulted by anyone working up the subject of operations done upon the six larger joints. From time to time we have had from the pen of Dr. Billings volumes upon hospitals, upon hygienic subjects, upon ventilation and heating, upon vital statistics, and a medical dictionary, and, as is true of all that the Doctor has written, they prove that he has ever heeded his own advice, "have something to say and say it." To Surgeon-General Sternberg students and practitioners are greatly indebted for a treatise on malaria, a translation of Magnin on "Bacteria," which came so opportunely, and his own elaborate "Manual of Bacteriology" and associated "Text-book," at home and abroad accepted as authoritative and worthy of both subject and author.

Of all the literary work done by the Medical Staff of the Army far and away the most important has been that connected with the preparation of the Medical and Surgical History of the War of the Rebellion and of the Index Catalogue. Increasing knowledge, changing views of nature and cause, variation of type, fickleness of fashion which has no little influence upon professional opinions, one and all bring it to pass that few books have other than an ephemeral existence. As the elder Gross once said to me "How seldom it is that a man's labors outlast him." But once in awhile there appear the writings of a Hippocrates, a Galen, a Vesalius, a Paré, a Sydenham, a Hunter, a Bichat, a Virchow, and they become as immortal as Medicine itself. Among the never dying will be the two great works just mentioned. The accumulation of immense material, the having at hand clerical aid in quantity and quality equal to the requirements, the countenance of a willing Department and the financial backing of a great nation permitted of that being done which had never been done before, will probably never be done again in like degree and could not have been done under any less favorable conditions. The opportunity was there and the Medical Staff of the Army had the cultivation, the judgment, the persistence, the literary skill that was required. There was most fortunate conjunction of the time, the place and the men. Had they done nothing else the preparation of the Medical and Surgical History and of the Index Catalogue would have perpetuated the names of Otis, of Woodward, of Smart, of Huntington, of Billings; and with them should be mentioned their associates of the Corps whose less prominent work was yet of no little value. At once a treasure house and a mine, the Medical and Surgical History reports facts, presents statistics, discusses theories, compares opinions, weighs treatment, and all the while bears testimony to the fidelity, the skill, and the devotion of that army of medical officers, regular and volunteer, that was fighting disease and injury during the long years of that terrible strife. In the midst of arms Law is silent, Medicine never. From camp and field and hospital she has always spoken and she never else has spoken so loud, so long, so authoritatively as in our day and on our soil. The epitome of her teaching is this History. Though the advances of the last thirty years in knowledge of the causes, the means of production, the most favorable methods of treatment of the diseased conditions prevalent in armies render even now much that was learned in the ten years before of comparatively little practical value; though alterations in armament will cause much change in number, character and gravity of wounds and therefore in the care of them, still these six ponderous volumes will long have to students and practitioners, military and civil, much more that a mere historical value, great as that may be.

Of much more present practical value to the profession at large is the Index Catalogue which with the supplementary Index Medicus has for nearly twenty years been making us familiar with what has been and is being written on each and every medical subject. In most unusual degree it has been filling a long-felt want, and both at home and

abroad has been furnishing students and writers with what was heretofore unattainable. The magnificent library around about us, in so great a degree the outcome of the labors of Dr. Billings, has supplied the material for the work. The high scholarship and peculiar fitness for editorial supervision that have long characterized Dr. Billings and his co-laborer Dr. Fletcher have guaranteed fulness and accuracy of selection and classification; the abundance of clerical aid has secured extraordinary regularity and rapidity of appearance of the successive volumes. A first series completed, a second is bringing the catalogue up to date; and the declaration may safely be made that the Medical Department of the United States Army has accomplished the most gigantic, important and useful medical task known to history. Over and above this literary work it has accumulated stored and scientifically arranged a museum that so far as relates to the diseases and injuries of soldiers is unapproached and in all probability unapproachable.

Keeping in mind the things done, the services rendered, the influence exerted by the officers of the Medical Staff through all these many years, who can rightfully refuse to the Corps full meed of respect, full measure of honor? True, more perhaps might have been accomplished; not a few bright minds have suffered eclipse; there has been much loitering on the way; but our Country and our profession are and ought to be proud of their most carefully selected body of medical men. Many of its members have gone out into civil life, carrying with them those principles of honor and integrity and devotion to duty that are the very life and soul of an Army Officer. You may well take pride in the labors and the successes of such general practitioners as Heustis and Pitcher and Porter, of such surgeons as Van Buren and Weir and Gouley, of such gynecologists as Homans and Lee, of such oculists as Thomson and Norris and Fryer, of such laryngologist as Asch, such alienist as Cowles, such anatomists as Isaacs and Allen, such chemists and scientists as Torrey and Bache, such zoologists as Coues and Schufeldt. The names of at least twenty-five of the medical teachers in almost as many schools have at one time or another been borne upon your rolls, and among them are those of Bartholow and Dunster and Glison and Pooley.

Thanking your Dean and the Surgeon-General for the honor that they have done me, it is with much pleasure, gentlemen of the Army Medical School, that I congratulate you on the completion of your academic labors and wish you all success in the life that is before you. In having the opportunities for special training here afforded you have been far more fortunate than were your elders. Of all the good work that Surgeon-General Sternberg has done none will prove to have been better than the establishing of this School, and you may be sure that in every effort to increase your scientific knowledge and to add to the sum total of the world's information on matters medical you will have the sympathy and aid of your Chief. Personal experience long ago taught him how hard it is to make bricks without straw, to follow out in army life careful continued accurate investigations without the support of—more, in the face of the opposition of—the higher officers of the Department. With you, under the present order of things, it will certainly be, the more labor the more favor. Will you pardon me if I suggest to you that while you are military surgeons you are medical men and Medicine is greater than any of her departments. As far as may be possible. put yourselves in close touch with the general and local profession, and as you may freely receive freely give. The long time isolation of the surgeons of the Army has come to an end with the conditions that necessitated the establishment and maintenance of many and widely separated posts. As your duties call you to the vicinity of cities that are, in greater or less measure, medical as well as commercial and political centers, take your places as members of the greater and higher Medical Corps that embraces all the good men and true who are advancing Medicine and benefiting mankind. Again congratulating you, I bid you God speed.

THE RELATION OF THE MEDICAL AND LEGAL DEPARTMENTS OF RAILWAYS.

President's Address Delivered at the Annual Meeting of the American Academy of Railway Surgeons, at Chicago, Ill., Oct. 6–8, 1897.

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CONNECTION BETWEEN LAW AND MEDICINE.

Law and medicine, like "knowledge and wisdom," are "far from being one," but here Cowper's distinction ceases to apply, for the connection between the two professions is close and intimate, and each new discovery in this age of rapid, scientific progress unites more closely these great branches of learning. Medical jurisprudence has widened far beyond testamentary capacity, commissions in lunacy and expectation of life. The toxicologist and the chemist are quite commonly assistants of both commonwealth and accused in capital trials; the surgeon, the bacteriologist and the biologist are hand in hand with attorney and counsellor in civil and criminal causes. Where the *Green Bag* or the *London Lancet* was once filed alone, the *Medico-Legal Journal* now shares shelf space and attention, and the journals of both professions devote much printed space to medical jurisprudence and medico-legal surgery.

The Medico-Legal Society, from an insignificant local association, has grown to be an international organization; strong numerically, stronger intellectually, strongest in original research and investigation; throwing light upon problems which have heretofore puzzled alike the disciples of Blackstone and of Æsculapius, including in their numerous courses of study every subject of common interest, from psychics and hypnotism to compulsory vaccination; from toxicology to our own branch of railway surgery.

POPULAR HOSTILITY TO RAILROADS AND THEIR SURGEONS.

It is popular and profitable to criticise the grinding railroad monopolist in print and on the platform; it is politic in a court room to sneer at the salaried surgeon who has given his best and most conscientious professional services, often under unfavorable and distressing conditions as a "corporation tool and hireling" whose testimony, "well, gentlemen of the jury, you know what expert testimony is worth, especially when the expert has a life position with the corporation. I leave it to your own common sense." In the determined effort to dominate the minds of twelve men, sometimes unintelligent, often uninformed, always

uncertain, courtroom proceedings in railroad cases too frequently degenerate into oratorical appeals, which utterly disregard the underlying, unchanging principle of justice, to be applied without fear or favor to individuals as well as to corporations.

HUMANE PROVISIONS MADE BY CORPORATIONS.

Corporations, like individuals, though born in sin, are not totally depraved. A critical public may attribute them to policy and self-interest, nevertheless the fact remains that the legally and proverbially soulless railway corporations make more and better provisions for accident and emergency cases than individual employers and partnerships engaged in business equally hazardous. The emergency case with bandages, etc., in each engine, the stretcher in every station (Pa. R.R.), the ambulance in large cities, the hospital owned, equipped and operated by the company (U.P. R'y.), or the hospital to which the company makes an annual donation in consideration of care for injured employes, accident and emergency cases (Pa. R.R.), the salaried surgeons at central points, and the rural practitioners whose infrequent services are compensated by a regular "annual" (Pa. R.R., Reading R.R.), all are active agents for the alleviation of the ills of humanity, though the public deny their principal the credit of putting them in action for humanity's sake.

RELIEF DEPARTMENT, ETC.

Is it solely for the benefit of the company that relief departments are organized with sick and death benefits for employes, whether the illness or death results from accident or from natural causes? Is it solely for the company's benefit that surgical attendance is furnished during disability from accident in the company's service; that trusses, artificial limbs, etc., are supplied for injured employes, that pensions are planned for old age?

Certainly the relief department contract bars the beneficiary from bringing suit against the company. But for the numerous accidents caused by his own negligence or the negligence of his co-employes, the employe had no legal right of action. Yet in both these instances the relief department pays the monthly disablement benefits for a year or more (Pa. R.R., Reading R.R.)

NECESSITY FOR RAILWAY PRACTITIONER AS A SPECIALIST.

To reiterate a truism, railroading is a hazardous occupation. Though the greatest possible care be observed, though the latest improvements be used, some accidents are inevitable, some collisions are sure to occur; trainmen are as surely predisposed to certain diseases as glass cutters or workers in emery. Higher rates of speed, lengthening miles of track, increasing forces of train workers strengthen and render imperative the necessity for an intelligent body of medical men who make railroad practice a specialty. The opinions of a fickle and often wholly unreasonable public have small place and smaller influence in a profession which listens to the first cry of the living and the last moan of the dying, and hears through all its years of active service only the wails, the woes and the weaknesses of humanity. Medical men have no time to reply to healthy critics. The sick must be healed, the helpless must be strengthened, the mangled must be relieved, and whether he be oculist or neurologist, gynecologist or railway surgeon, the man who gives his best services to the sick and dying is accountable to his own conscience, and to that only, whether his compensation be the check of a corporation or an individual, gold from a bank or silver from a stocking, or whether such compensation never comes at all.

RAILWAY SURGEON HONEST RATHER THAN INTERESTED WITNESS.

No individual seeking to perpetrate a fraud upon a railroad company through an eloquent appeal to the sympathies and prejudices of a jury, and the complaisant testimony of irresponsible physicians with an eye single to the enlargement of their private practice, has a right to expect any evidence from a railway physician but the truth. And no general manager, no division superintendent, no relief department, no board of directors, no corporation, seeking to perpetrate a fraud against an individual through pressure upon salaried employes has a right, because of salary paid for medical services, to any testimony from a railway surgeon save "the whole truth and nothing but the truth."

ANOMALOUS POSITION OF RAILWAY SURGEON AS A WITNESS. THREE-FOLD RELATION.

In hospital or home, in collision or office examination, the railway surgeon is as other physicians, but as a witness in actions against the railroad by persons who claim to have been injured through the company's negligence, his position is strikingly anomalous:

1. He is the employe of the defendant railroad in whose behalf he is called to testify.

2. He was the physician of the plaintiff against whom or by whom he is called to testify at the period most in controversy. Further, this professional relation was many times initiated under circumstances which gave the plaintiff no option save death or acceptance of the railway surgeon's services, and sometimes a merciful insensibility deprived him of any option whatsoever.

3. He is called by the defendant company as an expert witness in their behalf.

The difficulties of this three-fold position are self-evident, the responsibilities definitely aligned, the duties not so clearly defined.

Having survived the omniscience of youth, the writer submitted the following hypothetical question to ten physicians and ten attorneys, equally divided in numbers as to affiliations with or against corporations.

What do you, as a physician (or attorney), think a railroad company has the right to expect from an attending physician in their employ, as witness in an action brought against the railroad for injuries alleged to have been received through the company's negligence?

Twenty unqualified declarations for the "whole truth and nothing but the truth," are followed by varying comments on statutory regulations concerning medical witnesses, and by criticisms of railway influence on supreme courts, and of juries for unjust verdicts against companies in obedience to popular clamor.

AS MEDICAL EXAMINER.

There can be no question that if the railway physician comes in only as medical expert for the company, having examined the plaintiff in that capacity, he is at liberty to tell anything he learns from such examination.

AS ATTENDING PHYSICIAN. LEGAL BARRIERS.

If he be called by the company as the surgeon who attended the plaintiff at the time of the accident or disablement, in many States his lips are sealed by ex-

press statutory enactment forbidding physicians to divulge facts learned in the course of professional service. Others effect the same object by not permitting physicians to divulge facts which would be a bar to the patient in a subsequent civil action. (Penn, etc.)

On the other hand, membership in a relief department commonly includes contractual renunciation of the right of action; hence, for a large body of employes, the surgeon's testimony is not needed. The written law of at least one (Col. State Statutes) State, however, expressly prohibits contracts (conflicting interests) between corporations and their employes, which relieves the company from liability for accidents caused by the negligence of the corporation or its servants, and pronounces such contracts null and void. Here the railway surgeon comes in as the necessary and most responsible witness on both sides, as he must needs be, in many cases where the plaintiff is an injured passenger.

PROFESSIONAL DUTY.

His duty to his profession requires that he state the facts so simply that the non-professional juror may understand; so accurately that his brother physicians may recognize their physiologic correctness, gather helpful ideas from novel and peculiar cases, and hints for future testimony.

PROFESSION AND DUTY THERETO FIRST, RAILWAY EMPLOYMENT SECONDARY AND INCIDENTAL.

The matter of salary has no bearing on the subject. From his student days till his hands are stilled, the surgeon cheerfully gives the same skill to the poor that the rich receive for large reward. The great and beneficent discovery of his life is not patented like an air brake or a car coupler, but freely given to humanity through printed and professional channels. He is first and always a physician; the railway employment is only an incident; if it terminated he would still be physician and surgeon. It follows that the duty to himself, his profession and his patient, is his highest duty, and no railroad company or its attorney has any right by suggestion, intimidation, or, in any manner whatsoever to seek the suppression of the facts in the case as the attending surgeon believes them to be.

"Keep your eyes and ears open and your mouth shut," is an excellent rule in the ordinary line of duty, for hospitals, and in the confusion of accidents and emergencies, but to expect a physician to keep silent when duty demands and the law lays upon him an obligation to speak, is to suggest indirectly that he is the unhappy possessor of a strabismic or an astigmatic conscience.

RELEASE BY COMPANY.

Where the facts and circumstances are against the company's interest it is quite as much the attending surgeon's legal and moral duty to disclose them as where an unscrupulous plaintiff seeks by fictitious ailments and symptoms to procure an award against the company to which he is in no way entitled. If his view of "the whole truth and nothing but the truth" conflicts with the company's interest, the attending railway surgeon should be altogether released and relieved from acting as a witness in their behalf. The novel spectacle of a railway surgeon testifying against his employing company would certainly be unprofitable to the corporation in the first instance; but in the long run, the self-evident facts that the surgeon employed maintained his professional and individual honor, and that the company sought only truth and justice in the case, would prove of financial advantage to the corporation, lessen the number of suits brought, decrease the amount of damages awarded, and overcome the existing legal prejudice against railroads and their employes.

PREJUDICE AGAINST EXPERT TESTIMONY.

Physicians have sold themselves in times past to tricky claimants; physicians have been bought in bygone days by conniving corporations, with the legitimate result that expert testimony, however honest, however skilful, however conservative, is today at a discount with both court and jury. The expert witness is a subject of raillery; his testimony accounted of so little value that it is passed over in silence, or only commented upon in a general way. When the medical expert is a railway surgeon the jury's prejudice is increased fourfold. The cross-examiner's gibes and thrusts are received with ill-concealed approval. In a recent case the plaintiff's attorney in his Buzfuzian appeal to the "arbiters of the destiny of a freeman," vehemently inquired, "gentlemen of the jury, are your opinions to be formed and shaped by that brass-buttoned receptacle of railroad rations?" And the jury promptly negatived the interrogation by an award of $10,000 to the plaintiff. Extreme! Not so extreme as a late Pennsylvania case which gave a plaintiff $30,000 for an injury which was a physiologic impossibility under the facts stated. (Webster vs. Electric Traction Co., Philadelphia, Pa., 1896.)

ON THE STAND. PHYSICIAN'S BEST METHOD TO DISPEL PREJUDICE.

The medical expert and the railway surgeon are admittedly necessary witnesses in suits brought against the company by persons injured. The prejudice of courts and juries against expert testimony, and the prejudice of juries against railroads and persons in their employ are matters af common knowledge. Therefore, it behooves the railroad physician to consider how he may most effectively destroy the barriers which ignorance, prejudice, and the misconduct of others have builded in his way as a witness.

EXAMINATION.

He is familiar with the facts in controversy, he knows the medical principles applicable to them. Consultation with the company's soliciter has covered the interrogatories of the direct examination. His honest, conscientious statement of the case is strongly in favor of the railroad. Then the cross-examiner takes him, and the real battle commences with an expert inquisitor, whose sworn duty to his client requires that he shall exert every effort to weaken the force and effect of the surgeon's testimony. In the hands of a wily antagonist who seeks (cross-examination) to annoy, embarrass, confuse, irritate, anger, disconcert and ridicule him, it is so much easier to say what a witness should not do than to make affirmative suggestions, that I have put my own few thoughts mainly in negative form.

SUGGESTIONS AS TO TESTIMONY.

1. Use no technical language, unless absolutely unavoidable. The juror is a plain man, ignorant of medical terms. The speech of the common people is his own tongue, and the man who makes him understand, wins the verdict. The sternum and the patella are unknown quantities to him; the breast-bone and the knee-pan are useful members, the value of which to a wage-earner he can estimate with considerable

accuracy. He has two eyes as well as two ears. A bone, a lead pencil, and a twisted piece of paper sometimes double the chance of success. Object teaching is the natural method; demonstrate the facts where practicable.

2. Avoid controversies with the cross-examiner. The war is unprofitable because unequal; he can strike when the surgeon is down; his last turn with court and jury comes when the medical man is no longer an active participant in the case.

3. Keep sweet. He who loses his temper loses his cause. Questions are frequently asked for the express purpose of irritating the surgeon; an exhibition of anger is the very result desired, and the first ruffling of composure is welcomed as a successful assault on the enemy's works.

4. Talk slowly; take time to answer questions fully. Minds untrained in medical lore can not follow and comprehend professional explanations at the same rate of speed as assistants at a clinic.

One of the most common methods of perplexing a witness and neutralizing the effect of his testimony is to fire volleys of rapid questions at him. Half finished, hastily given answers create erroneous and contradictory impressions; hence the necessity for deliberation throughout expert testimony, and an utter disregard of attempts to undo the surgeon through undue haste.

5. Answer the question asked. He who volunteers information or explanation digs a pit into which the cross-examiner shall shortly but surely tumble him. In the infrequent instances where "yes" and "no" will not suffice as answers, an explanation of the cross-examiner's ingenious verbal trap will be developed by questions of opposing counsel on re-direct examination, or will be permitted upon request to the court for opportunity to make the matter clear.

6. Answer briefly. The best approved judicial proceedings are in accord with the petitions of those Indian Territory negroes who habitually besought the Judge of all hearts to grant them "long prayers and short answers." The plaintiff in his complaint or declaration "ever prays," and the defendant in his answer "will ever pray," at considerable length and with much technical repetition, but that surgeon most helps his cause who in his testimony gives short answers and shuns technicalities.

7. Say, "I do not know." The surgeon who knows everything is clay in the hands of the cross-examiner, and malformed or formless clay in the verdict of the jurymen.

8. Do not discount the medical information possessed by the cross-examiner. Thousands of lawyers beside Lord Eldon have studied medicine before reading law. Lacking a medical education, the lawyer prepares his case by repeated consultations with leading physicians, by reading articles in medical journals and by careful examination of the accredited medical authorities.

As was recently said by a distinguished New York attorney in addressing the graduating class of a great medical school, "The medical profession differs from the legal in the fact that the physician is not expected to know law, but the lawyer must have a familiar and comprehensive knowledge of medicine."

JOINT AIMS AND ACHIEVEMENTS OF MEDICINE AND LAW.

Personally the doctor may never need the lawyer's services, though the attorney is sure to require the physician's ministrations; but professionally the advocate who fights against oppression is the blood comrade of the physician who battles against death. Together they have warred for the rights of the poor, the helpless and the despised; together they have defied kings and corporations. When, in the darkness of the middle ages, all other good seemed lost, the doctor and the barrister stood alone as mouthpieces and interpreters of the common people—solitary champions of liberty and justice, unconquered and unterrified by kings. In our own day, through their joint efforts, boards of health have been organized, State and Government inspection of water and food products introduced, reformatories and insane asylums reconstructed, prison conditions ameliorated and upheaved, and many other great reforms instituted.

HIGH MORAL STANDARD DEMANDED OF PHYSICIAN AND ATTORNEY.

There can be no human liberty without law; there can be no healthy human liberty without medicine; the tyranny of rulers and the tyranny of disease alike reduce men to slavery. "*Noblesse oblige*," said the old French king, and he who breaks these shackles from humanity must regard neither men nor money, neither position nor power. Leprosy and smallpox are less to be dreaded than the moral contagion of dishonor. Whether in clinic or court room, whether beside the sickbed or before the bar, temporizing, policy, the "necessity" which Pitt called "the argument of tyrants" and "the creed of slaves," are only weights he he has laid aside. His rule of life is the Supreme Law enunciated by the Great Healer: "Ye shall know the truth, and the truth shall make you free;" and his earthly ambitions are summed up in Wolsey's counsel to Cromwell:

> "Be just and fear not.
> Let all the ends thou aims't at be thy country's,
> Thy God's, and truth's, then if thou fall'st, O Cromwell,
> Thou fall'st a blessed martyr."
>
> —*Shakspeare, Henry VIII; Act III: Sc. 2.*

THE SURGERY OF THE BRAIN.

Address delivered before the Austin Flint Medical Society, Clear Lake, Ia., July 20, 1897.

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The surgery of the brain and its membranes has within the last two or three years received more merited attention than during the preceding decade, when the great surgical world spent a large portion of its energy on that important class of diseases which are found in the abdomen and which are now so generally subjected to surgical treatment.

All subjects which directly affect the life of an individual are of special interest to the conscientious physician and certainly there is no class of diseases which are more obscure in their symptomatology, more erratic in their course, more discouraging in their treatment or more uniformly fatal, when managed expectantly, than the lesions of the brain, which are now subjected to surgical treatment.

The peculiar anatomic conditions in which the organ under consideration is placed renders the opportunity for careful observation of very rare occurrence, while the location of the vital centers in the lower brain precludes all thorough and systematic investigation upon man. It is only by clinical observation then, that even a fairly comprehensive knowledge of the location of the foci of physiologic action and of diseased processes has been adduced. The pathologists have discovered inflammatory, suppurative and adventitious processes in the brain for many years, and they have also been able to classify the various lesions which are found therein, and even to finally differentiate between types and degrees thereof, but until these lesions could be clinically located with a fair degree of certainty, the local treatment was of necessity purely empirical.

Experimental research on animals and clinical observation with postmortem findings in man, led to the discovery of motor centers and later of centers for special sense, and more recently closer studies have outlined the cortical centers for different varieties and degrees of physiologic manifestations. With the location of the physiologic centers came the possibility of the clinical diagnosis and location of disease processes. As these processes were subjected to surgical treatment in other parts of the body with a large degree of success, it was but natural that this field was considered an inviting, though admittedly difficult one, for the exercise of the surgeon's skill and dexterity.

Operations upon the brain were so uniformly fatal in pre-antiseptic days that the surgery of the brain was, by common consent, limited to emergency work. The protection afforded by antiseptics and asepsis has rendered the cranial cavity safely approachable, while the various improvements in the methods of trephining and means for its execution have rendered much of the cranial contents readily accessible.

Successful cerebral surgery depends upon three essential elements, viz., the diagnosis of the character of the disease, its anatomic location and the proper operative technique. The purpose of this paper is to briefly present the nature and diagnosis of cerebral lesions, to emphasize the importance of cerebral localization and to discuss the advisability of subjecting our patients with cerebral diseases to operations for the relief of their troubles, and if an operation is deemed advisable, how it should be performed to obtain the best results. The diagnosis of most of the conditions which we will consider should be made or confirmed by a neurologist when possible before being surgically treated.

CEREBRAL LOCALIZATION.

In considering this subject it is well to remember that while there are points or small areas of the brain in which the reaction to stimulation is most marked, the area of lesser reaction extends in most instances far over into other areas so that the various centers or areas overlap each other. This fact explains the observation that when a primary anatomic center only is removed the function ascribed to that area may not be wholly paralyzed. It is also recognized that these areas are not confined to any single convolution or even lobe, but may be located in two or more.

The areas which are now generally conceded to be definitely located are the motor-sensory area, the speech area, the visual area, the auditory area and the area for smell and taste. In addition, later investigation seems to have established the fact that there is a center or centers for muscular sense and to have determined its probable location.

1. The motor-area is located in the convolutions bounding the fissure of Rolando and those adjacent thereto; those of one hemisphere control the movements of the opposite side of the body, while the general arrangement of the centers is in inverse order to the location of the parts controlled; the highest centers being for the leg and foot while the lowest are for the face, etc. As most people are right handed the left side of the brain is best developed and usually marks the location of the special sense areas.

The upper third of the anterior and posterior central convolutions and that joining them controls the actions of the lower extremities; the toes being controlled by the most posterior part and the foot, leg and thigh in the order named from behind forward.

Immediately below in both convolutions for a distance of about one inch are found the areas which control the action of the shoulder, arm, wrist and hand. The former being located above, in the anterior central convolution, while the hand is governed by the area below, in the posterior central convolution,

The lower third of the Rolandic region marks the location of the areas controlling the movements of face, tongue, etc.; the cheeks and eyebrows being governed from the upper and anterior part, the tongue and larynx by the lower and anterior part, while the movements of the mouth and pharynx are controlled by the lower and posterior part.

In the posterior part of the superior frontal convolution the center for the muscles of the trunk is found. (Horsley.)

The posterior part of the middle frontal convolution controls the movements of the head and eyes, the former being located above the latter. Stimulation causes conjugate movement in the opposite direction.

The tactile sensory areas are apparently located in connection with those motor centers found in the posterior central convolution, which will have been recognized as controlling the most intricate and delicate movements of the body, especially those of the toes, fingers and lips. Immediately behind these centers the area for muscular sensation is also supposed to be located.

2. There are four speech areas which are all located on the left side of the cerebrum in right handed persons and on the right side in left handed persons.

The motor speech area is located in the posterior part of the third or inferior frontal convolution and controls the movements concerned in the act of speaking. Destruction of this area causes motor or ataxic aphasia. When it is only partial it may be manifested by an inability to use certain words or properly place certain letters.

The auditory speech area is located in the superior and middle temporal convolutions. Destruction of this area causes a loss of memory of word sounds—word deafness. The patient is unable to recall the names of objects or to understand the language spoken.

The visual speech area is located in the lower parietal region, in the angular gyrus. Its destruction causes loss of the power to read or understand written language—word-blindness.

The location of the area giving us power to write is not definitely determined. There are evidence that it is located in the inferior parietal region bu

there have been cases in which destruction of the motor speech area has caused its loss—agraphia.

3. The visual area or sight center is located in the cuneus and cortex of the occipital lobe. As each lobe receives impulses from half of both eyes, a lesion causes hemianopsia, half blindness in both eyes, and the field of blindness is on the opposite side of the lesion, according to Starr, while the Charcot theory is that a lesion of one center causes total blindness of the opposite eye.

4. The auditory area is located in the first or superior and second or middle temporal convolutions. Each ear being connected with both hemispheres, the effect of a unilateral lesion is only partial deafness and is usually not noticed. Bilateral lesions cause total deafness.

5. The area for sensations of smell and taste is located at the tip of the temporal lobe on its inner or under surface. Each lobe is related to the organs of both sides and hence unilateral lesions cause only diminished function.

The location of the psychic center is undecided. Lesions in the frontal lobes have been manifested by little else than mental symptoms, while lesions have been found, postmortem, in the frontal lobes of subjects who have been free from any mental symptoms.

The symptomatology of lesions limited to the basal ganglia is unknown. It is only when the lesion encroaches upon the internal capsule or some radiating or connecting fibers that symptoms are produced.

Lesions in the pons and medulla give rise to irritation or destruction of the cranial nerve centers of the particular region involved.

The cerebellum controls the equilibrium of the body and, therefore, disturbance of its structure is productive of vertigo and staggering.

The works of Ferrier, Horsley, Henschen, Knapp's table in "Strümpell's Practice," Starr and others present the subject more in detail. The diagnostician who contemplates work in this class of diseases should master at least this much of what is known about cerebral localization while the operator should, in addition, be able to locate the areas on the surface of the skull.

The subjects which will briefly claim our attention are trephining for fractures of the skull, intra-cranial hemorrhage, suppuration and tumors, epilepsy, insanity, imbecility, hydrocephalus, removal of Gasserian ganglion and for pain.

Fractures of the skull.—This subject is considered because it is so frequently attended by evidences of injuries to the brain and its coverings and especially as the expectant treatment thereof is a potent factor in producing those pathologic conditions—hemorrhage, inflammation, abscess, etc.—for which we are called upon to operate subsequently.

Fractures are divided into simple, compound, complicated and depressed. A simple fracture is one unattended by a wound; a compound, one connected with a wound; a complicated, one accompanied by extensive damage to overlying soft parts, or positive injury to the brain or its membranes or to the vessels, or by an infection of the external wound, and a depressed fracture is one in which one fragment is lower than normal and which may or may not be attended by symptoms of cerebral compression. A depressed is a complicated fracture and it may be either simple or compound. Frequently, as in gunshot wounds, we find the three latter divisions associated.

In the absence of a wound, the diagnosis of a fracture is frequently purely conjectural. The nature and direction of the operating force should always be carefully considered. The presence of a well defined swelling with sharp borders due to an exudate or blood clot in the scalp or beneath the periosteum may readily lead one to believe that a depressed fracture is present when, in fact, there is only a circumscribed contusion. Likewise the possibility of congenital and other defects in bone should be considered.

When there is a wound it is, as a rule, easy to determine the condition of the bone although it may be necessary to enlarge the opening to definitely settle the question.

In every case in which there is doubt, the scalp should be sufficiently incised to fully expose the area and admit of a thorough digital and ocular examination. Two preliminary conditions are however requisite: 1, the area should be thoroughly shaved and rendered positively aseptic; 2, the operator should be prepared to perform any operation which the local conditions indicate. There has been much discussion as to the treatment of skull fractures, which has resulted in the formulation of many sets of rules to govern the surgeon. It, however, remains a fact that even those of largest experience are frequently at a loss to know whether to operate or not in a given case. In compound fractures some sort of an operation is always indicated for the excision of bruised and lacerated tissues, the removal of splinters of bone and foreign bodies, the elevation of depressed bone, controlling of hemorrhage, and at least for the proper closure of the wound. In bullet wounds it is generally conceded to be best to leave the missile undisturbed, unless it can be definitely located in a superficial position, the injury to the skull being treated as a compound fracture. The question of drainage must be decided upon the indications of each case. The frequency of the occurrence of traumatic epilepsy and other serious secondary effects, from the old plan of treating fractures of the skull and the fact that when properly performed the operation of trephining is practically without mortality, has led to the establishment of a more advanced plan of treatment in this class of cases. Even in simple fractures the patient should be subjected to operation when there is depression of a fragment or where there are evidences of injury to the intracranial tissues. The full extent of the damage can be determined only by this method, while anything short of it does not permit of adequate treatment where so much is in doubt. If more fractures were thoroughly exposed, more depressions would be detected, and if more depressed fractures were elevated, more blood clots turned out and more spicula of bone removed by trephining, as a primary operation, we would have less epilepsy and other sequelæ which are so frequently traceable to a trauma of the head.

In all cases of fracture of the skull the general treatment should comprise complete physiologic rest, free intestinal and renal elimination and, if necessary, the application of ice to the head.

Intracranial hemorrhage.—In cases when progressive symptoms of compression supervene upon the receipt of a trauma, which are attended by the manifestation of stimulation (irritation) or paralysis of a motor area the diagnosis of hemorrhage is probably justifiable. The gradual development of stupor followed by coma and stertorous breathing, a slow pulse,

a dilated pupil and a rise of temperature to less than 103 degrees makes the symptomatology complete. The differentiation between extra-dural and intra-dural hemorrhage is not sufficiently determined to be of practical value.

Statistics demonstrate the demand for operation in cases where any considerable amount of hemorrhage has probably occurred. Park gives Weisman's reports in which of 147 cases treated expectantly, 131 died, while of 110 treated by operation only 30 proved fatal. Selection of cases would undoubtedly improve these figures. It should be remembered that most hemorrhages occur from the middle meningeal artery and that they are most frequently extra-dural. Where the focal symptoms point to compression of the opposite side the operation should be performed on the side presenting the symptoms.

Intra-cranial suppuration.—This class comprises abscess, suppurative leptomeningitis and thrombophlebitis. Abscess of the brain may be traumatic or non-traumatic. The former variety may develop either soon after a traumatism or years later. Where a wound has been present it is usually indicative of its having been the seat of prolonged suppuration. The non-traumatic variety is usually the result of the extension of an infection from the middle ear, although it may follow an orbital or nasal infection, or may be of metastatic origin. One of the strangest features of cerebral abscess is the great variance of the time of its occurrence. The symptoms of an acute abscess may subside or none may appear, and yet, from some unknown cause, months or years afterward, the symptoms of abscess suddenly develop. Nature has probably succeeded in confining it to a definite region and if that happens to be in an unimportant area of the brain no symptoms may be occasioned thereby, until the protecting wall gives way, when all evidences of an encephalitis are manifested. In making a diagnosis we should always look for a traumatism or a primary suppurating focus, as upon its presence or absence may rest the differentiation from cerebral tumor. In addition to the headache, vomiting, vertigo and symptoms of pressure there may be fever or a subnormal temperature with the probable absence of ocular evidences. In latent abscesses the symptoms are especially obscure and its diagnosis often impossible. Abscess following middle ear disease is of frequent occurrence and deserves much more attention than is usually accorded to it and demands radical treatment. Suppurative otitis may be followed by a leptomengitis or a septic thrombo-phlebitis and abscess. If the perforation is upward the lesion will be located in the temporo-sphenoidal region ; if backward, in the cerebellar region, while if by an extension of the process through the mastoid veins it will cause a thrombo-phlebitis of the sigmoid sinus.

The intimate connection of the mastoid veins with the lining of the mastoid cells and the sinus render infection by this route especially likely to occur. The differential diagnosis of the various forms of intracranial infection is not always possible since two or more varities are likely to be associated. Jansen has given this subject special study and states that pyemic fever with repeated chills following a suppurative otitis are indications of sinus thrombosis and if these are accompanied by symptoms of vertigo, restlessness, nausea, rigidity of neck, stupor, etc., operation is demanded. ("Ann. Surg." Vol. xxxiii.) The statistics are very favorable to radical operative treatment.

The treatment of suppuration within the cranium should be upon the same principles as in other regions of the body, with special indications for prompt and radical measures, since the prognosis of expectantly treated intra-cranial suppuration is so uniformly bad. When abscesses can be located they should be exposed and thoroughly disinfected and drained, preferably with gauze packing. If the abscess is in the temporal region, Von Bergman ("Ann. Surgery," Vol. xxiii.) advises operating so as to expose the tympanum and then extending the section as the conditions may indicate. Likewise in sinus thrombosis the sigmoid fossa can be easily reached after exposing the mastoid cells. When thrombosis of the lateral sinus is present the condition of the interal jugular vein should be determined, and if it is thrombosed it should be exposed in the neck, and, after ligation below the location of thrombosis, it should be opened and the sinus and vein thoroughly emptied and disinfected. When the symptoms point to a suppurative leptomeningitis the indication is for thorough drainage, the same as for suppuration in any other serous cavity.

The cranium should be trephined below the superior curved line of the occiput and also above the posterior part of the zygoma (Park). These openings will admit of free irrigation and drainage.

Intra-cranial tumors.—The most common varieties of brain tumors are sarcoma, glioma, tubercle, secondary carcinoma, syphiloma and cysts, in the order named. The symptoms of tumor partake of the same general character as those of all lesions which increase intracranial pressure. Persistent headache, intractable vomiting and optic neuritis, with evidences of focal stimulation or destruction and the absence of a primary suppuration focus, are strongly indicative of cerebral tumor, and should differentiate it from other lesions. Our present knowledge of the symptomatology of tumors is not sufficient to enable us to differentiate except in a general way. The smaller, harder, more circumscribed and less vascular the growth the better the prospects of recovery. They are more frequently located in the base and the cerebellum in children, while in adults the cerebral cortex is fortunately most frequently involved.

About one-third of all brain tumors are located in the basal ganglia and, therefore, situated in a surgically inaccessible region. Nearly one-fourth of the tumors given in "Starr's Tabulation" were located in the cerebellum, whence tumors are excised with the greatest difficulty. One-tenth of the number were multiple in character. The remaining tumors were located in accessible regions. Of these many did not present the necessary focal symptoms, while others were of such size or character as to have precluded their removal. It is then definitely understood that only about 6 per cent. of all brain tumors can be successfully removed by operation. The fact that the diagnosis as to character and location of the lesion is frequently obscure, and that when made it is frequently erroneous, coupled with the inoperability of such a large percentage makes the present field of operative treatment of brain tumors very limited and the prospects for relief in general poor indeed.

Cases of syphilitic and even non-syphilitic growths have been relieved by antisyphilitic treatment, therefore, all cases of tumor of the brain should be subjected to a course of heroic treatment for at least three

months before operation is resorted to. Notwithstanding the limits of the operation and the recognized dangers of the procedure, we must remember that cases which are not relieved by medication gradually grow worse, until life becomes one of mental degeneration and often one of great misery.

In nearly one hundred recent cases collected by Starr the results of the operations have been successful in 46 per cent. The result of operation in cerebral tumors is more favorable than in those located in the cerebellum. Even in cases where we are unable to definitely locate the growth, exploratory operation seems to be justifiable when the hopelessness of the case is considered. The opening of the cranium frequently relieves the suffering of the patient by reducing the intra-cranial pressure.

Brain tumors which can be diagnosed and located in the accessible parts of the cerebral cortex should be exposed by operation after a thorough course of medication. If the tumor is circumscribed, hard and superficial, the prospects for a cure are good. In operating upon cysts it is necessary to remove its walls to prevent recurrence. Filling the cavity resulting from operation with goldfoil, as advised by Estes (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1896) has not been sufficiently practiced to render its general use advisable.

Epilepsy.—Two forms of epilepsy are amenable to operative treatment: Jacksonian and traumatic. General epileptic attacks, unaccompanied by a definite premonitory aura and in which the convulsion does not begin in any particular group of muscles, are generally not amenable to operative treatment, since one of the preliminary requisites to successful brain surgery, definite location of the lesion, is absent.

When the convulsion uniformly begins with a spasm in a distinct group of muscles or adjacent groups, trephining is a justifiable procedure. Any lesion which causes stimulation or compression of any area of the cerebral cortex may cause epilepsy. The various forms of meningitis, cysts, new growths, localized hemorrhage, arterio-venous aneurism, circumscribed encephalitis, and bone fragments are the principal sources of irritation. The large majority of these may be traced to some trauma, although there may be no external evidences of it. In addition to these cases, resulting from some local disease, we find a class which results directly from trauma. Wounds of the head are much more frequently followed by epilepsy than wounds of other parts of the body. This is especially noted where there has been injury and depression of the skull which has been expectantly treated. A cicatrix of the scalp may be the source of sufficient irritation to produce epilepsy, in which case its removal may effect a cure.

In cases where the location of the trauma can be definitely located, but in which the epileptic attack begins in another region, it is best to expose the focal area involved, and if no lesion is found the point of injury can then be trephined. It will frequently be practicable to expose both areas in the same opening. Some surgeons also believe in trephining at the point of the trauma or depression, even when the attacks are not focal but general in character. This is especially feasible where the trauma is located in some region the function of which has not as yet been determined. In those cases of focal epilepsy in which no lesion is found on exploring the brain, it is advised by some operators to ascertain by faradic stimulation the exact point from which analogous movements originate and to excise it. The resultant paralysis gradually disappears if the area removed has been small.

The results of operations for epilepsy have not been as encouraging as we had reasons to hope for. Starr explains this fact upon the theory that the disease of the brain can not always be eradicated, and that while we can break up adhesion and remove scar tissue, the healing process results in the formation of new adhesions and new scar tissue; the new conditions resulting in the return of an epilepsy which may for a time have been apparently cured. Many operators seek to prevent the adhesion of brain to meninges and bone by the interposition of a sheet of gold foil (Park). Abbe and others have used rubber tissue successfully.

The writer, not long since, operated upon a patient for the closure of a bone defect resulting from a former trephining, for epilepsy, in which several strips of rubber tissue had been interposed between the membranes. The individual strips were found completely surrounded by scar tissue and the ends of two had been transposed to the outer side of the skull. Had a large single piece been used instead, the scar tissue would undoubtedly have been less, and the adhesion to the periosteum more likely prevented.

Indiscriminate operating upon the brain for epilepsy should be discouraged, but, on the other hand, in recent cases of traumatic epilepsy with distinct focal symptoms, the operation is not only admissible but should be strongly advised. The earlier the operation after the development of epilepsy the better the prospects for cure.

The statistics concerning a procedure, the technique of which is being constantly improved, are of but little value, except when confirmatory in character. Operations for epilepsy during the past few years are more successful than those made in preceding years. So many cases have been reported in the various standard medical journals, by reputable surgeons, that there can be no question but that many cases have been permanently cured, and as it is yet impossible to differentiate, without operation, between the various pathologic lesions, and especially since the mortality of trephining is very small and the number of recoveries on the increase, the operation is surely a justifiable one in proper cases.

Hydrocephalus.—Tapping and draining the ventricles through a trephine opening has been carefully considered by Keen, who was the first to tap the ventricle in this country, and others (*Medical News*, 1888). The object of the procedure being to relieve symptoms due to marked intra-cranial pressure, its scope is necessarily very limited. It may result in the cure of a primary case of hydrocephalus, as in Broca's case ("Brain Surgery," Starr) and that of Parkin (*Lancet*, No. 3664). As a palliative procedure it may be occasionally indicated during the course of a cerebral tumor, etc. When indicated it should be performed through a small trephine opening placed one and one-fourth inches above and one and one-fourth inches behind the external auditory meatus. A trocar should be introduced and a capillary or tubular drain inserted.

Imbecility and microcephalus.—Operations for the relief of these conditions have been performed with some degree of success; serious symptoms have been relieved and in some cases cerebral development has apparently been stimulated. In cases of arrested

development as from the presence of clots, cysts or tumors, or where premature ossification of sutures has occurred, operation may improve the condition of the patient. It should never be performed in patients over 8 years of age or in those especially weak. The cases in which an operation is justified are very rare. A sufficient number of cases have now been subjected to operation to definitely settle the fact that most of these unfortunate patients are beyond the relief of surgical treatment. An occasional brilliant success will, however, keep the profession awake to its value and, even admitting the hopelessness of this class of cases and the dangers of the operations, it is certainly a proper procedure in a small select class of cases. While Park and others believe that if one in twenty are rescued it is to be advised, Senn and others believe the procedure unwarrantable. The operation—craniotomy or craniectomy—should be extensive but preferably on one side at a time. Park prefers elevating the scalp and pericranium at one time and on a subsequent day removing the strip of bone and corresponding periosteum; this plan shortens the operation and lessens the mortality from shock, etc.

Insanity.—In cases in which mania has followed a definite trauma, which can be positively located, and in which the symptoms do not improve within a reasonable time and under appropriate medical treatment, the patient should be subjected to an exploratory operation in the hope of finding some removable cause for the symptoms presented.

Trifacial neuralgia.—This subject is merely mentioned because the removal of a part of the Gasserian ganglion requires the opening of the calvarium. The uniformity with which sections of the distributing branches of this nerve are followed by a return of the symptoms had induced some operators to advocate the removal of the Gasserian ganglion as a primary operation. As yet, this is not a justifiable procedure, but as a secondary operation for the treatment of inveterate, recurring tic douloureux it is certainly warranted. The basal method of Rose has been superseded by the Krause-Hartley osteoplastic flap operation. The ganglion can be readily reached by an opening in the temporal region, which admits of elevation of the temporal lobe. It is impossible to remove the first division of the nerve without injuring the cavernous sinus and adjacent nerves. The other divisions can be divided and removal of much of the ganglion by divulsion readily effected. The procedure is very difficult and the mortality is large, but in severe cases it should be advised. Nerve union by regeneration has been prevented by Abbe by the interposition of a small piece of aseptic rubber tissue ("Annals Surgery," Vol. xxv).

Operation of trephining.—This operation formerly indicated the use of the trephine only, but by common custom it now includes opening the skull by any method. It is performed for the following purposes: 1, for the relief of compression from depressed bone, blood clot, abscess or serous effusion; 2, for relief of intra-cranial irritation; 3, for the removal of tumors; 4, for defective development; 5, for the removal of foreign bodies; 6, for the removal of the Gasserian ganglion; 7, for exploration.

In no class of operations is absolute asepsis so imperatively demanded as in brain surgery. The scalp should be prepared by shaving and thorough disinfection with soap and ether twenty-four hours before the operation, if possible, and the wearing in the meantime of a dressing of 1–2000 bichlorid solution. The parts should again be disinfected after anesthesia has been produced. Chloroform preceded by the hyperdermic administration of a liberal dose of morphin should be preferred to ether, as it causes less cerebral stimulation and congestion. One of the essentials to successful operative work is the location of the important centers on the surface of the scalp. The fissures of Rolando and Sylvius should be carefully outlined on the surface of the scalp and the points should be indicated on the bones by the punctures of a drill. The fissure of Rolando is outlined by a line three and one-half inches long, drawn at an angle of 67 degrees to the median line, from a point 56 per cent. of the distance backward from the glabella (root of nose) to the inion (external occipital protuberance). For practical purposes the line begins one-half inch behind the point midway between the root of the nose and the occipital protuberance. This line, with the proper angle, can be readily outlined by folding a piece of paper so as to make an angle of 45 degrees, and then 22.5 degrees which, added together, makes the requisite angle of 67 degrees. The fissure of Sylvius is located in a line drawn from a point one and one-fourth inches behind the external angular process to a point three-fourths of an inch below the most prominent point of the parietal bone. For general purposes the line drawn from the external angular process to a point three-fourths of the distance backward from the root of the nose to the occipital protuberance will make the line of the Sylvian and the external occipito-parietal fissures, the fissure of Sylvius beginning one and one-fourth inches behind the external angular process. Reid's base line is drawn from the inferior margin of the orbit through the external auditory meatus. It is frequently utilized in locating the above-mentioned fissures. The incision should invariably be of the horse-shoe shape with the base downward toward the source of blood supply; the same to be modified as necessity may indicate. The opening in the skull can be made with a trephine and enlarged if necessary by the use of a rongeur forceps, a propelled circular saw or by the chisel and mallet. Each has its special indications and use, but the use of the chisel and mallet is undoubtedly increasing in favor. The special advantages of this method are the ready accessibility of the instruments; the method permits of making any shape and size of section; admits of preserving the nutrition of any sized section; is easy of performance and is a safe method, being practically free from danger. The dura should be opened at least one-fourth inch from the edge of the bone so as to admit of suturing latter. Hemorrhage from the diploe can be controlled by crushing, by plugging with decalcified bone or with Horsley's aseptic wax. Hemorrhage of the pia mater can be controlled by clamps, ligature of vessels, or pressure with gauze compresses. Park advocates the use of 5 per cent. solution of antipyrin. The brain can be safely explored with the exploring trocar. Incisions in the brain should be made with the scalpel. Cavities should be filled by gauze packing. Adherence of the brain to the dura or of dura to superficial scar can be prevented, it is claimed, by the intervention of gold foil, as advised by Beech of Boston, or by the use of rubber tissue as practiced by Abbe, or of a thin celluloid sheet, as employed by McCosh ("Annals Surgery," Vol. xxii).

The opening in the skull can be closed by various

methods. A trephine opening can be closed with the removed button properly supported, or by the implantation of small fragments of bone, or bone saw-dust, or the outer table of another area of the skull can be loosened, but left attached to the periosteum and transposed to cover the defect (Nicoladoni; "Ann. Surgery," Vol. xxiii). Bone chips can be obtained by the use of the chisel or gouge on the adjacent sound bone, and should be placed on the dura, as a mosaic, with the outer side downward. These plans are known as autoplasty. By heteroplasty is meant the insertion of a piece of foreign material, as celluloid or aluminum. All of these methods are valuable and the circumstances will necessitate the use of each at times. In the replacing of large and numerous fragments after extensive fractures of the skull I have repeatedly made a satisfactory support, by making a frame work of catgut strands, which are placed in the periosteum loosely, forming a mesh not unlike loose darning. Undue pressure and unevenness can thus be readily prevented. The indications and conditions of each case must decide the question as to the use of drainage. Where there is doubt it is best to leave the wound open or provide for the free exit of blood, etc., by drainage.

1008 Fisher Building.

ORIGINAL ARTICLES.

OBSTRUCTION OF THE BOWELS.

Presented to the Medical Association of Missouri, May 20, 1897.

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"Obstruction of the bowels" is a technical phrase which implies a mechanical obstacle to the onflow of the intestinal contents. Its causes are various and the obstruction may be complete or partial, acute or chronic. It may occur at any portion of the intestinal tract from the duodenum to the rectum. It may be due to conditions that are congenital or may be acquired. But whatever may be the character of the obstruction the one striking fact dominates all considerations relating to treatment—it is a mechanical obstacle. A simple reference to the schedule of causes, revealed by postmortems, establishes this fact and demonstrates as well the utter uselessness of medical measures.

It is impossible here to more than outline the symptoms, diagnosis and treatment of obstruction of the bowels, acute and chronic. It is neessary to deal with these two groups separately.

In the classification of intestinal obstruction it is necessary to take into consideration both the pathologic anatomy and clinical aspects of the subject and study the relations of one to the other.

A careful collection of a large number of cases examined postmortem has shown that one of the following causes is responsible, with rare exceptions, for every case of obstruction with which we meet: 1, internal hernia; 2, twists (volvulus); 3, bands of some kind; 4, fecal impaction; 5, mechanical pressure of tumors; 6, stricture; 7, contractures due to matting together of intestinal coils from peritoneal and cancerous diseases; 8, intussusception; 9, gall stones; 10, enteroliths; 11, foreign bodies. A more practical classification, however, is that in which all cases are divided into acute and chronic.

A study of the pathology in connection with the clinical history reveals a striking relationship between the causes and the group of symptoms which are associated with them. Thus, of the causes leading to acute obstruction we have: 1, internal hernia; 2, twists (volvulus); 3, bands; 4, intussusception; 5, gall stones. Of the leading causes of chronic obstruction we have: 1, fecal impaction; 2, mechanical pressure of tumors; 3, stricture; 4, contractures; 5, intussusception, which may be and is sometimes chronic.

So constant is the relationship between primarily acute obstruction and the causes grouped above that we can say that any given case is due to one of these, and the same may be said of primarily chronic cases.

Symptoms.—In acute cases these come on suddenly in a previously healthy individual and are striking and characteristic. The attack is sudden and acute. Pain is paroxysmal, central and fixed. Vomiting sets in early, first of the contents of the stomach, then of the duodenum, then of the small intestines and rapidly becomes fecal. The patient becomes faint, pale and markedly collapsed; constipation is absolute, not even flatus escaping from the bowels. Distention of the abdomen rapidly takes place and distended coils of intestines may often be both seen and felt. The urine may be scanty or even suppressed.

It will be seen that these are the symptoms of acute strangulated hernia. And why not? There is the same interruption to the onflow of the intestinal contents, the same obstruction to the blood current; the same disturbing and depressing effect on the nervous system, the same violent peristaltic action in the endeavor to overcome the obstruction and push on the obstructed contents, the same paroxysmal pains and eventually the same fatal result from precisely the same causes.

When, therefore, we are confronted with a case presenting such a group of symptoms there can be no doubt as to the diagnosis. A dire disaster has befallen the patient. Death confronts him and only the coolness, the courage and skill of the surgeon can rescue him from its grasp.

The bowels do not move. Shall we give purgatives? Already the bowel is making frantic efforts to force the blockade. Shall we stimulate it to more furious efforts to accomplish the impossible? No. It would be gross malpractice.

The patient suffers great pain. Shall we give opium? If it be used only as an adjuvant to annul pain, to relieve collapse, to restore the action of the kidneys, if it is administered for these purposes only while the surgeon prepares to relieve the strangulation, yes. If it is given with any curative purpose, then emphatically, no. We do but invite euthanasia. The patient relieved of his suffering is deluded with the idea that he is doing well, the doctor no longer assailed by the cries of the patient, too often hesitates and the golden moments slip by, during which the patient might be rescued from an otherwise inevitable doom. When the diagnosis is once made every hour of delay is compromising his safety. The bowel is damaged, peritonitis sets in, collapse ensues and the patient dies in spite of the delayed operation.

When the diagnosis is made celiotomy is the only thing consistent with that condition. If there be any doubt an exploratory celiotomy should be done to remove that doubt.

It is scarcely worth the time to discuss certain measures that are advised in these cases. Of what use is

irrigation or lavage of the stomach except for the purpose of putting the patient in a better condition for operation or distention of the colon with fluids, except for the same purpose. Tubage of the colon is a delusion; manual exploration of the rectum is a bit of brutal manipulation rarely justifiable. Taxis and massage, though lauded by that master in surgery, Jonathon Hutchinson, is useless and dangerous. Compression of the abdomen is a waste of time. None of these are curative and they but serve to divert the attention from the one thing that can relieve the difficulty.

I have been thus earnest in advocating early operation in these cases because I have seen them treated by the exhibition of the most powerful purgatives, by the administration of a quarter of a pound of liquid mercury, by delay extending over days, until the onset of peritonitis, the moist clammy skin, the hiccough, the stercoraceous vomiting, the quickened pulse, proclaim any operation useless.

A few words must be said in regard to the differential diagnosis and treatment of acute intussusception, for while it presents the usual symptoms of obstructions of the bowels, there are certain symptoms peculiar to this accident. By the term intussusception we mean the inversion or prolapse of a portion of the bowel into the lumen of the part immediately adjoining. No portion of the bowel is exempt from this accident, though the relative frequency varies in different portions of the bowel. In the inversion of the finger of a glove we have an exact representation of what takes place in intussusception, except that in the inversion of the bowel the mesentery is carried in with the intussusceptum.

The rôle played by the mesentery is important. As the invagination extends the traction upon it increases, the tumor of which it forms a part is rendered somewhat crescentic, the pressure on the lumen of the bowel is increased and the facility of its reduction greatly interfered with. The most frequent variety is the ileocecal, the next the enteric, then the colic, while the ileocolic is the least frequent.

It is well to remember that intussusceptions occur in the dying. But as they give rise to no symptoms during life, indeed are discovered only postmortem, they do not concern the surgeon. The absence of all indications of congestion or inflammatory action and the facility with which they can be reduced render the diagnosis postmortem easy. In intussusception the constipation is not so absolute except in the very acute cases. A certain amount of diarrhea at the onset is frequent in a large proportion of the cases, constipation becoming complete toward the close of the case.

In consequence of the great engorgement of the invaginated portion of the bowel (the intussusceptum) a certain amount of blood is found in the stools. Tenesmus is a striking and usually an early symptom and the occurrence of marked tenesmus with bloody mucus in connection with other symptoms of obstruction is almost pathognomonic. It is often mistaken for dysentery. Vomiting is usually not so marked or distressing a symptom in intussusception. The presence of a tumor formed by the invaginated bowel can in nearly 50 per cent. of the cases, be felt. It can more frequently be recognized in children than in adults and is somewhat sausage-shaped. It is most often to be felt over the transverse and descending colon. When it can be found it is a great aid in diagnosis.

In the ultra acute cases death follows within twenty-four to forty-eight hours; they are always fatal, in fact. Fortunately the ultra acute cases are rare.

As to the treatment, I have succeeded in relieving quite a number of cases by distending the lower bowel with air or gas. I believe that an early resort to this method, before adhesions between the different layers of peritoneum have taken place, will often prove successful. Failing in this, an early resort to celiotomy is demanded to reduce the invagination. This is much more readily accomplished before the great engorgement of the invaginated portion has taken place and peritonitis with adhesions of the peritonal folds has set in.

The reduction of the invagination is best accomplished by a process of pushing the intussusceptum out from below while slight traction is made from above. A direct pull on the invaginated portion of the bowel is apt to lead to tearing of its walls, and the danger is the greater the longer the invagination continues. Obstruction in some of its forms is by no means infrequent nor is the diagnosis always easy. In fact, judging from the injudicious treatment adopted we must believe that the true condition is not recognized or at least not appreciated in many cases. Postmortem investigations have thrown a flood of light on these cases and every fairly-well posted practitioner should be familiar with their pathology.

While it would be desirable to make a differential diagnosis as to the clinical cause in every case, it can not be expected to do more than approximate the special cause in a given case. Nor should it influence the course to be pursued. The suddenness with which appendicitis develops, the severity of the pain the tendency to collapse and the occasional vomiting might mislead the practitioner and lead to some confusion as to the diagnosis as between obstruction and that disease. But the consideration of a few points of difference ought to clear up the diagnosis.

Appendicitis is an inflammatory affection *ab initio* In obstruction, inflammation is a secondary affair.

The peritoneal irritation developed in appendiciti often causes great tenderness all over the abdomen most marked, however, over the region of the appen dix, and later receding until it is limited to tha region.

Pressure over the abdomen in obstruction ofte adds to the comfort of the patient.

The pain in appendicitis is more continuous an localized. In obstruction it is central and paroxysma Vomiting in appendicitis is by no means constan In obstruction it is rarely absent. In short, the arre of peristalsis resulting from inflammatory condition leading to a quasi obstruction has no place in thi discussion.

Internal hernia must be reduced, volvulus must b untwisted, bands must be divided, etc.

Chronic obstruction of the bowels is marked b symptoms quite distinct from those of the acute. will be found generally that there is a history of lon standing trouble of the bowels, some colicky pain difficulty of getting the bowels to move, and the may be blood or mucus in the stools and a change the form and character of the passage. At one tim diarrhea may be present, at another constipation, et These symptoms gradually increase in severity un the patient dies from exhaustion, or it may be acu symptoms supervene upon the chronic and the patie dies from collapse or peritonitis. The history

one of chronic obstruction and though the patient may have, when seen, tympanitic distention, paroxysmal pain, visible peristalsis, vomiting, hiccough, etc., the cause will be found to be one of those I have enumerated, viz.: fecal impaction, pressure of a tumor, stricture of the bowel or contractions.

The most frequent of these is stricture of the large or small intestine. About 60 per cent. of the cases of chronic obstruction from all causes, examined post-mortem, have been found to be due to this cause, only 25 per cent. having been found in the small intestines, showing an immense preponderance in favor of the large bowel. In fact, it may be said that stricture is the cause of obstruction in the large bowel while "contractions" are the almost invariable cause of obstruction of the small. Strictures are, with few exceptions, cancerous and epithelial in character.

In a table of ninety-eight cases, compiled by Treves, the relative frequency of the different portions of the large bowel involved was as follows: Rectum and sigmoid flexure, 58; descending colon, 11; splenic flexure, 7; transverse colon, 7; hepatic flexure, 9; ascending colon, 2; cecum, 4.

The symptoms of stricture are alternating constipation and diarrhea, frequent mixture of blood and mucus with the stools and pain in defecation. When low down in the rectum the tumor can be felt with the finger, a means of diagnosis that should never be omitted. When in other portions of the colon it may often be felt through the abdominal parietes. The abdomen may be distended and, when distended, is most marked in the lumbar and epigastric region, in short, in the line of the large bowel. Large coils of distended bowel with visible peristalsis are often seen, the result of the hypertrophy of the muscular coat, brought on by the increased peristalsis, extending over a long period of time, to overcome the resistance offered to the onflow of the intestinal contents.

The treatment of stricture of the colon depends somewhat on its location. If it be the rectum, extirpation of the entire growth at an early period is the remedy. If higher in the bowel resection in favorable cases, and when this measure is impracticable, colotomy at a point above the stricture is indicated.

"Contractions," so named by Fagge, are a cause of obstruction in the small bowel and due to the matting together of the coils of the intestines from peritoneal and cancerous disease. In these cases the normal peristaltic action of the bowel is interfered with by the adhesions of the adjacent coils, by the bending and doubling of the bowel upon itself, thus interfering with the passage of its contents. This leads to the griping colicky pain often associated with the sick stomach coming on an hour or more after the ingestion of food and during the passage of the chyme through the obstructed portion of the bowel. Some distention may occur during the attack and, if so, is central and hypogastric; in other words, in the region occupied by the small intestines. The intestines will be seen writhing and coiling, a gurgling produced by the movement of the gases, and distinct peristaltic movements are perceived. With the escape of the contents through the obstructed portion of the bowel the patient is relieved of pain and discomfort until after the next meal, when the same symptoms recur. As there is no trouble with the large bowel the actions are normal and painless.

Something like 30 per cent. of the cases of chronic obstruction are due to this cause. The treatment must be plainly palliative, consisting in a careful regulation of the diet and the administration of mild laxatives. Should the symptoms become more urgent and the suffering great, enterotomy should be done and an artificial anus established.

As regards the obstruction caused by tumors, the treatment resolves itself into the treatment of the tumors themselves, though colotomy may be required in certain cases.

Last but not least in importance are those cases of obstruction due to the accumulation of feces. The importance of examining the rectum in all cases of obstruction of the bowels is emphasized in these cases. A source of error in the diagnosis in this condition is the fact that a quasi diarrhea may exist. While the bowel is loaded with fecal matter, a channel may be furrowed by the side of the mass, by which the thinner contents of the bowel higher up make their way and escape from the anus. It is not a rare thing to find that the practitioner has administered anodynes and astringents to control this supposed diarrhea.

The foundation of this condition is an habitual constipation brought on usually by sedentary habits, neglect of the individual to heed the desire to act, a gradual diminution of the reflex excitability of the spinal centers and such a stretching of the bowel that it fails to take cognizance of the presence of fecal matter.

This chronic constipation may lead to that condition known as "ileus paralyticus," in which a considerable portion of the bowel may become incapable of peristaltic action and absolute obstruction occurs. A mass of fecal matter accumulates in this section of the bowel and the portion above is incapable of exercising sufficient force to push it along. With time the accumulation becomes harder and harder, the bowel below has a tendency to contract and adds to the difficulty of emptying it. The continued accumulation of fecal matter distends the bowel still more until rupture may take place. Ulcerations are frequent and peritonitis may develop. Like all other forms of chronic obstruction the symptoms are likely to become aggravated and eventually to become acute.

The length of time during which the bowel may remained blocked is in some cases astounding. Dr. Thos. Strong reports a case in which no evacuation took place for eight and a half months. The extent to which the colon may become distended is very great. In a case which I saw some years ago, a prominent business man of this city, the whole colon from the cecum to the sigmoid flexure was filled and it could be felt as a large roll movable laterally, swinging upon the meso-colon, and evidently several inches in diameter. The presence of such a mass in the large bowel is a diagnostic feature of great value. In the descending colon and sigmoid flexure this accumulation may be divided into scybalous masses, forming what has been compared to a large rosary.

Would any one regard the use of purgatives as a rational method of treatment in these cases? I think not. It would not only be useless but as illogical as an attempt to force out a cork from a bottle by explosives from within that might more readily be extracted by a corkscrew.

The treatment of these cases should consist in the repeated and copious enemata of warm water, with or without the addition of other ingredients such as tur-

pentine, soap, oil, etc. To be effective the enemata should be introduced slowly with the patient in the knee-chest position, so that the fluid may traverse the whole length of the colon. Massage may be resorted to advantageously as well.

Cases occur where none of these measures prove effective in breaking down and dislodging these fecal masses and the symptoms of obstruction persist. The surgeon is then left the alternative of opening the abdomen and, by direct manipulation of the bowel, compressing and pushing on the accumulation to a portion of the intestine still capable of peristaltic action.

Should the existence of ulceration or peritonitis or other conditions forbid such a course, colotomy would be advisable, removing the fecal matter through the opening and subsequently stitching it up or establishing an artificial anus as might seem best.

In conclusion I would submit the following propositions:

1. Purgatives are absolutely contraindicated in all cases of acute obstruction, and are of very limited, exceptional and temporary advantage in chronic cases.

2. The administration of opium as a remedial agent is to be strongly condemned. It literally "smoothes the pathway to the grave," lulls to sleep and lures to death.

3. Obstructions of the bowels are strictly surgical and demand surgical measures for their relief.

NOTE.—In the preparation of this paper I have been indebted to various sources for valuable suggestions, especially to the essay of Mr. Frederick Treves of London on "Intestinal Obstruction."

3101 Pine Street.

RAILWAY SPINE AND LITIGATION SYMPTOMS.

Presented in the Fourth Annual Meeting of the American Academy of Railway Surgeons at Chicago, Ill., Oct. 6-8, 1897.

BY W. W. GRANT, M.D.

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From a certain class of spinal symptoms and nervous manifestations following and believed to be typical of railway accidents, is evolved the use of the term "railway spine." The pathologic lesion is not essentially different from similar lesions occurring under other circumstances and conditions, and the term may not be a happy one.

The element of fear enters largely into these histories. There is a distinct appeal to the mental and emotional, and with a certain similarity in clinical histories and results they have been, and are by many at least, believed to be peculiar to railway collisions; so we are justified, as railway surgeons, lawyers and neurologists, in giving them special consideration. We are, perhaps, familiar with those interesting cases following collisions, called often "spinal concussion," in which there is no evidence of a pathologic or anatomic lesion, by any clinical or scientific tests at our command, but in which the patient complains of persistent pain at some point of the spinal column, attended with various nervous manifestations due to the "shock." These cases never recover until there is a definite financial disposition of them. To such cases, an English jurist has applied the term "litigation symptoms."

The teaching of Mr. Erichsen in applying the term "concussion" to all the structures of the spine is too indefinite in history and pathology, and as it does not represent the best thought and opinion of our time, can not be accepted. Concussion of the cord is definite and satisfactory. The cord is so well protected by its environment that concussion is very rare, though believed to be common from railway collision.

Actual lesion of the cord from injury is usually fatal, and when it does happen it is usually attended with direct and manifest injury to some or all of the overlying structures. Meningitis from concussion is equally rare and usually fatal, from whatever cause. It is not with these and the unmistakable injuries of the spine that surgeons, neurologists, railway attorneys and corporations, have the most trouble. When the surgeon is confident of a serious lesion, his plain duty to both patient and corporation will often prevent lawsuits. Whether his conclusion is just will depend very much upon the character and completeness of his examination. We can not rely too confidently upon our instruments of scientific precision. The dynamometer, esthesiometer, audiometer, ophthalmoscope, battery, etc., can be weakened by elements of fraud and deception. Mr. Page says plainly that "nothing has struck us as more extraordinary in our experience of railway injuries than that in the examination of them all common sense, the best and surest diagnostic guide, should be so often abandoned and reliance should be rather placed on methods of examination which are of scientific value only when every suspicion of exaggeration or imposture can be put away."

Only a few years ago it was said "no electric test has yet been found which is not rather a test of the credulity of him who trusts it." There is much truth in the statement. The reactions of degeneracy can be proven and the test is often of much value, but only in the hands of a scientific expert, who is equally familiar with the nervous and muscular conditions sought to be elucidated. The manner of the examination is often defective and unwise. I have known these examinations to be conducted in such a way as to suggest to the patient symptoms and ideas that he had not thought of before. An intelligent, shrewd or dishonest individual will utilize them to his own advantage and sometimes to the annoyance of the medical witness and expert.

Not only a full account of the nature of the accident, but the history of the patient prior and subsequent to it is of the greatest importance. The previous condition of health, the vocation, moral status, mental bias, the conduct and character are legitimate matters of surgical inquiry and often necessary to an intelligent and satisfactory explanation of the case.

Erichsen in his work on spinal concussion uses this language: "An extensive experience in railway compensation cases will probably impress you more with the ingenuity than with the honesty of mankind. A history of deception, practiced on railway companies by alleged sufferers from accidents on their lines, would form a dark spot on the morality of the present generation." Yet, the writings of this distinguished surgeon gave more character to such claims than any other single agency in this generation, though he did not so intend. I believe the statement of Mr. Page true that "molecular disturbance is not necessarily molecular disintegration or pathologic change, and there is no evidence to show that molecular disturbance is, in itself, a grave condition or likely to have evil results." Otherwise it would be something fearfu

to contemplate the menace to the individual and to the employer from the effects of a jar to the nervous system.

We now know that the serious results from railway collisions are manifested at a very early date after the accident; and in those cases where the symptoms were insignificant or so slight as not to attract the special attention even of the patient and yet at a more remote date, weeks, months or years, serious symptoms present themselves, it will generally, I believe, be found that some constitutional infection, such as syphilis or tuberculosis, is the chief factor in the case. And this is as true of the nervous as of the bony and glandular systems.

We hear now of traumatic hysteria; of the neurosis resulting from shock or injury to the nervous system. Obersteiner has recently said, "where we had hoped to establish a firm anatomic basis, there was only an undemonstrable functional injury of the nervous system, but it is going too far to regard all cases formerly considered as concussions of brain and spinal cord, as purely functional." This is, no doubt, true. It is just as true that most of the spinal cases, so commonly called concussions, are not concussions at all; but if any injury really exists, it is contusion or muscular or ligamentous strain. Many of these cases do not recover promptly, but require considerable rest of the parts. They will recover perfectly, however, unless the patient is imbued with the idea that serious results are quite certain to follow "concussion of the spine" from railway accidents.

Under former professional teaching, the opinion, professional and lay, was quite general that the slighter injuries, called usually concussion of the spine from railway collisions, frequently developed at a later period, serious symptoms often with unfortunate results. This is true only exceptionally. But with real concussion of the cord there are generally other unmistakable evidences of injury, and we are enabled to form an intelligent and more satisfactory opinion as to the future.

Concussion of the cord being the exception and not the rule from railway collisions, we ought to leave the unfortunate errors of the past. It is desirable, as soon as possible, to establish the results of railway injuries to the spine upon a pathologic basis. Deferred shock, of which we hear something, is like some of the manifestations of hysteria, emotional or mental. Those cases with slight complaint or manifestations of injury following railway collisions do not, as a rule, at a late day assume a grave form, but they are apt to become litigation cases.

Our experience with such cases, out and in courts of justice, may be commonplace yet beneficial, and I will give one experience:

Three years ago a Denver woman, aged 34, milliner, was on a Rock Island Pullman car at the time of a collision in Kansas. The immediate attendance of railway officials and a local surgeon discovered no passenger injured or complaining. When the lady reached Denver next day, she sent for her physician, who found her with a slight cold only and did not return. In a day or two the company requested me to visit her and report. Recording the result, I found pulse, temperature and pupils normal and no disturbance of motion or sensation general or special, reflexes normal, but when bending her head and shoulders forward, also on pressure, she complained of pain in the upper dorsal region, but there was no discoloration or evidence of a blow. At time of collision she was asleep, but says her head struck against the headboard, partially doubling her up (which with head toward engine is not improbable). There was total absence of contusion anywhere, but such a position would favor straining or laceration of spinal muscles and ligaments. She came to Colorado eleven years before for supposed lung trouble but had been well ever since. I could discover only a slight cold, resulting probably from delay and absence of fire in a cold season. I gave her a favorable opinion, but from her manner I felt certain she would demand considerable money, so made two or three visits and then had her visit me at my office occasionally for several months, in order to watch developments. To be well prepared, a reputable nerve specialist examined the case at this time, applying all the usual scientific tests and finding no evidence whatever of disease. He asked if she observed any peculiar effects from riding in street cars and, of course she answered "yes." Something, I believe, like fear possessed her. She had never before been affected this way, and but for the suggestion of the examiner, I dare say would never have found it out. She demanded $2000 from the company, was offered $500, brought suit for $15,000 and it was tried in the Federal court two years ago. Notwithstanding dry cupping and rest for two months following the collision, the spinal pain never ceased and she complained subsequently of headache and sleeplessness at times. The day before the trial she was carefully examined again by the neurologist and myself, and pronounced perfectly healthy. She was so well in her pelvic organs as not even to suggest curetting nor a thought of exploratory section. No symptom is of less value as indicating disease of the cord than spinal pain, yet it is ever present and often with varied and ill-defined nervous manifestations.

A year after the accident she testifies that she is not yet able to conduct her business. I testified that she was as healthy a woman probably as there was in Denver; that if suffering, it was from litigation symptoms and from these would not recover until the case was finally settled; that somtimes such condition of the patient was malingering for the benefit of the money consideration involved. With some claimants the feeling was honestly entertained that they were suffering from the effects of injury, and though they were generally mistaken in this, yet there would be no confession of recovery until the case was definitely settled. There can be no doubt that early settlement in undoubted injury favors earlier recovery.

The neurologist testified that this patient, in his opinion, was not suffering from any disease of the nervous system whatever, but when asked on cross examination to give an opinion on the claimant's own statement of her condition, he said, "she might have hysteria." "And is not hysteria a serious disease" was instantly asked and he replied, "frequently, or sometimes, it is." This statement and that of her own physician, that he could find nothing the matter unless it was hysteria, was absolutely the only medical testimony given in her favor, and the only excuse the jury used, if indeed it needed any, for rendering a verdict of $700 in her favor.

Hysteria as a neurosis, or as an expression of disorder of the generative system, is not a serious condition, and I have been often surprised that even medical experts would, upon the witness stand, use the same language and manner before an ordinary jury,

utterly ignorant of the subject, that might be justified before a body of scientific men. This discrimination is an absolute necessity, in the dispensation of justice, to all parties concerned. It is doubtful if a case of importance was ever tried without some medical witness saying something that was unjust to himself and damaging to his cause, and not infrequently because he wished to be supremely scientific and eminently impartial to a body of men incapable of appreciating his meaning.

I meet this woman frequently on the streets of Denver and I have no doubt of her excellent health and her attendance on business.

Within the last year, a Massachusetts lady was on one of the principal trains entering Colorado, when it collided with a snow bank, causing some delay but, on immediate investigation, no injury to any one. Some time after suit was brought against the road by the lady for deafness due to the collision, and the jury gave her a verdict of over $2000. My attention was subsequently called to the case, and the railway attorney told me that he accepted the statement of the aurist who attended her only because "it seemed fair." He said no investigation was made as to her previous history, but that her character was a "little shady," and I ventured the opinion that her statement as to her ear trouble probably was also. If an investigation of her past history in Massachusetts had been made, it is not improbable that satisfactory evidence of previous ear trouble could have been obtained.

The medico-legal relations of these railway cases are of peculiar interest to the railway surgeon and the medical expert. The surgical treatment of actual railway injuries is governed by the same general rules and principles which prevail under other circumstances, but always with due regard to the peculiarities of environment. "With the character and manner of conducting these claims we have nothing to do;" but it is as much our duty to understand, if possible, and to appreciate the motives and conduct of these claim patients, as it is for the lawyer to prove them. Generally when the clinical history and statements are at variance with those which we should most reasonably expect under ordinary circumstances, we are justified in suspecting ulterior motives, and these are usually of a financial character.

The hope and anticipation of reward consciously, and unconsciously perhaps, influences the course and conduct of individuals in different relations and positions and this is especially true when compensation for injury and lost time awaits those who are injured in the service of corporations, of which railways afford the most conspicuous if not the most peculiar example.

It is a matter of common observation that the class of patients under consideration are prone to exaggerate every symptom and fear, and if they are silent or their manner unusual upon the statement by the surgeon of a favorable and early recovery, it is safe to assume that a financial problem is under consideration.

How best to meet the actual and varied manifestations of railway injuries and their consequences, near and remote; to separate the imaginary from the real, the fraudulent from the honest claimant, and to properly estimate self-interest and the varied prejudices that enter into consideration *nolens volens* in the endeavor to reach a just solution, is a problem that appeals to the best thought, feeling and judgment of every interested party, and the unremitting labor of a learned profession.

DISCUSSION.

Dr. J. P. LORD of Omaha—This subject, which so much concerns railway surgeons, has been discussed from the beginning of our meetings. It is a question that will be with us just as long as we have to deal with human nature. Who has not been called in for no other reason than to cultivate the good graces of the doctor, and consult him for ulterior motives? Who has not been called in also by all kinds of designing people who have their particular axes to grind? This spirit pervades all classes of society. A man who draws a $5 a week indemnity from a local lodge, perhaps on account of indiscretion, or because of a desire to get a day off and at the same time to help to bear the expense of this lay off, calls in a physician. What he wants is the doctor's certificate of his illness more than a prescription. Perhaps the prescription is never filled. So we might add to the list of people who will deceive the doctor if they can. It is difficult to deal satisfactorily with this question, as these people will always be with us. We can not reconstruct human nature; we can not make juries any different, but we can make ourselves wiser in handling these people and doing what we can toward conducting our case successfully and protecting our employers; so that while it is a question of scientific interest, yet it is one that will never be disposed of. For years it has been an interesting study to me to know why doctors could not handle a certain class of neurasthenics, people who would be seen in spite of the doctor, and who could not be cured by anybody but those who resorted to deceptive methods, and these deceptive methods seem to take the place of the green plaster in railway injury cases.

Dr. THOMAS B. LACEY of Council Bluffs—I presume that in order to properly qualify a surgeon to make a good witness he must be a man of experience on the witness stand as well as in his professional work; and still there are none of us who are willing to pose in the light of professional witnesses, for I believe, even in a surgical way, they will not have weight with a jury. We gain our experience on the witness stand by testifying, and must be willing to accept the name of professional witnesses if called sufficiently often to bring it about. But we should guard ourselves as much as possible in making admissions that we do not mean. The neurologist, on the witness stand, probably stated that he did not think there was anything the matter with the lady in question, but the lawyer succeeded in having him admit that she might have hysteria. There is a lesson in that point. These admissions weaken the case, and it is because of our little experience as witnesses that we are called upon to make admissions that we can safely do among our fellows, but not to a jury who have no conception of what we are willing to have understood by those admissions. As a general rule, it is a good safeguard, after you have examined your claimant and found that in your opinion there is nothing the matter with him, to so state it on the witness stand, and your opinion should be persisted in without any admissions or equivocations.

Dr. W. L. SMITH of Streator, Ill.—The best time to interview an injured person and get a truthful statement is at the time of the injury. We will get more truth then than we will after a shyster lawyer steps in. Get the statement and be ready to make your examination carefully and thoroughly, and state your opinion as to your findings, even though judge or jury be against you.

Dr. FRED J. HODGES of Anderson, Ind.—Every man on the witness stand should be honest with himself and in his opinions, and if he believes that there is nothing the matter with a case, and yet feels in his own heart that there is a possibility of it, he will still further bring expert testimony into contempt if he does not admit such a possibility of injury. If he is experienced as a witness his answer to that question will be something like this, that it is possible but not at all probable, and in that way he is honest without doing the case harm. I do not believe any member of this Academy would wish to be understood as saying that because a man is employed by a railroad and is called by that railroad to testify, that he should lose his scientific spirit and deny a possibility when one exists.

Dr. Hay, who was professor of neurology in the Northwestern University Medical School, used to say to his class, "there are three things every medical witness must understand and be guided by. In the first place, never be afraid to say, 'I don't know.' If you do not know, say so. You will save yourself trouble and gain strength for your case. In the second place, never acknowledge authority for anything. You are called upon to tell what you know, not what anybody else supposes or knows. In the third place, be strictly honest and scientific all the time." If any medical witness will be governed by these three propositions I think there will be less reproach connected with the term "expert witness," and that the truth will not suffer.

MUTUAL RELATIONS OF THE RAILWAY SURGEON AND THE NEUROLOGIST.

Presented in the Fourth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 6-8, 1897.

BY J. T. ESKRIDGE, M.D.

NEUROLOGIST TO ST. LUKE'S HOSPITAL AND PRESIDENT OF THE STATE BOARD OF COMMISSIONERS FOR THE INSANE ASYLUM.

DENVER, COLO.

That the general surgeon and the neurologist should work together in the advancement of cerebral and spinal surgery is accepted by the best men of the profession. That the professional relations of the railway surgeon and of the neurologist should be more comprehensive and extend to nearly all cases of railway injury has not, to my knowledge, been generally recognized by the chief surgeons of the great railway systems.

A brief abstract from the reports of two cases of alleged railway injury will aid in bringing this subject before the Association for discussion:

Case 1.—J. R., in 1889, while climbing down from his upper berth in a Pullman sleeping car, was thrown to the opposite side of the car by some accident which caused the engine and one or two cars to jump the track. He was not rendered unconscious nor did he appear to be greatly injured. He told some fellow passengers and acquaintances who were on the car that his body felt sore and that he seemed dizzy. He got off the car and walked around the train for some time. On reaching Denver a day or two later he consulted one of the surgeons of the railroad company. The patient complained then of nervousness, sleeplessness, a headache and general discomfort in various portions of the body. On the surgeon finding no positive evidences of injury he soon dismissed the case as one of minor importance. The man became a semi-invalid, refused to work, as he said he was unable to do so on account of pain in his back. Six months after the accident he suffered from an attack of typhoid fever. After recovering from the fever he seemed to be in about the same condition of health as that which had preceded the typhoid attack. He consulted numerous physicians, and finally, on finding the right leg below the knee much smaller than the left, he began to limp and complain of pain in the leg. Two years after the accident a damage suit was brought against the railroad company.

At this time I was asked by the attorney for the plaintiff to examine the man. He walked with the assistance of a cane and exhibited a decided halt in his gait. Most of his former symptoms of nervousness had disappeared and he complained mainly of pain in the right leg and weakness of the muscles below the knee. The circumference of the right leg over the largest portion of the calf was nearly two inches less than that of the left. The tibialis anticus and peroneus group of muscles were the seat of the greatest amount of atrophy, but the calf muscles presented considerable wasting. All the affected muscles showed a decided lessening of irritability to the faradic current, and the tibialis anticus and peroneus longus presented the reactions of degeneration.

In short, all evidences pointed to poliomyelitis affecting the muscles of the right leg below the knee. All other symptoms that he then complained of were either feigned or greatly exaggerated. He positively stated that the right leg was perfectly normal before his fall in the Pullman car. He further insisted that the wasting had begun about a year before I saw him and that it had been steadily increasing. The electric changes were too pronounced for an ordinary case of progressive muscular atrophy, even of the peroneal type. It is well known, however, that we may have a spinal poliomyelitis of traumatic origin, and from this gradual wasting of the muscles may ensue and result in a form of muscular atrophy of spinal origin. The only way to determine this in the case under consideration was by watching the case for a year or more. A gradual increase of the trouble meant a progressive muscular atrophy which would ultimately prove fatal. I reported the results of my examination, together with my conclusions to the plaintiff's attorney. To my surprise, the lawyer did not hesitate to advocate the the gravest possible view of the man's condition. I argued with him that I could not say the trouble did not antedate the railroad accident many years, and that we had to depend upon the veracity of the patient, which was not good, in excluding a poliomyelitis dating from childhood.

The case was tried. I simply stated what I had found. The attorney for the plaintiff very shrewdly asked me no questions, further than to lead up to the fact that if the trouble had been progressive during the past year, as the patient stated, it would result in total disability and finally in death.

The attorney for the defense was an able lawyer, but ignorant of medicine. His efforts were principally directed toward showing that there was no spinal cord lesion. The physicians called by the defense had to admit there was some organic lesion. Again, to my chagrin, no questions were framed so that I could give my opinion in regard to the probable nature of the case. The man was awarded several thousand dollars damages. Before the case came to trial, as well as during the time of its progress, I learned that the man did not hesitate to pervert the truth when it suited his convenience, hence I suspected that the spinal trouble dated from childhood. Coloring was given to this view by the man never having complained of the right leg more than the left until muscular wasting was detected by a physician some time after the railroad accident. It evidently occurred to the man at the time the wasting was found by the unsuspecting physician that he had something definite on which to base a suit for damages, and he ceased to lay stress on his other troubles, mainly complaining of his leg.

I had an opportunity to study this case some two years after damages had been awarded the plaintiff. There had been no further wasting and the electric reactions remained the same as at the time of my first examination. I subsequently learned from one of the man's friends that he had been paralyzed during childhood and confined to his bed for some time.

The point on which I wish to lay stress is this: If a careful neurologic examination had been made at the time the man first consulted the surgeon for the railway, the poliomyelitis would have been detected and the company, in all probability, would not have been sued. Certain it is, that no damages would have been awarded had it been possible to prove that the accident on the railroad had had nothing to do with the condition of the man's leg.

Case 2.—R. E., age 52, traveling salesman, was well until 40 years of age (1880), when in a runaway, he was thrown from his carriage and injured his right shoulder. Six years later the right hand and arm began to be affected by a rhythmic tremor which was fine, most pronounced after exhaustion, but momentarily disappeared on moving the arm. In June, 1892, he had a severe attack of gonorrhea followed by cystitis. July 30, 1892, he was severely shaken up in a railroad accident on one of the Western roads.

He stated that up to the time of the accident the tremor had been limited to the right arm and hand and did not greatly interfere with his writing. Immediately following the accident his physician states that he had prostatitis, orchitis and cystitis with

severe pain in the back. Whether the shaking-up that he received on the road had anything to do with these inflammatory troubles is doubtful, as the man was addicted to the use of alcohol and was inclined to neglect himself.

Three days after the accident on the road, a tremor similar to that of the right arm and hand began to be manifest in the left hand. The right arm became worse and he wrote with difficulty. He remained in bed for thirteen weeks and was treated for bladder and other associated troubles. After he had been in bed some weeks he noticed that his right leg began to be affected by a tremor, and soon after this the left leg was involved.

A careful examination by me on Nov. 11, 1892, showed that the man was suffering from paralysis agitans. The right hand and arm had assumed the characteristic positions seen in this disease, the left hand remained constantly bent at the meta-carpo-phalangeal joints and the muscles that move the right leg at the knee were a little rigid. There was no rigidity of the muscles of the left leg. Tremor was well marked in the right arm and slight in the right leg and left arm. When he was excited there was a perceptible tremor in the left leg. Muscular weakness was pronounced in the right hand and arm, but in the other extremities muscular power was fairly well maintained. The patient was under my care for several months subsequent to Nov. 11, 1892. During this time the disease did not seem to make any progress.

A suit for damages against the railroad company was brought and the attorney for the plaintiff summoned me to testify in the case. I told him that the accident which had resulted in a few bruises on different portions of the body, had had nothing to do with starting the disease, but that it evidently had some influence in causing its extension. He seemed satisfied with this, but when I was on the witness stand he refrained from asking any questions, by answering which I could inform the jury that the man had been suffering from paralysis agitans for a number of years before the occurrence of the railroad accident in which he had been hurt. I was asked if I had examined and treated the plaintiff; from what he was suffering; the cause of paralysis agitans, and if an injury such as he had sustained in the railroad accident, was capable of giving rise to paralysis agitans or causing its rapid extension. I was not asked either by the attorney for the plaintiff or defense whether I knew or thought the accident in question had been the cause of the disease from which the plaintiff was suffering. The medical witnesses for the defense honestly admitted that the man was suffering from paralysis agitans, and as they knew nothing of his history they were free to admit that the injury received in the collision was the probable cause of the disease. The man was awarded $7000 damages by the jury and the whole amount with interest was paid about eighteen months later.

How easy it would have been to prevent such an exorbitant award for damages had it been known by the attorney for the defense that paralysis agitans had existed for years before the railroad accident. The urethritis from which the man suffered a month or so before he was shaken up on the railroad was the probable cause of the cystitis, orchitis and prostatitis, but the attorney for the plaintiff made it appear to the jury that these resulted from the injuries received on the railroad.

It may be thought by some that I was in the wrong in not telling the jury that the nervous trouble from which the man was suffering antedated the railroad accident about six years. Witnesses are sworn "to tell the truth, the whole truth and nothing but the truth."

The understanding that I had with the plaintiff's attorney was that he only claimed damages for the rapid progress of the disease caused by the accident, and in consequence a probable shortening of the man's life by a number of years. The questions asked me by the plaintiff were absolutely fair. The principal one was: "May an injury, such as the plaintiff is alleged to have received, be the cause of paralysis agitans or result in its extension?" There could be but one answer to this. Up to the time of my cross-examination I believed that the attorney for the plaintiff intended only to put in the plea of exaggeration of the disease and shortening of life. As soon, however, as it was found that the attorney and witnesses for the defense knew nothing of the man's history previous to the accident of 1892, the way was open to claim that the railroad company was responsible for causing the disease. I had left the witness stand before I saw the turn the attorney for the plaintiff had made. I could not then interfere. Although a witness is sworn to tell the whole truth, yet the expert witness is usually limited to opinions at which he has arrived through special training in a particular line. Once, while on the witness stand testifying as an expert, I saw that the attorney who had summoned me in the case, by shrewd questioning was perverting the truth so as to make my testimony very unfair to the opposite side, and I requested an opportunity to explain, but the judge reminded me that it was the business of the attorney for the defense to look out for his client.

In the second case reported in this paper injustice to the defendant could have been prevented by the railroad company having had a careful neurologic examination made of the man's condition soon after the occurrence of the accident. A complete history of the man's health up to that time would have thrown light on the case.

I have not found that people who have been injured on a railroad object to a careful examination by a physician employed by the road, if the examination is proffered soon after the occurrence of an accident before an attorney is consulted. It is at such a time that a fairly accurate history of the injured person's health can be obtained by the physician of the road.

The injured are at first anxious to ascertain the extent of their disabilities and the probable results of their injuries, and the more attention that is paid them by officials of corporations the more communicative and confidential they become.

I have been acting as consulting neurologist for one Western railroad for a period of about nine years, and during this time I can recall numerous cases of injury for which claims for damages without suits have been settled for nominal sums, because careful examinations of the injured had been made soon after the occurrence of the accidents. In numerous other instances suits for damages have not been brought, or if brought the parties have received no damages on account of the company being able to show that certain states of ill health antedated the accident in which the persons claimed to have been injured.

In conclusion, I wish to say that I believe even

railroad or large corporation should have a consulting neurologist, and that the chief surgeon of the road should insist that a careful neurologic examination be made of most of the injured as soon after accident as possible, especially in those cases in which there is likely to follow a suit for damages.

DIAGNOSIS OF TYPHOID FEVER.

Read at the Anniversary Meeting of the Calhoun County Medical Association at Battle Creek, Mich., Dec. 12, 1897.

BY A. W. CRANE, M.D.
KALAMAZOO, MICH.

The diagnosis of typhoid fever is a very modern achievement. A long list of diseases has been recognized by physicians from the time of Hippocrates, but the disease-entity which we call typhoid fever was not recognized as a separate disease until the early part of the nineteenth century. The name typhoid was bestowed upon it in 1829, but even then it was confused with typhus fever, and it remained for a distinguished American physician, Gerhard of Philadelphia, finally to differentiate it from all other fevers. This was in 1837. It was less than ten years before the discovery of anesthesia by ether. Pause and consider with what rapidity the science of clinical diagnosis has developed. Within the memory of physicians yet living, typhoid fever, now one of the corner stones of a medical education, was for the first time differentiated as a truly distinct disease. This remarkable fact allows one to doubt the reputed powers of close and keen observation in our medical forefathers.

However, we must recognize today the great difficulty of diagnosticating the continued fevers from clinical symptoms alone. The cautious practitioner is wary of giving an early diagnosis. Long differential tables of symptoms still fail to give much certainty to his conclusions when he is called upon to decide in the beginning between such diseases as scarlatina and measles; tonsillitis and diphtheria; or simple continued fever, bilious fever, septicemia, miliary tuberculosis, malaria and typhoid fever. In the first days of almost any fever not accompanied by an eruption as in measles, or a local sign as in tonsillitis, the possibility of typhoid fever arises in the mind of the attending physician. He watches for an ascending pyrexia with morning remissions, a diarrhea, an abdominal tenderness, an enlargement of the spleen, and a rose-colored eruption over the abdomen; but he has to remember that the eruption is absent in 30 per cent. of cases and indistinct in half the remaining, that the enlargement of the spleen may be present in malaria and other diseases, that diarrhea may be absent or replaced by constipation, and that the fever curve has no constant characteristics whatever. So uncertain is the early diagnosis, that if the temperature drops on the tenth or fourteenth day the physician is often undecided in his own mind whether the patient really did have typhoid. If he has been shrewd enough not to have committed himself he is likely to call such a case bilious fever.

To illustrate the truly serious difficulty of making a differential diagnosis in some cases, at any stage, I will quote a few passages from Osler's "Practice of Medicine," second edition. He says (p. 33) "The early and intense localization of symptoms in certain organs is a frequent source of error in diagnosis. The following are the most frequent deviations from the normal course: *a*, onset with pronounced nervous symptoms; *b*, with pronounced pulmonary symptoms; *c*, with intense gastro-intestinal symptoms; *d*, with symptoms of acute nephritis (p. 13). Cases coming on with severe headache, photophobia, delirium, twitching of the muscles and retraction of the the head are almost invariably regarded as cerebro-spinal meningitis. I have thrice performed autopsies on cases of this kind in which no suspicion of typhoid fever had been present, the intense cerebro-spinal manifestations having dominated the scene. Fully one-half of the cases of the so-called brain fever belong to this category. Misleading pulmonary symptoms occasionally develop at the very outset of the disease. The bronchitis rarely causes error though it may be intense and attract the chief attention. More difficult are the cases setting in with a chill and followed rapidly by pneumonia. I have brought such a case before my class one week as typical pneumonia and a fortnight later shown the same case as undoubtedly one of typhoid fever. In another case in which the onset was with definite pneumonia, no spots developed; and though there were diarrhea, meteorism and the most pronounced nervous symptoms, the doubt still remained whether it was a case of typhoid fever or one of pneumonia in which severe secondary symptoms developed. There is less danger of mistaking the pneumonia which develops at the height of the disease, and yet this is possible as in a case admitted a few years ago to my wards; a man aged 70, insensible, with a dry tongue, tremor, ecchymosis upon the wrists and ankles, no rose-spots, enlargement of the spleen, and consolidation of his right lower lobe. It was very natural, particularly since there was no history, to regard such a case as senile pneumonia with profound constitutional disturbances; but the autopsy showed the characteristic lesions of typhoid fever" (p. 33–34).

"The differential diagnosis between general miliary tuberculosis without local manifestations and typhoid fever is extremely difficult. The cough may be slight or absent. Diarrhea is rare in tuberculosis; the bowels are usually constipated, but diarrhea may occur and persist for days. In certain cases the diagnosis has been complicated still farther by the occurrence of blood in the stools. Enlargement of the spleen occurs in tuberculosis, but is neither so early nor so marked as in typhoid fever. In children, however, the enlargement may be considerable. The urine may show traces of albumin and unfortunately the diazo-reaction which is so constant in typhoid fever, is also met with in general tuberculosis" (p. 219). "Typhoid fever has been mistaken for appendicitis. I was told of a case recently, in one of the large hospitals of this country, in which the fever and the presence of a tender induration in the right iliac fossa seemed to indicate appendix disease so clearly that an operation was performed, but the induration was found to be the swollen ileum and adjacent glands. In a person who has had a previous appendicitis the diagnosis might be extremely difficult, as in a case mentioned by Da Costa. Late in the convalescence of typhoid fever the symptoms of appendicitis may develop, due to the perforation of an unhealed ulcer" (p. 440).

These extracts from Osler show us that even a master may in some cases be unable to make the diagnosis of typhoid fever, except by autopsy. In this connection it might be said that a custom of holding more frequent postmortem examinations would ele-

vate the practice of medicine in any community. How many atypical cases of typhoid must run their courses under other names and even end unrecognized in death!

The means of diagnosis within the reach of the general practitioner, today, are the clinical and the laboratory methods. With the clinical we are all familiar, but the other methods have developed so rapidly, and are surrounded with so much technicality that the busy and over-worked doctor has not always taken the time to estimate them at their true value.

Much has been expected from bacteriologic examination. When any disease is proven to be caused by a particular micro-organism the problem of diagnosis would seem to be greatly simplified. The detection of the specific germ would appear to be an early and certain means of diagnosis. This is pre-eminently true of tuberculosis and diphtheria, but it is not true of typhoid fever. Yet it is sixteen years since Eberth and Koch discovered and demonstrated the etiologic relations of the typhoid bacillus—years which have formed a period of astonishing activity in bacteriologic research, so that today the technique of experimental bacteriology with its test tubes and cotton plugs, its culture media and thermostats, its guinea pigs, stains and microscopes, has become a familiar equipment in practical medicine. Nevertheless, the identification of Eberth's bacillus is too lengthy, too difficult, and too uncertain to compete with the clinical means at our disposal.

However, two methods deserve to be mentioned, namely, that of Elsner[1] and that of Hiss[2]. The principle of Elsner's is that of almost every method yet proposed for the isolation of the typhoid bacilli. It is to add to a culture medium some substance which will prevent the growth of other bacteria without inhibiting the growth of Eberth's germ. The method of Hiss is based upon the characteristic spread of motile bacilli when grown upon acid glucose-gelatin ager kept semi-liquid at 37 degrees. Either of these methods requires two days for completion, and is too expensive to be used with any but wealthy patients, or under the auspices of a liberal board of health. As a matter of fact, it is now two years since Elsner published his method, yet we hear of no one using it in the diagnosis of typhoid fever. Within five weeks, however, the New York City Board has issued a circular announcing the new method of Dr. Hiss, its assistant bacteriologist, by which typhoid bacilli may be detected in the feces and urine of typhoid fever patients. It reads in part as follows: "The Health Department desires to thoroughly test this method and is prepared to undertake these examinations if proper specimens are furnished. The experience thus far obtained seems to indicate that the bacilli may be obtained from about 50 per cent. of all cases on the first examination and from about 90 per cent. after repeated examinations. The Health Board hopes that these examinations will prove of value not only for diagnostic purposes but also in solving sanitary questions relating to the presence in, and the time of disappearance of the bacilli from the stools during convalescence."

A prediction may be ventured that this method, like that of Elsner, will prove a failure in the practical diagnosis of typhoid fever. Eberth's bacilli may not appear in the stools until the tenth day or later. These facts are commented upon by Osler in his second edition. In fatal cases, even cultures from the small intestines obtained postmortem may not show the bacilli. But in the walls of the intestines, in Peyer's patches, in the ulcers, in the mesenteric glands, spleen and liver, the bacilli occur in large numbers and usually in pure culture. These facts explain the strictly limited success of the best antiseptic and eliminative forms of treatment, even including that of Dr. Woodbridge.

The obstacles to the early bacteriologic diagnosis of typhoid fever appear insurmountable. Have we then no early sign of the disease? Fourteen years ago Ehrlich tried to answer this question by an examination of the urine. He discovered the well known diazo-reaction. This valuable test has been strangely neglected by the profession as a body, and strangely misstated in some of the books, notably in the great work of Von Jaksch, in German, and in the "Medical Diagnosis" of Musser, in English. Osler, however, gives it correctly. The pink color of the foam is the distinctive feature of the diazo-reaction. It is present in nearly every case of typhoid and often by the fifth or sixth day. It usually disappears before convalescence begins, and varies in intensity with the severity of the case; hence it is a sign in prognosis. Unfortunately the diazo-reaction may occasionally be present in tuberculosis, in pneumonia and in septicemia.

Up to this point we have found no single sign or symptom, or combination of signs and symptoms which are invariably and exclusively present in typhoid fever. Our clinical anchors are the continued pyrexia, the diarrhea, the dicrotic pulse, the enlarged spleen, the roseolar eruptions and the lapse of time. The diazo-reaction gives additional security. If only these symptoms were all present in all cases we would not in years past have had to wait so often for the lapse of time to clear up the clinical picture, or finally to compromise on such a diagnosis as typho-malaria, pleuro-typhoid or typho-pneumonia. We may say that the clinical symptoms alone are usually insufficient to give us a positive diagnosis at an early stage in the disease, and moreover, are often insufficient to give a diagnosis at any stage. Even the best diagnosticians teach us how often a postmortem examination will reveal an unsuspected typhoid ulceration of the bowel.

The last eighteen months have, however, placed the diagnosis of typhoid fever upon a new foundation. Now we can detect typhoid at an early stage more rapidly and with more certainty than is the case with any other infectious fever. Still more suprising than this is the fact that we can tell whether the patient has had typhoid fever, months and sometimes years after recovery. It is done by the examination of a drop of the patient's blood dried upon a piece of paper. A drop of blood thus dried could be sent across the Atlantic and examined weeks afterward in Europe with the same precision that it could at the bedside of the patient. This is the serum-diagnosis of typhoid fever, which already, like the diphtheria antitoxin and the X-ray, has become an old story to the medical public. But since it is an old story some of you may have forgotten it, and I will risk a repetition of well-known facts.

The serum-diagnosis is based upon the discovery

[1] For the practical details of this method see Crane, "Bacteriological Diagnosis of Infectious Diseases."—Supplement to the Report of the Michigan State Board of Health for the year 1896, No. 463, p. 114.

[2] For a complete account of Hiss's method see Hiss, "On a method of Isolating and Identifying Bacillus Tyhphosus."—Journal of Experimental Medicine, 1897, Vol. 2, No. 6.

by Pfeiffer of Berlin, of bactericidal substances in the blood of typhoid fever patients. He found, when the serum of such blood was mixed with an active bouillon culture of Eberth's bacillus in a test tube, that after a few hours in an incubator the bacilli were agglutinated in masses and had settled to the bottom of the tube, leaving the upper part of the bouillon clear. His original method, which required a considerable quantity of pure, sterile serum, was complicated and difficult. Widal of Paris greatly simplified the process by mixing a drop of the bouillon culture of the typhoid bacilli with a drop only, of the fresh blood serum and observing the reaction under the microscope. The active movements of the bacilli were arrested and the bodies of the germs became adherent, forming clumps which are characteristic of this reaction. Further investigation by Widal and Sicard showed that the drying of the serum did not destroy its bactericidal properties. It remained for Johnson, working independently of Widal, to demonstrate that "the fluid obtained by moistening a dried blood-drop gives the reaction in a prompt and satisfactory manner, even after it had been dried for several days." This modification brings this valuable test within the sphere of practical medicine and of municipal boards of health.

The microscopic examination of the hanging-drop preparation of Eberth's bacilli leads one to wonder why it is, that in a case of typhoid fever the patient's blood and every organ in his body are not swarming with these active, squirming, whirling, shooting germs; but when once the typhoid reaction is observed, when the active germs become quiet, when their dead and dying bodies agglutinate in clumps as though they had become partially dissolved and sticky, then we see that the patient's blood has developed a poison to these germs — a bactericidal substance — without which every case of typhoid probably would come to a fatal termination.

So remarkable a reaction speedily became the subject of very numerous experiments. It was found that, aside from blood, the reaction could be obtained in typhoid cases from blister serum, from pericardial, pleural, peritoneal and joint serum, from milk, from pus and from tears. The reaction is feeble in the juices of the spleen, kidneys and liver, while the sweat, saliva, and gastric juice are without the power. Practically we may use fresh blood, dried blood, and blister serum.

A pure culture of the typhoid bacilli is an unqualified necessity. It may be either a bouillon or an agar culture, and the bacilli may be virulent, attenuated or dead, and still give the reaction. If a dried drop of blood is dissolved in a drop of water, or if the undiluted serum is used, a fresh culture may give the reaction, occasionally, when the subject is healthy or has some disease other than typhoid. The reaction is quantitative rather than qualitative. It was found advisable, therefore, to use an attenuated culture, which is less sensitive, or else to dilute the blood or serum solution. Johnson's method is to use an attenuated culture and the dried blood without a definite dilution. He claims to thus practically eliminate the margin of error. The New York Board of Health uses a very active, virulent culture and blister serum in the dilution of one in ten. They claim reliable results in 90 per cent. of cases. As a summary of the many careful experiments, we may say that with a dilution of the serum, one in ten, or with a properly attenuated culture, and a time limit of thirty minutes, the serum-diagnosis of typhoid fever is as reliable as the bacteriologic diagnosis of tuberculosis and diphtheria.

Certain rare cases which, clinically, are typhoid fever, fail to give the serum-action with Eberth's bacilli. A number of observers, Johnson in particular, have found that the blood of such cases will, as a rule, react with the colon bacilli, thus indicating a colon instead of a typhoid infection. Johnson also found that a certain proportion of cases would give a positive reaction with either germ, thus indicating what would seem to be a double infection. Under these circumstances it seems wise in every case to examine the serum-reaction to the colon as well as to the typhoid germ.

The serum-reaction in cholera and certain other diseases is interesting, but has no practical connection with the diagnosis of typhoid fever. The greatest margin for error in the use of the serum-reaction lies in the fact that the blood may retain the power to react months and sometimes years after recovery. Thus it is necessary to exclude a previous attack of typhoid, and this may be difficult since any patient is likely to have had a mild or unrecognized attack.

In the very small proportion of cases where the clinical symptoms, the uranalysis, and the serum-reaction still fail to give us a positive diagnosis, we have additional means of very great value. If the decision lies between typhoid and malaria, an examination of the blood in cover-slip preparations will show us the presence or absence of the plasmodium malariæ. If the balance rests between typhoid and any form of septic fever, cover-glass preparations of the blood, or better, the hemocytometer, will show us the presence or absence of an inflammatory leucocytosis. If the diagnosis is between typhoid and general tuberculosis, an examination of the sputum will sometimes, though far too seldom, give us the positive sign. But with these various means at the command of the profession, in addition to the clinical course and history of the case, it would seem no longer necessary for any case of continued fever to come to the postmortem table for a diagnosis.

To settle the diagnosis does not end the labors of the diagnostician in a case of typhoid fever. The case must be watched for complications. Pneumonia, pleurisy, pericarditis, meningitis, nephritis; the formation of pus in the middle ear, or in the spleen, liver, or brain; perforation, hemorrhage and peritonitis, are all to be dreaded by the attending physician. The sacred precinct of the clinician is even here invaded by the laboratory method. The uranalysis has long been a routine examination during the latter half of a case. Of greater importance is a routine examination of the blood. A leucocytosis means a complication. It may be an on-coming pneumonia or a meningitis or a purulent inflammation anywhere in the body. The latter, especially if it be a deep seated abscess, may be otherwise unrecognizable. However, it should be said that nowhere does careful clinical observation count for so much as during the course of typhoid fever in the presence of complications. Laboratory methods are strictly subordinate, and the old time general practitioner is a supreme necessity.

In conclusion, we may say that the diagnosis of typhoid fever may at times tax the utmost resources of the physician, and yet in no disease are the diagnostic resources so varied and so abundant. The clinician, the pathologist, the chemist, the hematologist

and the bacteriologist have been laid under tribute. And, as the product of their labors and genius, we have some of the most remarkable methods that have ever been applied to the study of disease.

REPORT OF A FEW CASES OF APPENDICITIS.

Read before the Camden City Medical Society, Nov. 3, 1897.

BY O. W. BRAYMER, M.D., PH.D.
CAMDEN, N. J.

I shall only report the histories of a few cases that have recently come under my care and not undertake to give an extensive digest of the history of appendicitis and its treatment.

Case 1.—T. R., male, aged 17 years, a farm hand, had been taken at about 8 A.M. with severe cramp-like pains in the abdomen, on the right side, low down, two days before coming to the Cooper Hospital. On the day I first saw him he was suffering great pain in the right iliac region. There was some distention of the abdomen, a history of constipation, a tendency to lie with the right thigh flexed on the abdomen, marked tenderness over the region of the appendix, together with tension of the abdominal muscles of the right side, and a mass could be outlined beneath the muscular wall in this region. There was some rise of temperature and a look of intense suffering on the patient's countenance. It was decided that the case was one of appendicitis and that operation should be done at once. This had every appearance of being a case of so-called fulminating appendicitis. I operated in the afternoon of the same day that the patient was admitted and as soon as the incision was made over the region of the appendix and the cavity of the peritoneum opened there was present a fecal odor. The appendix was found to be gangrenous, firmly adherent to the under surface of the cecum and contained several coproliths. After carefully breaking up the adhesions the appendix was amputated and the stump inverted into the bowel. The wound in the cecum was closed by a double row of fine silk sutures; the darkened spots on the bowel where the appendix had adhered, were carefully cleansed and nothing more done with them, as the discoloration seemed to be only superficial. I did what I will never do again in such a case, viz.: irrigated the cavity with 1 to 10,000 bichlorid solution and followed this with distilled water. I am now of the opinion that normal saline solution is one of the best fluids to irrigate the cavity with, following such cases. The wound in the abdominal wall was closed by one layer of sutures and a space left for a drain of iodoform gauze.

This patient suffered great pain for many days after the operation and had considerable difficulty in getting his bowels to move, notwithstanding he had taken small doses of calomel from the first, followed by the salines. There was very little discharge of pus from the wound, and after about the usual length of time, where drainage is used, the opening closed. The patient entered the hospital June 23 and was up and around his room July 13, but still complained of some pain in the region of the pubes. He was allowed to go home about one week later, and at that time was in very good condition. He was sent back to the hospital in a few weeks, suffering with intestinal obstruction, having eaten a large quantity of summer squash.

An operation by one of my colleagues revealed a constricted strangulated bowel, with much gangrene, and through the softened tissues a vast number of squash seeds were pointing in various directions. The patient died. The obstruction which caused his death was partially due to the adhesions which had formed during the attack of appendicitis, yet the final result might perhaps have been avoided, had the patient been more careful of his diet.

Case 2.—A. B., male, aged 43 years, applied to me in March to get relief from an attack of severe abdominal pain and vomiting. He stated that he had been sick about three days, with coryza and la grippe. I found the man in a state of collapse, with general abdominal pain and vomiting. He was given morphin with atropin and strychnin hypodermatically and after about two hours was left in a fairly comfortable condition. Divided doses of calomel were given to clean out the intestinal tract and gradually the abdominal pain settled down to a point of greatest tenderness over the region of the appendix. There was a slight rise of temperature and some chilly sensations. The calomel moved the bowels satisfactorily, but there gradually developed an area of dulness in the right iliac region. There was a mass in the region of the appendix. He was removed to the hospital and was operated on at 9:30 P.M., March 18, 1897.

An incision over the prominent part of the swelling revealed about eight ounces of pus, which was evacuated and the cavity irrigated with a warm saline solution. A portion of omental tissue had been walled off by the pus pocket and, to avoid infection of the general peritoneal cavity, this portion of the omentum was ligated and removed. The wound in the peritoneum was closed with catgut, the muscular walls with kangaroo tendon and the skin with silkworm gut sutures, leaving an opening for drainage, the drain being composed of a small strip of iodoform gauze. This man had an uneventful recovery and three weeks after the operation was out and soon after resumed his business.

Case 3.—W. W., male, aged 21 years, came to the hospital April 12, 1897, with the following history: About two months previously he began to have attacks of severe abdominal pain, especially around the umbilicus and in the right iliac fossa, which pain had continued with more or less severity ever since. The bowels had been opened once or twice each day and there had been no nausea.

Examination showed great tenderness about the umbilicus and especially over McBurney's point, and the whole right side was tense and rigid. The patient when lying down kept the thigh flexed on the abdomen. No induration or fluctuation could be detected. The patient was told that he had chronic appendicitis and he decided to have the organ removed.

I made the usual incision through the abdominal walls, and found a thick, stiff appendix, pointing toward the umbilicus, somewhat adherent at the distal extremity and containing some fecal matter. The appendix was amputated close to the cecum. The stump was inverted into the cecum and the wound in the bowel closed by means of the Lembert suture, using two rows of sutures, made of number twelve black silk. The peritoneum, muscles and fascia were closed with kangaroo tendon, interrupted sutures, and the skin by silkworm gut. The patient had an uneventful recovery and was discharged cured May 4, 1897.

Case 4.—C. K., male, aged 19 years, came to the Cooper Hospital May 5, 1897, to obtain relief from excruciating pain in the abdomen, centering in the region of the appendix. This pain had been so severe during the past few days that it debarred him from any labor. Four years ago and again two months ago there had been similar attacks, but less severe. This attack began May 3, at 10 A. M., with sharp pains in the right inguinal region. There was no diarrhea or vomiting until after taking some soup the day before entering the hospital. Examination showed a tense abdomen, right thigh flexed when patient reclined, anxious countenance, tenderness in the right iliac region and a slight rise of temperature.

I operated upon him May 6, 1897. The appendix was found to have an adherent bulbous distal extremity; the adhesions were carefully broken up and the organ brought into view. The appendix was amputated near its colonic attachment, the stump was invaginated and the wound in the cecum closed with two rows of fine silk sutures, the peritoneum with a row of fine kangaroo tendon sutures and the muscles, fascia and aponeuroses were closed in a like manner. The skin was closed by a continuous intercutaneous suture, and the wound was dressed absolutely dry. There was some extravasation of blood under the skin, which on May 12 was discharged through the center of the opening. This discharge had a bad odor and at first was supposed to be fecal, but as no opening could be found through the muscular tissues, and as no further symptoms pointing to a fistula made their appearance, it was decided that the odor was due to the decomposition of the serum which had accumulated beneath the skin. The wound was cleansed and brought together by means of three silkworm gut sutures and recovery was uneventful. The patient was discharged cured June 4, 1897.

Case 5.—J. O., male, aged 15 years, came under my care as a private patient May 13, 1897, suffering from the ordinary symptoms of an acute attack of appendicitis. He was treated by absolute rest in bed, calomel in divided doses, together with salines and a liquid diet.

May 20 there was great tenderness in the right iliac fossa, temperature of 102.5 F., rigidity of muscles of right side of abdominal wall, a tendency to keep the right thigh flexed on the abdomen and a circumscribed swelling in the region of the appendix. I operated at 5:15 P.M. About eight ounces of very offensive curdy pus was liberated and the cavity irrigated with a saline solution. The incision was closed by means of five interrupted silkworm gut sutures, leaving room for a small iodoform gauze drain which was inserted. The patient was discharged June 3, having made an uneventful recovery.

Case 6.—A. J. S., aged 30 years, came under my care at about the same time as did Case 5. The two cases had about the same symptoms, tenderness and temperatures, and both were treated similarly up to the time that Case 5 required operative measures. This man, however, made a good recovery in about three weeks without any operation and has had no return of the symptoms, with the exception of slight pain, at times, in the region of the appendix, but not severe enough to call for further interference.

At this writing all of the above patients, with the exception of Case 1, are well and attending to their usual duties.

In my own practice and in consultation with my colleagues I have, in the past year and a half, seen about twenty cases of appendicitis of almost every degree of severity, and I have become thoroughly convinced that, as a rule, the surgeon is not called early enough in the development of the disease to get the best result.

In treating chronic recurrent cases, unless they progress badly, it is best to wait until there is a lull between the attacks, for this is the most favorable time for operation.

If we are convinced that an abscess is forming we should wait, if the case will allow, until the abscess wall is strong enough to withstand surgical interference.

In abscess cases I would never hunt for the appendix if it is not present in the pus cavity.

I believe the best method of removing the appendix is to cut it off close to the cecum and treat the wound thus formed as you would any other small wound in the intestine.

And finally, in my opinion, it is bad practice to apply blisters and like remedies over the region of the appendix, when treating the disease, because, if operative measures are subsequently adopted, there will be more probability of suppuration and sloughing in the wound.

SAVE THE PIECES.

Read before the Fox River Valley Medical Society April 27, 1897.

BY J. R. BARNETT, M.D.
NEENAH, WIS.

It is not long that "conservative medicine" and "conservative surgery" have been familiar terms to our ears; and yet by reason of their repetition it seems long. They would have sounded strangely in the mouth of a Watson or Erichsen, and were tentatively and diffidently spoken by a Flint and a Gross.

Every day has its surgical record which reads as if the word conservative had not been incorporated into the language of our art; and as if surgery meant only amputation, mutilation, disfigurement, and as if her chosen colaborer were that carpenter of prothetic art, the wooden-leg maker. If one had the power to glean the facts and give a clinical report of the needless mutilations of yesterday, done under the stress of supposed necessity, of fingers and toes, hands and feet, arms and legs, amputated because their salvation was doubtful or deemed impossible, it would be a ghastly record. Preservative surgery is a term more in harmony with our conception of a surgeon as one whose art is invoked to save, first the man, and next, as much of the man as possible. Our old student admiration for the surgeon who could complete a major amputation in four minutes by the watch, and triumphantly exhibit three-fourths of a man as secured to life, if laudable pus but crowned his skilful work, is now quite misplaced. The compound fracture and the lacerated tissues that justified it then would offer no defense now. We have to answer to our conscience, the question, can the limb be saved, even at a little greater risk to life, and at the added cost of much longer, pains-taking and unattractive care in the after-treatment? We have even to face the clamor, grown popular as well as professional, for an aseptic operation that shall make even laudable pus both unlaudable and reprehensible, and that shall make the final treatment of the wound a matter of one or two dressings. The surgeon delights in such an operation, and the people look upon anything less as evidence of unskilful work. Nevertheless, the present requirements of our art are such that we must face the charge of reactionary and retrogressive tendencies, since preservative surgery means something of a return to the patchwork of olden times, and something of a flouting of that potent organism, not then recognized in high scientific circles, the pus microbe. If we are to save the pieces, we must often save them in company with several busy colonies of that same microbe, which not all the antiseptic scrubbings and irrigations will with certainty avail to wash away or kill. A hand mangled on the deadwood, or crushed in the dirt of the street, is the certain host of innumerable germs; and the temptation to dispose of both host and guest, once for all, by a few touches of the knife and saw, is a deadly one; but it is a temptation to be resisted so long as whole blood vessels and nerves traverse any portion of the mangled member. Every finger and part of a finger in which life can be kept should be spared, even if the bones are fractured, and the fractures are compound. Is its integument partly gone? Patch it up.

Is a partial excision necessary, with any part of the saved member of doubtful vitality? Patch up an excess of integument at the amputated part to hold in reserve for the possible needs of repair later on. If such repair is needed you will bless your provident forethought; if it is not needed the redundant integument will atrophy and disappear, if not too great, or it can be easily trimmed away.

Frost bitten members should be put in a protective dressing until nature points out the utmost limit of vitality; and the saw or bone forceps should be about the only instrument needed to complete the amputation; for nature has shaped a bloodless flap, which will fall naturally enough over the end of the severed bone.

Burns of the extremities, involving the deeper tissues, should be treated in the same way. The preliminary waiting will be safer, for the destructive agent has sterilized the part with the utmost thoroughness.

To discuss conservative operations with reference to prothetic aid later on, would need both more time and an abler essayist. The question has been much considered from both sides, and both sides have seemingly strong arguments.

Permit me to outline a few cases:

Case 1.—A workman in a planing mill had the back of his hand so lacerated by a saw that the integument was literally in strips. Some of the extensor tendons were shredded up and some of the phalangeal bones uncovered, and in a few places sawn through. Every finger, including the thumb, had at least one joint opened up and more or less injured.

The shredded, soft tissues were trimmed away, the multiple lacerations carefully sutured, and a protective dressing and splint applied. A thoroughly useful hand was saved, and one not greatly impaired in its necessary movements.

Case 2.—A man aged 60 years, froze all the fingers of one hand. When he consulted me, a few days later, three of the fingers were swollen and discolored their entire length. Fortunately he had done them up at the outset in antiseptic cotton, so that they were in good condition for preservation until a limitation of vitality could surely be made out. He lived at a distance, and various delays occurred, so that amputation was not performed until a month later, when I found the fingers, nearly to the bases of the middle phalanges, completely mummified. The living integument was pushed up a little, the bones severed with forceps, and the rather serrated flaps allowed to fall into position, no suture being used. The stumps were not handsome at the time, but in a few weeks they looked as well as if fashioned with the most fastidious care, and each of them possessed one more joint than it would have had had the amputation been primary.

Case 3.—A brakeman sustained a crushing injury of the hand while coupling. The third and fourth fingers and the ulnar side of the hand were completely pulpified and devitalized. There were compound fractures of all remaining phalanges excepting the thumb, the soft tissues being frightfully lacerated, but offering a promise of preservable vitality. Excision was done through the crushed metacarpal bones, patches of integument from the sacrificed finger being pieced together to close the wound and afford a surplus for later repairs should sloughing occur. Lacerations were sutured and ample drainage provided, and the man was sent to his home, where the most difficult part of the treatment fell to Dr. Bishop, the company's surgeon. I heard two weeks ago that the two fingers had been preserved, and the patient thus left with a comparatively useful hand.

Case 4.—February 9, a man of about 60 years of age, was caught by a moving train in such a manner that the integument was torn wholly loose from one foot, the accompanying laceration reaching from the base of the great toe, along the inner border of the foot, across the ankle and along the outer border, to the metacarpal bone of the little toe, which had sustained a compound fracture near the head. The toe was shucked out of its integument, and so was removed, with its metacarpal fragment, the skin being patched up for later repair. There was also a compound fracture of the tibia just above the malleolus, not to mention an intercondyloid fracture of the humerus of the same side, a fracture of a rib on the opposite side, and several lacerated wounds of the scalp. The skin of the foot was completely detached and crushed through at two or three points, so that the finger could be passed about underneath it, while most of the foot could be laid bare. The dirt upon, and underneath, and all about, was appalling; and much labor was spent in cleansing what may, with double aptness, be called "the field." It took more than two hours to do this and properly suture, drain and dress the foot, putting it in a fixation splint. No anesthetic was needed, as, partly from the traumatic anesthesia, partly from the head injuries, or possibly from the "drop too much," which is the usual incident in such cases, the patient felt but little pain. No part of that elaborate patch-work was saved except a fragment from the little toe and from near the base of the great toe. From a line surrounding the foot at these points to another surrounding the ankle, every vestige of that integument with its fascia melted utterly away. Most of the flexor brevis digitorum shared in the destruction, together with much of the tendo Achillis at its insertion, while the posterior surface of the os calcis became carious and had to be cut and scraped away. The wound became infected from the first, mainly by the bacillus pyocyaneus; and with the infection and the devitalization of patches of unknown depth, here and there, it took six weeks to get the field ready for grafting; the compound fracture of the tibia meantime sharing for a few days in the suppurative process, though afterward uniting rapidly. The Thiersch method of skin grafting was employed, upon the sole first, to stop cicatricial contraction as promptly as possible. The surface was most thoroughly curetted and completely covered by grafts removed from thigh. These were covered in by the usual strips of rubber tissue; a copious dressing of iodoform and sterile gauze saturated with normal saline solution was applied; over this a sheet of oiled silk, and over all a free covering of sublimate cotton. When this was removed, the fourth day afterward, every graft was alive, and only one necrosed a few days later on, when the sole of the foot was practically closed in. Eight days after the first grafting the dorsum of the foot was similarly covered by grafts taken from the other thigh, every one of which survived, although they were not placed everywhere in contact. Now, after two weeks, the only open spot is where the deeper mischief to the os calcis and tendo Achillis was done. This is closing by granulation, although it may need another curetting.

One can not say how soon the foot can be useful for all service. Probably, owing to the thinness of the new covering and the absence of subcutaneous fat, it will take many weeks, or perhaps months, of careful use with a deeply padded shoe; but that in the long run the superior usefulness of the natural member over a wooden one will fully reward all parties concerned for the tedious and unattractive work bestowed upon it, admits, I think, of no doubt whatever.

AN UNUSUAL EXPERIENCE IN DIPHTHERITIC INFECTION.

Read at the Thirteenth Annual Meeting of the Second District Branch of the New York State Medical Association.

BY E. D. FERGUSON, M.D.
TROY, N. Y.

March 15, 1897, I was requested by Dr. M. B. Hutton of Valley Falls, N. Y, to visit a family in which four members had been stricken with illness in an unusual and very serious manner.

The family consisted of the father and mother, a daughter, two sons, and a brother of the father. The daughter had been away from home, teaching school, until three or four days prior to my visit.

The cases were as follows, viz:

C. M., a boy, aged 14, became ill March 4 with the ordinary signs and symptoms of lobar pneumonia. The local physical signs corresponded to the ordinary course of the pulmonic disorder, and March 11 the lung had so far cleared as to show that some element other than ordinary pneumonia existed, for instead of an improvement in the general condition, the symptoms became progressively worse, and the patient died March 13. No complaint had been made of discomfort in the throat, and no evidence of trouble was present there, until it was too late to examine. This patient died two days before my visit.

I. M., a boy, aged 11, became ill March 9, presenting, in the same manner as his brother, the usual signs and symptoms of lobar pneumonia. A favorable course was pursued until March 14, when a membranous exudate was discovered in the throat, and death occurred March 16.

E. M., aged 62, the father of these boys, was taken ill March 11. He, also, presented all the physical signs and the symptoms of lobar pneumonia, but March 14 the throat showed an exudate and death resulted March 16.

J. M., aged 70, a brother of E. M., became ill March 12, but refused to go to bed until the following day. In his case all the classical signs of lobar pneumonia were present, but March 14 the throat trouble had developed, and death supervened on the 16th.

Of these patients, one died two days before and three were alive at the time of my visit, but they died during the following day.

The lad, I. M., was in a profoundly toxic condition and in so profound a stupor as not to realize anything concerning his surroundings, in fact he was evidently moribund. The other two patients were fairly comfortable, having passed the stage of pain due to the pneumonitis and its associated pleurisy, the mind of each was clear, the pulse was of fair strength and not greatly accelerated, and the temperature was only slightly raised.

The pneumonitis in each and all the cases had been limited to a single lower lobe. The physical signs in the lad taken ill six days before my visit, indicated that resolution was nearly complete; in the case taken ill four days before my visit resolution had made pos

itive progress, while in the one taken ill three days before, resolution had not begun. It seemed reasonable to hope that recovery would occur in the last two cases, but soon after my visit stupor and exhaustion developed so rapidly that they died during the following day. The exudate in each of the three cases which I saw, was quite extensively spread over the pharynx, involving the palate and uvula, and extending at some points below the parts visible on inspection by the aid of a tongue depressor. This false membrane was similar to the ordinary exudate in diphtheria, though the color was possibly a shade darker or more "muddy" than is usual.

Attention was given to the throats of the mother of the lads and her sister, who had been for several days in the house, with the result of finding redness in the pharynx of the former and a thin ash-colored exudate in the latter. Both had a slight rise of temperature, and it was deemed prudent to inject the antitoxin of diphtheria. They had no subsequent trouble.

The daughter, who had recently returned home, did not become ill, nor did any of the neighbors who casually visited the house, contract the disease. Of the four who died, not one had been away from home for a considerable period of time, nor had there been a case of diphtheria, aside from the one to be mentioned later, within a wide region thereabout, or within at least a year's time. Careful and thorough enquiry failed to disclose a source of contagion whence the disease could have originated.

The fact that lobular but not lobar pneumonitis is often due to diphtheria, and the additional fact that each of these cases began as a lobar pneumonia, that the pneumonic element of the cases made favorable progress in each instance, and that death seemed to result from some associated condition, made the problem very strange and puzzling. As no postmortem examination was had, the character of the lung trouble must be left to inference, but some of the pharyngeal exudate was subjected to bacteriologic examination. Upon staining portions of the exudate taken from the throats, the micro-organisms present showed the morphology and reaction to coloring agents that would belong to a pure culture of the Klebs-Loeffler bacillus. Several cultures were made and tests carried through all the media necessary to justify the conclusion that the throat trouble was true diphtheria.

On my return from visiting these patients, I saw a case in Valley Falls which was similar to these, except in the result. It was that of a young man who had been ill for a sufficient length of time to be in a convalescent state at the time of my visit, although some exudate remained in his throat which presented the same appearance and gave the same microscopic results as in the other cases. He also had the initial pneumonia.

Having thus settled that the disease and cause of death in these cases, aside from the pulmonary element, was diphtheria, the source of infection became the subject of enquiry. The development of the disease in the four male members of the family within so brief a period of time, would justify the idea that there may have been a common exposure, though the first case may have been the source of infection for the others.

It was found that, just before the development of the first case, the four had spent some time in the cellar sprouting potatoes." This cellar had foul air due to the presence of decaying vegetable matter. There was also in the cellar an unused well. In view of the more recent views concerning the sources of infection in diphtheria, it did not seem probable that the cause would be found there, and a bacteriologic investigation of the cellar did not seem practicable. That the pneumonia may have originated there is not impossible or even improbable, but there did not seem to be any practicable method by which such a problem could be settled.

The difficulties which accompany such bacteriologic investigations are exemplified in the following search for the source of the diphtheria. By chance it was learned that a well existed some distance back of the house, and not far from the barn. The water of this well had been so offensive that it had been "pumped out" several times during the winter, but without removing the offensive odor. In spite of the offensiveness of this water, it was known that three of the patients had drunk from the well, and probably the fourth had done the same. Though hardly expecting to find the source of infection in the well, some of the water was taken by Dr. Hutton in a clean bottle and brought to my office for examination. The offensive odor of the water was manifest when the bottle was opened in my office, though the water was clear to the eye.

Plate cultures were made from the sedimented portions taken from a centrifuge tube, with the following results: They showed the morphology, and staining reactions of the Klebs-Loeffler bacillus, and had investigation ended with the ordinary tests made to detect and differentiate the diphtheria bacillus in throat trouble an error would would have resulted, for the conclusion would have been reached that the bacilli found were the cause of the diphtheria. Some stab cultures were made from the plate cultures and the material was carried though the various tests to settle the question. Even with this care, at first it was probable that we were dealing with the diphtheria germ, but the tests, which extended over several weeks of time, finally showed that this bacillus was one of the numerous water-bacilli which do not liquefy gelatin. We were thus left without an explanation of the origin of these cases. That in some way there had been an exposure to the special cause of diphtheria, and an incident exposure to the pneumococcus, is a reasonable conclusion, but the source of each must remain unknown.

The conjunction of these two probably distinct diseases in each of the entire series of cases, renders the instance rare and interesting. While we can not affirm that the pneumonic trouble was distinct from the pharyngeal disease, still the clinical history and distinct limitation of the lung element to a single lower lobe in each case, would justify that inference.

COLOR PHOTOGRAPHY AS APPLIED TO DERMATOLOGY AND SYPHILOLOGY.

Presented to the Section on Cutaneous Medicine and Surgery at the Forty-Eighth Annual Meeting of the American Medical Association at Philadelphia, June 1-4, 1897.

BY W. S. GOTTHEIL, M.D.
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The correct picturing of the manifold lesions of the skin is a matter of interest to those engaged in the study of dermatology. It is important, first, to secure a permanent record of a rare dermal lesion. Only by plastic or pictorial representation can the evanescent

forms of skin disease be fixed and held; for a verbal description, no matter how exhaustive or how carefully made. is necessarily insufficient as regards form and distribution, and more especially as regards color; and second, the multiplication of such reproductions is of importance to us for the purposes of journal and book illustration.

For record or demonstration, models or casts in plaster, wax, or paper, are undoubtedly most satisfactory; for shape, location, color, all the factors necessary for diagnosis, with the exception of those perceptible to the touch, can be reproduced with an exactitude and a verisimilitude that leaves nothing to be desired. Unfortunately, however, this method of reproduction is tedious, dirty and troublesome; and a necessary factor for its successful execution is an amount of artistic discrimination, taste and skill, that is not in every one's possession. The time required for the preparation of models, and the expense involved therein, will continue, I think, to restrict their use and limit their production. Paintings in oil and in water colors are expensive luxuries when done with any finish and attention to minute detail; and the artist's individuality, the things he sees, or thinks he sees, the methods that he employs to depict these things, in other words the personal equation, is often painfully apparent. Photographic reproduction, while excellent for minute detail, necessarily neglects the very important element of color entirely. True color photography appears to be still far in the future, unless the recently loudly heralded process for that purpose that has come from Paris should prove to be more reliable than its predecessors.

Turning now to the production of illustrations in quantity, it is very apparent that a process that is to be practical, more especially as regards expense of production, must be one that can be accomplished wholly by mechanical means. The photo-mechanical processes and photogravure have been greatly developed in recent years, and the results obtained from them are in many respects admirable. But the same objection of the absence of color applies to them as to photography. The various processes of colored depiction, that I may group as the chromo-lithographic, have in some cases given good results; but there is in most of them a crudity and a grossness of coloring that render them diagrammatic rather than pictorial.

Some two years ago my attention was called to a process in which, by the conjoined use of the camera and the press, representations of objects in colors true to nature could be obtained and reproduced in unlimited quantities at a moderate cost. Printed by this so-called "three color process" I saw a number of copies of paintings, rugs and other flat objects that were surprisingly accurate in form and coloring. It had not up to that time been used on life subjects; but on inquiring into its method, I saw no reason. other than possible technical ones, why this should not be done. It seemed to me that, if this method could be successfully developed, it would be of value in various departments of medicine, and especially so in dermatology and syphilography. Photographs could be made by an ordinary operator, or by the physician himself, from life; and the negatives once successfully taken, reproduction to any extent could readily be done. I found that the cost of the method compared favorably with that of any of the other color methods, and not very unfavorably with that of plain black and white. The technique I found to be apparently simple. Nevertheless, as might have been expected, I found difficulties enough therein, and to spare. The method is as yet imperfect, but I believe that it will be simplified and developed, and I call attention to it here for the purpose of recommending its trial to those who are in a position to do so.

The entire process may be divided into two parts, the first and essential one to be done by the photographer, and the second, the actual printing of the copies, being necessarily left in the hands of the skilled photo-mechanical printer. It is with the first that we are most nearly concerned, since the second can be done at any time, and in various ways. The apparatus required is the following:

1. *Camera and lens.* Of these little need be said. Any camera on a firm stand, and provided with three accurately fitting and exactly similar plate-holders will do. The main requirement for the portrait lens is rapidity of action. for reasons that will be apparent later on. An accurate time shutter is needed, since the cap can not be employed, as the front rim of the lens is occupied by the color screen holder. I employ a large portrait box, with a Zeiss portrait lens, and a Bausch and Lomb shutter.

2. *The color screens.* These are the most important parts of the apparatus, for the successful carrying out of the process depends entirely upon the accuracy of their color values. There are three of them, a blue, a green, and a red. Each one consists of two sheets of very thin and perfectly flat white glass sufficiently large to cover the entire front of the lens to be employed, and containing a thin layer of transparent pigment between them. It has been found impossible to obtain colored glass of the proper values and thinness, and the preparation of these screens is a matter of extreme nicety. Not only must the glass be without flaw, absolutely true, and of great thinness, but the pigment, which is dissolved in gelatine, must be spectroscopically correct; and the least impurity, dust or pigment granule, or air bubble, greatly impairs the value of the screen. Sets of them are sold by some of the makers of photographic plates; but I have found it impossible to obtain proper results from some of those in the market. The set that I now use were especially made for me by Mr. Ernest Edwards, of the New York Photogravure and Color Company, who has done much to develop the three color process. The screens are held in a frame that slides in a holder attached to the front rim of the lens, so that no light can reach it save what comes through the colored glass.

3. *Plates.* Iso-chromatic or ortho-chromatic plates which give most nearly the true color value of objects are the only ones that can be employed; and of these the slowest that can be obtained are the best. I employ only the Cramer iso-chromatic slow plates. Ordinary plates are entirely useless in this process.

4. *The developer.* Any of the standard developers can be employed; but the yellow tints, that are so frequently gotten with pyro are objectionable, and it is not infrequently a source of failure in printing from the plates. I have found the amidol developer to be the best for this process.

The details of exposure are very simple. Three plates are exposed successively, one through each of the color screens. During the entire time of exposure, including the time required for changing the plate-holders and the color screens, and setting the shutter, the patient must keep entirely still. The slightest

movement on his part will cause the negatives not to register, as it is called; the three superimposed gelatin plates will not print over exactly the same lines, and the set is spoiled.

The method of procedure is as follows:

1. *Posing.* The part to be photographed, be it face, limb, or the entire body, should be lighted up as well as possible, but evenly, great care being taken to avoid as far as possible deep shadows and sharp contrasts. All the essential parts of the picture should be upon the same plane; for, as will be seen later on, those portions of the picture that are not in focus will not only be indistinct, as in ordinary black and white photography, but will be of wrong color also. This difficulty does not occur in copying pictures or flat objects, and pictures of perfect faithfulness can be obtained. It is inherent in life work, where it is impossible to have all points of the picture in focus at one and the same time.

The background should be of a neutral tint, not black or white, so that its exact color in the picture is a matter of no importance. Being necessarily out of focus, its color will inevitably be different from the reality.

2. *Color scheme.* A piece of paper striped with the three primary colors, must be so arranged as to appear on the negative, to inform the plate maker and printer as to which plate each one is, and to guide the latter in the exact superimposition of the plates.

3. *Exposure.* Here the main difficulty and the crux of the process is met with. Three plates are to be exposed at one sitting; the plate holder must be changed three times; and at each change the color screen must be moved, and the shutter set. Over and above this, the time of exposure is long; it takes many seconds for the light to act on the sensitive plates through the color screens. The exact time of exposure varies with a number of factors, and is a matter of nice judgment. The thickness of the color screens, the length of draw of the camera, the amount of the ever varying light, the color of the object to be photographed, all these must be taken into account in determining the length of time during which each individual plate must be exposed. This is long enough under the most favorable circumstances, and all attempts to diminish it materially have so far failed. Magazine cameras, arrangements by which one plate after the other is exposed inside the camera by mechanical means, and arrangements designed to facilitate the changing of the color screens have not proved to be of much practical value. The time occupied in these manipulations bore so small a proportion to the total time of exposure that it did not seem worth while to continue the experimentation in that direction. The slow plates and the screens necessitate the employment of the quickest possible lens; the diaphragm should be left wide open; and the process should only be undertaken at the middle hours of bright days, when the light is at its strongest.

I usually expose the plate through the blue screen first, then through the green, and last through the red. This is for the reason that the more rapid the action of the light upon the sensitive plate the greater the disturbing effect of slight movements on the patient's part will be; and though such movements are most likely to occur during the last and longest exposure, it will have less effect during the exposure through the red, the slowest of the screens.

The exact time of exposure for each plate is so variable that no exact rules therefor can be laid down In a general way I have found that the proportion between the quickest exposure, that through the blue screen, the medium one, through the green, and the slowest, through the red, to be as one, two and four. An average exposure under moderately favorable circumstances requires twenty seconds for the blue, forty seconds for the green, and eighty seconds for the red screen. In exceptional cases, with very good light and small camera draw, the time may be reduced to fifteen, thirty and sixty seconds. The reverse, however, is more frequently the case, and exposures of twenty-five, fifty and one hundred seconds must not infrequently be made. Allowing twenty seconds for the necessary changes in plate holders, screens and shutter, all of which with practice can be done with great rapidity, this means a total exposure of from 125 to 195 seconds, or from two minutes to a little over three. This might not have seemed considerable in the old daguerreotype times, but it is a very long sitting today, and difficult to obtain with our ignorant and often sickly and nervous patients. I have had failure after failure, amounting to many hundreds, simply from inability to secure the necessary quietude, in spite of all manner of mechanical devices to immobilize the patients.

4. *Development.* The plates are developed in the ordinary way, and to the usual degree. After fixing and clearing they do not differ materially in appearance from ordinary negatives for black and white printing. The pictures of the color schemes above mentioned will serve to differentiate the plates, and show the degree of correctness of the color values of the screens; in each negative of the three one color, and a different one will be cut out and be absolutely transparent. The printing value of the negatives depends almost entirely upon the sharp and complete cutting out of the colors.

The rest of the process belongs to the domain of the mechanical color printer. From each negative of a set a gelatin plate is made, and three printings, in yellow, red and blue ink are made to complete each picture. This is done on a hand press; but skilled labor of the highest kind is required, since the slightest inexactitude in the superposition of the successive printings gives a faulty impression. As a rule the yellow is printed first, then the blue and then the red. But this is not an invariable rule. Slight changes of tint can be obtained by varying the order of the printing, the color which is required to predominate being printed last. From the admixture of the colors in varying proportion, or rather, from the combination of the different layers of the semi-transparent colors, all the varying tints are obtained. There is probably no more difficult color to imitate than that of flesh, and no one in which there are more different tints, and the successful flesh color that can be attained shows the essential value of the process. Two colors, however, can not be perfectly attained, viz.: pure black and pure white. With all possible care in the selection of pigments, they can not be procured sufficiently pure to give these.

There are certain well-marked limitations to the use of the three color process, and in some cases it can not be used at all. First, we can not expect to obtain with it a sharpness of definition equal to that of plain black and white printing done from one plate. The mere fact that three printings are made from three different plates would prevent that. Second, the

prints of a series are not and can not be absolutely uniform; there are inevitably slight differences due to the varying amount of ink upon the rollers, and to the varying effect of the temperature and moisture of the atmosphere upon the gelatin plates. Both of these minor objections I hope to see removed in the future by the application of the process of stone.

Then again, not all portions of a larger picture from life can have true color values. This is perfectly possible in the reproduction of a flat object, as of a painting, the whole of which is upon one plane. In photographing from the living subject some parts of the actual picture, and all the background and accessories are necessarily out of focus. In plain black and white printing this simply means indistinctness of definition in the non-essential parts of the picture; a thing that we are accustomed to, and no longer notice. But in the color process the parts out of focus are not only indistinct, their color is not quite true to nature. This is a limitation inherent to the process, and is not of much importance from our point of view. Our object is attained if the affected skin and its lesions have the correct tint.

Finally, certain cases are entirely unsuited for the process. Children can not be so photographed, for they can not be kept still long enough; nor very old or nervous individuals for the same reason. Larger pictures of the integument of the trunk are frequently failures, on account of the inevitable lateral motion. But antero-posterior motion, to and from the camera, does no harm, and smaller sized pictures of the entire trunk can be taken with perfect success.

And now a final word as to its advantages and possible field. Larger pictures of the face, lower part of the trunk, and of the limbs, and smaller ones of larger areas of the body can be readily taken in appropriate subjects. For the reproduction on a large scale of paintings in water colors or in oils, or of casts, it is entirely suitable. It requires for its photographic part little more than the ordinary photographic apparatus, and ordinary photographic skill. So far as its cost is concerned, it is even for a single print much less than a properly colored drawing or a painting. A few dozen cost no more than one; and for larger quantities the expense compares favorably with that of the older mechanical color processes.

INEQUALITY OF THE PUPILS OBSERVED AT AN ALTITUDE OF TEN THOUSAND TWO HUNDRED AND FIFTY FEET.

Read before the Colorado State Medical Society.

BY E. T. BOYD, M.D.
LEADVILLE, COLO.

The time when it was thought possible to foretell the character of insanity by noting which was the larger pupil has long since passed away. It is also my opinion that when the influence of great altitude upon the general economy shall be better understood, the time when we, as physicians, were inclined to regard inequality of the pupils as more than presumptive evidence of serious lesions, will have become ancient history.

My reasons for bringing this subject (anisocoria) to your notice are many, the main one being to impress upon you that there may be unequal dilatation of the pupils which is in no way indicative of the lesions to which we are commonly in the habit of attributing it. So far as I can learn, but little has been written upon the subject, and that little deals with it as a symptomatic manifestation of graver troubles, such as tumor of the brain, glaucoma, and disease of the retina and optic nerve.

Inequality of the pupils may be observed in many and varied conditions. Traumatism of the globe may produce it; it is seen as a sequel of diphtheria, and may occur from peripheral irritation, for instance, ulcers on the septum of the nose, or from some intestinal trouble.

But it is not the purpose of this paper to discuss all the causes of, nor all conditions in which it may be found. I desire to treat of it as a peculiar abnormality frequently seen and in some way due to the environment of persons living at a great altitude.

Anisocoria may be seen in both male and female, children and adults, regardless of occupation or manner of living. A physician in whom I had discovered unilateral mydriasis had noticed the same thing in his three year old son. I have records of over one hundred cases observed in Leadville during the past year, and am sure that I could easily find as many more.

Believing inequality of the pupils as observed in Leadville to be wholly due to the altitude, I inferred that a like condition would be found in persons living in and about Cripple Creek and Victor. Through the kindness of Dr. Boyd of Victor, and some of his medical friends, I am enabled to say that it is so common that the doctor in writing me stated that it might be seen in one-third of the older residents—those having lived there from one to five years.

Fuchs says: "Inequality of the pupils is always a pathologic phenomenon." Noyes states: "Dilatation of one pupil of slight amount with preservation of its activity is sometimes seen as an unimportant affection which may continue for years. Its cause is unknown, but it is probably local to the iris." True, the cases to which I refer have not been under observation for sufficient length of time to enable me to thoroughly eliminate all possible connection with graver maladies. In progressive locomotor ataxia, anisocoria may appear several years before the disease is fully manifest. But, taking into consideration the comparative rarity of posterior spinal sclerosis (this, I believe, is more common at a great altitude than at sea level) and the marked frequency with which unequal dilatation of the pupils is seen in Leadville, together with the total absence of the Argyll Robertson or characteristic pupil of tabes, added to which we find the patella tendon reflex to be normal; all this disposes me to believe that there can be no connection between the cases referred to and the disease in question.

In regarding a case of unequal dilatation of the pupils, the first thing to do is to decide whether there is myosis in one eye, or mydriasis in the other. In other words, which, if either, is the normal pupil. In the following cases this has been done as nearly as may be, by noting carefully the reactions to the various stimuli, and by comparing them with apparently normal pupils observed under like circumstances and conditions. I think that there can be no doubt but that results warrant the statement that they are all cases in which unilateral mydriasis exists.

For the purpose of avoiding too frequent repetition I will speak in a general way concerning features which in the main are common to all the cases

observed. From none could there be elicited aught but negative history, either immediate or remote. All of the subjects are in excellent health. The men are moderate drinkers and smokers; but few of them have had visual disturbance, and in these cases the trouble was due to some minor refractive error. Rarely in these cases have I found anisometropia which may occasionally be the cause of anisocoria. Pupils reacted consensually, also responded normally to light; convergence and accommodation in all cases except Nos. 6 and 9; the departure from normal in these cases consists in the peculiar reaction first described, I believe, by Gowers, as follows: "Immediately upon exposure to the light the pupils contract; light stimulus being continued, the abnormally dilated pupils rapidly regain their former size."

In all cases that I have had the opportunity of observing frequently, I find that there are times when the pupils are of equal size. The exacerbations can not be associated with excesses of any kind. In about one-half the cases seen the right pupil was the larger, while in the remainder the reverse obtained. The difference in size ranged from one-fourth to three-fourths times larger than the smaller pupil. Incidentally I may mention that I have seen the same condition of unequal dilatation in dogs. Paresis or paralysis of the fibers of the oculo-motor nerve supplying the sphincter of the iris, irritation of the cilio-spinal center of the cervical spinal cord or the cervical sympathetic supplying the radiating fibers of the iris will produce dilatation of the pupil. As long as the third nerve functions properly, presupposing the optic nerve and retina to be intact, the reaction to convergence and accommodation will be normal. The accommodation unimpaired, with normal reaction of the pupils to convergence and accommodation, I think it safe to conclude that the unilateral mydriasis is not associated with impaired function of the third nerve, hence we naturally look to the sympathetic system for the cause of the abnormality.

The idea is quite general that there is a condition of enervation in persons residing in Leadville or at a like altitude. Knowing of this impression, I have employed the best means at my command to learn the truth or falsity of it. I find that the physicians of that district, almost with one accord, believe that the conditions dependent upon altitude cause innervation rather than enervation. The laboring men interrogated upon the subject bear out this opinion. Fifty miners, taken at random, being asked as to their general feeling of well being and their ability to do work as compared with a lesser altitude, forty-five of them thought they could do the same amount of work with greater willingness and less fatigue after having accomplished it than at a lesser altitude, while five believed the reverse. It should be stated, however, that the five last mentioned experienced difficulty in breathing. Most people coming from sea level to an altitude of 10,250 feet, become exceedingly short of breath upon slight exertion, and may have tinnitus aurium and a feeling of giddiness, because they are accustomed to breathing a much denser atmosphere and their lungs are not equal to the task of obtaining the requisite amount of oxygen from the rarefied air, and for a time there is enervation. If the lungs are healthy, a residence in Leadville will soon bring about a compensatory increase of lung capacity. This, with increased circulation of the blood, enables one to obtain all the oxygen required and he will no longer be handicapped by dyspnea. When the lungs and circulation shall have adjusted themselves to the conditions, the depressed feeling he first experienced is supplanted by one of exhilaration.

The atmosphere being practically devoid of dust particles and moisture, the light is very intense and we would naturally expect to find contracted rather than dilated pupils; but I find cases in which there is bilateral mydriasis, and this fact but serves to confirm me in my theory of the cause of the anisocoria, namely, that it is due to hyperactivity of the nervous system, which is especially manifest in the cervical sympathetic. I believe that this hyperactivity stimulates equally the radiating fibers of the irides to contract and I account for the unequal dilatation upon the hypothesis that there is a difference in density of the radiating muscular fibers, and it may be of the sphincters also, of the irides.

I further believe that this tendency to excessive dilatation of the pupils is common to those living at so great an altitude and that in cases in which we do not find the anomaly the power of inhibition is sufficient to overcome it.

Case 1.—J. C., age 50, bill poster, resided in Leadville eighteen years. Right mydriasis.

Case 2.—T. C. W., age 25, mining man, lived here two years. Right mydriasis.

Case 3.—H. T. B., druggist, age 25, resided here five years. Right mydriasis.

Case 4.—J. H., age 53, lived here eighteen years. Right mydriasis.

Case 5.—C. H. M., age 30, civil engineer, resided here two years. Left mydriasis.

Case 6.—J. J. M., age 46, furniture dealer, resided here eighteen years. Left mydriasis.

Case 7.—S. G., age 27, salesman, lived in Leadville three years. Left mydriasis.

Case 8.—T. J. W., age 32, physician, resided here two years. Left mydriasis.

Case 9.—T. H., age 34, commission merchant, lived here eighteen years. Left mydriasis.

Case 10.—A. J. B., age 43, saloon man, lived here five years. Left mydriasis.

Case 11.—J. S. B., age 40, mining man, resided here eighteen years. Left mydriasis.

Case 12.—H. S. J., age 21, mining man, resided here one year. Left mydriasis.

Case 13.—C. H. B., age 24, dry goods merchant, lived here ten years. Right mydriasis.

Case 14.—Dr. A. J. McD., age 40, resided here seven years. Left mydriasis.

Case 15.—Ed. L., age 29, barber, lived in Leadville four years. Left mydriasis.

Case 16.—G., age 35, physician, resided here three years. Left mydriasis.

Case 17.—W. W. W., age 40, stationary engineer, resided in Leadville six years. Left mydriasis.

Case 18.—B.. age 30, plumber, lived here four years. Left mydriasis.

Case 19.—D. A., age 28, telegraph operator, has lived in Leadville five years. Left mydriasis.

Case 20.—E. S., age 27, housewife, resided here six years. Right mydriasis.

A SIMPLE, PAINLESS AND PERHAPS NEW METHOD OF VACCINATION; DENUDATION VERSUS SCARIFICATION.

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This method may fall under the category of "nothing new under the sun," but I have not been able to find that the simple principles followed have ever been put into practice before. The idea of perfecting

a new method of preparing the skin for inoculation was brought to my mind because of my sympathy for little children who are frightened and even given pain by the old, scarification plan.

The protection from absorption possessed by the skin is due to the epidermis and chiefly to the horny layer. This being removed, or even scarified, permits absorption. An excoriation or denudation is necessary to local infection in most cases, though follicular inoculation has been credited. Given, then, an impermeable covering, it was but necessary to find an agent which would dissolve or disintegrate the upper layers of the epidermis without pain or fright to the patient. Salicylic acid in glycerin was tried and discarded. A saturated solution of caustic potash in a 20 per cent. solution of cocain was effective, though the final product of the mixture was uncertain. A light application of the caustic potash stick was tried, being neutralised with acetic acid as soon as burning was felt.[1] This was effective, but acted rather severely, and left some pigmentation from slight inflammation. Finally, ordinary liquor potassæ was tried and found to meet every indication.

The elder Hebra denuded his old eczema patches with green soap and rubbing, and this softening action of potassa has long been well known. We use liquor potassæ in mounting scales and hairs for microscopic examination, and it rapidly disintegrates them. The pigmentary deposits in the epidermis are easily removed after the application of liquor potassæ. Officinal liquor potassæ is a 5 per cent. solution, that in common use becomes stronger through evaporation.

The procedure of preparing the surface for vaccination is as follows: The point to be vaccinated is cleansed. A piece of cotton as large as the desired denudation is wet with liquor potassæ and laid on, or a little of the fluid is put on with the bottle stopper. After two or three minutes, or as soon as sliight burning is felt—it usually does not burn at all—the cotton is removed, if it was used, the soap mixture which has formed with the skin secretions is wiped off with a piece of wet cotton, though this is not essential to success, in order to render the next step easier. Then an ink eraser, a tooth-pick of soft wood, a pencil rubber, a piece of gauze (the quickest) or a piece of damp cotton is used to rub away the softened epidermis. The friction is slight, the pain is only a little stinging when the sensory nerve filaments become exposed. We obtain in a few seconds a moist, shining surface, often a clear view of the papillary vessels but no bleeding. The vaccine is now applied and let dry on in the usual way.

The advantages of this method are its practical painlessness and the absence of terrifying instruments, such as the "Neptune's trident," the lancet or sewing needle. Further, bleeding is a bar to successful inoculation. By scarification it is difficult to stop short of bleeding, while with denudation bleeding is almost impossible. A little girl aged 6 years, vaccinated herself by my method. There is also less danger of an undesired infection from instrument or epidermis when this method is employed.

As to the results: A good lymph will "take"; an unreliable one will not. Inoculation was successful in as many cases vaccinated by denudation as by scarification. Within three days one young man developed twenty-five distinct and characteristic vesicles in an area three-fourths of an inch square. Others "took" in the usual way. Abortive lesions formed in other cases just as after the old method.

One doctor vaccinated seven children in an institution at his first trial of my method. With three he did not wash off the liquor potassæ before denuding; in four he did. Every one of the seven "took." The doctor was fortunate in his lymph. Other physicians have found the method successful. Many cases could not be followed up. Increased experience with the method and the reports of others demonstrate probably a larger percentage of success than is possible with scarification.

Ordinarily there may be one objection to the method of denudation; it is slower, but the time necessary to subdue a refractory child for scarification will often amount to more than two or three minutes. Again, if we draw blood in scarifying, this must all be removed and further flow checked to insure a result; this takes time. For those who wish to save themselves annoyance, or to spare little children and nervous people pain and fright, the method described is preferable. Sympathy and convenience justify its use even if the whole matter is simple and small.

Denudation offers a field for dermic medication which may reduce the necessity for so much use of the hypodermic syringe. I have not experimented here except with cocain and eucain solutions. I obtained their characteristic effects. Something similar to this has been used for the dermic absorption of drugs, viz., the formation of a blister which resulted in the denudation of an absorbent surface. A denudation maintained with moist rubber tissue might spare some ill person frequent, painful thrusts of the hypodermic needle, where such introduction of drugs should be practiced.

NOTE.—This method was demonstrated to the Atlanta Society of Medicine on the evening of Sept. 21, 1897, a report of which will be published. Most of the experiments with the method were made since September 1 of this year, although slight trial of other agents was had some months ago.

311-312 Fitten Building.

[1] Since writing the above the caustic potash stick was tried again, in the absence of a supply of liquor potassæ. A minute drop of the deliquescing potash was put on, gently smoothed out and immediately wiped away with damp cotton. The denudation was perfect, the pain nil and the procedure even more rapid than scarification.

THE DRY METHOD IN INTRA-UTERINE SURGERY.

Read before the Illinois State Medical Society.

BY EDWIN WALKER, M.D., PH.D.

EVANSVILLE, IND.

Last year I read before this society a paper on the abuse of water in surgery (AMERICAN MEDICAL ASSOCIATION JOURNAL, No. 26, 1896). Some of the disadvantages of its excessive use in both septic and aseptic cases was pointed out. It was urged also, that outside of hospitals, where we have to rely on unskilled help to prepare the water, it is often used from vessels improperly cared for, and is often the source of infection. On the other hand, there is no longer a doubt that ideal asepsis may be attained by the dry method. The action of the water, though it be pure and sterile, exercises an unfavorable influence on healthy tissues, while antiseptic solutions often injure them and markedly reduce their ability to resist infection. It is practically settled, that septic wounds can not be rendered aseptic by any washing, or the use of antiseptics, no matter how strong they are used; all we can do is to render the conditions such as to give the tissues a chance to exclude the germs.

It is not intended to inveigh against water used to cleanse the parts before operation, for it is here indispensible, but after the operation is begun it should be dispensed with; nor is it denied that in some septic cases, as ulcers or abscess cavities, it may be mechanically impossible to remove sloughs or other detritus without water. If efficient drainage is established, such cases will not be numerous.

In this paper I will discuss the dry method in intra-uterine work. I believe there has been almost a universal tendency in this direction; personally I have gradually used less irrigation, and now have almost entirely given it up, and my results have since been much more satisfactory.

The most frequent occasion for invasion of the uterine cavity, is to remove the products of conception, and curettage for indometritis, and in these cases I have most extensively employed the dry method. It has been almost the universal custom in these cases to irrigate with plain water, or some antiseptic solution; this is directed by all the standard works on gynecology. Irrigation is superfluous. After a thorough curettage for endometritis or the removal of the placenta, we have a fresh wound which is to be cleaned, the blood wiped off just as from an incision. This can be more efficiently done by wiping with sterile gauze than in any other way. Irrigation is often positively harmful. Who has not seen localized peritonitis after irrigation of the uterus, from passage of fluid through the fallopian tube? Besides, the water or antiseptic does in some degree impair the exposed tissues, and is often the carrier of infection. It is a rule that the simplest method, the one which requires the employment of the fewest things and the least handling, is the one which will most frequently attain asepsis. Water or fluids have to be poured from one vessel to another, and in many ways exposed to contamination.

By the dry method these cases are very simple. In curettage for endometritis, the patient is put in Simon's position and the vagina scrubbed with liquid soap. This is washed out with creolin, and followed by plain water. It is then thoroughly dried with sterile cotton, dilated and thoroughly curetted as usual. When this is done the cavity is thoroughly wiped out with sterilized gauze, the wiping being repeated several times, until the gauze comes out but slightly tinged with blood. Then it is wiped out with iodoform gauze, and packed with the same. I have found it a great help to have the gauze, both plain and iodoform, cut in strips and packed in a glass tube (a large test tube). It is sterilized in these tubes, and drawn directly from them as placed in the uterus, without touching anything but the dressing forceps. If the case is one of abortion, and part or all of the ovum is retained, the same method is followed, except that Martins' curettage forceps are used to facilitate the emptying of the organ. These are dull, smaller and less clumsy than the ordinary placental forceps, and are much more convenient and efficient. The wiping and packing is the same, except that it has to be more frequently done, the hemorrhage is greater, and there are more shreds of tissue to be wiped out. I do not suppose that by this process, we really remove all the membranes; I doubt if we ever do, but this is not necessary, for in aseptic treatment healing will be complete. If the os is patulous and the abortion is as late as the fourth or fifth month, the fingers may be introduced and will greatly aid in the removal of the placenta. I have, however, found the forceps a great aid in these advanced cases, and have never done any damage with them. I have in two instances emptied the uterus for vomiting in pregnancy. These cases had both advanced to about the eighth week. The vomiting was so severe and constant, that after consultation it was decided that farther delay would greatly endanger life. The os was dilated as usual, the ovum was seized with forceps and stripped out, the membranes being extracted in pieces. The cavity was then curetted, wiped out and packed. In neither case did the temperature rise over 99.6, nor the pulse above normal. In both cases the nausea ceased at once, and neither was sick from the anesthetic. It is interesting to note here, that one patient became pregnant a few months later, and was almost entirely free from nausea during her pregnancy. I have a number of times emptied the uterus in a similar manner, before fetus was expelled, after finding that abortion was inevitable. The advantage is, that the patient is spared much suffering and hemorrhage, and the danger is very much less than by waiting for nature to do the work.

I can not leave this part of the subject without a not of warning. It is understood that this method is free from danger only in the hands of those who have sufficient skill to do it properly, and have learned by careful study and experience to do aseptic work. Unless these manipulations are done with care and under strictest asepsis, many accidents will occur. But these are chargeable to the individual, not to the method.

When the contents of the uterus has become septic the method should be the same; dilate, remove contents, wipe out and pack. I feel that my experience in abortions justifies me in commending it as the best and safest. In puerperal cases, my experience has not been sufficient to speak authoratively, but I do not believe it will prove an exception. In one case of missed abortion, my colleague, Dr. Owen, removed a septic ovum of three and a half or four months, in this manner. The patient became pregnant, the fetus for some reason died between the third and fourth month. Later she had fever. This continued three months. When she came under the doctor's care she was much reduced by long pyrexia; examination revealed the condition. She made a rapid recovery. This case was an excellent test; notwithstanding the ovum was torn out, and not a drop of water was used, the result was perfect. In ordinary cases where the fetus has been expelled and the placental membrane remains, and fever has set in, the dry method leaves nothing to be desired.

The only cases in which there is any doubt of its efficiency, are the puerperal or later abortions, in which the uterus is markedly affected and a large amount of pus or septic material is found. These are the cases in which frequent or constant irrigation has been recommended, and in many cases is doubtless successful. In private practice this is a very difficult method to carry out. It is not safe to trust it to a nurse, and it requires almost constant presence of the physician, and besides, in many cases it fails. I believe the manual disturbance in these cases, is, in many instances, bad. The barrier against infection, which nature throws out around any area to shut off systemic infection, is often broken down by such frequent interference. It may be urged that the packing would be, but this latter need not be so often done, and if carefully executed would not do as much violence as the

intra-uterine douche. If this could be replaced by packing which would not require removal oftener than once or rarely twice in twenty-four hours, it would be a great gain. The gauze takes up much of the discharge and keeps the os open, thus securing drainage. I have recently used the packing in two cases, one of which recovered, but in neither case was it a fair test, as it was not begun early, nor was it used alone.

A CASE ILLUSTRATING THE VALUE OF SYMPHYSIOTOMY WHEN A TUMOR OBSTRUCTS THE PARTURIENT CANAL.

Read before the Denver and Arapahoe County Medical Society, February, 1897.

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PART I.—BY DR. ROVER.

INTRODUCTION.

Based on two cases of symphysiotomy which occurred in my private practice (one operated on by Dr. Gustav Zinke of Cincinnati, and the other by Dr. T. M. Burns of Denver), and both of them successful to mother and child, I desire to give expression and emphasis to the benefits derived from said operation.

The operation, though a feasible one, does not suggest itself to every medical mind interested in any particular case. The patient was seen repeatedly by three physicians during the latter part of her pregnancy and no unanimity of opinion could be reached; not even after she was taken in labor did the various counsel agree. One favored a Porro, the second a craniotomy, I pleaded for a symphysiotomy. Why this discrepancy of opinion? Simply because the respective indications, benefits and limitations for either of these operations are not definitely fixed.

It may be said that under favorable conditions and at the hands of skilled operators, the death-rate has been almost *nil*. Pinard lost but one mother in his first twenty operations, and Sweifil one in forty-three cases. The fetal mortality, including those that die shortly after birth, runs higher; according to Neugebauer as high as 20.5 per cent.

Cæsarian section, although more saving to child life, is more dangerous to the mother. Induced premature labor under approved modern methods with its low maternal death-rate, is more hazardous to the fetus than is a symphysiotomy.

Where a symphysiotomy is possible and the child *in utero* is viable, we should never think of performing a craniotomy. In this connection I recall the teachings of an old professor (Dr. Tate of Cincinnati) who declared that an unborn child, whose life is being held at stake, may prove to be an unborn Milton or Shakespeare; hence the conclusion that if other safe measures can be instituted the fetal life is not to be sacrificed.

The woman's powers of locomotion are not necessarily crippled by slight looseness of the joint, and as a rule, under a rigid asepsis and with complete immobilization of the pelvis during convalescence, the restoration of the symphysis in women not previously infected is complete. In both of my cases the union was perfect, in the first, great precautions were taken to secure the immobilization of the pelvis by the use of both adhesive plaster and a jacket of plaster-of-Paris; whereas, in the second case only a strong linen many-tailed bandage held the parts together.

The operation is best adapted to the symmetrical rachitic pelvis, and should not be undertaken when the true conjugate is less than two and five-eighth inches. As much as two to three inches of separation may be secured without risk of injury to the sacro-iliac symphysis. Version should not be resorted to when the head can be made to engage.

Case report.—Mrs. K., German, aged 35 years, married seven years, childhood history negative, no rachitic tendencies.

Her labors: 1st, at nine months vertex, terminated by craniotomy after nine hours of labor; 2d, at nine months vertex, terminated by podalic version after five hours of labor; 3d, at eight months breech, terminated by inducing labor with the catheter. Catheter was in place six hours before labor set in, the labor lasting six hours; 4th, occurred under my supervision Aug. 10, 1895. When consulted beforehand I advised a symphysiotomy, but the patient had been instructed by the physician in charge of her previous confinements that a premature labor induced at the seventh month, and the mother during her pregnancy resorting to a vegetarian diet (particularly fruit), would offer the best hope for a successful issue on the part of child and mother. As in the third pregnancy, the catheter was introduced but remained in place for two days before labor set in. The labor lasted six hours and the presentation was a breech. Unfortunately prolapsus of the cord occurred early in the labor, and as its result a dead baby was born; 5th, this was terminated by the symphysiotomy reported in this article and resulted in saving both child and mother.

The puerperal state in each instance was normal, and with the exception of the last she was up on the eighth day. Her various pregnancies were all normal.

History of tumor.—Patient never felt any tumor or symptoms from it. At the first labor (which took place in Germany) the attending physician diagnosed a contracted pelvis due to the sacral prominence projecting abnormally forward; at the second labor she had the same physician and consultant. There was nothing new with reference to the obstruction. At the third labor she had the same physician. I advised symphysiotomy during the fourth, but by request induced labor at seven months. All I could make out was a dystocia due to abnormal size of the promontory. In all of the first four pregnancies the child was still-born but living until artificial aid was used.

Her last labor, the fifth, began July 27, 1896, at 7 A.M., and the waters broke at 2 P.M. I saw her at 3 P.M., and a little later the other two consultants were at the bedside. No unanimity of opinion, as before stated, could be reached, each of the three physicians contending for his choice of operation. The family decided against the Porro; the vitality of the child decided against a craniotomy, and hence about 5 P.M. Dr. Burns was called in to perform the symphysiotomy, he advocating this measure. Her previous pregnancies, with their respective terminations, warranted the step taken, and today there is happiness in a Denver home because of such a proceeding.

PART II.—BY DR. BURNS.

THE OPERATION, SUBSEQUENT TREATMENT AND RESULTS.

By abdominal palpation, the presentation was found to be a vertex, and the position a left occipitoposterior. The forehead was prominent on the right side above the brim, an indication of some obstruction to the engagement of the presenting part.

By pelvimetry, the distance between the anterior superior spines was ten and one-half inches, the crests eleven inches and the external conjugate seven inches. These measurements indicated that the dimensions of

the pelvic inlet were normal, except slight diminution of the internal conjugate.

By vaginal touch (patient under chloroform for introduction of hand), the pelvic canal was apparently normal, except for the presence on the upper half of the anterior surface of the sacrum of a tumor, seemingly the size of a child's head and of a consistency similar to a chondroma or a fibroma.

The opening at the brim was barely large enough to allow the passage of my closed fist (a circumference of about nine and one-half inches). The cervix was found dilated to the size of the space not occupied by the tumor at the inlet.

Considering the size of the head, the difference which symphysiotomy would make in the dimensions of the inlet, and the more or less compressibility of the tumor, shown by the history of the previous cases, I stated that with symphysiotomy and the careful use of the forceps a living child could be delivered.

The operation.—The abdomen, vulva and vagina were rendered aseptic. The instruments were sterilized in a wash-boiler. The patient was chloroformed and placed on the kitchen table; a Kelly pad was formed of an oilcloth, the head of the table being raised by a brick under each leg, and the hands of all were rendered aseptic. A medium sized straight Peaslee's dilator was passed into the bladder to deflect it away from the pubic joint. A longitudinal incision was made through the muscles over the upper part of the symphysis, and through this incision the index finger was passed behind the pubes. By a straight and a curved bistoury the joint and sub-pubic ligament were incised. At times cutting from before backward to better prevent any injury to the soft parts was employed. Then the pubic joint was carefully separated, while the assistants held the thighs. This was followed by rather severe venous hemorrhage, which was arrested by hemostatic forceps and absorbent cotton compresses dipped in hot water. The forceps were applied to the head above the inlet. As traction was made separation of the symphysis to the extent of two to two and one-half inches was required before delivery could be effected, although the tumor flattened somewhat. (During delivery the anterior cervical and vaginal wall prolapsed, but were replaced and held in position. There was no tear in the perineum.) After the delivery of a small placenta, the Peaslee dilator was reintroduced and held as before, while the edges of the pubic joint were brought into apposition by pressure on the great trochanters. Then, after the hands were made aseptic, the muscular incision was closed by catgut sutures and dressed with boric acid, iodoform gauze and absorbent cotton. A many-tailed thigh and hip bandage of linen crash, and a many-tailed abdominal binder of the same material, reaching from the breasts to below the great trochanters, were the only means used to keep the edges of the pubic joint in apposition. The double bandage thus formed about the hips is all that is necessary to hold the joint in place, and being many-tailed allows a portion of it to be loosened and the wound dressed without the joint being disturbed.

After the operation the patient's pulse was 96. The child, a male, was somewhat asphyxiated when born, but was quickly resuscitated by the Forrest method. It weighed six and one-half pounds.

The puerperal history.—The temperature and pulse were highest on the afternoon of the first day, viz., 100.2 degrees F. and 100, respectively. During the next twenty-eight days the temperature varied between normal and 99.5 degrees F., and the pulse between 96 and 72. The bowels were moved by an enema on the third day, and subsequently kept active by enema and compound licorice powder. The urine was drawn twice on the first day, but after this it was spontaneously voided without pain. The lochia was slight and continued three weeks. On the third day it became offensive, but the odor disappeared the next day from the use of the vaginal douche Twice on the twelfth day a large amount of dark blood was expelled from the vagina, each time just after the bowels had moved. This was probably due to the patient being continually in the horizontal position. The vaginal douche was used the first three weeks. After-pains were present on the first two days. Pain and tenderness were absent except slight headache and pain referred to the hips at times, and some tenderness about the wound.

The wound was examined on the fourth day, and was found to be tender and red. This resulted from the catgut sutures being septic, or the lochia coming in contact with the wound when the patient turned on her side, or the mechanical irritation caused by the change of posture. The wound was redressed after being bathed with bichlorid. On the fifth, sixth, seventh, eleventh and fourteenth days the wound was cleansed by the use of alcohol and hydrogen dioxid, and dressed with an ointment (composed of equal parts of bismuth and castor-oil) and then iodoform gauze, etc., applied. On the seventh day the sutures were removed because they were partially absorbed.

The position of the patient was the dorsal till the third day, when she turned onto her left side. This was accompanied by slight pain. The patient was allowed to continue this position at times because it was believed that the lateral posture would keep the joint in as good apposition as if she was in the dorsal decubitus, better allow the lochia to escape and especially relieve the severe strain and worry which one constant position causes, and the only harm that could result was considered to be infection of the wound from the lochia, and this could be prevented by not placing the patient fully on her side until the wound had completely healed.

On the fifteenth day the patient sat up in bed. On the seventeenth day she walked across the room and sat on a chair twenty minutes, but felt motion and pain in the joint when walking. On the twenty-fourth day she was up five hours, could stand straight, but her right hip appeared lower and she seemed to rest her weight on it; she could feel no motion at the joint, but at times when walking this right hip seemed to drop. On the twenty-eighth day the patient resumed her household duties with nearly her usual strength, and no disturbance of the pelvis.

A pelvic examination four months after the birth of the child, showed the cervix to be a little low and bilaterally lacerated. Bulging from the upper part of the anterior surface of the sacrum was a hard round tumor, which in size and shape could be likened to a flattened orange. All of the sacrum which could be felt was of normal size. I do not believe that this condition is due to a bulging of one of the sacral vertebræ from spondylitis because of the shape and the fact that during labor the tumor flattened. By abdominal palpation nothing could be found because of the tenseness of the muscles. The distance between the tumor and the pubic symphysis was between two

and two and one-half inches, estimated by separating the index from the middle finger at the inlet and then measuring this separation by the tape after the hand was withdrawn.

In conclusion, we may say that this case not only illustrates the value of symphysiotomy when the pelvic canal is obstructed by a tumor, but also that even wide separation of the symphysis is not necessarily followed by any after-effects; that the patient need not be kept in the dorsal decubitus, and that many-tailed linen crash bandages are all that are necessary to keep the joint in apposition. Further, as stated in my previous article, this operation can be as successfully performed in a private house as in a hospital.

I wish to here add that in the "Transactions of the Colorado State Medical Society" for 1896, can be found two cases of symphysiotomy reported by me and that I have subsequently delivered the first of these two patients successfully by means of a very easy high forceps extraction.

FATTY HEART WITH BRADYCARDIA, WITH A REPORT OF A CASE.

Read before the North Chicago Medical Society, October, 1897.

BY CHARLES J. WHALEN, M.D.

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CHICAGO, ILL.

The subject of fatty heart should be of the greatest importance to examiners for life insurance companies, and one that should be very thoroughly understood by the medical practitioner, for a great deal of misery and unhappiness has been caused by careless or thoughtless medical opinions expressed regarding presumed fatty degeneration of the heart.

I can recall more than one instance of men going about with the greatest caution, firmly impressed with the idea that following the slightest shock of exertion they were to die suddenly. This impression was gained from the ignorance of doctors, and on examination of the heart it would be found in very good condition.

By the name "fatty heart" we mean two quite distinct conditions, one an abnormal deposit of fat in the heart, and the other, a fatty degeneration of the muscular fibers.

The first consists in an increase in the amount of fat that is normally found in the sub-pericardium after the sixth year of life. The connective tissue becomes infiltrated with oil globules, and it always occurs in great general corpulency. It is of little importance when confined to the sub-pericardial layer, but when it extends to the connective tissue, that links together the muscular fibers in the myocardium, it produces weak spots in the cardiac walls which greatly reduce the heart's force, and is apt to be followed by serious results.

In fatty degeneration the sarcous substance itself is transformed into fat globules, and comes from the decomposition of albumin in the muscular cells. The structure of the heart degenerates and portions are transformed into fat granules. It is within the substance of the muscle and along the longitudinal fibers that the transformation into fatty material first takes place, the myocardium being particularly prone to undergo fatty degeneration.

If the deposit of fat is localized the heart has a mottled appearance, but later, when the heart becomes generally involved, it has a "yellow brown or buffy color," the tissue may become so utterly destroyed that they break down under pressure.

Etiology.—Fatty heart is occasionally observed in early adult life, and has been found even in the fetus; as a rule it should be remembered that youth is not the season of fatty heart. Even middle life is not very frequently its seat, but it is found in people past the meridian of life, who have broken themselves down with drink and debauchery. It is much more frequent in males than in females. It is ascribed to imperfect oxidation of the nitrogenous constituents of the muscular fiber produced by general debilitating causes, such as wasting diseases, failing nutrition of old age, phosphorus poisoning, prolonged fevers producing parenchymatous degeneration. Occupation plays a very important part in its causation. A man who leads an active life up to 40 years of age, and suddenly changes to a life of idleness, is very apt to suffer from fatty heart. Other causes are obstruction of the coronary arteries, compression of the heart from abdominal tumors causing degeneration and valvular disease, especially in cases where there is great hypertrophy of the cardiac walls. Alcoholic abuse and the taking of great quantities of fluid by a fat person certainly predisposes to fatty heart; too much stress should not be laid on obesity as a predisposing cause.

Symptomatology.—"Fatty degeneration of the heart" always plays a far larger part in popular speech than it does in reality. It is a fact that many patients complain of a peculiar feeling, a sense of weakness, of suffocation or fulness under the sternum, pain or numbness in the arms and a cold creepy feeling down the back; later in the disease there is precordial pain, dyspnea, attacks of syncope, which may simulate apoplexy, except that it is not followed by paralysis; angina pectoris and cardiac asthma may come on, and death may follow with increasing dyspnea and general edema. I have seen three cases in which postmortem revealed well marked cases of fatty heart, which during life presented no special cardiac symptoms. The physical signs are as uncertain as the symptoms; there may be found an increase in the area of cardiac dulness, a small and sometimes irregular pulse, indistinct first sound, accompanied by a generally weak condition of the entire organ, although in pernicious anemia there may be quite a strong and perfectly regular pulse up to death in spite of the most marked fatty degeneration. A pulse permanently slow or permanently fast, is a sign of great value, although either may be found in a perfectly healthy person. I have seen a case in which the heart beat was forty-eight per minute; a condition which had been noted by other physicians during his early adult life; he also claimed that a brother had a similar pulse rate. Arcus senilis may occur with or without fatty degeneration of the heart.

Diagnosis.—Our power to diagnose the disease during life has not kept pace with our ability to recognize it after death. In many cases the diagnosis can only be arrived at by careful consideration of the whole aspect, and then it is often a matter of conjecture rather than of certainty; yet, how often do we see a diagnosis made in an off-hand manner by men not remarkable for the extent of their information or their skill in diagnosis. We can best arrive at a probable diagnosis by first excluding other possible diseases, and combining the symptoms with the history, we may reasonably suspect fatty degeneration if we have

a patient past middle life who is the subject of gout, alcoholism or a wasting disease, if in addition to the above we find atheromatous changes in the blood vessels, or degeneration elsewhere, such as arcus senilis, together with weak, irregular and at times intermittent permanently slow or fast pulse. Presence of angina pectoris, edema of the feet, Cheyne-Stokes respiration, with pseudo-apoplectic attack, all tend to confirm a suspicion of fatty heart.

Prognosis is always unfavorable, but by regulated habits and medical treatment life may be greatly prolonged. Between 80 and 90 per cent. of cases of fatty heart die suddenly.

Treatment.—In fatty infiltration the treatment is practically the same as for obesity. The most satisfactory method is by reducing the quantity of food taken in twenty-four hours, together with plenty of exercise. The patient should be allowed to partake moderately of a mixed diet. The foods rich in albuminoids should be diminished least of any, because it would be sure to work injury to the system if it were supplied in too small an amount. The fats and starches are more potent in increasing adipose tissue and in shielding from oxidation the fat already stored up in the body. A varied diet is extremely desirable for one who is corpulent, and we should exclude neither fat nor starch fully from the dietary, but merely limit the amounts to be taken. Every case must be treated as an individual one and receive careful consideration. I know of no remedy taken internally that has the power of reducing fat, unless it is phytolacca, which has been so highly recommended by numerous members of the profession. My experience has taught me not to look upon it with much favor.

In fatty degeneration a number of remedies have been recommended; some are very useful, such as arsenic or iron. Whatever treatment is adopted must be continued for some time. There is no plan of treatment that can restore the degenerated muscular fibers. The principal thing is to improve the tissue making power of the blood; this is best accomplished by iron, cod liver oil, strychnia, nutritious diet, fresh air and out-door exercise; violent exercise or mental excitement are to be avoided. In cases where there is no atheromatous degeneration, the heart muscle can be greatly strengthened by having the patient take moderate exercise, but never to the extent of causing dyspnea. In this way the myocardium is strengthened and its functions are increased. Blisters applied over the precordium have been known to give relief when cardiac stimulants have failed. Dr. B. Robinson, in a case where other remedies had failed, was able to obtain marked temporary relief from dyspnea by the Paquelin cautery applied over the precordium at sixty or seventy points.

In conclusion, I give briefly a history of a case of fatty heart with bradycardia followed by death five weeks after beginning treatment.

Jas. R., American, 54 years of age, of medium height, rather spare build, weighing 140 pounds, fairly well nourished, came to me August 23, 1895, and gave the following history: Had been a free drinker of malt liquor and spirits; never had rheumatism or venereal disease; for two weeks he had been having dyspnea on exertion, especially when going up stairs, some cardiac palpitation and considerable edema of the feet and legs. Examination of the chest revealed the signs of a dilated heart; apex beat was one-half inch outside the nipple line and in the sixth interspace. Heart sounds were not as intense as normal and were heard loudest four inches below the nipple, and were audible at the outer border of the mammary region and heard almost as distinctly at the sternum. In other words, the sounds at the apex could be heard over an area of nine inches, from the sternum to the axilla, and from the nipple to the eighth interspace, a distance of four inches, showing we had considerable hypertrophy of both the right and left ventricles.

His circulation was poor, as evidenced by the blue color of the hands and feet; pulse was slow, regular and very soft, and beating thirty-two to the minute; no atheromatous changes could be detected in the arteries.

I made a diagnosis of fatty heart and forbade him leaving the house, placing him upon the usual heart tonics, nitroglycerin gram 0.0006, t. i. d., nux vomica, with small doses of digitalis every four hours, together with iodid of potash in 0.32 to 0.65 gram doses. There were signs of improvement for a few weeks, his pulse rate having increased at one time to forty-eight beats per minute, but very little increase in strength was perceptible. By September 25, one month from the beginning of treatment, his limbs had become so edematous that I was obliged to make several scarifications, which afforded him marked temporary relief.

He disregarded my instructions and had continued his occupation up to the day before his death, which occurred without any premonition October 1, just five weeks from his first visit to me. He probably would have died at his post except for the extreme methods to which I resorted to prevent his leaving the house on the day before his death. I afterward learned that he was at his work every day except that on which the scarification was made and the one just preceding his death.

Postmortem was made three hours after death; rigor mortis present; internal organs were found normal, excepting the heart, which was extremely large, weighing twenty-two ounces; from the upper portion of the auricle to the apex it measured seventeen and one-half centimeters; lateral measurement fifteen centimeters, and six centimeters in thickness. All the valves were found competent and thickened in substance. The cavities were all dilated, a blood clot being found in the right ventricle. No atheroma of the coronary artery were found. Ventricular walls were slightly hypertrophied. The heart had a mottled appearance due to an excess of fat in spots. The muscular fibers were found diminished and much degenerated.

REPORT OF TWO CASES OF HEART DISEASE.

Read before the Mississippi Valley Medical Association, Oct. 7, 1897.

BY JOHN M. BATTEN, M.D.
PITTSBURG, PA.

W. H. M., age 68 years, married and the father of two children; was always temperate and correct in his habits. He was without any hereditary taint and belonged to a long-lived healthy family. He had never been sick but once, about fifteen years ago, when he had a severe attack of acute pneumonia. Since then he has been affected with a cough which annoyed him but little till a year ago, when it became more noticeable. I prescribed for it two or three times during the last year but the cough did not improve.

May 28, 1895, at 11 P.M., I saw him professionally. There was extreme dyspnea; clothes about him in bed were wet with perspiration. His pulse was very weak and rapid, extremities cold, countenance anxious and heart feeble. He had been at a lodge meeting that evening and felt the attack coming on while there. It was with great difficulty, with the aid of a friend, he was enabled to reach his home three squares away. I prescribed for him digitalis and whisky and applied heat to his extremities. With this treatment he was relieved in a few hours, and in a few days went to his business, which was that of a lumber merchant. My diagnosis was insufficiency of the mitral valve with irritability of the heart.

July 15, 1895, he had a second attack very similar to the first, which was treated in the same way. It occurred about the same time of day. On the evening of July 18, patient had a third attack, similar but more alarming than either of the other two. In this attack circumscribed congestion and pneumonia developed in the region of the heart, due probably to

insufficiency of the mitral valve, which caused regurgitation of the blood, driving it back into the pulmonary veins, thereby causing acute circumscribed pneumonia. From this attack patient remained in bed and at his home till Aug. 29, 1895, when he went to his business.

Sept. 4, 1895, at 11 P.M., he had a fourth attack, in which the symptoms were more alarming than those of the previous three. This attack was also followed by acute circumscribed pneumonia. He remained in bed three weeks and did not leave his home till Dec. 4, 1895. He then went to his business. These last two attacks I treated as the first. During the intermissions I put him on iodid of potash 0.65 gram, bichlorid of mercury 0.0016 gram, tincture of digitalis 0.62 c.c. and nitrate of strychnia 0.0016 gram three times a day. He remained at his business till January, 1896. Afterward he was sent to a sanitarium at Cambridgeborough, Pa., where he died May 25, 1896, with what was claimed to be acute Bright's disease. Frequent examinations of the urine, during my attendance, showed that his kidneys were perfectly healthy.

Mrs. T. M., aged 53 years, died March 16, 1897. She was the mother of three children, all living, and was of a scrofulous diathesis. She had had an intermittent pulse thirty years and was short of breath on ascending stairs. For the last year her heart had a strong beat in systole becoming weaker in diastole, still weaker in the next systole and weaker still in diastole, then an intermission. The heart would then repeat as before. The beats were quicker than normal. This condition I attributed to valvular disease accompanied by hypertrophy and irritability of the heart. In December, 1895, she had edema of the legs, but this subsided under treatment in about two weeks and she was reasonably comfortable till Oct. 10, 1896, when I examined her urine and found albumin, specific gravity 1040; there was edema of the legs. October 21, her urine showed only a trace of albumin; legs still edematous. November 8, edema extended to the thighs and body, right arm and right breast, together with ascites. About this time pneumonia developed. November 12, there was 8 per cent. of albumin in the urine. The rusty coated sputa subsided and cough diminished. November 16 she was still expectorating a muco-purulent matter, breathing quick and labored. December 13, I punctured the abdomen with a trocar. Very little fluid ran through the canula. On removing the canula, the abdominal fluid dribbled for about three weeks through the opening made by the trocar. For three weeks previous to tapping the patient was unable to lie down. Afterward for a time she was able to take the recumbent position; the albumin disappeared, the cough ceased and the urine cleared and was normal in quantity. This condition continued till the puncture healed. Then the ascites increased so that the patient was unable to lie down after Christmas, 1896. Jan. 18, 1897, I again performed abdominal paracentesis to relieve dyspnea but, as before, the fluid only dribbled for a time through the puncture. During this time the ascites and edema diminished considerably. Since October, 1896, fluid oozed through the skin of her legs in abundance and caused gangrenous ulcers. She died of uremic poisoning and was affected with this a week before her death. The treatment consisted of tonics, diuretics and cathartics. After the first tapping there was no albumin found in the urine.

The general symptoms of these two cases ran in about the same line, ending in death in about the same way, pressure from ascites interfering with the function of some organ. It also serves to develop what is too often true, that the physician called late in the course of the disease, is apt to overlook the primary disease and make his diagnosis according to the most prominent secondary condition that exists at the time.

The history of the first case would exclude Bright's disease as the primary disease and cause of death. A patient with such a history could have had Bright's disease of the kidneys only as a secondary condition. The second case could have been with much assumption of truth diagnosed either albuminuria or acute pneumonia, at the time either of them was most prominent.

THE NEW ELECTRO-MERCURIC TREATMENT OF CANCER.

Read before the American Electro-Therapeutic Association, at Harrisburg, Pa., Sept. 22, 1897.

BY G. BETTON MASSEY, M.D.
PHILADELPHIA, PA.

In a limited series of cases in which accessible and supposedly still local carcinomas and sarcomas have been more or less perfectly subjected to this method I have had two well-proven cures and four or five cases now progressing toward the same happy result. Some of these cases date back to 1893, when I accidentally noticed the good effect of a mercurial coating on a zinc anode in contact with a cancerous ulceration, and began the treatment with dosages of 100 and 150 milliamperes with combined mercury and cocain cataphoresis, but my own estimate of the value of the method received an immense impetus during the past spring on the occasion of the first employment under general anesthesia of 500 and 1,000 milliamperes to a carcinoma of the breast. The usual effect of a local necrosis about the zinc-mercury electrodes occurred and the tumor shrank perceptibly at once from a cataphoric dispersion of its liquid contents; but a most important fact was noticed the following day when the dry dressing was removed; it was then seen that the puffed, purplish, malignant, appearances had disappeared beyond the area of necrosis, the skin and subcutaneous tissue now lying flat and pink to a considerable distance from the electrode. This proved that a substance, or influence, had passed from this amalgamated electrode through the malignant tissue, that had a lethal effect on the cancer cells while failing to hurt the normal tissues containing them.

The key to the results in all the cases was contained in this single observation, and I predict that few, if any, discoveries in medicine have surpassed this in practical importance, for it not only gives conclusive proof of the correctness of present pathologic views, which regard cancer cells as primarily local and possessed of a low organization and vitality, whatever their true nature may be, but, more important still, indicates a remedy for accessible cases of this increasing scourge of mankind.

The special value of a method that enables us to project a nascent oxychlorid of the most powerful antiseptic into the tissues at will, probably into the interior of the very cells themselves, is theoretically evident. It also appears that a greater portion of the mercury-laden current will traverse the cancer prolongations than the surrounding tissues on account of the lessened resistance due to increased vascularity of the morbid tissue. Theoretic considerations

thus unite with observed facts in indicating that this method is one of extreme value in local malignant growths.

It would be interesting to ascertain the amount of mercury, by weight, that can be carried into a growth per milli-coulomb, also the distance which it will traverse per volt-hour. I find a table in Lodge's work which gives the cataphoric speed of seven substances, of which hydrogen is the most rapid, traversing an electrolyte at the rate of 1.08 centimeters per hour per volt. Lithium is the slowest, at 0.094 centimeter per volt-hour. Taking 0.1 centimeter per volt-hour as a probable figure for mercury, it would mean that 100 volts of current would cause mercury to travel 10 centimeters per hour, or only 1.4 centimeters in ten minutes. These facts have much practical importance, indicating that we must have a sufficient duration of the current to secure proper penetration, and that amperage alone, while governing the amount and density of the penetration, is incapable of increasing its extent without adding a time element. Since seeing this table of Dr. Lodge I have been convinced that some of my applications have had an insufficient duration. The exact cataphoric speed of mercury should be determined.

The practical details of this method, as applied by me to the cure of cancer, consists of two selective procedures, the gradual and the rapid, adapted to different cases and conditions of malignancy. The gradual method is simply an intensification of a method used by me daily in the cure of obstinate catarrh of the uterus and similar conditions, in which an amalgamated zinc or gold electrode is applied to the ulcerated surface and as much mercury driven in, by daily applications, as the moderate pain produced will permit. This is adapted to incipient cancers and very bad inoperable cancers in which the rapid method is injudicious.

In the rapid method the patient is thoroughly anesthetized; two or three large indifferent pads are placed under the back and connected with the negative pole of the battery. To the positive pole a multiple-connection cord is attached which is to be connected to one or more lancet electrodes, when the latter have been inserted into the growth. Usually an opening must be made into the tumor for the insertion of the electrodes. After being troubled in several cases with the bleeding which this causes, the only blood-loss of the whole method, I attached a separate steel spear electrode to the negative pole and, with this made an electrolytic opening of the proper size. This requires reversing the current for the first insertion, but after the first electrode is in place the current may be turned off at the controller, reversed, and turned on in the proper direction, with one electrode acting. The spear may now be attached afresh to the same binding post that is connected to the pads, and used to make additional openings, into which fresh zinc electrodes are placed and put in connection with the multiple-connection positive cord. No blood will be lost or obscure the field of action.

Five hundred milliamperes is the greatest current so far used in this monopolar method, as this amount has depressed the breathing by a tetanic contraction of the diaphragm. This was doubtless due to the fact that one of my dispersing pads was on the abdomen and the other on the back. In the next case I shall place both pads on the back.

In two cases I have hurried the local dissemination of the mercury, by placing a cotton-covered disc, saturated with liquor potassii arsenitis on the center of the tumor, as the negative pole, cutting out the dispersing pads. The application now being bipolar and mainly local, the current was increased to 1,000 milliamperes. It will be noted that this application produced a valuable cataphoric action at each pole, mercury going in at the anode and arsenic at the cathode.

After sufficient local effect has been produced the application is terminated and the patient put to bed. At the end of twenty-four hours the slough that has been produced, will be found to be surrounded by an area in which the cancerous manifestations have been quelled entirely, or partially, in accordance with the thoroughness of the application, without the sustaining tissues being necrosed. The slough, itself, is largely aseptic and will come away in about twelve days, permitting us to determine whether a repetition of the process is necessary. The cavity left fills up readily by granulation.

NOTE.—At date of publication the two cured cases mentioned continue well. Three additional cases of completely successful removal of cancerous tumors by the method have since been added to the list.

THE NEED OF DENTAL INSTRUCTION IN MEDICAL SCHOOLS.

Presented to the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY EDWARD BRANIGAN, D.D.S.
BOSTON, MASS.

There is a great need of dental instruction in medical schools. Physicians should know more about the teeth than they now do, and when medical students are given a better knowledge of the teeth and of the many disturbances they cause, then will medical science do more for humanity than it is now doing. More than a dozen years spent in looking into the mouths of my neighbors, at the rate of hundreds of mouths a week, has revealed to my observation so many instances of improper treatment of diseases caused by the teeth, that I have long felt it my duty to protest, and I now take advantage of the opportunity given me to put my protest into the relation of experiences that have come to me so many times that I put them forth as cold facts. I shall confine myself to the narration of a few of the more common instances of mismanaged treatment of diseases caused by the teeth. The evils I speak of are common.

Abscesses caused by pulpless teeth are still poulticed and opened on the face by medical men. I have seen many hundreds of these, for this treatment never effects a cure, and in the course of time it dawns upon the patient, if not upon the doctor, that dental assistance is needed. How much better it would have been for the patient to have been sent to the dentist at first and so avoided days and weeks of misery and the necessity of carrying a hideous scar for life. People are still being stabbed on the face and neck because a third molar sometimes causes trouble in trying to get up into the mouth where it belongs. The medical treatment for these simple abscesses is sometimes varied a little. The sufferer may be kept in bed for a time, with temperature and pulse watched, and medicine changed at intervals, according to the symptoms. This sometimes happens when the old tooth-root, at the bottom of the trouble, is so loose that the owner

could pull it out with two fingers. Pus from an abscessed tooth is frequently discharged into the antrum. The extraction of the tooth, followed by proper treatment, would rob the medical profession of many patients who are supposed to suffer from, and are treated for, catarrh. Serious throat diseases are frequently caused by pulpless teeth and sometimes by unerupted or retained teeth. All throat specialists are not aware of this fact.

A more intimate knowledge of the mouth and teeth would help other specialists, aurists, for instance. Severe and painful inflammations of the ear, caused by teeth, are common. The removing of fillings from pulpless teeth has made many sufferers from improper aural treatment happy. Unerupted wisdom and occasionally unerupted supernumerary teeth are the cause of many obscure ear troubles. Next to the dentist, no one needs dental knowledge more than the aurist. Oculists are now tracing a variety of diseases of the eye back to the teeth, but they have not yet found out all the mean things a diseased tooth can do. Many sufferers from irritation of the eye, backed up by an inflamed tooth, do not get to the oculist, and if the general practitioner knew more about the teeth as a cause of disease, he would not in so many of these cases prescribe an eye-wash, or glasses, or a tonic; he would send the patient to a dentist.

A tumor of the nose may be caused by a dead tooth-pulp. Treatment of the tumor without a knowledge of the cause is not calculated to make the owner of the nose happy. The victims of so-called neuralgia, who after weeks and months and even years of anti-neuralgic drugging, die or find relief at the hands of someone who knows something about teeth, are countless. Thousands of people are today being drugged for neuralgia who are really suffering from some form of dental irritation. A pulp-stone no larger than a pin-head can bring about so much pain and loss of sleep, appetite and health that nervous prostration may be, and often is, the end of an affair that a pair of forceps would have ended in a moment.

Bicycle riding has given relief to many sufferers from dyspepsia, but many more dyspeptics would get better if their medical advisers insisted upon their having all their lame and tender teeth cared for. Among the hundred or two of mouths opened every morning for my inspection, I never fail to find a number showing evidence of being used on one side only, and in many of the mouths the front teeth are the only ones that do any work.

Physicians should also take into consideration the constant presence of pus in the mouths of many of their patients. They do not all do this. I find pus in physician's mouths about as often as I find it in the mouths of other classes of patients.

The authorities in charge of the management of hospitals should know more of dentistry. If they did, the nurses and other hospital attendants would know how to cleanse a patient's mouth, and the hospital surgeon would know how to look into a patient's mouth intelligently. The removal of half or a whole jaw for necrosis, would not take place when the extraction of a few roots and the use of an antiseptic mouth-wash would effect a cure. When hospital surgeons know more about the mouth and jaws we shall not be obliged to meet people who have been dismissed from hospitals after some weeks of treatment for broken jaw, with the fracture ununited or with the union in so erratic a form that the sufferer can not close his jaws. When some one about the hospital is able to examine a mouth we shall not be called on to help the man who takes his broken jaw away from the hospital after having been assured that he will be all right in a few days if he puts a poultice on his bruised face and takes a few pills. It is a fact that some surgeons can not locate a fracture of the jaw, and it is also a fact that when located, fractured jaws are sometimes treated by being bound together with a four-tailed bandage, and then, as a happy afterthought, a couple of front teeth are pulled out to make a hole through which to tuck the patient's nourishment.

After dental instruction is given to medical students, the army and the navy will get a little much needed dental service. They get very little now, although hospital stewards are supposed to be able to pull teeth.

The medical directors of public institutions will find a vast amount of good work ready for them when they realize the importance of having dental service given to those in their charge. A few years ago I discovered that not one of the 500 children in one of the public institutions in my city had a tooth-brush. The children of that institution are now supplied with tooth-brushes, but I fear there are many similar institutions in the world where the tooth-brush is never seen and the dentist never heard of. I am sure that this evil will be corrected very soon after dental instruction is given to the future medical directors of public institutions for the care of the poor.

PATHOLOGIC CONDITIONS OF THE PHARYNX AND CONTIGUOUS STRUCTURES DURING EARLY CHILDHOOD, PRIME FACTORS IN THE ETIOLOGY OF MALFORMED MAXILLÆ AND IRREGULAR TEETH, ETC.

Presented to the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY WILLIAM A. MILLS, D.D.S.

BALTIMORE, MD.

The physiologic functions of the nasal cavities are as follows: "They elevate the temperature of the inhaled air, give it moisture, and purify it by arresting all particles of dust and other substances which it may contain;" they act as resonance cavities for the voice and are also the seat of the sense of smell.

A professional experience of more than twenty-five years, has taught me that any inflammatory lesions—found in children between the ages of 4 and 12 years—which obstruct these natural conditions, are in the majority of cases, the chief agents in the causation of malformed jaws, and the consequent abnormal alignment of the teeth. (To the same cause can be attributed beaked or hooked noses, so often found in connection with these deformities.) I have reached this conclusion after many years of ceaseless endeavor to trace out cause and effect. Others may theorize differently, but theory alone will not stand, unless proven clinically correct.

I cite the following case in my practice:

A male child over 7 years old was brought to have a tooth filled, which was supposed to cause pain in the right ear and the right angle of the inferior maxilla.

The patient presented the following clinical conditions: Almost complete obstruction of the nasal cavities; face pale, anemic and haggard; features contracted at the angles of the jaws and beneath the malar processes, giving the characteristics of the mouth-breather or "dog-face," as Dr. Cathell terms them. I

found a small cavity in a molar tooth, which in no way could have caused the pain. This was filled but gave no relief. I depressed the tongue and examined the tonsils. These I found so greatly enlarged that they almost met at the median line. I was informed that deglutition was both difficult and painful. When the tongue was forced well down with a tongue depressor, quite a large quantity of yellow pus sprang from an unseen source in the right tonsil. On the removal of the depressor, the patient exclaimed, My pain has gone!

On examining the superior maxilla, I noticed a very perceptible contraction on both sides, anterior to the first permanent molar teeth, with a decided inclination of the roof of the mouth to become elevated.

I informed the aunt of the state of affairs, and that unless heroic measures were quickly taken for the child's relief, by a rhinologist, very serious consequences would be sure to follow.

Six months later the patient returned, and I was informed that notice had been taken of previous instructions and a specialist consulted the same day. He had removed some adenoid growths, and was still reducing the tonsils with the galvano-cautery. He was now a bright and rosy-faced boy, with normal respiration, and we found no signs of the former contraction of the jaws, or rising of the arch, all of their outlines being perfectly normal.

This particular case demonstrated that either the adenoid vegetations, or the enlarged and diseased tonsils, or both, were the prime factors in the causation, not only of the malformations of the maxillæ, but also the oral respiration.

If a correct diagnosis had not been made, and only palliative treatment been given, there is no doubt that a case of V- or saddle-shaped arch would have been developed, with irregular teeth as concomitants; especially as the patient's parents and grandparents are full-blooded Germans, and have large jaws and teeth.

I have often found similar conditions in young patients, whose parents thought so little of the matter that they deemed no treatment necessary, as the children never complained of pain; while others 'made their own diagnosis, and treated for conditions which did not exist, being ignorant of all possible results." Thus, from time to time, the lesions were permitted to progress, until more acute symptoms developed, when the family physician was called; and as is often the case in such diseases, he failed to make a correct diagnosis, or give the proper treatment, and thinking the disturbance of no great importance only prescribed some simple wash or nasal douche, thus allowing inflammatory conditions, which could have been cured, to develop into more chronic forms with all their evil consequences.

The starting point in the majority of these cases, has its origin in some slight irritation of the mucous membranes of the throat, especially the tonsils. "It seems remarkable," says an authority, "that the fauces at this time of life, should be the seat of so many inflammatory processes."

To show with what indifference some practitioners treat such cases, I cite the following: A reputable physician, whose daughter, aged 14 years, has nasal catarrh, V-shaped arch, irregular teeth and an almost complete obstruction of the nasal cavities, when told that he should do something for her relief replied, She will come around all right when she gets older;" and this seems to be the opinion with many general practitioners.

In conclusion, I would urge upon both medical and dental practitioners the importance of being ever on the alert to discover the first signs of any inflammatory manifestation in the throat or nasal cavities of children, as so many inflammatory disturbances are prone to develop in the respiratory passages, without in themselves showing any very acute symptoms, and if permitted to continue without proper treatment, cause disease and malformations which in some cases defy all remedial agencies.

When a patient has a slight occasional cough or clearing of the throat, any peculiarity of intonation, huskiness of voice or nasal twang, an examination should be made to discover the cause, and when located, treatment given at once; and if oral respiration is fully established, some reputable specialist should be recommended, as he is better qualified to make a correct differential diagnosis, and prescribe the best remedies. I believe that if this is done, fewer cases of malformed maxillæ and irregular teeth will be found in the future than at present.

The following are a few replies to personal letters sent, asking for opinions as to the etiology of malformed maxillæ and irregular teeth.

Dr. John Nolan Mackensie, Johns Hopkins Hospital, says: "Rhinologists generally hold that the deformities in question are sometimes produced by nasal and post-nasal obstructions (deflection of the septum and adenoid growths being two conspicuous examples). Indeed, it has been shown experimentally that asymmetric conditions of the corresponding side of the cranium may be produced in young guinea-pigs by artificially occluding the nostril. Malnutrition must of course be at the bottom of the matter; due probably to defective blood supply, both in quantity and quality."

Dr. M. H. Cryer says: "It is my opinion, that an inflammation of the tonsil and surrounding tissue will cause tension of the palato-pharyngeal and palato-glossus muscles; if this be so, they would naturally pull the lateral portions of the arch downward and inward; especially is this the case with children when their bones are soft and yielding."

Dr. Harrison Allen says: "Probably the most important factor present is oral respiration. Disuse of important functions (instanced here by the nasal passages) invariably excite disturbance. No 'starvation' of the tissue is present in these cases as I understand them, nor is there disease, as the phrase is usually employed. I no not think undue pressure of the muscles against the jaws exists, nor are the jaws themselves weakened, except that they may be weakened by having their curves of normal action interfered with."

302 Dolphin Street.

HOLOCAIN HYDROCHLORID; SOME NOTES ON ITS USE IN OPHTHALMIC SURGERY.

BY J. WHITEFIELD SMITH, M.D.

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BLOOMINGTON, ILL.

Up to the present time but little experiment has been made in the use of holocain in ophthalmic surgery. But from the clinical notes so far at hand, it would appear that it has some advantages and may prove to be a very useful drug in ophthalmic practice.

"Holocain is a synthetic substance having the composition of para-di-ethoxy-diphenyl-ethenyl-amidin, and the hydrochlorid has been used in a 1 per cent. solution as an anesthetic in ophthalmic practice, but on account of toxic properties is not recommended for hypodermic injection. Anesthesia is prompt and lasting, and is not accompanied by mydriasis or dis-

turbances of the accommodation" (*British Medical Journal*).

Dr. Robert Brudenell Carter of London contributed an article to the *Lancet* of May 29, in which he called attention to a paper read before the Belgian Academy of Medicine March 27, 1897, by Dr. Deneffe of Ghent, whose observations in the use of holocain were as follows: He said that "by applying a drop of a 1 per cent. solution to the eye three times, at intervals of fifteen seconds, complete anesthesia would be established in three minutes without pain, without change in the diameter of the superficial vessels, without dilatation of the pupil and without paralysis of the accommodation."

Dr. Carter from his own observation says: "I received a supply of holocain last week and used a 1 per cent. solution in the manner described by Dr. Deneffe, having first applied some to my own eye and found that it gave no pain. Four applications were made in the course of a minute and at the end of four minutes from the first of them I performed cataract extraction with iridectomy. The patient was unconscious of the first incision and was barely conscious of the iridectomy, not flinching or moving the eye. The section healed perfectly by first intention. A day or two later I used the same solution before slitting up the lachrymal canaliculus and rendered the operation absolutely painless. As asserted by Dr. Deneffe, there was no action upon either the conjunctival blood vessels, the pupil or the accommodation, and I can not but think that the new agent will be found highly useful in ophthalmic practice. The promptitude of its action is alone of no inconsiderable advantage."

Löwenstamm (*Therap. Monats.*, May, 1897) relates some further investigations into the use of holocain in 1 per cent. watery solutions in ophthalmic practice. It can not be employed subcutaneously, because its toxic action is considerably greater than cocain, and even in ophthalmic work it should be used in minimum doses. By applying a few drops anesthesia is produced in the eye in about ten minutes. The author has employed holocain in sixteen cases, of which seven were normal eyes, five were examples of foreign bodies, and four were operation cases. In one set of three cases, four drops were put into the eye and repeated in five minutes, when the anesthesia of the cornea and conjunctiva lasted on an average nineteen minutes. In six other cases the same quantity was used on three occasions at intervals of five minutes, and the anesthesia lasted on an average thirty minutes. A slight touch was felt before the lid reflex returned. In three cases four drops were applied on three occasions at intervals of two minutes, and here the anesthesia lasted on an average twenty-six minutes. This method has the advantage of requiring only a short time before the operation can be commenced. Often an increase in the anesthesia of the conjunctiva was noted after the second and third application, and where this did not occur a passing sensation of burning was experienced. The removal of the foreign body was accomplished in one eye eight minutes and in the other fifteen minutes after the second application, without the patient feeling anything. In two operations for squint lasting fifteen to twenty minutes two applications sufficed. As regards gradual action no difference was noted from cocain, but the tension of the bulb was not lessened, the cornea retained its luster and moistness and the pupil was not dilated. No toxic effect was noticed and no change in the pulse or urine. Heinz allowed a 5 per cent. solution, and also the dry powder to be applied to his own eye, and no intoxication symptoms occurred. Perhaps holocain is less readily absorbed from the conjunctiva than cocain. Thus holocain is a prompt, pronounced and long-lasting anesthetic, with no unpleasant results. It should find a permanent place in ophthalmic practice. Boiling the solution is not requisite, as holocain possesses powerful disinfectant properties.

The only time I have seen it used was at the Royal London Ophthalmic Hospital (Moorfields) on June 25, 1897. The preparation used was a 1 per cent. aqueous solution. The case in which it was used was that of a senile cataract in a man about 60 years of age. Four or five drops were instilled into the eye at intervals of three or four minutes for a period of twenty minutes, then the patient was placed on the operating table and the eye carefully douched with a boracic acid solution. The anesthesia of the cornea and conjunctiva seemed perfect. Iridectomy was performed, apparently without pain. The only noticeable feature was a more profuse hemorrhage from the conjunctival vessels than is usually observed when we employ cocain. The wound healed promptly without subsequent pain or discomfort to the patient.

SOCIETY PROCEEDINGS.

Western Ophthalmological, Otological, Laryngological and Rhinological Association.

Abstract of the Proceedings of the Third Annual Meeting held in Chicago, April 7 and 8, 1898.

The Association met in the rooms of the Chicago Medical Society, and was called to order by the Chairman of the Committee of Arrangements, Dr. J. E. COLBURN of Chicago, who introduced Dr. F. HENROTIN, President of the Chicago Medical Society, who welcomed the Association on behalf of that Society and the local profession. He spoke of the necessity of modern specialists, and said that all recognized their value. He believes in societies and organizations. While there might be injustice done here and there, such societies would live and thrive and multiply.

Dr. A. ALT of St. Louis, responded to the Address of Welcome, and thanked Dr. Henrotin, in behalf of the Association for the very kind words with which he had welcomed the members on the occasion of their third yearly meeting.

The President of the Association, Dr. B. E. FRYER of Kansas City, was then presented and delivered a brief address in which he dwelt upon general matters pertaining to the work of the Association.

Dr. H. KNAPP of New York, delivered an address on

THE RADICAL TYMPANO MASTOID OPERATIONS.

Among the surgical procedures cultivated so successfully by otologists during the last decades, the so-called radical mastoid operation is the most important, but also the most difficult. The pioneer work of Troetsch, Schwartze, and others in this field was well known and fully appreciated, when Kuester in 1889 gave a new impetus to the further development of this branch of surgery by censuring aurists for operating too much in the dark. Zaufal and Stacke were the first prominently to take the hint in developing methods for making more extensive and thorough operations which have received the names of radical operations, comprising the removal in cases of chronic purulent otitis media, of everything diseased in the mastoid, attic, atrium, external meatus, and adjacent pneumatic spaces in one large cavity. Dr. Knapp described the performance of the operation with blackboard illustrations and presented numerous anatomic, both dry and wet, specimens. The methods of Zaufal and Stacke differed somewhat at first, but are at present virtually identical. The difference is that Zaufal begins the operation from the mastoid, and Stacke from the attic. The speaker dwelt on the precautions to be taken to avoid during the operation injury to the facial nerve and the horizontal semicircular, particularly by chiseling the mastoid

by broad vertical slices, layer by layer, finding first the antrum by measuring on a straight probe, first introduced through the posterior part of the auditory canal to the labyrinth wall of the tympanum, then down to the depth of the artificial canal, chiseling into the mastoid the length of both, and remembering that the aditus ad antrum is about at the level of the medial wall of the tympanum. To secure the position of the aditus the posterior wall of the ear canal should be sounded by a bent probe, either from the attic (Stacke) or from the mastoid (Zaufal), or from both, bearing in mind that the small canal mostly is not directed horizontally, but more or less ascending from the attic up and back. If probes are introduced both ways and left in position during the operation, we can with patience, cleanse the wound from blood, by good light recognize the parts clearly, and avoid injuring them both during the chiseling of the posterior wall of the osseous ear canal, and the lateral wall of the attic, a very important step in the radical operation, as also during the cleansing of the cavities with a sharp spoon.

The speaker described how to avoid injuring the dura mater in extending the operation into the posterior and middle fossæ of the skull. The description and rules were illustrated by brief records of cases. The first was a smooth and temporarily successful operation, but death under fulminant symptoms occurred months later, apparently by the breaking of a cerebral abscess into the ventricles. In the second case, the facial nerve had been injured during the scraping; the partial facial paralysis disappeared completely in three months and the patient was doing well. The third case was a patient, 50 years of age, who had been operated on (the tympanum) by Professor Bruns of Tübingen, when she was 5 years old. Dr. Knapp removed the carious malleus five years ago; the otorrhea and very severe attacks of headaches and dizziness of late compelled her to seek the doctor. A radical operation cured the otorrhea and head symptoms. The patient said, "I feel like another person." The fourth case was that of a scrofulous child 2 years of age, operated on eighteen months ago. A most extensive operation was done, removing the carious and necrosed bone deep into the petrous bone. Recovery followed, leaving a deep, perfectly epidermized cavity behind the ear.

On motion of Dr. Alt a vote of thanks was extended to Dr. Knapp for his interesting address.

Dr. Hugh T. Patrick of Chicago, followed with an "Address by Invitation," in which he dwelt upon the kinship of neurology, ophthalmology, otology, laryngology and rhinology.

Dr. Adolph Alt of St. Louis, read a paper entitled

RECENT RESEARCHES INTO THE HISTOPATHOLOGY OF TRACHOMA.

The frequency of this disease as well as its important position among the affections of the eye, must needs again arouse the desire to fathom its real cause and perhaps in this way to help in its prevention or cure. The author's researches in this direction date as far back as 1876, when he inoculated rabbits' eyes with trachoma. He was perfectly successful in producing a disease which apparently differed in no way from the real trachoma. However, this disappeared again in the course of from one to two weeks. He had some of the old specimens still and what he had succeeded in producing in the rabbit's conjunctiva differed histologically in no way from the disease in the human conjunctiva. Leber has had the same experience. After a lapse of years the author again took up the study of this subject on quite a considerable amount of material which he had gained by excising trachoma granules and cutting them into sections. His recent researches seem to confirm the previous ones. Notwithstanding the clinical difference between so-called follicular conjunctivitis and trachoma, the bodies which he has found and considers to be parasites in trachoma he has likewise always found in follicular conjunctivitis.

FIVE CASES OF PARINAUD'S CONJUNCTIVITIS.

A paper on this subject was read by Dr. H. Gifford of Omaha, Neb. He said the disease was first described by Parinaud in 1889, and hitherto nine cases of it have been described in France, while in Germany and Austria the same disease has been described by Goldzicher as lymphomatous conjunctivitis. It is characterized by rapid swelling of the lids with more or less mucopurulent discharge, and the development on the folds or tarsi or both of large rounded granulations which not infrequently are fungiform or polypoid in form. Between the granulations small conjunctival ulcers sometimes occur. Soon after, or in very rare cases, before the affection of the lids, the lymphatic glands of the neck and face on the affected side generally become swollen and tender to a very marked degree and suppuration not infrequently occurs. The disease is almost invariably one-sided, is apparently not contagious, and appears to undergo a spontaneous cure in the course of some months when left to itself. Treatment in the worst cases affects the disease very slowly. The cases in which the tarsal surfaces are covered with granulations might be mistaken for very pronounced trachoma, while in those where ulcers of the folds surrounded by granulation tissue occur, the question of tuberculous conjunctivitis might be raised. The cornea is rarely, if ever, affected, and the subjective symptoms are comparatively slight. Parinaud has called the disease infectious conjunctivitis of animal origin, partly because some of the French cases were butchers or farmers, but the evidence on this point is not at all conclusive. Bacteriologic investigations as to its cause have been practically without positive results. Two of Gifford's cases were somewhat typical in so far as that in one of them the swelling of the lymphatic glands was confined to a row behind the sterno-mastoid muscle, while in the other the granulations were hardly as large as usual, the most prominent conjunctival feature being the presence of numerous ulcers mostly on the folds, but some of them on the tarsi and bulbar conjunctiva.

Dr. James Moores Ball of St. Louis, reported a case of "Quinin Blindness."

Dr. B. E. Fryer of Kansas City, read a paper on

THE ANTISEPTIC PREPARATION OF THE CONJUNCTIVA FOR CUTTING OPERATIONS OF THE EYEBALL.

He said the terms antisepsis and asepsis were rather carelessly interchanged by many practitioners, and this ought not to be. He insisted that in many instances surgeons did not, nor could not make a surface aseptic if they strictly included in the word asepsis not only the absence of septic material, but also the absence of the cause of sepsis, namely, pathogenic bacteria. He then showed how and why this was true. In antiseptic work on the conjunctiva only very weak solutions of sublimate or of iodid of mercury could be used. He maintained that a mercuric chlorid solution in the proportion of 1 to 6000 could be instilled in the conjunctival sac every day for weeks without any reaction being produced. The method of preparing the eye for a cutting operation upon it which he employs, is as follows: The face is thoroughly cleansed with soap and water, and then the orbital region is washed carefully with a carbolic acid solution 1 to 50. The eyelids and eyelashes at their roots are especially cleansed. The conjunctival sac is flushed carefully with 1 to 6000 sublimate solution, and a bichlorid gauze pad is put over and retained upon the eyelid, and it should extend over the brow and nose and down upon the temple and cheek. The dressing is changed daily, and daily the eyelids, brows and cheek are washed with carbolic acid solution and the gauze renewed. Latterly, in the beginning of the antiseptic preparation the speaker has instilled protargol solution 1 per cent., say for four or five days, and at the end of that time dropped in the mercuric chlorid solution. He finds in certain cases, especially in those patients who, from having prostatic trouble, and who void more or less pus with the urine, are very liable to infect the eye or have infected it. In such cases the protargol seems to stop the pus flow from the conjunctival sac readily and also removes the conjunctival congestion. These prostatic cases require greater care in preparation for eye operations than is usually given them even by those who believe in correct antisepsis. Many of the cases having pus cocci enter the conjunctiva, which cocci, while they have only an innocent surface lodgment, will there produce purulent destruction of the eye if admitted unrestrained on to the globe. By prolonged preparation and following the method he outlined, he thought oculists could restrain the pathogenic microbes in the conjunctiva as they are restrained in the derma, and sufficiently long to allow of healing before the restraint is removed by the germicide's final removal or elimination. He had microscopically demonstrated streptococci from the conjunctiva of eyes which were to be operated on, and which streptococci were so attenuated in power by the continued antiseptic preparation that no bad result followed the operation.

Of course the condition of the nares must be looked after, and he found that a weak solution of tincture of iodin in albolene, used as a spray, did effective work in attenuating microbes in the nasal cavities.

Dr. T. A. Woodruff read a paper on the

USE OF DR. DE ZENG'S REFRACTOMETER.

He compared the work of this instrument with the results arrived at by skiascopy and the test lenses. In every case the existing error of refraction was determined first with the refractometer and then by skiascopy and the test lenses, using each method independently of the other. All cases were worked out with the aid of either a 1 per cent. solution of atropin or homatropin and cocain discs, the latter being used in the majority of instances. In some cases the amount of ametropia was determined first without the use of a cycloplegic, but where active accommodation was present the results obtained

were unsatisfactory. In about 50 per cent. of the cases he found the three methods agreed accurately, but in the balance, and particularly where an oblique astigmatism was present, it appeared impossible for the patient to decide between several axes. Skiascopy and the test lenses determined this much quicker and more acceptably. Dr. Woodruff drew the following conclusions: 1. That the refractometer is not a time-saver. 2. It is not always accurate in determining the amount and axis of astigmatism. 3. It is liable to produce an over rather than an under correction of astigmatism. 4. In old people, or where a cycloplegic is contraindicated, it will prove of assistance. 5. In myopia and hypermetropia it is most satisfactory in determining the full amount of the error under a cycloplegic. 6. It is expensive.

THE SCIENCE OF OPHTHALMOLOGY.

Dr. DUDLEY S. REYNOLDS of Louisville, Ky., read a paper on this subject. He said that the science of ophthalmology was in great danger of becoming tainted with loose methods of approximation. It was not to be wondered at that disappointment so frequently followed loose methods of analysis as to lead both patient and practitioner astray in searching for causes of pain and aches that refuse to yield to the supposed correction of errors of refraction. The decentered lens and the prism have seized upon the minds of some, whilst others have apparently gone daft in their search for ocular tendons to cut, or advance. An enthusiastic surgeon recently reported his achievements in the looping of ocular tendons with catgut ligatures. Dr. Stevens had created an apparently rational place for partial tenotomy; but it was not an uncommon occurrence to read of a dozen or more tenotomies, or advancements, of the tendon in a single eye. With the tendon looped, muscular co-ordination in the movement of the eyes might, in all probability, be expected to observe not alone the lateral, the vertical and the rotary movements, but like the famous gun with the curved barrel made to shoot bears behind trees, turned in all sorts of irregular directions to compensate for the eccentricities of opposing tendons.

A fine illustration of the results of painstaking practice was presented in the person of Mrs. T., aged 30 years, the wife of a prominent practitioner in Louisville. She came to him on Oct. 19, 1896, with divergent squint, photophobia, indistinct vision for distance, and total inability to read. She had suffered almost continuously with sick headache for a long time, and having been told that the ocular tendons must be advanced, her husband brought her to Dr. Reynolds, with the object of having whatever operation was found necessary done at once. On attempting to suspend the accommodation, he found he had unsteady muscular movement, the rotary muscles being in an almost constant state of activity. Without glasses she saw nothing; with the glasses she had, she saw 6-xxxvi Snellen, with the right eye, and 6-lx with the left eye. On examination of the glasses he found for the right eye she had —0.75 C. axis 170° ⊃ —0.75 S. combined with a prism of 3°, base inward. In the left she had +2.00 C. axis 110° ⊃ —3.50 S.

He prescribed homatropin drops to be instilled twice daily and directed smoked *coquilles* to be worn constantly, and no attempt to be made to see objects, excepting for purposes of going about. She went to the country and remained until April 30, 1897. When she returned the eyes were re-examined under homatropin, the use of which had been kept up during her entire absence. He found +1.00 axis 90° enabled the right eye to see =6-le Snellen; +2.00 C. axis 90° enabled the left eye to see =6-vi Snellen. These glasses were prescribed and she has worn them constantly ever since. She is fond of reading and having no children, has spent the past year in almost constant reading, with not more than two attacks of headache during the entire year, both of these clearly due to indigestion. The glasses she had formerly worn were chosen after a most painstaking and thorough analysis with the Javal-Schiotz ophthalmometer, the ophthalmoscope, and the Zeng refractometer, in the hands of an experienced practitioner.

The great point to be considered is that sufficient care should be taken to establish complete suspension of accommodation, and no final attempt to determine the state of refraction should be made for persons whose general health is such as to disqualify them from engaging in the normal use of the eyes. Proper discrimination in these matters, and a judicious course of constitutional treatment necessary to restore the patient's general health, are too often overlooked or neglected.

EXTRACTION OF IMMATURE SENILE CATARACT,

was the title of a paper by Dr. C. BARCK of St. Louis.

The current view of the necessity to wait for the so-called maturity of senile cataract needs to be modified. The lens after the age of 55 to 60 years is coherent enough, no matter how small the opacity, to admit of a complete and easy delivery, if the corneal and capsular sections are large enough. This opinion was first promulgated by Hirschberg of Berlin, in 1892, but bitterly opposed. The experience of the author, based upon dissections and operations, coincide with the teachings of Hirschberg. He reported ten cases of immature cataract in different stages, in each of which the operation was just as easy and complete as in mature ones. The conclusions of the paper are: 1. A senile lens, however small the opacity may be, is coherent enough to admit an easy extraction *in toto* by the proper method. 2. To wait for the so-called maturity is unnecessary. The operation can be performed as soon as the sight is impaired to such a degree that the vocation or comfort of the patient is interfered with. 3. All operative procedures for artificial ripening are unnecessary and are contraindicated, exposing the eye to a twofold danger.

Dr. A. E. PRINCE of Springfield, Ill., read a paper entitled "Ectropion of Lower Lid."

Dr. FRANK ALLPORT of Chicago contributed a paper entitled "A New Visual Chart for Schools for the Use of Teachers."

Dr. J. O. STILLSON of Indianapolis, Ind., read a paper entitled "Detachment of the Retina."

Dr. A. C. CORR of Carlinville, Ill., read a paper on

CHOROIDITIS AND CHORORETINITIS IN YOUNG PERSONS.

The essayist said that his own observations in practice had not been such as to enable him to agree with the ordinary teaching of the books and didactic instructions on the subject of choroiditis. From this source almost all cases of choroiditis that could not be unquestionably classed as rheumatic, gouty or traumatic, were at once considered as syphilitic, and this latter is confirmed and a positive diagnosis is made if any improvement or a favorable modification follows the use of mercury and iodid of potassium. It was this "trump" etiologic diagnosis that he wished to inveigh against. He gave a brief history of five cases selected as best illustrating choroiditis with retinal hyperemia as he sees it in private practice in young people, and without any possible syphilitic taint, approximately or remotely, and which he believes originates from excessive functional activity of the eyes.

Dr. L. R. CULBERTSON of Zanesville, Ohio, read a paper on "Rotation of the Axis of Astigmatism During Ophthalmometric Examination," and reported three cases.

Dr. A. R. AMOS of Des Moines, Iowa, read a paper entitled

HEMIANOPSIA, FOLLOWED BY TOTAL LOSS OF VISION IN BOTH EYES, AS A RESULT OF UTERINE HEMORRHAGE FROM FIBROID TUMOR.

The case was that of a woman, aged 50 years, who had always enjoyed good health previous to the onset of a uterine hemorrhage which occurred nearly a year prior to any visual defect. Questioning the patient, and physical examination, revealed nothing of syphilis or of tuberculosis, and no inherited tendency to brain disease. The uterine function had always been satisfactorily performed until a year previously. During the period from the first hemorrhage to the complaint of visual defect her system had sustained frequent losses of blood from the uterus. Examination of central vision showed it to be above $^{20}/_{30}$ in both eyes. The perimeter revealed a full field on the left in both eyes, as well as good color sense, but visual perception from her right field was abolished. The pupil reflex and accommodative power were retained; ophthalmoscopic examination negative; no apparent paralyses of other nerves. The patient was irritable and fretful. The extreme pallor of the patient caused inquiries as to hemorrhage. Suspecting uterine tumor, the patient was at once referred to a surgeon with the assurance that the eye affection resulted from loss of blood. Accordingly, she was operated on by Dr. Etheridge of Chicago, shortly after which vision remained about the same as when the essayist had last seen the patient. Within three days following the operation she was again attacked with dizziness and became totally blind.

In closing, the author called attention to the following points: 1. The two lesions occurring at different periods of time and involving the same portion of each cerebral hemisphere, double homonymous lateral hemiopia. 2. While at first there was loss of central vision as well as peripheral, regeneration of the area connected with the macula lutea of one or both sides had taken place, leaving the other areas still implicated.

Dr. H. V. WÜRDEMANN of Milwaukee contributed a paper entitled "Multiple Angiosarcoma with Metastasis and Infiltration Into the Orbit."

At the evening session, Friday, Dr. ALT showed a specimen of adenoma of the ciliary process under the microscope, and also a slide showing the cells of trachoma.

Dr. CASEY A. WOOD of Chicago reported several interesting cases and exhibited the patients.

Dr. Norval H. Pierce of Chicago reported a case of "Papilloma of the Larynx."

Other interesting cases were reported and the patients exhibited by Drs. W. F. Coleman, W. A. Fisher, Thomas Faith.

Dr. Homer M. Thomas exhibited a nebulizer for use in connection with the treatment of diseases of the respiratory passages.

Dr. C. D. Wescott of Chicago reported cases of non-pigmented sarcoma of the choroid; primary carcinoma of the conjunctiva; multiple lymphoid tumors of the orbits and subconjunctival dislocations of the crystalline lens.

Dr. Edward Pynchon read a paper entitled

THE TECHNIQUE OF TYMPANIC INFLATION.

The philosophy of tympanic inflation is to accomplish either one or more of the following objects: To secure ventilation of the tympanum; to remove abnormal secretions or discharges; to restore the normal air pressure in the tympanum; to correct the engorgement of vessels which is due to rarefaction; to promote the absorption of inflammatory products; to push out the abnormally retracted drumhead; or to cause massage of the ossicles.

Middle ear inflation is indicated in chronic conditions of Eustachian tube catarrh; in chronic non-suppurative middle ear troubles; in suppurative conditions of the ear, whether acute or chronic, accompanied by perforation of the membrana tympani; and, when properly controlled, in conditions of acute inflammation of different degrees ranging to otitis media acuta.

In the use of compressed air not enough attention is given to the factor of dosage. Its physical properties may be varied as follows: 1, Variation in pressure; 2, intermitting flow with infrequent or rapid breaks; 3, continuous flow; 4, unmedicated air; 5, medicated vapors or nebulæ; and 6, variations in temperature. With such a variety of physical properties it requires no argument to prove that in application its therapy can be proportionately extended.

In order to secure the required differences in pressure and flow, the writer showed an auxiliary air-tank of about five gallons capacity, which is provided with four valves and a meter, and, in order to suitably medicate the escaping air, the use of an inflator-inhaler and also of a nebulizer are advised. Some new methods of doing Politzerization are suggested in which, in suitable cases, as high as a sixty pound pressure is employed, when a lesser pressure fails to inflate.

The continuous air current, being used only in connection with the auscultation tube, is advised in chronic catarrhal conditions of the Eustachian tube, and in conditions of acute inflammation, and is employed only with the catheter, and with a pressure rarely exceeding twenty pounds. It consists of a flow without breaks for ten or fifteen seconds at a time, and can often be advantageously alternated with Politzerization. For a variety of reasons given, the use of the Politzer air-bag is decried except as a makeshift in bedside practice.

Dr. E. O. Sisson, of Keokuk, Iowa, read a paper on

MASTOIDITIS.

He confined himself to the etiology and pathology of the subject. As regards the etiology, statistics go to show that the most common cause of acute inflammation in this region is an extension of a similar process from the middle ear, the primary lesion being either acute or chronic in character. Primary mastoiditis, although uncommon, is occasionally seen, and may follow an exposure to cold or traumatism, or may be a manifestation of a tubercular or specific diathesis. But the most common cause is chronic suppurative inflammation of the middle ear.

The author drew the following conclusions from observations of the etiology and pathology of the affection: 1. The large percentage of cases of mastoiditis are the direct result of chronic purulent otitis media, but that they are not produced in proportion to the frequency of the latter, and therefore, there must be some existing condition or conditions that exert an influence in this direction. 2. That in the light of anatomic observation the pathologic conditions are not necessarily the same in any two cases, and that such observations tend to more firmly establish the fact that an inflammation of the mastoid process is a condition fraught with great danger to life.

A REVIEW OF THE PATHOLOGIC CONDITIONS AFFECTING THE LINGUAL TONSIL,

was presented by Dr. E. C. Ellett, of Memphis.

After noting the early history of the study of this tissue, Ellett described this organ as the anterior portion of oropharyngeal lymphoid ring, lying behind the circumvallate papillæ, in the pre-epiglotic space, continued upward laterally to almost merge into the faucial tonsils. It is divided into two lobes by the median glosso-epiglotic ligament, and is composed of separate lymph follicles. Its function is, according to Somers, to prevent lodgment of food, to moisten food with its mucous glands, and to assist, by moisture, the gustatory function of the back of the tongue. Derangements of this organ are common, but frequently overlooked. The author considered: Acute inflammation, and abscess; chronic inflammation, including hypertrophy and varix; specific inflammations, and new growths.

Acute inflammation presents much the same symptoms as other acute faucial inflammations, with the addition of frequent edema of the glottis and epiglottis, and severe cough. The treatment consists in demulcents and astringents, with poultices, and internally salol, preceded by a purgative.

Chronic inflammation manifests itself as hypertrophy, often accompanied by varix of the lateral lingual veins. The mirror is necessary to make the diagnosis, though rarely the glands can be seen, when enlarged, by direct inspection. The symptoms to which this condition gives rise are a sensation of a foreign body in the throat, a feeling of constriction at the upper border of the thyroid cartilage, reflex cough, a constant desire to clear the throat, quick laryngeal fatigue and hemorrhage. The condition is especially prone to attack women, and is commonly seen in persons from 20 to 30 years of age. In addition to the correction of any dyscrasia, the treatment consists in removal of the mass by cutting, caustics, or by application of iodin. Special tonsillotomes have been devised for the purpose, though the author removed the glands in one case with a straight instrument. The snare may be used, but the galvanocautery is probably the best instrument.

Of the specific inflammations, tuberculosis has not been noted, while syphilis is not unusual, especially in the secondary stage, with faucial and pharyngeal implications.

New growths are rare. Cysts, fibrosarcoma and angioma have been seen.

Dr. Joseph A. Mullen of Houston, Texas, contributed a paper on

THE USE OF SUPRARENAL CAPSULE EXTRACT IN MINOR EYE SURGERY.

The objects to be attained in using suprarenal capsule extract are to prevent pain and hemorrhage in minor operations on the eye and its appendages. Its effects are the result of its physiologic action upon the small arterioles, a vasoconstricting action, thereby retaining the cocain solution within the tissue. The latter solution precedes the use of the extract. Its use seems to furnish primary healing of the tissues and also to modify post-operative swelling. The intraocular tunics are reduced to a state of ischemia by its contractile power, but accommodation and the pupils remain unaffected. The solution is made by dissolving five grains in 3j of cold saturated boric acid. It keeps very poorly and should be prepared fresh for each operation. The solution is not at all irritating but rather imparts a cooling sensation to the conjunctival membrane. It is always used five to ten minutes after a 5 per cent. solution of cocain has been instilled. The author has used the extract in removing pterygium adhesions of lids to eyeball; slitting canaliculus and cutting structures of nasal duct, etc.

THE SUBMERGED TONSIL.

Dr. Edwin Pynchon of Chicago, read a paper on this subject, in which he called attention to the frequently met-with condition of faucial fulness wherein, when the patient is caused to gag, the wholly or partially concealed tonsil is thereby protruded from between the pillars to which it is generally attached. Follicles, from which exude cheesy masses which contain pyogenic germs, pus cells and other deleterious matter, the continuous swallowing of which tends to impair the health, are thus exposed. Associated with this condition of the tonsils will be found postnasal catarrh, chronic pharyngitis, and at time stomachal or ear trouble, as well as a susceptibility to hoarseness and in some cases to acute attacks of tonsillitis. The submersion is partially due to tonsil hypertrophy and in part to pillar hypertrophy.

In the treatment of this condition thorough ablation is recommended by a process described as "electrocautery dissection," to which the writer called the attention of the profession by a paper in the Journal of the American Medical Association, Nov. 22, 1890, but since which time the operation has been somewhat modified by dividing the attack upon each tonsil in two steps, which are taken ten days or two weeks apart. In this way, as compared with the former method of removing the entire tonsil at one operation, the annoyance of the operation and the danger of hemorrhage have both been materially reduced. The various steps of the operation and after-treatment were fully described and the instruments employed

shown. This operation, while originally designed for adults only, is now employed with children of 7 or 8 years of age, by increasing the number of steps and doing less at each sitting, though the attacks are made more frequently.

The results obtained by this method were reported as being highly satisfactory in all ways and a permanent cure follows of those symptoms depending upon the condition of tonsil being considered, and also in case of vocalists an improvement of the singing voice. A strong argument was made in favor of the most radical treatment, as when the tonsils are diseased, as they most assuredly are in the condition described, then their functional capacity is irrevocably destroyed and, therefore, in accordance with the principles of latter-day surgery the only possible indication must be for total ablation.

(*To be continued.*)

SELECTIONS.

The Forcible Correction of the Deformity in Pott's Disease.—The forcible rectification of the deformity of the spine in Pott's disease is a subject which in France and Germany is awakening the widest interest. It has hardly found its way into American or English literature yet to any extent (JOURNAL xxix, 745; xxx, 709) partly because it is all so recent and partly because each one hesitates to approach the subject in a critical way on the facts so far presented. The method is essentially one which requires the lapse of a considerable amount of time for the estimation of its real value. The method proposed is this: the patient is anesthetized, and lying on his face is forcibly pulled upon by one assistant on each arm and leg while the surgeon leaning over him presses down upon the deformity until it yields or he sees fit to desist. The patient is then laid on his back on a padded board or enveloped in plaster from his head to his pelvis, for some months. It is claimed by some writers that permanent improvement and almost cure of the deformity may be obtained in this way. We are taught, and analogy would lead us to believe, that traumatism to bones or joints affected by tuberculous disease renders the tissues more vulnerable to the inroads of the bacillus and the general system more likely to be affected by generalization of the tuberculosis. The forcible tearing of tuberculous bone tissue has been again and again demonstrated to be risky and attended often by meningitis or general tuberculosis. For example, in twenty-seven cases of the forcible rectification of the deformity in hip disease recently reported by Raymond Sainton, five developed fatal meningitis within two or three months of operation. Objections on practical and theoretic grounds instantly occur: 1. Pott's disease is a tuberculosis of bone of the bodies of the vertebræ, and the deformity is secondary and is an incident. It has been regarded as in a measure conservative and as nature's preliminary to arresting the disease. The essential is vertebral tuberculosis, not deformity of the spine. Were the treatment proposed the eradication of the disease, it would place it on a different plane; but the measure deals only with a symptom and a result which is of itself distressing, and sometimes disabling but which is on the whole fairly well controlled by early and efficient treatment. Other things being equal it is, of course, most desirable to improve or obliterate the deformity; but the essential of any rational treatment is first to cure the disease. 2. The question of the occurrence of bony repair to fill in the gap caused by the tearing apart of the bodies of the vertebræ is, of course, an essential one. If there is to be no bony repair the operation is useless. It is asserted (Ménard) that in Pott's disease bony repair occurs, not in the bodies of the vertebral column, but at the sides and back. But Regnault quotes a specimen in the Musée Dupuytren, where a gap exists in a diseased column, but the column is stable. One must remember, as shown by experiments on the cadaver, after rectification, that the gap to be filled may measure two to six centimeters or more. No pathologic evidence beyond the specimen of Regnault has been adduced to show that bony repair of the vertebral column of a character likely to support weight is likely to occur. Chipault, the modern originator of the method of forcible correction, and the predecessor of Calot, who seems to have reaped the glory, lays much stress upon ligature of the spinous processes in Pott's disease; not only does he ligature them after forcible correction, but as a routine method of treatment of Pott's disease in children even before the occurrence of deformity he advises "ligature by a silver wire of the spinous apophyses corresponding to the diseased region, a ligature followed by immobilization." A stout silver wire is twisted from one spinous process to another, so as to embrace and steady the whole area affected. After forcible correction Chipault has either wired the spinous processes together or has clamped the laminæ together by an appliance somewhat like Malgaigne's patella hooks. A column supported in this way has, he says, double the strength of the intact column. Upon this ligature Chipault insists as one of the essentials, not only of forcible correction but of all treatment of Pott's disease in the active stage. Relapse, without this is, he says, most likely to occur. Calot claims that bony tissue fills up the gap caused by the separation of the vertebral surfaces on the ground that radiographs show it, instancing one where there were seen two beams of bone stretched across the gap after an interval of three and a half months, eight to ten millimeters thick and two centimeters long. Again, he says that where the operation is done in two stages, weeks or months apart, distinct snaps of bony tissue are felt at the second redressement. Ducroquet has brought forward radiographs which are said to show bony repair of the gap in the vertebral bodies. The reproductions of these radiographs in his (Calot) article is far from satisfying one that these statements are warranted by them. The general opinion is that the question of bony repair of the gap in the vertebræ must be regarded for the present as wholly *sub judice*. Such a process is not in line with the general behavior of bone when affected by tuberculosis and disturbed by traumatism. It can not be dismissed as impossible, nor can it yet be accepted as proved to have occurred after the forcible correction in Pott's disease. If bony repair of the gap does not occur the operation is of questionable ultimate utility unless the spinous processes are wired, as advised by Chipault. Among those who have reported relapses are Pean, Phocas, Tausch and Lorenz and Vincent. 3. One would suppose that such operations must be attended by risk to life, but the reported casualties are surprisingly few. The cord and membranes in experiments on the cadaver have not shown signs of injury. Ménard in correcting the deformity on the cadaver ruptured a prevertebral abscess which would have found its way into the mediastinum during life. Lorenz speaks of a case where an operation was undertaken to arrest a threatened paraplegia; permanent paralysis immediately followed of a severe type. In addition to these dangers, hemorrhage, opening up of tuberculous foci, injury to intrathoracic vessels, etc., are advanced as theoretic possibilities. It is obvious that in old cases where union has occurred fracture of the spine will result from attempts at correction sufficiently forcible. Such an accident is reported by Malherbe, where a deformity has existed for eight years in a patient twelve and a half years old. The results quoted are surprisingly good. Calot comes first with 204 forcible corrections. There were no accidents, no deaths on the table. Two children died inside of three months, one of broncho-pneumonia and one of meningitis. In eight cases of paralysis, six cures resulted within eight days. In one case partial paralysis came on some days after correction. Twenty of his operated cases walk already; but his end results are too recent to be worthy of serious consideration. He states that the X-ray shows the process of repair to be finished five to ten months after operation, sometimes requiring fifteen months. The criticism of Calot's figures made by M. Monod seems reasonable. In a critical report of the papers of Chipault, Calot and Ménard he made the statement that the statistics of Calot

were too good, and for that reason would not carry weight. On the other hand, it must be remembered that Calot operates at Berck-sur-Mer under the most favorable hygienic conditions; and, as one of his critics said, could venture on things unsafe in cities. Chipault has operated for four years. He says there are many relapses, and that unless the apophyses are fastened together, practically all will relapse.

In England, Jones and Tubbey have done eleven reductions. In six they obtained immediate and complete rectifications, in five only partial. Lorenz has been already quoted with one case of paralysis, and at the same time relapse of the deformity. Jonnesco reported three deaths in thirteen reductions, one from chloroform, one death unexplained by autopsy forty-eight hours after reduction, and one death from bronchopneumonia after eight days. Most of the series of cases are, however, much more favorable. As far as figures go to show immediate dangers, one must admit that if representative cases are reported, the immediate results are altogether more favorable than could have been predicted on theoretic grounds. The limit of applicability is indefinite. Cases of three and four years' duration have been often corrected, and adults and children have yielded equally good results. Calot makes in doubtful cases traction of 40 to 80 kilograms; and if there is no yielding he stops. Very old cases are obviously unfit for such operation. In two such cases, however, Calot has done a cuneiform resection of the posterior parts of the vertebræ and has thus accomplished reduction. This method, of course, diminishes the chest capacity markedly. The technique is simple, the patient lies prone and is pulled apart by strong assistants pulling on the arms and legs so as to distract the vertebræ at the seat of disease. Jeannel of Toulouse, and Vulpius of Heidelberg, use pulleys and bands for distraction in place of assistants, and the latter advocates suspension by the heels as the most available position for correction, and the application of the jacket. Calot advises as the first step of the operation the removal of the spinous processes of the diseased vertebræ through a longitudinal incision which is at once sewed up. This is advocated on the ground that pressure can then be made by the flat of the hand in rectifying the deformity, which is more accurate than pressure on each side of the spines; and it is said that sloughs are much less likely to form under the jacket. On the other hand, it is claimed that the removal of the spinous processes weakens the already diseased and unstable column. Traction of 20 to 80 kilos is made by Calot, according to circumstances, and then the surgeon standing over the patient presses downward on the boss with short jerks, exerting a pressure from 15 to 40 kilos. The deformity generally yields with a succession of snaps or suddenly and easily. The patient is then held with the spine overextended while a plaster cuirass is applied reaching from the top of the head to below the pelvis. This is changed every three or four months. Sloughs are likely to occur, especially on the occiput and over the boss. Recumbency of some months is advised, and the indication, according to Calot, for the upright position unsupported is afforded by the X-ray, which shows the formation of bone. All this seems to the American reader very indefinite and vague. Chipault lays the patient, after the operation, on an elaborately arranged board for hyperextending the spine.

Such is the literature as it stands. Lorenz and Ménard are the chief critics; Chipault, the real reviver of the method, is conservative and cautious; Monod is judicial and sceptic; the majority are enthusiastic. Theoretic objections are all very well; but every new operative method has had to meet them at the outset and either disprove them or be itself discredited. The operation attacks, not Pott's disease, but the deformity of Pott's disease, which is not the worst feature of the affection. It expects of tuberculosis of bone a reparative power and a behavior in general which it does not possess in general. It is not apparently attended with much risk, but its real utility in *permanently* maintaining the improved position is yet to be proved. The operation is apparently not particularly dangerous. One need not use in all cases an obviously unreasonable amount of force, as advocated by Calot, but several gentle rectifications may follow each other. Paralysis may often be cured; the deformity may be largely corrected, temporarily at least, in recent cases; and in view of the decidedly unsatisfactory status of the present treatment of Pott's disease, the method is bound to be used, probably abused, advocated and decried until finally it finds its real level and is estimated at its true value. What that real value is no one can tell until much time has elapsed, time enough to show ultimate results. There has been yet no interval for the discussion of anything more than immediate results regarded in the light of the slow progress of tuberculosis of bone. Neither is it possible to say yet just which cases are best suited to this treatment. They must obviously be recent cases, that is, cases without anchylosis; and adults and children are apparently equally amenable. Beyond this nothing definite can be said. The method is of value in one way, even if time should prove it in every other to be worthless, which is altogether unlikely. It has shown us that an ambulatory apparatus can be applied which shall hold straight even a vertebral column where the bodies of the vertebræ do not exist but where they only bound a gap. But this apparatus must include the head and shoulders. If this turns us aside temporarily from our routine of braces and jackets to remember that body weight can be supported elsewhere than on the vertebral bodies, if we are only willing to use sufficient apparatus, the method of Calot, or rather Hippocrates, will have helped conservative methods and given new energy to the efforts to prevent deformity.—Lovett in *Boston Medical and Surgical Journal*, March 10.

We notice also in the *Centralbl. f. Chir.* of March 26, a later communication on the subject from F. Lange, who recommends a cast after forcible rectification, which only extends from the clavicular to the inguinal region, as he has found the Calot corset not only clumsy, but almost sure to produce various disturbances in the circulation of the neck and head. The cast is applied especially tight in front over the upper half of the sternum and the front edge of the ilium, and behind, at the region of the lower ribs, with a large opening cut out over the abdomen. It holds the spine in perfect lordosis without interfering with the arms or out-of-door life of the child. He adds that physicians now should never allow spondylitis to progress to actual deformity, and maintains that all the benefit of reduction, except in extreme cases, is in straightening the healthy parts around the boss. This paragibbous rectification, as he calls it, while free from all the dangers of the actual gibbus reduction, is equally effective and can be performed without narcosis, which is especially dangerous in these operations. He even asserts that in many cases with perfectly satisfactory results, in which it was supposed the gibbus had been reduced nothing but a paragibbous reduction had been accomplished after all, which could have been performed fully as well without the narcosis.

Spanish Destroyers and Torpedo Boats Destined for Cuba.—The *Scientific American* of March 19, represented an illustration of several of the destroyers, torpedo boats and torpedo gun-boats destined for service in Cuban waters. We quote: The first division, which include the torpedo boat destroyers *Pluton*, *Terror* and *Furor*, and the torpedo boats *Rayo*, *Halcon* and *Azor*, is under the command of Fernando Villaamil. The second division will consist of the torpedo boat destroyers *Osado*, *Audaz* and *Proserpina* and the torpedo boats *Ariete*, *Habana* and *Barcelo*. These boats are the pick of the Spanish torpedo flotilla. They present the very latest developments in torpedo boat design, and one of them, the *Ariete*, was at one

time the most notable vessel of its kind in the world. This little craft is a torpedo boat proper as distinguished from the later destroyers. She was built to the order of the Spanish government in 1887, by Thornycroft of London, and on her trial trip broke all existing records by maintaining a speed of 26.1 knots per hour. This was considered phenomenal at the time, and remained for several years the record speed for a steam vessel; indeed, it was not until such large vessels as the *Havock* and *Hornet* made their appearance in 1893 that her performance was surpassed. The *Ariete* is 147½ feet long and of 97 tons displacement. She has 1600 horse power and carries an armature of four 3 pound rapid-fire guns. She is provided with two torpedo tubes. The *Rayo* is a sister boat to the *Ariete*, was also built by Thornycroft, but is credited with half a knot less speed. Of the other three torpedo boats, the *Azor* and the *Halcon* are larger boats of 108 tons. They have the same horse power but two knots less speed. Their armament is the same, but they carry an additional torpedo tube. The *Habana* was built by Thornycroft in 1887. She is a small boat of 59 tons displacement, has two torpedo tubes and has 21.3 knots speed. The *Barcelo* was built by Normand, well known as the inventor of the boiler which bears his name and by the successful torpedo craft which he has turned out. She is of 66 tons displacement and 19½ knots speed and carries two torpedo discharges. All of these boats are designated as first-class and are comparable in speed and equipment with similar boats in other navies. The strength of this flotilla lies in its brand new destroyers. The destroyer is an enlarged torpedo boat provided with sufficient size and power to enable it to keep the sea with a fighting fleet, something that the torpedo boat can not do. In the course of the English naval maneuvers it was soon discovered that the high speed of the torpedo boat was strictly a fair weather speed, and naval constructors realized that greater weight, size and power were necessary to render these little craft serviceable anywhere outside of sheltered waters. At the same time the enormous increase in the torpedo boat flotillas of other European navies necessitated some defensive action against them, and it was resolved to build a fleet of vessels of from 300 to 400 tons displacement, armed with powerful guns which would be capable of running down and destroying torpedo craft. Of the three which are in active service, the *Furor* and *Terror* were launched in 1896. They are 220 feet long, 22 feet beam and 5½ feet draught, with a displacement of 380 tons and a speed of 28 knots. They have twin engines of 6000 horse power and bunker capacity for 100 tons of coal. There are two torpedo tubes and the complement of men is 67. The armament is heavy, too heavy according to the ideas of our own designers, consisting of two 12-pounder rapid-fire guns, two 6-pounders and two 1-pounders. The 12-pounder fires a 3 inch shell weighing twelve pounds with a velocity of 2200 feet a second, which is capable of penetrating eight inches of iron at the muzzle; so that it can be seen that one of these boats could annihilate a torpedo boat as soon as it had run up within range. Of the four other destroyers, one, the *Pluton*, is already in service, and the other three, the *Audaz*, the *Osado* and the *Proserpina*, will sail at an early date. These four are identical in all respects and they have the characteristic of being considerably the largest destroyers in the world, being over 100 tons greater displacement than the largest English boats of this type. Their speed, however, is not so great by two knots. The particulars are as follows: Length, 225 feet; beam, 22½ feet; draught, 5.8 feet; displacement, 400 tons; speed, 30 knots; horse power, 7500; coal capacity, 100 tons; and complement of men 70. They carry two torpedo discharges and their armament is identical with that of the *Furor* class. In bringing these boats over the Atlantic everything will be done to guard against accident and disablement in heavy weather, especially in the case of the smaller boats. The guns will be unshipped to reduce top weight and provide additional coal-carrying capacity for the long journey.

PRACTICAL NOTES.

Salve for Acute Articular Rheumatism.—Sodium salicylate, 30 grams; iodoform, 10 grams; vaselin, 100 grams; extract of hyoscyamus, 5 grams. For external use.—*Nouv. Remèdes.*, February 24.

Lupus Cured with Inoculations of Blood from Erysipelas Patches in Another Patient.—A severe case of chronic lupus of the face, closing the mouth so that speaking was impossible and no solid could be taken, the eyelids also swollen together, is reported.

Antipyrin in Sciatica.—If injections of antipyrin do not always relieve sciatica it is because they are not made deep enough, so as to bring the analgesic actually into contact with the nerve trunk.—Kuhn in *Sem. Méd.*, March 10.

Radiocondenser.—A cone-shaped lead tube to conduct the rays to the screen is the latest improvement in radiography. The entire strength of the rays is thus concentrated.—*Bull. de l'Acad. de Méd.*, March 15.

Spray for Dry Pharyngitis.—Phenic acid, 4 grams; tincture of iodin, 50 centigrams; tincture of aloes, 40 centigrams; tincture of opium, 10 drops. Glycerin q. s. to make 30 grams.—*Nouv. Remèdes*, February 24.

Nervous Grip.—G. Baccelli recommends the following powders for nervous grip with hyperthermia: Quinin salicylate, 20 centigrams; phenacetin, 15 centigrams; camphor, 2 centigrams; for one powder. Take two to six powders during the twenty-four hours.—*Sem. Méd.*, March 10.

The Favorable Action of Convallaria Majalis in dropsy of renal or hepatic origin has been announced by Janowski, who prescribes it in an infusion of 4 grams of the plant to 180 grams of water, a tablespoonful every two hours, changing later to a 1 to 12 alcoholic tincture, of which 45 to 80 drops are taken during the day. It also favorably influences the diuresis in hepatic cirrhosis.—*Sem. Méd.*, March 10.

Albumin Tannate as a Preventive of Diarrhea.—L. Roemheld has found that the diarrhea which so frequently accompanies the use of cod-liver oil or calomel, can be prevented by administering 2 to 4 grams of albumin tannate during the day. Fifty rachitic children thus treated were enabled to continue taking the cod-liver oil for months, while diarrhea occurred at once if the tannate was suspended.—*Nouv. Remèdes*, February 24.

Effect of Diphtheria Antitoxin on the Kidneys.—Rojanski has been studying the effect of small preventive doses (2 to 3 c.c.) on the action of the kidneys in seventy-three cases, and finds that it has no deleterious influence. No traces of albumin were discovered in the urine. He also reports a case of severe scarlet fever and nephritis in which diphtheria supervened, and larger doses of the antitoxin (10 c.c.) were administered. The diphtheria was arrested at once, and the nephritis also seemed to be favorably affected and retrogressed, although more slowly.—*Revue de Chir.* from *Botkine's Gazette*, 1896, No 36.

Inflammation of the Sinuses of the Face are so frequent that they are found in 20 per cent. of the necropsies, and in 90 per cent. of those preceded by grip. V. Boland recommends remaining in bed if there is much reaction. Sudation with pilocarpin will sometimes afford much relief. He advises Moure's inhalations of the following: Add to a hot infusion of aromatic herbs a teaspoonful of the following: Pure alcohol, 150 grams; menthol, 5 grams; eucalyptol, 5 grams; oil of gaultheria, 5 drops; inhale for five minutes four times a day. Lermoyer recommends the following: Pure alcohol, 100 grams; menthol, 5 grams; add a tablespoonful to a bowl of hot water and inhale by the nose through a funnel for five minutes, every two hours. The Politzer douche cleanses the sinus in some cases. The contents of the sinus can also be aspirated out sometimes by deep inspirations, with the mouth and nose tightly closed.—*Gaz. Méd. de Liège*, March 17.

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SATURDAY, APRIL 23, 1898.

THE PHYSIOLOGIC EFFECTS OF EXTRACTS OF THE HYPOPHYSIS CEREBRI AND INFUNDIBULAR BODY.

The hypophysis cerebri, or pituitary body, is currently described as being composed of two lobes; the anterior, larger lobe, is embryologically described as arising from the epithelium of the mouth cavity, its glandular structure resembling in many respects the structure of the thyroid gland. It is stated by HALLER[1] that it possesses an incomplete system of ducts that open between the meninges. In a recent article, W. H. HOWELL[2] maintains that, properly speaking, the term hypophysis cerebri should be restricted to this lobe. This significance is now given the term by most morphologic writers, but human anatomy commonly includes the so-called posterior lobe as well.

The posterior lobe lies upon and is partially covered in by the hypophysis proper, and it will be recalled that it is connected by a stalk to the infundibulum, and that embryologically it is regarded as an outgrowth of this part of the brain. For these reasons it would indeed seem quite desirable to speak of this posterior lobe as the infundibular body.

This body is small as compared with the hypophysis proper. The only satisfactory study of its histology is that by BERKLEY,[3] who used the Golgi method, and reports a complicated and curious structure. There are many nerve cells, a cortical layer of ependymal cells, neuroglia tissue, peculiar structures resembling nerve-end-organs, and also a quantity of epithelial cells arranged in part to form tubes enclosing glandular-like vesicles, some of which contain a colloid material Now, this rather complicated make-up would indicate that the infundibular body is not merely a rudimentary organ, but that the glandular tissue may possess a secretory activity of some kind.

Following the recent modern methods of studying the physiologic actions of the so-called ductless glands, the investigators have also attempted to study the action of the extracts of the hypophysis cerebri. SZYMONOWICZ[4] states that in experiments of this kind made upon dogs, there was a fall of blood pressure and a quickening of the heart beat; in other words, just the opposite of the phenomena observed after the injection of the adrenal extract. OLIVER and SCHAEFER[5] obtained different results. Their extracts of the hypophysis caused a marked rise of blood pressure with increased force of the heart beat, results which resemble the action of the adrenal extract, with these differences, however, that there was in the case of the pituitary extracts no slowing of the heart beat.

The somewhat contradictory results obtained by these investigators led HOWELL to make further experiments of the same nature, but with this very important modification, viz.: that in his experiments extracts were made both of the hypophysis cerebri, or anterior lobe, and of the infundibular body, and the effects of these were tested separately by injection into the circulation of anesthetized dogs. In most cases glycerin extracts were made from the fresh tissue; the two lobes were first separated and then rubbed to a creamy pulp with a small quantity of glycerin. The mixture was then allowed to stand for several hours, when it was diluted with a few cubic centimeters of normal saline solution and filtered.

In most of the experiments the gland from the sheep was used, because it is larger than that of the ordinary laboratory animals, as for instance the dog, and also because it was readily obtained at the slaughter houses and easily removed from the skull. The facts obtained by injection of the two different extracts were as follows:

Extracts of the hypophysis alone caused little or no recognizable change in the blood pressure or heart rate, and HOWELL concluded that upon the whole the extracts of this body have no definite effect upon the circulatory or respiratory organs.

With the extracts of the infundibular body the results were marked and quite constant. The main effect was a pronounced slowing of the heart but with an increase in the blood pressure. When the vagi were cut there was a prolonged rise in the blood pressure, but a slower and stronger heart beat. As compared with the adrenal extracts the effect of the extract of the infundibular body is characterized by its long duration. The pressure rises more slowly, remains above the normal for a longer time, and sinks

1 Morphologisches Jahrbuch, xxv, 1896.
2 Journal of Exp. Medicine, Vol. iii, No. 2, 1898.
3 Johns Hopkins Hospital Reports, iv, 1895.
4 Pflüger's Archiv, 1896.
5 Journal of Physiology, 1895.

gradually. If repeated injections are made the effects may be much less marked or may fail altogether, the results depending in this respect upon the time between the injections and also upon the amount of extract used. The loss of reaction following repeated injections is much more marked than in the case of the adrenal extract. It would seem as though the organs affected acquired an immunity from the active substance of the extract, but how long this immunity may last HOWELL did not attempt to determine. Neither has he yet attempted to determine what the nature of this remarkable substance is.

The fact that the physiologic reaction of the extracts of the infundibular body differ so very markedly from those caused by extracts of the hypophysis cerebri, in connection with the differences of structure, differences of origin, show that that they are physiologically and anatomically independent structures. The marked influences of extracts of the infundibular body suggest that this organ may produce a secretion of great importance to the functional activity of the organs of circulation. And certainly this tends to disprove the view that the infundibular body is merely a functionless rudiment.

THE BACILLUS MUCOSUS CAPSULATUS (BACILLUS OF FRIEDLAENDER).

Since the first description by FRIEDLAENDER in 1883, and by WEICHSELBAUM three years later, of an organism which was first called a coccus (pneumococcus of FRIEDLAENDER) and later regarded as a bacillus, occurring in acute fibrinous or croupous pneumonia, this bacillus has been found by many observers in various inflammatory processes in the lungs and other organs.

As specific characteristics of this organism were pointed out, its raised mucus-like growth on agar and blood serum, its nail-shaped growth on gelatin, its yellowish-gray growth with gas formation on potato, its failure to coagulate milk, absence of indol reaction, and decolorization by Gram's method of staining; it was generally found to be constantly pathogenic for mice, variably so for guinea pigs (fatal in about one-half of the cases), rabbits and pigeons, and finally its polymorphism and capsule formation were regarded as quite specific. From time to time bacilli differing in some respects from the foregoing description have been met with in pneumonia and other affections, especially in inflammations of the middle ear and upper air-passages, as well as in the peritoneum, liver, kidneys and bladder, and lately also in the accessory sinuses of the nose. For these reasons there have often appeared in recent literature descriptions of a new bacillus pathogenic for man. Most of the authors have pointed out the striking similarity between these various organisms and the bacillus of FRIEDLAENDER. More or less striking differences in growth and other characteristics have nevertheless been assigned as sufficient reasons for establishing new classes.

The bacillus of FRIEDLAENDER, often called the pneumo-bacillus or capsule bacillus, is stated by HONL to occur in from 5.5 to 8 or 10 per cent. of the cases of croupous pneumonia, and more frequently, alone or with other bacteria, in bronchopneumonia. It is not uncommon in the usual complications of these affections. It has also been found alone, or with other bacteria, in inflammations in the liver, kidney, bile passages, lachrymal gland, in the nose in rhinoscleroma, in ozena, in the accessory sinuses in the nose, and in hemorrhagic septicemia of the new-born. It has also been demonstrated in the saliva of healthy mouths, in healthy noses, in the ground, dust and air.

FRICKE has been able to collect twenty-two bacilli from the literature which resemble the bacilli of FRIEDLAENDER. He points out the many identical features and includes them in one single group, with that of FRIEDLAENDER as the type. He proposes as a name for this group the *Bacillus Mucosus Capsulatus*. He has found such organisms thirteen times, often mixed with pus cocci, in the tympanic cavities of thirty-two cases of otitis media, in one case in the antrum of Highmore, in ulcerative endocarditis, in the stools in seven cases of gastro-enteritis. He makes the differences in the pathogenic actions of these bacilli the basis for two groups. In the first group he places those bacilli that kill white mice after subcutaneous inoculation and which have none, or only a passive pathogenic action, when inoculated into the abdominal cavity of guinea pigs and rabbits. In group two are included those forms that are not pathogenic for mice on subcutaneous inoculation. Most of these were pathogenic for guinea pigs.

FRICKE insists that the so-called ozena bacillus is identical with the *bacillus pneumonicæ* of FRIEDLAENDER. FRAENKEL, PAULSEN and ABEL have all described a mucus-like encapsulated bacillus in connection with ozena. Very recently W. T. HOWARD, Jr.,[1] of Cleveland, Ohio, from whose article the above facts are abstracted, has briefly described ten cases in which he encountered the *bacillus mucosus capsulatus*. These cases varied very much as to the nature of the lesions. Four concerned purulent discharges from empyema of the antra or frontal sinuses; one was a case of puerperal septicemia; another was a case of peritonitis and pyelitis after obstruction to urinary outflow from enlarged prostate. Another was a case of chronic peritonitis in a girl eight years of age, the peritoneal cavity containing a large amount of thick, creamy, tenacious pus, which on microscopic examination showed pleomorphic capsulated bacilli, and the culture showed a bacillus identical with the bacillus of FRIEDLAENDER. Another case was one of acute croupous pneumonia, with general febrinopurulent peritonitis. The bacilli found in these cases did not agree with each other in all respects, differing

1 Phila. Med. Jour., Feb. 19, 1898.

especially in the varying amounts of gas production and varying in pathogenesis for guinea pigs and rabbits. HOWARD concludes that this bacillus is much more commonly associated with acute and chronic infectious processes than is generally believed.

JOSEPH J. CURRY[2] considers the *bacillus capsulatus* with especial reference to its connection with acute lobar pneumonia. He found it as a pure or mixed infection in twelve cases of various kinds including acute fibrinous pneumonia, acute endocarditis, otitis media, diphtheria and tonsillitis. The connection of the *bacillus capsulatus* with acute croupous pneumonia is especially interesting. The routine bacteriologic examinations of pneumonia as carried out in the Boston City Hospital, for instance, have shown that it is invariably due to the *micrococcus lanceolatus*. One of the cases referred to by CURRY throws considerable light on the cases of pneumonia which have been considered as due to the capsule bacillus in so far as it demonstrates that the growth of this bacillus may be and usually is so profuse as to obscure the growth of the diplococcus; examination of the sections from the lung in this case by the Gram stain, as well as with methylene blue, showed that the bacilli were, as would be expected, decolorized by Gram's method, while the diplococci were present in large numbers in the alveoli and in the pleural exudation; with the methylene blue stain the bacilli were found quite numerous, chiefly in the bronchi.

SCIOLISM AND SUPERSTITION.

Some two or three years ago an essayist in a popular review, under the title of "The Recrudescence of Superstition," tried to prove that with all our boasted progress, there was evidence that the world was going backward in at least one respect—that instead of becoming more emancipated from degrading superstitions mankind was getting to be more and more their slave, and adopting ideas and practices that better fitted the middle or the so-called dark ages than the present time. It was, as one might naturally suppose, a partial view and not a judicial statement of facts; the author focused his attention on certain facts that have existed from all time and ignored the real prevailing conditions about him. Men have always been more or less superstitious, and no amount of culture can entirely make them anything else, and in the uncultured the grossest beliefs have at all ages, not excepting our own, found their supporters. Human credulity is an indefinite quantity and it would be a rash man who would venture to set its limits.

No one has a better opportunity to observe this fact than the physician, one might say perhaps "the regular physician," for there is altogether too large a contingent of those whom the public regards as physicians, who live and thrive by encouraging some form or other of misdirected medical belief, and who, if honest, can hardly be considered as capable of taking, so to speak, an external and impartial view of such delusions. There are even "regular" physicians who from some peculiarity of mental constitution, are incapable of distinguishing between science and pseudo-science, and are therefore sometimes carried away by pretentious theories supported only by a confused and confusing jargon of misused technicalities, and it may be the revival of some antiquated but still somewhat specious delusion in physics or philosophy. With the laity, medicine, in its popular acceptation, is still to a large extent what it was in MAGENDIE'S time, "the grand idol of human credulity"; there is hardly anything so absurd as not to command some one's faith and domestic practice. Christian science, which is apparently supplanting homeopathy as a female cult, osteopathy, and all the other "pathies" and "isms" that are rampant at the present time, are sufficient evidence of this fact.

The JOURNAL not long since editorially noticed the appearance in a respectable medical publication of the lucubrations of a Washington pseudo-scientist who, in despite of physical laws, claimed to be able to cut visible sections of less than one-hundredth of a micrometer, and to infinitely increase the magnifying power of microscopes and telescopes, so that, judging from his pretensions, one might assume that the infinitely distant and the infinitely little would be yet revealed from the satellites of the fixed stars on the one hand to the vortex gyrations of the ultimate atoms on the other. This passed for science sufficiently to be noticed without specially adverse comment in popular scientific serials, so that possibly one should not too severely criticise the medical editor who passed the contribution as suitable for publication. But when we see articles in what we may call at least a semi-medical journal, supporting "psychometry," the juggling of the clairvoyant, and that gypsy specialty, palmistry, as having not merely a real value and truth, but as supported by physiologic and anatomic facts, we can reasonably wish, for the credit of our profession, which in a way is the sufferer, that the editor had been more discriminating. The discussion that once ran through a leading foreign medical journal on the deleterious influence of the accidental presence of a menstruating woman during the process of curing hams, was, in its way, much more respectable; it gave only the individual expressions of honest ignorance and superstition, while such publications as are here referred to are ignorance and superstition invested in a pretentious sciolism, which adds a sort of element of fraud, unconscious though it may be, to the delusion.

All men, learned or not, may be assumed to be still somewhat superstitious, or to have at least the possibility of it in their composition. There is enough

[2] The Journal of the Boston Society of Medical Sciences, March, 1898.

of the mysterious and incomprehensible about us to almost justify it in the ignorant, and no one should know this better than the medical man. He can while honestly admitting the limitations of his own knowledge, be philosophically tolerant of the weaknesses of others. It is harder, however, to be tolerant with those who, adopting the superstitions of the ignorant or denying their own limitations, endeavor to bolster up their delusions with their half-digested acquisitions of scientific terminology and theories.

THE RELATION OF THE PHYSICIAN TO THE PURITY OF DRUGS.

The old saying "none are so blind that they will not see," is well exemplified by the lack of regard shown by some physicians concerning the conditions as to purity and excellence of the medicines which they prescribe. The surgeon usually has sufficient acumen to recognize the fact that his instruments must be thoroughly reliable if creditable results are to be reached and after some years of experience he learns to regard a certain manufacturer's products reliable and usually purchases his supplies from that source until some accident reveals to him that his confidence has been misplaced. Not so with the physician who writes a prescription for his patient and sends him out to get it filled by whom and where he will, or who for motives of economy purchases for his own dispensing cheap pharmaceutic products which must needs be uncertain in their effect. Can anything be more suicidal from the point of view of the man who desires to be ranked as a successful practitioner, and can anything be more futile than his attempt to treat serious maladies with preparations which are to good drugs what a jack-knife is to a well made tenotome.

Our attention has been called to this fact so often that we are apt to regard a failure to produce an expected effect rather as the result of some such fault than as an evidence of our having been mistaken as to the diagnosis of the disease or the remedy needed. Some years ago a drug firm in the Atlantic States purchased a large amount of impaired and damaged pharmaceutic products of all sorts and then marketed them by sending travelers to the office of hundreds of physicians who for the sake of saving a few cents on every thousand pills, or tablets, not only impaired their professional reputation by their use but were guilty of a breach of trust in that they in one sense innocently used feeble remedies in serious maladies when their patients placed their confidence in the physician doing the best for them that was possible.

Since that time other evidences of a similar lack of the ability to perceive what is for our best interests have been made manifest and time after time physicians fail to get effects because the original drug is poor or the dispenser careless in the preparation of the finished product.

A visit to the store of any wholesale drug house will reveal various grades of almost every drug. The best grades are at a high price, the poorer ones at much less cost. The druggist with the theory of "save a penny, lose a pound," purchases the cheaper grades and is fortunate if his medical and lay patrons do not discover him.

Finally, there exist men who, with more of an eye to the dollar than to humanity, deliberately take it upon themselves to adulterate pure drugs and thereby cheat the sick not only of their money but perhaps of their lives.

This editorial is not the place to discuss the well-worn theme of substituting one article for that ordered, on the ground that it is "just as good," bad as the results of such action may be. It is the place, however, for us to insist on the physician forearming himself against such evils as may impair his career and cause his patients suffering. With the large manufacturing chemists, who by buying enormous quantities of crude drugs can get pure ones at as small a price as the individual druggist can buy poor drugs and who place upon the market accurately prepared, chemically assayed or physiologically tested products there is no reason why every physician and patient should not use the best the world affords.

That the views just expressed are correct is evidenced by the following facts derived from the *London Pharmaceutical Journal* concerning adulterations in England and from the *Pharmaceutical Era* as to adulterations discovered by the Massachusetts Board of Health. The first journal tells us that: the Local Government has published its twenty-sixth annual report, according to which there were 1380 samples of drugs analyzed by public authority in 1896, of which 156, or 11.3 per cent., were found to be adulterated. The percentage for the past four years has been about 11 per cent., so that last year was not much above the average. Of niter (? spirit of nitrous ether), 51 out of 196 samples were condemned; of rhubarb (? tincture), 22 out of 128; and of ipecacuanha wine, 10 out of 29. The purity of beeswax was well looked after during the year, 10 out of 46 samples being condemned. One was a mixture of about 30 parts of resin to 70 of ceresin, while another contained 75 per cent. of paraffin and only 25 per cent. of genuine beeswax.

As the *Pharmaceutical Journal* well says: "The only way to extinguish adulteration, is to render it unprofitable; and it is observed in the annual report just quoted, that many local authorities have represented the inadequate fines repeatedly inflicted by magistrates to be an encouragement to adulteration."

In Massachusetts the principle articles found to be adulterated or below the standard were ether, alcohol, ammonia water and chlorin water, distilled water (in this article the solids varied from 0 to 73 per 100,000

parts), extracts of licorice and nux vomica, powdered opium, compound spirits of ether, spirits of nitrous ether, whisky, tincture of iodin, syrup, tincture of opium, mercurial ointment, white and red wine.

On the selfish basis of professional success, on the sacred basis of the care of human life, with all that its loss means, let us see to it that our medicines are as pure and capable for the combatting of disease as are the appliances used by the surgeon, who is better off in that he can watch their affects every second and see the area he is operating upon.

THE COMING WAR IN CUBA.

The all-absorbing topic of the week among all classes of people is the question of war. Naturally the physicians are as much interested as any particular class, and much speculation is being indulged in, especially by medical officers of the National Guard, as to the climate of Cuba with reference to service on that island.

In regard to the danger from yellow fever, it is proper to say that the Surgeon-General of the Army, Surgeon-General STERNBERG, is probably as familiar with the conditions as any one in the United States, and it is safe to trust his advice in all those matters. It is, however, not out of place to state that the island is a mountainous one, and if the troops are kept out of the cities as far as possible there will be but little danger of contracting yellow fever.

The boiling of all water the exact composition of which is unknown, is imperative. Besides this, a handy individual pocket filter can be improvised by using a soft rubber funnel provided with a tube; inside of the rubber funnel place one or two layers, as may be desired, of filtering paper (a small package of which should be provided in each knapsack, to be used sparingly as the occasion requires), hold the funnel high, and pour the water through it into the canteen. When not in use the funnel is rolled up and put in any handy pocket, or the haversack.

In regard to the general hospital and field hospitals, there is no tropical country which affords more sites for general hospitals in the mountains than the Island of Cuba, and the fatuity of the Spaniards in placing so many sick soldiers in the infected military hospital on the shore of the stagnant arm of the Bay of Havana, is a melancholy spectacle of incompetent administration. Even at Mariano, but a few miles from Havana, it is well known that yellow fever is infrequent, and it is vastly more healthy than the city. The mountain range of Cuba extends along the whole island, commencing with the sharp peak Pico Turquino 8240 feet high, and extending as a backbone along the island. The hills near Matanzas rise to an elevation of nearly 1200 to 1300 feet, and there is no question that the interior of the Island of Cuba is as healthy as any country in the tropics. If proper precautions be taken, there is no question but immunity from yellow fever can be secured by the rigid observation of sanitary regulations, and prompt isolation of any infected case among the troops that may arise through carelessness or faulty hygiene.

MILITARY SURGEONS.

The meeting of the Military Surgeons at Kansas City in May next may be interfered with owing to the fact that so many of the officers will be otherwise engaged than attending medical conventions. The same reasons interfere with the meeting of the American Surgical Association at New Orleans this week, but to a less degree.

CORRESPONDENCE.

The Serum Treatment of Tuberculosis.

ST. LOUIS, MO., April 11, 1898.

To the Editor:—In Dr. Waxham's letter on the above subject in your issue of April 9, Dr. Waxham asks, and the question is a fair one, why no criticism was made on the reports of the serum treatment in two papers in your issue of February 5, "in which sixteen cases were reported, of which fourteen were chronic cases, having existed from one to eleven years," and suggests that it may have been because those reports were more favorable.

It has been the practice of Messrs. Jno. T. Milliken & Co., on receiving first applications for serum, to caution the prospective users as to the limits within which claim is made for its usefulness. Dr. Waxham was himself so cautioned, for I find in my letter to him of Nov. 13, 1897, the following words: "Of course I need hardly say that its chief use lies in the early stages of tuberculosis. It can scarcely be expected to renovate organs which are in a state of absolute structural disorganization." To a man of Dr. Waxham's professional standing any more explicit statement seemed uncalled for.

That being the rule, there was no occasion to criticize the reports of February 5, to which Dr. Waxham refers; nor would any criticism have been called for upon Dr. Waxham's report, had he not made the assertion therein that "the cases reported would seem to be fair ones with which to judge the value of the treatment." In regard to the claims made for antiphthisic serum, that statement left no alternative but to combat it. . .

Dr. Waxham is, no doubt unintentionally, scarcely fair when he says that Dr. Millican "decides" that all, except possibly one or two cases, were cases of mixed infections. My words were: "It is a fair inference from the clinical reports, notwithstanding the absence of temperature records, that there was mixed infections, etc."

It is neither "proven" nor "admitted" that the serum treatment is a "failure" in long-standing chronic cases of tuberculosis. There are many such on record as either cured or markedly improved thereby, some of which are recorded in the two papers of February 5 referred to. At the same time they are at present regarded as exceptional, and the caution is given that good results ought not to be anticipated in such cases. The question is one of degree, and only to be solved by cumulative evidence of which Dr. Waxham's report will ultimately form part.

Dr. Waxham tells us that "Early cases invariably recover." If that be so, where do the chronic cases come from? . . . Dr. Waxham's concluding advice is certainly sound. The

essence of general medicine lies in giving every therapeutic arrow its place in the therapeutic quiver. "Specialism in Therapeutics" has been that cause of many useful adjuncts being long retarded in their claim for public recognition, e.g., hydrotherapy, electricity, etc. The quacks who claimed to treat all diseases, and all cases thereof, by these methods alone, are responsible for the long delay in their acceptance as very valuable therapeutic measures. The true physician does not seek to establish any "universal or exclusive rule" of treatment, but employs all or any methods, collectively or severally, which according to his experience and what he knows of the experience of others, appear to be suited to the individual case before him. But when a new method is on its trial, it is not fair to discredit it by the assertion that cases clearly outside the claims made for its recognition, are "fair ones with which to judge the value of the treatment."

Were the fourteen cases of February 5 and Dr. Waxham's ten to be taken alone as representing all that is to be said for and against serum treatment in "long-standing cases of chronic tuberculosis," it seems to me that the balance of evidence would be against Dr. Waxham's assertion that serum therapy has been proven to be a "failure" in such cases, though neither could its success be held to be conspicuous. But, as a matter of fact, neither Dr. Waxham's ten cases against, nor the fourteen more or less favorable to, its results in chronic cases, are the evidence of its value in such cases, but parts only of the evidence on which the future verdict will be rendered; and as such are equally valuable, and equally welcomed by honest investigators.

Yours very truly,

KENNETH W. MILLICAN, M.D.

Suggestions Concerning Publication of Association Papers.

To the Editor:—The approaching meeting of the AMERICAN MEDICAL ASSOCIATION, at which, by the way, I propose to present two papers, moves me to write to you on the subject of your methods (rules?) of publication, which I do principally from the standpoint of the reader, for I have no grievance to air, all my former contributions to your columns having been printed in the most satisfactory manner. But the present state of your coulmns, now, in April, publishing many valuable contributions made to the ASSOCIATION last June, and several extremely prolonged communications that have appeared during the year and which have probably been a cause of this undue postponement, together with the preliminary programs already announced for the coming meeting, give rise to the serious apprehension that if the latter are carried out and you are favored with other voluntary contributions extending over months, you will be completely swamped during the next year in a mass of material of very varying degrees of usefulness and interest. Therefore, it seems to me that now, or early in the meeting, would be a proper time to take, before it could be considered to have any personal bearing, a new departure, in the interest of overburdened readers and impatient contributors.

There are certain articles, learned, excellently written, and within their limits useful, which possess but comparatively little interest for the general reader. To be specific, such are translations of historic works, carried out with true German thoroughness and corresponding dulness, which would be excellent for the scholarly surgeon to have in his library but which have no proper place in the pages of anything called a journal.

A year or two ago the proceedings of the ———al Society filled your columns for months with a mass of details, important no doubt to those interested, but conveying little or no meaning, if read, to the vast majority of your readers. An abstract of those papers and discussions in the tenth part of the space would have been of infinitely more use, and would have had twenty readers to every one who gave up the original in despair. The histories of the specialties and the Sections of the ASSOCIATION giving, for instance, the names of officers and papers read for each year of their existence, might better be published in the organs of the appropriate specialties. It is not inspiring to read in the spring of 1898 that in June, 1897, Dr. —— said that the Section on ——ology was organized with Dr. ——, Chairman, and Dr. ——, Secretary, and that Dr. —— read a most able and interesting paper, and so on, for each year of its existence, closing with the statement that the Section has made a most notable contribution to the knowledge of the subject throughout the world, and undoubtedly under the able leadership of the speaker's accomplished successor will still pursue the path of glory and science.

It must be acknowledged, also, that there are some papers consisting of such helter-skelter facts, real or supposed, mixed up with much vague speculation and very likely moral and ethic reflections that would not bear editing, which would spoil their flavor, often unique and racy, but which should not be allowed to take up space unless they have the literary and humerous qualities making them enjoyable and an agreeable relief from severer labors.

Then come the compilations, which, if well done, are often the most useful of all for the busy man, but which may be fit subjects for revision.

I wish to make two alternative propositions: 1. The publication of a daily edition of the JOURNAL during the session, containing an abstract of everything and as many of the general addresses in full as there may be room for, and this edition to be continued long enough afterward to publish everything in full or at least long enough to let the editor see daylight through his mass of copy before the end of the year, with room for something else.

Under the present arrangement the authors are liable to find themselves in the predicament of Mr. Ibsen, who alone, with the exception of the Good Lord, so reticent of important human secrets, knew what he meant when he wrote "Peer Gynt," but has long since forgotten. From such an edition the reader could take what he likes, as we do out of the Sunday newspapers.

2. Subjection of all papers read before the ASSOCIATION, or the more or less affiliated Societies which meet about the same time, excepting always the addresses of Presidents of Societies and the three general addresses, but not excepting the addresses of Chairmen of Sections, to a sufficiently large committee. They should act promptly, as far as possible, during the meetings through subcommittees in each Section, and complete their work within a month, at the end of which authors should be notified of their decision. They should report that a given paper should be published either: 1. In full. 2. In full, omitting the historic introduction. 3. In extracts. 4. In abstract. 5. By title.

If reported in any of these ways, except the first, the author should have the paper or any portions of it omitted, placed at his own disposal to publish as he might see fit, and he should also, if possible, prepare the extracts or abstract desired, within space limits, to be assigned by the committee, when he is notified of their decision. This committee should include two or three members from each Section who could do the bulk of the work during the meeting or within a day, to be afterward completed by correspondence. Such a committee would relieve the JOURNAL of a great deal of dead-weight and the editor of the exceedingly unpleasant task of telling his confrères that their contributions are not available. It would also be possible for such a committee to act by correspondence throughout the year and pass at least upon the longer contributions such as might extend over many numbers.

I am very respectfully, **

Licenses to Practice.

HYDE PARK, VT., April 23, 1898.

To the Editor:—In your issue of the 9th inst. I notice a correction sent in by Dr. Mailhouse calling your attention to the fact that Connecticut now requires an examination for license to practice medicine. I give below a complete list of States now requiring an examination for admission to practice, having obtained the same at considerable trouble and expense for my work on medical education and registration. They are as follows: Alabama, Arizona, Connecticut, Delaware, District of Columbia, Florida, Georgia, Cherokee Nation Indian Territory, (Iowa after Jan. 1, 1899), Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Oregon, Pennsylvania, South Carolina, Tennessee, (Texas in dispute), Utah, Virginia, Washington and West Virginia.

Idaho had a very good law passed a year ago which has since been declared unconstitutional owing to some irregularity in the Senate records; consequently it will have to be classed in the list of six States which have practically no medical practice laws, viz., Vermont, Michigan, Kansas, Wyoming, Nevada and Idaho.

Ohio and Rhode Island have taken decided steps to prevent medical schools locating in towns of less than 50,000 inhabitants.

Twenty-seven States besides the District of Columbia, Cherokee Nation Indian Territory, and Arizona now require examination for license to practice, of which number seventeen require both diploma and an examination. Some of the States not requiring an examination, as well as some that do, have very stringent rules governing the recognition of diplomas.

A four years' course of lectures, with a very considerable amount of preliminary education as a condition of recognition of diplomas, is demanded by something over a dozen States, in response to which 117 of the 155 medical schools in this country now require attendance on four annual courses of lectures, of which number twenty-seven require attendance on sessions of eight months, and ten of nine months each year. May each and every State soon require an adequate preliminary training and annual sessions of at least eight months instead of six, as some of the second- or third-rate schools will not fall into line until they are driven to it.

Very truly yours,

WILLIAM T. SLAYTON, M.D.

Author "Medical Education and Registration United States and Canada."

Eustrongylas Gigas.

CENTERBURG, OHIO, April 11, 1898.

To the Editor:—On page 717 of the JOURNAL an article appears on the subject of "Eustrongylus Gigas," by Dr. G. W. Morehouse. Having been a neighbor for almost twenty years, and for a number of years the family physician of the patient mentioned, I presume some correction in regard to Dr. M.'s statements might be in order from me. Mr. H. (the patient) is a rather robust man in appearance to the person who would stop with a superficial survey, but to the physician who examines the case will come a revelation, for the man has fatty degeneration and the usual train of general symptoms that follow in the wake of such conditions.

He was a cavalryman in the late war, and since the war has been a merchant until a year ago. Prominent among the symptoms of the above named condition is the heart trouble, on which he was pensioned some years ago. I have watched with interest the case for at least fifteen years, many times during that period I have been called on to relieve him of attacks that came on suddenly, both of heart complication as well as for severe attacks of renal colic. I have helped to take him home many times from his place of business under such circumstances. On March 10, 1896 (date given by Dr. Morehouse), I was attending the case and had been with the patient nearly all night. He was suffering from renal colic; the next day he passed several small calculi, and in a few days was attending to his business affairs as usual. Now note the difference in the records which I have before me, and those narrated in the JOURNAL by Dr. Morehouse.

Fully twelve months after the attack I have just recorded Mr. H. had another severe renal colic followed by quite a hemorrhage, the quantity of blood passed was estimated at fully a pint or more.

A day or two later he passed in the urinal a worm-like specimen about six inches long; with it was more or less débris, consisting of small coagula, etc. He brought the specimen to me, which I examined carefully by shredding it on glass and magnifying. I pronounced it blood fibrin in the form of a cast of the ureter. Several of these passed during the week or two following, none more than seven inches long. As soon as the tendency to hemorrhage ceased no more of the so-called parasites developed.

Mr. H. carried some of these specimens to my friend Dr. F. C. Larimore of Mt. Vernon, who upon examination decided that it was blood deprived largely of its coloring matter by having been held in the ureter. The patient being a man who liked notoriety, carried a few sample "worms" in a bottle to show his friends, and in this way wonderful reports of the case were given out over the neighborhood, and the exaggerated statements of the man himself I think, in a measure, led Dr. Morehouse, who lives in a village a few miles away, to make the report as he did.

Mr. H. as is usual in such cases, drifted into the hands of a specialist who bears a reputation for not being very guarded in his opinions, and who is governed in the treatment of his cases more by the color and quantity of a man's money than anything else. This physician treated him for a time for Bright's disease and later chanced it on "Eustrongylus Gigas."

The difference in opinion naturally prompted me to defend my position. I sent a specimen to a friend of mine in New York (a gentleman who is known to Dr. Morehouse, at least by reputation) who is an eminent pathologist, and his opinion coincides with Dr. Larimore's and mine. His idea was that one or more sharp calculi were in the kidney, and the irritation from their presence provoked the hemorrhage and a temporarily obstructed ureter held the blood until a cast was formed, and as the constriction gave way the worm-like cast passed into the bladder and later out by way of the urethra with the urine. The shreds were only fragmentary blood coagula, etc.

With this explanation I hope those who read the former article, and may read this, will be able to draw some rational conclusions. The case furnishes at least an object lesson for the general practitioner. The patient's health remains much the same as it has been for several years. I see him every day as one of his neighbors. By way of conclusion I might say this, as Dr. Morehouse had never treated the case he reported, and even the specimen of urine he says he examined was voided long after the "passing of the worms" I think his diagnosis has been too hasty and faulty in the extreme.

ROBERT C. M. LEWIS, M.D.

Rumination in Man.

ASHTON, R. I., April 14, 1898.

To the Editor:—I was much interested in Dr. Sinkler's paper on "Merycism or Rumination in Man," published in your issue of the 9th inst., as I recollect that when a young man, say from 18 to 25 years of age, I frequently, at long intervals, used to return my food, especially after a hearty meal when accompanied or more often *followed* by the use of wine or other alcoholic beverage, and finding it rather agreeable, remasticated and restored it to the stomach.

I agree with Dr. Sinkler that rumination is not the result of indigestion but of improper mastication, at least in cases where, as in my own, the food returned is sweet and pleasant, and he is undoubtedly correct in his opinion that it passes out of the stomach and ceases to be returned to the mouth as soon as it becomes fit for intestinal absorption.

N. O'D. PARKS, M.D.

Gynecology and Gynecologists in Paris.

(*Concluded from page 928.*)

PARIS, March 1898.

Dr. Championnière, though perhaps known more widely as a general surgeon than as a gynecologist, does considerable of gynecologic surgery. In doing his vaginal hysterectomies he makes his incision with a thermocautery instead of with the knife and scissors. One peculiarity about all his work is that he washes every cut surface, of whatever kind, with a 2.5 per cent. solution of carbolic acid. He uses this fluid in the peritoneal cavity with a rashness that seems astounding to one who has been taught that its toxic influence is to be feared. He is a perfect enthusiast on this subject and says that in his abdominal work, where he encounters pus sacs and the like, his results are just as good as when these complications are absent, all of which he attributes to his free use of his one to forty solution of carbolic acid. He never, under any circumstances, drains the peritoneal cavity, except in the cases where he has wounded the coats of an intestine and where he fears he may have a fecal fistula follow his operation.

For many years he did his work at the St. Louis in a couple of old wooden pavilions with wooden floors, where all the surroundings would appear to be unfavorable. He is now at the Bonjon and does his abdominal work in an isolated brick pavilion, the inside finish of which from an aseptic point of view seems to be perfect.

I remarked to him: "You can do better work here and have better results than you could at your old quarters at the St. Louis." He replied: "On the contrary, my results have never been as good here as they were at my old rickety barrack at my old home. Surroundings play no rôle in this matter. This thing of having every one who witnesses an abdominal operation put on an outside sterilized garment is all a fad. If the dirt and microbes do not touch my patient, the instruments or the dressings do not fear them. My results here are not as good as at the St. Louis, because I have not been able to organize my help here as well as I had at my old stand."

About one-half of the surgeons in Paris use ether, and the other half chloroform. Dr. Championnière says he used ether for two years and then abandoned it for chloroform, and avers that he has seen patients die six months after an operation from chest trouble which he attributed to ether.

Many gynecologists here in Paris claim that the removal of the uterus with the annexes prevent those nervous phenomena that follow the removal of the latter leaving the uterus intact. Championnière denies this absolutely, and avers that the presence or absence of the uterus after the tubes and ovaries are removed, plays no rôle in the matter whatever.

Monsieur Tuffier, at the Pitié, is a fine operator and has lately introduced an innovation in the way of a hemostatic that I think will be new to most of the readers of this article. With this new instrument, which consists of a huge clamp nearly one foot long, the clamp end of which is about one-half inch wide, and which is closed by a kind of jack-screw arrangement at its distal extremity, he is able, after applying it for a few seconds to the broad ligament and uterine arteries, to remove it and no bleeding follow. Thus he does his vaginal hysterectomies without having a single clamp or a single ligature on any blood vessel when he has completed his operation. In his abdominal hysterectomies he only puts on two ligatures, and those on the uterine arteries where the tissues are too short and unyielding to apply his clamp. If this manner of controlling hemorrhage proves a success, it will save these patients a great deal of discomfort, as well as lessen the liability of infection in this class of cases.

The Doctor banishes from his surgical paraphernalia all antiseptics. He cleanses his hands first with soap and water and then washes them in 95 per cent. alcohol. He uses aseptic gauze for all sponging and dressing purposes.

Dr. Bouilly at the Cochin does an immense amount of gynecologic surgery. He must be very popular with his fellow practitioners here in Paris, for I find that a large number of them bring their patients to him to be operated on. When Dr. Apostoli encounters a case of uterine fibroid that his electric treatment will not benefit, he brings it to Dr. Bouilly for an operation. After seeing considerable of the Doctor I am inclined to attribute his popularity to the fact that he talks but little, a virtue that many of us do not possess.

Of the many questions that are still unsettled, and with regard to which we seem to be still at sea, that of the indications for the drainage of the abdominal cavity after a laparotomy stands out as a most prominent one. The question not only as to whether or not you should drain at all but the material that you should use for your drainage, is still a bone of contention among our best operators. The glass tube that is still used by some surgeons, Pozzi and many others say, does not drain, while the gauze that one sees used so often here in Paris Bantock says is a horrid thing to put into the peritoneal cavity, as its use is likely to be followed by adhesions that will leave your patient in a wretched condition and perhaps require a second operation to break up the peritoneal adhesions that your gauze has produced. Championnière, as I have said, never drains, while Bouilly drains lavishly, using a large perforated rubber tube that he cuts off level with his abdominal wound.

Dr. Bouilly is extremely painstaking in his antisepsis and he as well as Richelot and many others in the French capital, adopt the following plan for disinfecting their hands as well as the field of operation: 1, Wash in soap, using brush freely; 2, wash in a 5 per cent. solution of permanganate of potassium; 3, decolorize the washing in a solution of bisulphate of soda; 4, wash in a 1 to 1000 solution of bichlorid of mercury; 5, finish by washing in a 95 per cent. solution of alcohol.

Dr. Doyen, though residing in Rheims, has a private hospital in Paris, where he spends two days each week. His father was professor of anatomy at the Rheims School of Medicine, was engaged in the manufacture of champagne and left a large fortune when he died. The son, instead of lavishing the money that his father left him on yachts and fast horses, seems to have a passion for fitting up palatial operating-rooms and private hospitals. The one at Rheims and the one here in Paris, though eclipsing anything I have seen of the kind, does not seem to satisfy Dr. Doyen's ambition in this direction, so he has bought a piece of ground in a central location in Paris and is erecting an institution which, when finished, will probably be the finest and most perfect of its kind in the world. Though only about 40 years of age, taking all France together, Dr. Doyen has probably the widest reputation as an operator of any man in the republic. In fact, he is looked upon as a kind of surgical prodigy (by those who are not jealous of his rising fame) on account of the daring rapidity with which he operates. In seeking for words to describe his qualities as a surgeon, I will dub him *the lightning operator of the world.* In this light to compare other good operators with him would be to compare the speed of the plow horse on the race course with a Patchen, or the old stage coach of a century ago with the modern express train as a means of locomotion. He has just published a new work entitled "Technique Chirurgicale," which is the finest illustrated publication I have ever seen on

any surgical subject, and will certainly be a valuable addition to the library of anyone who does much surgery, and especially gynecologic surgery. It is a pity that every young doctor who is ambitious to be a surgeon can not read carefully the introduction to this work. Though it is true that the ideas advanced are those of an enthusiast, still there is a world of truth in the opinions which he sets forth. Among the fundamental ideas that he advances is that the surgeon is born and not made. As in painting, sculpture and music the world has produced a Raphael, a Michael Angelo and a Mozart, who were born with a talent that nothing could suppress, so in a like manner must the true surgeon be endowed with a genius that no education can supply. He says: "The English say time is money. I say, '*Le temps c'est la vie*,' or time is life." This idea dominates his soul and actuates his every movement from the moment he seizes his scalpel until his operation is finished. The average man is from thirty to sixty minutes in doing a vaginal hysterectomy; Doyen, in an uncomplicated case, does the same operation in four minutes. I saw him remove, *per vaginam*, a fibroid uterus as large as a large cocoanut by *morcellement* in fourteen minutes, a feat I never saw Péan do within one hour.

While it is an interesting spectacle to observe with what wonderful rapidity a man like Doyen can perform a surgical operation, if we poor, slow, common mortals, not endowed with his talent in that direction should attempt to imitate him, it would be at the expense of the well-being of our patients, though he claims his results are better than those who operate more deliberately. He looks upon aseptic surgery as a most difficult technique to carry out perfectly. The secondary complications, such as pneumonia and the like that follow surgical procedures, he attributes to an infection that occurred at the time of the operation. The great number of assistants that many surgeons have around them he considers as an element of danger, and in all the work I saw him do he had only two, one of them a female nurse who gave the chloroform and a young physician to manage the specula, retractors and the like. Before beginning an operation he selects his instruments, puts them in a receptacle before him and never allows anyone but himself to touch either these or any of his dressings.

Dr. Doyen, in his new work before mentioned, advises in cases where the tubes and ovaries are diseased, to not resort to a vaginal hysterectomy until you have first explored the pelvis through Douglas' pouch and thus ascertain whether such a radical operation as a hysterectomy is really justifiable or not.

Dr. Apostoli, in spite of the great amount of labor he has done in the treatment of diseases of the uterus by electricity and the enthusiasm with which he still pursues his investigations, does not seem to have established among the profession in Paris very much reputation for a form of therapeutics that he seems to have the most unbounded confidence in. It is some years since I first made the acquaintance of Dr. Apostoli, and always when here in Paris I spend a considerable time at his clinic, observing his mode of treatment and watching the progress of the cases that he treats. Like most men who have been pioneers in any field of investigation, the Doctor is considerable of an enthusiast; an enthusiasm with which he does not seem to have inspired many of his professional confrères either in France or America. That the treatment has not been generally popularized is fortunate for womankind, for if not used with great care it is capable of doing an immense amount of mischief. In fact, to make an intrauterine application of electricity safely requires all the antiseptic precautions that we adopt as a preliminary to doing a vaginal hysterectomy. If one follows Dr. Apostoli carefully in the number of cases of uterine fibroids that he treats, though he will observe many failures, yet he will find among them a large number that have been symptomatically cured and will be convinced that we have in this treatment a valuable addition to our often too scanty therapeutic resources.

One of the great obstacles to the introduction of electricity into gynecologic practice is that the men or many of them who ought to employ this remedy in properly selected cases, can operate, and to operate is a much easier thing to do than to treat a patient for months with electricity. But there is another aspect to this question that ought not to be lost sight of, and that is that we find many patients who will not submit to the knife, and to them this remedy holds out some hope of relief. Like everything else of whatever kind that I have tried in the treatment of disease, electro-therapeutics in gynecology has often sadly disappointed me. Yet if I should discard all the remedial agents that have failed to produce the effects that I had hoped and expected of them I should now after forty years of practice find myself occupying the position of a therapeutic nihilist. Guided by my no inconsiderable experience in the use of this agent, I find that there are certain selected cases where it acts well and can generally be relied upon, among which I may mention: 1, the treatment of uterine fibroids of slow growth and especially those occurring in women near the menopause; 2, cases of hemorrhagic metritis that are disposed to relapse after being treated by curettage and other appropriate remedies.

The prominent idea I had in view when I began writing this article was to show that gynecologists here in Paris were possessed with a mania to remove the uterus, and often performed this operation where it was entirely unjustifiable; still the reader is not to infer that I condemn the operation entirely or have not seen it done here frequently where it was probably the best line of treatment to follow. W. S. Caldwell, M.D.

PUBLIC HEALTH.

The New York City Board of Health and Hydrophobia.—During the past winter the laboratory workers of this board have had in hand experiments with an antirabietic serum and their results have been such that the board has added the Pasteurian treatment of hydrophobia to its list. The poor who chance to fall victims to this rare disease, rare at least in New York, will have the proffer of this treatment free of charge.

To Prevent the Polymerisation of Formaldehyd, Schlossmann adds glycerin and water to the formol, which fills the apartment to be disinfected with a thick vapor. If ammonia is sprayed in the room afterward the odor is entirely removed. This method of disinfection only requires three hours to kill staphylococcus cultures in the remotest corners of the room, and the room can be occupied again the same night.—*Sem. Méd.*, March 10.

Contagious Disease Bureau of New York City.—Dr. Charles S. Benedict, who has been the chief of the Bureau of Contagious Diseases in the New York City Health Department for a number of years, was recently removed by the commissioners and assigned to the minor post of diagnostician. Dr. Alonzo Blauvelt, the chief of the medical school inspectors, was appointed to Dr. Benedict's old place. The position made vacant by the transfer of Dr. Blauvelt was filled by Dr. E. J. Aspell, a former assistant of Dr. Benedict.

Associated Health Authorities of Pennsylvania.—The fifth annual meeting of this body of practical sanitarians will be held in Lancaster, Pa., May 18 and 19, 1898. It is purposed to make educational hygiene a somewhat distinguishing feature. By invitation of the State Board of Health, the Associated Health Authorities and the State Medical Society will, on Friday the 20th, visit the Lancaster County vaccine farms at Marietta, and make an inspection of all its departments. Applications for special railroad rates should be made as early as possible to Dr. William B. Atkinson, secretary, 1400 Pine Street, Philadelphia.

Health in Michigan.—The March report of the State Board of Health shows that the diseases most prevalent in the State during the month, rheumatism, influenza, neuralgia, bronchitis, tonsillitis, pneumonia, pleuritis, inflammation of kidney, diarrhea, consumption, compared with the report for February (*vide* JOURNAL, p. 680), intermittent fever, measles and erysipelas increased in area of prevalence. Consumption was reported at 127 places, measles 100, scarlet fever 69, typhoid fever 62, diphtheria 52, whooping-cough 22 and smallpox at 2 places. Compared with the average for March for twelve years, diphtheria, scarlet fever, whooping-cough, consumption, remittent fever, intermittent fever and pneumonia were less prevalent.

Health in Chicago.—The report of the Department of Health for March gives 2316 deaths during the month, a rate of 1.43 per 1000. The rate for the corresponding month in 1897 was 1.19. Of these 2316 deaths, 606 were of persons under 1 year old and 269 between 1 and 5 years. The principal causes were: Pneumonia, 377; nervous diseases, 276; consumption, 261; bronchitis, 145; acute intestinal diseases, 129; heart diseases, 119; diphtheria and membranous croup, 116; cancer, 64, and typhoid fever, 41 cases. There were 172 cases of suspected diphtheria examined, of which 45 were found to be true diphtheria, 84 false diphtheria and 43 examinations proved unsatisfactory.

Board of Health Can Not Restrict Mode of Laying Floor.—New Jersey gives boards of health power to adopt ordinances; to regulate plumbing and ventilation and secure the sanitary condition of all buildings; to regulate the keeping of all kinds of animals and the accumulation of offal; and to abate any nuisance in any place. But notwithstanding this the supreme court of that State holds, Feb. 21, 1898, in State vs. Board of Health, that the board of health of Asbury Park had no power to restrict the owners of a stable to the mode of laying a stable floor prescribed by an ordinance of the board. The owners had the alternative, says the court, of resorting to any other method which would secure the sanitary condition of the stable, though by departing from the prescribed method they took the risk of creating a nuisance. If the stable was a nuisance, the owners must be prosecuted for maintaining a nuisance and not for failing to comply with the plans specified in the ordinance.

Program of Quarantine Convention.—The health and quarantine officers of the Southern States met at Atlanta, Ga., April 12. The following was the official program: Convention called to order by Hon. C. A. Collier of Georgia, chairman of committee on arrangements.

Prayer.

Nomination and election of temporary chairman and secretary.

Chair to appoint—First, a committee on credentials; second, a committee on permanent organization, nominations, and regular order of business.

Committee on credentials shall seat all lawful health officers from the States of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Texas, with full rights and privileges of convention, upon satisfactory evidence of their being such, and shall grant all privileges, except a vote, to members invited by the committee on arrangements.

Report of the above committee.

Election of a president; election of one vice-president from each State entitled to representation in said convention; one secretary and one assistant secretary.

Committee report for regular order of business, as follows:

First—president to appoint a committee on plans and resolutions, with one member from each of the afore-mentioned States, to which all resolutions shall be referred without debate. All plans, codes and forms, after debate, shall be referred to this committee, who shall have the right to report at any time on above subjects. In discussing reports of this committee, no report shall be debated more than two hours. The member submitting a report shall have twenty minutes to open and ten minutes to close the debate. and no other member of the convention shall speak more than five minutes to any one report.

Dr. H. B. Horlbeck, the Health Officer of Charleston, was the permanent Chairman of the Convention. We will publish next week the resolutions which were adopted.

Dr. Horlbeck believes the Atlanta convention has reached the first solution of the problem, and that yellow fever, if it reappears in the South, will be much more easily managed than ever before.

"I do not see," said Dr. Horlbeck to a *Constitution* reporter, "why this convention may not result in a complete solution of the Southern quarantine problem. The convention did its work thoroughly. It was composed of some of the most learned physicians and sanitary experts in the entire country. Those resolutions and regulations were considered section by section by the convention and the resolutions committee, and every word therein should be carefully weighed by every southerner.

"I think there is no doubt about the adoption of the regulations by health officials. The convention was a representative one, and these men will abide by the result. It is safe to say there will be no further shot-gun quarantines, and when these regulations are posted in every town and city in the South and the people are thoroughly educated as to the requirements, yellow jack will scarcely be able to show his head in this section again.

"Meanwhile, the press should use every effort to publish all these regulations. The *Constitution's* report of the full proceedings this morning could not have been better. It was excellent, and will doubtless do much good. If every Southern paper would take hold of the matter from now on, and convince the Southern people the regulations must be observed, there will be no trouble. There is no doubt that the Atlanta convention means a world of good for the South."

Formaldehyd Disinfection without Apparatus.—The Chicago Health Department claims to have obtained better results in recent municipal disinfection by the use of formalin without any apparatus than heretofore with the various autoclaves, generators and other devices. Ordinarily these, suspended in the room, were simply sprayed with the 40 per cent. solution through a common watering-pot rose-head. A sheet of the usual size and quality will carry from 150 to 180 c.c. of the solution without dripping, and this quantity has been found sufficient for the efficient disinfection of 1000 cubic feet of space. Of course, the sheets may be multiplied to any necessary number.

Cultures, both moist and dry, were exposed for five hours in these experiments—some in sealed envelopes and others wrapped in three thicknesses of sheets, or folded inside of woolen blankets. Of the former, none showed growth after 72 hours' incubation, while the growth was but slight in those wrapped in the blankets. Surface disinfection was thorough, while a much greater degree of penetration was shown in these experiments than that secured by any other method.

The evolution of the gas from the sprinkled sheets is exceedingly rapid, so much so that it behooves the operator to vacate the room within a very few seconds, while, after starting the ordinary generator, he may remain ten minutes or more without serious inconvenience. When the room is opened, after five hours, the density of the gas is still so great as to preclude respiration until after doors and windows have been opened some little time. On the other hand, the air is respirable

within a very few minutes after the sheet has been removed, and there is no lingering smell of formaldehyd for days after, as is the case where the gas is evolved by the action of heat. This is due to the fact that a minimum of the paraform is produced in the evaporation of the solution at the ordinary temperature, and this is retained in the meshes of the fabric instead of being precipitated on surfaces, to be slowly converted into the gaseous form through several days.

If further experiments, which are now being prosecuted by the Department, shall confirm the results thus far obtained, the problem of practical domestic disinfection by formaldehyd would seem to be in a fair way to be solved.

On the Infusorial and other Vegetal Causation of Malodorous States of Stored Drinking Water.—Everyone is familiar with the green slime that collects and accumulates on the walls of the cistern. This is not necessarily due to stagnation, for if water be passed for some time through a capacious glass tube without stopping the flow the same green growth occurs. The growth is essentially of vegetable character and is due to algæ and certain infusoria. It is this very growth upon the filter-beds upon which the efficiency of filtration, and especially the removal of micro-organisms depends. Recent researches have shown that this growth is responsible for the objectionable taste and smell which characterize some waters occasionally. The Massachusetts Board of Health has recently made an important experimental contribution to the subject, which shows that the peculiar odors and tastes of surface waters may be due, not always to decay, but to the presence of living or undecomposed micro-organisms, either animal or vegetable, in the water affected. This is not surprising when it is considered how characteristic are the odors of some of the larger plants and animals with which we are familiar. In an interesting series of experiments these investigators have been able not only to add to the evidence upon this point by showing that the natural odor of anabena (a blue-green alga) is due to a peculiar oily product, but also to draw a sharp distinction between the natural odors of the microscopic organisms found in surface waters and the odors produced by their decay. Thus of the diatomaceæ, the asterionella, tabellaria and meridion possessed a natural odor ranging from aromatic to fishy, with no odor of decay. All the cyanophyceæ, including the anabena, rivularia, athrocystis, celospherium and aphanizomenom, possessed not only a natural grassy moldy odor, but gave rise also to an odor of decay comparable with that of the "pig pen." Other organisms, as the chlorophyceæ and infusoria, possessed natural odors as that of "fish," "ripe cucumbers," "clam shells" and "candied violets." The anabena is marked by a high percentage of nitrogen, sulphur and phosphorus, and these elements would amply account for the production of an offensive smell produced in decomposition. There is, however, a marked distinction between the odors of growth and the odors of decay of the organisms occurring in surface waters. The usual cause of the disagreeable odors and taste occurring in potable waters is found in the presence of large numbers of certain microscopic organisms which secrete compounds of the nature of essential oils. There is no reason to suppose that these compounds are any more harmful than those which give odor and taste to fresh vegetables or to fish. But the "pig-pen" odor is produced by decay, and although the sanitary significance of these partially decomposed compounds in drinking water is yet to be determined analysis would indicate that their effect upon the general health would probably be prejudicial if it were not for the fact that they occur in such minute quantities. These products may even possess the highly toxic characters of certain alkaloids.

NECROLOGY.

George Hoppin Humphreys, M.D., Jefferson, 1856, died April 15, at his home in New York City, where he was an attending physician of Trinity Hospital. Born in Philadelphia in 1835, he was educated in part abroad, but returned to this country in 1859 and went to the front as a regimental surgeon with the Ninth New York Volunteers. At the battle of Antietam he was an active brigade surgeon. Five sons are his survivors.

Mrs. John D. S. Davis, wife of Dr. John D. S. Davis of Birmingham, Ala., died April 1, 1898. She was secretary of the Woman's Press Club of Alabama and had achieved an enviable reputation in the literary world.

Joseph F. Colgan, M.D., died on April 8 at his home, Brooklyn, N. Y., in which city he was born thirty-three years ago and where he was graduated in 1890 with honors from the Long Island College Hospital. He was the last of six generations of physicians and his father was the late Dr. Joseph P. Colgan.

John D. Van Saun, M.D., died suddenly at his home in Jersey City from heart disease April 9. He was born in Jersey City March 21, 1851. He was graduated from Bellevue College in 1873, but gave up his practice two years ago on account of his health. He is survived by his widow and two sons.

Francis R. Brooks, M.D., Chicago, April 12 aged 31 years.——Bernard Hughes, M.D., New York City, April 11, aged 52 years.——John L. Ingersoll, M.D., Prospect, Wis., April 14, aged 75 years.——Thomas H. Rafferty, M.D. Stafford Springs, Conn., April 10.——Willis W. Hall, M.D., Springfield, Ohio, April 8, aged 42 years.——C. S. Black, M.D., St. Louis, April 6, aged 40 years.—William Irvine, M.D., Evans City, Pa., April 6, aged 70 years.

ASSOCIATION NEWS.

Railroad Rates.—The Western Passenger Association has granted a rate to Denver and return of one half fare, plus two dollars, thirty day limit, for business from Chicago, St. Louis and intermediate points. Tickets on sale June 2, 4 and 5, east of the Missouri River; June 5 and 6, west of the Missouri River. Application for similar rates has now been made to all other Passenger Associations and railroads not controlled by them. Announcement giving rates and rules governing the sale of tickets will be published in the Journal of the Association as soon as decision is made. The rate named is as low as accorded any convention this year. A round trip rate of $20 from Salt Lake and Ogden, thirty day limit, is also announced.

Committee of Arrangements.

Section on Obstetrics and Diseases of Women.—Preliminary program of the Section on Obstetrics and Diseases of Women, American Medical Association. On the afternoon of the second day, there will be a joint session between the Sections on Obstetrics and the Diseases of Women and Neurology, to discuss the relation between uterine and nervous diseases. On the part of the Obstetrical Section, papers will be presented as follows:

Address by the Chairman, Joseph Price, Philadelphia, Pa.
On Pathology, by Lewis McMurtry, Louisville, Ky.
Association of Uterine and Nervous Disturbances, by Joseph Eastman, Indianapolis, Ind.
Indications and Contraindications for Surgical Interference, by Franklin H. Martin, Chicago.
These are to be discussed by M. B. Ward, Kansas City, Ferdinand Henrotin, Chicago, and Henry O. Marcy, Boston.
Other papers promised:
Is it Necessary to Drain so Frequently in Pelvic Surgery? by Wm. H. Humiston, Cleveland, Ohio.
Pelvic Inflammatory Diseases: How Shall we Remove Them? by A. H. Cordier, Kansas City, Mo.
Descensus Ovariorum, by A. Goldspohn, Chicago.
Are Ovarian Tumors Rare in Negresses? by I. S. Stone, Washington.
Further Experiences in the Management of Uterine Displacements, by Augustus P. Clarke, Cambridge, Mass.
The Influence of Uterine Curettage and Drainage on Tubal Diseases, by W. W. Grant, Denver, Col.
Etiology and Treatment of Endometritis, by James T. Jelks, Hot Springs, Ark.
Perineorrhaphy and the Structures it Involves, by Byron Robinson, Chicago.
Intraligamentous Growths (Prefers to read by title), by Thomas H. Hawkins, Denver, Col.

Some of the Dangers Incident to Alexander's Operation for Retrodeviation of the Uterus, by Hugh M. Taylor, Richmond, Va.

Why the Operation of Ventral Fixation or Suspension is Unsurgical, by John B. Deaver, Philadelphia, Pa.

The Curette and Curettage, by Chas. B. Nickols, Denver, Col.

Vaginal Incision in Extra-uterine Pregnancy, by W. H. Wathen, Louisville, Ky.

The Treatment of the Retrodisplaced Uterus, by J. A. Lyons, Chicago.

Puerperal Gonorrhea, by Chas. S. Bacon, Chicago.

Easier Labors and Healthier Offspring, by Ephraim Cutter, New York, N. Y.

Prophylaxis of Gynecologic Diseases, by D. W. Bashan, Neal, Kan.

The Influence of Sex on Disease, by Louis Faugeres Bishop, New York, N. Y.

Compound, Intra-uterine Fracture of the Femur, with Report of a Case, by A. D. Wilkinson, Lincoln, Neb.

A Consideration of Some of the Remote, Unusual and Misleading Symptoms of Pelvic Diseases, by H. D. Niles, Salt Lake City, Utah.

Non-Suppurative Form of Pelvic Inflammation, by L. H. Dunning, Indianapolis, Ind.

Manifestations of Pelvic Inflammations, by H. C. Crowell, Kansas City, Mo.

False Labor Pains, by T. Mitchell Burns, Denver, Col.

The Fallacies of the Forceps Mechanically Demonstrated, by J. J. E. Maher, New York, N. Y.

Hemato-salpinx and Congenital Uterine Atresia, by Alex. Hugh Ferguson, Chicago.

The Treatment of Septic Peritonitis by Irrigation, by T. J. Maxwell, Keokuk, Iowa.

The Special Mark upon the Abdominal Wall of Pregnancy that Exists at the Time of, or Occurs Subsequently to Celiotomy, by Albert H. Tuttle, Cambridge, Mass.

Report of a Case of Bilateral Dermoid Cysts of the Ovaries and Presentation of Specimens, by Jabez N. Jackson, Kansas City, Mo.

The Treatment of Ambulatory Gynecologic Cases, by Denslow Lewis, Chicago.

Anterior Colpotomy and Shortening of the Round Ligaments Through the Vagina for the Relief of all Cases of Retroversion of the Uterus, Simple or Complicated, by J. Riddle Goffe, New York, N. Y.

The Early Diagnosis of Malignant Diseases of the Uterus, by Frederick Holme Wiggin, New York, N. Y.

Anatomic Helps in Abdominal and Pelvic Surgery, by Charles E. Ruth, Keokuk, Iowa.

Pathology and Treatment of Peritonitis, by T. J. Beattie, Kansas City, Mo.

A Case of Tubal Pregnancy with Rupture at the End of the Sixth Week; Operation and Recovery, by J. E. Cowles, Los Angeles, Cal.

Indications for Plastic Surgery of the Cervix Uteri, with a New Method of Operating, by Henry P. Newman, Chicago.

Surgical Treatment of Uterine Myoma, by Henry O. Marcy, Boston.

Maternity Hospitals and Obstetrical Teachings, by George C. Mosher, Kansas City, Mo.

The Relation of Local and Constitutional Diseases to Perverted Ovarian Function, by J. M. Richmond, St. Joseph, Mo.

The Advantages of a Supplementary Sustaining Stitch in the Treatment of Abdominial Hernia, by B. Sherwood Dunn, Boston, Mass.

The Study and Teaching of Obstetrics, by Eliza H. Root, Chicago.

Suspension of the Uterus: The Ideal Method for Retroflexion with Adhesions, by G. Wiley Broome, St. Louis, Mo.

Ovarian Pregnancy, by M. C. McGannon, Nashville, Tenn.

The permanent program must be completed and be in the hands of the Committee of Arrangements at Denver, by Saturday, May 7. C. LESTER HALL, Sec. Section Obstetrics and Diseases of Women.

SOCIETY NEWS.

Texas Medical Association.—The thirtieth annual meeting of the Texas State Medical Association will be held April 26–29, 1898, at Houston, Texas.

American Orthopedic Association meets at Boston, Mass., May 17, 18 and 19, 1898. The preliminary program includes the following papers:

Operative Treatment of Paralytic Deformities, by Bernard Bartow.

A Brace for Cervical Spondylitis, by Wallace Blanchard.

An Inquiry into Epidemics of Infantile Paralysis, and the Late Treatment of that Disease; and Caries of the Spine in Adults, by E. G. Brackett.

Congenital Dislocation of the Hip-Joint, Correction of Stiffness of the Joints by means of the Pendulum Apparatus: and Normal Flexibility of the Anterior Part of the Foot and Means to maintain it, by E. H. Bradford.

Remarks on the Various Gaits of Children, illustrated by some instantaneous photographs, by W. N. Bullard.

Adenoids as a Causal Factor in Deformity, by F. S. Coolidge.

Congenital Absence of the Fibula, by F. J. Cotton and A. L. Chute.

Further Studies upon the Arch of the Foot in Infancy and Childhood; and A Newly-modified Splint for Knock-knee and Bow-leg, by John Dane.

An Operation for the Correction of Web-fingers; and exhibition of; *a*, A Brace for Pott's Disease of the Spine; *b*, A Brace for Lateral Curvature; *c*, A Head Support for Torticollis and Cervical Caries, by G. G. Davis.

Bed Position as an Etiologic Factor in Spinal Curvature, by G. W. Fitz.

The Boot as an Orthopedic Appliance, by H. P. N. Galloway.

A Study of the Final Results in 150 cases of Hip Disease; The Forcible Correction of Spinal Deformities by Stages under an Anesthetic; and the Results of Treatment for the Closure of Sinuses in Tuberculous Disease of Bone, by V. P. Gibney.

An Operation for Un-united Fractures of the Neck of the Femur, by A. J. Gillette.

The Immediate Reduction of the Deformity of Pott's Disease, both with and without Ether; Tendon and Muscle Transplantation (report of forty cases); and the Importance of Twists of the Tibia as the Cause of Toe-in and Toe-out, by J. E. Goldthwait.

Subtrochanteric Osteotomy of the Femur for the Correction of Deformities resulting from Hip Disease (report of ten cases in adults), by J. E. Goldthwait and C. F. Painter.

Bullets and Gunshot Wounds, by J. D. Griffiths.

Spasmodic Torticollis, by H. J. Hall.

The prevention and Correction of Short Leg in Hip Disease by Robert Jones.

The Manual Treatment of Rotary Lateral Curvature; its Uses and Limitations with a demonstration, by Samuel Ketch

Local Muscular Weakness as a Cause of Joint Irritation Faulty Attitude from Muscular Weakness; and A Brace fo Pott's Disease, by Robert W. Lovett.

A Demonstration of Some Practical Points in the Anatomy of the Foot, by Robert W. Lovett and F. J. Cotton.

Forcible Correction and Physical Training in Orthopedi Practice, by B. E. McKenzie.

Traumatisms of the Spine simulating Pott's Disease, by T Halstead Myers.

The Anterior Achilles-bursa associated with Exostosis (b invitation) by C. F. Painter.

The Forcible Correction of Deformity in Pott's Disease, b F. E. Peckham.

Congenital Dislocation of the Shoulder; Its Etiology an Pathology, and an Operation for its Relief, by A. M. Phelps

Forcible Straightening of Spinal Curvatures under Complet Anesthesia, with a report of cases, by John Ridlon.

Operations for Congenital Dislocation of the Hip; Excision o the Hip-Joint; and Hip-Joint Mechanics, by H. M. Sherman.

Deformities in Rickets, by J. S. Stone.

Hallux Valgus Extremus, by A. J. Steele.

A Bivalve Plastic Brace for Pott's Disease; and Growth i Spondylitics, by Henry Ling Taylor.

Report of a Case of Persistent Spasm of the Muscles of th Hip simulating Hip-joint Disease, and Treatment of Contract ures by Open Incision and Free Division of all Restrainin Tissues (report of cases), by Wm. J. Taylor.

Congenital Dislocation of Shoulder, Forward Dislocation o Hip, and Iliac Abscess of Pott's Disease, complicating Strang ulated Femoral Hernia, by R. T. Taylor.

Absence of the Patella (report of two cases); Voluntary La eral Dislocation of the Knee in Infants; and Experiments wit the Celluloid Bandage, by Augustus Thorndike.

Congenital Dislocation of the Shoulder and Birth Palsie and Report of a Case of Spontaneous Dislocation of the Hi during Typhoid Fever, by L. A. Weigel.

Observations on Anterior Metatarsalgia; and Further Obse vations on Coxa Vora (a report of twenty-six cases), by Roy Whitman.

Skiagraphy in Lesions of the Hip-Joint, by James K. Youn

Special Equipment of the Children's Orthopedic Ward, University Hospital, by De Forest Willard.

The Establishment of an Orthopedic Appliance Shop, Lemuel F. Woodward.

It is requested that members write Dr. Augustus Thorndike, 601 Beacon Street, Boston, stating what accommodations they desire and which hotel they prefer. If they will state further, either then or later, on what train they will arrive, some members of the Committee will be glad to meet them and escort them to their hotel. The attention of members is particularly called to the request that a synopsis of each paper shall be in the hands of the President by May 7, 1898. In this way alone can members be sure of a place on the final program. The following terms are offered to members of the Association by the hotels named: The Touraine (Boylston and Tremont Streets), European plan, $2.00 a day and upward; The Victoria (Dartmouth and Newbury Streets), European plan, $1.50 to $3.00 a day; The Brunswick (Boylston and Clarenden Streets), American plan, $4.00 a day; The Thorndike (Boylston and Church Streets), European plan, $1.00 to $2.50 a day.

The American Laryngological, Rhinological and Otological Society hold its fourth annual meeting at Pittsburg, Pa., May 11 and 12, 1898. The program includes the following papers:

The Relation Between Diseases of the Nose and Nasopharynx and Middle Ear Inflammation, by Edw. B. Dench, New York.

Hemorrhage of the Lower Throat or Hemorrhage from the Larynx and Laryngeal Tonsil, by Howard S. Straight, Cleveland.

Pathology and Treatment of Tonsillitis Abscendens, by Norval H. Pierce, Chicago.

Rhinoliths, by S. F. Hill, Waterville.

Dysphonia, by T. C. Christy, Pittsburg.

Modern Possibilities in Chronic Catarrhal Deafness, by Sargent F. Snow, Syracuse.

A Case of Rhinopharyngeal Fibroma with Projections Extending to both Anterior Nares, by H. W. Loeb, St. Louis.

Primary Epithelioma of the Antrum of Highmore, by Wendell C. Phillips, New York.

Sarcoma of the Nasopharynx, with Report of a Case, by D. A. Hengst, Pittsburg.

1, Gumma of Pharynx: 2, Rheumatic Pharyngitis, by Geo. T. Ross, Montreal.

Report of Thirty Cases of Antral Empyema, by Frederic C. Cobb, Boston.

Chronic Inflammation of the Pharyngeal Tonsil, by Chas. N. Cox, Brooklyn.

The Tricks of the Trade, or the Mechanical Technique of Operative Rhinology and Laryngology, by H. B. Hubbard, New York.

Remarks on Surgical Treatment of Caries of the Nose and Ear, by H. L. Wagner, San Francisco.

Acute Suppurations of the Middle Ear, by James E. Logan, Kansas City.

Brain Abscess Complicating Chronic Purulent Otitis Media, with Report of Case, by James F. McKernon, New York.

Papilloma of the Larynx; Alcohol in the Treatment, by T. H. Halstead, Syracuse.

Some Remarks on Cholesteatoma of Mastoid, with Report of Cases, by J. E. Sheppard, Brooklyn.

Pseudacousina and Report of Two Cases of the So-called Enuchoid Voice, by F. H. Koyle, Hornellsville.

Deductions from a Study of Unilateral Nasal Stenosis, by Lewis A. Coffin, New York.

Hemorrhagic Tracheal Catarrh, Ferdinand Massel, Naples, Italy.

After Treatment of Restored Deflected Nasal Septum, by Chas. W. Richardson, Washington.

Operative Procedures in Staphylorrhaphy, by J. C. Lester, Brooklyn.

1, Further Consideration of Basil and Basilateral Diseases of the Faucial Tonsils, with Improved Instruments for Treatment of same; 2, Report of Two cases of Nasal Adhesive-tissue Stenosis, Congenital and Scarlatinal, by Robert C. Myles, New York.

Some Observations on the Diagnosis and Treatment of the Singing Voice, by F. E. Miller, New York.

The Proper Mode of Laryngoscopic Examination, with Exhibition of an Improved Mirror, by H. Holbrook Curtis, New York.

Serious Consequences Following Intranasal Operations, by Robert Levy, Denver.

Empyema of the Maxillary Sinus by J. A. Stucky, Lexington.

Perichondritis and Necrosis of the Arytenoid Cartilage, by Wm. Scheppegrell, New Orleans.

The Relation of Nasal Disease to Pulmonary Tuberculosis, by S. E. Solly, Colorado Springs.

Case of Adeno-carcinoma of the Nose, by Max Thorner, Cincinnati.

Othematoma and Perichondritis of the Auricle, by John O. McReynolds, Dallas.

Mouth Breathing in Children, particularly as the Result of Adenoids, by Arthur G. Hobbs, Atlanta.

Bilateral Abductor Paralysis, with Report of Several Cases in which Intubation was Successfully Used, by W. Cheatham, Louisville.

Oklahoma Territorial Medical Association.—The annual meeting of the Oklahoma Territorial Medical Association will convene in Oklahoma City May 5, 1898, for a two days' session. The following papers are promised:

Bowel Diseases Incident to Hot Weather, by W. K. Harris, McLoud.

Maxillary Abscess and Its surgical Treatment, by A. L. Blesh, Guthrie.

Medical Jurisprudence, by Judge J. R. Keaton, Oklahoma City.

"Where Are We At" in Gynecologic Work, by M. A. Kelso, Enid.

Hernia, by J. H. Rolater, Oklahoma City.

Diseases of the Kidney Encountered as Complications in General Practice, by J. H. Scott, Shawnee.

The Management of Abortions, by G. E. McKeeby, Guthrie.

Best Means of Preserving Our Soft Rubber Surgical Appliances, by G. W. Fairgrieve, Enid.

Obstetrics, by N. W. Mayginness, Stillwater.

Asthenic or Enteric Fever, by A. B. Baird, Oklahoma City.

Rupture of the Perineum and Its Treatment, by J. M. Carson, El Reno.

Typho-mlarial Fever, by Wilson Stuve, Oklahoma City.

Emergency Measures in Obstetric Practice, by C. B. Bradford, Oklahoma City.

Suprapubic Cystotomy for Hypertrophied Prostate, by C. A. Cravens, Oklahoma City.

Acute Intestinal Obstruction, by W. J. Muzzy, El Reno.

Curettage of the Uterus, by C. W. Fisk, Downs.

NEW INSTRUMENTS.

THE INTRA-GASTRIC REAGENT CAPSULE—A SIMPLE DEVICE FOR TESTING THE GASTRIC REACTIONS.

BY FENTON B. TURCK, M.D.
CHICAGO.

A ready and convenient method of ascertaining the condition of the gastric secretions in disorders of the stomach has not hitherto been satisfactorily afforded by the appliances at our command. The inconveniences of the stomach-tube have caused resort to other devices, all of which have been more cr less unsatisfactory, and have failed to receive general approval and adoption; the sponge tester of Spallanzani and Edinger,[1] Einhorn's[2] silver bucket, Spaeth's[3] pith pellets, etc., are all of them in their way imperfect in their performance, and otherwise objectionable. The tube itself is a disagreeable appliance, and in certain hysteric and nervous patients almost an impracticable one, at least without such compulsory measures as are used with the insane, so that its employment is often given up, to the doctor's discomfiture and the patient's disadvantage. It has, moreover, its actual dangers, and a very formidable list of conditions in which such exist might readily be compiled. Such a one, indeed, is given by Hemmeter,[4] including pregnancy, certain forms of cardiac and vascular disease, advanced pulmonary disorders, pronounced cachexia, fevers, hemorrhagic tendencies, general or local, and amongst special gastric disorders, ulcerous and malignant growths and various neuroses. Many of these are very real and serious dangers that may be suspected when not positively diagnosed, and thus

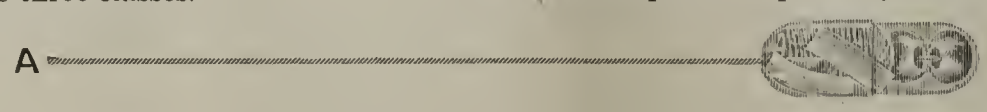
[1] Edinger: Deutsche Arch. f. Kl. Med., xxix, 1881, p. 555.
[2] Einhorn: Medical Record, July 19, 1890.
[3] Spaeth: Muenchen. Med. Wochenschr., xxxiv, 1887, p. 1011.
[4] Diseases of the Stomach, 1897.

create an uncomfortable doubt as to the safety and propriety of the use of the tube in some cases. It is also an imperfect appliance in that its presence as a foreign body in the stomach is itself liable in some cases to produce conditions that may vitiate the findings, as I have experimentally demonstrated in several instances to be reported later in the paper.

To meet these objections I have devised the following described apparatus, which I believe permits a qualitative examination of the gastric reactions better than any other yet proposed. It consists in a simple section of a small rubber drainage tube, about one inch in length, through slits in which are passed strips of test papers to the number of three or four, the whole attached to a silk thread and folded up in an ordinary sized gelatin capsule. The thread is passed out through a sealed opening at the end of the capsule and is of sufficient length to enable the tube to be withdrawn when the capsule has dissolved. A small lead shot is appended to insure thorough contact. The reagents I have used in this simple apparatus are congo red, dimethyl-amido-azo-benzol and neutral litmus. Others can be employed as needed or desired, but these have served my purpose in the examinations made. The capsule is easily swallowed, and only a very slight inconvenience is felt at the withdrawal of the tube by the string. If desired, the tube may also be so folded as to act as a bucket on being drawn up, and thus minute samples of the stomach secretion be obtained for bacteriologic or other examination.

The danger of this appliance is minimized and can be neglected from consideration in almost any case. It is not more irritating to the stomach than would be a piece of bolted food, and as compared to the stomach-tube, altogether unobjectionable.

Its advantages are: 1. In patients, who from nervousness, or otherwise, can not take the stomach-tube; who, in attempting it, stop breathing and suffocate, or who find it impossible to swallow it, or are excited by it to violent gagging or retching. There are many of these three classes.





2. In all cases where the use of the tube is contra-indicated by the reasons given above, either assured or suspected (especially in cases of ulcer of the stomach).

3. It permits as many tests as may be required or desired to be made the same day, or rapidly succeeding one another, without serious irritation or inconvenience. With the tube this would be impossible in most cases, and dangerous or seriously inconvenient in all.

4. The capsule is not as liable as the tube to excite the flow of HCl in the stomach, thus by its presence vitiating the test.

5. Any practitioner can, without special trouble and experience utilize this method at the bedside, in the office, or elsewhere. The patient himself can be instructed how to use it, and can make the tests at such times as are thought best, and save the papers for the physician's inspection.

6. Its results are prompt and reliable, and while not like quantitative tests, they afford at least an approximate estimate by the degree of the color reactions. As a qualitative test it gives exact data as to the presence or absence of free HCl. The congo red reaction is reliable for even a slight trace of free HCl, or of larger quantities of the organic acids, while it does not show the presence of acid salts or combined hydrochloric acid. These are to be detected by the neutral litmus paper. The dimethyl-amido-azo-benzol paper furnishes a still more delicate and absolutely exclusive test for free HCl. ▭

7. It furnishes also, to a certain extent, the means of making microscopic and bacteriologic examinations, and, therefore, in this respect is not seriously inferior to the tube, while superior to it in nearly all others.

8. The capsule being non-repulsive to the patient, is easily taken, and if the use of the tube is afterward indicated he is less likely to object to its employment than if it was attempted without such preliminary experience. This is a practical advantage of more importance than might be at first supposed.

9. As several tests should be made on each case, to secure a positive diagnosis, the capsule has a very marked advantage over the tube in that it does not remove partly digested food, and thus interfere with nutrition.

I have experimentally demonstrated that the presence of the stomach tube by itself is sufficient to produce the reaction of free HCl. In a case of hyperchlorohydria free HCl was found in the morning in the empty stomach. The viscus was washed out and, after waiting one hour, the tube revealed free HCl.

The next morning the tests were repeated, but after the washing out of the stomach, instead of the tube, the capsule was introduced, and no free HCl was found, no dimethyl-amido-azo-benzol or congo red reactions. Later the tube was introduced and free HCl determined. The tube, therefore, excited the flow of hydrochloric acid, while the capsule did not. This is in agreement with Pick's[6] statement as to this effect of the use of the tube, while Ewald[5] says that this may also be caused by the swallowing of the saliva or the pharyngeal secretions, or be due to the presence of substance from the duodenum.

In the above experiments Leube's method was followed in washing out the stomach, fifty cubic centimeters of a 3 per cent. solution of bicarbonate of soda being used. The reaction should then be neutral according to Leube.

The idea of testing the reaction of the gastric fluids *in situ* is not new; it is one that would naturally be suggested to one on considering the disadvantages of the tube. Hitherto, however, no very satisfactory method has been suggested. Spaeth's pith pellets and thread come the nearest to the device I have described, but they do not appear to have received much favor, or to have been adopted for this purpose to any extent. The material is not as convenient or readily available as the test-papers, the unprotected pellet and shot is not as easily swallowed or as unobjectionable to the patient; it is also liable to be affected by the oral or pharyngeal secretions in the deliberate and often difficult process of swallowing, and can not therefore be accepted as a perfectly reliable index of the condition of the lower viscus. With the capsules all these objections are avoided to the fullest possible extent, and the tests can be multiplied as far as desired.

With the apparatus as above described we have a method that is readily available to the general practitioner, and one that renders possible a much wider extension of a valuable diagnostic method that is too often neglected on account of the difficulties and inconveniences of the ordinarily recommended stomach-tube.

The capsules can be improvised if necessary, but have been made up for me in quantities by Truax, Greene and Co.

MISCELLANY.

Expulsion of Fetus with Membranes Intact.—Myers (*Penn. Med. Jour.*, March), reports a case of expulsion of a mature fetus with the membranes intact. The mother had a week before received a fall, at that time evidently causing the separation of the placenta and the death of the child.

Floating Naval Hospital.—Surgeon-General W. K. Van Reypen, U. S. N., has been inspecting the steamship *Grande Duchesse* with a view to recommending that the vessel be purchased by the government for use as a hospital ship in the war between this country and Spain.

Dying Declarations Need Not be Made All at One Time.—There is no rule of practice or of law, says the supreme court of Louis-

[5] Präger Med. Wochenschr., 1889, No. 18.
[6] Lubarsch und Ostertags Ergebnisse der Special. Pathologie, Bd. iii. S. 27. Quoted from Hemmeter.

iana, in State vs. Ashworth, January, 1898, requiring that a dying declaration should be made all at one time, without interruption, or turning aside to other matters. Neither, as the court holds, does the fact that the declaration was elicited by questions asked the deceased by the witness, instead of being a volunteered statement, render it inadmissible.

New Journals.—A new publication, the *St. Louis Medical Gazette*, is announced to begin with the May number. M. F. Engman, M.D., St. Louis, is managing editor.——The *Journal of the Alumni Association* of the College of Physicians and Surgeons, Baltimore, Vol. i, No. 1, April, 1898 is noted among our exchanges. It is to be issued quarterly at $1.00 per year. William S. Gardner, M.D., Baltimore, is the editor.

The Great Virchow.—The *London Times* has recently been guilty of a *lapsus calami* regarding the eminent pathologist of Berlin, by calling him out of his name, as follows: It spoke of him as "the great Virchow, the well known professor of physiology at the University of Berlin." Let us consider that it was a slip of the pen and not a mark of ignorance, but all the same Virchow's friends and colleagues have taken a great deal of innocent merriment out of it.

Professor Rieder of Constantinople.—The Turkish Government having asked for a professor of medicine from Germany, the Emperor has granted the necessary authorization to Dr. Rieder of the University of Bonn. The newly appointed professor is to receive $6000 a year. He will also have an assistant, who is likewise a German. The latter is to have a salary of $3000 a year. Dr. Rieder is charged with the reorganization of the medical school. Besides their services at the school these gentlemen will also inspect the military hospitals of the city.

The New York Hospital Library.—Impending changes in the hospital have led to the gift of its old and valuable collection of books to the New York Academy of Medicine. By this accession, the library of the latter will become the largest of the private medical collections in the country. The old and historic building, known as the Thorne Mansion, that occupies a part of the Sixteenth Street front of the hospital grounds, and one which was in turn partly occupied by the library, will be torn down. The improvements that are to be made this spring and summer in the hospital property will aggregate in cost about $400,000.

Baron Larrey, whom Napoleon I. called "the most virtuous man I have ever known," at the age of 26 years joined the army of the Rhine, and was the physician of the so-called "flying ambulance" for twenty-two years. He was present in sixty great battles, Waterloo was one, and four hundred engagements. He performed numberless operations; it is said that he did two hundred amputations in one day; he operated often on the field, once took off the leg of a high officer in a driving snow-storm, while two other officers held a cloak over his patient. His name stands only below that of Ambroise Paré, his great prototype.

Can Not Be Turned Over to Marine-Hospital Service.—The suggestion was recently referred to the Treasury Department that drugs seized and forfeited to the United States for violation of the revenue laws be turned over the Marine-Hospital Service upon payment of the duty thereon, as the government would thus be likely to derive more benefit than if they were sold at auction, as they usually sell for merely nominal sums. But in reply, Assistant Secretary Howell states, March 18, 1898, that under section 3077, Revised Statutes, all seized goods forfeited to the United States, except when the importation thereof is prohibited by law, are required to be sold at public auction, and that the above suggestion can not, therefore, receive favorable consideration.

Aggravation of Injuries.—The supreme court of Missouri said, when the personal injury case of Fullerton vs. Fordyce was recently before it for the second time, that an injured person should use reasonable care to prevent an aggravation of his injuries, and will not be allowed to recover compensation for such as could have been avoided by the exercise of such care and prudence. Aggravation of injuries by subsequent negligent conduct on the part of the plaintiff may be considered by the jury in mitigation of damages. But to require one who has been injured to take proper and immediate steps to prevent future consequences, the supreme court thinks, is demanding of him a degree of care and an infallibility of judgment which the most skilful physician does not possess. The law requires nothing so unreasonable.

Enucleation of Parovarian Cyst.—Beyea reports (*Am. Jour. Obstet.*, March) a case in which he enucleated a parovarian cyst without removal of its tube or ovary. The cyst was the size of a large turkey egg, the tube stretched over the superior surface, the abdominal ostium patent, and the tube non-diseased. The ovary was of normal size and contained a number of small follicular cysts. A small incision was made through the peritoneal capsule, or mesosalpinx, on the superior surface between the tube and ovary. This was enlarged by tearing and the cyst shelled out. The small cysts in the ovary were punctured and the uterus ventrosuspended, the patient being out of bed in twenty-two days. But one similar case has been reported and that by Kelly in the *Johns Hopkins Hos. Bull.*, Vol. viii, No. 72.

Migraine and Epilepsy.—Rachford (*Am. Jour. of the Med. Sci.*, April), concludes that paraxanthin is an all-important factor in the production of true migraine, also in one form of epilepsy, toxic epilepsy according to his classification of epilepsies into reflex, mechanical and toxic. He has demonstrated that paraxanthin is found in great excess in urine secreted during attacks of migraine, is not excreted in excess in migrainous patients except during the attack, and that a certain class of epileptics also present these conditions in the urine, etc. He has always failed to find paraxanthin in the urine of patients with focal or reflex (hereditary) epilepsy and considers the presence of an excess of paraxanthin in the urine of epileptics an essential diagnostic point in ascertaining the variety of epilepsy from which the patient is suffering.

Cirrhosis of the Liver.—In "A Study of Thirty-seven Fatal Cases of Cirrhosis of the Liver," in the *Boston Medical and Surgical Journal*, March 10, Morse shows that cirrhosis with enlargement, without change in size, and with diminution in size, are equally frequent, and that the size of the liver is increased in a third of the cases. The male sex is more frequently affected. Cirrhosis with enlargement is more common in younger people, and cirrhosis with atrophy in old. The average duration of symptoms is longer in the atrophic cases. The duration of symptoms, however, varies within wide limits in all varieties. Hemorrhage is a not infrequent cause of death in all forms, and a fatal hemorrhage may be the first symptom even in the hypertrophic form. An alcoholic history was obtained in every case in which the subject was investigated. A history of previous malaria, syphilis or gall-stones was occasionally obtained, but in none did it seem of etiologic importance.

Recent Work in Appendicectomy.—Bernays (*Medical Record*, April 2) reports a series of eighty-one cases, all acute with one exception, all suppurative or gangrenous, and four complicated with peritonitis, with perfect recovery with one exception. He favors operating in the acute stage and as soon as the diagnosis is made. In one of this series the stump of the appendix was allowed to remain on account of contraindications to its removal. He considers the diagnosis of appendicitis easy and certain in about 99 per cent. of all cases, unless the symptoms be masked by opiates, a practice to be condemned. Twice the appendix was found on the left side of the body. Seventy of

the cases were consecutive suppurative or gangrenous appendicitis. In all but one the appendix was perforated. As to prognosis, he believed that more than one-half will recover from the first attack without operation, that 20 per cent. of all cases terminate fatally, if not operated on, from septicemia, in either the first or second attack, and that two cases in 100 or 150 will terminate fatally in the hands of expert operators.

Hernia in Infancy and Childhood.—Coley, writing on the "Management of Hernia in Infancy and Childhood" (*Archives of Pediatrics*, April), considers hydrocele of the cord as the condition most frequently mistaken for hernia in infants and children, but the history of the case and the general condition of the patient, as a rule, renders diagnosis easy. As to treatment, gentle taxis for one or two minutes should be tried. If this fails, application of hot cloths, from fifteen to twenty minutes, followed by taxis under chloroform, after all preparations for operation have been made. If this also is unsuccessful, immediate operation. As to the use of a truss, the younger the patient, the more probability of a cure from wearing one. That all cases of hernia in infancy are not cured by the truss, he has shown by an investigation during the past year, covering 26,388 cases. Of 15,197 cases over 21 years of age, he found 705 in which the hernia was observed before the age of 14 years. He estimates that 25 to 30 per cent. of children are not cured by trusses.

Prevalence of Herpes Zoster.—In the *Phil. Med. Jour.* for March 26, Cantrell gives in detail the occurrence of this disease in Philadelphia during the twenty years, 1876–1896. The zoster cases numbered 193, or 1.09 per cent. of the patients treated. Of these 183 were whites and ten colored. The youngest person so affected was 3 years old and the oldest 72 years, there being two cases at this latter age. The majority of the cases were persons having indoor occupations. Among the colored the following regions were affected: Pectoralis, four instances; abdominalis, two instances, both on left side; femoralis, three instances and on left side; brachialis, one and on right side. Among the whites the affected regions were: pectoralis in fifty-eight males and four females; abdominalis in eleven males and sixteen females; femoralis in thirteen males and eleven females; brachialis in fifteen males and six females; capillitii in two females; frontalis in five males and two females; ophthalmicus in two males and one female; facialis in two males and two females; nuchar in four males and six females. In 110 cases the left side of the body, in eighty-three the right was affected. About half the cases occurred between 10 and 30 years of age and, in males, laborers were more often affected, cooks and chambermaids among females. There was not a single instance of bilateral herpes.

Miniature Hammers in Suture of Bile Ducts.—Halsted (*Bulletin of the Johns Hopkins Hospital*, April) writes concerning little hammers and their use in suture of the bile ducts. The hammers vary in size to meet all cases. He exposes the duct at the site selected for incision, usually near the duodenal end in the common duct. Before incision he inserts two retractor threads, the incision being made between these. Then, after removing the gall stone, the retractor threads are drawn apart and the hammer introduced, the duct being gently raised and drawn toward the operator by the hammer. Mattress stitches are then applied, one behind the other in front of the handle. The following are the advantages in the use of the hammer: 1. The duct to be sutured can be drawn toward the incision in the anterior abdominal wall and within easy reach of the operator; it can also be manipulated nicely by the hammer. 2. The duct, whether normal or thickened and dilated, is gently expanded by the hammer; hence the stitches can be taken with great accuracy and without fear of including the opposite wall or of occluding the lumen of the duct. 3. The operation is a clean one, because the hammer blocks the duct and this prevents the escape of its contents and the contents of the gall bladder. 4. With the hammer, wounds of thin normal ducts can be easily and almost infallibly sutured, and hence the surgeon may, if he chooses, fearlessly operate upon the common duct as soon as the obstruction takes place.

County Not Liable for Attendance on Indigent Persons.—The poor laws of Mississippi, the supreme court of that State says, are intended for the class of persons mentioned in the statute who apply for support thereunder, and who are found by the board of supervisors, upon examination, to be entitled to such support, or for persons who, being of the class intended, apply for support, and die before being so adjudicated. But that a person is indigent, and stands in great need of medical aid, does not of itself, the court holds, in Tallahatchie County vs. Harrison, March 14, 1898, entitle him to the benefits conferred by the statute. For example, the court holds, in this case, that the county was not liable for the medical services rendered a man, who recovered from his sickness, where there was no evidence that he had ever been declared a pauper by the board of supervisors, nor that he desired to be so declared, and provided for by the county, though it was in evidence that he was very poor, had a blind wife and several minor children unable to render any assistance for the support of their parents, and a member of the board declared that he thought the man a pauper, and would die unless attended to, and requested the physician to attend him, and promised that he would see that the board paid the claim.

The Non-Equivalence of the Cerebral Hemispheres is discussed in the *Presse Méd.* of January 29, by Klippel, who considers the differences between the two hemispheres sufficient to entitle them to be called the male and the female, as the right seems to be more easily fatigued, while the left is more intellectual and stable. Functional paralysis, hysteric accidents and dynamic disturbances are more frequent on the left side on this account, also the abolition of the reflexes and the more pronounced action of anesthetics, while the localized lesions, of aphasia especially, show the intellectual superiority of the left hemisphere. Anatomic and pathologico-anatomic differences between the two hemispheres can frequently be distinguished. This non-equivalence is peculiar to man, he adds, and indicates a higher functional differentiation; it may even account for the phenomena of dual personality.—*Rev. de Psych.*, February.

The X-Rays in Tuberculosis.—Stubbert (*Phila. Med. Jour.*, March 12) reports observations made at the Loomis Sanitarium for Consumptives during the past year, with X-rays in the diagnosis of tuberculous changes in lung tissue, as follows: 1. Slight haziness indicates the beginning of tuberculous infiltration and may or may not be accompanied by dulness. 2. Decided shadows indicate consolidation, the extent of which is in direct relation to the comparative density of the shadow thrown on the fluoroscope. 3. Circumscribed spots of bright reflex, surrounded by narrow dark rings or located in the midst of an area of dense shadow, indicate cavities. 4. Intense darkness, especially at the lower portions of the lungs, indicates old pleuritic thickenings over consolidated tissue. 5. Pleural effusions are shown in dark shadows, the upper level of which may be agitated by succussion. 6. There is no reason to doubt that the effusion of pericarditis would throw a like shadow, which would be distinguishable from the heart shadow above by its greater blackness. 7. Shadows thrown in the first and third stages of pneumonia probably resemble those of tuberculous infiltration. The shadow of the second stage of pneumonia is identical with that of tubercular consolidation. 8. In emphysema and asthma the reflex is abnormally clear, and the movement of the diaphragm is restricted.

Farinacea in the Diet of Later Infancy.—Miller writes on this subject in the *Archives of Pediatrics* (April). He says it is an every day experience to see an infant who has thriven upon the

breast or artificial food during its first year, suffer continually from digestive disturbances when that period has passed, and this is largely due to adding to the dietary, under the impression that the former dietary is no longer nourishing enough, pure milk, bread, potatoes, crackers and strong porridges. This persisted in leads to chronic intestinal indigestion. The child during the second year does not need the large proportion of carbohydrates it receives in earlier life, *i. e.*, 6 of carbohydrates to 1 of proteid, and is not able to assimilate them if given in large amounts in farinaceous food. The child at this period requires more nitrogen in proportion to other food elements than in the first year, and to secure its complete oxidation this should be given with the minimum of carbohydrates. Potatoes should not be given until the twenty-fourth month and then always baked. Orange juice supplies their antiscorbutic properties very well. Potatoes and oatmeal are the most active causes of indigestion at this age. All farinacea should occupy a secondary place in the child's diet until the child has shown his capacity to digest them, which is usually not before the twenty-fourth month.

Infantile Mortality.—Dr. Letters has contributed an article to the *Dublin Journal of Medical Science* upon the mortality of infants in Ireland, in which he says that they are allowed to perish in myriads by feeding-bottles with foul rubber tube-fittings, by farinaceous substances which ferment and decompose as soon as ingested, by neglect, by exposure, by deprivation of the natural nutriment, by preventable causes like premature birth, by preventable diseases like diarrheas and diseases of the respiratory organs. Infants want protection against that killing ignorance which does them to death by artificially induced diarrheas, by convulsions from improper feeding, by marasmus from starvation. Let the question of the saving of infant life receive from the profession that measure of study to which it is justly entitled, let the best means be formulated to stem the infantile death current in our populous urban centers, and let the legislature be urged to deal with the subject in a spirit of humane comprehensiveness. It is unfortunately true that Ireland is not the only country to which these words might be applied.

The New York University Medical Department.—The teaching faculty of that school has risen as one man, with the exception of one man, against the governing body, the Council. They will resign and, it is believed, will inaugurate a new medical college in affiliation with the Cornell University. The discrepancy that has given occasion to this radical action is an alleged non-fulfilment of certain agreements by the University Council. Until about a year ago the medical school was practically independent of the university. It owned its own property, was governed by its own faculty and conducted its own examinations. Its only connection with the university was that the university granted degrees on its recommendation. About that time an agreement was made by which the property was transferred to the university and the government of the school was vested in the University Council. The faculty was reappointed, and certain stipulations were made as to their prerogatives, the endowment of certain chairs and the financial management of the school. These stipulations have not been satisfactorily met and the faculty stepped down and out, leaving behind them a very valuable property, a large part of which was due to the organizing prowess of the late Dr. A. T. Loomis, whose son is among the come-outers. The staff that is about to retire contains the names of Drs. William M. Polk, Lewis A. Stimson, W. Gilman Thompson, George Woolsey, R. A. Whithaus, H. P. Loomis, F. W. Gwyer, J. C. Edgar and I. S. Haynes. The member of the faculty who remains is Dr. Lefevre, the secretary, who sides with the majority of the University Council. The present site of the school has been occupied since 1870. The buildings were enlarged in 1875, and in 1886 the Loomis laboratory and a dispensary were added. All these buildings will be lost to the faculty except the Loomis laboratory, which, under the deed of gift, could not be alienated. A late despatch from Ithaca, N. Y., states that a gift of $500,000 has been made to Cornell by Colonel Oliver H. Payne of New York City, in the interest of the proposed new medical school. Mr. Payne is spoken of as one of the magnates of the Standard Oil Company; he has been interested in medicine for some time, having served as a trustee of New York University medical department.

The Hatfield Research Fund.—At Philadelphia a trust deed has been recorded, the effect of which will be the founding of a memorial prize fund that will be open to American medical men who are doing original work in medicine. This trust deed is executed by Walter Hatfield and Henry Reed Hatfield, who state it is to found a memorial to their father, Nathan Lewis Hatfield, and by it they convey to Drs. J. M. Da Costa, Herbert Norris and Robert G. Le Conte, $6,000, the income from which is to be paid in prizes, which are to be announced, awarded and published by the College of Physicians of Philadelphia, and each of which is to be known as "The Nathan Lewis Hatfield prize for original research in medicine." The president of the college is to triennially appoint a committee, with the consent of the trustees, and this committee is to select the subject for the best treatment of which the prize will be awarded, under its direction, or the committee may leave the selection of the subject to the authors competing for the prize. This announcement must be made one year before the time fixed for handing in the essays in competition, and the prize can never be less than $500. The announcement of the first prize will be made next fall, and it must be on a subject of general medicine, medical pathology or therapeutics. The prize memorial essay or research will be published in the transactions of the college under the direction of the trustees. Dr. Hatfield, in whose memory his sons have founded the trust, has been dead ten years. For forty-five years he was in various capacities identified with the College of Physicians, was at the time of his death its oldest member, and was president of the Alumni Association of Jefferson Medical College.

Hardening of Tissues for Microscopic Examination.—Huber (*Jour. of Applied Microscopy*, March) describes three methods of of practical utility to the general practitioner. 1. He places small pieces of the tissue not exceeding one-eighth to one-quarter of an inch in diameter, at once into 95 per cent. alcohol. He uses, in volume, about twenty times as much alcohol as the volume of the tissue to be hardened, advises placing a little absorbent cotton in the hardening fluid and renews the alcohol daily the first three days. Five days hardens the tissue sufficiently for further manipulation, or it may be transferred to 80 per cent. alcohol and stored for future use. 2. If formalin is used it is best as a 4 per cent. solution. It penetrates the tissues readily and hardens pieces not more than one-quarter of an inch thick in twenty-four hours. Fifteen to twenty times the volume of the tissue should be used and kept in a well-stoppered bottle. Transfer to 80 per cent. alcohol for storing away, may be made at the end of twenty-four hours. 3. A third method, one of the best for general work, is the use of Zenker's fluid: Bichromate of potassium, 5 parts; sulphate of sodium, 2 parts; bichlorid of mercury, 10 parts; distilled water, 200 parts; glacial acetic acid, 10 parts; the first three ingredients pulverized in a mortar and dissolved in the water, and just before the solution is to be used add the glacial acetic acid. The tissue, pieces one-quarter to an inch thick, is hardened in twenty-four hours, when they should be washed in running water another twenty-four hours and are then ready for preservation in 80 per cent. alcohol. In this method a precipitate of mercury often left on the tissues may be removed by adding to the alcohol into which the tissues are placed after washing some tincture of iodin, when a colorless

compound, the iodin color disappearing from the alcohol; to remove all the mercury, the iodin should be added from time to time, until no longer removed from the alcohol, indicated by the alcohol remaining brownish in color. If it is desired to make a bacteriologic examination as well as a pathologic diagnosis of any given tissue, alcohol should be selected as the hardening fluid. If it is desired to harden the tissues rapidly and simply to determine the nature of the tissue, formalin will answer very well. If, on the other hand, it is desired to make out the finer details of the protoplasm and nuclei of the cellular elements of the given tissue, Zenker's fluid should be used in preference to the other two hardening reagents mentioned. The tissues should not be washed nor soaked in water before placing in the hardening fluid and should be handled as little as possible.

Washington.

WEEKLY REPORT OF THE HEALTH OFFICER.—The report of Health Officer Woodward for the week ended April 9, shows the total number of deaths to have been 104, of which 60 were white and 44 colored. There were 36 cases of diphtheria and 48 cases of scarlet fever under treatment at the close of the week.

MEDICAL ASSOCIATION.—At the meeting of the Board of Counsellors of the District Association, held on the 13th inst., Dr. Raymond T. Holden was elected chairman, and Dr. Clifton Mayfield secretary.

MEDICAL SOCIETY.—At the meeting of the Society held on the 13th inst., Dr. A. R. Shands read a valuable and exhaustive paper entitled "Prognosis and Treatment of Lateral Spinal Curvature." The next meeting of the Society will be held jointly with the Anthropological Society.

MEDICAL INSPECTORS APPOINTED.—Upon the recommendation of Health Officer Woodward, the District Commissioners have appointed Drs. Louis J. Battle and John L. Norris inspectors, under the Act to prevent the spread of contagious diseases. Their special duty will be to keep under surveillance those persons who were exposed to the case of smallpox which recently developed at the Freedman's Hospital.

Louisville.

MCMURTRY.—Dr. L. S. McMurtry has removed his office from 231 W. Chestnut St. to his infirmary (formerly the Jennie Casseday Infirmary) 1912 Sixth Street, opposite St. James Court.

CLINICAL SOCIETY.—The regular meeting of this Society was held April 12 at Seelbach's Hotel, the guest of Dr. T. G. Dabney, who read a paper entitled "Ocular Headaches." At the last meeting the resignation of Dr. T. C. Evans, as a member, and as the Society's President was read and accepted, and Dr. Philip F. Barbour was elected to the Presidency.

OPHTHALMOLOGICAL SOCIETY.—This Society being the eighth medical society now in existence in Louisville, was recently organized with thirteen members. Dr. T. C. Evans is President.

HAUSER.—Dr. Catherine Hauser has resigned her position as second assistant physician at the Hopkinsville Insane Asylum and has gone to St. Louis to reside.

SLOANE.—Dr. John Sloane, for many years a respected citizen of New Albany, one of the Fall's cities, died on the 12th inst. He was born in September, 1815, and most of his life has resided in New Albany.

BULLOCK.—Dr. Thos. S. Bullock has gone to Arkansas for a short stay, to obtain a much needed rest.

STATE MEDICAL SOCIETY.—The State Medical Society, under the Presidency of Dr. J. M. Mathews of this city, convenes at Maysville, May 11. It is proposed that Louisville members go all of the way by boat, chartering it and living in it during the session. Owing to the annual convention of another organization at the same place during the State meeting, the one hotel will be taxed to the utmost, and the steamboat will be well patronized. An excellent program is already assured. Those who desire to go by this boat should communicate with the President of the Society, Dr. J. M. Mathews.

Philadelphia.

HEALTH REPORT.—Mayor Charles F. Warwick's recent report for the year just passed contains many medical items of interest. The death rate was 18.72 per 1000, being the lowest for thirteen years; diphtheria prevailed to a greater extent than for several years, as also did scarlet fever; no case of smallpox had been reported (April 4) since October, 1895. There were 2994 cases of typhoid fever for the year 1897, and 401 deaths, one less than the preceding year. The number of cases reported is an increase of 504 over last year, which was believed to be due to the overflow of the intercepting river near Manayunk, November 16. The Mayor takes a strong position against the present dilapidated and insanitary condition of the Municipal Hospital. He says that on the upper floors, where the sick are confined, the food is received in and distributed from bath rooms which are in close proximity to a double row of water closets. The hospital is so overcrowded that in many instances patients with scarlet fever, and those suffering from measles, are put in the same ward. While plans are now being made for the improvement of the building, it has been considered a pest house and such uncertainty keeps the plans held in check. The Mayor says: "This question should be set at rest and acted upon definitely. It is said by those who know that institutious of like character are located in the very center of the large cities of Europe. The science of public sanitation has made such an advance in modern times that surrounding neighborhoods are comparatively safe and free from contagion. So far as this institution itself is concerned, it has never been shown that the health of the immediate neighborhood has in any wise been affected by its presence." For the proper care of patients suffering from smallpox, he recommends the erection of a separate hospital. In 1887 the city used 32,426,779,765 gallons of water against 95,667,466,871 in 1897. The consumption per capita per day was 89 gallons as against 187 gallons in 1897, or an increase in ten years of 100 per cent., which the Mayor thinks is extravagant. Regarding the improvement of the water-supply, he comes out very strongly for a system of filtration.

TWO CASES OF SMALLPOX.—As will be seen in the foregoing, the city of Philadelphia has been free from smallpox since October, 1895. Director Riter, however, gave publicity to a case of smallpox which was discovered last month but the information had been suppressed. The patient, a Mr. Clarity, was employed in a cotton factory and the source of infection supposed to have been through the medium of cotton shipped from the south. The case was reported March 20 and the patient sent to the Municipal Hospital for treatment. The 120 employes in the factory were promptly vaccinated. Notwithstanding all the precautionary measures had been taken by the health officer, Dr. Benjamin Lee, a brother of the first case also became affected with the disease. This case also worked in the cotton mill with his brother and it is not known whether he contracted the disease from the same source or from his brother. It is reported that there is a great deal of the disease in Georgia and other cotton States and that it is gradually working its way north, and the health officer will notify all boards of Pennsylvania in order that wholesale vaccination may be done.

EASTER MUSIC FURNISHED BY INSANE PATIENTS.—For the past two months Mrs. Daniel E. Hughes, wife of the chief resident physician of the Philadelphia Hospital has been endeavoring to control a choir of forty insane patients. The forty singers have chairs on the flower-decked platform, all the women being dressed in white gowns and the men in white linen suits. They are all taught by ear. Many of the choir are said to be epileptics and a usual scene was for one to be attacked while the song was in progress. It is said that music has a quieting effect on the violent cases and has benefited the cases of melancholia at Blockley.

Meeting of State Board of Medical Examiners of Pennsylvania.—The next meetings of the State Board of Medical Examiners will be held in Pittsburg and Philadelphia at 2 o'clock, June 14. Three Philadelphia physicians are on the board: Dr. S. W. Latta, Dr. H. A. Hulshizer and Dr. Henry Beates.

Cincinnati.

The mortality report for the week shows: Still-births, 5; zymotic diseases, 12; phthisis pulmonalis, 8; other constitutional, 7; local, 44; developmental, 8; violence, 6; total, all causes, 90; annual rate per thousand, 11.55; under one year, 19; between one and five, 7; preceding week 136; corresponding week, 1897, 99; 1896, 142; 1895, 149.

The annual report of the Cincinnati Hospital has just been compiled and it shows that 4818 patients were admitted of which 3261 were males and 1557 females. There were 378 deaths; 88 were moribund when admitted, leaving the actual mortality 10 per cent. The financial report shows: Expenditures $115,464.38; indebtedness $122,613.64; appropriation $114,000; balance owed from 1896, $7,149.26. Total excess of appropriation $8,613.64. The earnings amounted to $5,289.34, mostly derived from pay patients.

The annual report from the Branch Hospital for tubercular patients shows: Admissions, 64; males, 47; females, 17; remaining, 21; improved, 8; unimproved, 11; discharged, 14; died, 29; average age, less than 30 years.

Dr. E. G. Carpenter of Cleveland has been appointed Superintendent of the Columbus State Hospital to succeed Dr. A. B. Richardson, who goes to the Massillon State Hospital.

The annual report of St. Mary's Hospital shows: Admissions, 2086; male, 1417; female, 669; deaths, 138; discharged, 1742; remaining, 205; nationalities represented, 19; extensive improvements in the way of a microscopic and bacteriologic laboratory have been made during the year, while a new mortuary with a specially designed refrigerator has been built.

Dr. H. W. Bettmann announces his removal to 20 W. Ninth Street.

Quite a good deal of deserved criticism has of late been made regarding the methods adopted by one of the larger hospitals to secure patients. It has been found that this institution has been in the habit of sending to neighboring towns its representatives who make it a point to ingratiate themselves into the good graces of the most enthusiastic and earnest church workers and as soon as possible a list of the prospective or possible patients is obtained through this ecclesiastic influence; the skill of the staff, as well as the many advantages of the institution are presented in glowing terms to these unfortunates who are soon persuaded to engage beds for their accommodation.

Academy of Medicine.—At the regular meeting of the Academy of Medicine, April 11, Dr. Joseph Eichberg read a paper entitled "The Treatment of Typhoid Fever without Cold Baths." The essayist stated that the strenuous objections made by typhoid patients to entering a plunge, the frequent occurrence of cyanosis and other alarming symptoms following the emersion, the mental disturbance induced by the thought that after a certain interval they would again be put into the tub, a consideration of the danger incurred in lifting such patients to and from the bath, all led him to adopt a method not open to the same annoyances and one in which the patient could be readily watched by one attendant. He did not regard his plan of treatment as in any way specific; he thought good nursing and especially strict observance of the details of nursing, absolute rest, isolation from friends, etc., as of the greatest value in the treatment. Briefly his plan was as follows: The temperature was looked upon as the principal indication as to the progress of the disease. Every time the temperature reached 102.5 degrees (axilla) or 103 degrees (mouth), the patient was given four grains of acetanilid and a tablespoonful of whisky. If this dose was followed by chills or other depressing symptoms, it was cut down to three grains or even to two; if it did not control the temperature it was increased six, never more. This kept the temperature down for an average of six hours. An ice-cap was put to the head and kept there until the temperature had remained normal for twenty-four hours. The diet was limited to milk and albumin water. The patients were given fifteen drops of dilute hydrochloric acid three times a day or two grains of quinin in a teaspoonful of chlorin water three times a day. If bowels did not move daily, a simple enema was given. Diarrhea was controlled by Hope's camphor mixture. When the evening temperature had remained normal for a week, the patient was allowed to sit up in bed at first for an hour a day; he was gradually returned to a normal diet, an increase beginning at the time of first sitting up. The essayist had treated over one hundred cases by this method, of which the majority were males; there were in all nine deaths, three of which had received considerable hydro-therapeutic treatment in addition to the acetanilid, so that considering only the cases strictly by his method, but six cases died, making the mortality 4.25 per cent. While acknowledging the alarming and fatal results sometimes following the use of the coal tar derivatives, the speaker plead the smallness of his dose; the fact that it was not continued for a long period of time, the average for all cases being a fraction over six days; the average amount of the drug during this period being 53 grains, a daily dose of eight grains, or two four-grain doses per day; the fact that whisky was given with the acetanilid. The typhoid mortality in the hospital from which these cases were tabulated, for all services and methods of treatment, was something over 10 per cent.

In the discussion, Dr. Dunham reported a fatal case, death occurring two hours after a cold bath, temperature dropping to 94 degrees within a few minutes after removal from the tub; duration of bath, five minutes; cause of death thought to be internal hemorrhage; no autopsy. Dr. Cleveland thought acetanilid acted more as an antiseptic than as an antipyretic. Dr. Fackler believed each patient a law unto himself; thought symptomatic treatment the safest; condemned Brand method of treatment; stated that in the Cincinnati Hospital, during 1897, of the twenty cases treated in that manner, five died, a mortality of 25 per cent.; of the remaining seventy-seven cases, two, which were treated by hydrotheraphy, not Brand method, died; of the seventy-five left, all treated by the various coal tars, but three died. He concurred in everything said by the essayist except that he preferred lactophenin and phenacetin to acetanilid. Dr. E. W. Mitchell favors the Brand method in some cases. He thought that now only the worst cases were treated in the Cincinnati Hospital by this method, and quoted Harris' statistics, collected from an immense amount of material from various countries, treated by method of Brand, with a mortality of 7.5 per cent.; treated otherwise, 10.5 per cent., but said he should not, however, confine himself to one line of treatment. The paper was also discussed by Drs. Oliver, H. M. Brown, G. Mitchell, Adams, Kiely, Ricketts (surgical treatment of perforation), Schenck (condition of blood), Bettmann (antiseptic medication), Friend, Malony, Murphy and the essayist. The Woodbridge treatment was mentioned only to be condemned.

Societies.

The following recent meetings are noted:

Illinois.—Chicago Medical Society, April 20; Chicago Pathological Society, April 11; Kankakee County Medical Society, Kankakee, April 7; McDonough County Medical Association, Macomb, April 5; Western Ophthalmological, Otological and Rhinological Association, Chicago, April 7 and 8. Fulton County Medical Society, Cuba, April 12; McLean County Medical Society, Bloomington, April 7.

Indiana.—Allen County Medical Society, Fort Wayne, April 5; Bartholomew County Medical Society, Columbus, April 5; Marion County Medical Society, Indianapolis, April 5; Tippecanoe County Medical Society, Lafayette, April 4.

Iowa.—Clinton County Medical Association, Clinton, April 5; Polk County Medical Society, Des Moines, April 5; Wapello County Medical Society, Ottumwa, April 5.

Kansas.—Golden Belt Medical Society, Abilene, April 8; Topeka Academy of Medicine, April 11.

Maine.—Maine Academy of Medicine and Science, twenty-fourth annual meeting, Portland, April 11.

Massachusetts.—Boston Medical Society, April 12; Hampden Medical Association, Springfield, April 7.

Minnesota.—Winona County Medical Association, Winona, April 5; Minnesota Academy of Medicine, Minneapolis, April 6.

Missouri.—Hodgen Medical Society, Rich Hill, April 7; Medical Society of City Hospital Alumni, St. Louis, April 7.

New York.—Broome County Medical Society, Binghamton, April 5; Hornellsville Medical and Surgical Association, April

6; Medical Association of Troy, April 5; Syracuse Academy of Medicine, April 5; Utica Medical Library Association, April 4; Dunkirk and Fredonia Medical Society, Dunkirk, April 12; Glens Falls Medical and Surgical Society, April 7; Niagara County Medical Society, Buffalo, April 7.

Ohio.—Lucas County Medical Society, Toledo, April 1; Cuyahoga County Medical Society, Cleveland, April 7; Eastern Ohio Medical Association, Steubenville, April 12.

Pennsylvania. Lancaster City and County Medical Society, April 6; Lycoming County Medical Society, Williamsport, April 5; Schuylkill County Medical Association, Pottsville, April 5; Cumberland County Medical Society, Mechanicsburg, April 12; Lackawanna County Medical Society, Scranton, April 12; Luzerne County Medical Society, Wilkesbarre, April 6.

South Carolina.—The forty-eighth annual meeting of the State Medical Association, Harris Lithia Springs, April 13 and 14.

Wisconsin.—Fox River Medical Society, Marinette, April 12; Northwestern Wisconsin Medical Association, Stevens Point, April 12.

CHANGE OF ADDRESS.

Anner, J. F., from Shell Rock to Osage, Iowa.

Barker, J. L., from 854 6th Street, to City Hospital, Louisville. Ky,; Bufkin, C. W., from Des Moines to Bevington, Iowa.

Carroll, Jr., C. T., from Fountain City to Marvin, Tenn.

Douglass, W. H., from St. Louis to Benton City, Mo.; Duffield, S. P., from Detroit to Dearbon, Mich.

Fankbouer, A, V., from Indianapolis to Marion, Ind.

Gerhards, G. S., from Hot Springs, Ariz., to Ardmore, Pa.; Goins, G. W., from St. Louis to Breckinridge, Mo.

Habenicht, R. H., from Iowa City to Clinton, Iowa; Hughes, O. J. D., from Meriden, Mass., to U. S. Consulate Sonneberg, Germany.

Jones, E. A., from Louisville, Ky., to Sionx Falls, S. Dak.

Klassen, J. P., from 212 W. Taylor Street to 1462 Wabash Avenue, Chicago, Ill.; Kerr, Walter., from 528 Sutler to 1200 Van Ness Avenue, San Francisco, Cal.

Lippincott, J. A., from Castleman Street, to 435 Pennsylvania Avenue, Pittsburg, Pa.; Longacre, C. E., from East Lynn, Mo., to Westphalia, Kan.; Lumley, R., from 1074 N. Califoruia Avenue to 993 Warren Ave., Chicago.

Moody, H. A., from Mobile to Bailey Springs, Ala.; Miller, J. R., from Gaffney to Rock Hill, S. C.; McNamara, F. W., from 107 E. Adams Avenue to St. Mary's Hospital, Detroit, Mich.; McColl, N. J., from Elkton to Twinning, Mich.; Moulton, M. W., from Iowa City to Maquoketa, Iowa; Morgans, S. L., from Iowa City to Dubuque, Iowa.

Nichols, C. L., from 122 S. Lincoln Street, to 227 Winchester Avenue, Chicago, Ill.

Pennington, G. S., from Keokuk to Milton, Iowa.

Prather, D. J., from Los Angeles to Oakland, Cal.

Rectanus, T., from Cincinnati, Ohio to Shelby and Jefferson Streets, Louisville, Ky.

Sylvester, H., from Milwaukee to Mineral Point, Wis.: Schirfee, J. F. from Indianapolis to Fairland, Ind.; Scott, A. C., from 18 Plymouth Place to 825 Willson Avenue, Cleveland, Ohio; Sibley, R. B., from Louisville, Ky., to Clarksburg, W. Va.

Thomas, F. W., from Denver, Colo., to Marion, Ohio; Thrasher, A. B., from 708 Walnut Street to 7th and Race Street, Cincinnati, Ohio.

Van Benschoten, from Chicago to 1419 Chicago Avenue, Evanston, Ill.

Wyland, G. V., from Chicago to Lyndon. Ill.; Wall, F. X., from 21 Park Avenue to 103 State Street, Chicago; Williamson, J. L., from St. Louis, Mo., to Lowell, Ark.; Wharton, J. E., from Des Moines, Iowa to Jacksonville, Ill.

LETTERS RECEIVED.

Brumbaugh, A. B., Huntington, Pa.; Buck. S. C., Cresco, Iowa; Bristol Medico-Chirurgical Journal, Bristol, England.

Campbell, E. R., Bellows Falls, Vt.; Cincinnati College of Medicine and Surgery, Cincinnati, Ohio; Cleaves, Margaret A., New York, N. Y.

Donohue, M. J., Chicago, Ill.; Doliber-Goodale Co., Boston, Mass; Daniels, F. H., Batavia, Ill.; Denison, Charles, Denver, Colo.

Egbert, Seneca, Philadelphia, Pa.; Elgin Milkine Co., Elgin, Ill.; Egan, J. A., Springfield, Ill.

Fassett, Chas. Wood, St. Joseph, Mo.

Harris, J. W., Ogden, Utah; Houghton, E. M., Detroit, Mich.; Hirschfelder, J. O., Monterey, Cal.; Hamilton, E. E., Wichita, Kan.; Hall, C. Lester, Kansas City, Mo.; Hektoen, L., (2) Chicago, Ill.

Jayne, W. A., (2) Denver, Colo.

Kuehn, A. G., Cleveland, Ohio; Kress & Owen Co., New York, N. Y.; Kelly, M. J., Warehouse Point, Conn.

Lee, Elmer, New York, N. Y.; Law, J. C., Summerfield, Kan.; Lord & Thomas, Chicago, Ill.

Moore, D. S., Jamestown, N. D.; Miles, R. G., New Castle, Pa.; Mills, Chas. K., Philadelphia, Pa.; McGillicuddy, T. S., New York, N. Y.; Miller, C. D., Pottsville, Pa.

Pettibone Bros. Mf'g. Co., The, Cincinnati, Ohio; Proctor & Collier Co., The. Cincinnati, Ohio; Parke, Davis & Co., Detroit, Mich.

Ravogli, A., Cincinnati, Ohio.

Somers. Lewis S., Philadelphia, Pa.; Spiller, B. G., Philadelphia, Pa.; Sauder, Enno, St. Louis, Mo.; Simmons, George H., Lincoln, Neb.; Sternberg, Geo. M., Washington. D. C.; Thomas, C. P., Spokane, Wash.; Truax, Greene & Co., Chas., Chicago, Ill.

Woodward Company, R. H., Baltimore, Md.; Woodward, Wm. C., Washington, D. C.; Wilson, A. J., Chicago, Ill.; Warner & Co., W. R., Philadelphia, Pa.

PAMPHLETS RECEIVED.

Amblyopia from Suppression, Congenital Imperfection or Disuse: Which or All? By Leartus Connor, Detroit, Mich. Reprinted from Jour. American Medical Association.

Color Blindness, Some of the Inefficiencies of the Methods Ordinarily Employed by Railway Surgeons for the Detection of Subnormal. By Charles A. Oliver, Philadelphia. Reprinted from Annals of Ophthal. and Otology.

Consumption, How to Avoid Catching. For gratuitous distribution by the Washington State Medical Society, Dr. F. H. Coe, Seattle, Wash.

Craig Colony, Fourth Annual Report of. Paper. Pp. 124. Illustrated. N. Y. S. Reformatory Press: Elmira, N. Y., 1897.

Hemorrhoids, The Suture-Clamp Operation for. By Llewellyn Eliott, Washington, D. C. Reprinted from Therapentic Gazette.

Honolulu. Report of the Board of Health for the biennial period ending Dec. 31, 1897. Paper. Pp. 186. Honolulu: Printed by the Hawaiian Gazette, 1896.

Hospital Buildings on the Pavilion Plan, A Description of. By Albert Vander Veer, Albany, N. Y. Reprinted from Albany Med. Annals.

Illustrirte Rundschau der Med.-Chir. Technik. Paper. Pp. 92. Illustrated. By Dr. Gustav Beck, Berlin: K. J. Wyss, 1898.

Intussusception, or Ileus. Successfully Treated by the Introduction of Carbonic Acid Gas into the Rectum. By E. D. Beach, New Orleans, La. Reprinted from N. O. Med. and Surg. Jour.

Loomis Sanitarium for Consumptives, First Report of. Paper. Pp. 30. Illustrated. Liberty, N. Y. 1897.

Medical Registration and Examination, Second Annual Report of Ohio State Board. 1897. Paper. Pp. 64. Columbus. Ohio. 1898.

Menstruation, Effects of the Erect Position on Diseases of Women and. By M. E. C. Gehrung, St. Louis, Mo. Reprint.

Ocular Muscles, Contribution to the Study of the Dynamics of. By J. M. Banister, Ft. Leavenworth, Kan. Reprinted from Annals of Ophthal.

Ophthalmic Practice, Experiences During Thirty-eight years of, with Large Parancentesis of the Selerotic with Ciliotomy in Acute Glaucoma. By S. Pollak, St. Louis, Mo. Reprinted from Am. Jour. of Ophthal.

Pathfinders, The. By James T. Jelks, Hot Springs, Ark. Reprinted from Hot Springs Med. Jour.

Pharyngitis Herpetica Associated with Menstruation. By Lewis S. Somers, Philadelphia. Reprinted from Philadelphia Med. Jour.

Proprietary Medicine Question, Solution of the. By C. C. Fite, N. Y. City. Reprinted from Phila. Med. Jour.

Refraction, On the Neeessity of Repeated Examinations in the Correction of Errors of. By Cassius D. Wescott, Chicago. Reprinted from Ophthal. Record.

Sarcoma, Influence of Injury upon the Developmet of. By William B. Coley, N. Y. City. Reprinted from Annals of Surg.

Thyroid Gland. Some of the Therapeutic Properties of. By J. T. Eskridge, Denver, Col. Reprinted from Col. Med. Jour.

Tumor of the Spine: Compression-Myelitis: Operation. Death on the Ninth day. By J. T. Eskridge and Edmund J. A. Rogers, Denver, Col. Reprinted from Phil. Med. Jour.

Water-Supply and Sewage Disposal in the District of Columbia. Senate Document No. 183, 55th Congress, 2d Session.

Yellow Fever, Serum Diagnosis of. By P. E. Archinard, R. S. Woodson and John J. Archinard, New Orleans, La. Reprinted from N. O. Med. and Surg. Jour.

Trade Pamphlets.

Dickens' Doctors, Vol. II. The Arlington Chemical Co., Yonkers, N. Y.

Plairfair School of Midwifery, Annual Announcement for 1898. Chicago.

Rational Treatment of Gastric and Intestinal Disorders. By Charles Marchand, New York City.

Waldheim Sanitarium Illustrated. Dr. J. H. Voje, Oconomowoc, Wis.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from April 9 to 15, 1898.

Capt. Francis A. Winter, Asst. Surgeon, is relieved from duty at the U. S. Military Academy, West Point, N. Y., and ordered to Jefferson Bks., Mo., for duty at that post.

Lieut.-Col. David L. Huntington, Deputy Surgeon-General, retirement from active service by the President on April 10, 1898. by operation of law, is announced.

First Lieut. George Rauchfuss, Asst. Surgeon, the order assigning him to Ft. Apache, Ariz., is revoked.

Major Henry McElderry, Surgeon, is granted leave of absence for four months on surgeon's certificate of disability, to date from his arrival at the Army and Navy general hospital, Hot Springs, Ark.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending April 16, 1898.

P. A. Surgeon L. L. Van Wedckind, detached from the naval academy and ordered at once to the "Minneapolis."

P. A. Surgeon L. L. Spratliug, detached from the naval hospital, Philadelphia, Pa., and ordered at once to the "Columbia."

Asst. Surgeon H. H. Haas, detached from the "Vermont" and ordered at once to the "Texas."

Asst. Surgeon E. V. Armstrong, commissioned Asst. Surgeon from April 5.

Asst. Surgeon W. H. Bucher, commissioned Asst. Surgeon from April 5.

Medical Inspector D. Dicjerson, ordered to marine headquarters, Washington, D. C.

Surgeon D. H. Bertolette, detached from the marine headquarters, Washington, D. C., and ordered to the "Vermont."

Surgeon W. H. Rush, ordered to the "Dixie" at once.

Surgeon J. M. Edgar, detached from the "Vermont" and ordered to the "Prairie."

P. A. Surgeon J. M. Pickrell, detached from the hospital, Washington, D. C., and ordered to the "Yosemite."

P. A. Surgeon A. M. D. McCormick, detached from the naval academy and ordered to the "Yankee."

P. A. Surgeon M. R. Pigott, ordered to the naval academy at once.

Surgeon L G. Henneberger, ordered to the bureau of medicine and Surgery.

Medical Inspector M. C. Dreunan, detached from the "NewYork" and ordered home to wait orders.

Medical Inspector C. U. Gravatt, detached from the "San Francisco" and ordered at once to the "New York" as fleet surgeon.

Surgeon A. C. H. Russell, detached from the naval mnseum of hygiene and ordered to the "San Francisco."

Surgeon F. J. B. Cardeiro, detached from the "Michigan" and ordered to the "New Orleans" at once.

Asst. Surgeon W. H. Bucher, ordered to the "Vermont" temporarily.

Asst. Surgeon E. V. Armstrong, ordered to the "Scorpion."

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ORIGINAL ARTICLES.

WHAT CAN WE DO FOR THE CHRONIC INVALID?—A PLEA.

Read before the Kentucky State Medical Society, at Owensboro, Kentucky.

BY CURRAN POPE, M.D.

fessor of Diseases of the Mind and Nervous System, and Electro-herapeutics in the Louisville Medical College; Consulting Neurol-ogist to the Louisville Medical College, and to the Louisville City Hospital; Professor of Hygiene in the Kentucky Mili-tary Institute; formerly Resident Physician to the Anch-orage (Insane) Asylum; Member of the American Electro-Therapeutic Association, American Med-ical, Mississippi Valley Medical, Central and North Eastern Kentucky Medical Associa-tions, The Kentucky State Medical, and Mitchell District Societies, and Fellow of the Louisville Academy of Medicine.

LOUISVILLE, KY.

A chronic invalid is one who has passed through acute stages of a disease, and failing of cure, re-ins in this state, or gradually growing worse, becomes tially or completely incapacitated for labor or the ies of life. In no sense of the word can chronic ase be distorted into meaning incurable disease, a very large percentage are capable of entire re-, and of the remainder there are few indeed that not be so improved as to render their lives useful free from suffering. The failure to realize this erence, and to act promptly, has resulted in the of valuable time and entailed much suffering. must understand that an incurable disease is one ch has resisted the scientific, careful and persist-application of all remedial measures, singly or bined, and applied under favorable conditions. rly all chronic diseases and disorders fall princi-y into three classes: 1, the nervous, embracing rasthenia, hysteria, insomnia, epilepsy, melan-lia, migrain, irritable spine, tic douloureux, neu-ia, chronic headache and head pains, drug habits, nic alcoholism, locomotor ataxia, ataxic paraple-diabetes and functional pelvic disorders; 2, the ro-intestinal class, in which we find the hyperpep-, hypopepsias, gastric dilatation, dyspepsia, so-d intestinal indigestion and chronic indigestion; ie metabolic and nutritional class, including uric diathesis, chronic rheumatism, rheumatism, rheu-ic and rheumatoid arthritis, gout, the simple ane-, chlorosis, adynamia, phthisis pulmonalis, and ity. The disease frequently presents in its incep-the usual symptoms of one of the above named, by extension and further involvement, manifold ptoms are superadded, pertaining not alone to the ary disease, but alien to it, and these new condi-increase the symptomatology, modify the past s and make the *status præsens* seemingly re.

In the evolution of man, regular physiologic cycles were established, action was followed by rest, and health maintained. But the nineteenth century, the century of possibilities, has set a pace that few can keep—days of intense struggle, nights of excitement and dissipation, and the law of the survival of the fittest seems our only guiding star. The elusive and delusive dollar, siren-like, lures us on, and health and happiness are considered small sacrifices if success can be attained.

As a result of such nerve wearing exertion, habits detrimental to the economy are rapidly formed, and with difficulty removed. As the strain becomes greater and greater, a hyperexcitability is induced, and re-course is had to stimulants and narcotics to increase the flagging capacities, or to stifle the warnings nature gives. Rest is with difficulty obtained, and hypnotics of all kinds are used, in the vain hope that the path-ologic conditions so produced are physiologic, and thus we are afforded an opportunity for watching the slow formation of the drug habitué. Another phase is frequently observed. The patient reveling in the possession of full health violates all the established laws of hygiene, deviates from all the axioms of health, living to learn, later in life, the many penalties of such trangressions. Life, the sum total of active, useful functionation, may be prolonged and its scope won-derfully extended, provided we realize the necessity of high physiologic activity and so arrange our lives as to attain this result. Death, the cessation of all func-tionation, is in the largest number of cases premature and dependent on witting violation of laws well de-fined and fixed. Life, and in fact all vital activity, originates in, and is maintained by, the nervous sys-tem, and the difference between the living, breathing human being, in whom the exuberance of perfect functionation exists, and the putrefying cadaver, is the difference between the presence and proper distribu-tion of nerve energy and force and its absence, and if its absence will produce death and decomposition, cer-tainly the failure of the great central nerve system to do its work properly will result primarily in the loss of functional activity, which if long continued may pro-duce organic disease, and as to whether organic dis-ease will result is solely dependent on the integrity of the higher brain centers. The differentiation of proto-plasm into specialized tissues, and their dependence and interdependence on one another for existence, and the necessity for the harmonious action of the com-plete whole, brings into view another wonderful and interesting fact, and shows the need of perfect neural action. Any disease, therefore, that starts in any dis-order of function, starts primarily in the nervous sys-tem, and this disorder will be exhibited either in the neural organs themselves or in some particular set or system of organs, and these in turn by increasing the demand for nerve force, or interfering in its proper storage will extend the baneful influence until what

was primarily simple localized loss of function has become well recognized disorder or disease. As a resultant of such action the perfect elaboration of nutrient material is impossible, metabolism becomes changed, its products toxic, the eliminative function is seriously interfered with, regeneration of all tissues is checked, and a denutritional state established. I have never seen a case of any chronic disease or disorder in which the nervous system did not exert a powerful influence in its causation, its perpetuation or its relief. Natural laws are slow, but certain in their action. No human is exempt from their inexorable and immutable effects—attacking the guilty as well as the innocent, the just as well as the unjust. No disease, governed as disease always is by natural laws, springs suddenly into existence, Minerva-like, full-armed *cap-a-pie*, but by slow and gradual processes the citadel of health is taken, rather than by the brilliant feat of a well-directed charge. The changes of nutrition and its perversion either in functional or organic disease is dependent on the integrity of central nervous action, and if this be true, and I firmly believe it to be so, then all diseases, acute or chronic, functional or organic, toxic or micro-organistic, have as their primary origin, derangement of the central nervous system. Every tissue has its representation, area or cell in the brain, and soundness of the brain and its neural ramifications means integrity of the entire body; means life, health and happiness.

Now, the average American of today is a curious creature. All activity, restless, impatient, irritable, fretful, nervous. The great genius he has exhibited in overcoming the many obstructions found in mechanics makes him believe that his own fertile brain will be able to discover the panacea of health and enable him through the ingestion of delectable powders, esthetic looking pills or questionable liquids, to set aside the result of long years of violation of the laws of health. In all seriousness, we must face the situation and realize its true depth and meaning. Stop and consider that every vision, beautiful or repulsive; every sound, divinely harmonious or gratingly discordant; every impression; every pleasure; every pain; every thought, tangible yet intangible, represents the expenditure of so much energy, the destruction of so much tissue, every unit of which must be restored, every atom of which must be replaced. Destruction is rapid, restoration is slow, and if one chronically invalided can be made to realize to the full extent what I have here stated, and can see that restoration and cure depends on the slow and gradual return of normal functionation, then much has been accomplished by way of preparation. The "chronics" have a hard time. They are given tonic after tonic, and changes rung upon them with all the variations of flats and sharps. The delusive phantom of hope, relying on the slender thread of medicinal means alone, is ever in advance, and sooner or later is replaced by a cynicism as virulent as the hope was intense. But how to meet these cases? The patient feels the irritability, the weakness, and instead of being able to realize the dangers of promiscuous drug taking his obstreperous demands are placed temporarily *hors de combat* by some well-directed tonic, sedative or hypnotic.

Do not understand me as belittling the proper use and sphere of medicinal reagents, but to put our sole dependence in chronic disease, on these means, is to simply court failure and bring retribution on our own heads and discredit to our profession. Let us recog nize our limitations and be honest with ourselves firs and then with our patients. Chronic cases are usu ally the terror as well as the approbrium of the medi cal practitioner, and the failure to react to the usua measures has led the profession generally to believ that these cases are incurable. Especially dangerou is routine work. "The greatest study of mankind i man," especially man in his normal state. To kno him pathologically we must study homo physiolog cally and realize that every diseased state is simpl the unbalancing of the normal and the result of som cause effective. Routine is rank degeneracy and ha made and is making of us a nation of drug taker What these cases need is radically changed condition and that condition so changed as to meet the particu lar case in hand. The ordinary routine of life, wit its worries and the constant repetition of perverte nutritional changes, tends to continue the viciou cycle of disease, and if we propose to restore to i natural equilibrium the chronically diseased huma system, we must so change and modify his or h condition as to produce profound and lasting impre sions by physiologic excitation of functional activit No practitioner can so flatter himself that inherent him are powers to relieve disease, but if he wishes relieve the sick and suffering he must utilize all the apeutic measures in a persistent and scientific ma ner. The tactful management of the case is a *si qua non*.

We must always remember that we are treating t particular patient before us and not the diseas "Chronics" present evidence of the many diseas co-existing, and the dangers of treating the disea and not the patient, are manifold. Do not treat th or that organ, but treat the case as a whole, meeting the prominent local requirements by proper additio measures, but in all cases making the local treatme subservient to the general and systematic treatme of the case as a whole, and remembering that at t back of it all is the central nervous system, the pro functionation of which is essential to the establi ment of health.

Patient and physician must thoroughly understa one another; the truth must be told kindly but firm and the truism "that chronic diseases require chro treatment," should be instilled into the patient i proper and honest way, and he or she made to real that no progress will be made except through the sl and gradual process of changed nutrition. The mi must not be turned out like an old horse, to die, must be directed into the proper channels of thoug otherwise it may take too great cognizance of its c poreal coadjutor. We should inculcate into chronic invalid the necessity for the state of ca possessed by the high caste Hindoo, whose soul passed into the calm waters of knowledge, high ab the wear and tear of surging and conflicting passi Hobbies are necessary. The study of astrono with its millions of twinkling lights, mechanics, b ogy, archeology, architecture, art and literature, o rich fields from which the tense and discordant vi tions of inharmonious nerves may turn and ob in interested study or reflection, striking symphon of peace and rest. Few Americans know the me ing of neural rest and mental calm. The theor correct and beautiful, but to put it into pract operation requires judgment. knowledge of hu nature, and a peculiar personality adapted to the w

Proper and wholesome inspiration, judicious, sympathetic vibration, and contagious personality enter much into the effectiveness of our efforts. To inculcate calm or cheerfulness, the inculcator must be a living example of his own ideas. Every improvement should be made a text for directing his warped mentality into broad and proper channels. Good literature, judiciously suggested, is a valuable aid, and the comic journals, the short story, where the interest is well maintained, may be made to contribute to the quota. The theater, in both health and disease, is a favorite prescription of mine, for the overworked, the nervous, and the invalid in general. Light opera, comedy and the many interesting society and romantic plays upon the stage today, are to be preferred. Forbid tragedy and melodrama. I am thoroughly satisfied of one thing, and that is that proper and cheerful thoughts flush the brain with bright arterial blood, increase functionation and hasten nutrition, and at the risk of being prolix I will venture to again call your attention to the fact that as we better the brain function we better our patients mentally and physically. The converse is true that evil thoughts, depressing emotions, all produce profound retrograde processes. To teach a patient the philosophy of life, its aims and possibilities, is a mission whose work is never done, and whose power for good is limited only by our opportunities. For the benefit of the corporeal and physiologic side of our patients, we should lay down the laws of hygiene, regulate the patient's life and habits, and insist on the performance of these as a duty. Even when the sufferer returns to the ordinary avocations of life, to daily labor, to hourly care, these suggestions, these laws must be the rudder and the compass by which he steers his fragile bark of life through the turbulent waves of existence, into the smooth and placid waters of health and happiness. To arrive at a logical conclusion, a proper promise is essential; to arrive at a proper therapy, a proper preliminary investigation is necessary. A thorough and carefully written record for present and future reference should be made, grouping symptoms under well defined headings, followed by an inquiry, oral and physical, into the status, past and present, of the various organs *seriatim*.

There is probably no field more neglected by the clinician than the proper and exhaustive examination of the secretions, not alone for diagnosis, but for the elimination or confirmation of suspected organic disease. They point out indisputably the true line of therapeutics. The urine should be most carefully examined and re-examined, chemically, microscopically and by the method of Haig, for the relation of uric acid to urea.

The hemic function has been sadly neglected. The quantitative estimation of the hemoglobin, counting the corpuscles white and red, and properly differentiating them, by means of the Ehrlich stain, will reward the investigator for his time and trouble. Even the examination of the blood by the microscope alone will frequently put new dresses on old facts.

The stomach needs careful consideration. Accurate knowledge concerning the viscus is required, and to this end a proper test-meal should be given, the contents removed at the proper time for thorough and scientific consideration. This method of removal is practically devoid of danger, and the discomfort of disuse can be reduced to a minimum. In the examination of the juice removed, macroscopic and microscopic inquiry should be first performed. The average examination of the gastric contents I do not consider to be of much value, but a quantitative analysis after the accurate methods of Hayem and Winter, furnish a basis for rational and scientific therapy.

Much information can be obtained from an examination of the muscular state by means of the dynamometer. The whole may be summed up in the statement that we can not know too much about our patients and their condition, and when once we have mastered every detail of our case we are in the best possible position to scientifically administer any remedial measure. The therapeutic field is vast. No one remedy possesses any particular potency to relieve the case, except in rare instances, and it must be by a judicious and rational combination of all measures that success is obtained. A careful dietary must be arranged based upon the result of our analytic work, the idiosyncrasies and peculiar symptoms of our patients and the actual physical condition present in the viscus.

Now, having placed our patient under the most favorable of circumstances, we are ready to apply a number of remedies, medicinal and mechanical. Limited time prevents more than the most general considerations of the subjects mentioned. In the cases herewith appended, detailed consideration of their action will be entered into in explanation of the results obtained. The vast power for good, resident in the great mechanical treatments, when carefully applied, result largely through their capacity to influence nutrition, stimulate the vasomotor tone, increase nerve action and favor elimination. In the hands of the tyro they are as potent for evil as for good, being no exception to the universal rule bearing on such conditions. Other discouraging features attend failures by the unskilful, for lack of confidence is brought about, not only in the physician himself, but in the methods used. There is one cardinal feature that I can not too strongly insist on, and that is the necessity for the persistent, patient and painstaking following-out of the treatment. Ephemeral results after a few weeks of treatment may be observed, but real decided improvement, permanent in effect, can only be obtained by the slow and gradual changes, brought about by better nutrition and improved nerve force. Time itself, rest, vacations, change of air and scene, are, in my opinion, useless in the therapy of chronic disease, but as a "top-off" to the proper therapy, they become valuable aids. I have observed some rather curious facts in regard to the progress of these cases. Nearly all feel worse and appear worse, during the early stages of treatment—a fact very depressing to the patient, and initiating a period when it requires all his will-power and confidence to bridge him over. I believe this to be due to a species of intoxication, caused by the presence of toxic and metabolic products of retrograde tissue metamorphosis circulating in the blood, irritating and depressing the cerebrospinal system, interfering with active functionation, preventing proper oxidation, and taxing the eliminative organs to their utmost. Free relief through the cloaca maxima, by means of a mercurial, may hasten matters considerably and afford temporary relief.

Another curious fact: So often have patients complained of certain symptoms appearing during recovery that were present in the first stages, that I have been forced to ask myself if chronic disease returns

to the normal over the same road it traveled during its downward course?

We can not antidote disease; we can not crush it out, but can relieve it through a proper stimulation along physical lines of the *vis medicatrix naturæ*, and why should not the natural forces reascend the hill of health in the reverse order in which they have been so long descending? The laws of nature are truly fearful, and wonderfully active, and the greatest laurels await him who masters the incalculable intricacies of cellular nutrition and activity.

Turning to the practical means, by which the longed for desideratum may be obtained, many medicinal reagents are presented for our consideration of which but few are of the slightest permanent advantage. Medicines, as a rule, are of little value in chronic ailments, and should be prescribed usually for some definite temporary need or to supplement some other method of cure. The medicinal field is too limited to receive much consideration. The laxatives are by far the most useful of all the drugs for temporary effect. Next, I would rank nux, strychnia, bromids, iron, quinin, iodids and mercury. They help some, but only a little. The delusive "tonic" when given alone has cast more discredit on medicine than all the other classes of drugs combined. We must realize our limitations and regulate our practice accordingly.

Massage and mechanical vibration.—Manual massage has proved of great value in selected cases, and especially when used in the Weir Mitchell treatment amplified by hydriatic measures of a stimulating variety. Its application requires a technique, very considerable knowledge of anatomy and physiology, a certain amount of pathology, an infinite amount of tact and good sense. Ordinary rubbers are worse than useless. I have been very much astonished at the frequent use of general massage (?) so-called immediately after hydrotherapeutic measures, and believe that some of the discredit that has been reflected upon this great measure, has been due to this irregular and pernicious practice by ignorant and unskilful bath attendants. Its action is far reaching. Muscular fatigue is relieved, the motor and muscular function by pressure and stretching is stimulated and, by its local action, congestion and inflammatory deposits are removed. By the combination of massage, (rubbing) and petrisage (kneading) the veins and lymph channels are emptied, and the action of the heart not only accelerated but bettered. Abdominal massage reduces the heart beat, increases the appetite, removes flatus and residue in the intestine, and overcomes constipation. The general effects obtained are through the stimulation to the circulation, the increased elimination of toxic products, better appetite and digestion, greater assimilation, heightening of the blood-forming functions, and increased nutritional changes.

Mechanical vibration in its general effect resembles massage, but I am constrained to believe that, after seven years constant use of both, its effects are more far-reaching and permanent than those of manual massage, though each possesses some advantage in particular cases. This I believe to be due to a natural tendency of all matter to vibrate, and vibration so applied acts more along natural and normal lines than massage. Mechanical vibration, commonly called mechanical massage, is applied through the intervention of specially designed machinery and instruments run by means of power at a certain rate of speed. The influence it exerts is most profound, and the results are similar to those of manual massage, but more permanent.

Hydrotherapy.—I must preface my remarks on this agent by an apology for their superficiality. My constantly growing experience in its use, has shown me, that this agent is one by means of which results can be obtained so astonishing to the ordinary observer as to shake his belief in the question of incurability of disease. No case must be pronounced incurable until proper and scientific hydriatic measures have been tried. In its wide rage of temperature variation, with the ability to regulate the force of its impingement upon the surface, in its potent power to influence the peripheral blood vessels and nerve terminations, in its wonderful and transferred effects upon brain, cord and viscera, in its eliminative, hemogenetic power, in its capacity to increase assimilation and change perverted nutrition it stands abreast with, and equal to, any mode of therapeutics known to mankind. Perverted function, sluggish circulation, poor elimination, deficient excretion are corrected and improved through its careful and systematic application. This treatment, like all others, should be prescribed by the physician alone, due care and regard being paid to the mode of treatment, the temperature and its proper changes, pressure, duration, preparatory arrangements and the final accessories. That nervous excitement and perturbation is allayed, that tissue metamorphosis is hastened, that increased absorption of oxygen and elimination of carbon dioxid takes place, that exhilaration and increased muscular power are present, is a daily observation. When due care is exercised in its application, we may expect far-reaching and permanent results.

Electrotherapy.—This agent has reached a well recognized place in medical therapeutics at the present time which the preceding mechanical treatments have not succeeded in doing. But a few years only will elapse before recognition will be given to them. Many of the most intelligent practitioners of the present day use the electric current, realize its value, and know the practical results obtained by its application. The constantly increasing activity along this line of work has of late years added much to our armamentarium of valuable and interesting means for the relief of disease. These four great mechanical methods, together with a rational and careful application of hygienic laws, supplemented by the temporary use of medicinal remedies, constitute the means of him who seeks a class of patients usually hopeless and pessimistic in their regard for the profession and its capabilities. If success would crown our efforts, it must be in the intelligent use, not of any single line of therapy, but all. Patients do not, as a rule, appreciate the value of these remedial measures, are prone to demand too much and expect wonderful returns in a short time.

Foreign Bodies in the Ears.—Schuh extracts a foreign body by fastening a small piece of sealing-wax in the end of the galvanocautery loop twisted spirally to hold it. It is then inserted in the ear and, as it comes in contact with the foreign body, the current is turned on for a moment, which softens the wax and it adheres to the foreign body, the current turned on another moment if necessary. It is then left undisturbed to cool and harden, when the foreign body is drawn out with it. To extract a glass bead the wire is dipped a moment in melted sealing-wax and then inserted in the hole in the bead. He considers a mixture of equal parts colophony, white wax and sealing-wax better than the latter alone.—*La Revue Méd.*, March 23.

THE X-RAY FROM A MEDICO-LEGAL STANDPOINT.

Read before the Fourth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 6-8, 1897.

BY R. HARVEY REED, M.D.

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COLUMBUS, OHIO.[1]

The proper relation which the X-ray should hold in medico-legal medicine has not yet been determined.

When the announcement was made of the discovery of the Röntgen ray, it was given a wider scope of usefulness than clinical experience has yet been able to demonstrate. It is not my object to find fault with the skiagraph or cast any reflections upon the benefits which humanity has or may derive from its use, yet I feel from the experience of myself and others that it has not reached a degree of certainty that warrants us to depend upon it as a safe and positive method of diagnosis.

In ordinary photography, in which a photograph is taken of the real object itself, the position, the light, the focus and many other auxiliaries may greatly modify the photograph taken of the same person on the same day with the same apparatus, in the same gallery. But when we consider that an X-ray is not a photograph of an object, but is believed to be only a photograph of its shadow, we can readily understand the additional complications which prevent the possibility of getting a true and accurate picture of the object as it really exists.

That the X-ray has been beneficial and will become more so in the future is not disputed. The object of this paper is to consider and so far as possible determine its true medico-legal value. I am quite sure that neither the medical nor the legal profession desire to admit as final evidence anything which is surrounded with a halo of uncertainty. For this reason the courts have very justly decided that the witness must tell what he knows in regard to any particular case and not what somebody has told him. If it is deemed proper to apply this rule to the witness there should be equal caution about admitting testimony in the form of an X-ray which is believed to be nothing more than the photograph of the shadow of an object and not even the photograph of the object itself.

As has been well said by Professor DaCosta: "The X-rays are not electricity, though generated by electricity. They are not light, though possessed of some of the powers of light. They are not cathodal rays, although they take origin from the wall of the tube where the cathode rays fall. No man knows what these rays are, but we are getting a clear comprehension as to what they can do." He also says, "great discoveries suddenly made are rare in medical history. The chain is forged but very slowly, and many a one has swung the sledge of thought to complete a single link. Several times in the history of our science, a startling discovery has sprung from the brain of genius, a discovery unheralded, unlooked for, and complete as Minerva when she came from the brain of Jove. We at once recall as belonging to this species, the discovery of the circulation by Harvey, the application of the ligature by Paré, the discovery of anesthesia by Morton, the introduction of vaccination by Jenner and the construction of the germ theory by Pasteur. To this short list must be added the discovery made in the Bavarian University of Würzburg by Professor Röntgen in October, 1895, and made public Dec. 5, 1895, in a paper notable not only for its profound learning, scientific accuracy and logical force but also for its genuine and beautiful modesty." . . . "This discovery is something startling and unique. It is a pathway blazed through a jungle which hitherto no one even thought of entering. It annihilates notions which have come down to us through all the centuries of time. It overturns with revolutionary thoroughness what were but yesterday the plainest axioms of physics. Much has been learned of this newly-recognized force, and much is left to be learned. The pathway has been blazed, but there are yet dragons to conquer, there are yet giants to slay."

One of these giants that is yet to be slain, is how to determine accurately the exact location of a foreign body in the humon economy. From a surgical as well as a medico-legal standpoint it is of the highest importance that we not only know there is a foreign body, but we must know its exact position in the majority of cases, in order that an operation, if such is necessary for its removal may be successful, or to determine if the foreign body will continue to be a permanent injury to the patient. Before the Röntgen ray should be admitted to the courts as a reliable source of evidence these conditions should be overcome by better apparatus. and more careful study of its use, as well as the position of the patient, in our attempts to locate not only a foreign body but a fracture or a callus, the result of a fracture.

It is comparatively easy to locate a fracture or a foreign body in the hands or feet and the responsibility in such cases, both from a surgical and medico-legal standpoint, is as light as it is easy. On the contrary, when it is necessary to locate the exact position of a bullet in the brain, or a foreign body in the abdominal or thoracic cavity, the difficulty is increased, and the responsibility of the rathiographer as well as the surgeon, not considering the danger to the patients, is very greatly enhanced. I recall a case in which a man had accidentally shot himself in the forehead. A few months later he was seized with epileptic convulsions. He was taken to an expert radiographist, whose apparatus is of the best quality, and yet he failed to locate the bullet which, on operation by the writer, was found to be imbedded in the skull, having displaced a portion of the cranium equal to the size of the bullet and forced it through the dura mater, while the bullet itself occupied the perforation made in the skull, and yet, all attempts to locate this bullet, which lay between the periosteum and the dura mater, was absolutely futile, but the facts showed that the bullet was there and the clinical condition demonstrated sufficient irritation to produce epileptic convulsions. Here is a case, which if circumstances had brought it into court, and the X-ray had been admitted as testimony, the evidence would have been far from being "the truth, the whole truth and nothing but the truth."

At the recent meeting of the AMERICAN MEDICAL ASSOCIATION, held in Philadelphia, it was my pleasure to listen to a paper, presented to the Section on Sur-

[1] Since preparing and reading this paper the author has removed from Columbus, Ohio, to Rock Springs, Wyo., and assumed the duties of Superintendent and Surgeon-in-Charge of the Wyoming General Hospital, Assistant Surgeon of the U. P. R. R. Co, and Surgeon-General of Wyoming, etc., etc.

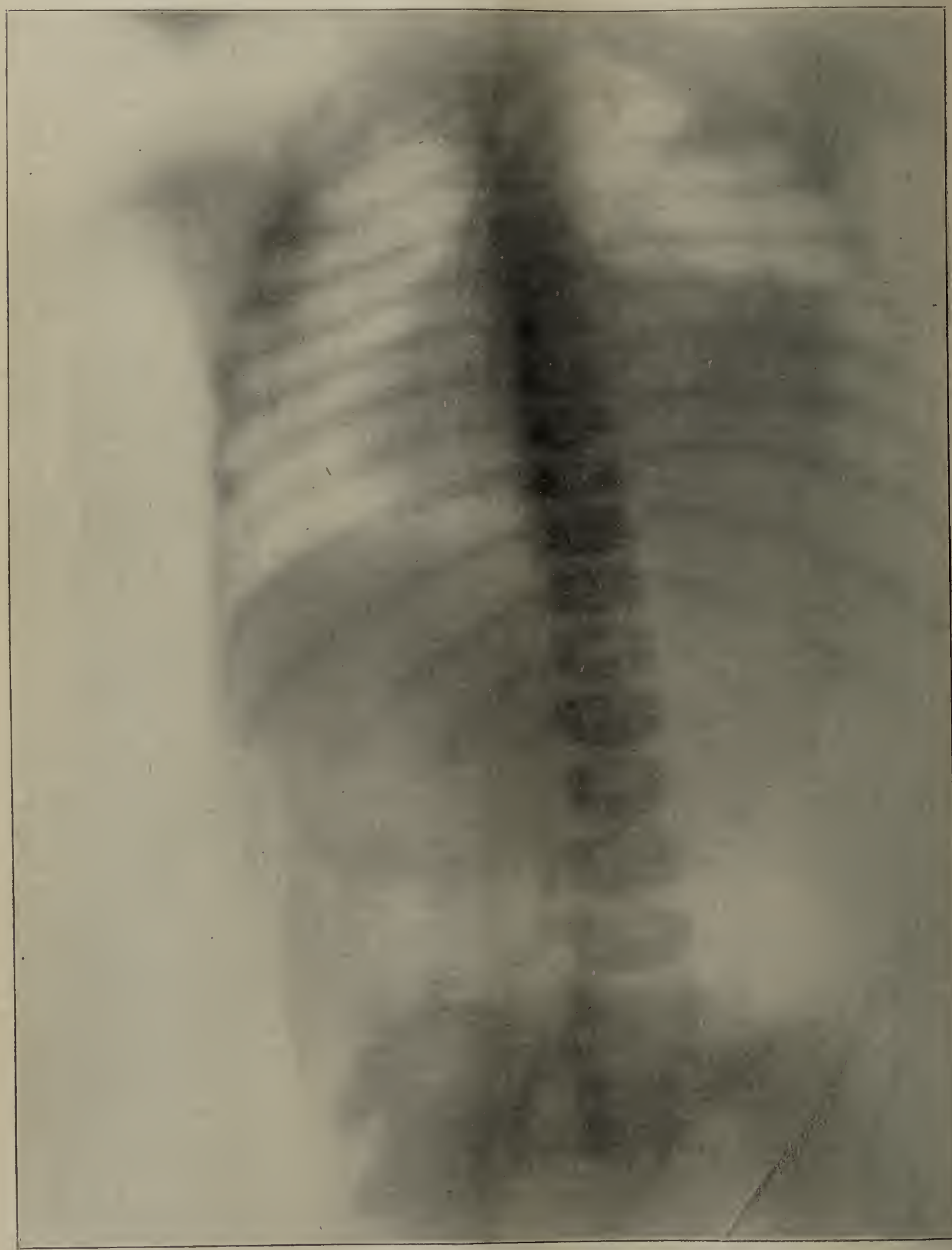


FIGURE 1.



FIGURE 2.

FIGURE 3.

gery and Anatomy, on the "Röntgen Ray Skiagraphy," by DeForest Willard, M.D., of Philadelphia, which was illustrated by numerous skiagraphs of normal and abnormal structures. In this paper he said: "Although skiagraphy is a most valuable assistant to the surgeon, yet a word of caution is necessary. It has been most conclusively shown that the position of the tube, the direction of the rays, the method and time of the exposure, the magnification of portions of an object not in contact with the plate, the elongations of shadows from distant portions of an object together with other varied conditions, may so completely distort the resultant image, that error is certainly possible. A fracture may appear to exist when a bone has not been broken; and, on the other hand, it has been shown that a known fracture produced by osteotomy is not discoverable. These facts make it imperative that the medico-legal value of these radiographs should be considered carefully, and pictorial evidence should receive only its due amount of consideration in connection with clinical evidence. Clinical evidence should have and does have, large weight in the question as to results after fracture and other injury. Knowledge obtained by long experience and positive indications is far more valuable than any representation visible alone to the eye."

In this connection, in our efforts to make an accessible pathway of the blazed trail which has already been referred to by Dr. DaCosta, I call your attention to the accompanying skiagraph. (Fig. 1) which was recently taken by Professor Early of Columbus, Ohio.

Case 1.—A child, 2½ years of age, July 18, 1897, swallowed a shawl pin some two and one fourth inches in length, the diameter of the head of which was one-fourth of an inch and the longitudinal diameter three sixteenths of an inch. It was under the care of competent physicians until September 3, when it was brought to Columbus, where the skiagraph referred to was taken. This showed that the head of the pin lay just above the sixth rib. The point of the pin extended upward to a point between the second and third ribs, and apparently in front of the vertebra. An analysis of this case would show that it was impossible for this foreign body to have passed down the trachea and be located in either of the large bronchi and at the same be at this particular point. In addition to this there was no respiratory interference that would of necessity exist were this pin imbedded in the lung.

General emaciation and interference with the digestive tract, together with this skiagraph, led us to believe that the pin had been swallowed and in some way had become lodged in the esophagus, and as a result we determined to make a gastrotomy in the hopes that we could remove it.

Sept. 4, 1897, the stomach was opened at a point near its juncture with the esophagus. I passed my finger through the lumen of the esophagus up to the fourth rib and found it entirely free from any foreign body, but discovered a fluctuating mass a little to the left of it and the vertebral column, which on pressure, ruptured into the esophagus. A large quantity of pus escaped into the stomach and was discharged through the mouth, and for a time threatened the life of the child from strangulation. After having thoroughly washed out the stomach and esophagus and having cleansed the throat and mouth, a steel sound was passed from the opening in the stomach to the pharynx without the least difficulty, but I failed to detect the presence of any metallic substance. This was removed and a No. 18 soft catheter was passed from the mouth to the stomach with the same results.

In this exploration it was quite easy to pass the finger underneath the heart, along the abdominal aorta and feel their pulsation distinctly, and also feel the vertebra, but we were unable to find the pin and abandoned further search for the time being. There were several reasons for doing so; 1, we were disappointed in not finding the pin in the esophagus, where we were led to believe, from one version of the history of the case and the X-rays, it was located; 2, because from another version of the case there was a question as to whether the child had swallowed a pin, as the evidence in that connection was circumstantial; 3, that possibly the evacuation of the abscess would give relief, especially if the latter theory of the history of the case were true. No one saw the child swallow the pin, but its moth knew it had taken a pin from her clothing, had gone to i grandfather and in a few minutes later began coughing. Tl pin could not be found and the conclusion was naturally arrive at that it had swallowed it.

The gastric and abdominal wounds were closed with pyo tanin catgut sutures, both of which healed by first intentio and on the fifth day the child was taking nourishment by th stomach without difficulty. The irritation, however, continue resulting in a rise of temperature and paroxysms of coughin which after the operation were frequently followed by a di charge of pus, indicating the continued presence of an absces which would evidently fill up, making pressure upon the nerv thus inducing these paroxysms, which were temporarily relieve by the discharge of the pus.

The child was again taken to Professor Early, placed und an anesthetic and examined carefully with the fluoroscope addition to taking skiagraphs antero-posteriorly and laterall At this time the X-ray examination showed that the head the pin was just below and a little to the left of the superi margin of the manubrium and the point of the pin high up the trachea.

The child was losing strength rapidly, and unless relief cou be obtained by operative interference, it would succumb in short time, as it came near strangling several times from t discharge of pus. Sept. 4, 1897, it was decided to make a lary gotomy and if possible remove the pin which, judging by t radiograph, was now believed to be in the trachea. The chi was placed under an anesthetic and an incision made throu the skin, when the child coughed and a gush of pus from t mouth followed and it was drowned on the operating table the pus, which in spite of all our efforts was inhaled into t lungs to such an extent as to produce asphyxia. The operati was now converted into a postmortem which revealed the po of the pin protruding obliquely into the trachea about o fourth of an inch, just at the bifurcation of the bronchi, wh the body of the pin passed underneath the esophagus and t head of the pin was located between the fourth and fifth r close to the spinal vertebræ, immediately underneath the hea The pin was very much corroded and required considera force to remove it from its moorings, thus convincing me th it had not changed its position, but the apparent change v due to an optical illusion which I am unable to explain.

The abscess cavity which was large enough to contain nea two ounces of pus, opened into the esophagus at a point n the juncture of the vertebra and the fifth rib, and was loca just to the left of the vertebra and extended to the infer margin of the pericardium, which also formed its anterior w and upward for a distance of about one and one-half inch, lowing the connective tissue along the left side of the esop gus. How this pin ever got into this locality remains an o question. The fact that the pin was very much corroded a its removal required no small amount of force with the use forceps indicates that after the pin had become imbedde had not changed its position up or down, as indicated by radiograph, but had remained fixed in its position causing irritation and infection, followed with suppuration, hectic fe emaciation and finally death by strangulation fifty-eight d after it had been swallowed.

The lesson to be learned from this case is that X-rays were not a safe guide to the discovery of t foreign body, and notwithstanding every effort made by Professor Early, and no time or trou spared, on his part, to locate the pin accurately, operation and postmortem demonstrated that wh the X-rays showed the presence of the pin, they not locate it so as to be of any material assistance the operator.

Case 2.—A target man, in the employ of a railroad in O was sent to the Protestant Hospital, Columbus, Ohio, Nov 1896, by the company surgeon for a comminuted fracture wh occurred November 2. There was a history of a previous f ture of the tibia of the same leg at about the juncture of middle and lower third, which had occurred some years bef resulting in about one and one-half inches of shortening. W he arrived at the hospital the temporary dressing was remo and several large blebs were observed at different parts of limb between the ankle and the middle third, evidently du impaired nutrition. On further examination it was discov that there was a comminuted fracture of both bones of the leg, which were fractured at different points between the a and the knee as is shown by the accompanying skiagraph, wh was taken by Professor Early. (Fig. 2.)

Owing to the devitalized condition of the soft parts, it made ; impossible to use extension as there was extensive sloughing, hich necessitated dressing every day, and prohibited the use f dressings which otherwise would have kept the bones nearer heir normal position.

An examination of this skiagraph will impress you at once iat there had been considerable disturbance of the bony ructures of the leg, and yet it shows that the general alignent of the limb was good, which was the fact, but owing to ie causes above referred to, the bones could not be held in lace, nevertheless recovery took place with but three and one-alf inches of shortening, or in other words, two inches shorter ian it was prior to his last accident. The general appearance the limb was fairly good. The man is working every day, ears a brace and a shoe with a thick sole, and gets along markably well.

If this radiograph should be taken into court and ibmitted to a jury, without taking into consideration ie facts in the case, it would certainly be very misading and would indicate a much worse condition of ie limb than the clinical facts in the case would warnt. This shows seven distinct fractures of the bone id yet, with all that, we have only two inches more ortening than existed in a previous fracture of the me limb.

Case 3.—In this patient (Fig. 3), there was a fracture of the ia at about the middle of the lower third, and a fracture of e fibula at the upper part of the upper third, with a sliver of ne broken off the tibia at or near the point of fracture. This ver could be freely moved up or down, and though the radioiph fails to show its presence, it undoubtedly existed, and withstanding we had two oblique fractures, this patient got ll with less than an inch of shortening, but if we were guided this skiagraph we might think that the adjustment of these ies were not as perfect as it might have been, and that there s a deformity of considerable magnitude. On the contrary, man was young and healthy, with no injury of the soft ts, and we were enabled to put on extension and counter ension, which was followed by a plaster-of-paris cast after edema had subsided, and almost a perfect result was obied as far as the clinical features of the case were concerned.

I might multiply these cases, and no doubt many you could add similar experiences where the radioph has failed to convey to the eye the real condin of the injured part, and for this reason we quesn the propriety of bringing it into court until, by ther experience, experimentation and improvements an be made more accurate in its results.

The fluorometer, which has recently come to our ice, may prove to be a valuable aid in this direction, so long as it is possible to take radiographs of ormal limb, which give the appearance of being tured, and on the other hand, when skiagraphs are en of fractured limbs that fail to show the existence he fracture, we are compelled by force of circumces to distrust its accuracy, and for that reason if no other, we consider it a dangerous source of evice which should not as yet be admitted by our rts.

In closing this paper we can find no better expresof our thoughts than that contained in an edial published in the JOURNAL OF THE AMERICAN DICAL ASSOCIATION July, 1897, which says, "failure dentification of these skiagraphs would destroy r legal value theoretically, but they would be none ess without effect upon the minds of the jury to m they had been exhibited. If the X-ray is to any part in medical jurisprudence it must be ect to the time-honored rules of evidence, which uries of the English common law have shown to st adapted to secure the rights of the individual."

DISCUSSION.

W. W. GRANT of Denver—This paper addresses itself to st, in a scientific sense, and second, in its practical relato us as surgeons, and in order to properly appreciate its significance we should first understand explicitly what the law requires of us as surgeons. I have investigated what the law requires and I believe the X-ray may be used just as readily against as for the surgeon. First, unless the surgeon in treating a patient in a case of malpractice, can show that he has treated him in accordance with that experience which is embodied in the ordinary text-books of his profession, and the patient is dissatisfied, he is liable in pecuniary damages to his patient. If he should accept the teaching of the X-ray in any case and his results were not satisfactory, he would be liable for damages. The X-ray can be made a dangerous instrument as well as an aid to the surgeon, and if the profession treats it as it usually does everything new it will prove an instrument of danger. It will be an expensive thing for the surgeon. The X-ray is a greater aid to the surgeon in the location of foreign bodies than it is in pathology; it does not show us in the course of the reparative process of bone what the stage of that process is. It will show any bone not covered heavily by muscle, and whether it is displaced, probably, yet there are errors in that. It does not show beyond the temporary bone that is thrown out in the repair of fractures and in the pathologic lesions of bones. No supreme court has yet passed upon the admission of the X ray in evidence. Local courts all over the country are divided on the subject. The more experienced and learned judges hesitate to accept it, and until the lawyers and the courts ask for its introduction as evidence, surgeons should not try to introduce it, and not then unless we know that it is absolutely reliable. It is different from the old photograph, about which long contests were waged in our courts, as to its admission as evidence. Even the photograph of an object, not of the shadow of the object as this is, was not admitted until the photograph itself was verified. That we can never do in the case of the X-ray except by postmortem.

While I am confident that the X-ray will be useful as an aid to diagnosis, we have not yet reached that stage in our knowledge where it can be safely relied upon to the exclusion of that clinical experience, which every trained surgeon has learned before the X-ray was dreamed of, and which will be useful at all times even in opposition to elements which we consider of scientific precision.

Dr. HOWARD J. WILLIAMS of Macon, Ga.—I have had two cases bearing on this subject that I think will be of interest in showing that the X-ray is not really of so much value to us in a surgical way as we have regarded it. The first case was that of a child, 7 years of age, that was brought to me early in April of this year. A horse had stepped on its arm, breaking it at the middle and at the wrist, forming at the lower end a Colles' fracture, the upper a compound fracture. The child was treated by a physician in a country town and he had a bad result. The family, understanding that I had an X-ray apparatus, brought the child to me and I took a photograph of the arm, and from the result I thought there was exuberant callus at the wrist. There was loss of power in both the wrist and hand. I told the parents that I thought it was not the fault of the surgeon and possibly something could be done, and that in my opinion the Colles' fracture was binding the tendons and nerves. I anesthetized the child, cut down on the wrist and found there was no union whatever, no binding of the tendons nor of the nerves. Extending the incision at the wrist I found that there had been not only a compound fracture of the bone, but the nerves and muscles had been destroyed above. In this case was fatty degeneration of the muscles above and contraction of the tendons.

The other case was that of a railroad man who had sustained a compound fracture of his hand. I photographed his hand, and found displacement of the metacarpals. In operating I found that there had been a worse destruction of the soft tissues than there was of the bone, showing that while the radiograph will give us an accurate account of bone conditions, there are also injuries of other tissues that must be counted on anatomically. We could not in either of these cases say that the injuries were due to the bone lesions.

Dr. W. J. MAYO of Rochester, Minn.—Dr. Reed, in the first operation, showed his good surgical sense in his endeavor to remove the pin from below, or the head end, as other things being equal, drawing from the point would endanger piercing important structures, and the head would be an obstacle to the removal.

A somewhat similar case was operated upon by Dr. C. H. Mayo. A loop buckle was swallowed and lodged in the esophagus of a child. It was easy to locate it by bougies at a point behind the sternum. The buckle, which was such as is used at the back of a vest, had two sharp prongs, and might be opened or closed, and if open, in which direction were the prongs? The X-ray showed that it was open and pointed to the left. A right external esophagotomy rather than the com-

mon operation on the left side was made use of, and it was hooked out by the loop. From the left side the prongs would have been forced into important structures, if not preventing its removal.

In the work of Dr. Cross of our city with the X ray, much aid has been given in the operation for removal of foreign bodies by placing a metallic object on certain prominent landmarks and fastening with adhesive straps. The foreign body is noted in relation to these objects in the picture.

In its medico-legal relations it should not be forgotten that the X-ray operator either by wilfulness or negligence in fastening the plate and making the exposure may exaggerate any existing deformity and an unprejudiced artist should be insisted upon. I have less confidence in pathologic X-ray work, such as fractures, but for foreign bodies too much praise can not be bestowed upon it.

Dr. JAMES BURRY of Chicago—I think the X-ray should not be considered as a referee in any of these questions. The information given by the X-ray is simply an aid to diagnosis depending on a good many circumstances. If a picture by the X-ray process contradicts all surgical knowledge of other symptoms given by the patient, or that part under consideration, it should not stand against all the other evidence.

I have never seen a fracture shown by the X-ray where none existed. I have read of such instances. I believe a fracture may not be shown by the X-ray when it does exist. I think the X-ray will show callus. If it does nothing else but show the presence of a foreign body, it is a good thing.

I think it is not an exaggeration to say that I have seen 5000 pictures in the last two years, taken to show the surroundings of accidents by ordinary means of photography. These means differ widely. Unless you know how they are taken, the condition of the light, the position of the camera, the intention of the operator, and a great many other circumstances, the photographs are absolutely useless. I think it is so to a greater extent in regard to the X-ray pictures, because less is known about them. The argument that the X-ray is a dangerous process to the surgeon should not stand. If it is a valuable aid it should be used. If it hurts now and then we can not help it. It certainly can not exaggerate as much as we have seen surgeons on the stand exaggerate in suits for malpractice. In a recent case a surgeon testified that he knew there was dislocation of the hip because he had put his thumb from the outside surface of the hip into the acetabulum in a patient that weighed 225 pounds. I never saw the X-ray exaggerate more than that. I think the use of the X-ray should be limited. We can not keep it out of court. Supposing we are all on the defense side, the plaintiff will bring it into court. It should have its proper limitations defined, and no one should think that the X-ray is a referee or is the final arbiter in the matter, but that it can be very useful as an aid. I think it is useful in showing that a good serviceable limb can be obtained with a great deal of deformity, and there are many ways in which it is useful.

Dr. W. L. SMITH of Streator, Ill.—I saw Dr. Burry give a demonstration in 1896 before the Chicago Medical Society. Shortly after this I procured an X-ray apparatus and I have located fully fifty foreign bodies in the arms, legs and feet of men, women and children, and have cut down and removed them with less laceration of tissue than I could have done had I not had the X-ray skiagraphs as a guide.

I have treated thirty-two cases of Colles' fractures since I have adopted the use of the X-ray, without a single untoward result. I have made skiagraphs once a week, and if any deficiencies were found, have corrected them. I am sure this could not have been done without the aid of the X-ray in fractures of the arms and legs. I think if we take a picture at least once a week and redress, if necessary, we will get better results than we otherwise could under any circumstances without the X-ray.

Dr. W. W. GRANT of Denver—The X-ray will have a legitimate place in the practice of surgery, but that place I think is not yet known. Just what that place is in medico-legal practis not today settled. It is chiefly in the location of foreign bodies that the X-ray is of use to surgeons. When we remember that most of the foreign bodies, as lead, are aseptic, the benefits resulting from the X-ray are exaggerated. We remove more bullets on account of the X-ray, yet most of them would not have done any harm if allowed to remain. Unless pressing upon some important nerve or structure, they will be encysted and do no harm. The tendency is to exaggerate everything that is new that has in itself any real intrinsic value.

Dr. W. J. GALBRAITH of Omaha—From the expressions of the Fellows of this Academy, I believe the time has arrived when it is our duty to take some action as regards the use or abuse of the X-ray from a medico-legal standpoint. I have treated a number of Colles' fracture by the aid of the X-ray and have had no trouble. For us to place ourselves in a position to state that it is necessary for the X-ray to assist us in a surgical way is entirely unjust and uncalled for, for we will receive more abuse in times of tribulation from such recommendations than we can ever escape from.

Dr. THOMAS B. LACEY of Council Bluffs, Iowa—The consideration of the radiograph can not go any further than simply as an adjunct. It is very evident from the paper of Dr. Reed that it will not show the presence of foreign bodies in certain parts of the body. I refer to the gun-shot wound of the skull. There it failed to show the presence of any foreign body, though the bullet was imbedded in the brain tissue. We should not place undue reliance upon the X-ray as a means of diagnosis. I saw a skiagraph of a fracture of the leg in which there were seven distinct fragments. If you were to take that skiagraph and show it to the jury, and keep the limb itself out of the way, I have no doubt but that every man on the jury would say that the leg was not well taken care of. If that be true, it seems to me that if a skiagraph were placed before a jury it would injure the case in which the surgeon might be deeply interested. So I feel that the Academy, as well as other associations of this character, should be guarded in pronouncing the X-ray, or skiagraphs, of such vast importance until their actual value is demonstrated.

Dr. CHARLES K. COLE of Helena, Mont.—It would be unwise for us, as a medical body, to propose that the use of this method shall in any sense be the final arbiter in any case. It is useful. It has come to stay and will unquestionably be used hereafter to an extent perhaps which we do not anticipate, but it has no medico-legal aspect at this time. I doubt whether any of the lower courts or the supreme court in any part of the country would take a picture as graphic as that and pass upon a case with reference to the picture only. That depends upon the experience and judgment of the surgeon in charge, or upon the testimony on the other side.

Dr. C. B. KIBLER of Corry, Pa.—The present status pertaining to the use of skiagraphs can be very much likened to that of the medical expert. You can get medical experts for or against for a consideration. I believe skiagraphs today can be produced to misrepresent the true condition of a fracture limb, the different shapes and different positions it might be placed in, and in this way act detrimentally to the interest of the surgeon who might have a case of malpractice in court. None of us know the future possibilities of the X ray. We hope much good will come of it, but for the present we know but little.

Dr. W. L. SMITH of Streator—I recall the case of a man who was shot in the knee and I took five different radiographs before I was able to locate the bullet. I finally located it behind the head of the tibia about an inch and a half deep. I recall also the case of a judge who was shot in a riot in 189[illegible] or 1894. I was unable to locate the bullet in his case. It was supposed to be in the pelvis somewhere.

Dr. JAMES BURRY of Chicago—If the X-ray picture shows clearly a buck-shot in the hand that could not be diagnosticated in any other way, it would be the height of nonsense to say that the buck-shot was not there. The X-ray has its limitations, and I do not believe it is wise to give up a thing because it does not show a certain condition. I have taken a great many pictures that did not show anything that I expected to see of the conditions that were there. On the other hand, I have taken pictures showing conditions that could not be demonstrated or ascertained by other means, so that I think the X-ray is an aid to diagnosis, but that is all anyone can say.

Dr. W. W. GRANT of Denver—I would like to ask a question in reference to the point I suggested as to the use of the X-ray in giving information during the repair of bone, whether from disease or a fracture. I know the statement is very generally made and believed that the X-ray does not show anything but solid bone, that nothing is clearly defined. I have recently had an experience in a case of fracture of the lower end of the humerus, in which I have at different stages taken pictures. These pictures will convince any surgeon that the X-ray is absolutely worthless as showing the degree of repair of bone. I made passive motion of the joint that would have broken any fracture that was not united, yet the X-ray does not show it. I know there is temporary callus. It has verified what has been stated in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, that the X-ray shows well organized bone and nothing else.

Dr. REED—There is no question in my mind but what the use of the X-ray in general practice is to a certain extent an aid, but the object of my paper was to endeavor to locate what position the X-ray should take from a forensic standpoint. This is a very important question and should be kept separate from

the practical work that we do every day, until we are certain of what is shown by the X-ray. It is true that the X-ray is an aid to diagnosis, but while it may be an aid I believe that up to the present time, if admitted to the courts as evidence, it will do more injustice than justice. In a case I have at present, the man was shot a year ago, at close range, with a thirty-two caliber bullet, which entered immediately above the pubes, missing the pubic bone. He did not feel any harm from it for some time. Some weeks ago it appears that an abscess had formed and had broken into the bladder and there was a profuse discharge of pus from it. In sounding the bladder neither myself nor colleagues were enabled to detect the bullet. There was no escape of urine at the time of the primary injury, and it would have been hardly possible for it to have remained in the bladder without causing any irritation. I suspect that this bullet is located somewhere exterior to the bladder, and that sepsis has taken place, followed by suppuration and rupture into the bladder. I am exceedingly anxious to know what the radiographist will find in this case.

From a picture, such as I have seen taken, it is impossible to tell whether there was a separation of the epiphysis from the body of the bone or not, when the facts were that there was no separation whatever. Suppose in a case of this kind a party wishes to defraud us, and should fall off a car and injure the limb slightly (probably the knee is swollen a little), and should go to a radiographist and have a skiagraph taken and exhibit it in court (although we know the man is not injured in the slightest), and there should be the appearance of separation between the epiphysis and bone, there is only one thing that we could expect the jury to say, and that is, we were mistaken and the radiographist was correct. I feel that while X-ray skiagraphs are of value in our practice, as aids to diagnosis, it is necessary for us to develop the facts better before they should be admitted to the courts as evidence, either by the prosecution or the defense.

CLINICAL SIGNIFICANCE OF THE DIFFERENT FORMS OF THE KLEBS-LOEFFLER BACILLUS.

Read before the North Chicago Medical Society Dec. 23, 1897.

BY W. J. CLASS, M.D.

ASSISTANT TO THE CHAIR OF PATHOLOGY, CHICAGO POLICLINIC, MEDICAL INSPECTOR CHICAGO HEALTH DEPARTMENT (ANTITOXIN STAFF).

CHICAGO, ILL.

It is not necessary for me to enter into a detailed description of the bacillus of diphtheria, history of its discovery, growth in different culture media etc.; a few remarks however especially in regard to its morphology will be required in order to present this paper properly. Fraenkel in his work on bacteriology describes the Klebs-Loeffler bacillus as a bacterium, resembling in many respects Fraenkel's diplococcus of pneumonia. According to him, their habitat is in the oldest part of the pseudo-membrane. They are little rods of moderate size, usually slightly bent, about as long as the tubercle bacillus but twice as broad, hence of a rather coarse appearance and usually with rounded ends. But the form of this micro-organism is exceedingly variable, and the differences are striking in appearance. The bacteria are sometimes seen enveloped in a more or less capacious glassy membrane; sometimes the contents separate into several pieces divided by a broad transverse wall; one end of the rod is very frequently thickened like a club; sometimes this change appears on both ends so that there will be dumb-bell shaped structures, usually pointed out as involution forms. The bacilli are immobile, have no spores, perish rather rapidly when dried and succumb at 45 to 50 degrees C. They stain with difficulty, the terminals staining better and therefore standing out as dark spots from the pale center. In recent cases they are usually found associated with streptococci. Martin, in 1892, describes three forms of the Klebs-Loeffler bacillus, as being of comparatively constant occurrence in different cases of diphtheria, namely, long entangled forms, medium sized bacilli arranged parallel and short parallel bacilli. Other authors have made different classifications, which, however, amount to about the same.

The significance of these different morphologic varieties, and the import of the almost constant occurrence of the streptococcus, especially in severe cases, are the chief points to be considered in this paper. E. A. Peters of London, in an article in the *Journal of Pathology and Bacteriology*, claims the long bacillus is the more constantly present and gives rise to a more severe type of the disease than the shorter form, which is of rare occurrence. He does not seem to attach much importance to the streptococci. His examinations, from which he draws these conclusions, were made from bacteria grown on different culture media instead of from slides made directly from the throat. As the size of the bacilli grown on the different culture media varies considerably, those grown on blood serum being larger than those grown on agar-agar. I do not consider his statistics quite reliable. On the other hand, Cornil and Babes in their text-book describe a long pseudo-bacillus, which occurs in mild cases and is considered, by them, to be an involution form of the true Klebs-Loeffler bacillus. Jacques of Chicago, in an article read before the Chicago Medical Society, makes the following statement; "In the early autumn the bacilli are small, producing a small amount of membrane and involving the cervical glands; little or no temperature and great malignancy causing the patient to be stupid as if under the influence of a strong narcotic. As the winter progressed this type changed. The bacilli became larger, more membrane was formed and the type was pharyngeal, with occasional involvement of the larynx." This statement, in general, agrees with my experience except that I have not noticed any change in the size of the organism as the season advanced, but have found the short bacillus, usually associated with the streptococcus, almost invariably in the severer forms of the disease.

In the cases of which I have kept a record and which I quote, the bacteria I mention were found in the material derived directly from the throat of the patient, a culture being made later in each case to verify the findings.

Case 1.—F. S., aged 3, third day,[1] had extensive membrane in pharynx. No antitoxin was used, death from toxemia fifth day of disease. Short Klebs-Loeffler bacillus and streptococci were found.

Case 2.—C. B., aged 20, fifth day, small amount of membrane in pharynx, larynx slightly affected, severe general intoxication, 5500 units antitoxin used, recovery. Short Klebs-Loeffler bacillus and streptococci were found.

Case 3.—A. M., aged 2, third day, small amount of membrane in pharynx, larynx, trachea and probably also in bronchi. Intubation was done without affording relief, 2000 units antitoxin used, death same day. Short Klebs-Loeffler bacilli and streptococci were found.

Case 4.—G. F., aged 8, second day, membrane in pharynx and tonsils, constitutional symptoms moderate, 1500 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and staphylococci were found.

Case 5.—E. C., aged 15, second day, small amount of membrane on tonsil and uvula, 2700 units antitoxin used, constitutional symptoms mild, recovery. Strepto- and staphylococci were found.

Case 6.—C. P., aged 9, third day, small amount of membrane in pharynx, constitutional symptoms moderate, 1700 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli were found.

Case 7.—R. P., aged 8, fifth day, extensive membrane on

[1] In these cases the day referred to means the one on which first examination was made. The symptoms are those observed during entire course of the disease.

tonsils and uvula, constitutional symptoms of moderate severity, 2000 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

Case 8.—C. S., aged 3 years, six months, fifth day, involvement of larynx and pharynx, constitutional symptoms severe, 1500 units antitoxin used, recovery. Short Klebs-Loeffler bacilli and streptococci were found.

Case 9.—A. C., aged 3, fifth day, laryngeal type with severe general symptoms, 3000 units antitoxin used. Short Klebs-Loeffler bacilli and streptococci were found.

Case 10.—F. N., aged 8, second day, laryngeal type, pharynx only reddened, constitutional symptoms of moderate severity, 1000 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

Case 11.—H. B., aged 13, second day, small amount of membrane on tonsils, general symptoms mild. Long Klebs-Loeffler bacilli were found.

Case 12.—A. H., aged 6, third day, small amount of membrane in pharynx, general symptoms of moderate severity, 2000 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 13.—K. L., aged 6, second day, small amount of membrane in tonsils, general symptoms mild, 1000 units antitoxin used, recovery. Streptococci and micrococus tetragenus were found.

Case 14.—J. M., aged 8, second day, extensive membrane in pharynx and tonsils, constitutional symptoms moderate, 2500 units antinoxin used, recovery. Typical Klebs-Loeffler bacilli were found.

Case 15.—L. M., aged 12, second day, slight amount of membrane on tonsils, general symptoms mild, 1500 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 16.—A. N., aged 5, second day, small amount of membrane in pharynx, general symptoms mild, 1500 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 17.—G. L., aged 4, fourth day, extensive membrane in pharynx, constitutional symptoms of moderate severity, 1000 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli were found.

Case 18.—P. L., aged 5, second day, extensive membrane in pharynx, constitutional symptoms of moderate severity, 1000 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli were found.

Case 19.—A. L., aged 1, first day, redness and white spots on tonsils, constitutional symptoms of moderate severity, 500 units antitoxin used, recovery. Typical Klebs Loeffler bacilli were found.

Case 20.—E. D., aged 12, second day, fairly extensive membrane in pharynx, constitutional symptoms of moderate severity, 1500 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

Case 21.—S. D., aged 8, first day, redness and few white spots in pharynx, general symptoms of moderate severity, 750 units antitoxtin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

Case 22.—G. P., aged 8, fifth day, extensive membrane in pharynx, general symptoms severe. 2000 units antitoxin used, recovery. Short Klebs Loeffler bacilli and streptococci were found.

Case 23.—H. B., aged 4, first day, redness of tonsils and pharynx, general symptoms mild, 1000 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 24.—M. K., aged 17, second day, moderate amount of membrane on tonsils, constitutional symptoms moderate in severity, 1500 units antitoxin used, recovery. Long Klebs-Loeffler bacilli were found.

Case 25.—R. L., aged 5, third day, moderate amount of membrane in pharynx, constitutional symptoms severe, 2000 units antitoxin used, recovery. Short Klebs-Loeffler bacilli and streptococci were found.

Case 26.—M. R., aged 4, second day, small white patches on tonsils and uvula, general symptoms mild, 500 units antitoxin used, recovery. Pseudo Klebs-Loeffler bacilli were found.

Case 27.—G. C., aged 10, third day, extensive membrane in pharynx, constitutional symptoms of moderate severity, 1500 units antitoxin used, recovery. Typical Klebs-Loeffler bacilli and streptococci were found.

To sum up: We have seven cases with severe constitutional symptoms, with two deaths; in all of these the short Klebs-Loeffler bacillus and streptococci were found; thirteen cases in which the constitutional symptoms were not so marked, but the membrane was, as a rule, thicker and more extensive; in six of these typical Klebs-Loeffler bacilli were found alone, in five they were associated with streptococci, and in one each are found typical Klebs-Loeffler bacilli with staphylococci and long Klebs-Loeffler bacilli, respectively. In the remaining seven cases the constitutional symptoms were mild or entirely absent; of these, four showed the presence of the long Klebs-Loeffler bacillus alone, and, in one each, streptococci and staphylococci; streptococci and micrococci tetrageni, and pseudo Klebs-Loeffler bacilli were found.

As the result of these examinations I have arrived at the following conclusions:

1. That the short Klebs-Loeffler bacillus apparently produces a toxin of greater virulency than the longer forms, although the local manifestations may not be so extensive.

2. That the long Klebs-Loeffler bacillus and the streptococci when found alone give rise to a mild type of the disease.

3. That the streptococcus is found associated with the Klebs-Loeffler bacillus in most of the severe cases. Its special significance is not so clear, but it is possible that by causing a more intense inflammatory reaction it opens avenues by which the toxins of the Klebs-Loeffler bacillus may find more ready entrance into the circulation, plus its own toxin.

4. That the apparent beneficial action of the antitoxin of the Klebs-Loeffler bacillus in cases where this bacillus is not present, may be due to the fact that though the local action of the different microbes varies to a considerable extent, the action of their toxins, as is shown by the similarity of the constitutional symptoms produced by them, present many kindred features. The thought, therefore, arises that the antitoxin of one infection may have an inhibitory effect on the toxin of another, as is shown by the fact that whooping cough and some other infectious diseases have been shown to occur less frequently in vaccinated persons and some cases have, apparently, been cured by vaccination.

NOTE.—By the term typical Klebs-Loeffler bacillus is meant the medium sized bacillus as described by Martin.

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TETANUS; ANTI-TETANIC SERUM; REPORT OF CASE.

Read before the Winona County Medical Society, July 6, 1897.

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Tetanus is a toxic infection dependent on the products of a specific germ. It is spoken of as traumatic when the infection takes place through a recognized wound. In idiopathic tetanus the infection atrium is some unnoted lesion. It is possible that the germs may sometimes find entrance through mucous membranes. Infection after labor gives rise to puerperal tetanus. Trismus neonatorum occurs as a rule through inoculation of the umbilicus. Tetanus cephalicus sometimes results from wounds of the head, the symptoms being limited to this region.

The bacillus of tetanus was first described by Nicolaier, in 1884. He obtained it from wounds and from the soil. Five years later Kitasato secured it in pure

culture. The germ itself is not tenacious of life. It is strictly anaerobic, oxygen preventing its growth. Under favorable conditions spores form in one end of the rod-like germs, giving them a characteristic drumstick shape. The spores are very resistant to destructive influences and are widely distributed in the soil, dust, etc. They are the usual source of infection.

It is evident from their common occurrence that the spores must find entrance to many wounds in which they do not develop. Free access of oxygen would prevent this and punctured wounds are, therefore, especially dangerous. Recent experiments in inoculating animals with spores obtained from pure cultures and freed from toxins show that they do not develop unless there be present certain additional factors, such as bruising of the tissues, effusion of blood, or mixed infection with other germs.

The ordinary antiseptic solutions are not effective in destroying the tetanus spores, requiring a contact of several hours, and in general they will not destroy the toxins. Sodic or potassic hydrate in 0.3 to 0.4 per cent. strength are recommended in addition to ordinary antiseptics. Iodin solutions, either 0.5 per cent. iodin trichlorid, or solutions of iodin with potassium iodid are especially effective in destroying both spores and toxins. (Kitasato, cited by Lambert.)

A number of ptomains and a toxalbumin have been obtained from tetanus cultures, but the chemic nature of the real poison has not yet been definitely determined. A concentrated poison has been obtained of such strength that the estimated fatal dose for a man is 0.23 mg., or about 1/250 gr.

The germ, when it develops in the body, multiplies in the vicinity of the point of inoculation, but does not become generally distributed. The blood absorbs the toxic products, which thus reach the nervous system and produce their characteristic effects. The blood of tetanus patients is toxic for animals when injected into the circulation. The toxins have been recovered from the urine. The postmortem findings of various observers differ, but lesions have been noted in the spinal cord; particularly changes in the nerve cells of the motor horns. Pitfield (*Therapeutic Gazette*, March 15, 1897), has employed a weak tetanus toxin therapeutically as a stimulant to the cord, in one case of mixed spinal sclerosis with apparent benefit.

The antitoxin of tetanus was introduced by Tizzoni and Cattani of Bologna. The preparation of this antitoxin is similar to that of diphtheria. Horses are injected with a tetanus toxin obtained by filtering pure cultures of the bacillus. Beginning with a dose of 0.5 c.c., the dose is gradually increased until the animals bear from 700 to 800 c.c. After several months a high immunizing power is thus obtained. The blood is drawn and the serum separated. The serum may be used for injection, or the antitoxin may be precipitated by alcohol and obtained in a dry form to be dissolved for use.

The antitoxin is said to be perfectly satisfactory in the laboratory. A definite quantity absolutely protects animals when given at the same time with the previously determined fatal dose of the toxin. The proportion of antitoxin required for a given toxin may be mathematically determined.

The application of the remedy meets many practical difficulties. There is no means of estimating the amount of toxin in the system and by the time clinical evidence of infection is obtained irreparable damage may have been done by the poison. Again, experimentally the quantity of antitoxin necessary to protect increases rapidly with the length of time elapsing after the injection of the toxin. Behring has estimated that the amount required to save an animal twenty-four hours after giving a fatal dose of the toxin would be impracticable of administration, on account of its bulk. The chances of employing the remedy clinically before the absorption of dangerous quantities of the poison are not nearly so favorable as in diphtheria.

The antitoxin has been employed as a prophylactic both in medical and veterinary practice. Its use is reported in a considerable number of cases in localities where tetanus is common. Tetanus failed to develop in all the cases. Of course there is no means of knowing whether infection was present.

The antitoxin acts not by destroying or chemically neutralizing the toxin, but by rendering the system immune to its action.

Lambert (*New York Medical Journal*, June 5, 1897) gives the statistics of 114 cases of tetanus treated by antitoxin, with a mortality of 40.35 per cent. Excluding deaths within twenty-four hours after beginning treatment and deaths from intercurrent disease; excluding also recoveries in mild cases not treated before the tenth day of the disease, leaves seventy-one cases, with a mortality of 29.57 per cent. Of these, thirty-one cases, with an incubation of eight days or less, are classified as acute and give a mortality of 61.29 per cent.; forty cases occurring after a longer period and classed as chronic, give 5 per cent. mortality. For comparison, in a collection of 1502 cases of all sorts treated without antitoxin the mortality was 87.7 per cent. Lambert considers a fairly low estimate of the death rate to be 80 per cent. for acute cases and 40 per cent. for chronic cases. This is certainly a very favorable showing for the antitoxin.

Case.—W. S., aged 23, steamboat hand, alcoholic, attempted to board a moving freight train May 1, 1897. He fell and sustained injuries which necessitated amputation of the ring and little fingers of his right hand. The end of the middle finger was lacerated and received two stitches. A wound of the scalp also required sutures and there was an extensive abrasion of the forehead. He was attended to in the office under ether anesthesia. Alcohol and bichlorid solution (1 to 1000) were freely used in cleansing the wound areas, which were very dirty. Some suppuration developed in the end of the middle finger and in one corner of the stump of the ring finger. The other wounds healed promptly without pus. On May 18 the wounds were last dressed, all being dry and apparently in good condition. Patient was in a state of moderate alcoholic exhilaration on this date. He complained of no unusual symptoms, although his history showed later that such were present at this time.

Three days after this he sent word that he was sick. He was found in bed, complaining of great pain in the abdomen and back. His spinal column was perfectly rigid. His masseters were contracted and the jaws could not be separated over half an inch by force. He received morphin by mouth and was removed two hours later to the Winona General Hospital. He could get out of bed only by turning on his face and dropping his knees to the floor, the stiffness of the back preventing his rising in the ordinary manner. He walked downstairs with great difficulty, the exertion being attended with general clonic spasms.

On admission to the hospital at 4 P.M., his axillary temperature was 99.5, pulse 84, regular. The facial muscles were contracted and prominent, the corners of the mouth somewhat elevated, the masseters rigid. The muscles of the neck, back and abdomen were in a state of tonic contraction. Opisthotonos was not marked. Breathing was shallow. The arms were moved freely, but there was some stiffness of the legs and tremor when they were lifted from the bed. The tongue was heavily coated and the breath foul. He complained mainly of spasmodic pain referred to the epigastrium, and suffered from painful muscular contractions in the throat on swallowing.

His history was gathered from time to time, as talking was difficult. On May 16, five days before admission, he noticed soreness of the jaw-muscles and twitching of the face. On the following day the legs became stiff and jerked at times while walking. The intermittent pain in the epigastrium next appeared. The jaws became stiff and walking was difficult. The day before admission was spent in bed. Patient had been living irregularly and had slept in a barn on one night. He at first supposed symptoms to be the result of taking cold. The wounds all appeared in good condition and offered no evidence as to the site of the tetanic infection, hence no indication for local treatment could be determined.

Patient was placed in a darkened room and 10 c.c. of antitetanic serum was injected in the back with antiseptic precautions. This dose was repeated in four hours and again nine hours. Chloral, in 0.97 gram doses, every four hours, was given at night, and potassium bromid, 1.3 gram every three hours, by day, to secure rest and quiet. A few hypodermics of morphin were used at long intervals for pain. The bowels were freely moved by 0.32 gram of calomel. No difficulty in urination was experienced. Patient was able to swallow liquids with some difficulty. He slept a considerable portion of the time. On awakening or when startled there was jerking of the limbs. The tongue and cheeks were repeatedly bitten by involuntary closure of the jaws. The temperature was 99 in the axilla on the second day, but did not again reach this point.

The symptoms progressively but very gradually improved. By the third day the muscular contraction was noticeably diminished and the pains less severe. A week later he could sit up, and two weeks after admission he left the hospital walking fairly well, though complaining of some stiffness. Since then he has not reported.

After receiving the third dose of serum the pulse was noticed to be extremely intermittent and irregular. Its rate varied at times from 60 to 120 a minute, especially after any exertion. This condition persisted for about a week. There was no evidence of disease of the heart. It seems unlikely that this condition could be produced by the moderate doses of the sedatives used. No local reaction, or skin or joint symptoms followed the use of the serum.

It is not possible to draw any very valuable inferences as to the effect of the serum from a case of this nature. The length of the incubation (fifteen days), and the slow onset of the symptoms place it with the chronic type of tetanus and make the prognosis relatively favorable. It is difficult to say what effect, if any, the serum had on the course of the disease. It is certain that the striking results obtained by some observers were not in evidence. However, the beginning of a gradual improvement at a time when the symptoms were progressively increasing in severity coincided with the injections. It would appear that in an acute case the dosage here employed would be quite inadequate.

DISEASES OF THE MASTOID, THEIR COURSE AND TREATMENT.

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Before beginning the consideration of this paper, I wish to request your attention for a few moments to some of the anatomic features of the middle ear and mastoid.

It is in an air-containing space, lined throughout with mucous membrane, and continuous with the covering of the naso-pharynx and adjacent parts. Its divisions are the eustachian tubes, the tympanic cavity, and the mastoid cells. The first is the channel of connection between the pharynx and the tympanum and consists of two portions, the cartilaginous and osseous, the widest opening being pharyngeal and its narrowest point at the junction of the soft and the bony part. It is from one inch to one and one-third inches long, the osseous forming about one-third of its length, and the two portions are formed at an obtuse angle. Its direction is obliquely outward, backward and slightly upward. The tubal mucous membrane contains throughout a ciliated epithelium destitute of glands, the movements of the cilia being from the tympanic cavity, thus aiding in the drainage of the tympanum, and partially preventing its invasion by pathogenic organisms from the rhino-pharynx.

The tympanic cavity is an irregular pneumatic shaped space with its longest diameters vertical and lateral, containing the ossicula and consists of two portions, the atrium immediately behind the membrana tympani, and the attic which lies above the membrane. The communication between these two is quite narrow owing to the arrangement of the ossicles and folds of mucous membrane, and therefore a slight inflammation and swelling of the tissues may easily shut off the attic space, producing interference with its drainage, this being a serious factor in middle ear pathology. The mucous membrane lining the tympanic cavity is thin and delicate and closely adherent with the underlying bone; its epithelium is usually tesselated, and may in places be ciliated, the latter being found most frequently in the vicinity of the eustachian orifice. A little above, continuous and posterior to the attic, the mastoid antrum is situated and is the only pneumatic space developed at birth, the others being formed subsequently. Not in frequently a second cell of considerable size is found at the tip of the process. The mastoid process, both externally and internally, varies greatly in its construction; thus, we may have those which are entirely pneumattc, those which are pneumatic and diploetic those which are wholly diploetic, and, lastly, those which are altogether sclerotic excepting the antrum Zuckerkandl, in the examination of 250 bones, found 36.8 per cent. completely pneumatic, while 42.8 per cent. were mixed diploetic and pneumatic, and 20. per cent. entirely diploetic or composed of dense osseous tissue throughout. These conditions are also found to vary on the two sides, one side being partly pneumatic and the other completely so. From such examinations it is evident that a sclerotic process does occur normally as well as the result of inflammation. The position of the lateral sinus varies greatly in different individuals, sometimes being an inch or more posterior to the wall of the meatus, and, again the bend of the sinus is so sharp that it extends forward so near to the posterior wall of the meatus that the opening of the antrum would be impossible without wounding this venous channel. To the operator the position of the sinus and the middle cerebral fossa are of special importance, and many efforts have been made, by the examination of specimens, measurements of the skull and its outward conformation, to determine the location of the sinus; but all such researches have proven useless. Dr. Politzer states that in about 500 temporal bones which he examined he found the position of the sinus most favorable when the mastoid process was strongly developed and entirely filled with pneumatic cells. In these cases there is a broad space between the sigmoid sinus and the posterior wall of the external meatus which, in operating, permits access to the antrum without danger of wounding the sinus. He found the relations less favorable in the diploetic and co

pact mastoid processes. How are we to know positively whether the process is diploetic or pneumatic? Hence, for practical purposes these investigations prove as useless as others.

We will now consider the individual mastoid diseases.

Primary mastoiditis is very rare, and when it does occur is usually the result of traumatism or exposure, but sometimes without any traceable cause; the latter usually found in persons of a cachetic condition. Only a few cases have been reported.

Secondary periostitis, however, is quite frequent, and is due to acute or chronic middle-ear suppuration or necrosis; the process extending outward from the tympanum until the mastoid covering is reached. It occurs oftener in adult than early life, owing to the much greater liability to ear disease. In acute middle-ear suppuration it is most frequent when free drainage is interfered with, as from a very small perforation badly placed, or from a possible pus retention by blocking up the opening with powders, as boracic acid, alum and some of the more adhesive new products. The fluid must find exit, and will do so at the point of least resistance. This may be; 1, through the external mastoid cortex or into the external meatus; 2, through the digastric fossa; 3, through the roof of the antrum or the tympanic wall into the middle cranial fossa; 4, into the posterior cranial fossa, by rupture usually, into the groove lodging the lateral sinus.

If the cranial cavity is invaded meningitis is induced and may be diffuse or circumscribed. In the latter the limit appears to be caused by the formation of an epidural abscess, the infectious material being walled in all sides by adhesions between the dura and adjacent walls. Internal rupture may occur, or the free anastomosis between the blood vessels and the dura and the pericranium may provide the channel through which the infectious material may pass to the brain, producing an intracranial abscess or a thrombosis of the lateral sinus. Unfortunately these lesions often occur simultaneously, thus greatly increasing the danger to life.

Until within a comparatively recent period, the operation for acute disease of the mastoid was the principal surgical operation upon the ear. It was near the end of the fifteenth century that Piolanus proposed opening the mastoid cells; later, about the year 1655, Sir Thomas Brown advised against such a procedure; and it was not until 100 years later that the operation was first performed by Petit for the removal of secretions. In 1776 Jasser performed the operation for necrosis of the bone with great success, but, after his disease, surgeons lost sight of the true indications for operating, and perforated the bone for various purposes, until the death of Bergen, a noted Danish surgeon, upon whom the operation was performed for the relief of deafness, and ended in fatal meningitis. This caused the procedure to fall into disrepute, and nearly a century elapsed before it was revived by Forget (1849), Pollin and Troeltach (1858).

When there was inflammation, swelling and tenderness over the mastoid, Troeltach made an incision down to the bone to prevent necrosis, and if the symptoms indicated a deeper seat of the disease he perforated the bone with a blunt probe. To prevent injury to the brain or lateral sinus, he placed the instrument in a line with the meatus, and worked it forward and inward in a horizontal plane. If the cortex was thick he used a small trephine. The sinus was kept open by means of a piece of gauze.

To Schwartze is due the credit of developing the operation; by 1883 he had reported 100 cases, which was the largest number reported up to that time.

Acute inflammation of the mastoid cells vary according to the stage in which the patient comes under observation. Acute otitis media without perforation is often accompanied by symptoms of mastoid irritation, which usually subside with slight antiphlogistic measures. In acute inflammation of the mastoid cells the prominent symptoms are, 1, intense continuous pain over the mastoid and radiating over the side of the head and in the neck, which is increased on pressure and percussion, redness, heat and edema of the skin. When the abscess becomes localized the pain generally remains fixed at one point; 2, the membrana tympani appears strongly bulged forward before the pus perforates; following perforation a nipple-like projection is often found in the posterior-superior quadrant of the membrane, on the tip of which the perforation is situated; 3, a swelling and bulging of the posterior-superior wall of the canal, causing a narrowing of its lumen, and shutting from view all or a part of the membrane. These two latter points are very indicative symptoms. Free discharge from the ear exists, which rarely ever ceases while the mastoid inflammation continues. However, the only absolutely positive sign of a mastoid abscess is pus found within its interior on opening. The temperature usually ranges from 99.5 to 103 degrees, but seldom higher.

The course of the affection varies considerably in different cases; in some running to a fatal termination in a few days, and in others occupying weeks and months and possibly years to indicate positive symptoms. In chronic otitis media purulenta the extension to the mastoid is often without characteristic symptoms. The quality and quantity of the discharge varies greatly, now very slight, now copious, according as to whether there is a narrow or free outlet for drainage from attic and antrum. A thickened cheesy pus may exist for a long time in the mastoid cells without any symptoms except a stubborn, fetid otorrhea, resisting cure in spite of thorough cleansing of the tympanic cavity. We may be almost sure of retention of pus in the antrum, provided caries of the external canal, ossicles or walls of the tympanic cavity may be excluded.

Inflammation of the mastoid process and fever only occur through traumatism or the retention of pus in the cells. They may subside only to reappear. Sharp pain on pressure, united with edema, may have existed a long time without producing any perceptible change of periosteum and the bone surface. If the bone is greatly sclerosed and very dense, and the cortex much thickened, which may be congenital or occur as a result of chronic middle-ear suppuration, such acute symptoms may never arise, even in a long course of the disease. However, the absence of the same can not be looked upon favorably as a prognostic sign, for it is often just such cases that prove rapidly fatal through pyemia. Zanfal and others have called attention to the frequent existence of optic neuritis, neuro-retinitis and choked disc, in inflammation of the mastoid process, at times bilateral, at times unilateral, and not always on the affected side. The course of the morbid process in bone affection varies in different cases. Extension of the inflammation in

an outward direction, with periostitis and abscess, is the most common course. Several such abscesses, in more or less rapid succession, over the mastoid process, are indicative of disease of the bone. Occasionally the pus finds it way down the side of the neck, and forms a swelling of considerable size; or, it may pass forward to the side of the pharynx, and downward even as far as the pleura; or, it may extend into the cranial cavity, and cause trouble in the lateral sinus, or involve the Fallopian aqueduct and the membranes of the brain.

Next to opening through the cortex of the mastoid, the most frequent point is through the posterior-superior wall of the external canal. If not recognized early it may cause such excessive bulging of the canal wall as to prevent free discharge. If seen at the proper time a generous opening followed by copious syringing may suffice to empty the mastoid process of all deleterious substances, such as pus, cholesteatoma, the cheesy exudate, epidermic masses, and even sequestra if very small. Bozold has well described those uncommon cases as mentioned above. When rupture takes place toward the digastric groove, or on the median surface of the mastoid process, and owing to its deep position beneath the fascial, the pus easily finds its way into the deep sub-muscular tissues, and along the course of the large vessels, which causes the swelling in the side of the neck with abscess formation. In the early stages no perceptible difference may be seen between the sound and diseased side. After the swelling beneath and each side of the sterno-cleido-mastoid muscle has developed, deep pressure over the tip of the mastoid elicits acute pain. An early recognition of the condition is necessary since from the consolidation of the parts invasion of the cranial cavity is likely to occur. In favorable cases the carious and necrotic portions are exfoliated, the granulation tissue is absorbed, and healing takes place. Several good recoveries have been reported, even after the whole of the mastoid process has been exfoliated. Again only small portions of bone may be detached, and fistulous openings may remain indefinitely or until properly attended to.

The prognosis in these cases of mastoid disease varies with the cause, extent and severity of the affection and with the general health of the patient. Following an acute otitis media, and promptly attended to, the prognosis is usually favorable, but in some such cases the advance may be so rapid as to baffle all our efforts to check it. It is unfavorable in tuberculosis, and in chronic purulent otitis with pent-up secretions, when the case has been neglected, and gives a history of intermittent febrile attacks, and several previous attacks referable to the mastoid region which have disappeared spontaneously or under palliative measures. The prognosis is always serious whenever there are symptoms of extension of inflammation to the membranes of the brain. Attacks of partial or complete unconsciousness, restlessness and feverishness, are of extremely grave import when occurring in a person suffering from disease of the mastoid process.

In the treatment, if the case is seen early, an attempt should be made to abort the attack by antiphlogistic measures. If the membrana tympani appears greatly congested, swollen and bulged outward, simultaneously with pain in the mastoid process, which is increased on pressure, a paracentesis of the membrana tympani should be made at once to permit the pus in the middle ear a free exit; and in a spontaneous rupture, when necessary it must be enlarged. After free drainage has been obtained, frequent antiseptic irrigations should be instituted and carried out faithfully. A brisk purge should be administered. The application of cold to the mastoid by means of the ice-bag, iced cloths, or, what is better, the Leiter coil. The ear may be syringed with the apparatus in place. It is better to keep the coil in position continuously for twenty-four hours, and under no condition should it be kept on more than from forty to fifty hours. Painting with iodin, application of leeches, and rest in bed. In influenza cases the Leiter coil does not appear very effectual in stopping the formation of abscesses. Cold is usually very soothing and borne well. Often the pain will entirely disappear through these means while the patient is in bed and quiet but on exertion in his duties they return. And thus it is said by some writers that if marked improvement has not occurred within forty-eight hours, operation treatment will be necessary subsequently if not at once. If abortive measures have not be successful, then operative interference must be resorted to and the following are symptoms as laid down by Politzer and others generally recognized as indicating the operation:

1. Painful inflammatory infiltration of the covering of the mastoid process, especially if an accompanying narrowing of the meatus, or obstruction of the tympanum by granulations, renders it probable that a septic condition exists in the mastoid process. The operation becomes imperative when there is high fever and signs of meningeal irritation, and when the symptoms in the mastoid process have repeatedly occurred and resisted all antiphlogistic treatment.

2. Spontaneous pain in the mastoid process, increased by pressure and accompanied by bulging of the posterior-superior wall of the meatus.

3. Persistent or occasionally remittent pain in the mastoid process, with marked tenderness, even if there be no swelling of the external integument, and no apparent obstruction to the escape of discharge from the tympanic cavity.

4. When cholesteatoma existing in the tympani cavity can not be removed, or after its extraction with the malleus and incus the condition is not improved by careful irrigation.

5. Fistulæ in the mastoid region and gravitation abscesses below it.

6. Extensive caries and necrosis of the posterior osseous wall of the meatus.

7. In all cases of middle ear suppuration, during which symptoms of meningeal irritation or of incipient sinus-phlebitis make their appearance.

8. Continued septic suppuration in the attic, the symptoms remaining unchanged after removal of the malleus and incus and several months energetic treatment, even if there are no general symptoms except ing an offensive otorrhea.

9. Pain in the mastoid process developing in certain rare cases of connective tissue hypertrophy, in osteo-sclerosis, and in osseous scars after the healing of a mastoid operation.

The operation.—A few hours before the operation the patient should be given a thorough bath, the part within a radius of three or four inches of the ear carefully shaved and, if a man, the beard removed; the whole side of head and neck energetically washed with soap and water, rinsed with sterilized water and

rubbed with ether to remove all oily substances. The ear is syringed with a solution of bichlorid of mercury (1 to 1000) and a wet dressing of the same is applied over the entire field of operation until the patient is anesthetized.

The antiseptic dressing is removed and the parts again cleansed with bichlorid and ear tamponed. All instruments are sterilized by boiling, and the hands and dress of the operator and assistants should receive the same careful attention as is demanded in all surgical operations. To some all these precautions may seem unnecessary, but when doing a mastoid operation the surgeon never knows what he may be compelled to do, as through anomalous positions of the parts, or to extensive necrosis, the cranial cavity may be entered, either accidentally, or he may find it necessary to extend the operation to these parts.

The incision through the soft parts should be made from the tip of the mastoid and carried upward in a curved line one-fourth inch posterior to the insertion of the auricle and to its upper attachment. It is better to make the cut, if possible, with one sweep of the knife. This is practically what is known as Wilde's incision, and has been greatly overestimated, as it is only admissible in children where the cortex is very thin and may be opened by firm pressure of the knife or sharp curette, or pus may find an outlet. In the adult, however, experience has taught all operators that it is not advisable to stop here, as the cortex is too dense and non-permeable. It certainly is not wise to do this and delay to ascertain what further may develop, and subject the patient to a second operation when it should have been completed at first. Dench states that the division of the soft parts within the meatus over the mastoid practically meets all the indications of external incision. Next, elevate the periosteum, pushing the entire flap forward. The bleeding vessels should be taken up with artery forceps, or ligated. The parts are held back with retractors so that a good view of the posterior and superior margins of the bony canal are distinctly seen and the whole field of operation laid bare. The bone should be carefully examined for fistulæ or carious spots, which, if found, will serve as a guide for entrance into the bone. If none are found we proceed to open into the antrum, which is just behind the posterior margin of the meatus and just below its superior margin. Until entrance has been gained to the antrum the opening through the cortex should never extend above the superior wall of the meatus, and keep close to the posterior wall, thus avoiding the middle cranial fossa and a possible wounding of the lateral sinus, which may be misplaced. The cortex is best removed with a broad chisel and mallet, which is held parallel to the surface of the skull and the bone is cut away in thin broad chips, the opening extending inward and forward and gradually lessening in size until the antrum is reached. This never lies less than a half inch below the surface, although large pneumatic spaces may be found near the surface, which may lead us astray unless we are cautious. To prove it bend a probe at the tip and pass it downward, forward and inward for a distance of three-fourths of an inch or more, at which depth it should pass into the tympanic cavity; thus we know that the antrum has been reached and passed through.

Having gained a free entrance to the antrum, any particles of bone, cholesteatomatous masses of granulations, must be removed and the opening to the middle ear freely curetted and enlarged to give sufficient drainage. We read of cases where after penetrating to the extreme line of safety (about five-eighths of an inch) and no antrum is reached, the operation is abandoned. This need never happen. After cutting to the usual depth without finding the cavity, the rule should be adopted to direct our canal more forward so as to bring its apex over the meatus, when we can easily chisel into the attic. The membranous meatus may be dislodged from the posterior wall and pushed forward, or the entire cartilaginous meatus turned out, thereby making entrance to the attic quite easy. The latter method will apply to a sclerotic process. If after entering the antrum no pus is found, the large cell at the apex of mastoid must be particularly investigated, all carious and necrotic bone removed from mastoid and its tip excised, if carious.

The operation should be continued until sound bone is encountered in every direction. If the inner plate is diseased it may be removed with almost perfect safety, as an exposure of the dura is not a grave matter under proper precaution, whereas to leave carious bone at this point is very dangerous. Exposure or even a wound of the lateral sinus, either accidentally or intentionally, is not so serious a matter as has heretofore been considered. It can be recognized by its bluish-gray color. If the vessel is opened sharp hemorrhage ensues, which if easy of access, may be readily controlled by a firm compress of iodoform gauze held by an assistant, and the operation is proceeded with as if this had not happened.

The good effects of opening the mastoid antrum and cleansing the middle ear is often manifested within a few hours after the operation. The pain and temperature are both diminished; alarming symptoms subside, while the state of the middle ear rapidly improves. Subsequent to the operation where the septic suppuration continues after weeks or months of careful treatment, there is probably a carious affection of the tympanic cavity or ossicula. If lumps of epidermis repeatedly appear in the irrigating fluid it is certain that there is a cholesteatoma in the attic, which indicates an operation on the tympanic cavity, described later.

Having completed the operation, I insert into the antrum a drainage tube, and pack loosely around it dry iodoform gauze, but not the external wound, merely keeping their edges separated by a strip of gauze. A tampon is placed in the meatus and the whole well covered with sterilized gauze and cotton. With a favorable course of healing it is sufficient to change the bandage every five or six days. If the temperature does not exceed 101 degrees at any time during the first five or six days, or if elevated temperature is not persistent, there will be no necessity of changing the dressing. When the dressing is changed for the first time the wound and canal should be irrigated with a sublimate solution (1 in 8000 or 10,000), and the wound cavity examined carefully for remaining granulations and roughness which, if found, must be scraped away.

If there is a return of pain after the operation, increased temperature and much septic discharge, which would be indicated by a rapid soaking of the bandages and fetid odor, a daily change of dressing is indicated. So long as the secretion is ill-smelling I use sublimate solution in the strength indicated above. After the bad odor disappears I use a 1 per cent. acid boracic solution. This must be continued until suppuration

ceases. The supposition of Küster and Bergman, that the syringing out of the operation cavity should be avoided, has not been sustained by the profession. So long as there is suppuration in the tympanic cavity the communication between it and the wound must be kept open for free drainage, and only when there is a certainly that suppuration has ceased may the wound be allowed to heal. Occasionally there remains, after the most careful treatment, a sinus in the mastoid process connected with an abscess cavity which requires a second operation. The duration of after-treatment varies from three or four weeks to one or two years before suppuration ceases, and sometimes can not be controlled no matter what is done.

It is wonderful what a beneficial effect the operation often has upon the general system, which may be readily understood when we realize that the blood is kept constantly in a more or less septic condition.

Since 1891 the mastoid operation described above was the typic one, but the collective experience in aural surgery for the last few years has shown that it proves inefficient in many cases, and so search for a more effectual process has developed several methods. In 1891 Stacke of Erfurt, Germany, made known a new operation in chronic cases, based upon the surgical principles involved in the treatment of suppurations within rigid walled cavities; namely, upon the complete and free laying open of the cavity, so that it can be curetted, tamponed and treated surgically, and the operator not compelled to satisfy himself with a more or less imperfect irrigation. The method of Stacke is practically as follows: The cutaneous incision is made a little differently than has been described, the upper part being kept closer to the auricle and carried well around to the front. The lower end must also curve more forward and extend to the tip of the process, the cut circumscribing the auricle. The bone being bared, the membranous meatus is separated from the posterior and superior walls, and its attachment internally being cut, is in its entirety shelled out of the osseous canal. With a small gouge or Dench's cutting forceps the most medial portion of the superior wall of the osseous meatus (lower lateral wall of the attic) is cut away and, if present, the malleus and incus removed. The superior wall is to be chiseled away near the drum insertion till a bent sound touching the tegmen tympani meets with no resistance on being drawn outward. The probe, as a guide, is then turned toward the antrum, and the posterior wall of the meatus chiseled away till that cavity is freely opened up. In this way Stacke converts attic, tympanum, antrum and meatus into one large cavity. After cleansing, the auricle is replaced, sutured, the membrane of osseous canal split and pressed as far back into the enlarged cavity as possible by the iodoform gauze. All subsequent treatment was done through meatus.

This operation proving extremely difficult and unsatisfactory, other methods were suggested, and now what may be known as the Schwartze-Bergman-Stacke operation has been quite generally adopted, and my experience has taught me as being the ideal one in all chronic conditions, which have resisted cure after the ossiculæ have been removed. I now rarely perform any other, and am exceedingly happy with the results obtained. It is a much quicker, easier and safer way than the Stacke, and is done as follows: The incision over mastoid and entrance to antrum is made as in the original mastoid operation. The membranous meatus is dislodged as in the Stacke and held well forward by a retractor. Operative field now shows the posterior-superior osseous canal, the antrum and a bridge of bone separating them. This bridge is now removed by rongeur forceps and chisel, the section being triangular in shape, the apex at the neck of the antrum. Thus the antrum, tympanum and meatus will be converted into one large cavity. Care must be taken at this point not to wound the facial and semicircular canals which lie directly across from this point. As a protection, if a sound is passed through the antrum into the middle ear or, if not possible in that direction, from the middle ear as far as possible into the attic, and confine our operating down to that, we will be within safe grounds. A wound to the external semicircular canal is more unlikely to occur than one of the facial nerve.

As much of the bone should be removed as is compatible with safety, so as to make the antrum and attic as accessible as possible from the external canal (See Allen, p. 103). In this operation I find the dental engine a most useful adjunct. The posterior membranous canal is now split outwardly to the concha as in the Stacke operation, and pressed back as far as possible into the enlarged cavity and held in place by tamponing.

According to Stacke, the tamponing of the membranous meatus into the artificial opening has a double advantage: 1, it secures the formation of a persistent skin-covered communication between the antrum and meatus; 2, it is a skin transplantation, from which the formation of epidermis over the entire cavity can take place. The better way, I believe, is to suture the wound over the mastoid and get primary union if possible, and treat entirely through the meatus. If all goes well the dressings are to remain five or six days, after which daily tamponing must be most carefully followed out.

The granulations must be kept down and the cavity kept as freely accessible and of the same size as just after the operation. Even when the utmost care is taken, minute necrotic pieces of bone become surrounded by granulations, small fistulous canals are formed leading to these dead pieces, around which the suppuration continues even after it has entirely ceased elsewhere.

The duration of the after-treatment varies in these cases also, but is on an average several months shorter than by the old method, and the cure is much more permanent. The indications for this operation are about the same as for the ordinary mastoid.

215 Jefferson Avenue.

PYORRHEA ALVEOLARIS IN MERCURIAL AND LEAD POISONING AND SCURVY.

PAPER NO. 4.[1]

Read in the Section on Stomatology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY EUGENE S. TALBOT, M.D., D.D.S.

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In this paper I discuss the pathology of the peridental membrane as observed in constitutional diseases such as mercurial and lead poisoning and scurvy. In former papers I advocated the theory that pyorrhea resulted from simple inflammation of the gums

[1] Paper No. 1, Dental Cosmos, 1886, p. 689; paper No. 2. *ibid.*, 1896, p. 310 International Dental Journal, January, 1894; paper No. 3, Dental Cosmos, 1896; Journal of the American Medical Association, 1896.

which afterward became chronic, involving the peridental membrane; that it was due to a local factor which would produce this inflammation; that the inflamed membranes became infected with pus germs and as a result liquefaction and degeneration of tissue are produced with or without calcic deposits.

The present contribution is intended to show that the genesis and progress of the pathologic state of the membrane due to constitutional causes is precisely the same. The following cases are of interest from this standpoint:

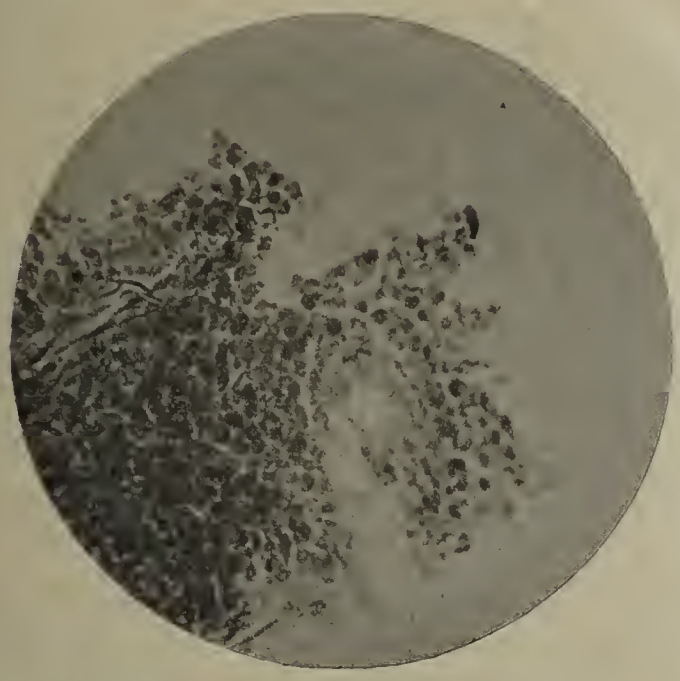


FIG. 1.—Mercurial poisoning, lower left second molar pericemental membrane; atheromatous degeneration.



FIG. 2.—Mercurial poisoning, lower left second molar pericemental membrane; atheromatous degeneration.

Mr. A., 48 years of age, merchant, was suffering from dyspepsia; was poorly nourished and very weak. His physician placed him upon tonics and calomel. In less than two weeks he came to me with the mucous membrane and gums very much inflamed. The saliva flowed in large quantities; the teeth were loose; the gums swollen; pus oozed from the sockets; the breath had a strong metallic odor. I placed him on six pints of spring water a day and saturated the gums every alternate day with iodin. I requested his physician to stop the mercurial. In a few days I had reduced the soreness and swelling so that I could remove the deposits from the teeth. The right inferior second molar was so loose that I removed it. He was discharged May 22, cured.

On removal the tooth was placed in 50 per cent. alcohol for twenty-four hours, then absolute alcohol for twenty-four hours. The membrane had receded about two-thirds the length of the root and these microscopic specimens were cut from the lower third

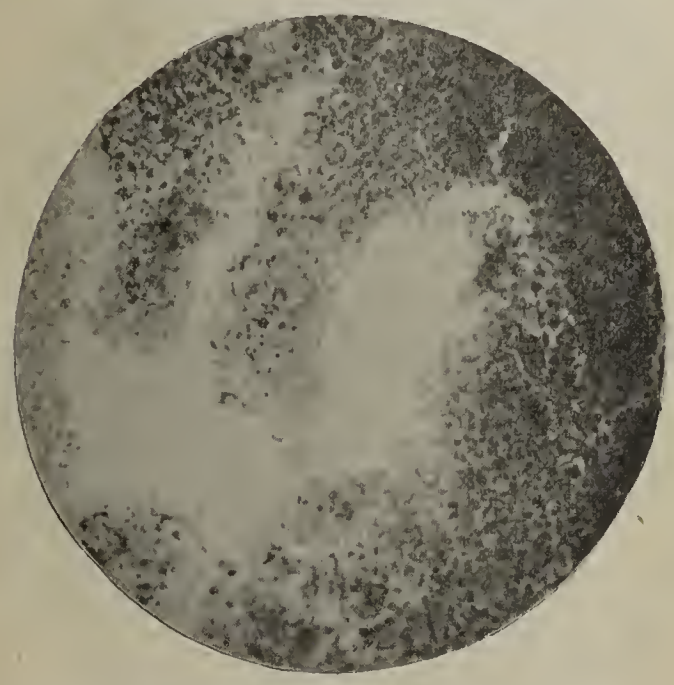


FIG. 3.—Lead poisoning, upper left second bicuspid pericemental membrane; atheromatous degeneration.



FIG. 4.—Lead poisoning, upper left second bicuspid pericemental membrane; atheromatous degeneration.

of the root. Fig. 1 shows a small fragment of the inflamed peridental membrane; Fig. 2 the round cells of inflammation; the atheromatous degeneration and liquefaction of tissue.

Lead poisoning.—Mr. B., 35 years of age, painter by trade. He was under medical treatment for diabetes. The gums were badly swollen; there was excessive flow of saliva; the teeth were loose; pus flowed from the gums. I put him on two quarts

ozonate spring water per day and saturated the gums as before with tincture of iodin.

Three loose teeth were removed and placed in alcohol for preparation for microscopic examination. These illustrations were taken from the upper third of the left superior second bicuspid and are not unlike Figs. 1 and 2. Fig. 3 shows round cells of inflammation. Fig. 4 is the best specimen of degeneration of



FIG. 5.—Scurvy, upper left lateral incisor, high magnifying power, inflammation of the gum and pericemental membrane.

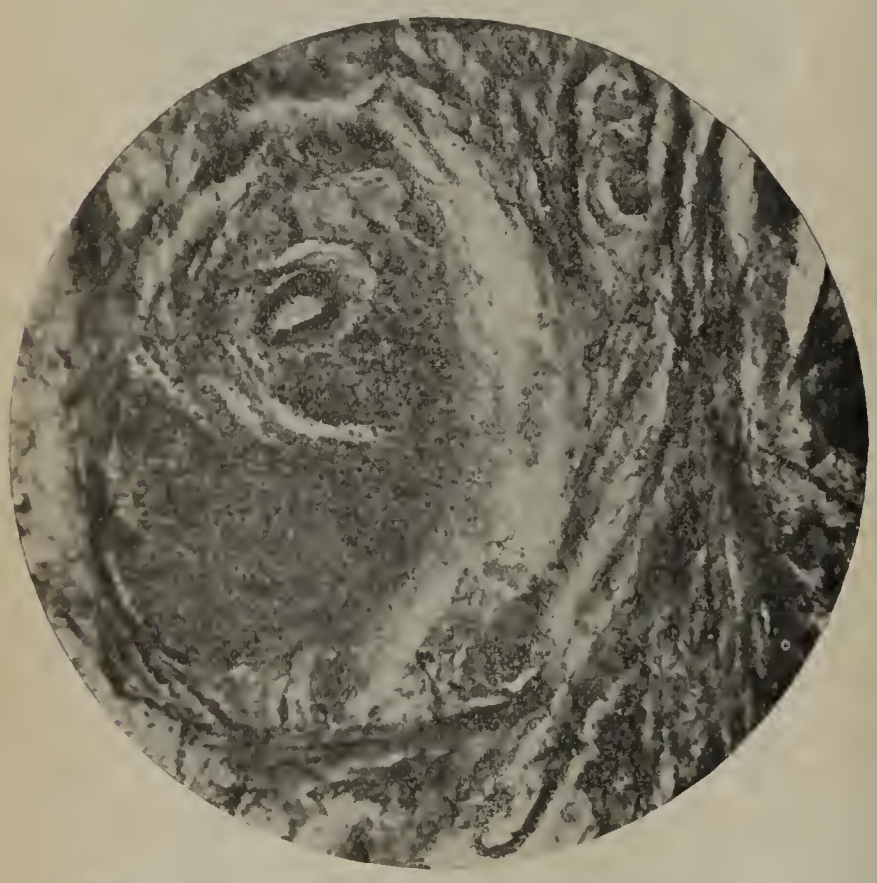


FIG. 6.—Scurvy, upper right second bicuspid, high magnifying power; atheromatous degeneration.

the peridental membrane I have ever seen. The difent stages of degeneration are well shown. In the corner is seen the root of the tooth, dentine and cementum. The whole surface of the peridental membrane is in a high state of inflammation. Just at the border of the root may be seen an area of membrane softening, and just beyond and joining is observed the breaking down of tissue. In the center is seen two areas of softened tissue more advanced in degeneration.

The following scorbutic case was referred to me by Dr. George W. Johnson:

The patient, a 25-year-old American, was admitted to the Cook County Hospital for the Insane, Dec. 2, 1892, suffering with melancholia attended by delusions of persecution and suicidal tendencies marked by refusal of food. June 1, 1896, he again began to refuse food but took liquid diet on persuasion. June 29 the patient was transferred to the hospital because of his emaciation. Scorbutic symptoms were discovered. July 18, 1896, the constitutional and local symptoms of scurvy were well marked. The teeth were covered with sordes and loosened. Under anti-scorbutic treatment these symptoms had fully disappeared by Aug. 13, 1896.

Through the kindness of Dr. Johnson I was allowed to see this patient. I found none of the teeth very loose, showing that the disease was superficial. I removed two teeth that were decayed and were loosest. These were prepared as before. Fig. 5 shows the gums and peridental membrane in an active state of inflammation. Fig. 6, the root of the right superior second bicuspid with peridental membrane attached, shows active inflammation and an area of tissue degeneration.

It will be seen, therefore, that in all three cases the same pathologic changes occur in the gums and peridental membrane, whether the original source of gum inflammation be local or constitutional.

The fact that it can be treated successfully locally and that the calcic deposit is never observed in the substance of the peridental membrane, but invariably outside, beyond the pus line, leads me to believe that it is not, *per se*, a constitutional disease, although the local inflammation may be due to constitutional causes; also that there is no such thing as serunal deposits as suggested by Ingersoll, but that the deposits result from pathologic and chemic changes which take place in the tissues themselves, and are a consequence and not the cause. If the technique laid down in former papers be carried out, operators will be successful in treatment.

A CASE OF PROGRESSIVE DISEASE OF THE BONES OF THE FOOT, ANKLE AND LEG.

AMPUTATION AT MIDDLE THIRD OF LIMB WITH THE LOCAL ANESTHETIC EFFECT OF EUCAIN HYDROCHLORID.

BY DWIGHT S. MOORE, M.D.
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The patient, E. C., age 71, is of American parentage; his mother, a healthy woman, lived to the age of 70 years. His father when about 30 years of age, had an attack of paralysis which rendered him a cripple. He died at about the age of 35. The son, an active young man, very fond of out-door life, was a servant to an army officer in the Mexican War, accompanying his employer afterward to Texas and Utah and sharing all the privations and dangers of the army.

He had attacks of malarial fever in western Texas. He also had an attack of rheumatism, which was but the precursor of others more severe. During these years he drank considerably at times. He denies ever having had any specific trouble. About fifteen years

ago he came to North Dakota where he has had many attacks of articular rheumatism, resulting finally in great deformity and helplessness. Some years ago he lost an eye from traumatism. He describes himself as always having been "restless and nervous." He had been spare but strong, active and enduring, till the progress of his arthritic enemy compelled him to more sedentary habits of life. A sister, 68 years of age, and two brothers some years younger, are still living and in good health. There is no history of any tubercular affection in the immediate family of the patient.

About nine years ago the deformity and pain produced by chronic rheumatoid arthritis began to necessitate the use of the cane or crutch. In about two years more two crutches were needed and for over a year past he has been almost helpless, and a part of the time entirely so. The joints affected, by deformity were more especially those of the hands, fingers and knees. The shoulders and hips were not affected, with the exception of great limitation of motion and pain when in action. His fingers deviated from the line of the metacarpal bones, being drawn toward the ulnar side. The joints at the base of all the fingers were greatly enlarged. The joints between the metacarpal bones and the phalanges were flexed. The first phalangeal joints were extended, while the second joints were in a state of slight flexion. The muscles all over the body were wasted and more especially those connected with the joints. This condition is found today, the only difference being that the deformity and helplessness have been accentuated by the lapse of time.

During the winter of 1896–7 a slight redness of the skin appeared between the fourth and fifth toes of the right foot. He says it looked as if it had been scalded. It was sore to the touch and he felt a dull pain occasionally which seemed to be deeply seated. The redness and swelling extended very gradually to the other toes and adjacent portions of the foot, especially affecting the outer border. There was very little external evidence, even at a later date, to show the extensive destruction of bone tissue which was afterward found. Small portions of skin upon three of the toes became gangrenous and bony detritis issued from beneath them along with other products of suppuration. A dull pain of a burning character was felt by the patient almost constantly and referred by him principally to the ulcers upon the toes. The foot became generally of a bluish color and an exploratory incision, followed by the passage of a probe, proved that in spite of the limited local manifestations of the disease a very general death of the bones of the entire foot had taken place. The nutrition of the skin for three inches above the malleoli was impaired. The skin here seemed thin, of a bluish tinge in spots, while pigmentary deposits of a yellowish and brownish color alternated with the bluish discoloration. At the time of this examination it was decided in view of the general symptoms present that speedy removal of the limb would be necessary to save the patient's life.

For some three weeks preceding the time of examination the patient's general condition had been growing more and more serious. The progress of the bony necrosis of the foot, ankle and lower part of both bones of the leg had continued for some time without producing any apparent general symptoms, much external evidence of the extent of bony tissue involved, or much destruction of the soft parts lying next to the diseased bone. At this time the temperature was found running from 101 to 103 in the evening; the force of the pulse was diminished, though the frequency was not increased as much as is usual with such a temperature. It was soft and compressible. There was almost complete loss of appetite and an obstinate diarrhea persisted in spite of the small quantity of carefully selected food taken. The pain had increased until it had grown almost unbearable, not from extreme acuteness, but from its constant presence and depressing character.

Thus from April to September 1 very little disturbance seems to have existed in a general way from the local disease, but from September 1 till the 16th, when amputation was performed, the general condition of the patient grew rapidly worse. The condition of the joints, muscles and tendons were as previously described. From long inaction and exhaustion from pain, fever, and the probable toxic influence of absorption, the patient was very weak and had great apprehensions regarding the taking of a general anesthetic and the final outcome of the operation, which he was inclined to believe would be fatal. In selecting the anesthetic to be used an examination of the heart was made, with the result of finding that there existed a condition of both chronic pericarditis and endocarditis with a chronic bronchitis. There was a weak and irregular impulse of the heart and considerable precordial anxiety, and occasional pain was complained of by the patient. On account of these intra-thoracic conditions and the great repugnance of the patient to the use of a general anesthetic, and his apprehension that it might cause his death, it was determined to operate under the local effects of eucain.

On the morning of Sept. 16, 1897, the patient, having slept poorly during the night from pain and apprehension, was found to have a temperature of 101 F., pulse 70 and respiration 27. He ate a light breakfast about 7 o'clock and was conveyed to the operating room at about 10 A.M. The ordinary precautions for rendering the skin of the limb aseptic and for performing the operation without danger of infection were carefully attended to. The patient reclined with the head comfortably supported by pillows upon the operating table. A tablespoonful of whisky was administered for its psychical effect, and the limb wound with an Esmarch's bandage, commencing well above the discolored skin on the lower part of the leg. The bandage being unwound was secured by a tourniquet above the knee. The site of the operation was selected nine and three-fourths inches below the lower border of the patella, so that the skin included in the flaps might be entirely normal as regards its appearance. At a point of the limb where it was desirable to have the bone sawn, a hypodermic injection of 5 m. of a saturated solution of eucain hydrochlorid, freshly prepared with sterilized water was made. The limb was girded by a series of these injections about two inches apart. By the time these were made the superficial tissues were sufficiently anesthetized to permit of two or three injections being made into the deeper tissues of the calf, with no perceptible annoyance to the patient. In five minutes anesthesia seemed complete and the flaps were marked out and the operation proceeded with as usual.

An anterior cutaneous and large posterior flap was formed at about the junction of the lower and middle third. The shape of the wasted limb, and the absence of any necessity for the stump being afterward subjected to even the ordinary traction or pressure, mak-

ing it seem preferable to other forms of operation usual in ordinary cases.

Twice during the formation of the posterior flap, the patient complained of a smarting sensation following the use of the knife. The first time an injection of sterilized water removed the ground for complaint. The second time a little severer twinge from incision of that part of the flap lying next to the bone, showed that anesthesia of that portion was not yet complete. A free application was then made with sterilized, borated absorbent cotton wet in the solution of eucain, and in two minutes the operation was resumed on that part of the flap. No further discomfort was experienced by the patient at any time during the operation. The fibula was sawn shorter than the tibia and the sharp crest of the latter again sawn off, and plenty of time was taken to properly trim the large posterior flap. There was considerable oozing from the surfaces of the flaps after loosening the tourniquet, and it was a long operation on this account. Yet, forty-five minutes after the first incision was made, a test showed complete anesthesia of the skin covering the end of the stump. Soon after the operation was begun the patient's pulse rose to 90, which I should attribute to the effect of the whisky and the excitement of the occasion, rather than the eucain. The respirations were not noticeably quickened, and the pulse soon fell again to its usual rate as the operation proceeded.

The stump being properly dressed the patient was carried from the operating room to his ward and placed in bed He suffered from no depression in pulse or respiration, had no nausea or headache, and in an hour after the operation he was sitting up in bed eating a heartier meal than for some time past. There was no evening exacerbation of temperature, and after twenty-four hours the temperature was normal and it has since remained so. The pain in the stump after operation was at a minimum and perfect union was obtained. The stitches were removed and the stump examined at the expiration of nine days, and it was found entirely healed. During this time there was a remarkable improvement in the strength, appetite and general appearance of the patient, which has continued till the present time. The previous disease causing his confinement to bed or chair persists to nearly as great an extent as before, suffering exacerbations from nearly every change in temperature and humidity.

The metatarsal bones of the diseased foot to a great extent were enlarged, softened and of a dark red appearance internally. The whole of the tarsus was similiarly affected, the cells of the bones being filled with a reddish, serous, glairy fluid and with soft granulations of feeble vitality. The bones were everywhere so softened that after a thin layer or sequestrum was removed an ordinary probe penetrated the carious tissue with ease. The lower part of both tibia and fibula were in much the same condition. The intervening joints appeared intact, though the muscular planes and areolar connective tissue had diffused through them everywhere, sero-purulent and muco-purulent liquid. This purulent infiltration of the soft tissues extended to within an inch of the lower border of the posterior flap.

This operation shows conclusively that in those cases where previously existing pathologic conditions, or other causes render the administration of a general anesthetic dangerous or inadvisable, the use of eucain will enable us to perform a painless operation, free from all the dangers and annoyances attending the use of chloroform or ether during their administration, the performance of the operation, or the emergence from the anesthetic condition.

REVIEW OF THE OPERATIVE TECHNIQUE ADOPTED IN DETERMINING THE LOCATION OF INTESTINAL OBSTRUCTION, WITH THE SUGGESTION OF A SIMPLE AND SAFE METHOD.

BY ROBERT J. REED, M.D.
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In the surgery of intestinal obstruction, the steps of chief importance in the operative technique are the removal of the cause of the obstruction when located, and the repair, if necessary, of the wounded bowel. Final success, however, depends upon the general condition in which the patient is left at the end of the operation, as much as upon the condition of the liberated intestine. All the preliminary steps, therefore, should be so ordered as to avoid unnecessary sacrifice of time or the infliction of injury by mischievous bowel manipulation.

In addition to the remote danger of intestinal paresis and peritonitis, there is another more imminent. Shock is the prominent element of danger in the operative interference for relief of this condition. It is already present, usually in a marked degree, as a result of the injury the intestine has sustained, as well as from the depressing effects of the vomiting and pain to which the patient has been subjected. Whatever deepens the shock, be it a prolonged operation or extensive handling of the intestines, diminishes the probability of favorable reaction and the patient's recovery. Authorities make the statement, and truthfully, that the nature and location of the obstruction can not be known until an abdominal section has been made, but they permit the inference to be drawn that the situation of the stricture is then readily ascertained. One, under this impression, undertaking such an operation with limited experience, may meet with profound surprise. Locating the point of obstruction with the hand among the intestines is in a large proportion of cases a difficult and perplexing procedure.

The first step in the operation for the relief of intestinal obstruction involves an important question, the situation of the incision into the abdominal cavity. Should an induration or tumefaction be felt, the temptation is great and the decision apparently a rational one to make the section directly over that point. But in a majority of cases it will prove a mistake and result in disappointment and confusion. The local swelling which presents may be a loop of distended intestine, a section of rigid muscle or a fecal collection, and be situated at a distance from the seat of obstruction. The best selection is the median line below the umbilicus, save in very exceptional instances. Its advantages are many over any other position. The incision has less depth than in any other location, and therefore may be shorter. It is made with greater speed and less hemorrhage. Being in a central position, every portion of the cavity can be investigated with equal ease and dispatch. In case of gangrenous bowel and fecal escape the danger of infection is less than if planes of connective tissue are laid open, as is done when departing from the linea alba.

The one disadvantage of the median incision is made manifest should the obstruction be found in the large intestine. Because of its short mesenteric attachment, it may be impossible to bring the strictured portion into the wound, and consequently a second section to the side will be necessary. This consumes time and adds somewhat to the shock, but the chief objection is, that with the intestines tensely distended, as they frequently are in obstruction, the difficulty of preventing their protrusion with two openings through the abdominal wall is greatly increased. Consequently if there be exceptions to the rule of the median line incision, it should be in those cases in which the history is convincing and the symptoms presented corroborative of the diagnosis of involvement of the colon. The evidences of obstruction in the lower bowel are usually clear and easily differentiated from those presented in occlusion of the small intestine. If in addition to the history and symptoms, a tumor can be felt in the line of the ascending or descending colon, an incision in this location would be expedient and justifiable. In case a second section of the abdominal wall is for any reason necessary, it is a judicious procedure to carefully close by sutures the primary incision as soon as the stricture is located, not waiting, as is usual, to make it a final step in the operation. By this precaution one way for the escape of distended loops of intestine is closed and their exposure and handling avoided.

After the cavity has been entered the difficult work of the surgeon begins. It consists in promptly discovering the position of the obstruction without resorting to means which will increase the dangers from shock and peritonitis. If its exact location can not readily be ascertained, a measure frequently resorted to as a way out of the dilemma is evisceration. Only a limited experience is necessary to bring the conviction that this procedure should be strongly condemned. The intestines are withdrawn with ease, but returned with difficulty. They are greatly distended, even the collapsed portions will probably become so, the moment the stricture is relieved, or if above it, as soon as they are withdrawn. If a great extent of bowel has in this condition protruded, it is replaced through a section of usual length with great difficulty, requiring not only the hands of the operator, but those of an assistant as well, both laboring from every direction and exerting actual force in their efforts. Injury to the intestine must necessarily be inflicted. If careful handling of the bowels results in a degree of shock, as is frequently observed in abdominal surgery, how much greater must be the danger when the manipulations required involve positive roughness. In addition, the bowels are exposed to a variable temperature. The attempt is made to give them warmth and protection with hot towels; but these are always too hot or too cold. It is impossible to obtain through them a proper and uniform heat, but with this object in view there must be a constant changing and replacing of the cool with warmer towels. This variable temperature, together with the mechanical irritation from the towels, unquestionably encourages the development of peritonitis. Undoubtedly it should be the chief care of one assistant to prevent the protrusion of the viscera.

Securing the collapsed bowel and "following it up to the stricture" is considered an invaluable aid. This was announced as a new idea ten or more years ago by Mr. Hulke of England. It has been extensively adopted, and I have been unable to find any criticism of it. The suggestion is founded upon the theory that collapsed bowel is found only below the obstruction. This, however, is a fallacy. It is present not infrequently above, sufficiently often to make it an unsatisfactory guide. If this method is selected it may result in the handling of the entire small intestine as far as the duodenum before the mistake is discovered that the investigation is being made in the wrong direction. In a case which came under my observation the obstruction was in the sigmoid flexure and yet the greater portion of the small bowel was collapsed.

A rational solution of the problem presented in such a condition would seem to be that the bowel above the obstruction being greatly distended, the muscular coat becomes paralyzed for a considerable distance, until a point is reached where the muscular tone of the intestinal wall is unimpaired and consequently less distended. This disparity in the lumen and tone of the intestine encourages the formation of an angle, and as the meteorism increases and the abdominal tension becomes great, the angle is made more acute, and the healthy segment is flattened out by the pressure from the distended loops sufficient to occlude it. On the other hand, the vomiting becomes severe and persistent, peristalsis is reversed, the intestine is gradually emptied and consequently collapses. This condition probably occurs only in the small bowel, the short mesenteric attachment of the colon preventing its developing such a complication. This explanation of the formation of the kink in the intestine and its collapse may be fallacious, but the fact remains that collapsed bowel is found at times above the obstructed point as well as below, and therefore, is not a reliable guide, as it is impossible to know in which direction to follow it. And this statement holds true, although less mischief will be done when tracing collapsed bowel below the stricture. One is unable to decide until a large extent of intestine has been handled, whether the search is being made toward the point of obstruction or away from it.

In the effort to locate the stricture the sense of touch must be largely utilized. It is also important that a definite plan of investigation be fixed in the mind of the operator. An order of procedure, which will prove expeditious is, with the entire hand in the cavity, to first explore the left inguinal region, excluding the possibility of obstruction at the hernial orifices upon that side. With the hand in this location it is an easy matter to examine into the condition of the sigmoid flexure. If it is found in a state of distension the inference may at once be drawn that the obstruction is below. If collapsed, it is above. The next step should be the exploration of the right inguinal region, the hernial orifices upon that side, and the cecum. Should it be found distended, the conclusion must be that the obstruction is the colon. With this much known it is not a difficult matter to locate it definitely by either following down the distended colon or returning to the left side and tracing up the collapsed portion. If the cecum is collapsed the difficulty is above in the lesser bowel. It is at this time that a selection must be made of the method by which some eighteen feet of intestine are to be examined.

A less difficult and much safer method than those which have been named, evisceration or following collapsed bowel, is one dependent upon what may properly be termed the *color guide*. I am not aware that

attention has been called to it, but in my experience it has proven a helpful and practicable idea.

At the seat of strangulation, circulatory changes begin at once, which will soon be manifested in the serous coat, to the eye; a congestion which deepens and extends further along the distended bowel the longer its exciting cause continues. Should it be some hours, not inches, but feet of the bowel will exhibit a highly colored, injected appearance, which fades from a scarlet at the point of stricture into a pink, and finally is lost in the normal white or gray color. The suggestion is, cautiously bring one loop after another of distended intestine into view at the bottom of the abdominal incision, being directed by the sense of touch to those loops tensely distended, as they are nearest the stricture. By carefully noting their appearance a clew will shortly be found in a loop of congested bowel, and by tracing along in the direction in which the color is deepening the obstruction will be located.

73 Twelfth Street.

HARE LIP, A CASE IN PRACTICE.

Presented to the Section on Stomatology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

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CHICAGO, ILL.

The patient, a lady 22 years old, had suffered from birth with double hare lip, also cleft of both hard and soft palate, which was very large, but nature had largely overcome this latter defect by hypertrophy of



Figure 1.

the inferior turbinated bodies, and, in consequence, the voice, though not good, was much better than many with a very slight opening in the hard palate or bifurcation of the velum. But the deformity of the lip did not improve. The patient was well developed, strong and healthy. She had always lived in the country. Owing to her mother's opposition to surgery the lip was not operated on. The lady was of a healthy and well-developed family. She came to Chicago and I was consulted and an appointment made for July 28, 1896, at which time Figs. 1 and 2 were taken, after which I made a careful examination and found that five anterior teeth were very irregular



Figure 2.



Figure 3.

and badly decayed, the two centrals being movable on account of the loose intermaxillary bones; the cuspids were irregular, but sound. I also took a sectional impression of the upper part of mouth. I then used local applications of 10 per cent. aqueous solution of cocain and removed seven teeth, one of which

was a supernumerary. As soon as the gums were healed a rubber plate with six anterior teeth and soft rubber velum was inserted, and on September 15 we operated on the lip. The operation was performed under ether. We first removed the mucous membrane, with considerable tissue, from the central teat-like projection. We then passed a lancet through the lip of each side, and cut upward and toward the median line to the extreme upper angle of the cleft. Adhesions of the lip and gum were also freely separated by the use of the knife; then turning the flaps down (the assistant pressing the cheeks well forward), the surfaces of the flaps were brought together. Three deep catgut stitches were taken in the under side of the lip. The margin of the wound was then neatly placed in position and secured by a few fine stitches. Cohesive strips of English moleskin were placed on each cheek, which were allowed to extend to the corners of the mouth and turned under, so as to leave free the anterior ends, which had holes punched for lacing. The surgical dressing was powdered iodoform, covered with 10 per cent. iodoform gauze. The cohesive strips were then laced tightly, so as to bring the cheeks well forward and relieve all tension on the stitches. Dobell's solution was used as a mouth-wash. The lacing was removed and the wound examined each day for a week. The fine stitches were removed the third and deep stitches the sixth day. We had union by first intention. The patient was dismissed October 12, upon which date the photograph Fig. 3 was taken.

TREATMENT OF CARBUNCLE.

BY JOHN PHILLIPS, M.D.
STEVENS POINT, WIS.

The JOURNAL of Dec. 12, 1896, p. 1226, contained an article by W. E. Shaw, M.D., of Cincinnati, on the "Conservative Treatment for Carbuncle." My own observations have been so entirely different from the teachings of this article that I am constrained to make a most decided protest against this plan of no treatment, or next to none, of this most formidable disease.

It was the fortune of the writer, in the autumn of 1865, to suffer from a large and most painful carbuncle, located centrally on the back, overlapping both scapulæ, which was aggravated by attending to professional duties for a week after the disease had made its appearance, not only at home but during the same time making three trips in a buggy a distance of twenty-two miles, returning home in the evening much chilled. By this time I was obliged to go to bed and remain there for the next four weeks, bearing with reasonable fortitude the pain which one writer speaks of as horrible. Gross says: "The pain is throbbing and exceedingly violent, the part feeling as if in contact with melted lead." One who had had personal experience, compared the pain to that of a "large claw, with a hundred talons, grasped into the swollen, inflamed and now exquisitely painful parts, and slowly but constantly tightening its grasp, for days, for weeks, till the last vestige of life is tortured out of the diseased structures." These descriptions of the pain, which may at times be modified in persons and in location, are as nearly correct as any that can be given. Finally recovering, it was with a fixed determination that no patient of mine should suffer as I had with a carbuncle. I realized that it was a formidable disease and that little benefit resulted from the measures then being used and believed one would be justified in using more heroic measures in treatment.

In March, 1867, I attended Judge B., 65 years of age, of powerful frame and iron constitution, but considerably broken by hardships and exposures. I found him suffering intensely with a carbuncle of the upper lip. His lip, face, nose and forehead were much swollen. One eye was entirely closed, the other nearly so. A full dose of opium was given at once and pieces of caustic potash were put in two of the three openings in the lip. The potash was pressed well below the surface and the bloody exudation was from time to time carefully wiped away, much care being taken to protect the external surface. The potash was allowed to remain for about twenty minutes, then the wound was well washed out with weakened vinegar, dressed with a warm poultice well wet with tincture of opium, another anodyne was given and the patient dismissed for the night. The next morning all was changed. Nearly all swelling of the lip as well as of the other parts was gone. In reply to my inquiry as to his condition, he said, seizing his lip, "It got well last night; it is a little sore when I pinch it, but it has not given me a bit of pain since an hour after you left me." It did not give him further pain. With dressings of mild cerate it soon healed, leaving but a slight cicatrix.

About two years later I attended the same patient and again found him suffering with a carbuncle, a little above and back of the right hip, but as yet showing no openings. His health was more broken than formerly, having suffered many weeks with sciatica. Dreading the knife, the potash was applied direct to the carbuncle. A plaster of cerate was liberally covered with the caustic and applied, the carbuncle having been first covered with soft leather (buckskin) through which an opening had been made three-fourths of an inch in diameter. The caustic was allowed to remain about forty-five minutes, to make sure of its reaching the deeper diseased structures. The local after-treatment was about the same as at the former time and the results similar. There was no pain except for a short time after the burning. A change, in a few hours, from torture to a quiet and restful condition.

A few months later I attended Barney D., 45 years of age, much broken in health by exposure and stimulants, who was suffering from a large carbuncle on the back of his neck. The parts were greatly swollen, indurated and exceedingly painful. Anodynes, stimulants and tonics were administered and the caustic[1] liberally applied, pressing it deep into three of the four openings already existing. This was done notwithstanding the seeming certainty of approaching dissolution. The local after-treatment was similar to that in former cases and the result quite as favorable. The use of the potash was followed by a restful sleep and the same calm hopeful condition.

The next case was that of Mr. C., who was suffering with a large carbuncle just above and a little to the left, but encroaching on the umbilicus. The swelling was large, indurated and exceedingly painful. First making a free incision, the caustic was pressed

[1] I usually put a piece of stick caustic about one-sixth to one-fourth of an inch in length in each opening. In the first case only half this quantity was used.

well into three places, one-half inch apart, and allowed to remain about twenty-five minutes, in the meantime carefully wiping away the bloody exudation. The wound was then washed out with weakened vinegar, as in other cases. Poultices were next applied and changed once an hour for a few hours, while the discharge was profuse. Then the cerate dressing was used and the wound soon healed. In two hours the condition of this man was changed from that of torture with great depression to one of calm quiet.

It is thirty years since commencing the treatment of carbuncle by the caustic method and while the number of cases has only been about twenty, and half that number brought to my knowledge by physicians to whom I had recommended this treatment, the results have been so uniformly satisfactory, that I have not cared to try injections or excision. It must, however, be remembered that the remedy is a heroic one with which harm may be done if not used with care.

Dr. Marks of Milwaukee has recently treated a carbuncle successfully by the caustic method. He, however, used the nitrate of silver instead of the potash, and in this case with equal benefit. Now if the caustic silver will uniformly or generally destroy the carbuncle it will be more desirable than the stronger caustic, as the destruction of the soft parts will be much less and little or no care will be required to prevent the destruction of the integument. My own impression had been that the milder caustic would limit its own action and fail to permeate and destroy all of the diseased structure. But the success in this case will warrant the further trial of the silver.

At the close of a heated term in August, 1896, a cold blast from the north came in the night, and awakening in the morning I found myself shivering with cold. Within a day or two a small tubercle was discovered on the back of the neck and I had not long to wait to know that it was a carbuncle. The sulphid of calcium was taken (ten to twelve 0.03 gram pills daily) till the system was saturated, seemingly with no effect on the disease, as within a very few days the swelling extended quite across the neck, a little onto the back, and well up onto the scalp. I now had Dr. R. use the knife and potash on the carbuncle. Three days later two incisions were made, followed with the potash; two days later two incisions and more potash; two days later another incision and potash; two days after this two incisions and potash. The last time positive orders were given to continue the use of the potash till the last vestige of the diseased structure had been destroyed. The night previous had been passed as in a nightmare. I was enabled to get through the night only by the vigorous use of artificial heat, stimulants, hot broths, trinitrin, strychnin and quinin. This last burning was followed by a restful sleep.[2] As a result of the many burnings an open sore was left, five by two and one-half inches in extent and deep enough to convince the surgeon who follows the excision method of treatment that in this case a remedy even more heroic than the knife had been used. Within three weeks my weight had been reduced from 162 to 129 pounds and my strength so lessened that I could go from one bed to another only by the aid of an assistant. A good recovery was made, though the healing of the wound was protracted till the beginning of December.

It may be asked, why this tardiness of the potash in doing its work? It was used timidly (against the advice of others), too sparingly, too near the surface, destroying the integument but failing to fully reach the deeper diseased structures. Another element, entering into the cause of the obstinacy of the disease, may have been the condition of the urine, which was found, about the time of the last burning, to be loaded with sugar. All cases save one, treated by myself with the potash, and all cases coming to my knowledge, treated by other physicians with this remedy have made good and rapid recoveries. The one exception was the case of a Polish woman, 50 years of age, with bad surroundings.

She was treated in August, 1895, for a large and greatly indurated carbuncle, the induration occupying all of the back of the neck. Following a free incision the potash was liberally applied at three points in the incision, but the benefit proved but temporary, the pain returning in force in the evening, and the woman died the second morning before making my second visit. This case, as well as my own, shows the necessity of an early repetition when the first burning proves insufficient. Chloroform may be used during the cutting and burning, at the same time giving trinitrin, strichnin and codein. Quinin, iron, strychnin, arsenic and sulphid of calcium are some of the drugs that may be given with benefit following the local treatment.

As to the choice between the radical and the conservative methods of treatment of this formidable disease, it would seem there should be no hesitancy. In the use of the potash there is, or may be, considerable destruction of the soft parts, but the disease itself, the horrible pain and the danger to life from septicemia, or from the grip of the disease on all of the life powers, is eradicated. Only an ulcer, tender but painless, is left, which soon heals, giving little trouble after the burning. With the conservative treatment the destruction of the soft parts is nearly, if not quite, as great as when the caustic is used, and the ulcerative process continues for weeks attended with horrible pain. Add to this the very considerable percentage of deaths occurring under the conservative treatment, and I feel assured that the surgeon or the patient who has tried the more radical treatment will consider no other.

[2] It is noteworthy that after each burning, as the pain caused by the potash subsided, there was a restful period for an hour or two, with a feeling as if about to get well. But in a few hours the pain would be back with the same tightening grasp, but after the second burning not with quite the original force.

TREATMENT OF HEMORRHAGE FROM THE GENITALS IN OBSTETRIC PRACTICE.

Read before the Wayne County Medical Society, at Belleville, Mich., Oct. 14, 1897.

BY GUSTAVUS M. BLECH, M.D.
CHICAGO, ILL.

Pathologic hemorrhage means danger to the life of the patient. Hemorrhage in obstetric practice, particularly during and after parturition, occurs with sufficient frequency to warrant the practitioner to be prepared for it whenever called to a case of labor. Hemorrhage even of a threatening character may also occur at any time during pregnancy.

Hemorrhage, like all other emergency cases, calls for prompt action on the part of the physician. There is no time to look up the subject in text books or even to consult a more experienced practitioner, hence everyone is expected to be thoroughly familiar with the pathology and therapy of all emergencies of whatever character. However, in spite of the most rational

aid rendered, life can not always be saved, but if the surgeon does not lose his presence of mind, diagnoses the case properly, has all the necessary apparatus at hand, and above all operates aseptically he can conscientiously say that the patient succumbed in spite of treatment.

Presence of mind will do much. In the first case of postpartum hemorrhage to which I was called I found the attending accoucheur, a young and irregular physician, in a state of mental disturbance. I arrived after the hemorrhage had stopped spontaneously. As I was met by the woman's husband on the street, I had nothing but a hypodermic syringe with me. As soon as I arrived I removed the placenta, lying partially in the vagina, partially in the cervix, and commenced heroic stimulation, auto-transfusion, etc., but in spite of all the woman expired in a few minutes. During that time the "attending" physician was helpless, unable to render me the least assistance. He had in his satchel nothing but a few bottles, a pair of scissors, and an ounce of cotton. Had this woman received prompt and rational aid I am confident she would be alive today. On the other hand, Dr. Steinbrecher related a similar case in which Credé's manipulations failed to cause contractions of the uterus quick enough to stop the hemorrhage. Noticing a large piece of ice in a pitcher of water the doctor pushed the ice into the uterus and the woman owes him her life, and a bill.

I have divided my essay into two parts, viz.: hemorrhages during pregnancy and in those met postpartum.

HEMORRHAGES DURING PREGNANCY.

They may come from either the vulva, vagina or uterus. The vulva may bleed from lacerations or injuries of a traumatic character, the vagina from ulcerration or decubitus caused by ill-fitting pessaries, which forms of hemorrhage have nothing to do with pregnancy, hence will not be further considered.

Hemorrhages not infrequently coming from varices, usually in the neighborhood of the labia majora or minora or around the clitoris are very serious indeed. The rupture of a varicose vein may under some circumstances lead to death in a few minutes, but usually in one or two hours. The diagnosis is easy. On careful examination the torn varicose vessel will be found and recognized.

If the hemorrhage does not come from the vulva, the entire vagina and the vaginal portion of the cervix should be examined next, for not infrequently, carcinoma complicated as it is by pregnancy leads to grave hemorrhages. Undoubtedly pregnancy, on account of the general hyperemic condition of the genito-reproductive apparatus, influences the neoplasm, making it hyperemic and softer, thus inducing ulceration and decomposition. In such cases, the diagnosis from a prognostic as well as therapeutic point of view is important, for delay in rendering radical aid may mean a loss to the mother which can not be restored. In progressed cases of carcinoma of the vagina or vaginal portion of the uterus the trained finger and eye of the examiner will prove sufficient to recognize the true character of the growth by touch and macroscopic inspection. In incipient or otherwise doubtful cases the microscope will settle all doubts. In this connection I may also mention myomata as apt to cause hemorrhage in obstetric practice. They are however but rarely met with. Personally I have no experience with them in that direction, having seen them only in gynecologic practice as an obstacle to conception. Hemorrhages coming from the uterus, even in the first few months of pregnancy are of greater importance. In most instances, they mean abortion or conditions which may require the induction of abortion or artificial labor. The diagnosis of threatening abortion offers hardly any difficulties. The history of the case, perhaps the existence of certain constitutional troubles, previous abortions and the presence of periodical pain, will help us to explain the nature of the hemorrhage. By means of an exploration of the uterus through the cervix (if this be possible) as well as by inspection of the expelled blood clots, ovum and secundines we may determine whether or not abortion has already taken place. This is the most important question to be answered, as without this, scientific treatment can not be instituted.

Of grave importance to the mother as well as to the child are hemorrhages due to either lateral or central, complete or incomplete placenta previa. The situation is still more serious when hemorrhages occur from a separation of the normally situated placenta. It is nearly always fatal to the fetus. The diagnosis of this condition is not always easy, especially when the blood does not escape per vaginam, but collects in the uterine cavity. However, the existing pains without contraction of the uterus, while the latter becomes abnormally large, finally symptoms of collapse as observed in cases of exsanguination, will hardly leave us in doubt as to the nature of the trouble.

These are the most important forms of hemorrhage from the genito-reproductive apparatus occuring during pregnancy.

POSTPARTUM HEMORRHAGE.

I shall never forget my first case of forceps delivery. I administered chloroform, applied forceps and delivered a semi-asphyxiated boy and resuscitated him by artificial respiration. As soon as the first cry was heard, husband and friends came in hastily, but stood quietly with the same sorrowful looks on their countenances. I asked them whether they were not satisfied, and received this answer: "We never congratulate the parturient until the mother cake is removed." I removed the placenta after ten minutes waiting. I have learned a lesson since then and, like the Jews, look upon that "mother cake" with much respect, for if it does not come quick enough and we help it along a little, postpartum hemorrhage and sepsis frequently result. This plainly teaches us to leave the placenta alone. Let the uterus expel it into the vagina, and if you give it time enough, it will do so more or less faithfully in every instance.

Lacerations which occurred during delivery may give rise to considerable hemorrhage. Under this heading we may mention rupture of the uterus, terminating fatally only too often. If these be not the cause of a postpartum hemorrhage then it is due to inefficient contractions of the uterus-atony. There are many causes for such a condition, but I shall mention only one, an overfilled bladder. In all cases of postpartum hemorrhage due to uterine atony this should be considered and the bladder catheterized.

The most reliable way to make a correct diagnosis of post partum hemorrhage is by means of a physical examination. This is in all instances to be preferred to a diagnosis made by deduction from a number of symptoms, but before making an exploration of vulva,

vagina or uterus, let us remember that while these organs are aseptic in a healthy pregnant woman they are no more so after delivery, but on the contrary in a condition particularly disposed to infection. Therefore, thorough asepsis is *conditio sine qua non* whenever we have to bring finger, hand or instrument in contact with the genitals.

Care should be taken in the attempt to disinfect the genitals. If you throw in solutions of boric acid or, as I have seen a young physician do, a teaspoonful of listerin in several pints of water, you may just as well use plain warm water, it is just as effective. Weak solutions of bichlorid of mercury and carbolic acid will not render the parts aseptic; stronger solutions will cause intoxication by absorption. I rely solely upon hydrozone which is as bland as water, non-toxic and yet kills the ordinary pathogenic micro-organisms in a few seconds by oxidation. In this I am sustained by the leading surgeons in this country. In Europe the value of H_2O_2 has not yet been appreciated as much as here, which is probably due to the fact that every druggist prepares the official solution in his little laboratory room, though in reality it requires unusual skill and extensive machinery to make an efficient solution.

A ruptured varicose vessel is best treated by compression with a piece of plain aseptic gauze. In many instances this procedure, if continued for a while will prove sufficient to arrest the hemorrhage. If it does not then we will have to treat it operatively. Hematomata, if any exist, should be excised, that is, the sac should be opened and emptied. Ordinary suturing of the vessel will not suffice, as every insertion of the needle causes a certain amount of bleeding and therefore deep sutures, inserted vertically to the varix, are required to stop the hemorrhage.

The first step in arresting a hemorrhage from carcinoma is to tampon the vagina, cervix or uterus. With the temporary arrest of the hemorrhage however, our work is not completed. Carcinoma in pregnancy is so rapidly fatal that radical measures have to be taken to save the life of the woman. Where the vagina is but little involved excision or curettage may suffice. In the latter stages of pregnancy, when we have reason to believe that the child is capable of life, artificial labor should be induced before performing hysterectomy. Whether we should operate per vaginam or make laparotomy depends entirely on a variety of circumstances with which every surgeon is familiar and which vary in every case. I have nothing new to suggest in the treatment of threatened or completed abortion, the management of which is clearly outlined in every standard text-book.

In hemorrhages due to placenta previa rest and opiates are to be first tried. But not too much time should be spent with either. If they prove inefficient we must proceed to tampon the vagina, which will promptly arrest the hemorrhage. By this means as well as by the loss of blood artificial labor is frequently induced. With the commencement of labor more placenta is detached and the opened uterine vessels, unable to contract, bleed more profusely. Naturally, with the rupture of the bag of waters and speedy delivery of the fetus all would be well, but unfortunately, this does not always occur. Braxton-Hicks' version in malpositions of the fetus is the remedy *par excellence* but should never be practiced unless there be sufficient dilatation of the os, because otherwise we are apt to lacerate it. The renewed hemorrhage which such a laceration causes might prove fatal to the already exhausted woman. To cause sufficient dilatation of the os, I know of no better means than the introduction into the uterus of a previously sterilized colpeurynter after rupturing the bag of waters. When the filled colpeurynter is expelled into the vagina the dilatation obtained is sufficient to permit of the execution of Braxton-Hicks' version safely. As long as the colpeurynter lies in the uterus it acts also indirectly as a hemostatic by pressing the placenta against the uterine wall.

Immediate delivery is the only rational treatment of premature detachment of the normally situated placenta. The uterus only should be dilated by colpeurysis or other mechanical means, hot douches administered to excite pains, then rupture of the bag of waters takes place and either instrumental or spontaneous delivery follows. No time should be lost if we want to save the life of the mother—the life of the child can not be considered. If for any reason delivery can not be accomplished, Cæsarean section may be strongly considered and executed.

Perineal, vaginal or cervical lacerations producing more or less severe hemorrhages, must be immediately repaired by suturing, taking care to coapt the wound surfaces properly.

If pathologic hemorrhage is not due to lacerations then atony of the uterus is the cause. Insufficient contraction of the uterus may be due to over-exertion of the muscle after prolonged and hard labor or unusua pressure, frequently also to a full bladder. We should, therefore first catheterize the bladder and then attemp to cause contractions by systematic friction of the fundus with the full hand. If we succeed in causing contraction and the hemorrhage still exists, Credé's expression of the placenta should be practiced. Failing in this we may inject strychnin, administer a vaginal douche and try friction and expression; again failing in this the placenta should be removed manually, under due antiseptic precautions. The introduction of the hand into the uterus will often excite strong contractions. But in spite of the manual removal of the placenta, contractions may fail to appear, causing dangerous hemorrhage. This also happens after spontaneous expulsion of the placenta. In such cases ergot is indicated; 3.7 or 7.4 c.c. of a reliable fluid extract, preferably of the non-irritant preparation ergotole, should be injected hypodermically, followed by hot intra-uterine irrigation. Failing with these methods, there remains but one thing to be done—tamponing of the uterine cavity with aseptic gauze, which may also be first soaked in a chlorid of iron or, better still, peroxid of hydrogen solution.

Rupture of the uterus means laparotomy or death.

I can not conclude my paper without a few words in regard to the treatment of the acute anemia which obstetric hemorrhages usually cause. We have arrested the hemorrhage but our duty does not cease there, for the acute anemia may prove fatal. Besides the usual stimulants such as strychnin, nitroglycerin, amyl nitrite, camphorated ether, strong coffee, alcohol and milk, heat should be applied all over the body, while the patient lies with the head low and the body and lower extremities high. Auto-transfusion by means of an elastic bandage around legs is to be rejected on account of the possibility of embolism from old varices. Direct transfusion is desirable, though a complicated procedure not easily carried out in every instance. But no woman should be allowed

to die without the intravenous or at least intracellular injection of normal saline solution. The injection in a vein is better but requires skill. Every physician working aseptically can, however, thrust a needle emptied of air into the subclavicular region. A pint can be injected in this way every fifteen minutes and no harm will result. Although the lost red blood corpuscles can not be replaced by the saline solution, the value is apparent in many other directions, and as it is a very simple procedure it should be practiced in every case of hemorrhage, obstetric, surgical or otherwise. The normal salt solution I employ is a sterilized 0.6 per cent. solution of sodium chlorid (c. p.). I keep several pints on hand. When needed the bottle is placed in hot water until the solution reaches a temperature of about 102 degrees.

When injecting in the subclavicular region a tumor is soon formed, which can be caused to be absorbed by gentle massage.

A CLINICAL STUDY IN PELVIC MASSAGE.

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The purpose and scope of this paper is not to discuss the merits or demerits of pelvic massage. This is a matter which will necessarily follow the adoption of any new treatment, and especially one that is in any way open to objection. At the very threshold of this subject it is easy to anticipate the objections which are likely to be raised relative to the handling of organs and tissues which are the local seat of sexuality and passion. Yet that liberality which characterizes the true physician and surgeon will always seek to find the level by which any new treatment can be taken.

Therefore, it is not for any one to emphasize or declare the status of a treatment which must be judged entirely upon those results which accrue from its practical application. Accordingly, this paper will not only deal with the positive but with the negative results, the basis of which is the record of some fifty cases covering a period of almost one year.

This particular study of pelvic massage was at the suggestion of Dr. Charles B. Penrose, who proposed a trial of this treatment in the out-door department of the Gynecean Hospital. A graduate nurse was secured who had given her time to the study of this particular massage, under the tutorship of a pupil direct from Brandt of Sweden.

Twenty of these cases were undeveloped infantile conditions of the pelvic organs, especially of the uterus, with those symptoms which characterize more or less such a condition; scanty and painful menses, often irregular and mostly attended by those nervous reflex manifestations which make these cases among the saddest and most unsatisfactory that can be met with.

Case 1.—Miss D., aged 24 years; puberty at 16; menses very scanty, lasting only a few hours, attended with severe central abdominal pain, also intense low down backache. Flushes of heat, headache, more or less mental depression and constant worry; bowels constipated. This embraces the history since puberty with the exception that her menses, which are less frequent, are attended with more pain. Examination revealed a small infantile uterus. It was impossible to palpate the ovaries; otherwise negative.

Pelvic massage was advised and the first treatment given September 19, lasting fifteen minutes. A treatment again on September 22, 24, 26, 28, October 1, 3 and 6, period coming on the next day, October 7, lasting two full days, then stopped. Treatment was resumed October 11, when she again commenced to flow and continued for twenty-four hours. She had more flow and much less pain than ever before during any single period. Second period came on November 4, lasting until November 6, and returned November 9, lasting twenty-four hours. She had more flow and it was a better color. Third period December 2, lasting until December 3, returned on December 6, lasting two days, attended with less pain and more flow than at any other past menstruation. Fourth period January 1, lasting for three days with no pain, more flow and lasted longer than any period heretofore. During these months the treatments were continued every third day. An examination in January showed the uterus to be larger in every direction and more fully developed.

These treatments were omitted in January, a request made to the patient to call once a month; this she failed to do and I did not see her until the first of May, when she was again examined and everything found satisfactory. The history since has been normal as to time, lasting three days with no pain worth speaking of.

Case 2.—Mrs. B., aged 35 years; puberty at 15; scanty, painful menstruation; married three years, sterile. Examination showed small undeveloped uterus, ovaries not palpated; pelvic massage advised. First treatment September 22 for fifteen minutes; September 24, 26, 28, 30, October 2, 6 and 9, menses appearing on this day, scanty, less pain and lasting five days. Second menses November 12; had pain and cramps; dark-colored clots and very offensive. Third period December 14, lasting five full days; free flow and no pain or discomfort.

These treatments were continued every third day in this case.

At the expiration of four months an examination showed a marked improvement and a better development of the uterus in every direction. This patient in March was free from all symptoms.

The third case illustrates that principle which has no exception, that certain lines of treatment may cure some cases and not others.

Case 3.—Annie W., aged 18 years; puberty at 17; always had irregular, painful, scanty menstruation. Examination showed infantile condition of the uterus; ovaries not palpable. After seven treatments the menses appeared with severe cramp-like pains. Second period did not appear for two months; she had more flow than at previous menstruation, the pain being a trifle less. The treatments in the meantime were continued every third day. After six months there was little change so far as her symptoms were concerned. Upon examination there was a decided improvement in the development of her uterus.

These three will give in a general way the results so far as the twenty individual cases are concerned, and so far as this particular condition is present, probably two out of three are much improved; the other third, so far as their symptoms, no better. In all these cases, after two or three months treatment there was improvement in the local condition or development.

The next series of cases embraces five patients on whom celiotomy was done, four of these for removal of the appendages, one a hysterectomy; all of these returned with severe pain in lower abdomen. The cases in which the appendages were removed referred their pains largely to the ovarian region, either one or both sides. Several of these were known as our regulars, having been coming almost every three or four days for a year; no doubt feeling as many of these patients do, that they are the wards of the hospital in which they have been operated on.

The history of several of these cases is as follows:

Mrs. H., removal of both ovaries for tubo-ovarian abscesses, one year previous. Pain in both ovarian regions, especially on the right side. Both stumps were found to be tender, so much so that she would cry out with pain upon the slightest pressure over this region. Having exhausted all resources, both local and otherwise, pelvic massage of twenty minutes séance every third day was advised. The patient was much better after the fourth treatment, and after a dozen treatments all tenderness and soreness had disappeared.

Mrs. W., the hysterectomy case, was operated on eighteen months ago for commencing malignant disease of the fundus and had been a frequent visitor at the dispensary, complaining of severe pain and soreness all over lower abdomen. Examination revealed tenderness and soreness throughout the pelvis,

otherwise everything normal. Physiologic senile changes were apparent. As a last resort pelvic massage was advised and at this date she has only had six treatments. The tenderness and soreness is slowly but surely disappearing.

The other three patients, like so many dispensary cases, drop out if they feel a little better. Neither of these had over three or four treatments and we know little as to the result so far as they are concerned; one of them reported and said she was well.

Another interesting case in this group was Mrs. R., aged 27 years, married three years, sterile, complaining of severe pain on sexual connection, so much so that she has become melancholy and unhappy because of her inability to discharge the marital relations satisfactorily to herself or husband. The uterus was found sharply anteflexed, with great tenderness over the uterosacral ligaments; otherwise negative. This patient gave a history of having had a dilatation of the cervix, pessaries and all sorts of treatment. Pelvic massage was advised as a last resort and as an experiment. After a dozen treatments of twenty minutes duration every third day this patient reported for examination, when all tenderness had disappeared and the marital relations were most satisfactory.

In a summary of the results obtained thus far from pelvic massage at the Gynecean Hospital, there can be no hesitancy in stating that in selected cases of undeveloped infantile conditions of the pelvic organs it deserves first consideration. There may be cases of this class in which, from a moral standpoint, it would be better not to advise it; but to condemn a treatment which offers prospective good simply because there is an occasional one whose perversity or frowardness would be against its use is, to say the least, contrary to that liberality of medical men who have always accepted those truths which are founded on practical results.

In tender stumps, after removal of the appendages, and indeed after all surgical measures for inflammatory or chronic pelvic disease, where there remains a certain tenderness with or without adhesions, provided sufficient time has elapsed to overcome these conditions, which would contraindicate massage anywhere, it offers a promising field.

In old exudates, the result of pelvic cellulitis, etc., it is worth a trial. In one instance, good results were obtained where all other measures failed. In anteflexion with tender uterosacral ligaments, or in any general pelvic tenderness without inflammatory pathologic conditions and associated, as many of these cases are, with painful coitus, pelvic massage offers the most promising results, as three of these cases have verified.

In the cicatricial tenderness which sometimes follows plastic operations, it acted very satisfactorily in one case.

In simple uncomplicated endometritis it only increased the leucorrhea and appeared to do more harm than good.

In subinvolution complicated, as these cases mostly are, by endometritis, it increased the discharge, aggravating the endometrial condition, which continued the subinvolution.

In retroversion, with or without adhesions, it gave negative results; and in one instance where there were firm adhesions, uterus fixed, it greatly increased the lumbosacral pains as well as other reflex symptoms.

In fibroid conditions it stimulated them to more rapid growth, and increased the menstrual and intramenstrual discharge.

In tubo-ovarian disease, chronic or inflammatory, or any inflammation about the appendages, it is capable of doing much harm.

One important point noticed in most of these cases was that the massage increased intestinal peristalsis, and produced a regularity of the bowels which was unknown to most of these patients without large doses of cathartic medicines.

It is to be regretted that sufficient time has not elapsed to speak advisedly as to ther eliability of this treatment in sterility. But it is not too much to say that the satisfactory increase in the condition of the organs dependent upon pregnancy has been such as to give us encouragement in this unfortunate condition. One of these cases, in which sterility has existed and in whom there is marked improvement in the development of the uterus and regularity of the menses, has missed one menstrual period, associated with other signs of early pregnancy.

It has been noticed that, in a number of these cases, there was a concomitant condition of hemorrhoids, which were relieved in every instance. Whether this was due to the increased intestinal peristalsis producing a normal action of the bowels, or by stimulating these veins to greater activity, as well as the increased cellular changes taking place in the infiltrated connective tissue surrounding the rectal veins incident to the massage, is a question to be answered only in a further study of its value in this condition.

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FORMALDEHYDE AS A PRACTICAL DISINFECTANT.

Read before the Johnson County Medical Society, Sept. 8, 1897.

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The study of disinfectants and disinfection is of interest to all who are concerned in the preservation of public health. Recent years have afforded the means of placing this study upon more of a reliable and scientific basis. Frequent observation has noted the fact that although a certain disinfectant may be possessed of active germicidal properties in the laboratory, where it can generally be brought in direct contact with the microbe, it often fails signally when applied on a larger scale or for practical purposes.

Recently formaldehyde has been brought forward with considerable enthusiasm as a disinfecting agent, and the series of experiments embodied in this paper were directed toward determining to a certain extent its utility in this respect. In connection with a cursory review of the existing literature on the subject, an effort has been made to draw into comparison the several agents and substances heretofore used more prominently. Formaldehyde (formal, formalin) is the aldehyde of methylic or wood alcohol and appears on the market as an aqueous solution representing 40 per cent. of the gas. For some time it has been known to the biologist and the pathologist as a fixing, hardening and preservative agent of superior value. Since 1888 its germicidal properties have been recognized and of late have had extensive practical application. As a disinfectant it is used in three forms; aqueous solution, moist vapor and pure gaseous state. In the liquid form the standard 40 per cent. solution can be diluted to varying strengths and the dilutions as generally expressed refer to the commercial formaldehyde rather than to the pure gas itself.

To determine its germicidal properties a number of tests were made with the organisms bacillus anthracis (sporing) and staphylococcus pyogenes aureus. Addition of formaldehyde was made to bouillon tubes

in strengths of 1 to 3000, 1 to 2000, 1 to 800, 1 to 500, 1 to 200 and 1 to 100, inoculated from virulent cultures of above-named organisms showed no growth in any case, control cultures being made in every instance. Addition of formaldehyde to virulent bouillon cultures produced death of the organisms in ten and fifteen minutes, and subsequent sub-cultures showed no growth. It would seem from this that solutions of 1 to 200, 1 to 500 and 1 to 1000 would be appropriate for disinfecting surgical instruments. Scalpels left in these solutions as long as twenty-four hours showed no tarnish or apparent change in the cutting edge.

As a deodorant I have found solutions of 1 per cent. effective in removing all vestige of odors from putrefying meat. Dr. K. Walker[1] has sterilized and removed all odor from feces by a 10 per cent. solution in ten minutes. Disinfection by means of moist vapor, while highly effective in a small amount of space, has not been proportionately successful when applied to a larger area.

The vapor of formaldehyde is produced by saturating cotton or cloth with a 40 per cent. solution, placing it in a shallow dish and covering all with a bell jar; infected snbstances exposed to this vapor are sterilized in short time. The experiments of J. J. Kinyoun[2] show that cover slips spread with staphylococcus pyogenes aureus, bacillus diphtheriæ, bacillus typhosus and sporing bacillus anthracis were destroyed in ten minutes. In applying this method to large areas the difficulty of so arranging the evaporation as to reach all parts of the room and the rather slow diffusion of the moist vapor has retarded the adoption of this method on a more extensive scale.

Formaldehyde in the pure gaseous state has shown itself to be by far the more satisfactory agent for the disinfection of rooms and wards. The gas is produced in two ways: 1, by generation from wood alcohol; 2, by the heating of commercial formaldehyde in an autoclave or special boiler to three or four atmospheres pressure and then allowing the gas to escape. The first procedure being carried on by means of lamps or generators, of which there are a number of different kinds in use; the Tollens, Gambier and Krell type prevailing in Europe, while the Hollister and Moffatt generators are being extensively introduced by their respective makers in this country. Two sizes of the Hollister lamp are manufactured, being designated respectively as No. 1 and No. 2, the first having a capacity of one quart of wood alcohol, converting the same into formaldehyde gas in twenty-four hours, while the No. 2 generator holds four quarts and uses up the contents in twenty hours. To operate, the platinum decomposing gauze is heated to redness, after which it is placed in the dome opening where sufficient heat is generated by the decomposition of the mixture of methylic vapor and air as it comes in contact with the gauze, to maintain the incandescence, which is kept up until all the alcohol has been converted.

The first tests were made with the No. 1 generator in a room 12 by 13 by 14 feet, capacity 2184 cubic feet, in which were two windows and one door, with very little leakage.

Test objects.	Exposure, 16 hours.	Exposure, 24 hours.
Cover slips spread with B. anthracis Staphylococcus pyogenes aureus.. B. diphtheriæ B. of typhoid..	Growth in bouillon after 24 hours' incubation.	Growth after 48 hours' incubation.

Control cultures were made in each case to test the vitality of the organisms.

Test objects.	Exposure, 16 hours.	Exposure, 24 hours.
Gauze and cotton infected with pus from surgical kidney.	Growth after 24 hours' incubation.	Growth upon agar plates after 48 hrs. permitted separation of staphylococcus pyog. aureus and bacillus coli communis.

The last-named infected objects were placed in different parts of the room, one piece being suspended three feet above the lamps.

Disinfection was negative and the conclusion drawn that the space was too large for the size of the generator, so the next tests were made in a smaller room, having the dimensions of 7 by 8 by 10½ feet, or 588 cubic feet.

Test objects.	Exposure, 17 hours.	
	After 24 hours' incubation.	After 72 hours' incubation.
Cotton infected with Staphylococcus pyogenes aurcus..	No growth.	No growth.
Cover slips spread with Staphylococcus pyogenes aureus .	No growth.	No growth.
Bacillus anthracis (sporing) . . .	No growth.	Growth.
Bacillus of typhoid	No growth.	No growth.
Bacillus diphtheriæ	No growth.	No growth.
Bacillus mallei	No growth.	No growth.
Cover slips spread with Staphylococcus pyogenes aureus, Bacillus of typhoid, Bacillus diphtheriæ — wrapped in four layers of towel.	Growth.	Growth.

Agar plates inoculated with the following.	After exposure agar tubes were inoculated from the plates and with them placed in the incubator.	
	Exposure, 14 hours.	Exposure, 21 hours.
	72 hours' incubation.	72 hours' incubation.
Bac. anthracis. . .	No growth on plates.	No growth on plates.
	Growth on agar sub-culture tubes.	Growth on agar sub-culture tubes.
Bac. diphtheriæ .	No growth on plates.	No growth on plates.
	No growth on agar sub-culture.	No growth on agar sub-culture.
Staphylococcus pyogenes aureus	No growth on plates.	No growth.
	No growth on agar sub-culture.	No growth.

A second lamp, No. 1, was placed in the room and one test made while using two lamps, as follows:

Test objects.	Exposure, 15 hours.	Exposure, 21 hours.
	72 hours incubation.	72 hours' incubation.
Cover slips spread with B. anthracis,	Growth.	Growth.
B. diphtheriæ. . .	No growth.	No growth.

Disinfection was accomplished in all instances with the exception of the active sporing organism of anthrax and wherever any slight concealment of the test objects was made. The last series of tests with the No. 1 generator were made in a very small space in order to determine its utility for surgical sterilizing purposes. Ths sterilizing chamber used for the purpose was made from an old metal hot air sterilizer, the lamp being placed under it and the chimney passing through an opening cut out to fit the same. Dimensions of the sterilizer, 13 by 17 by 12 inches.

Test objects.	Exposure 10 min.	Exposure 15 min.	Exposure 20 min.	Exposure 30 min.
Gauze soaked in bouillon culture of				
Staphylococcus pyog. aur.	Growth.	No growth.	No growth.	No growth.
Bacillus of typhoid	Growth.	.....	No growth.	No growth.
Bacillus diphtheriæ	Growth.	.....	No growth.	No growth.
Bacillus anthracis	Growth.	.....	Growth.	Growth.
Staphylococcus pyog. aureus (wrapp'd in four lay'rs of apron.)	.....	.....	.....	Growth.
B. of typhoid (wrapp'd in four lay'rs of apron.)	.....	.....	.....	Growth.
B. diphtheriæ (wrapp'd in four lay'rs of apron.)	.....	.....	.....	No growth.
Ligatures soaked in bouillon culture of				
Staphylococcus pyog. aur.	.....	Growth.	.....	No growth.
Bacillus diphtheriæ	.....	Growth.	.....	No growth.
Covers spread with				
Staphylococcus pyog. aur.	Growth.	Growth.	.....	No growth.
Bacillus diphtheriæ	Growth.	No growth.	.....	No growth.
Bacillus mallei	Growth.	Growth.	.....	No growth.
Bacillus anthracis	Growth.	Growth.	.....	Growth.

In the last-named tests the same difficulty seems to present itself of the lack of penetration of the gas, which is such an important requisite in surgical sterilization.

For further experiments in room disinfection the No. 2 generator was applied. Room 12 by 13½ by 14 feet; 2184 cubic feet.

Test objects.		Exposure, 20 hours.
Covers spread with		
Bacillus of typhoid		No growth.
Bacillus diphtheriæ		No growth.
Staphylococcus pyog. aur.	concealed by five layers of apron.	Growth.
Bacillus of typhoid	concealed by five layers of apron.	Growth.
Bacillus diphtheriæ	concealed by five layers of apron.	Growth.
Bacillus pyocyaneus	concealed by five layers of apron.	Growth.
Gauze soaked in bouillon culture of		
Bacillus anthracis		No growth.
Staphylococcus pyogenes aureus		No growth.
Bacillus anthracis concealed by two layers of towel		Growth.

Room 12 by 11 by 26 feet; 3498 cubic feet.

Test objects.	Exposure, 20 hours.
Covers spread with	
Bacillus anthracis	Growth.
Bacillus diphtheriæ	No growth.
Bacillus pyocaneus	No growth.
Gauze soaked in bouillon culture of	
Bacillus diphtheriæ	No growth.
Staphylococcus pyogenes aureus	No growth.
Covers spread with	
Bacillus of typhoid	Growth.
Staphylococcus pyogenes aureus, concealed in the inside of a coat	Growth.

The second method of generating the aldehyde gas, introduced by Trillat, consists in the use of an autoclave or special boiler. The form of autoclave devised by Trillat[3] is slightly different from the one ordinarily used for sterilizing purposes, with superheated steam. The autoclave used in connection with the following experiments is of the Rohrbeck (Berlin) type and was formerly used in the laboratory for sterilizing work. The formaldehyde, 40 per cent. solution, is placed in the copper container, with the addition of a neutral salt, such as chlorid of calcium in the proportion of 4 to 5 per cent., the heat is applied from below, the cover being fastened down firmly; when the manometer indicates a pressure of three and one-half to four atmospheres the escape tube is opened and the gas issues forth, as a dry vapor, with remarkable force and diffuses very rapidly throughout the room. The autoclave may be operated in the room that is to be disinfected, or it can be placed on the outside and the gas conducted by means of a connecting metal or rubber tube through the keyhole or opening made in the door for the purpose. The last-named way is decidedly preferable for the operator, as the irritating inhalation of the gas is avoided. Test No. 1. Room 588 cubic feet, autoclave in the room, 300 c.c. of formaldehyde used.

Test objects.		Exposure, 12 hours.
Covers spread with		
Staphylococcus pyogenes aureus		No growth.
Bacillus anthracis		No growth.
Bacillus diphtheriæ		No growth.
Staphylococcus pyog. aur.	concealed by 4 layers of towel.	No growth.
Bacillus diphtheriæ	concealed by 4 layers of towel.	No growth.
Bacillus of typhoid	concealed by 4 layers of towel.	No growth.

Test No. 2.—Room 3498 cubic feet, autoclave operated from the outside, one liter of formaldehyde solution used.

Test objects.		Exposure, 20 hours.
Covers spread with		
Bacillus diphtheriæ		No growth.
Bacillus of typhoid		No growth.
Bacillus of plague or pest		No growth.
Bacillus anthracis		Growth.
Staphylococcus pyogenes aureus		No growth.
Bacillus mallei	covered by five layers of towel.	Growth.
Staphylococcus pyog. aur.	covered by five layers of towel.	Growth.
Bacillus of typhoid	covered by five layers of towel.	Very faint growth.
Bacillus diphtheriæ	covered by five layers of towel.	Very faint growth.
Bacillus anthracis	covered by five layers of towel.	Growth.
Bacillus of pest	covered by five layers of towel.	No growth.

In connection with these different tests, auxiliary observations are noted, illustrative of the various properties of formaldehyde and having direct bearing on its power as a disinfectant. Pieces of cloth stained with fuchsin were changed to a violet or purple color by exposure to the aldehyde. Egg albumin is slowly coagulated. Small cubes of gelatin are rendered insoluble in warm and hot water. When larger blocks of gelatin stained red by the addition of a few drops of fuchsin solution were cut open, the depth to which the change in color to violet or purple extended served as an indicator of the penetrating power of the aldehyde.

The gas as evolved is of an intensely irritating character, especially so to mucous membranes, yet when given an opportunity to escape, the room becomes habitable in a very short time. After the disinfection of rooms and apartments the atmosphere is now generally neutralized by means of ammonia vapor. Trillat[4] and G. Roux found that guinea pigs exposed for twenty-four hours to a saturated atmosphere, neutralized as afore mentioned, suffered no ill effects.

An analysis of the air made in a room adjoining the largest one used in these experiments, gave a result of 2,600,000 bacteria to the cubic meter, while in the room of 3498 cubic feet, after an exposure of twenty hours (Generator No. 2), the examination revealed 1260 bacteria to the cubic meter. In the experiments of Trillat and Roux an analysis of the air showed a complete sterilization with the autoclave method, but a small number always retained their vitality after the use of the methylic-alcohol aldehyde generators. These same observers found that, in the examination of the dust, the samples collected from the walls gave no growth, while in the scrapings taken from the floor a certain number of bacteria developed after the use of either method. It was further noted that the larger collections of dust produced a cloudiness in bouillon sooner and more frequently than th

smaller or finer particles. Moist dust was also found to be more difficult to sterilize than when in the dry state, all of which tends to illustrate, to a certain extent, the penetrative power of formaldehyde.

The foregoing personal experiments seem to confine success in sterilization to superficial objects. Wherever an attempt was made at concealment of any degree, the result was in all instances negative. This agrees with the experience of Trillat and G. Roux, Bosc,[5] Vaillard and Lemoine,[6] Pfuhl[7] and Ascoli. The results obtained are commensurate with the size of lamp or apparatus, that is, the amount of aldehyde gas generated and the size of the room. As to the amount of gas necessary for thorough sterilization this seems rather difficult to determine with any degree of exactness.

In generating the gas from methyl alcohol. Pfuhl has estimated the amount of wood alcohol to be used for every cubic meter as follows: bacillus of typhoid, sterilized by 47.1 grams; bacillus of diphtheria, sterilized by 21.2 grams; staphylococcus pyognes aureus, sterilized by 62.8 grams; bacillus of anthrax spores, not by 94.1 grams; bacillus of tetanus spores, not by 94.1 grams. Taking these figures as a guide it would require not less than 2 liters of wood alcohol for 1000 cubic feet of space.

In the autoclave method where the 40 per cent. formaldehyde solution is used, Paul Struver[8] places the required amount at 8.2 centimeters of formaldehyde (40 per cent.) for each cubic meter (35.28 cubic feet), while the Marine-Hospital Service Circular No. 121 fixes the same at 14.+ c.c. per cubic meter. With these standards accepted the negative results obtained in the above named tests would be explained.

The conclusions naturally drawn from the results must be that small generators or lamps, such as the No. 1 Hollister and others of similar type, are not adapted for room sterilization, and should be confined to use in very small areas of space. The No. 2 generator, having a capacity of 4 quarts of methyl alcohol. should only be used for room sterilization, and then I would place the limit at 2000 to 2500 cubic feet; if larger space is to be disinfected, more lamps should be added in proportion.

Articles in the room should be exposed freely, clothing spread about, pockets turned inside out, and all concealment avoided as much as possible.

The cheapness and the little attention required in producing formaldehyde gas from wood alcohol, renders this method very desirable, but the use of the several forms of apparatus so far proposed is attended by quite a number of defects, which are mainly due to the fact that the slow conversion of the alcohol allows the gas to escape through the many crevices and openings necessarily found in every room, before it has had an opportunity to penetrate into the depths of substances contained in the apartment. The latter difficulty is overcome to a certain extent by the autoclave method of generating the gas; the reports of its use are certainly more promising. The rather high cost of the apparatus will interfere somewhat with its general introduction, but by this method the gas escapes under a high pressure and in corresponding larger amount, the diffusion is more rapid and sterilization, in consequence, more complete.

In the recent able article of Doty,[9] on "Disinfection by Steam," the virtues of this agent are brought forward most forcibly, corroborating what has been known heretofore of its effective power when used on a smaller scale; and although here, also, expense enters as an important item, there can be no question that in penetrative power, rapidity of action and especially in the sterilization of linen, blankets, bedding, etc, steam can not be displaced by formaldehyde. All observers concede the superiority of formaldehyde gas over sulphurous oxid for room disinfection.

As a sterilizing agent for surgical purposes, an alcohol gas generator may be used, when confined to space not exceeding two and one-half cubic feet, and used for instruments only, with an exposure of at least thirty minutes, for I question the practicability of its use for sterilizing sheets, towels, gauzes or dressings of any kind. Used in solutions of 1 to 200, to 1 to 500 it forms a most efficient agent for the disinfection of instruments, and is superior to carbolic acid or corrosive sublimate, having no injurious effects, nor is it disagreeable to the hands of the operator. As a deodorant and disinfectant for general purposes, when used in solution, it has no equal.

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7 Zeitschrift f. Hygiene u. Infections Kr., Vol. XXII.
8 Zeitschrift f. Hygiene u. Infections Kr., Vol. XXIV.
9 Doty, Am. Jour. Med. Sc., Vol. CXIV, No. 2.

THE LIMITATIONS OF FORMALDEHYDE IN DISINFECTION.

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If formaldehyde or formic aldehyde is to be extensively used as a disinfectant, as now seems probable, it is important that the medical profession should know its limitations as well as its power, since either the use of a worthless disinfectant or the improper use of a valuable one is but little removed from a criminal act. Recent experiments indicate that only under certain conditions can we be reasonably sure of destroying pathogenic organisms by means of formaldehyde.

The compound is a gas of which the specific gravity is very nearly that of air. We should expect, therefore, that it would be slow to diffuse where air must be displaced. Pfuhl has shown (*Zeit. für Hygiene*, Vol. XXII, p. 339, Vol. XXIV, p. 289) that where it is present in sufficient quantities it sterilizes the surface of exposed objects, though its penetrating power is small. Similar results have been obtained by other experimenters. It is doubtful, then, whether it will replace other methods of disinfecting bedding, heavy clothing, etc. It has also been experimentally proven that a definite per cent. is necessary in the air to destroy bacterial life. Strüver (*Zeit. für Hygiene*, Vol. XXV, p. 356) places this at 1.6 grams of the gas in 1 cubic meter of space. He has shown too that the ordinary type of lamp used for the generation of formaldehyde by the action of platinum on the vapor of wood alcohol converts only about 8 or 9 per cent. of the latter into formaldehyde (loc. cit.). If a lamp is used for the production of the gas, it must be large enough to furnish the required per cent. to the air of the room. Moreover, since the formaldehyde has the same specific gravity as the air, it will diffuse at the same rate as the air is driven out of the room through the cracks and other openings. In order to be most effective not only must a large amount be generated, but this must be quickly done to prevent diffusion

We can thus explain the failures which have been reported with small lamps. Trillat's method of generating the gas by driving it out of its solution by heating the latter under pressure in an autoclave, avoids the difficulty by setting free the gas very quickly.

Formic aldehyde (CH_2O) is a gas under ordinary conditions, but it may be changed into a solid form. This is called paraformaldehyde or tri-oxymethylen. Its formula is $(CH_2O)_3$ and it may be considered as condensed formaldehyde. It is an imperfectly crystalline substance which is volatilized by heat. The density of the gas thus formed shows that the complex molecule has been decomposed and the simple one, CH_2O, formaldehyde, formed. This method of generating the gas directly from the solid, which takes place at a not high temperature, is likely to prove the most practical means of producing the disinfectant without the use of expensive apparatus as in Trillat's method.

A GLANCE AT SOME RELATIONS OF DENTISTRY TO GENERAL MEDICINE.

Presented to the Section on Stomatology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY GEO. F. EAMES, M.D., D.D.S.

BOSTON, MASS.

The average dentist not only fails to recognize many indications which call for systemic treatment, but fails to see his need of such recognition. He still jumbles medical terms. His practice is largely empirical. He sees in part, but acts as one comprehending all; he gives advice to his fellow practitioners more freely than he would if he knew more.

If a new drug is advertised he tries it a few times, and immediately writes an article on it. He treats all forms of pyorrhea by scraping the teeth, but the deposit continues to accumulate, and the scraping is repeated. He treats sensitive dentine by the application of obtundents, and never dreams of prophylaxis or the correction of the underlying cause.

The teeth under certain conditions decay with great rapidity, and extra dollars are received for extra plugs inserted. The teeth are stained and eroded, only to be met with more plugging, and the mechanical removal of the stain.

During a persistent and alarming hemorrhage from the socket of a tooth, the heart is allowed to go on thumping against the chest wall, thereby resisting the local styptic, and tending to increase the hemorrhage.

It is still true, in too many cases, that a tooth is extracted solely because the patient asks that it be done. Many dentists still ask the patient what kind of filling they will have inserted, little thinking that if in certain cases the request is complied with the dentist may be sued for malpractice.

The dental college with its required three years' course and Latin entrance examinations, still continues to let loose thousands of graduates whose spelling and use of ordinary English is excruciating, and whose understanding of the principles of pathology and medicine is practically *nil*. These go out to practice on humanity.

Shortly after I had begun to study dentistry, I was introduced by my preceptor to a very prominent minister who said, "so this young man is going to learn to haul teeth!" My preceptor wisely answered, "that, among other things." Those "other things" have engaged my attention ever since, and there are and ever will be, other things to follow, for if there is one characteristic of the marvelous advance which dentistry as a profession has made, it is the great number of new relations which have been discovered to exist, not only between it and other branches of medicine and surgery, but relations with the arts and sciences.

It has been said that the dentist's daily work is largely mechanical; many make it so; many see only the mechanical side of it; for example, an operator may be engaged in plugging a large distal cavity with gold, but may not realize the fact that in some cases of nervous susceptibility, the entire organism may sympathize with the local irritation thus produced, to the extent of shock, or nervous collapse. What is the position of the mechanical operator in such a case? In his failure to recognize the vital connection of the teeth with the human organism he has failed to discharge his full duty to the patient, and is guilty of criminal neglect.

A dentist may be called upon at any time to exercise his medical knowledge immediately, in cases of nervous spasm, hysteria, syncope, shock, collapse, foreign bodies swallowed, poisoning, hemorrhage, etc.; or in a more leisurely way in the consideration of questions relating to stomatitis, adenoid vegetations, malignant growths, operations during pregnancy, and the various inflammatory conditions of the dental pulp and pericementum.

But there are other fields which have not been so fully explored, and which are vital to the interests of our profession. Teeth are being lost at an alarming rate on account of the ravages of pyorrhea alveolaris, so called, and this fact alone calls for deep medical research, for a thorough physical examination, including the blood, the salivary and renal secretions, followed by appropriate treatment.

In some of my recent cases the personal history has shown no indications of disease, when an examination of the secretions has shown conclusively the existence of abnormal conditions. This shows the necessity of a thorough examination, without regard to the patient's answers or knowledge of his condition.

In order to do this a most thorough study of the theory and practice of medicine is absolutely required. I can see no other way to meet these pathologic conditions in the mouth, believing as I do that they are the expression of some diathesis or other general disturbance. As medical specialists we are facing the serious problem of saving thousands of teeth which at the present time are being lost in spite of the great advances which our profession has made, and it rests with us, as members of the representative medical body of the United States, to use every means in our power to secure the requirement of a broader general and medical education as one of the essential conditions of graduation. If this be accomplished, the holder is sure of recognition in any medical organization, and the dental profession will stand for one of the most profound and philanthropic agents of the healing art.

Eye Protector.—The *Journal d'Hygiène* of March 10 describes an extension for the eye-glasses of bicyclers, etc., made of celluloid or some similar substance, which clamps over the eye-glass and extends to enclose and fit tight over the entire orbital region, preventing the entrance of dust or wind, although ventilated at the side.

SOCIETY PROCEEDINGS.

Physicians' Club.

Regular meeting held April 4, 1898.

Dr. E. J. Doering in the Chair.
The subject for discussion was the

PROBLEMS OF ADOLESCENCE.

Prof. John Dewey of the Chicago University spoke on the

PSYCHOLOGY OF ADOLESCENCE.

He confined his remarks chiefly to some of the more commonplace aspects of the normal psychology. He considered adolescence as a normal manifestation in the development of life, and that the bulk of things which accompanied it should be regarded as normal, however excited or disturbed the individual might be at the time. He said a good deal of work has been done in recent years in the study of some of the details of the psychology of adolescence, from which many facts have been established. Reference was made to the theory of the emotional changes advanced by a Danish psychologist. The emotional changes which took place were marked characteristics of the psychology of adolescence. The physical changes that were going on made themselves felt throughout the entire organs. The nutritive changes were very marked during the oncoming of puberty. At this time there were many new sensations, especially organic sensations. These organic changes accompanied a physiologic reconstruction of the individual in his attitude toward others and formed a physical basis and stimulus for the immense emotional and intellectual changes accompanying the emotions. There could be little doubt as to the intellectual changes which took place, in which the individual brought to account the changes in his sensations and emotions. He felt differently. He felt more emotional toward others. A change was induced in the current of his thought, and it was necessary to bring his thoughts into harmony with the great flood of new sensations and feelings which were pouring in upon him.

Dr. M. P. Hatfield discussed

THE PHYSICAL PENALTIES OF ADOLESCENCE,

in which he made an eloquent plea for greater development of the physical side of the individual during this period. He was compelled to confess that the London *Lancet* did not do a reckless thing when it offered a prize of £100 to anyone who could bring into its office a child whose ancestors had for two previous generations resided consecutively in the city of London. A third generation child could not be shown in Chicago for chronologic reasons. President Eliot of Harvard had said that "the future of the American child depends on getting out of the city into the country during the summer." If this was a fact what was to become of the majority of the children in Chicago? What chance was there for growth, for flowering, for blossoming, because adolescence in its best and highest form was a blossoming of perfect beauty. He believes that every child born into the world has an inalienable right to clean, warm clothes and proper food. It ought to come from the parents or State or from somewhere. Dr. Hatfield then spoke of the necessity of city children having more sunlight, purer air and, if possible, more healthful and hygienic surroundings.

THE ETHICS OF ADOLESCENCE.

William M. Salter—The meaning of the phrase is, I suppose, how shall we treat adolescence? For adolescence is a fact, a natural fact and does not admit of regulation itself. But we can decide how we shall treat it. The nature of this great change and some of the dangers connected with it have already been described. I have thought perhaps it might be best for me to take up or suggest one way of meeting one danger. The danger I have in mind is the familiar one, that the peculiar physical impulses and passions that arise in boys and girls at this time shall run away with them. The question is, how shall we meet it? The policy of many, perhaps of most, seems to be to ignore the subject. There are so many difficulties and embarrassments in dealing with it that most parents and teachers refer to let it alone. They don't know what to say. Possibly they think it is a subject over which there ought to be a veil. They are not quite sure that these are proper things to talk about with children any more than for people to talk about with one another. And so they do little more than trust and hope, not without anxiety sometimes, that things will come out well. I suppose that it is in this happy-go lucky way that most children are brought up; we think they can't do much worse than their fathers and mothers did.

A second way is simply to say that certain things are wrong, to command or forbid, without explanation. On occasion those most reluctant to refer to the subject may be obliged to go as far as this. They rest their appeal on authority, adding perhaps invisible authority. They think children ought to obey and ask no questions. It should be enough for them to know that such and such things are proper, are what good children do, that other things are shameful. I would not ignore the sphere of authority or undervalue obedience. I think it is a good habit, but I think gradually the reason for all obedience should be made known and children learn to be self-directing.

A third course is to take the children into our confidence. Children often ask the question where they come from, sometimes at a very early age. I saw a father who was troubled by questions of this sort from a 4-year-old. Ordinarily we evade the question or tell some pretty myth. I would suggest the advisability of dealing more fairly and frankly. I believe that in general it is well to give the children the natural explanation of events, not that I object to the stories and myths that are often told, but I think they should be told as stories, and that when a child is serious and wants to know the real explanation, the real explanation should be given. I don't believe in tricking or fooling children, and I think that the reaction on their own nature is bad. So with a child's question as to where life comes from. I would suggest giving up to the measure of the child's capacity of receiving (and that is determined largely by the extent of its questioning, of its unsatisfied curiosity) and understanding of the elementary truths of biology, in making it see that the human species is but one branch of the great tree of life. In simple language I would point out that there is nothing peculiar in the way human beings are born. Every living thing has seed somewhere on it or in it, and each successive living thing in turn comes from a seed. A plant was once a little seed, and so with the biggest kind of tree, and so was a bird, or a horse, or a man. Everything starts from beginnings so small that they are hardly visible, and the beginnings are always in the body of the parent. Every seed is at first nourished, protected there until it is far enough on to have a life of its own, and its leaving the body of the parent is what we call (at least in the case of most animals and of men) birth. Every little boy or girl was once born; before that it was carried and fed and kept out of harm's way in its mother's body; since, it has been out in the light of day and is learning, or should be, ever more and more to care for itself. Moreover, I would explain that seeds no not always grow of themselves. Two of them, we may say, for I need not stop here to make fine distinctions, ordinarily unite and become one, before either comes to anything. Sometimes the two seeds are in the same body; most commonly they are in two separate bodies, but they have to come together for either to really live and grow. So of the same sort of being there are what we call the male and female, each having its own kind of seed; but both are necessary, and the two must come together that any seed may grow and become in time a fish or a bird, or a human being. And so I would say to a child, we have fathers and mothers in the world, and among men we call fathers and mothers husbands and wives, because they live with one another and stay by one another and take care of one another, and at the same time take care of the children born to them.

In some simple, unsentimental, matter-of-fact way like this I should answer the child's question as to where he or his baby brother or sister comes from. I say I; I mean the parent or trusted teacher. Making a mystery of the matter is the last thing I should do, for unsatisfied curiosity easily makes one morbid and as a matter of fact, owing to the thoughtlessness and prudishness that are so common, there are probably more morbid boys and girls and morbid men and women on this subject than on almost any other under the sun. I would have this information given to a questioning child long before that critical age when the child is passing into manhood or womanhood, and new thoughts and feelings are stirred and new temptations naturally encountered. Before the passions arise let this information be given in a cool, scientific, perfectly objective manner, and much of the danger of this transitional time may be avoided. I know that well-meaning people sometimes deprecate curiosity on this point. They speak of an "improper opening of children's minds." They seem to almost regard it as another sign of children's natural depravity. But the depravity, I fear, lies elsewhere. Why is this an improper subject? Why is it not as sweet and clean as any other? Why is not birth a holy thing, and motherhood and fatherhood an equally holy thing? Reverence for a thing and a sense of its uncleanness are, it seems to me, incompatible feelings. I plead for a healthy, natural reverence for this sacred relation of life, and real reverence is based only on knowledge and understanding. And those who can not bear

to talk of this subject to their children should not forget one thing, that there are those who are quite ready to talk about it (though it be in whispers and on the sly), and that a normally constituted boy or girl is apt to get some sort of a notion of the truth, even though a distorted one. If we do not give the information in open, honorable fashion, it will be got in ways that are dark and disgraceful. An educator, after saying that this knowledge exists in two forms, the one "scientific, true and clean," and the other "morbid, false and dirty," adds a fearful statement that at least nineteen-twentieths of American children draw their information from the latter sort of knowledge. In back alleys, he says, on the way to school, in the servants' rooms, or from an older comrade they master this forbidden lore. Whose fault is it? I don't wish to bring any railing accusations, and I know how helpless and confused many parents feel, and yet I think the evil is more to be traced to the ignorance and prudishness, the mental and moral incapacity of the average parent than to any other cause. Parenthood is a task, I might say it is a profession, and one should bring one's wits and all the wide-awake sympathy and loving thought one can command to the discharge of its high and sacred dutics.

In a word, I would have children understand life, then the law of life. The law of individual conduct follows as a matter of course. I would say to boys and girls, you have functions fitted to certain uses; hence they are for those uses; to make other use of them is wrong. Both self-abuse and sexual connection (save between husbands and wives) come thus to be abnormal things.

I know not whether, in this way, we can really meet the danger connected with adolescence which I started out to consider. Things are complicated in this world, and when we find one sound and wholesome method of procedure, it does not follow that it will always have the result desired. Wise education is something that requires infinite tact and the co operation of a great many factors. And yet I believe what I have suggested is one true and normal line of action, and if we follow it, we may at least help in meeting our difficulty. If we are full of reverence ourselves before the great facts and laws of life, we can hardly fail to communicate something of it to our children. And reverence is the deep central need of life; the feeling that we have something else to do in life than to follow our temporary caprices or pleasures, the sense of a law above them. In childhood and youth is a happy time to sow reverence, but reverence must be based on knowledge. That reverence never dies out, not with the oldest man.

LYING, STEALING AND KLEPTOMANIA IN ADOLESCENCE.

Dr. W. X. SUDDUTH—Embryologists tell us that the child, in its development from the ovum to maturity, passes through all the stages of evolution that the race has experienced in its devolopment from monad to man. If this be true, and my own observations confirm the statement, then in the life of the child we may expect to find reproduced the life history of the race, not only as to changes in form, but also as to evolutionary changes in mind and morals as well.

While the intra-uterine life of the child represents the vegetative stage in the development of the race, its birth ushers in the animal stage of existence, which extends to the period of moral awakening into the fully developed soul. The age at which children attain moral responsibility varies greatly in different individuals, peoples and countries. Some never attain it, others only in an imperfect degree, while in others it seems to be innate. Much depends upon prenatal influences and early environment.

While it is true that conscience is inherited and may be denominated the moral instinct, yet it is such an intangible quantity that it is very hard to define. The conscience of the present age may not be the conscience of a previous age or civilization. Conscience in one country differs very greatly from the same moral instinct in another country and clime. At best it is a very flexible article, and is largely the product of environment and education, and yet even the cannibal has a code of ethics which to violate he considers immoral, and in savagery there are also degrees of moral responsibility.

Admitting, for the sake of argument, that most children in our day and generation are born into the world with some degree of conscience which may lie dormant until called above the threshold of consciousness by life's experience, we must still admit that the child, in the first few years of its life, even in the most refined and enlightened environment, only too plainly demonstrates its uncivilized and animal nature. It has to be taught inhibition of bodily function through repeated and often painful experiences, and the most frequently used word in the vocabulary of the nurse or mother is "don't," "don't," "don't do what your animal nature tells you to do." And thus, through more or less constant repression, the child is brought under the restraint of civilization, and becomes an orderly citizen. If his animal nature rebels and he absolutely refuses to become civilized, he is classed as irresponsible or incorrigible and is sent to the asylum for the feeble-minded or to the reform school. The nursery and the schoolroom, however, are the first institutions into which the young savage is introduced, and, excepting the curtailment of physical liberty, the discipline is often as strict as it is in state institutions.

Admitting the truth of the premise that the child is born into the world in a state of savagery, nude, not only as to person but as to morals, and that introduction into civilized society is a process of education which covers a longer or shorter course of instruction, and that the final accomplishment largely depends upon the ability and skill of its instructors to meet the varying individual idiosyncrasies of its animal nature, we are prepared to take up the breaches of ethics under discussion in this paper, viz., "lying" and "stealing." Before, however, we proceed to treat of their manifestation in the child, let us briefly consider the question as related to its more or less remote savage progenitors, and see whether we can not find in the past history of the race some excuse or partial palliation for the much-to-be-deplored traits of character found in some children.

In primeval times, and in the wilds of Africa today, savage man knows no law but that of "self-preservation" and "the survival of the fittest." Even in the lower forms of life these laws are universally operative at the present time, and deception by mimicry and subterfuge is the most effective means of defense of the weak against the strong. Even the bird will feign to be wounded, and utter the most painful notes, to distract the attention of the enemy from her young, and draw it to herself, if haply she may preserve their lives. "Playing 'possum" is not confined to the opossum alone, but is a common trait in all forms of life, and is considered justifiable and ethical when found in nature. But when the human weakling, placed by no volition of his own in so-called civilized conditions, resorts to subterfuge and deception, adding verbal deception to that practiced by the lower forms of life, he is called dishonest or a plain liar. Again, when a hungry animal, man included, in a state of nature takes food where he finds it, even if it be from his neighbor's garnered store, he is simply following out the God-given instinct of self-preservation. It may have to pay the penalty of its depredations with its life, but even taking of life, in a state of nature, is not considered immoral; it is only the practical application of another of God's laws, viz., the survival of the fittest. But when a hungry child or man, following this same law, is detected in taking food from his neighbor's store, the act is called stealing, and if the quantity taken is sufficient, he is adjudged a criminal and sentenced by the law to imprisonment in jail or reformatory.

Laws are but the expressed mandate of the strong against the natural tendencies of the weak, in following out their God-given instincts; or, in other words, they are rules made by the most powerful element of society; for power at the present time is measured by property interest; hence our stringent laws against depredation on property even when done in pursuance of nature's law of self-preservation.

The term "stealing" is applied to the taking of property by the poor and needy, either for the alleviation of their immediate wants, or to satisfy a desire for gain, in imitation of their more fortunately situated neighbor, who, when making depredations upon the goods and chattels of his fellow man, is spoken of as a "speculator" or a "dealer" on the board of trade; or if he "lifts" goods from the counter of the tradesman or the dinner pail of his fellow, goods for which he has no immediate use, such act is designated by the more euphonious term of kleptomania.

Aside from its purely biological aspect, however, this question is one of deep sociological import. Let us first consider the question of lying: Generally considered, lying is "a criminal falsehood," an intentional violation of truth, or an intentional misstatement of facts. Now, facts have as many aspects as there are individual observers of them. It is impossible to know anything *per se* in and of itself. It is only by comparisons more or less abrupt that we can know anything. We could never know cold, except we had felt its opposite, heat. We could never know light except we had been in darkness. We could never know pleasure except we had experienced pain. We could never appreciate truth except we had met falsehood. And so we might go on throughout the whole category of facts in nature. To speak the truth about any experience or fact in nature, requires an intellectual grasp of the subject in its entirety, and the mental capacity to draw logical deductions therefrom. Human nature is essentially original, and instinctively antagonistic to rule. The personal equation is the greatest question that the student has to face in the study

of man. Individuality, which means originality, and imitation, or, as Sids puts it, suggestibility, are the opposite poles of human nature. While, however, man is an imitative animal, and therefore to a great extent a creature of environment, yet, by reason of his innate originality, he constantly works variations into his experiences or his facts which give them the flavor of untruthfulness. This is evidenced in every phase of human experience, even the simplest, in which there is no advantage to be gained by misrepresentation. This is well illustrated in the game of "gossip," for instance. Any number of people may participate in this form of mental diversion. The leader makes a statement to his immediate neighbor, who repeats it to the person next to him, who in turn passes it on to the next one, and so on until it is retold to the original speaker. By this time it is generally so modified and varied by the personality of those taking part as to convey a widely different meaning from the words first spoken.

Then, again, man is an imaginative animal, and his constant tendency is to clothe his images, which are subjective creations or experiences, with objective garments through verbal relation or expression. If these tales do not happen to tally with our experience, we say, "Ah, he is building air-castles, or he is lying," when in fact we often are the ones at fault and the day-dreamer is the prophet of the future. The ideal is the real, and the vain, impractical ideas of the dreamer of today often become the verities of the future. But, you say, you are evading the real point at issue, lying is intentional misrepresentation. Admitting that this is true, it is still absolutely necessary to consider the question in all its bearings, so that we may have an intellectual comprehension of the motive that actuates the individual, in order to determine whether he is guilty of an immoral act, or simply has exerted a too free play of the imaginative faculty. Imagination is a subjective gift, and is normal in childhood, poets, musicians and inventors. It is only abnormal when it invades the domain of the objective and begins to jeopardize the interests of property. The child in the nursery clothes its paper dolls with important personalities, and prattles away by the hour regarding the wonderful experiences and doings of the Mesdames Vanderbilt, Astor and Gould of their mimic world; and yet we encourage it up to the point where the little darling invades the outer world with its poetry, when it becomes immoral and reprehensible. And yet the child is only living out its true subjective nature.

A case in point came to my notice not long since. A precocious boy of five was intrusted for a brief time each day with the care of some cattle. On horseback he herded the drove on the prairies while the regular herder went to his dinner. He was admonished to be very careful not to let any stray away. It was an easy job, and having little to do he often drew on his imagination for entertainment. "What," he said to himself, "if some *big* men on fast horses should come and drive off some of the cattle under my charge," and in imagination he would follow them and demand the return of the stolen animals. From day to day these thoughts were his greatest delight. He dreamed and dreamed on these exciting experiences, until they seemed to be almost realities to him, and only required the right setting to make them real indeed. The time came thus: One night when the cattle were counted into the pound, one was missing. Willie was questioned and he recited with appropriate embellishment, the story of his day-dreams as to how *two great big men*, one on a black horse with flowing mane and tail, and the other on a white horse, oh, such a beauty! had come and driven off a *big red* steer. The more he was questioned the more tenaciously he clung to his story, adding points at each repetition until it became a veritable nursery tale, as such it proved to be, for on a recount in the morning the tally was found to be correct, a mistake having been made in counting the night before. Did the child lie? Who can answer! He may have been afraid of punishment for neglect of duty, and sought to shield himself by throwing the blame on the *two big* men who, he asserted, came and forcibly took away the supposed lost animal, and against whom he could not reasonably have been expected to contend. It may have been egotism, pure and simple, that craved the notoriety of the hour in being the center of interest. It may have been an hereditary tendency, directly inherited, to deceive. Who can tell! Who dare assume the responsibility to judge the child's mind and ascribe the motive that determines the condition!

Painters, poets and writers of fairy and other similar stories draw on their imaginations for their productions, and we grant them full need of praise. None think them immoral until they claim reality for their dreams. If, in following out the God-given instinct of self-preservation, or through lack of intellectual or moral perception, the claim of reality is made with the idea of personal advantage in the struggle for existence, then the conditions immediately change, the motives are impugned and the culprits condemned as born falsifiers. When the weak following the purely natural instinct of self-preservation, resort to these methods, which are the only weapons they have against the strong, they are adjudged enemies of society and punished as criminals, or if it can be shown that they are not mentally responsible they are sent to asylums. The question, therefore, resolves itself down to this, that lying, stealing and kleptomania from a biologic standpoint, are the outcroppings of purely natural instincts, commendable in a pure state of nature, but greatly to be deplored in our present state of civilization.

If my promise is correct it seems to me that the rationale of treatment does not lie in harsh, unsympathetic measures of condemnation, in which the motives of the individual are impugned, but in a careful system of education looking toward the moral, intellectual and physical upbuilding of a child. The first step in this direction lies in a careful medical examination in order to ascertain whether there are any physical conditions existing that would place the child in the defective class. Defective sight or hearing has often caused an otherwise tractable, obedient child to become insubordinate and fall behind his fellows, he suffering the while mentally and physically because of his unrecognized deficiencies. Other physical defects have been known to produce similar results.

The second step in the successful handling of such cases is a sympathetic understanding of man's place in nature.

The third step involves a systematic exposition of the general principles of ethics, based upon biologic facts, in language so simple as to be readily grasped by the undeveloped mind of the child. It is surprising how freely the youthful mind will absorb even the most profound principles of ethics when logically and simply presented. In this system of education the child should be permitted, so far as possible, to be its own judge as to the degree of normal progress attained. Whenever it is practicable courts of justice should be established, officered by the children themselves, to which should be referred all the cases of infraction of the laws of ethics that occur within its jurisdiction.

Prof. COLIN A. SCOTT discussed the subject of

SCHOOL FATIGUE IN ADOLESCENCE.

He said fatigue was really the negative side of all work, of all effort. There was nothing accomplished anywhere by any sort of organization which did not leave behind it some trait or a small degree of fatigue. Reference was made to the recent work done in the experimental laboratories of psychology along this line and to what are known as "fatigue curves." He thought there were undoubtedly some individuals who had practically a chronic condition of fatigue, and it might be congenital in such cases. In doing the same kind of mental work one individual manifested fatigue much sooner than the other, due in part perhaps to weaker groups of brain cells, and hence a greater susceptibility to fatigue. One of the significant features of adolescence was the principles of generalization, and these were largely connected with sex. He could not wholly agree with Mr. Salter's method of dealing with children and telling them the plain facts about the sexes at an early age. He thought that sex would not be satisfactory unless clothed with a certain amount of mysticism, a sort of something which it was impossible to entirely penetrate.

Chicago Medical Society.

Regular meeting, held April 6, 1898.

The President, Dr. F. HENROTIN, in the Chair.

Dr. CHRISTIAN FENGER read a paper entitled

WHY I HAVE ABANDONED THE USE OF THE MURPHY BUTTON AND OTHER SIMILAR MECHANICAL APPLIANCES IN INTESTINAL OPERATIONS.

He had abandoned Senn's plates, partly because their application was complicated and required about the same time as suturing, and partly because he saw them cause gangrene, and cases were reported in point. He did not consider it necessary to include in the discussion the experience of other surgeons, as this could be gathered from the literature and was well considered and ably discussed by Jacobson. He considered his own experience ample to decide conclusively the principle involved, and he believed, furthermore, that this was a matter that could not be decided by statistics alone. It was immaterial how many cases were successful and how many were failures for a decision as to the fate of the Murphy button and other mechanical contrivances. Dr. Fenger then reported cases in detail in which the Murphy button was unsatisfactory. He drew the following conclusions: 1. Any mechanical contrivance based upon the occurrence of sloughing and gangrene is objectionable as it is beyond our power so to constrict the

gangrene that it will not overstep the limits of safety. 2. Any mechanical appliance that is non absorbable is objectionable because it may be retained indefinitely in the gastro intestinal tract, and may therefore be the cause of disturbances, and because it may be dangerous or impossible to remove the foreign body. 3. Mechanical appliances, whether absorbable or non-absorbable, may cause fatal gangrene without limitation. The Murphy button I consider the most effective, the most dangerous, and I might say, the most brutal of them all in this respect. 4. I looked toward mechanical appliances with great hope for their usefulness, but after a fair trial for years I am gradually and reluctantly forced to give them up. 5. The surgeon who does intestinal surgery must learn to suture, to use the needle; first, on the lower animals until he becomes proficient. 6. I fully agree with Halsted when he says: "I believe that the license to practice general surgery should be withheld from those who have not practiced on animals the operations for circular suture of the intestine and intestinal anastomosis." If a surgeon has not acquired the skill of using the needle, he has no right to attempt this kind of work; he should leave it to his more experienced colleagues until he has acquired the necessary dexterity. 8. If an operation on the intestinal tract has already lasted so long that the final step of suturing would take so much time that the patient might be in danger of collapse from prolonged operation, then the operation may in many cases be more safely stopped temporarily and finished at a later time. 9. If we search for means to avoid the use of mechanical appliances, then means will be provided. The question of the valuable time saved by the use of the Murphy button and other devices has been overestimated. Take, for example, operations on the stomach. Haberkants, who has collected statistics of all operations on the stomach up to 1895, makes the following statement: "The mortality of operations on the stomach depends not so much on the age of the patient as on the nature and extent of the local disease. The duration of the operation has no influence upon the mortality as judged from eighty-nine total resections and sixty-six gastro-enterostomies. 10. Halsted witnessed an intestinal operation including circular suture. The operation required five hours for its performance, but was successful. This conforms to the opinion I have obtained from my own experience, that the element of time in operations is not of so great importance as one would generally be led to believe.

Regular meeting, held April 13, 1898.

First Vice-President, Dr. ARTHUR D. BEVAN, in the Chair.

Dr. ALEXANDER H. FERGUSON presented a patient upon whom he had operated, removing the inferior dental nerve through the mouth, for the relief of facial neuralgia. He expressed the belief that this operation could be done very easily and the graver operation of the removal of the Gasserian ganglion obviated in many cases. An operation upon the inferior dental nerve, if the neuralgia has commenced in that branch first, and it usually does, should be done and the nerve extirpated, and this could be accomplished through the mouth without scarring the face. Failing in this, the surgeon would have just cause for removing the Gasserian ganglion.

The second case he exhibited was also a patient upon whom he had operated a short time ago for tic douloureux, but in this case he removed the Gasserian ganglion.

A third case exhibited was one in which he did an intravertebral neurotomy of the posterior roots of the brachial plexus for neuralgia.

Dr. FERGUSON next presented a specimen of gall bladder and bile ducts, showing acute phlegmonous cholecystitis and gangrene of gall-bladder, with perforation, causing abscess, peritonitis and death. No operation; postmortem made, and 776 gallstones found.

Under the name of acute progressive empyema of the gall-bladder Courvoisier in 1890 found only seven cases in literature. A few instances have been recorded since then. He had two reasons for presenting this specimen: 1. The rarity with which this affection occurs. This was the first case he had seen after an experience of fifty-six operative cases of cholelithiasis. 2. Early operation in gallstone cases and during the attack of biliary colic. At a recent meeting of the Society it was urged that an operation should not be performed during the attacks of colic, and in refutation of this teaching he showed the specimen and reported the following case:

Mr. J. W. S., age 59 years, merchant, of Syracuse, Ind.; on the 3d inst. was seized with biliary colic, and called Dr. B. F. Hay to relieve him. His pulse and temperature were normal; the pain was intense, only relieved by frequent hypodermic doses of morphin and local applications of hot moisture. A tender swelling, dull on percussion, was felt under the right costal arch. The liver dulness was enlarged and the organ tender. He was not constipated. By the third day the paroxysms subsided, the tumor and tenderness remaining, as well as a dull, constant aching sensation. On the evening of the third day the smouldering pain became infuriated to intense seizures of suffering, causing him to complain even when profoundly narcotized with morphin and the abdomen covered with hot stupes. Slight tympany; a rise of temperature to 102 degrees F.; an increased pulse-rate of 110 to 120 per minute, and slight jaundice ensuing, impressed Dr. Hay with the grave condition of his patient, and called Dr. E. E. Ash of Goshen, to attend with him. The aggravated signs and symptoms tenaciously persisting, Dr. W. K. Mitchell of Ligonier was summoned in consultation. All were agreed as to the diagnosis of gallstones complicated with pending peritonitis, which proved to be only too true, and advised an operation. That surgical interference was not carried out in a comparatively early step of the disease, which would have been most likely successful, was not the fault of these gentlemen. Every easy movement, every fall of temperature, and every expression of the patient, of feeling better, raised the family hopes that an operation might be averted. On the sixth and seventh days the tympanites increased and extended over the tumor and lower border of the liver, the pulse and temperature remaining about the same (pulse 110 to 120, temperature 102.5 degrees). He was summoned on the seventh day, and on arriving found that he had died about half an hour previously. Dr. Mitchell, who closely watched the case the last twenty-four hours, kept an accurate record of the pulse, respiration, temperature, condition of the skin, pupils, stools, urine, medicine given, etc. During this time seventy-eight observations were recorded. The pulse ranged from 116 to 136; respiration 28 to 52; temperature 100 to 105.2 degrees F. The temperature was at its lowest degree an hour before death, and the highest ten hours previously, at which latter time, however, the pulse was only 120 and respiration 32. The pupils were constantly dilated, the skin moist except at midnight, when it became dry for a couple of hours, and then the temperature rose to its maximum. His urine passed involuntarily, and he was unconscious nearly all the time, only speaking distinctly once, eighteen hours before death.

Previous history.—With the exception of occasional slight and insignificant colicky pains in his stomach during the last two years, lasting but a few minutes, and never calling in a physician, he has enjoyed the best of health. Family history negative.

Postmortem.—The findings in the abdominal cavity were as follows: A full length median incision allowed coils of distended bowel, normal in color, to protrude; upon passing the hand adhesions were felt in the right lumbo hypochondriac region, but nowhere else. A transverse cut through the right abdominal wall to the lumbar region fully exposed the pathologic condition. The right and upper border of the omentum was red, swollen, covered with thick lymph, overlapping the colon and gall-bladder, and adherent by delicate adhesions to these structures and to the parietal peritoneum and liver. An abscess was situated in the right lumbar region a little below the end of the twelfth rib, which contained about an ounce of pus. A suppurating tract led from it to a perforation in the gall-bladder on its anterior surface near the end. The edges of the perforation in the gall-bladder were black and gangrenous looking. The gall-bladder was about twice the normal size, tense and edematous to the touch, livid in appearance with black spots, showing through in many places. It had the manifestations of an advanced stage of acute phlegmonous inflammation. It was sausage shaped and extended along the under surface of the liver beneath the costal arch. The adhesions surrounding it were very friable, and these being broken down, dark colored fluid oozed from the surrounding tissues. The gall-bladder was now opened. It was filled with dark colored bile and 776 stones, varying from the size of half a grain of wheat to a large bean. The mucous wall of the gall bladder was gangrenous in many places, which here and there showed through all the coats of the viscus. The ducts were laid open and found normal. All the other organs in the abdominal cavity appeared normal, even the vermiform appendix.

Bacteriologic examination.—In Professor Klebs' laboratory at the Post-Graduate, the contents of the abscess and the fluid contents of the gall-bladder were subjected to a bacteriologic examination.

Remarks. — Cholecystotomy performed early would most likely have saved his life. Waiting for the attack to pass off proved fatal, and this was his first pronounced attack. If infection is present, the sooner it is uncompromisingly attacked surgically and drained the better. In a well-marked case of biliary colic, let it be even the first attack, the gall-bladder

enlarged, tender, etc., he could see no scientific or reasonable objection to the removal of the gallstones there and then during the attack. Early operation shortens suffering, prevents complications, and in most cases obstruction of the ducts. No case should, in his opinion, be allowed to become chronic, early gall-bladder surgery is safe and easy, while late operations are dangerous and difficult. The physician has no assurance from clinical experience or pathologic findings that in a given case the attack of suffering will subside without causing: *a*, jaundice by obstruction of the common duct which may remain until relieved by a serious operation; *b*, rupture of the gall-bladder; *c*, ulceration and perforation by pressure of the stones; *d*, death by the severity of the colic; *e*, empyema, and *f*, acute phlegmonous inflammation and gangrene.

From clinical experience we know that it is utterly impossible to tell the sufferer the number and size of the stone or stones within his gall-bladder, or what the outcome of his case may be. To advise a fellow-being suffering these torments to delay operation until the attack is over, in a clear case of cholelithiasis, is cruel and blind advice.

Dr. E. W. Andrews presented three cases of circular enterorrhaphy which he had performed by different methods. In one case he used Frank's coupler with a satisfactory result. The patient was 25 years of age, and had been in perfect health with the exception of an inguinal hernia. He was called to see the patient to relieve the strangulation. An operation was done and the intestine not only found to be gangrenous, but surrounded in the hernial sac by a quantity of pus. It became necessary to resect a section of the bowel, to resort to end to end anastomosis, and in this case he used the Frank coupler. Operation was done on Wednesday, and the coupler passed per rectum on the following Monday.

The second case was one in which he performed a circular enterorrhaphy by Monsell's method.

The third case was one of complete occlusion of the small intestine occurring in a man advanced in years, and brought to him *in extremis*, having a pulse of 140 or more, and vomited everything. An enterorrhaphy was made by the method of Monsell, followed by recovery. Microscopic examination showed adenosarcoma of the small intestine. The three cases recovered.

Dr. Edward H. Lee showed a patient upon whom he had operated for renal calculus. He passed around a skiagraph showing a shadow corresponding not only with the location of the stone but with its size and form.

A second case exhibited by him was one of exophthalmic goiter. The enlarged glands were removed. He said authors differed greatly as regards operative interference in these cases. He agrees with Mikulicz that surgical interference should be limited to suitable cases. Stenosis in this case was so marked as to justify surgical interference. Extirpation should be done where possible on account of being easier than excision. He used the Kocher incision above clavicle, believing that it gives the best cosmetic result. He also reported a case of extra-uterine pregnancy in which he had operated, and showed the specimen.

Dr. William A. Mann exhibited a patient with tuberculosis of the eyelid. Sixty-two cases of this affection had been reported, and he presented the case on account of its rarity.

Dr. David Lieberthal exhibited an interesting case of scleroderma.

Western Ophthalmological, Otological, Laryngological and Rhinological Association.

Abstract of the Proceedings of the Third Annual Meeting held in Chicago, April 7 and 8, 1898.

(*Concluded from page 986.*)

Dr. W. H. Baker of Lynchburg, Va., contributed a paper entitled

THE POLITZER AIR BAG,

in which he deprecated the universal, and too common, use of that instrument when the simpler and safer method of Valsalva could be employed with equal success, and much less danger to the integrity of the ear and its structure. The dangers to the integrity of the ear, when the method of Politzer is employed, are rupture of the tympanum, injury to the ossicles, labyrinthine hemorrhage, etc. He claims that there is no middle ground between the method of Valsalva and cauterization for the air-bag of Politzer to stand upon, and that what can not be accomplished with much more readiness and safety to the patient by the method of Valsalva, in the way of inflating, can only be accomplished by the aural catheter.

Children can easily be taught to inflate their own ears, thereby avoiding the fright and disgust caused by the sudden, sharp blast produced by the air-bag, which is about as apt to force air into the stomach as into the middle ear, unless the child has been taught to pronounce the proper letter at the proper time, or swallow the water when told, which is as tedious a process, if not more so, as teaching the method of Valsalva.

The paper is a plea against the indiscriminate use of the Politzer air-bag.

Dr. W. Scheppegrell of New Orleans, read a paper on

THE NON-OPERATIVE TREATMENT OF DISEASES OF THE UPPER RESPIRATORY PASSAGES.

The object of the communication is not to disparage the effects of surgical methods, but to emphasize the importance of non-operative measures and their usefulness in a lage majority of cases. So many articles have been published on the surgical methods of treating diseases of the nose and throat, and in comparison so few on non-operative methods, that the former has assumed an undeserved prominence, so that many patients and even physicians believe that every pathologic condition must be remedied by surgical interference. The "six weeks' specialist" is especially dangerous in this connection; he has witnessed a large number of operations in the polyclinic, many of these cases having been especially reserved for these lectures, and he associates every case which he meets with surgical methods. He purchases the necessary instruments, and, on his return home, every patient is viewed with the possibility of utilizing this investment.

The limits of this paper permitted only of illustrating the principles of non-operative methods without going into details. The nasal septum does not require surgical treatment simply because it is slightly deformed; an operation is required only when it impinges into the opposite tissues, offers marked obstruction, or gives rise to reflex disturbances.

In the treatment of acute coryza, the author has had the best results from a spray of a 2 per cent. guaiacol solution, and the internal administration of quinin. The prescribing of cocain preparations in these cases is dangerous. There is no justification for placing this alkaloid in the hands of the patient, thus favoring the formation of the cocain habit.

The greatest surgical abuses in rhinologic practice have been in hypertrophic rhinitis and in the so-called intumescent rhinitis. Congestion of the nose may be a sign of a disturbed condition of many other parts of the body, and these should be carefully eliminated before surgical methods are applied. The cases in which they are demanded will be found comparatively few.

In atrophic rhinitis, cleanliness is a most important factor in the treatment, and this may be best obtained by means of copious irrigation with non-irritating solutions. The methods that have been recommended are the various topical applications, sprays, massage, electrolysis and serum therapy. The location of the accessory sinuses makes the treatment almost necessarily surgical. It should not be forgotten that acute sinusitis naturally tends to cure. Exploratory punctures of the antrum are not without danger and may develop a purulent condition in healthy antra.

In naso pharyngeal catarrh, surgical methods are usually referred to the nasal chambers. It should be remembered, however, that certain constitutional conditions, such as lithemia, scrofulosis, etc., may here exhibit a local expression of a general dyscrasia. An important part of the treatment is to prevent the patient from irritating the pharynx by means of the *nasal secreta*, by means of which the secretion is drawn into the mouth and expectorated. A non-irritating solution should be given the patient as a means of freeing the naso-pharynx, and all violent efforts on his part to clear the throat should be avoided. It should be explained to him that the sensation of the secretion in the throat may be due not only to its actual existence, but also to the increased sensitiveness of the throat, which would cause even the normal secretion to feel as a foreign body.

Hypertrophy of the faucial and lingual tonsils may exist to a considerable extent without giving rise to inconvenience, and as the tendency in these cases is to diminish with advancing age, the *laisser faire* plan is a good one, unless indications positively point to surgical interference. Operations on the tonsils are not entirely without danger, and the argument that the tonsils are of no service, and that their extirpation can cause no harm is one that we have no right to assume.

In regard to the larynx, while admitting the importance of the respiratory function of the nose in this respect, we should not at once assume that every defect in the throat is due to some obnormality of the nostrils, and still less that the condition must necessarily be improved by operative measures in the nasal chambers. Cases have been seen by the writer in which

the cautery has been applied so extensively that but little of the normal mucous membrane could be seen, thus destroying the glandular elements and inhibiting its capacity for supplying moisture for the inspired air. How the operator expects to benefit the larynx by these heroic methods, it is difficult to understand. The larynx may be affected by various conditions of other parts of the body, even the most remote, and the cause of irritants of all kinds should be removed. In a recent case the discontinuance of the habit of smoking twenty cigarettes per day cured a spasmodic laryngeal cough of long standing.

The nose and throat specialist should avoid the tendency of becoming narrow in his views and of seeing the patient only through the laryngoscopic mirror and nasal speculum. He should be as familiar with matters of general medicine as the general practitioner, and should make it his motto not to know less of general medicine, but more of rhino-laryngology.

BILATERAL ABDUCENS PARALYSIS.

Dr. WM. A. FISHER of Chicago—I present this case of bilateral paralysis, not as a common one, but as one of the most infrequent occurrence. Here we have not only paralysis of both abducens, but as much contraction as is possible, not only of the muscles that turn the eye inward, but of all the ocular tissues toward the nasal side. I would hesitate to present to this Society an ordinary case of unilateral abducens paralysis, for you all know how frequently they occur. In fact, I am rarely without such a case. At the present time I have three cases in my clinics all giving a specific history. This case shows what a great deformity can follow a paralysis of this kind.

The history of this case is as follows: Mrs. B., aged 50 years, married thirty years, has five children, three living and in good health; one died of measles and one of croup; father died at the age of 70 years, mother died at the age of 75. She has had three brothers, one died in the army in India; has not heard from other two for ten years, when they were in good health; six sisters, two died in infancy, others in perfect health. Thirty-seven years ago, or when she was thirteen, her left eye began to turn in. Previous to that time she was not aware of having any eye trouble. She consulted a physician in Ireland and was told her eye could be straightened by an operation. About twenty years ago, or seventeen years after the left eye turned in, her right began to turn. Six years ago she had la grippe, and since that time her eyes have grown rapidly worse. The last two years they have been about as we now find them. The patient has been a hard-working woman all her life, doing washing and carying heavy baskets of clothes on her head. She is now in, and has always enjoyed good health. Vision is sufficient to enable her to get around where she is well acquainted; tension normal. The eyes were rotated so far inward that both pupils were hidden in the inner canthi. It was impossible to rotate either eye out under cocain anesthesia. Not being able to get an ophthalmoscopic view, and knowing there could be no harm in an attempt toward straightening, and possibly some good result, the patient was anesthetized with chloroform and an effort made to rotate the right eye out and sever the offending tissues. It was impossible to rotate the eye outward to any extent, but an attempt was made to sever the internal rectus. Not only was it necessary to sever the muscles that rotate the eye inward, but it amounted to a dissection of all the ocular tissues toward the nasal side. The eye was fixed as firmly as in a case of panophthalmitis, and adhesions everywhere. A slight improvement was produced which lasted a few days; the pupil was free from the inner canthus, but no improvement in vision. Contraction has taken place and the eye is in about the same condition as I found it. The patient has never complained of pain in the eyes and gives no history of an inflammatory condition, but we have adhesions that could not have been produced by inflammation and the patient remained unconscious of it.

Hutchinson reports seventeen very interesting cases of ophthalmoplegia externa (Royal Medical and Chirurgical Society of London, 1879). In summing up his report it seemed certain that syphilis was the cause in ten of the seventeen; that in the remaining seven a reasonable suspicion of syphilis might be entertained in several. He further says, with such a fact in mind one feels that it is almost impossible to make the negative even fairly possible. The evidence which connects this affection with syphilis is exceedingly strong, and that which favors the belief that it can occur independently of it must be held to be open to some doubt. The cause of paralysis in this case is obscure. We can exclude some of the common causes, but syphilis should not be excluded, even if we have, as we do in this case, a negative history. As syphilis is given as the cause of nearly all these paralyses, I have given her increasing doses of potassium iodid, and will continue for a reasonable time. It would be no more than fair to suppose the lesion in this case was caused by la grippe.

The following officers were elected for the ensuing year: President, J. E. Colburn of Chicago; first vice-president, Wm. W. Scheppegrell of New Orleans; second vice-president, Casey A. Wood of Chicago; third vice-president, H. Gifford of Omaha, Neb.; secretary, Frank M. Rumbold of St. Louis; treasurer, W. L. Dayton of Lincoln, Neb. Place of meeting, New Orleans, La.

SELECTIONS.

Immediate Laparotomy in Wounds of the Abdomen.—A paper on this subject by Surgeon Caillet of the French Army was read by M. Chauvel at a recent meeting of the Académie de Médecine, the author having based his remarks mainly on two cases that were related in detail. In the first a non-commissioned officer received a revolver shot point blank in the lower part of his abdomen, and an hour later was taken to the hospital. The officer on duty dressed the wound with iodoform and applied a bladder containing ice. The following morning when Dr. Caillet saw the patient, six hours after the injury was inflicted, he was in a good condition, the temperature was 96.8 degrees F. and the pulse 80; there was no vomiting, hiccough or dyspnea. By 4 o'clock in the afternoon, however, unfavorable symptoms had set in and at 7:30 operative interference was decided on. Median laparotomy disclosed four perforations of the small intestines and the cavity of the peritoneum contained some doubtful looking fluid, with particles of food and false membrane. Recovery, which was delayed by an attack of pneumonia, took place in about six weeks, the missile coming away in a stool on the ninth day. In the second case a dragoon was stabbed in the left iliac region and immediately vomited some coffee he had just taken. Four hours later he was admitted to the Vincennes Hospital, his general condition being then satisfactory. There was no nausea and his pulse beat firmly as 70. An attempt was made to probe the wound, but the stylet could not be introduced. A perforation seemed uncertain; an expectant treatment was adopted and the next morning the patient was so well that he was allowed several spoonfuls of milk. A few hours after this a complete change took place and urgent signs of generalized peritonitis showed themselves. Median laparotomy was at once performed, but the patient was so weak that only the small intestine could be examined, the result being negative. The abdomen was then closed, after the cavity had been washed out with warm artificial serum. Shortly afterward the man died and at the post-mortem examination it was found that the large intestine had been pierced. The author believes that if preventive laparotomy had been adopted the patient would have been saved. There is no intrinsic danger in laparotomy nowadays, he says. Then why delay it even in the most doubtful cases? In the instances cited the impossibility of sounding the wounds contributed largely to the postponement of the operation; but considering the small-sized projectiles now in vogue this method of establishing a diagnosis should not be accorded too much weight, especially when anesthesia has not been employed. Exploration is, no doubt, of great value where practicable, but inability to effect it is no proof of the absence of perforation. Statistics may be unfavorable to immediate laparotomy in penetrating wounds of the abdomen, but the author, nevertheless, maintains that it is generally indicated, and in this opinion he apparently has the support of M. Chauvel.

Alimentary Glycosuria.—Krehl has studied alimentary glycosuria occurring after beer drinking, and for this purpose he has examined one hundred students. He was able to vary the kind and amount of beer taken, as well as the time of drinking and the diet. The urine of four young brewers, who had drunk large quantities of beer in the fasting state or at breakfast time, was also examined, and in one case sugar was found. The exact composition of the beer, especially in regard to sugar,

was not ascertained. The students examined mostly drank one-half to two liters and a half of beer in the morning. Of fifty-seven drinking a lager beer, the sugar reaction was positive in four cases, or 7 per cent. In the case of an export beer, five out of fourteen, or 36 per cent., had glycosuria. In twenty-five students drinking one-half to one and a half liters of Rosen beer, no glycosuria was observed. Out of nineteen cases drinking large quantities of an Ehringsdorf beer in the evening, one, or 5 per cent., had glycosuria. Of eleven other students drinking largely of all sorts of beer, only one had glycosuria. It was often impossible to repeat the examination in these cases. The predisposition of the individual is always important in these cases, for those who drink the most are not always those who have the glycosuria. The more marked presence of the glycosuria in the morning was due to the more rapid absorption. Both Strümpell and Strauss showed that alcohol favored the appearance of an alimentary glycosuria. Perhaps the sugar in the urine in these cases was due to the action of the alcohol, but other substances in the beer may be responsible. The author thinks that at the present moment there is no satisfactory explanation of the alimentary glycosuria following upon beer drinking.—*British Medical Journal.*

Vaccination has Suffered more from Negligence than from Fanaticism.—The blessing which vaccination has conferred upon mankind will never be appreciated, certainly never heartily received, till smallpox shall have had an opportunity to demonstrate its unspeakable loathsomeness and death-dealing power in full epidemic swing and form. Antivaccination societies still exist in Europe and America, but the bait in converts which the fanatical fools who belong to these orders offer the Gorgon of smallpox is a bagatelle compared with the multitudes who are suffered carelessly to go unvaccinated, through loose sanitary regulations, or who are resting in fancied security given by imperfect vaccinations, or primarily perfect vaccinations whose protective power has been canceled by time. Vaccination even by the profession is often carelessly administered, while the laity presume to vaccinate without professional advice, and even give judgment upon the genuineness of the vaccine scar with the confidence of experts. Vaccination should never be done by inexpert hands. The source of the virus should be unquestionable, and the result should be carefully noted in every case. Nobody but an expert can pronounce upon the genuineness of the vesicle (any kind of sore or inflammatory lesion must not be allowed to pass for a vaccination), and revaccination should be insisted upon in every case after the lapse of five years from the time of the last successful vaccination. If vaccination and revaccination were made compulsory by legal enactment, and the above rules were carefully followed, smallpox would be stamped off the face of the earth in a decade. As it is, the disease lies in wait till the careless or unsuspecting victims become sufficiently numerous, and then begins the march of death.—*American Practitioner.*

Pure Diphtheria.—Dr. Barbier has communicated to one of the Parisian medical societies the results of an elaborate study of unmodified diphtheria. He thinks that he has demonstrated that cases of pure diphtheria, due to infection with the diphtherial bacillus only, were clearly distinguishable from cases of modified diphtheria in which the additional infection of other microbes, streptococci, staphylococci, etc., played a part. As a result he presented a clinical description of diphtheria much simpler and more definite than the existing one, which embraces all forms. This pure diphtheria may be observed experimentally in animals in which the bacillus causes simple vaso-constriction and necrosis but never inflammation. But when diphtheria occurs in man it is usually in the modified form, for being but feebly contagious a pre-existing morbid condition of the affected surfaces is generally necessary to enable the disease to install itself. The diphtherias secondary to scarlet fever and measles are examples of this. In only fifty-four out of 221 cases examined bacteriologically was the diphtheria pure. Pure diphtheria is to be recognized clinically not by the appearance of the membrane but by the state of the throat especially; the mucous membrane is not inflamed, but on the contrary; rather pale mucous or purulent secretion is absent, and adenopathy is absent or trifling. The temperature is but little elevated; it is at most a little over 100 degrees or 101 degrees F., and this only temporarily. The pulse is always small and rapid. There is little or no albuminuria. However benign may be the appearance of the throat the patients look ill and have a pale, leaden complexion, because they are under the influence of the diphtheria toxin. No matter what may be the extent of the membranes or the multiplicity of the localities attacked, recovery under the influence of antitoxin manifests itself on the following injection and is completed in two or three days, rarely later. The prognosis is therefore very good. All Dr. Barbier's fifty-four cases, which included thirteen laryngeal cases in which intubation had to be performed recovered. There is only one danger in this form, extension of the disease to bronchi, which may lead to suffocation. Dr. Barbier never observed paralysis in any of his cases, a remarkable fact. In modified diphtheria of the throat the mucous membrane is always red, sometimes it bleeds and the tonsils are always swollen. The inflammation may be limited to the neighborhood of the false membrane, confined to a part of the mucous membrane, for example the uvula, or generalized. In the pharynx is seen mucopurulent matter, secreted there or coming from the nose or larynx. In almost all cases the lymphatic glands are enlarged. Though the appearance of the membranes is not characteristic in most cases, and especially when there is staphylococci infection, they are rather thick and extensive, and often the odor of the breath indicates decomposition which is caused by saprophytes. The nose is almost always attacked, and whether membrane exists or not there is a discharge, serous, purulent, or hemorrhagic, containing numerous septic microbes. The temperature is higher than in the purer form 101.3 to 104 degrees. Complications such as bronchopneumonia, otitis and impetigo frequently occur, and in the worst cases septicemia.—London *Lancet*, February 19.

PRACTICAL NOTES.

The Success of Oxygenated Serum in Cold Abscesses is announced by E. Luton, who recently proclaimed its value also in diffuse psoriasis. He makes injections of a mixture of 75 grams of a 10 per cent. solution of sodium phosphate with 25 grams of oxygenated water at 20 volumes.—*Sem. Méd.*, March 9.

Ichthyol Spray in Acute Catarrhal Laryngitis.—The throat is sprayed with a 2 per cent. aqueous solution of ichthyol which the patient inhales twice a day, not inhaling too profoundly, for fear of producing nausea. The spasmodic cough and hoarseness soon disappear, as was also the case in several cases of false croup.—*Sem. Méd.*, March 19.

Wolkowicz' Method of Operating Muscular Wry-Neck.—The muscle is cut from the front, high up, obliquely downward to the back, and the lateral edge of the upper stump sutured to the medial edge of the lower part, leaving the medial part of the upper and the lateral part of the lower ununited. In this way the muscle can be lengthened as desired.—*Cbl. f. Chir.*, March 12.

Initial Symptoms of Osteomalacia.—The bones become sensitive to pressure, especially the spine in the lumbar region; paralytic troubles in the muscles of the pelvis and thigh; subjective disturbances of an ostalgic or neuritic nature. Fine results have been obtained with 1 to 5 centigrams phosphorus to 100 grams cod-liver oil. One teaspoonful three times a day. —P. Rissmann, *Cbl. f. Chir.*, March 19.

Terralin is the name given to a new salve base which has all the advantages, and more, of the usual salve bases, with none of their disadvantages, we are informed. It is made of a mixture of calcium sulphate, ustum; kaolin; terra silicium; lanolin; glycerin and the antiseptics. In consistency like lanolin, but more plastic, it is readily washed off with pure water, which adapts it for cosmetics, etc., besides its important therapeutic uses.—P. J. Eichhoff, *Deu. Med. Ztg.*, 19.

Ulcer of the Foot, according to Schulte, is not caused by inflammation of the tendons or periosteum as generally accepted, but is due primarily to a fracture of the second, third or fourth metatarsal bones. In fifty-nine cases he has examined, a callus was always distinctly to be felt, and radiographs in many cases confirmed his opinion. Crepitation and abnormal mobility was noted in six cases. His treatment is rest in bed, massage, moist bandages, and later, painting with iodin.—*Cbl. f. Chir.*, March 19.

Keratitis and Conjunctivitis may be treated with massage and a sublimate-cocain salve. Sassaparel has found the following salve, followed by gentle massage through the closed lids, for a minute or two, extremely effective in cases of phlyctenular keratitis, ulcers of the cornea, chronic conjunctivitis and episcleritis; cure in ten days at most: Five per cent. sublimate solution, one drop; cocain hydrochlorate, ten centigrams; vaselin, four grams.—*Sem. Méd.*, March 19.

Connection Between Nasal Affections and Psychiatry.—C. Ziem urges a more active treatment for certain mental disturbances, and traces the connection between them and nasal troubles, especially affections of the accessory cavities, determining disturbances in the circulation of the frontal region of the brain. His communication in the *Monats. f. Ohr. k.*, 1897, 11 and 12, describes his own personal experience with scientific candor and accuracy, and is a convincing plea in favor of the alleged connection.—*Cbl. f. Chir.*, March 12.

Neurasthenic Hunger.—Neurasthenic individuals sometimes experience peculiar attacks resembling fainting spells, with extreme weakness, pallor, vertigo, cold perspiration, weakness and trembling in the knees and a sense of heaviness in the head. T. Benda describes one patient thus affected every afternoon toward night. He noticed that in many persons hunger accompanied the attacks and assuming that they were due to exhaustion from lack of food, combined with autointoxication from food in the intestines which the neurasthenic stomach had hastily passed along in a more or less undigested condition, he found that he could cure them by having the patient eat something, and prevent them altogether by small frequent meals.—*Deu. med. Woch.*, March 31.

Unna Shaves off Soft Chancres after congealing the entire surface with ethyl chlorid, applying the razor flat and slicing off a layer 2.5 to 3 mm. thick, which he states removes all the germs. He then touches the raw surface with the caustic pencil, powders with iodoform and covers with an oxid of zinc dressing, renewed every day or two. If there are several chancres he treats each in the same manner, but takes off a slice 3 to 4 mm. thick in neglected and serpiginous chancres. The rapidity of the cure, often in less than twenty-four hours, the simplicity of the post-operative treatment and the absence of the consecutive scar recommends this method above all others, except when the location of the chancre, at the orifice of the urethra for instance, forbids its application.—*Sem. Méd.* March 23.

Cocain as an Anaigesic in Dermatology.—Unna applies it before scarifications, etc., in a powder; cocain hydrochloric, one-half to one gram; magnesium carbonate ten grams. A moist compress is laid outside, for ten minutes, which the patient is instructed to press lightly against the part. If the skin is intact, pure basic cocain must be used instead, or the surface can be painted with the following mixture: Pure cocain, 1 to 2 grams; Hoffmann's solution, 50 grams; collodion, 1 gram. It can also be applied in the following form: Pure cocain, 1 gram; sweet almond oil, 50 grams.—*Sem. Méd*, March 9.

Ichthyol Salve in Measles.—The favorable effects obtained by rubbing the body with ichthyol salve in variola, suggested the same treatment for measles and if it can be applied from the very first, it aborts the infection; neither eruption nor fever appears and the child recovers promptly, if the eruption is already apparent, with hyperthermia and bronchitis; the temperature returns to normal after one or two rubbings, and the patches grow pale and disappear. In four or five days the cure is complete, when a warm bath is given to remove the traces of the salve. He has the salve rubbed in all over the body, morning and night; thirty grams of ichthyol to ninety grams of lard.—A. Strizovere; *Sem. Méd.*, March 10.

Surgical Operations on Hysterics and the Insane.—From a study of 111 cases of ablation of the uterus and adnexa, Angelucci concludes that mental disturbances are not favorably affected by these operations. Only 17 were improved; 25 hysterics were rendered much worse; 44 hysterics became insane; 2 nervous patients, confirmed hysterics, and 23 were not affected either way. He therefore asserts that hysteria is a counter-indication for gynecologic surgical operations, and they should only be attempted when absolutely necessary, and then combined with suggestion, although he concedes that occasions may arise when a simulated laparotomy may be resorted to as a suggestive measure after all other therapeutic means have failed.—*Rev. de Psych.*, February.

Speedy Cure of a Long-Standing Case of Borborygmus.—Veire has reported a case of a girl, aged 15, who for more than two years has been troubled with borborygmus. The noises were so loud that they could be heard in the next room. After an attack of borborygmus had continued several hours a great quantity of gas would be brought up and for a short time the noises would cease. Veire made a diagnosis of ectasia and ptosis of the stomach. He prescribed a close-fitting bandage. A month afterward the patient stated that from the time when the bandage was first applied the noises and formation of gas had entirely ceased.—*Bulletin Général de Thérapeutique.*

Evisceration and Shock in Abdominal Surgery.—L. Tixier's monograph is based upon long experience with Fochier, Ollier, Poncet, Jaboulay and Pollosson, and extensive experimentation on dogs and tests on the cadaver. He states that in all operations performed on account of fresh contusions and penetrating wounds of the abdomen, a rapid evisceration for the purpose of obtaining information is imperative, if the operation follows soon after the injury and there are no adhesions nor meteorism. In chronic ileus it is less urgently indicated, but if deemed necessary it can be done, as the intestines are not very sensitive except during acute exacerbations. In acute occlusion, when the seat of the trouble is unknown, complete evisceration is much to be preferred to drawing out the loops separately, if the operation is prompt. In tardy operations the intestines have become too sensitive and an artificial anus is recommended by many, if there is no internal strangulation nor invagination. Evisceration is to be avoided in acute peritonitis, unless necessary to locate a fresh gastric or intestinal perforation. In tuberculous peritonitis it is indicated in order to increase the curative effect of the simple laparotomy. With a certain amount of meteorism the incision in the linea alba is preferable, but if the intestines are flabby they can be eviscerated through a lateral incision. He finds that a healthy peritoneum in dogs does not react with shock if the evisceration does not last longer than ten or fifteen minutes, while the reflex phenomena appear at once and are very severe if the peritoneum is inflamed or otherwise injured. Dry gauze produces much more violent reflex action than warm moist gauze. He therefore advocates moist asepsis; also ether narcosis.—*Cbl. f. Chir.*, March 26.

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SATURDAY, APRIL 30, 1898.

MILITARY MEDICINE OF THE DAY.

From many sources it is learned that smallpox is now rife in Cuba, and many have expressed uneasiness lest the new levies of troops, many officers and men alike inexperienced, might suffer from smallpox. The assumption is a gratuitous one, for without question all State troops will be vaccinated at the different State rendezvous. This vaccination and revaccination so far as the militia are concerned, need not be done until the men are mustered into the United States volunteer service, as many of them will doubtless have to return home after the rigid physical examination which the regulations require. The percentage of loss is considerable, but their places can easily be supplied from among the thousands awaiting opportunity for enlistment, but while at the rendezvous awaiting orders to the field, the entire force should be properly vaccinated, or revaccinated as required in individual cases. In this war the United States should not lose a single man from smallpox. So far as yellow fever is concerned, let it be repeated that the open mountain country is safe. It is the infected houses and the foul drains, stagnant water and crowded tenements, filth and confined air, that furnish breeding places for Yellow Jack. The alcoholic and those enfeebled by disease, have least resistance, and soonest fall victims.

The code of hygienic rules just published by Surgeon-General STERNBERG fully meets the present requirements.

Havana can be made as healthy as any city in the tropics, if it were thoroughly policed, and the infectious centers dealt with as would be done in our own cities. The talk of dredging the bay is senseless. The only feasible plan to purify the bay is to build the long-talked of canal to establish a current, to destroy the wooden infected wharves, and build stone sea walls. Then with sanitary attention the city could be made clean. This plan however costly will be effective and economical, if we consider the vast losses inflicted upon the world in the past.

The Spanish government has never pretended to disinfect houses, to destroy fomites, to purify the stagnant arm of the bay, or the festering wharves, but on the contrary has thus for centuries been *particeps criminis* in sending death-dealing microbes throughout the world. There has however been no unkind discrimination. Spain has kept on sending sick troopers into the old infected military hospital, with utter indifference, and the offspring of the grandee who came to sit at the taxgate suffered the same fate as any other non-immune. What Great Britain has done with Kingston may be easily repeated in the Cuban cities if the Cuban authorities, when they control, will bend their energies to that end.

THE "INSANITY DODGE."

It is notorious enough that the plea of insanity in criminal cases has fallen into popular discredit and the term "insanity dodge" is characteristic of the common notion, in this regard. That this popular idea is to a certain extent erroneous is also true enough, though it may not be so easy to convince the average layman of the fact. Indeed the very cases that have made the plea unpopular may be and often are the ones in which it is most justly urged; the public furor for the execution of some imbecile or paranoiac whose crime has especially aroused popular reprobation not infrequently doubly blinds justice and leads to what is hardly morally better than lynch law under its forms. Sir JAMES MACKINTOSH or whoever else it was that made many years ago a rather formidable charge of judicial murder against the then existing English law on this account would were he living still find many instances in modern practice in this and his own country to warrant his accusations.

On the other hand it must be admitted that the plea is far too often utilized to aid undoubted criminals to escape the due punishment of their crimes. This has been the more easily accomplished by the aid of the very proper feeling that it is better to let the guilty escape occasionally, rather than to risk the unmerited punishment of an irresponsible and legally innocent individual. The fact also that there has been no legal standard of medical expertness has been an important factor in the production of the miscarriages of justice in either direction; the opinion of the skilled alienist has counted for no more than that of any other medical witness however really unqualified he may have been in this particular specialty. The result has been in this particular specialty. The result has been to bring all expert medical testimony into discredit and as a profession we have suffered.

To remedy this state of affairs by legislation has so far seemed a difficult task and it can not be claimed that the efforts in this direction have any where as yet been a brilliant success. Legislators are hard to convince on a point where their prejudices can be aroused against the desired measures and they are more than ever liable to be suspicious of what may seem to them to be legislation in favor of a single professional class. The "one man as good as another" idea has to be combatted to some degree in effecting such legislation, and its political bearings and possibilities are ever present in their minds. It is somewhat of a satisfaction therefore to find as we do that in one State at least a little advance has been made by judicial decision and where legislation has failed, judge-made law has stepped into the breach. According to an editorial in the *Chicago Tribune* of April 21, the supreme court of Iowa has decided that whenever a question is raised as to the sanity of the defendant in a criminal trial, a special trial for insanity shall be at once ordered and if insanity is found to exist by a jury of medical experts, the individual is sent to the insane ward of the penitentiary for an indefinite period. If on the other hand he is found sane the question is considered disposed of and the criminal trial proceeds. The editorial account does not state whether or not he is under particular surveillance in the insane ward and that there is any further report made as to his mental condition. It would be a manifest injustice to commit an individual as yet unconvicted of crime to associate indefinitely with insane criminals, and the possibilities of *habeas corpus* suggest themselves as likely to be invoked very early in such a case. It would be equally unjust also and against good policy to have such a person let loose upon the public because the jury had made a mistake that was evident to the closer observation of the prison physician, or because another judicial opinion has been pronounced that he was unjustly detained. The solution of the difficulty is not perfect under such conditions; a notorious criminal might soon be pronounced recovered and, so far as anything is stated to the contrary, could be turned loose again upon the community. The better way would be, it would seem, to have the detention ordered for purposes of observation, and in case it should appear that the insanity was simulated or merely temporary since the commission of the crime, the person could, on his discharge from the insane ward, be tried for his offense in the regular way. Such a practice has been in vogue in times past in certain counties in Illinois, where on the appearance or claim of symptoms of insanity in a prisoner awaiting trial, he was sent to an asylum with a request that before his release the authorities should be informed so that they could take him out to stand his trial if thought proper. In this way no injustice was done in cases of genuine mental derangement, while merely temporary alienation or simulated insanity were no bar to final conviction and punishment for crime.

The decision of the Iowa supreme court is, however, an advance upon the old practice, under which it was possible for a clever criminal with an able counsel to sometimes escape punishment for offenses against the law. That this is or has been as frequent an occurrence as the public commonly believes, is very doubtful; there is generally at least some grounds for the plea of insanity when it is successful. The term "insanity dodge" is indeed applied more often to cases where the plea is perfectly legitimate than to those in which it is a subterfuge to defeat the law and help a sane criminal to evade the due penalty of his offense. The lunatic's criminal act is often more liable in fact to be such as will arouse public indignation and lead to a popular outcry for its punishment than is that of the sane and artful criminal, who is much more likely to act so as not to excite feelings that may be too dangerous for himself.

There are many in the so-called criminal classes who are so near the boundary of mental soundness as to make a plea of insanity in their case at least plausible. There are others again who are clearly over the line in some respects, and who yet may be more or less responsible for their criminal acts. The law, recognizing no intermediate stages between sanity and insanity as regards responsibility, creates infinite possibilities of injustice in special cases. The result is that our penitentiaries abound in cranks, while occasionally a rank criminal is turned loose unpunished for his offenses. The remedy, if there is any, is not to be found in railing at the "insanity dodge" or condemning lunatics alike with the sane criminals. A temporary commitment to the care of a skilled alienist diagnostician would be the best and most natural solution of the question, but this is apparently not always practicable under present conditions. We are still left to the discretion of judges and the fallibility of juries where legislation has failed to meet the demands of medical science and common sense in this important matter.

WITCHCRAFT EPIDEMICS IN THE UNITED STATES.

Some years ago the *Popular Science Monthly* devoted no little editorial space to what it called the recrudescence of superstition. In this discussion "Christian science," folklore medicine, charms, etc., were regarded as a revival of fifteenth century practices in the closing nineteenth century. In truth, however, these were simply atavistic survivals of prehistoric fetichism which had persisted in popular folklore. They were pushed to the front by accidental wealth-getting by people in the lowest grades of culture. Chicago, from its cosmopolitan population, is peculiarly liable to these fetichistic explosions. In Chicago demons are still exorcised from the insane

by Italian ecclèsiastics, as more than one medical superintendent of the County Insane Hospital has had reason to know. Germans of the lower rural middle class still believe in "magic trees." "Dr." Paul Wachter, an ex-barber was lately sent to the penitentiary at the instance of German politicians for pocketing money from them to put into a "magic tree" as a cure for ailments.

The "witch doctor" is still a potentate among the Pennsylvania Dutch. "Witch Doctor" Amend of Pittsburg, who died in 1894, earned till his death $15,000 yearly for detecting witches. In three instances his advice, given along the old witchcraft-finding lines, nearly led to murder by an infuriated mob. The latest witchcraft epidemic in the United States has occurred in West Virginia. The defectives of large European cities were sold to certain planters of Virginia for a term of years and were allowed to redeem themselves at the end of these. Many of these redemptioners escaped to form the mountaineers of Virginia. Among this population has occurred the latest witchcraft epidemic. Near Lewiston, W. Va., four children of one family were seized with epidemic hysteria of a convulsive type. One was a 10-year-old boy and the others were girls aged from 11 to 15 years. Under suggestive cross-examination the boy claimed to be bewitched and charged an old man and woman with the crime. The local witch doctor declared that the child's accusation was well based. Effigies were made of the old man and woman and were shot at with silver bullets. The effigy of the old woman not being hit she was hunted into the forest during a wild storm and has not been seen since. The witch doctor then filled a bottle with needles, pins, and water and put it on the fire to boil. The first person who appeared after it began to boil and asked a favor was the witch. The old man who had previously been accused called to borrow some powder. He would probably have been killed immediately, but the bottle exploded, sending its contents into the assembled crowd, whose consternation permitted him to escape. The children still continued to have convulsions and the whole community became excited. Under their advice the father changed his witch doctor for another, who made grand preparations to work a potent counterspell which would take nine days to develop. Meanwhile the county authorities had heard of the disappearance of the old woman and sent Dr. DANIELS and Dr. HUMBLE to treat the epidemic. Under their careful management the convulsions of the children disappeared. Before this several other children had been attacked, some of whom had become so insane as to require hospital custody. According to Dr. HUMBLE, the belief in witchcraft is widespread in the community. One old lady described to him with all sincerity that a certain old woman had fatally bewitched her sheep and cows. The same witch would have killed her son by spells had these not been neutralized by a witch doctor with powerful incantations.

Nearly all the "witch doctor" therapeusis here employed was gravely collected into a respectably bound and printed volume and published at Harrisburg, Pa., in 1853. This hoodoo pharmacopeia enjoys an interstate as well as a local reputation in Pennsylvania, West Virginia and Ohio. When such gross superstitions survive and even control newspapers (as witness the clairvoyant columns) through the editor being made such by accidental fortune, it is hardly surprising that the eighteenth century patent medicine man and the "specialist for every disease human flesh is heir to" should have such a prominent place in newspaper esteem. If it take so long to kill the witchcraft delusion which the medical profession (in the person of Dr. REGINALD SCOTT) scotched in the sixteenth century, the survival of the kindred delusions mentioned is hardly surprising.

PANCREATIC COLIC WITH GLYCOSURIA.

A few years ago when the results of a series of interesting experiments and pathologic researches were placed before the profession many physicians supposed that a frequent cause of diabetes mellitus had been found in pathologic changes in the pancreas; for extirpation of this gland produced glycosuria in animals, as does also serious disease of the organ which materially interferes with its function. Increasing experience has, however, shown that comparatively few cases of diabetes are dependent upon pancreatic lesions, for pancreatic disease is not common, and lesions involving the entire gland are still more rare. In connection with this subject the report of a case by POLIAKOFF of Moscow, in a recent number of the *Berliner Klinische Wochenschrift*, is of interest.

A man of 28 years, without any pathologic history, who had always been in good health, had suffered for a period of ten weeks, without apparent cause, from violent epigastric pain, chiefly felt along the border of the left ribs, near the vertebral column and radiating into the left hypochondrium. In the space of three weeks five attacks had been present, accompanied by vomiting. After these attacks the patient remarked that he was losing flesh, that he was feeble, but that his appetite was distinctly increased and that polydipsia was marked.

An examination at this time by Professor ZAKHARINE showed that the patient was suffering from distinct polyuria and that glycosuria was pronounced. Pressure over the kidneys and over the biliary ducts failed to produce any pain, but exploration of the epigastrium revealed a painful spot over the pancreas, or in other words just above the umbilicus. There was however no tumor. The wasting, pallor, dyspepsia, polyphagia and general feebleness seemed to make up

the diabetic complexus and because of the character of the pain and its position it was considered that the patient was suffering from a pancreatic colic, probably due to the presence of a stone in the pancreatic duct. Proper regulation of the diet so far as glycosuria and the development of calculi is concerned, caused a disappearance of the trouble so that no further return of the disease appeared during the following year, so that it is probable that the stone escaped into the intestine and that other stones were not formed which might produce similar symptoms. While a postmortem did not confirm the diagnosis in this case POLIAKOFF believes that it was undoubtedly one of pancreatic diabetes. It will be remembered, however, in this connection that in 1894, NIMIER, who had found pancreatic calculi at autopsy with alterations in the pancreas, asserted that such a find was not indicative of pancreatic diabetes, unless by a process of sclerosis a total obstruction of the glandular tissue had resulted. That is to say, the diabetic trouble only becomes constant when such glandular lesions result. In POLIAKOFF'S case the mere temporary obstruction of the duct was sufficient to pervert the function of the gland so that temporary glycosuria resulted.

Naturally, there is much difficulty in making a differential diagnosis between pancreatic and hepatic colic. FRIEDREICH believes that such a diagnosis is almost impossible. On the other hand, LICHTHEIM has published a case in which he made a diagnosis with the following symptoms. Severe colic, with violent pain in the epigastrium, vomiting and fever, diabetes which continued for a considerable time, and a fatty diarrhea. Fatty diarrhea is not, however, a necessary symptom in making such a diagnosis, but the stool should always be watched and carefully examined in order that pancreatic calculi that pass into the intestine may be discovered. It is interesting to note in this connection that LANCEREAUX observed three cases of obstruction of the pancreatic duct out of fourteen cases of pancreatic diabetes; and that FREYAN has seen diabetes follow a calculus in the pancreas which the autopsy showed to have caused complete atrophy of the gland and that FLEINER has seen marked cardialgic pain in patients who had inflammation of the pancreas due to lithiasis.

CORRESPONDENCE.

Dr. Klebs' Ameba of Yellow Fever.

WASHINGTON, D. C., April 20, 1898.

To the Editor:—If Dr. Klebs had taken the trouble to read my report, published in 1890, he would have ascertained that he is not the discoverer of his supposed amebæ. These bodies were first observed by Councilman in 1889, and for a time were believed by him to be parasitic amebæ, but upon making comparative researches this view was found to be untenable, as is shown by the italicised portion of the following quotation:

REPORT OF DR. WILLIAM T. COUNCILMAN.

"The most interesting results were obtained from the examination of the liver. It has long been held that fatty degeneration of this organ was one of the most characteristic lesions of yellow fever, and it was found to a greater or less extent in all of the sections examined. It varied greatly in intensity in the different cases; in some comparatively large areas of liver tissue, which showed very little degeneration, were found, in others only here and there a few normal liver cells were seen. This lesion, however, does not seem to me to be the most important one of the organ. When sections of the liver are deeply stained with eosin and subsequently with a nuclear stain, either hematoxylin or methylen blue, a very peculiar appearance results. When such sections are examined with a low power the liver cells are found to be stained a faint reddish blue or purple color, the nuclei being a deep blue or purple. Among the liver cells or in place of them a great number of bodies stained intensely red with the eosin are found when examined with a high power. These bodies are found to differ entirely from the liver cells. They are sharply circumscribed, are highly refractive, and are composed of a perfectly hyalin mass containing numerous vacuoles. Their size varies greatly; in some cases they are no larger than a leucocyte, in others as large as two liver cells. They are found inclosed in liver cells, otherwise perfectly normal, and in some cases they entirely take the place of these in the liver beam-work between the capillaries. In some cases examined they apparently made up the mass of the tissue, only here and there a portion of a liver cell or a nucleus of such being seen. Sometimes, especially where the liver tissue was most scanty, along with these definite circumscribed masses more or less granular material was found which stained in the same way. These bodies were generally round or more or less irregular in form. In some of the liver cells small hyalin masses staining in the same way were found which were not so sharply circumscribed as the larger bodies. They were found most abundantly in the cases where the fatty degeneration was most extreme, but the most striking pictures were obtained where the liver was least altered.

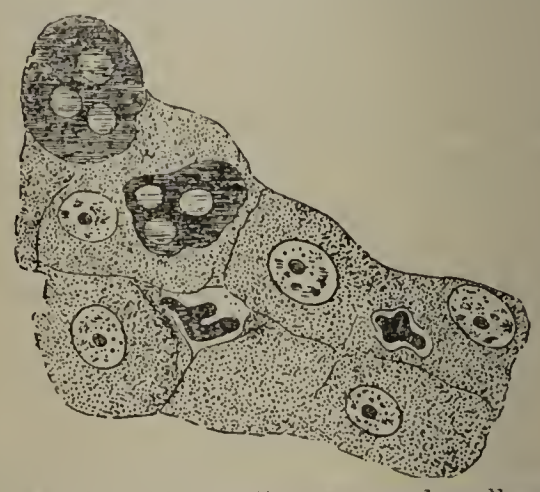


FIG. 1.—Liver cells, with necrotic masses, and small masses between and in the liver cells.

"In a few instances liver cells were found which only differed from the normal in being more coarsely granular, the granules staining with eosin but not so distinctly as the eosin staining bodies, and the nucleus stained more faintly blue than the nuclei of the surrounding liver cells. In most cases these bodies were without any nucleus; in others, a nucleus was present. This always was at the periphery, and generally took the long irregular form of the nucleus of a wandering leucocyte. Polynuclear leucocytes were numerous in all the livers examined. In some cases there were well defined groups of them in the capillaries and in the liver beam-work between, and, as it seemed, often in the red-stained bodies. In several specimens there were hemorrhages in the liver, large areas being occupied by red blood corpuscles, between which the red bodies were often seen. This peculiar condition of the liver is possibly made more clear by staining the sections deeply with picrocarmine. In sections so treated, these bodies stain an intense bright yellow with the picric acid. Concerning the nature of these bodies there can be little question. *When first seen it was thought that they were probably some form of lower organisms, possibly amebæ, but a more extended study showed that this could not be so. Bodies in all respects similar to them were found in rapidly advancing cases of cirrhosis of the liver, in phosphorus poisoning, and in other cases of rapid fatty degeneration, but they are particularly found in cases of acute yellow atrophy of the liver.* Areas were found in sections from this which were very similar to the advanced cases of yellow fever liver. It must be considered that in yel-

low fever, along with the fatty degeneration, there is a necrosis of the liver cells, which sometimes affects only portions of the cells; at others the entire cell. Almost every change leading up to the formation of these bodies could be seen. The exact relation of the fatty degeneration to the necrosis could not be determined. The necrotic masses were found both in intact liver cells and in those which had undergone fatty degeneration. In the latter cases it seemed probable that the necrosis preceded, or at least accompanied, the degeneration. If it only represented a necrosis of the small remnant of cell protoplasm between the fat drops it is difficult to see how so large a body could be formed from this. When the necrotic masses were found in the liver cells they were nearly always at the periphery of the cell next to the capillary.

"Although these necrotic masses were generally found in the beam-work of liver cells, careful examination showed them frequently to be in the hepatic veins and in the capillaries. It would have been interesting to have examined sections of the lungs to determine what part they might play in the formation of emboli."

Figure 1 is a reproduction of one of the figures illustrating my report, and is made from a drawing by Dr. Councilman. For additional illustrations I refer to Figures 10, 11, 12, 13, 14 and 16, all of which are reproductions of Dr. Councilman's drawings.

GEO. M. STERNBERG, M.D., LL.D.,
Surgeon General, U. S. Army.

ASSOCIATION NEWS.

Transportation Rates.—The following has been received from the Committee on Transportation appointed by the AMERICAN MEDICAL ASSOCIATION at Philadelphia, Pa.:

PITTSBURG, PA., April 25, 1898.

To the Editor:—We have assurance that other railroads east will follow the liberal action of the Western Passenger Association, and also give to the members of the AMERICAN MEDICAL ASSOCIATION one way rate plus two dollars for round trip and thirty days limit with stop over privileges west of Missouri River, and for those who want to go farther west at reduced rates to visit points of interest, there will be a low rate round trip from Denver to visit Salt Lake City at about $18.

Yours very sincerely,
W. H. DALY, Chairman.

Liston H. Montgomery, Secretary. William Pepper, X. C. Scott, C. M. Drake, H. O. Marcy, J. W. Graham, J. D. Griffiths, Austin Flint, Committee.

The JOURNAL Special Train will go via the *Burlington* Route from Chicago.

Preliminary Announcement of the Committee of Arrangements.—The Committee of Arrangements announces that preparations for the coming meeting are well advanced. A large number of prominent men have signified their intention to be present and read papers, and an excellent scientific program is assured. The indications all point to a large and successful meeting.

Convenient and ample accommodations have been secured for the General Sessions, Section work, Registration and Exhibits.

The entertainment of members and their families is being planned on an elaborate scale, and the Committee promises all who come a most enjoyable time.

Denver is an interesting city, and the State offers many and varied attractions to visitors.

Local excursions are being arranged to take place after the meeting that all may have ample opportunity of visiting various points of interest in the State and seeing the best scenery of the Rocky Mountains.

The following is a list of the principal hotels of Denver with the rates agreed upon for the meeting:

The Brown Palace Hotel, 17th Street and Broadway. Take 17th Street (red) car to Hotel. European plan, $1.50 per day and upward. American plan, $3.00 to $5.00 per day and upward. These regular rates will apply during the meeting for available rooms if no reservation has been made. For reservations and rooms to be occupied by one person only, application must be made to Hotel for rates.

The Windsor Hotel, 18th and Larimer Streets. Take 17th Street car to Larimer Street. American plan, $2.00 per day; room with bath, $2.50 per day.

The Albany, 17th and Stout Streets. Take 17th Street (red) car to Hotel. American plan, $2.00 to $3.50 per day.

The Markham Hotel, 17th and Lawrence Streets. Take 17th Street car to Hotel. European plan, $1.00 per day and upward.

All reservations at the Albany and Markham must be for the full term of the Meeting, and be paid for whether occupied or not unless canceled ten days in advance. They reserve the right to place persons occupying a room alone in a single room.

The New St. James Hotel, Curtis near 16th Street. Take 17th Street (blue) car to Hotel. American plan, $2.00 to $3.50 per day.

L'Imperiale, 14th Street and Court Place. Take Colfax Avenue car to Court Place. American plan, $2.00 to $3.00 per day.

Metropole Hotel, Broadway near 17th Street. Take 17th Street (red) car to Broadway. European plan, $1.00 to $2.00 per day. $1.00 rooms, $1.50 if occupied by two persons. No reservations made.

The Oxford Hotel, 17th and Wazee Streets. Two blocks above depot. European plan, $1.00 to $3.00 per day. An extra charge for two persons in one room.

The American House, 16th and Blake Streets. Take 16th Street car to Blake Street. American plan, $2.00 per day.

The above hotels make no extra charge for reservations or for persons occupying a room alone except as stated.

The Hotel Broadway, Cheyenne Street and Broadway. Take Colfax Avenue car to Cheyenne Street. American plan, $1.25 to $1.50 per day.

The Vallejo, 1420 Logan Avenue. Take Colfax Avenue car to Logan Avenue. American plan, $2.00 per day and upward.

The Devonshire, 14th and Logan Avenues. Take Colfax Avenue car to Logan Avenue. American plan, $1.50 per day and upward.

The Albert, 17th and Welton Streets. Take 17th Street (red) car to hotel. European plan, $1.00 to $1.50 per day.

The Aldine, 1013 Seventeenth Avenue. Take 17th Street (red) car to hotel. American plan, $1.25 per day.

The Richelieu, 1727 Tremont Street. Take 17th Street (red) car to Tremont Street. European plan, $0.50 to $1.00 per day.

The Earl, 1430 Tremont Street. Take Colfax Avenue car to Tremont Street. American plan, $1.50 to $2.00 per day.

Glenarm Hotel, Glenarm and 15th Streets. Take Colfax Avenue car to hotel. European plan, $1.00 per day and upward.

The Bonaventure, 18th and Glenarm Streets. Take 17th Street (red) car to Glenarm Street. European plan, $0.50 to $1.50 per day.

The Drexel, 17th and Glenarm Streets. Take 17th Street (red) car to hotel. European plan, .75 to $1.50 per day.

These hotels make small extra charges for two persons occupying same room. No charge for reservation.

Applications for rooms should be made to the hotels direct. For special information apply to ROBERT LEVY, M.D., Chairman Sub-Committee on Hotels, California Building, Denver, Col.

J. W. GRAHAM, M.D., Chairman.
W. A. JAYNE, M.D., Secretary.

Section on Laryngology and Otology.—B. Alexander Randall, Philadelphia, chairman; S. E. Solly, Colorado Springs, Col., secretary. A partial list of papers to be presented in this Section is as follows:

Adenoid Growths in Relation to Deaf Mutism, by A. C. Getchel, Worcester, Mass.

A Fenestrated Tube for Endolaryngeal Operation, by Thomas Hubbard, Toledo, Ohio.

Adenoid Vegetations of the Nasopharynx, by John O. McReynolds, Dallas, Texas.

The Bacillus Aerophilus in Chronic Suppurative Otitis Media, by Lewis S. Somers, Philadelphia.

An Improved Spray Apparatus, by Vard H. Hulen, Galveston, Texas.

Diseases of the Ear in Colorado, by P. F. Gildea, Colorado Springs, Colo.

The Diseases of the Base of the Tongue and Their Treatment, by Robert C. Myles, New York City.

The Faucial Tonsil, Its Relation to the Ordinary Diseases of the Nose and Throat, by G. B. Sweeny, Pittsburg, Pa.

On Phonation, by E. Cutter, New York City.

On the Histopathology of Hypertrophic Rhinitis in Children, by J. L. Goodale, Boston, Mass.

Tubercular Laryngitis, by F. E. Waxham, Denver, Colo.

The Tonsils as Portals of Systemic Infection, by Norval H. Pierce, Chicago.

Twenty-nine Successful Tracheotomies for Foreign Bodies in the Air Passages, with Remarks, by F. Westmoreland, Atlanta, Ga.

The Presence of Polypi and Granulations in Suppurative Diseases of the Ear Not an Unfavorable Indication, by Louis J. Lautenbach, Philadelphia, Pa.

Paper to be announced, by Francis M. Chisolm, Baltimore, Md.

Empyema of Maxillary Sinus, by J. A. Stucky, Lexington, Ky.

Tubercular Laryngitis, by S.E. Solly, Colorado Springs, Colo.

Medical Societies Entitled to Representation in the American Medical Association.—The following additions to the list published in the JOURNAL of April 16, page 929, should be noted: Pennsylvania, the Lawrence County and the Potter County Societies; Minnesota, the Winona County Society; Iowa, the Austin Flint Medical Society.

SOCIETY NEWS.

American Surgical Association.—The thirty-ninth annual meeting of the American Surgical Association was held at New Orleans, April 19, 20 and 21. The proceedings of this session will appear in the JOURNAL in an early issue.

The Omaha Medical Society, at its recent annual meeting, elected officers as follows: Richard C. Mann, President; Elenor S. Dailey, first vice-president; E. W. Lee, second vice-president; J. M. Aikin, secretary; W. R. Lavender, treasurer; D. C. Bryant, B. B. Davis and C. C. Allison, censors; W. O. Bridges, Louis Swoboda and H. B. Wilson, committee on program. The Society has eighty members, meets twice each month and is doing much good work, local and State. Members of the regular profession, while in Omaha, en route to or from the National ASSOCIATION, in attendance at the Nebraska State Society meetings, in visiting the Transmississippi Exposition, will be cordially received by the local members, if they will make their presence known.

South Carolina Medical Association.—At the forty-eighth annual session of the South Carolina Medical Association, held at Harris Lithia Springs recently, the following officers were elected: T. T. Earle, Greenville, president; G. R. Dean, Spartanburg, first vice-president; W. G. Houseal, Newberry, second vice-president; E. F. Darby, Lynchburg, third vice-president; E. F. Parker, Charleston, corresponding secretary; T. P. Whaley, Charleston, recording secretary; B. D. Baker, Charleston, treasurer. Drs. Robert Wilson of Charleston and G. R. Dean of Spartanburg were elected to fill the vacancies on the State Board of Health occasioned by the deaths of Drs. Bratton and Taber.

The German Congress of Balneology was held at Vienna in March, Liebreich of Berlin presiding. Kisch urged the necessity of thoroughly equipped laboratories at every watering place, for chemic, analytic and metabolic tests of the waters and examination of patients to individualize treatment. Römpler confirmed the significance of heredity and the infrequency of direct contagion in tuberculosis, mentioning that no case of tuberculosis had occurred among the 263 nurses in the Madgeburg hospitals during the last seventeen and one-half years, nor in his own personnel of 23, some of whom had been in his establishment twenty-three years. Kobert exhibited a new bottle that can be filled without leaving an air space, a great improvement in examining mineral waters, especially those containing iron, as the water does not become turbid in it. Strasser discussed vegetable diet cures, remarking that the lemon cure for gout is now exploded. He observed that the benefits of a vegetable diet in chlorosis are mainly due to the change, as the same favorable effects are obtained with a return to the usual diet. Glax of Abbazia reported the results of twenty-five years study to the effect of balneotherapeutics on the diuresis. He stated that in individuals whose vasomotor system reacts to the slight stimulation of drinking cold water, this will promote diuresis, but not in persons with fever or disturbed circulation. The diuretic effect of cold effervescent waters is still more pronounced, but it is not sufficient to cause the absorption of the exudates in the pleura or pericardium, or of cardiac or renal hydrops. This can only be accomplished by limiting the amount of water ingested and substituting mineral water. This causes a surplus of salt in the blood and dries the tissues, which starts the process of absorption and diminishes the secretions in profuse bronchial catarrh. Some extensive tests demonstrated that with a decrease in moisture of the air from 100 to 71 per cent., the urine decreased from 90.5 to 70.7 per cent. of the fluids ingested. Speaking of distilled water as a beverage, Liebreich asserted that it is a powerful poison, its use liable to be followed by diseases, while the addition of a little salt removes this toxic property. M. Benedikt referred to the fully proven but still unexplained fact of the varying effects of different combinations of waters, urging in conclusion that water-cure physicians should report their failures as well as their successes: "science frequently benefits as much from the former as the latter." R. Buxbaum traced the etiology of certain cases of chlorosis and anemia to a lack of peristaltic action in the bowels, which is necessary for the maintenance of the circulation and pointed out the cure in restoring tone to the bowels. Loebel discussed menstruation in balneotherapeutics, observing that it was an indication to commence or continue the cure in some cases; in others a counterindication. But with proper care there was no justification for the general assumption that the baths were dangerous during the catamenial period. Winternitz extolled hydrotherapeutics in the treatment of round ulcer of the stomach, stating that not only the cardialgia but the pathogenetic phenomena were powerfully affected by it. The gastric pains are promptly relieved by cold sitz baths and by the application of a cold compress on the abdomen, under an air-tight covering. To further the reaction a rubber tube wound in a flat spiral is laid on top of the compress, with a current of hot water kept flowing through it. He controls the gastric hemorrhage by introducing small pieces of ice into the rectum, which produce by reflex action an intense spasm of the vessels of the stomach, and arrests the hemorrhage much more effectually than any medication.

Wisconsin State Medical Society.—The provisional program of the fifty-second annual meeting, Milwaukee, May 4, 5 and 6, 1898, comprises the following papers:

Shall the Manufacturer Do Our Prescribing? by G. J. Haumheimer, Milwaukee.

Diet as a Therapeutic Agent, by Karl Kordenat, Reedsburg.

Oxygen as a Therapeutic Agent, by W. B. Hill, Milwaukee.

The Treatment of Chlorosis, by Carl R. Feld, Watertown.

The Effects of Stimulating Narcotics, a Social Question, by Jno. Madden, Milwaukee.

Osteomyelitis, by H. A. Sifton, Milwaukee.

Intestinal Obstruction, by G. D. Ladd, Milwaukee.

Report of Case of Recurring Multiple Sarcoma Cured by Contracting Erysipelas, by P. O'Keef, Menominee, Mich.

The X-ray in Fractures, by Ralph Chandler, Milwaukee.

Surgical Shock, by A. H. Levings, Milwaukee.

Fractures about the Elbow, by W. A. Batchelor, Milwaukee.

Some Remarks concerning Suitable Treatment Before, During and After Surgical Operations, by J. A. Jackson, Madison.

The General Practitioner and the Surgeon, by T. C. Malone, Milwaukee.

Supplementary Report on a Case of Traumatic Epilepsy Treated by Craniectomy, by H. Reineking, Sheboygan.

Some of My Experiences in Abdominal Surgery, by Jno. Specht, West Superior

Tuberculosis of the Genito-urinary Organs, by J. R. McDill, Milwaukee.

Medical Treatment of Varicose Ulcers of the Leg, by G. A. Heidner, West Bend.

Cystic Kidney—with Exhibition of Specimen. Anomaly of the Vertebræ, with Specimen, by Dwight Mereness, Milwaukee.

Suppurative Synovitis of the Knee-joint, by D. B. Collins, Madison.

Report of Cases: *a*, Cicatricial Obstruction of the Gall-passages; *b*, Forty Gall-stones Removed from the Cystic Duct with Supsequent Partial Stricture of the Duct; *c*, One Gall-stone of 2 cm. in Diameter Removed from the Duodenal End of the Common Duct; *d*, Two Hundred and Eighty Gall-stones Removed from the Gall-bladder with Perforation of the Gall-bladder and Colon: *e*, Laceration of Middle Meningeal Artery with Exhibition of Specimen, by F. Shimonek, Milwaukee.

The Operative Treatment of Hemorrhoids, by L. P. A. Valentine, Western Union.

The Function of Pathologic Anatomy, by A. J. Burgess, Milwaukee.

Demonstration of Microscopic Specimens, by A. J. Patek, Milwaukee.

Advantages of the Weigert Staining Method in the Study of the Normal and Pathologic Anatomy of the Nervous System (with Demonstration), by H. Reineking, Sheboygan.

Pathology of the Endométrium, by G. A. Kletzsch, Milwaukee.

The Physiologic Action of Bacteria and their relation to the Maintenance of Life, by V. A. Gudex, Milwaukee.

Catgut in Abdominal Surgery, by E. Copeland, Milwaukee.

Immediate Repair of the Perineum, by G. V. Mears, Fond du Lac.

Metro endometritis, by W. E. Ground, West Superior.

Uterine Myofibromata, by C. W. Oviatt, Oshkosh.

The Value of Ligation *en masse* of the Broad Ligaments in Removal of Ovaries and Tubes, with Demonstration of Figure-of-eight Ligature, by F. Shimonek, Milwaukee.

Colpotomy, by A. J. Puls, Milwaukee.

The Structures involved in Perineorrhaphy, by F. B. Robinson, Chicago.

Hysterectomy—Clamp Method, by E. T. Fish, Milwaukee.

The Relation of So called Nervous Diseases to Mental Alienation, by W. B. Lyman, Mendota.

Paretic Dementia, by S. B. Buckmaster, Hudson.

Etiology, Prevalence and Treatment of Hysteria, by U. O. B. Wingate, Milwaukee.

Treatment of Hysteria, by Darwin R. Stockley, Lake Geneva.

The Circulation of the Nervous System, by Herman Gasser, Plattville.

A Case of Amyotrophic Lateral Sclerosis with Degeneration in Goll's Columns and in the Medulla Oblongata, by S. H. Friend, Milwaukee.

The Importance of Early Treatment in Insanity, by Moses J. White, Wauwatosa.

Paresis in a Father and Son with Syphilitic Brain Disease affecting Second Son, by Richard Dewey, Wauwatosa.

Cerebral Syphilis, by Wm. F. Wegge, Oshkosh.

A Few Remarks on Insanity and Early Home Treatment, by R. M. Wigginton, Waukesha.

The Country Doctor in the Practice of Medicine, by W. T. Sarles, Sparta.

Epidemic Catarrhal Jaundice, with Report of Case of Acute Yellow Atrophy of Liver, by C. M. Beebe, Sparta.

Infectious Jaundice, by W. H. Washburn, Milwaukee.

Carbonic Oxid Poisoning, by J. R. Barnett, Neenah.

Diseases of the Climacteric Period, Advanced Life and Old Age, by A. I. Comfort, National Home.

Brain-tire, by James Mills, Janesville.

Atony of the Stomach, by A. J. Patek, Milwaukee.

Delirium Tremens in Moderate Consumers of Alcoholic Beverages, with Report of Four Cases, by R. Elmergreen, Milwaukee.

Three Cases of Toxic Hemoglobinuria; Two Deaths and One Recovery, by G. J. Hirth, Milwaukee.

The Passing of the Family Physician, by E. C. Helm, Beloit.

Pseudo-membranous Enteritis, by M. B. Sharp, Madison.

Gastrosuccorrhea vel Gastroxynsis, by F. N. Sauer, Racine.

The Etiology and Treatment of the Diarrheal Diseases of Infancy, by L. Boorse, Milwaukee.

Infantile Scurvy, with Report of Case, by J. F. Pember, Janesville.

Infantile Tetanus, with Report of a Case, by T. W. Nuzum, Broadhead.

Glandular Fever of Children (Drüsenfieber), by S. B. Sperry, Milwaukee.

Infant Feeding, by A. W. Kratzsch, Milwaukee.

Milk and Infant Feeding, by W. C. Bennett, Milwaukee.

Influenza in Children, by Wm. Sweemer, Milwaukee.

Address of Chairman on Ophthalmology and Otology, by G. E. Seaman, Milwaukee.

Results of Operative Treatment for Phryngeal Adenoids, by H. V. Würdemann, Milwaukee.

Macroscopic Specimens of Eye Sections, by H. V. Würdemann, Milwaukee.

The Extraction of Foreign Bodies in the Ear, by E. W. Bartlett, Milwaukee.

The Present Status of the Use of Antiseptics in the Surgery of the Eye, by J. A. Bach, Milwaukee.

Eye Affections in Puerperal Eclampsia, by C. Zimmermann, Milwaukee.

Report of Cases: *a*, Congenital Opacity of Cornea; *b*, Bilateral Congenital Fistula of Lachrymal Duct; *c*, Gumma of Inferior Turbinated Body, by J. Steele Barnes, Milwaukee.

Mydriatics and Myotics in General Practice, by J. A. L. Bradfield, La Crosse.

Some Cases Bearing on the Peripheral Causation of Epilepsy, F. H. Edsall, Madison.

The Country Obstetrician, His Duties, How to Avoid and How to Treat Obstetric Septicemia, by N. M. Dodson, Berlin.

The Care of Cases of Abortion, by M. Caldwell, Waukesha.

The Midwifery Question, by J. Noer, Stoughton.

Eclampsia as an Indication for the Induction of Premature Labor and the Best Method of Performing the Same, by M. R. Hewitt, Milwaukee.

Inversion of the Uterus, by J. T. Scollard, Milwaukee.

Puerperal Infection, Cause, Symptoms and How to Avoid, by J. J. McGovern, Milwaukee.

Chairman's Address on State, Medicine and Hygiene, by G. W. Harrison, Ashland.

How to Prevent the Spread of Infectious Diseases in Our Dwellings, by C. H. Marquardt, La Crosse.

Vital Statistics and Health Laws, by A. F. Fuchs, Loyal.

The Value of Discussions in Medical Societies, by H. B. Hitz, Milwaukee.

Prevention of Nasal Catarrh, by F. C. Rogers, Milwaukee.

Asthma, by J. P. Thorne, Janesville.

Syphilis of the Larynx, by D. S. McArthur, La Crosse.

The Influences of Gastric Disturbances upon Catarrhal Disease of the Nose and Post nasal Space, by C. D. Conkey, West Superior.

The Air We Breathe, by F. T. Nye, Milwaukee.

Address of Chairman in Medico-legal Section, by W. F. Becker, Milwaukee.

Life Insurance, by M. H. Clark, Milwaukee.

PUBLIC HEALTH.

Quarantine Convention.

Held at Atlanta, Ga., April 12, 1898.

The convention was called to order at 10 o'clock, A.M., by Mayor Collier. Rev. Dr. Landrum opened with prayer. Owing to the non-arrival of many delegates, the session adjourned until noon, after the appointment of a credential committee and a committee on permanent organization. The report of the Credential Committee was received at the noon session, allowing all health and sanitary officers present to vote, and allowing each State five votes.

The Organization Committee reported the following officers, who were unanimously elected: President, H. B. Horlbeck, Charleston, S. C.; vice-presidents, E. A. Waugh, Virginia; De Sausure Ford, Georgia; R. L. Harris, Florida; Rhett Goode, Alabama; Murray, Mississippi; J. J. Scott, Louisiana; secretary, J. F. Weissinger, Atlanta. On roll call the States of South Carolina, Virginia, Georgia, Florida, Alabama, Mississippi and Louisiana were found to be represented.

President Horlbeck took the chair and appointed the following Committee on Plans and Resolutions: Drs. Souchon of Louisiana, Waugh of Virginia, Alexander of Georgia, Horsey of Florida, Goode of Alabama, and Haralson of Mississippi.

Resolutions relative to the regulation of quarantines were then introduced by Dr. Horsey of Florida, by Dr. Carter, the representative of the United States Marine-Hospital Service, and by Dr. Haralson. The resolutions presented by Dr. Haralson were adopted at a Montgomery convention twelve years ago. All the resolutions were referred to the Resolutions Committee, with which Dr. Wilkinson and Dr. Carter were invited to sit. An invitation to attend the reception last night

in honor of General Graham was read from the Capital City Club and duly received and acknowledged.

The convention then adjourned until 4 o'clock in the afternoon to await the report of the Resolutions Committee, which went into session at once to agree on a composite report from the resolutions introduced.

Before the chairman of the Resolutions Committee read his report the convention decided to make the regulations to be adopted applicable to yellow fever only, notwithstanding the fact several delegates tried to include smallpox. During this discussion, Dr. Barron, president of the Board of Health of Macon, attacked Dr. Alexander, president of the Board of Health of Atlanta, for taking the position Atlanta was immune from the disease. Dr. Alexander replied in convincing style, and satisfied his hearers that the history of the city has substantiated his position.

The following resolution, recommended by the Resolution Committee, was then unanimously adopted:

Resolved, That this convention approves the plan of having medical inspectors attached to those consulates where yellow fever and cholera are epidemic, with a view of securing for our protection definite information as to the exact sanitary condition and the presence or absence of contagious diseases in such consular district. And that congress be urged to make the necessary appropriations to carry the plan into effect.

The following resolution from the same source was also adopted:

Resolved, That this convention is of the opinion that it is a duty devolving on all nations to take measures to eradicate any plague centers from their territory, and that the existence of such plague centers is a menace to all other nations, and that our State Department be requested to take measures through proper diplomatic channels for the conveyance of this opinion to the governments deemed obnoxious to the opinion as herein expressed.

The convention then unanimously adopted the following regulations, section by section, for the government of disinfection and detention camps, or camps for the shipment of merchandise:

In case yellow fever should occur at any point of the Southern States, the most effective method to prevent shotgun quarantines and their disastrous effects upon commerce is to establish disinfecting and detention stations or camps on the lines of travel by rail or boat.

It is by practical actions that the people will be reassured and not by agreements and persuasions based on words, assurances or legislation. To show the people that all possible care is effectually taken to prevent yellow fever from reaching them is the best and only argument they should yield to.

1. Parties coming from localities infected with yellow fever should not be allowed to enter quarantining localities of the south Atlantic and Gulf States, unless they have had their persons, clothing, baggage, etc., disinfected, and unless they have remained at the station ten days after such thorough disinfection, and places holding communication with infected localities may themselves be held in quarantine.

2. These stations or camps will be erected by the United States Marine-Hospital Service.

3. They will be operated by the United States Marine-Hospital Service.

4. The Marine-Hospital Service will also be requested at an immediate date to prepare at least four disinfecting plants, including four cylinders for furnishing steam disinfection.

5. Medical inspectors from interested States and localities will be admitted to the stations to witness that the regulations are thoroughly complied with.

9. The clothes and baggage will be disinfected by moist steam under pressure.

10. Articles not amenable to this treatment will be immersed in a solution of 1 to 1000 bichlorid of mercury for one hour; or they will be placed in the formaldehyde chamber, fed from a generator for one hour, drying them first and spreading them in the chamber.

11. All articles requiring to be subjected to moist steam shall remain in the steam chamber at a continuous temperature of from 212 to 220 degrees F. for thirty minutes.

12. The persons will then be placed in the department of the disinfected and shall be inspected daily.

14. Upon the appearance of any tendency to yellow fever or any symptoms whatever of yellow fever, they shall at once be placed in a suitable isolated locality.

15. If they develop a case they shall be placed in the hospital of the station.

16. The persons will remain at the station ten days.

17. Persons thus detained will be given a certificate to the effect that disinfection has been practiced and detention of ten days enforced, signed by the resident officer of the United States Marine-Hospital Service.

18. Well authenticated immunes will not be detained, but will be disinfected.

19. Then the persons should be received everywhere and by everybody as being incapable of conveying infection.

20. Articles should not be shipped from dwellings, nor from places contiguous to dwellings, without being disinfected.

21. Class 1.—The following articles should be admitted without disinfection or restrictions of any sort: All new and dry material, unpacked, such as lumber, machinery, new brick, new tiling, bar and sheet iron, tin, steel, agricultural implements—no part of which is textile; iron, ties, stoves, saddlery not upholstered, wagons, new trunks, hardware without packing, lime, ice and salt in bulk, tar, turpentine, rosin, stone, gravel, coal, coke, cement, grain in car loads and cooperage, oysters and fish packed in ice.

22. Fruits, sound, when taken directly and in good condition from clean vessels and transferred at wharves not infected and in good sanitary condition immediately to the disinfected cars for shipment require no disinfection; freight taken directly from clean vessels, inspected and in good sanitary condition requires no disinfection.

23. Live stock and poultry also.

24. All disinfected cars to be placarded and way bills certified to by proper sanitary officers.

25. Class 2.—The following articles will require only superficial disinfection, that is, outside of container, by formaldehyde gas fed from generator: All goods in original wooden or metal packages, not broken or packed in an infected locality. This class embraces boots and shoes in original packages, cotton, dry goods in original cases, leather goods, saddlery and saddlery hardware, drugs and chemicals in solid cases or packages, rubber and oiled clothing, sugar in boxes or barrels, rice in barrels, canned fruits, vegetables, meat and oysters, also condensed milk in solid unbroken boxes, stone, iron or tinware, tobacco and cigars, wines and liquors, cheese in original boxes, flour, grits and meal in barrels, woodenware, butter, tea in caddies, candles in boxes, lard, pork, bacon, oils and paints in tin cans or barrels, soap in boxes, axle grease, iron roofing, saddle-trees, raisins, matches, salted fish, potatoes, onions and apples, molasses.

26. Goods other than textile packed in textile material, not broken in infected locality and kept perfectly dry, do not require disinfection, except the container. This includes coffee, grain and spices in sacks, as also cured hams in canvas.

27. Class 3.—Articles not in the above classes, if they have been exposed to infection, will be disinfected before they are shipped; the efficiency of said disinfection shall be certified to by the proper health authorities. This refers to all merchandise not manufactured in infected locality, but kept in stock for distribution, which has not been exposed to any infection and may be safely shipped without being fumigated.

28. When it has been exposed to infection, then it should be fumigated to be made harmless.

29. When desired, all goods of this character can be made to undergo a treatment of fumigation and disinfection before being certified to by the proper health authorities.

30. Articles mentioned above that can be packed in excelsior, in perforated container, rendering the excelsior and contents capable of disinfection, will be disinfected and passed.

31. Class 4.—During the prevalence of yellow fever in any city, town or locality, no bedding nor household effects from such city, town or locality shall be received for shipment to other points.

32. All certificates and all disinfections are subject to inspection and approval by authorized agents, who may be sent by the various health authorities.

MARINE HOSPITAL INSPECTION.

33. Each establishment packing and repacking will employ and pay a sanitary inspector appointed by the United States Marine-Hospital Service.

34. At the hour of arrival of the workmen at the establishment he will see that they are all gathered in the same place and the doors barred and remain so; also the doors of the rooms where they are at work.

35. They will disinfect the exposed parts of their bodies.

36. They will remove all of their clothing down to the skin.

37. They will don disinfected clothes, which will be clean and left by them the day before and pass through the formaldehyde chamber as above.

38. The sanitary inspector must also be disinfected in like manner as the workmen.

39. They will then only be permitted to open original packages in a previously disinfected room and distribute them and form other packages.

40. When these packages are completed and closed they will be stamped by the sanitary inspector as inspected and safe.

41. During the work the sanitary inspector will watch the work all the time.

42. After the work the workmen will remove their clothing and don their ordinary clothes, which, during the working hours, have been passed through the formaldehyde chamber.

43. The same regulations apply to operators in factories which intend to ship their goods to non-infected localities.

44. In addition, such goods themselves must be disinfected.

45. A general supervisor, employed by the United States Marine-Hospital Service, will check the efficiency of the sanitary inspectors in stated sections or a number of establishments.

46. In case of disobedience of any of the regulations the sanitary inspector will refuse to stamp the packages.

47. In packing goods into original packages only such packing material must be used as has been disinfected within the previous twelve hours.

48. A medical or sanitary inspector from interested States or localities will always be admitted at once into the establishment to see if the regulations are carried out properly.

49. All freight in cars and the cars themselves, and all freight on or in boats and such part of the boats themselves shall in all cases be disinfected by the United States Marine-Hospital Service whenever and wherever that service may deem the same necessary.

FOR THE REGULATION OF THE DISEASE.

At the evening session the convention first adopted the report of the Resolutions Committee concerning the regulation of the disease, which was as follows:

REGULATIONS FOR YELLOW FEVER.

1. Localities infected with yellow fever and localities contiguous thereto, should be depopulated as rapidly as possible, so far as the same can safely be done.

Persons from non-infected localities, and who have not been exposed to infection being allowed to leave without detention and in leaving such place shall be presented with health certificates by the legally constituted health authorities of the place.

1. If an inspection shows that the disease be certainly confined to a few houses, and all persons who have been exposed to possible infection are known, and these houses and people be isolated under observation, the remainder of the town need not be quarantined; should either of these conditions fail, the town shall be quarantined.

2. When practicable, the patient shall be removed to hospital or other quarters little liable to infection, and so situated as to involve a minimum of danger, if infected,

3. If the patient can not be removed, all possible precautions must be taken to prevent contamination of his premises.

4. Those certainly immune to yellow fever may be given free pratique after disinfection of effects.

5. Non-immunes may be permitted to go to places incapable of infection, to remain there during the period of incubation, requiring disinfection of baggage, unless certain that it will remain in such territory.

6. Non-immunes not going to such places, shall, if practicable, be isolated under observation in non-infected quarters, so situated that if fever develops among them there shall be as little danger as possible of conveying infection; their effects being disinfected upon isolation.

7. Such persons as are isolated under observation on account of exposure to yellow fever, shall be so isolated for a period of not less than ten days from the last possible time of exposure to infection. They shall be inspected—twice daily is advised.

8. Premises occupied by, or having been occupied by, a case sick with yellow fever, shall be treated as infected, and be under sanitary control; and such neighboring premises as are close enough for their inmates to receive infection from the above shall also with their inmates be under sanitary control.

9. These premises shall be strictly guarded, and no communication allowed with those outside except under such rules and supervision as will prevent the conveyance of the disease.

10. All possible precautions shall be taken to prevent exposure of the guards and other attendants to infection. If possible, they shall be immune. They shall be under proper supervision.

11. On the recovery, removal or death of a case of yellow fever, the premises small be immediately disinfected, and such neighboring premises as from proximity are presumably infected are also to be disinfected.

12. Coincidentally with the foregoing measures a house to house inspection should be made of the whole community to determine whether other cases exist.

13. In the case of the death of a patient the body shall be disposed of under such sanitary precautions as will prevent the conveyance of infection.

WHEN QUARANTINE IS NECESSARY.

1. If the inspection of a town in which yellow fever exists does not show that all foci of infection, possible fomites and persons liable to develop the disease, are under observation ("in quarantine"), or if cases occur which can not be traced to any known focus, such town shall be subject to quarantine.

2. Those who have been exposed or who come from infected localities shall be required to undergo, in the camp of probation or other designated place, a period of detention and observation of ten days from date of last exposure, before being permitted to proceed to a locality capable of being infected, their clothing and other effects capable of conveying infection being disinfected upon entrance to place of detention. For persons known to be immune to yellow fever, detention is not required, merely the disinfection of their baggage and clothing.

3. Persons who have been exposed may be permitted to proceed, under proper sanitary supervision while passing through infectable territory, without detention, to localities incapable of becoming infected, and whose authorities are willing to receive them, to remain there ten days. The baggage of such persons shall be disinfected unless it is certain they will not return into infectable territory. This exemption from disinfection shall not apply to baggage from an infected house for any point, or to baggage to points which object to receiving it undisinfected.

Note—On account of the extreme difficulty of the health officer determining the ultimate destination of passengers bound for Atlanta, Charlotte, Nashville and similar distributing points or passengers south, the baggage of such passengers should be disinfected.

4. An adjacent town which is in direct communication with an infected town must be considered as being neutral territory, and therefore under quarantine, as shall also be such territory as from its proximity or relations to an infected town can not be pronounced certainly clean.

METHODS OF DISINFECTION.

The following methods of disinfection are considered efficient:

FOR YELLOW FEVER.

1. Apartments or dwellings infected with yellow fever to be disinfected by one or more of the following methods:

(*a*) By a thorough washing of all surfaces of apartments with an efficient germicidal solution.

(*b*) By sulphur dioxid for twenty-four hours' exposure, four pounds of sulphur for each 1000 cubic feet, plus due allowance made for waste.

(*c*) By formaldehyde gas in not less than a 4 per cent per volume strength, and not less than six hours' exposure.

Note—One liter of 40 per cent. solution of formaldehyde gas will evolve about 1425 liters (50.1 cubic feet) of gas at 20 degrees C. (68 degrees F.).

2. Grounds, out-buildings, etc., deemed to be infected, to be disinfected with a strong solution of crude carbolic acid (carbolic acid, crude, 2 parts; sulphuric acid, 1 part; water, 25 parts) or an acid solution of bichlorid of mercury (1500); disinfection of ground preferably by fire.

3. Bedding, wearing apparel, carpets, upholstered furniture and the like to be disinfected by one or more of the following methods:

(*a*) By steam at a temperature of 100 to 102 degrees C.; thirty minutes' exposure.

(*b*) by boiling, all parts of the articles to be submerged.

(*c*) By saturation in an efficient germicidal solution.

(*d*) By thoroughly wetting the surfaces of articles with a 40 per cent. aqueous solution of formaldehyde, and placing them in a closed space for not less than twelve hours.

(*e*) Where surface disinfection is required formaldehyde gas of not less than a 4 per cent. per volume strength and not less than six hours' exposure, or by sulphur dioxid for not less than twenty-four hours.

4. The dejecta from cases of yellow fever to be disinfected by an efficient germicidal solution.

Mails to be disinfected by one of the following methods:

(*a*) By formaldehyde.

(*b*) By sulphur dioxid.

(*c*) By steam.

(Newspapers must be made up in such packages as shall be penetrable to the disinfectant used.)

MISCELLANEOUS.

Articles injured by steam, such as rubber, leather and containers, to which disinfection by steam is inapplicable, to be disinfected:

(*a*) By thoroughly wetting all surfaces with an efficient germicidal solution, the articles being allowed to dry.

(*b*) By exposure to sulphur dioxid.

(c) By exposure to formaldehyde gas.

The application of gaseous disinfection to these articles should be made in a closed space, air-tight or as nearly so as possible.

The following are considered efficient germicidal solutions:

1. Bichlorid of mercury, acid, 1-1000.
2. Carbolic acid, pure, 5 per cent. solution.
3. Trikresol, 2 per cent solution.
4. Solution of formaldehyde, 1-500 (which is 2 parts of a 40 per cent. solution of formaldehyde to 25 parts of water).
5. Solutions of hypochlorite of calcium (chlorid of lime).

FOR THE RAILROAD TRAFFIC.

The following regulations from the Committee as to the government of railroad traffic in infected towns was then adopted

TRAINS THROUGH INFECTED TOWNS.

1. A passenger train to infectible locality shall not stop in an infected town, nor shall the windows or doors be allowed to be open therein; and no communication shall be allowed between the passengers or train crew and the town.

2. Freight traffic through such a town should be without stopping.

In cases where stopping in town is absolutely necessary for freight traffic and also when the town is large, and the infection general, a special crew shall take the train through the town. The relay stations where these changes are made, shall be under sanitary supervision.

3. Sanitary inspectors should also be stationed in town.

Through traffic, i.e., to points incapable of receiving yellow fever infection, to be designated hereafter as "points north."

1. Freight.—Freight in sealed cars can go without hindrance through to destination.

2. Empties.—Empties must not stay in an infected town or be parked in an infected locality. Flat cars must be swept clean.

Boxcars made mechanically clean and dry and sent open to the relay station where they are to be inspected for tramps. From the relay station they should be sent on under seal.

All fruit cars to be disinfected.

3. Mail.—Through mail not distributed south needs no quarantine restrictions save disinfection of bags.

Parcels except mercantile sample packages to be barred.

4. Passenger.—Traffic to points north can be allowed by preventing all chance of such passengers conveying infection en route, either by themselves leaving the train en route or by returning to points south or by fomites; mainly their clothing.

This traffic must be on special cars reserved for these passengers, and preferably on a special train. A sanitary inspector must accompany them through the quarantined territory, under whose absolute sanitary charge the train is.

The coaches which carry these passengers must be disinfected before they return south.

THE DUTIES OF INSPECTORS.

5. Train inspectors must be properly relayed and those running from the infected town should be immune. If they sleep in clean territory they must be immune.

6. Cars should be removed from an infected locality as soon as empty. If not, they should be disinfected where they have been. They should be sent with windows and doors open and carefully inspected at the relays for tramps.

Mail—Letter mail needs no disinfection; newspapers must be disinfected; parcel mail is prohibited altogether.

All train crews from an infected town must be changed and not be allowed to have direct communication with certainly clean territory. This should be done at a non infected place as isolated as possible, a siding rather than a station, and certainly not in a town.

Every man, mail agent, expressman and train butcher, must make this relay, unless we know that he is going north not to return to points south, in which case he is like a through passenger. Pullman crew to be relayed.

None of the merchandise of the train butcher, unless disinfected newspapers be excepted, must pass the relay. No possible fomites must pass the relay to the crew bound north and as little communication as possible—none save such as is necessary for the run of the train is allowed. The relay must be under the supervision of a sanitary officer or officers (two are generally required) whose position is one of great responsibility. At these stations a very careful search for tramps must be instituted.

The camps from the north and south crews should be at a considerable distance from each other, and the run of trains should be arranged so as to have the crews in camp as little as possible. For passenger trains there need be no delay; for freight trains generally there must be and their crews go in camp.

Occasions may arise where it is necessary to guard the southern relay camp by a number of guards, as if it were a camp of detention. It must never be allowed to become infected. If it does the camp must be moved.

Laundry for Pullman cars not to be done in infected places.

Steamboat communication can be carried on:

1. By relays like railroad trains.
2. By supervision of the landings of freight and loading of same, so as to prevent communication between the people ashore and the boat.

It is confessedly difficult, but possible.

FORM OF HEALTH CERTIFICATE.

The convention then adopted the following form of health certificate to be used in the Southern States during the yellow fever epidemics:

Office of Board of Health of ———.

Health Officer ———.

To Whom it may Concern:

This is to certify that Mr. —— has given satisfactory evidence to me that he has been in —— not less than ten days, and, to the best of my knowledge and belief he has not been exposed to the infection of fellow fever, and has not been in any infected or suspected locality for ten days.

Description: Age —— years. Weight —— pounds. Height ——. Complexion ——. Hair ——. Eyes ——.

———,

Signature: Health Officer.

———

When deemed necessary affidavit shall be required by the health officer.

The certificate shall be issued without fee.

STATES GOVERNED BY REGULATIONS.

A resolution was adopted instructing the secretary to send copies of the convention proceedings to the governors of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Tennessee and Arkansas, with instructions that they communicate the same to their respective health officers.

The convention decided to forward a copy of the proceedings, which will be published in attractive form, to every member of Congress. Votes of thanks were tendered to the officers of the convention, to Manager Scoville of the Kimball House, to the *The Atlanta Constitution* and *The Atlanta Journal*, and to the railroads for courtesies extended the delegates. The chairman was instructed to appoint, at his leisure, a committee of three, looking to the organization of a permanent Southern Health Association.

The following delegates were present:

Virginia—Dr. E. A. Waugh, Lynchburg; Dr. J. Jett McCormick, Norfolk.

South Carolina—Dr. H. B. Horlbeck, Charleston.

Georgia—C. A. Collier, Atlanta; Dr. J. F. Alexander, Atlanta; Dr. C. F. Benson, Atlanta; Dr. James B. Baird, Atlanta; Dr. Louis H. Jones, Atlanta; Dr. De Saussure Ford, Augusta; Dr. D. C. Ticknor, Columbus; Dr. R. B. Barron, Macon; Hon. P. W. Meldrim, Savannah; Dr. Ed. Brobston, Brunswick.

Florida—Dr. J. L. Horsey, Fernandina; Dr. R. L. Harris, Orlando.

Alabama—Dr. Glenn Andrews, Montgomery; Dr. J. W. Barcklay, Birmingham; Dr. R. D. Murray, Mobile; Dr. Edward A. Neil, Selma.

Mississippi—Dr. H. H. Haralson, Biloxi; Dr. C. M. Murry, Ripley.

Louisiana—Dr. C. P. Wilkinson, New Orleans; Dr. Edmond Souchon, New Orleans; Dr. Quitman Kohnke, New Orleans; Dr. J. J. Scott, Shreveport; H. R. Carter, New Orleans.

Missouri—Dr. Sam Ayers, Kansas City.

United States Marine-Hospital Service—Dr. H. R. Carter, R. D. Murray.

Railroads—Joseph M. Brown, Atlanta, Nashville, Chattanooga and St. Louis railroad and Western and Atlantic; J. C. Smith, Atlanta and West Point, Atlanta; J. H. Sullivan, Kansas City, Memphis and Birmingham; D. D. Curran, New Orleans and Northeastern railroad; J. S. B. Thompson, Southern railway. Atlanta.—*Atlanta Constitution.*

How Long will Diphtheria Serum Retain its Efficiency?—This question is discussed by P. Aaser, the editor, in the *Tidskrift for den Norske Laegeforening*, March 15, who decides after comprehensive research, that as long as the serum remains clear, even if it is several years old, its efficiency is unimpaired. A slight sediment does not show deterioration, although care

must be taken not to inject it. He also asserts that freezing and then thawing do not affect its action, and suggests that frozen serum may possibly keep indefinitely. The serum is not affected by heat unless sufficient to coagulate it, or of long duration.

Tuberculosis in the French and German Armies.—The dismissals and deaths on account of tuberculosis in the French army have risen from 5.48 per cent. in 1888 to 9.48 per cent. in 1895. The increased mortality is generally ascribed to the grip, which seems to be recurring every year with increasing malignancy. The corresponding German statistics are much less somber, as the general mortality from 1886 to 1891 was only 3 per cent. and it has been about the same since, in which the mortality from tuberculosis is less than 1 per cent.—*Deu. Med. Woch.*, March 10.

"**White Death**" is the name given by Professor Spatuzzi of Naples, to the consequences of the condition of the poor in that city; death from slow starvation, exhaustion, poverty, degeneration, with anemia, and emaciation. Professor Colajanni asserts that these lamentable conditions are growing worse; the poor get no air, no oxygen, nor even light; but live pell-mell in lodgings that have nothing human about them, but resemble more the dens of wild beasts. The number of inhabitants to a square kilometer is said to be 196 at London; 265 at Paris; 280 at Rome; while it is 939 at Naples, and in the Pendino district it is 1254. The city is supplied with spring water, and typhoid fever has almost completely disappeared, but the general mortality is still 30 to 33 per thousand.—*Journ. de Méd. de Paris*, X 5.

Freire's Cryptococcus Xanthogenicus.—The committee appointed by the government of Brazil, at the request of Professor Freire, have rendered their report, although they do not consider it complete, owing to the lack of a sufficient number of cases of yellow fever, human and experimental, for more thorough research. They describe the micrococcus as a small spheric cell, extremely refrangent, translucent, containing one or more nuclei and cilia, staining readily with anilin stains, not discolored with the Gram, rapidly motile, and measuring nine-tenths to one and two-tenths of a thousandth of a millimeter. No micrococcus has been described in literature that can be confounded with it, not even Rosenbach's pyogenes aureus. They therefore consider it a new species, investigated by Professor Freire as the causative agent of yellow fever. Guinea pigs, rabbits and young dogs inoculated with it presented symptoms and anatomo-pathologic lesions "very similar to those of yellow fever."—*O Brazil Médico*, March 1.

Insanitary Conditions in a Turkish Village.—Mr. G. W. Steevens, who was the war correspondent of the *Daily Mail*, London, and an aide on the staff of Gen. Edhem Pasha, in the late Greco-Turkish war, has written a book, entitled "With the Conquering Turk," that will attract considerable attention. He gives the following picture of the aboriginal state of a Turkish village in war time: "It was a jumble of huts, partly unmortared stone, partly mud bricks dried into stone and washed by the rain into mud again. The dirty little houses had dirty little courts before them enclosed in high stone or mud walls. Here and there squatted a soldier; here and there a beggar: here and there a black blot, which on nearer view became a Turkish woman in domino. The road that ran through this village was an open sewer; the horses splashed along it hoof deep in filth. In the middle of it dogs were gnawing at a dead donkey, one-half bones and the other half putrefaction. Now and again we had to scramble over heaps of dung as high as a man, and on the top of these played children, pretty, brown-skinned, limpid-eyed girls, with pig tails down their backs and trousers down to their bare feet. These were fat and ruddy enough for children. But the stink of that village was an abiding horror."

National Health Bureau.—The Committee on Legislation of the Trades League offered the following, which were adopted:

WHEREAS, There is at the present time no general system of sanitation and disinfection throughout the United States, guided and controlled by one general head and working in harmony with local and State Boards of Health; and

WHEREAS, The presence of an epidemic of contagious diseases in any part of the country without such general system of control breeds fear and panic from a lack of confidence in the ability of the local Board of Health to control the epidemic within a contracted radius of territory; and

WHEREAS, Localities within hundreds of miles of the infected district quarantine against it, and other places near it, thus resulting in enormous losses to commercial and transportation interests of the country at large; therefore, be it

Resolved, That the Trades League of Philadelphia, an organization of nearly two thousand business firms, earnestly recommends the establishment by the National Government of a commission of public health, to be known as the "National Commission of Public Health," which shall be a bureau in the Treasury Department, and the duties of which shall be to collect and disseminate information with regard to the prevalence of infectious diseases in this and other countries, to collect and publish vital statistics, to prepare rules and regulations for securing the best sanitary conditions of vessels from foreign ports and for preventing the introduction of infectious diseases into the United States and their spread from one State or Territory or the District of Columbia, and, in general, to make investigations, publish information and formulate rules with a view to the preservation of the public health.

Resolved, That the Legislative Committee of the Trades League shall give the subject their careful and prompt attention, with "power to act" as the importance of the subject may demand.—*Public Ledger*, Philadelphia, April 15.

NECROLOGY.

GEORGE W. LEONARD, M.D., born in Newburg, N. Y., in 1847, and a graduate of the University Medical College, died in New York city, April 16. He was a charter member of the Colonial Club, and was once the surgeon of the Seventy-first Regiment N. Y. State militia. A widow and a son are his survivors.

JAMES A. C. MCCOY, M.D., Tacoma, Wash. At the opening of the war he became assistant surgeon of the Forty-ninth Regiment Indiana Volunteers, and later a surgeon in the United States hospital at Mound City, Ill. At the close of the war he went to Indianapolis, where he engaged in practice, but left in 1879 for Washington, where he was appointed physician for the Puyallup Indian agency, which position he held until 1882.

ERASMUS R. GARROTT, M.D., Chicago, died April 19, aged 62 years. Dr. Garrott was born in Maryland, and was graduated from the University of Maryland in 1856. When the civil war broke out he joined a regiment of Colorado rangers as surgeon, afterward, in 1873, locating in Chicago, where in 1876 he became associated with the Health Department. During the smallpox epidemics of 1881, 1882 and 1894, his services were invaluable. At the time of his death he was Chief Medical Inspector of Chicago's Health Department.

ELISHA W. AIKEN, M.D., Boston, April 13, aged 70 years.——S. M. Anderson, M. D., Mattoon, Ill., April 19.——Major Henry McElderry, M.D., chief surgeon of the Department of the Missouri, April 17, at Hot Springs, Ark.——R. B. Rawson, M.D., Woodland, Mich., April 18, aged 62 years.——Andrew Wall, M.D., Cambridge, Ohio, April 17.——Edward D. Wells, M.D., Westminster, Md., April 15, aged 48 years.

MISCELLANY.

The Physicians of Berlin Have Organized a Club to promote social intercourse among the members of the profession, afford a place to entertain visiting medical friends, etc. The project has been greeted with enthusiasm and over three hundred have signified their intention to join.

A Bengalese Proverb.—The Bengalese saying, "Do not wake up a sleeping physician," is supposed to have been based upon a feeling of consideration for the man of healing. But it also brings to mind that English adage about letting sleeping dogs lie; also that other older proverb, *Quieta non movere.*

The Malarial Parasite.—The Surgeon-General of the Army, George M. Sternberg, M.D., contributes to *The Youth's Com-*

panion, for April 28, an article on "The Malarial Parasite." This brings to mind the fact that a few years ago, while stationed in Baltimore, he engaged in experimental researches in bacteriology at Johns Hopkins University, as a fellow, by courtesy of that institution.

Notice of Removal.—The *International Journal of Surgery* will remove May 1, 1898, to the Woodbridge Building, No. 100 William Street, New York.

New Publication.—The *Memphis Lancet* will begin publication July 1, 1898. It will be published on the first of each month, contain fifty-four pages of reading matter, and is designed to furnish the profession of the Mississippi Valley with a progressive and representative journal.

Heredity in the Color of the Eyes.—E. Storen states that in over 74 per cent. of several hundred persons he has examined, the color of the eyes can be traced to inheritance from the grandparent of the same sex on the side of the parent of the opposite sex; boys from their mother's father and girls from their father's mother. — *Tidskrift f. d. Norske Laegeforening*, xviii, 1.

Immunity to Tetanus Conferred by Pneumococcus Vaccination.—G. Tizzoni announces that inoculation with pneumococcus vaccin not only protects rabbits against pneumococcus infection, but also against the smaller fatal doses of tetanus toxin. Tetanus vaccin also renders the animal more resistant to pneumococcus infection but does not save it from death at last.—*Gazzetta d. Osp. e d. Clin.*, March 6.

Removal Notice.—The well known house of Victor Koechl & Co., importers of medicinal preparations, such as antipyrin, lanolin, Behring's antitoxin, argonin, orthoform, etc., etc., announce their removal from No. 79 Murray St. to the new and modern six story building No. 122 Hudson St., corner of N. Moore St. The necessity of obtaining larger and more commodious quarters and better shipping facilities is the reason for making this change.

Etiology of Congenital Dislocations and Curvatures.—Three writers recently have called attention to the probability that congenital dislocations and malformations of the limbs, are caused by an insufficient quantity of amniotic fluid, thus exposing the fetus to mechanical pressure from the walls of the uterus. Weissenburg in Russia; Hirsch, *Virchow's Arch.*, Vol. 148. No. 3, and A. Schanz in the *Ztschft. f. Orth. Chir.*, Vol. 4.

The Antediluvian is Safe.—The antediluvian editor of the *Sanitarian*, who for years has been running a mendicant sheet, seems to have a great fear of an insane hospital. He is protected by his antiquity both from bodily harm or from a commitment warrant. Few judges are likely to commit an old man far advanced in his dotage, whatever may be his delusions and vagaries. He may sleep as sweetly or sourly as his ancient frame will permit. He is safe.

Cure of a Suppurating Osteo-periostitis with the Roentgen Ray.—A rebellious case of osteo-periostitis of the cubitus, that had lasted two years, completely cured by the application of the Roentgen ray, is reported in the *Revista portugueza de Med. e Cir.*, 1897, No. 25. The remarkable effect of the ray was noticed accidentally as a radiograph of the part was being taken; the fistulas began to discharge copiously and contract, the region to swell, etc., and a daily twenty minute application soon healed the lesion.—*Presse Méd.*, January 22.

Chloroform Cholemia as a Complication of Celiotomy.—Chiarleoni reports two cases of severe icterus, extreme pruritus, prostration, somnolence and mental disturbances, pupils immovable and midriatic, one a midwife of 36, the other a young woman of 22. The symptoms appeared immediately after oöphorectomy for osteomalacia in the first case and laparotomy for a cyst in the broad ligament in the other, requiring respectively 25 and 50 grams of chloroform. The symptoms grew worse for six days and then gradually retroceded, disappearing by the twelfth day. He is inclined to ascribe the complications to the action of the chloroform on the hepatic gland, as various investigators have noted the alterations produced in the liver and kidney by chloroform. — *Gazetta degli Osp. e delle Clin.* March 20.

Aseptic Traumatic Fever.—Holmes states that this condition is due to the absorption of pyretogenetic substances formed from the products of the aseptic necrobiosis after traumatisms (*vide* JOURNAL, xxix, p. 730), as Volkmann, Gangolphe and others have confirmed. Pillon has established that the white corpuscles secrete fever-producing substances, by centrifugalizing blood from a horse and injecting dogs with the cells in salt solution. The longer the interval since the isolation, the higher the temperature induced by the injection. He does not venture to say whether this substance is due to the fibrin ferment, the uric acid or the nuclein.—*Cbl. f. Chir.*, March 12.

Chronic Splenomegalic Infectious Icterus is an affection described by Professor Hayem in the *Presse Méd.*, of March 9, with reports of five observations. It is characterized by chronic icterus of indefinite duration, 19 years in one case, with transient paroxysmal attacks, moderate hypertrophy of the liver, pronounced tumefaction of the spleen with progressive sclerosis, digestive disturbances and more or less anemia. A microbe was discovered in the spleen in one case which killed mice in twenty-four hours, resembling the pneumococcus. He considers it probable that the microbian agent comes from the intestines and varies from one case to another. The treatment is symptomatic, addressed particularly to the digestive apparatus. All the cases were accompanied with parenchymatous gastritis, as usually with catarrhal icterus.

Alterations in the Shape of the Trachea.—Simmonds, prosector at the large hospital at Hamburg, has been making a study of casts of tracheas. He found numerous constrictions, dilations and angularities; scoliosis was noted in one-fourth of all the cases. Constrictions produced by the pressure of aneurysms, tumors and latent goiters were frequent, also a groove which he attributes to the pressure of the arteria anonyma. The walls were frequently found ossified and flattened in elderly persons, for which he suggests the descriptive name of "senile saber-sheath trachea." Universal dilation was only noted in one case, probably congenital, but partial ectasia was common, almost invariably in the middle section of the rear wall, in elderly persons, accompanied with atrophy of the wall. His report in the *Mitth. a. d. Hamb. St. k. Anst.* is illustrated.—*Cbl. f. Chir.*, March 12.

The Excess of Ammonia Frequently Noted in the Urine of Infants, is caused primarily, as Czerny has recently demonstrated, by a surplus of acids in the blood. The administration of an alkali would suppress the excess of ammonia. Further research proved that the excess of acids was derived from the fats. The increased acidity and excretion of ammonia may be produced by abnormal amounts of acids derived from the fats, with normal powers of oxidation, or, with diminished oxidation, by acids absorbed by the normal stomach. As we can not assume an unlimited ability on the part of the organism to elaborate ammonia to neutralize the acids, we can now understand better the injury from constant acid reaction. In determining the value of a food in calories, we must also take into account the acids that remain unoxidized.—*Wien. kl. Woch.*, March 31.

Diagnosis in Typhoid Fever.—Barber (*N. Y. Med. Jour.*, April 16) reports a series of tests showing the "Comparative Value of the Diazo Reaction and the Blood Serum Test in the Diagnosis of Typhoid Fever." The serum test proved the most reliable, appearing in every case but one, and appeared in no other disease. The diazo reaction was an advantage in that it appeared earlier in the disease in nearly twice the num-

ber of cases. In almost every case where the serum reaction appeared first the diazo reaction was present on the following day, while in many cases the serum reaction was absent for several days after the diazo reaction was found. He believes that Ehrlich's test is by far the better for the general practitioner, no expensive laboratory being required, while it is easily and quickly made, and with little experience the reaction can be detected in nearly every case. The diagnosis should always be confirmed by the presence of the serum reaction.

New Diagnostic Sign of Measles.—In the *Medical Record*, April 9, Koplik describes in detail a phenomenon previously claimed by him to be a new diagnostic sign of measles. This sign is an eruption which appears on the mucous membrane of the cheeks and lips fully twenty-four hours, often forty-eight or seventy-two, before the eruption on the skin. It spreads and reaches its height just as the skin eruption has appeared and is spreading; it then fades. The eruption consists of small irregular spots of a bright red color; in the center of each spot is the interesting sign, seen only by strong daylight, a most minute bluish-white speck in the center of the reddish spot. They are not so large nor so deeply white as sprue and they are not seen on the hard or soft palate nor after the mouth has been washed. They always maintain their punctate character and do not coalesce. To be seen, it is necessary to evert the mucous membrane covering the lips and cheeks, either with the fingers or a spatula. "One can then see the infinitesimally minute bluish-white specks on a reddish punctate area in beginning measles, and on a more diffuse reddened background in advanced cases, which are absolutely pathognomonic of measles."

Hot Water Potations.—Every drug store which makes a specialty of mineral waters and such things now includes hot water among the refreshments offered to the public. Hot water would possibly be more appropriately included among the medicines, for it is improbable that anybody ever takes it from the same motives that lead a person to order ice cream soda. The relish with which the consumer of hot water gets rid of a cup, however, is quite as apparent as that of those who take more familiar beverages. The confirmed victims of the hot water habit have been known to order their tipple at a particular temperature and acccpt it only when assured by the thermometer just what the degree of heat is. These patrons are looked upon as more of a nuisance than the others, and the clerks who show patience with them have the satisfaction of knowing in many cases that they are not incurring the risk of loss for their employers. Most of the stores charge nothing for hot water. In others the price varies. Some establishments rank it along with vichy, seltzer and such things at 5 cents. But other places, evidently seeking to discourage the habit, ask ten cents a glass.—*N. Y. Sun.*

Connection Between the Thyroid Gland and Puberty.—E. Hertoghe ascribes a preponderant role to the thyroid gland in both physical and intellectual development, and also a specific action upon the morphologic formation of the genital organs in both sexes. It has long been noted that the thyroid gland develops parallel to the development of the genitalia, but he is convinced that the sexual development results from the thyroid hypertrophy and increased thyroid secretions. Arrested growth or infantilism is therefore due to imperfect development and activity of the thyroid gland, and complete myxedema is the extreme degree of thyroid degeneration. "Dysthyroidism" is principally characterized by arrested growth and absence of puberty, as in cretins. The degree of infantilism depends upon the amount of dysthyroidism, from simple obesity, rhachitism, chondrofetal dystrophia, etc., to anangioplasic infantilism. The dysthyroid etiologic unity of infantilism is proved: 1, by the existence in the same family of different types of infantilism; 2, by dysthyroid antecedents on the part of the parents: 3, by the therapeutic effect of the administration of thyroid product on these different forms of infantilism (*Presse Méd.*, March 9). S. Goldberg also proclaims in the *St. P. Med. Woch.*, March 26, as the results of extensive experimental work and observation, the close connection between dysthyroidism and trophic disturbances in the growth of the young.

Diversity of Action of Antipyretics.—Among the conclusions resulting from a recent comprehensive investigation of the antipyretics, we notice that the hypothermic action of most of the convulsion-producing poisons is due to the excitation of the nerve-centers that arrest the thermogenesis. Anesthetics on the other hand act by paralyzing the thermogenetic centers, and have no effect upon the arresting centers.—*Presse Méd.*, March 9.

Isolated Aphasia as a Premonitory Symptom of Uremic Attacks is very rare. Rose adds another to the two cases on record. The patient had chronic parenchymatous nephritis, under apparent control with milk diet and digitalis. Suddenly acute isolated aphasia developed, followed in a short while with a violent uremic attack, lasting nearly twenty-four hours with loss of consciousness, etc. The aphasia passed away with the attack. He is inclined to ascribe it to auto-intoxication, as the anatomic position and the augular course of "Carnot's apoplectic artery" render it especially liable to be affected by increased pressure in the circulation.—*Gazzetta degli Osp. e delle Clin.*, March 17.

Production of a Mucinoid Substance by Bacteria.—Charrin and Desgrez have isolated, from cultures of the pyocyaneus, a substance resembling the mucin found in meat bouillon, with a phosphorus reaction in the precipitate, which suggests that the mucinoid substance is accompanied with a nucleo-albumin. The microbian cell therefore produces a substance analogous to that produced by the cells of the organism and a whole series of vegetable cells. It is toxic injected into rabbits. They suggest that the bacteria which flourish so abundantly in the course of muco-membranous inflammation may be a factor in the genesis of the mucous secretions. Lepierre finds that the fluorescent bacillus also produces a similar substance, but without the phosphorus reaction, and with other properties which proclaim it a true mucin. It produces the mucin in a number of media, all mineral and peptonized, but not in meat bouillon.—*Presse Méd.*, March 2, and *Semaine Méd.*, March 16.

The Value of the Blister and Revulsive Measures in general has been the subject of heated discussion at the Paris Académie de Méd. for more than half a dozen recent sessions. The majority still favor them for certain purposes, and numerous instances were cited in which great benefit had been derived, but Huchard maintained that the blister had passed away with the seton, etc., and related cases in which severe nephritis had followed its use, adding that the same therapeutic effects could be obtained with less dangerous measures. Ferrand referred to Winternitz's establishment of the fact that irritations of the skin not only induce hyperleucocytosis at the point irritated, but throughout the entire lymphatic system and circulation. He observed that "microbian physiology has proved an evolution of our science rather than a revolution. Facts never die, and the blister is a fact which has seen many generations pass away, and will survive ours."

A Study of the Blind.—Pearce (*Internat. Med. Mag.*, March), gives in an analysis of 180 pupils of the Pennsylvania Institution for the Blind, the following interesting data: Tests for hearing showed a wide range of difference in the acuity of audition between the right and left ear. In the boys the average distance for the left ear was fourteen feet, for the right ear, fifteen feet; in the girls the average for the right ear was thirteen feet, and for the left ear twelve. Forty-six girls, 54 per cent., had constant marked rotation of the eyeball, of which 19

were irregular or nystagmoid, 37 had a less marked slight rotary movement. Five also had nystagmus in the right eye and one in left eye only. In the girls there was no nystagmus. Among the boys 83 per cent. had constant rotary nystagmus, 6 per cent. slight rotary, 6 per cent. lateral alone, and 3 per cent. no nystagmus; 1 per cent. had nystagmus in right eye only and 1 per cent. in left eye only. Of the girls, 58 were partially, 28 totally blind; of the boys, 68 per cent. partially, 32 per cent. totally blind. Specific taint was noted in 6 boys and suspicioned in 6; phthisis diathesis in 28 girls, 33 per cent., and in 13 per cent. of the boys; deformities of the spine in 38 girls and 34 boys. Muscle-jerks were seldom abnormal and skin reflexes were active.

Immunity-Period from Diphtheria Antitoxin.—In the *Boston Medical and Surgical Journal* of March 3, Morrill reports the results of observations in diphtheria immunization as carried out in the Children's Hospital of Boston. Of 1808 patients immunized at least once every twenty-eight days, the amount of serum varying from 150 to 500 units, seven had diphtheria, three from insufficient dosing, two within twenty-four hours of the injection, and two in whom the time of infection came twenty-three and twenty-two days, respectively, after giving an amount which had previously been effective when given every three weeks. Of 829 who were not given antitoxin, or in whom more than twenty-eight days elapsed after the injections, nine had diphtheria, besides three immunized adults. He concludes: 1. That immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred, for at least ten days, by the injection of a small dose (100 250 units) of serum, provided it is given twenty-four hours previous to actual infection. 2. That a larger dose (250 units for a child of two, up to 500 units for one of eight or over) will confer safety for three weeks, or, to be a little more conservative, twenty days, under similar conditions. 3. That no harm will result from the treatment in a vast majority of cases of *sick* children, and probably in no case of a healthy child, provided the serum used is up the present standard of purity.

A New England Worthy; an Early Reformer.—At Wayland, Mass., the tomb of Dr. Hayward exists that shows that there were reformers before the mugwumps. Its epitaph reads:

Here lies the body of Dr. Hayward,
A man who never voted;
Of such is the Kingdom of Heaven.

If we are not mistaken in the identity of the gentleman, he had the advantages of Harvard education and of a walk through the hospitals of London over a century ago. Also, a Reformer in the South.—The following verses from the *British Medical Journal* have the local colors of the bayous and parishes of southern Louisiana. They commemorate the habits of the life of the veteran practitioner, "Ole Docteur Fiset who has got ninety years or so:"

But Docteur Fiset, not moche fonne he get,
Drivin' all over the whole contree;
If de road she's bad, if de road she's good,
When ev'ryt'ing's drown on the Spring-tam flood,
And working for not'ing half time mebbe.

Let her rain or snow, all he want to know
Is jus' if anywan's feelin' sick,
For Docteur Fiset's de ole-fashion kin',
Doin' good was de only t'ing on hees min',
So he got no use for de politique.

Surgical Interference in Cerebral Disease.—In the *N. Y. Medical Journal* for April 16, Fisher gives the following special indications for operation: 1. Fracture of the skull, causing compression with resulting paralysis, epileptic seizures or coma. 2. Meningeal hemorrhages, traumatic or occurring in pachymeningitis hemorrhagica. 3. Tumors of the brain when situated near the cortex of the brain or even in the cerebellum, but not when deeply situated or at the base. When the tumor is not thought to be a removable one, a partial operation may be indicated, as the removal of a large area of the skull often relieves certain marked symptoms of tumor, as vomiting, headache, and convulsions. 4. Localized epileptic seizures of the so-called Jacksonian type. I would include in this class cases, whether due to injury or arising from unknown causes, that is, so called idiopathic epilepsy, if limited to special parts of the body, as the arm, leg, or face, or all three, if only one side of the body is involved. In such cases I would advise the excision of these cerebral centers. This, indeed, results in paralysis, perhaps a permanent form; but in many of these patients we have already a certain degree of paralysis, and in that case we simply increase a previous disability. 5. Cerebral abscess, and especially in the form most commonly presented to us, that following otitis media. I will not include under this head operations in microcephalia or in infantile cerebral hemiplegia with epilepsy, although in some cases, owing to the otherwise hopeless character of these conditions, I am in favor of operative interference.

Medical Colleges in America from a German Point of View.—Dr. S. Placzek of Berlin reviews, in the *Deu. Med. Woch.*, of March 17, the "Student's Number" of the JOURNAL, containing the particulars in regard to the medical colleges throughout the country. He is amazed at the enormous number of such institutions; 148, including the thirteen in Canada, and deplores the low standard for admission that prevails generally, which he states with astonishment, is merely the elementary principles of English, Latin, arithmetic, algebra and physics. He remarks that a number of cities enjoy the luxury of several medical schools at once, allowing them the privilege of amicably competing for students. He appreciates the advance made in late years in lengthening the course in some colleges, but states that it is still too short." A five-year course is none too long. It would certainly abolish the remarkable phenomenon, without parallel of a nineteen-year old physician! But the chief drawback to this plethora of colleges, in his opinion, is the inability to provide trained professors for them all. Institutions of learning can be founded by the "Almighty Dollar," but it is impossible to provide skilled experts to fill all the chairs in these 148 colleges with equal rapidity, even by summoning excellent assistance from Europe, such men as Klebs, van Ackeren, Fehleisen, etc., who happen to be at liberty. In view of this fact "it is not astonishing that out of the entire 148 medical colleges, only eight or ten are to be regarded as of full value." He suggests as a safe-guard against the other 138 that the privilege of conferring the medical diploma should be relegated altogether to a central authority which by its position and the character of its members would afford a guarantee that the privilege would be worthily handled.

Treatment of Urethral Strictures.—Howland (*Medical News*, April 9) writes on "Gradual Dilation Versus Cutting in the Treatment of Urethral Strictures." He says: The best genito-urinary surgeons are now decrying the practice of using the knife at the first sign of a stricture of the urethra. This is good surgery and should be even more generally practiced. Dilation is always advisable and more often successful than surgeons generally believe. The length of period necessary to effect a cure depends largely on the patient and on the stricture, the length of time it has existed, and its location in the urethra, varying from three to twelve months. Many patients prefer the cutting operation to this long treatment, until they understand that with such operations the cure is not as permanent and sounds have to be passed at regular intervals. I have observed the best results from gradual dilation up to and not exceeding 32 French, and if a urethra thus treated can be maintained at a caliber of 28 or 26 French, it is all that will be required. The dilation should be conducted slowly and with great care, and an advancement of more than two sizes at one

sitting not attempted. At the slightest sign of blood oozing the treatment must cease and the irritated membrane treated by instillation or irrigation with some astringent preparation. I have used plain water at 105 to 110 degrees F., one quart at a sitting, with encouraging results. Never allow a patient to pass sounds upon himself. The writer does not believe that all strictures can be cured by gradual dilation, but he does believe that a great number can be.

Gleanings.—The Mexican National Institute of Aerotherapeutics has now a record of 100 patients treated with compressed air, all very much improved, asthma, emphysema, bronchi-ectasia and chronic bronchitis.—*Chronica Med. Mex.*, February 1.——Treatment of soft chancres with a stream of hot air at 42 degrees C. is now being successfully tried by Haralamb of Constantinople.—*Ann. de Derm. et de Syph.*, December, 1897.——Fatal hemorrhage from the eyes of day old infant.—*Inqno Russ. Med. Gaz.*, 1898, 2.——Acute affections of lachrymal sac cured in three weeks with massage.—*Wien. Med. Jour.*, 1897, 7.——Two cases of diabetes remarkably improved with methyl blue.—*Bull. Gén. de Therap.*, January 15.——A case of glanders located in the lachrymal gland, differentiated by bacterial examination.—*Rev. Méd. de la Suisse*, December, 1897.——Unique fatal case of hepatic complications in measles with rupture of the diaphragm.—*Gazz. d. Osp. e d. Clin.* Nov. 23, 1897.——Success of large doses of pilocarpin in arresting and curing severe cases of croupous laryngitis and pneumonia.—*Wien. Med. Woch.*, 1897, 27.——E. Doyen has now a record of fifty successes in fifty-five cases of non-cancerous affections of the stomach operated.——Boric acid the only antiseptic for hemorrhoids, chiefly on account of its analgesic properties.——Normal pregnancy and delivery in women nephrectomized on the right side two years previously for lithopyonephrosis.—*Revue de Chir.*, March 10.——Twelve cases of tuberculosis of the bones of the skull. All except two involved the frontal bone. Usually several foci. Course mild and frequently terminated in recovery. No cases of connected meningitis observed.—*Cbl. f. Chir.*, March 12.——Classic lesions of tabes and poliomyelitis found at necropsy of case of chronic saturnine intoxication. No syphilitic antecedents.—*Wien. Med. Woch.*, 1897, 18.——Remarkable success of itrol (arg. citric. pur.) in forty cases of venereal ulcers, including several with gangrene, reported by O. Werler—*Memorabilien*, March 14.

Litholapaxy in India; A Series of 400 Operations.—Dr. Richard Baker, formerly civil surgeon at Hyderabad, Scinde, has published, in the London *Lancet*, 204 additional cases of litholapaxy, making over 400 cases in his service in India. His earlier series of 200 cases was reported by him in the same journal, for October 10, 1896. The mortality was limited to one death in last reported set of cases, or about one-half of 1 per cent. The fatal case occurred after sixty recoveries, and it was followed by 140 consecutive recoveries; this, the author says, is "nothing very unusual" for the surgery of India where the operation has graduated from the position of being still under trial. These 404 cases furnish another example of the remarkable low mortality which attends the operation of Bigelow as it is practiced in India by British surgeons upon native patients, it being in his last series 0.49 per cent. The cases are tabulated and summarized as follows: Mussulmans, 168; Hindoos, 36; males, 200; females, 4; ages under one year, 1; one to three years, 65; six to ten years, 36; eleven to fifteen years, 4; sixteen to forty-five years, 53; forty-six to fifty-five years, 28; forty-eight to sixty-five years, 13; over sixty-five years, 6; average duration of operation, twelve minutes, nineteen seconds; average weight of stone, 2 drams, 46 grains; average stay in hospital, little under two days. Regarding the strikingly successful results of this operation in the hands of surgeons in India, it has been suggested that they are probably to be referred to the enormous number of cases of stone which occur in that country as compared with others, and the greater technic dexterity gained thereby by the operators, and possibly also to some exceptional aptitude on the part of the native to withstand surgical operations. The same proportion of success has not been, and can not be expected to be reached elsewhere.

Dr. Holmes' Examinations in Anatomy.—Prof. William James of Harvard University is a M.D. of the class of 1886, but is a psychologist and not a practitioner. He has a very distinct recollection of the anatomic part of his examination. When he came before the genial Dr. Oliver Wendell Holmes, the latter asked him some questions about the nerves at the base of the brain. It so happened that the examinee was well up on that subject and he gave a pretty exhaustive reply. "Oh, well, if you know that you know everything," said Dr. Holmes, cheerfully, "let's talk about something else. How are all your people at home?" "In that pleasant way," says Dr. James, "I completed my examination in that subject. I do not remember having encountered any difficulties in any of the subjects. The examination for the degree was oral and lasted just an hour and a half. These ninety minutes were equally divided among nine subjects, ten minutes to each. Each of us as he came in took a seat at a desk, behind which stood the professor who was to conduct the examination in that particular subject. The professor asked the questions and we answered them as best we could. Out in the hall stood the janitor beside the big gong, and at the expiration of the ten minutes he pounded the big gong. This was the signal for all the students to get up and change desks, much after manner of your progressive eucher parties. There were two other matters to be attended to before I got my M.D. I had to write a thesis, and I did it. Then I went to the dispensary and took a case for diagnosis and treatment. There was a lump on the back of the man's neck which I diagnosed as a carbuncle, and for which I prescribed hot poultices. It was with feelings of apprehension that I learned later that the patient was suffering from an internal disorder, and the test was on that. However, the examining board were very kind about it. They admitted that my course in diagnosing the first trouble I came across in my patient, namely, the carbuncle, which was plainly apparent to the examiner's eye, was quite natural, and said that my treatment was the proper one. Therefore, I was adjudged satisfactory.

Results in 100 Abdominal Operations.—Shoemaker (*Phila. Med. Journal*, March 26) gives the results of an investigation in a consecutive group of celiotomy cases of various sorts, all the cases being women with gynecologic disorders. Of the 100 cases, 6 died; 2 cases of hysterectomy for fibromata weighing fifteen and one-half and seven and one-half pounds respectively; 1 case of extra-uterine fetation, septic when first seen; one following removal of ovaries in intraligamentory fibroid tumor of uterus, adhesive to pelvis; 1 following removal in severe double gonorrheal pyosalpinx with bowel adhesions, and 1, unexpected, following removal of one diseased ovary and tube and suspension of retroverted uterus. Hysterectomy was done 19 times. In the series 3 were malignant, 8 fibromas, 1 a fibrocyst in an extra-uterine case, 7 were for hopeless inflammatory disease of uterus, tubes and ovaries. He believes that "the uterus is better removed when itself diseased, if large, heavy and retroverted, with poor support, when it has been for years the channel for outpour for chronic discharges, when hemorrhage has been excessive from glandular degeneration of the endometrium. This is especially true in elderly multiparæ. The risks of removal are not great." He, however, is opposed to removal of normal ovaries for nervous conditions, believing in correction of the disease causing the persistent irritation or hemorrhage, as a means of relieving the nervous condition. Thirty-

nine cases with gross anatomic lesions showed marked nervous disturbance and 77 per cent. are cured or markedly improved. In numbers of cases, marked hysteric or other nervous disturbance proved to be only a surface-play of symptoms, while serious pelvic disease had been one of a chain of causes. Hernia in operation wounds occurred six times, in one case a woman, operated on when four months pregnant, who went safely through delivery at term, the hernia occurring nineteen months later. Inflammatory disease of tubes and ovaries, requiring removal, occurred 35 times, extra-uterine pregnancy was present 5 times, cystic tumors of the ovaries 7 times; in 1 case there was a large dermoid; broad-ligament cysts were present 3 times; 5 cases had abdominal tuberculosis. Uterine suspension was done but once as an independent operation for severe symptoms due to retroversion and descent of the uterus. This patient was cured permanently and has remained well more than two years after ten years of suffering. Of the 94 cases surviving operation, 49 (59 per cent. of the cases heard from) are cured after a period of from six months to two years; 32 are improved, though 14 of these are anatomically cured; 4 of the 5 tuberculous cases were improved and 1 cured. The most satisfactory results were in the large tumor cases, then the chronic pus cases in which there was 1 death in 22 cases. He concludes: "As to benign tumors, there are none involving uterus, tubes and ovaries that can not, at the present day, be removed with a comparatively low mortality, depending upon the stage at which the case is seen and upon the skill and experience of the operator in abdominal work, on his surgical judgment and on the organization of assistants and plant, with the aid of which he operates. Very much depends upon good detail work. By the modern steam sterilizer the last excuse for a septic death has been removed. Even the stitch-hole abscess should be the rarest of exceptions and call for rigid explanation."

Colleges.

The Starling Medical College, Columbus, Ohio, held its annual commencement April 14 with a large graduating class. ——The sixteenth annual commencement of the College of Physicians and Surgeons, Chicago, its first commencement as a department of the University of Illinois, was held April 19, with 110 graduates.——At the twenty-sixth annual commencement of the College of Physicians and Surgeons, Baltimore, held April 14, thirty-six degrees were conferred.——The Medical College of Virginia, Richmond, held its annual commencement April 16 and the Albany (N. Y) Medical College, April 20.

Societies.

The following recent meetings are noted:

Connecticut.—The 106th annual of the Hartford County Medical Association, Hartford, April 20.

Georgia.—Georgia Medical Association, Cumberland Island, April 20–23.

Illinois.—County Medical Society, Ottawa, April 26; Fulton County Medical Society, Cuba, April 12; Fiftieth anniversary of the Peoria Medical Society, April 19.

Indiana.—Clark County Medical Society, Jeffersonville, April 12; Knox County Medical Society, Vincennes, April 12.

Kentucky.—Kentucky Midland Medical Association, Georgetown, April 14.

Michigan.—Berrien County Medical Society, Benton Harbor, April 14.

Missouri.—Marion County Medical Society, Hannibal, April 28; Medical Society of City Hospital Alumni, St. Louis, April 21; St. Louis Medical Society of Missouri, April 16 and 23.

New Jersey.—Cape May Medical Association, April 14.

New York.—Binghampton Academy of Medicine, April 19; Oneida County Medical Society, Utica, April 12.

Pennsylvania. — Lackawanna County Medical Society, Scranton, April 12; Lebanon County Medical Society, Lebanon, April 12.

South Carolina.—State Medical Association, Harris Lithia Springs, April 13.

Boston.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the two weeks ending at noon April 20, there were reported to the Board of Health of Boston the following cases of acute infectious disease: Diphtheria 68, scarlet fever 35, measles 70, typhoid fever 11.

ATTEMPT TO BURN A NURSES' HOME.—Within the past three weeks three attempts have been made to burn the Nurses' Home in connection with the Somerville Hospital. Recently fire was discovered in the attic and before it could be extinguished the building was damaged to the amount of $500. On the morning of April 1 a fire was discovered in one of the rooms and the occupants barely escaped with their lives. Later another fire was discovered beneath a sink in the second story.

THE MASSACHUSETTS EMERGENCY AND HYGIENE ASSOCIATION held its annual meeting last week. Reports on the work of organization were submitted and the following officers elected: President, James Minot, M.D.; secretary, Miss Rosa L. Dexter; treasurer, Charles Fry; executive committee, Mrs. Kate Gannett Wells (chairman), Miss Ellen Tower, Mrs. F. H. Williams, Miss Ida Mason, R. W. Greenleaf, M.D., A. K. Stone, M.D., James Minot, M.D., Francis C. Gray, Horatio Davis.

THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of this society was held Monday, January 10, with Dr. A. L. Mason in the chair. Several interesting cases were reported and Dr. J. W. Farlow read a paper on "Some Forms of Adenoid Disease which are Often Overlooked and Conditions which Simulate Adenoid Disease." He made the statement that with the exception of traumatism no child under 6 years of age ever has earache without adenoids. He also called attention to the importance of enforcing deep nasal respiration after an adenoid operation.

APPOINTMENTS AT THE BOSTON DISPENSARY.—Dr. Alfred A. Wheeler, James L. Stone, William P. Cones and George A. Harlow have been appointed assistant surgeons; William Coggswell, assistant surgeon to the department for diseases of the genito-urinary system; Sidney A. Lord, assistant physician to the department for diseases of the nervous system, and Drs. William H. Grant, Charles N. Barney, Frederick J. Cotton, Elliott P. Joslin, Frederick W. Pearl, Franklin S. Newell and Joshua C. Hubbard, district physicians.

THE BOYLSTON MEDICAL PRIZE.—The Boylston Medical Prize of $150 has been awarded this year to Dr. Guy Hinsdale of Philadelphia for an essay on "Acromegaly."

Detroit.

THE DETROIT MEDICAL AND LIBRARY ASSOCIATION.—At the meeting April 18, Dr. George W. Moran read a paper on "Cervical Adenitis in Childhood," classifying the disease as follows: Acute, simple chronic, tuberculous and syphilitic. The acute variety he stated is almost always caused by infection from some disease of contagious structure such as catarrh of nose and throat, decayed teeth, middle ear trouble, unhealthy tonsils and stomatitis, but may also be caused in a mild form by any of the eruptive fevers. The diagnosis is easy except when the sub-maxillary or sub-lingual gland is involved; then mumps, spinal caries and edema must be differentiated. The treatment consists in looking well to the condition of the teeth, gums, tonsils and nasopharynx, as in seventy-eight cases of the author's forty-six were caused by carious teeth and suppurating gums, and fifteen by enlarged tonsils and disease of the nose and throat, and in the use of hot applications, liniment or ointment of belladonna combined with opium. When pus forms evacuate as soon as possible. Simple chronic adenitis is also caused by infection as in the acute variety, though of a milder character. Certain skin affections may also cause it. This variety may be confounded with the tuberculous, but age,

history and family history ought to aid in arriving at a definite conclusion. In the latter form, too, there is suppuration, caseation and adhesion, which never occurs in this simple variety. The treatment is tonic after removal of cause and application of pot. iod. ointment. In tuberculous adenitis the upper deep cervical glands are generally the first to be affected, and at first may thus be mistaken for the simple variety. The treatment consists in removing the patient to the most favorable environments, tonic medication, change to more equable climate when possible, and in case of suppuration or caseation, incision and drainage. Excision should be practiced only when the glands are superficial and movable. The author tried nuclein injection in three cases, in one of which there was improvement, in the others none. The syphilitic variety is comparatively a rare affection, and is usually accompanied by glandular enlargement throughout the system. It is almost always met with only as a complication of some other syphilitic manifestation. The diagnosis is easy, antisyphilitic treatment is to be practiced.

THE MICHIGAN STATE MEDICAL SOCIETY will meet in Detroit on the 5th and 6th of May. Every arrangement is being made to have this session of the Society surpass any of its previous meetings.

HEALTH REPORT for the week ending April 23: Number of cases of diphtheria remaining, 5; scarlet fever, 23; total deaths, 112; births, 77.

Philadelphia.

PHILADELPHIA MILK SUPPLY.—Philadelphia's milk is better than its water according to the report of recent chemic analyses made by chemists F. A. Geuth and C. B. Cochran. The subject was recently agitated and was brought to the notice of the State Secretary of Agriculture, Thomas J. Edge. Great care was exercised to have samples of milk from several sources, therefore one-fourth the total number (200) were obtained from the milk depots when first reaching the city, one-fourth from the cows of the dealers, one-fourth from milk jugs in private houses and one-fourth found in the various restaurants of the city. Instead of being artificially prepared and well watered, in many instances there really was an excess of fats, indicating a large amount of cream. In other samples the fats were below the normal average. This variety was more prevalent in the restaurants of the city.

THE UNIVERSITY OF PENNSYLVANIA AND ITS DENTAL DEPARTMENT.—To conform with the high standard of requirements in its other departments, the faculty have decided to require more preliminary education before matriculating anyone in the dental department, and the following have been agreed upon: For the session of 1898–99 a certificate of high school entrance; for the session of 1899–1900 a certificate of two years high school attendance; for the session of 1900–01 a diploma of an approved high school having a three years' course, or a certificate showing three years attendance at a high school having a four years' course, or certificate from other schools showing equivalent education. Or in lieu of such diploma or certificate the candidate will be required to pass a preliminary examination.

DIPHTHERIA DURING WAR TIMES.—While detailed on duty on board the monitor *Nahant*, at the League Island navy yard, Philadelphia, a member of the New York naval reserves became stricken with a well marked case of diphtheria. Thorough disinfection on board, however, has prevented the disease from gaining a foothold among the crew.

STATUS OF SMALLPOX IN PHILADELPHIA.—No further cases of this disease have been reported to the board of health other than the two recently noted. Both cases are being cared for at the Municipal Hospital. As was stated in a previous issue of the JOURNAL, the Municipal Hospital is badly overcrowded, and it is thought an ordinance will soon be brought before the City Council to provide for a separate building for the treatment of this disease.

NEW PROFESSOR OF GENITO-URINARY DISEASES.—Dr. Edward R. Kirby, who for the past twelve years has been assisting in the surgical department of the hospital of the University of Pennsylvania, has lately been elected clinical profcssor of Genito-urinary diseases at the Medico-Chirurgical College.

TYPHOID STATISTICS OF PHILADELPHIA FOR THE PAST FIVE YEARS.—For the purpose of comparison the report regarding typhoid fever in the above-named city is herewith appended:

1894.

	Cases.	Deaths.
January	137	43
February	125	18
March	157	20

1895.

	Cases.	Deaths.
January	238	36
February	294	64
March	184	48

1896.

	Cases.	Deaths.
January	174	34
February	160	23
March	177	21

1897.

	Cases.	Deaths.
January	173	36
February	114	18
March	179	27

1898.

	Cases.	Deaths.
January	790	65
February	681	75
March	332	54

The report for infectious and contagious diseases for the past two weeks is as follows:

	This week.		Last week.	
	Cases.	Deaths.	Cases.	Deaths.
Diphtheria	81	22	78	13
Typhoid Fever	31	8	55	15
Scarlet fever	68	1	46	4
Total	190	31	179	32

The death rate in Philadelphia per 100,000 population in typhoid fever is 40.

Cincinnati.

THE SOCIETY FOR MEDICAL RESEARCH held its regular monthly meeting Thursday evening April 14 at the Ohio Medical College. The program of the evening was as follows: "Scabies Norwegica" remarks and demonstration, by Dr. A. Ravogli; "Newer Histology of the Brain," by Dr. D. I. Wolfstein. Discussion.

THE forty-second annual commencement of the Cincinnati College of Medicine and Surgery took place at the Scottish Rite Cathedral April 13. There were in all twenty-six graduates, of which four were women. Dr. S. C. Ayres, the dean, made the address. The valedictory was by Dr. J. A. Johnston. A banquet followed.

THE next annual meeting of the Ohio State Pediatric Society will be held at Columbus on May 3 and 4.

ACADEMY OF MEDICINE.—The regular meeting of the Academy of Medicine was opened April 18 by the report of Dr. J. C. Oliver, the committee on transportation to the coming meeting of the AMERICAN MEDICAL ASSOCIATION in Denver. The rate reported was one round trip ticket at the cost of fare one way plus two dollars; trip by way of Chicago or St. Louis, or via one city one way and the other on return without extra charges; one dollar additional for every stop over outside these large cities; same rates for wives and families; fifteen making the same trip will be allowed a private car; seventy-five, a special train. Dr. Oliver was followed by the guest of the evening, Dr. Maurice Carnes, the representative of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, who urged coming by way of Chicago stating the pleasure it would give Chicago physicians to entertain the members of the Academy of Medicine.

Report of cases: Dr. Max Thorner, "Complete bony occlu-

sion of the external auditory canal, left ear." The man had noticed gradual diminution of hearing for some years, but had not given it attention until several months ago; it was not an exostosis, for a probe could not be entered at any point either at the circumference or at the center. The operation to be performed on this case will be an incision behind the auricle as in beginning the regular mastoid operation, loosening the attachment with a periosteotome, chiseling away the bony mass, and skin-grafting the denuded surface in the hope that the bone will not reform. Dr. Thorner also reported a case of radical mastoid in a child two and a half years old, who had been suffering from a foul-smelling discharge for many months with no improvement under treatment. The operation disclosed caries, and all rotten bone was removed; the peculiar feature was the brain concussion which lasted nearly a week; the child was much emaciated and approaching dissolution when the operation was performed, but when presented at the Academy was apparently healthy in every way. Dr. Merrill Rickets showed a case of tubercular glands of the neck removed by a posterior incision. Dr. Robert Hill three months ago reported a case of ligation of the common carotid and subclavian on the right side for aneurysm of the ascending aorta; in a week the man was up, and the external tumor had greatly diminished in size. A week ago the man died suddenly, and postmortem examination revealed a rupture of the right auricle. The specimen was presented. A cause for this rupture could not be determined. The speaker mentioned cases of heart rupture in which the heart was entirely normal, and stated that had he known there was so much fusiform dilatation to the aorta he would not have operated, but with the sacculation as evidenced by the external tumor, he thought he was justified in the operation and would do the same under similar circumstances. The clot present in the sacculated portion he thought proved that some benefit had been derived from the operation. Dr. Heady reported a case of perforating round ulcer of the duodenum and showed specimen; the ulcer was perfectly round, looking as though it had been punched out with some sharp instrument; was situated just one-half inch outside the pyloric orifice; about two inches away was another ulcer partially healed; the patient had died thirty hours after the onset of the acute symptoms; he did know the cause of the ulceration; there was no history of superficial burns; the literature of the subject presented in over 8000 autopsies, but twelve cases, seven of which were in males. Dr. Rickets then read a paper on "Deaths (ten), Surgical and Causes." The cases were as follows: meningitis in child, gangrene of leg in a man aged 59 years, brain abscess in a child aged 4 and following middle ear disease, peritonitis from ovarian disease, intestinal obstruction from a band, followed by strangulation, fibrosarcoma of the uterus, stone in the bladder complicated with chronic morphinism, empyema of the gall-bladder with rupture, cerebellar abscess following middle ear disease, fracture of the base of the skull in a man 69 years of age who had been kicked by a horse, and where superior maxilla had been driven into the throat and interfered so much with respiration that the pieces were removed, but the patient died two hours after operation. Dr. John Landis read a paper entitled "Paralysis of Sphincter in Clamp and Cautery Operation; Muscles of the Pelvic floor." Discussion.

"Luz," or the Sacrum.—A rabbinic name for the os sacrum was "luz," or the "resurrection bone," it being a bone especially difficult of destruction, and therefore the supposed germ of the survival of the body, and in this connection Dr. Cormer unearths the following from Butler's Hudibras:

> The learned Rabbins of the Jews
> Write there's a bone, which they call Luz,
> I' the rump of man, of such virtue
> No force in nature can do hurt to.
>
> From whence the learned sons of Art
> Os sacrum justly call the part.
>
> —*St. Thomas Hospital Gazette.*

CHANGE OF ADDRESS.

Applegate, R., from Indianapolis to Noblesville, Ind.; Armstrong W. S., from St. Charles and Montrose Boul. to Mayfair, Chicago, Ill.

Booker, F. C., from Richmond, Va. to Rustburg, Va.; Budwig, M., from Baltimore, Md. to 150 2d Ave. New York, N. Y.; Bjorkman, D., from Chicago, Ill. to Racine, Wis.; Barnhill, J. F., from 222 to 412 N. Delaware St., Indianapolis, Ind.; Dr. Bronnell, from Chicago, Ill. to Chilton, Wis.

Colin, E., from St. Louis, Mo. to St. Jacob, Ill.; Carpenter, E. G., from Cleveland to State Hospital, Columbus, Ohio; Chilgren, from St. Peter, Minn. to Hospital for Insane, Yankton, S. D.; Detchon, H. S., from Iowa City to Victor, Iowa.

Dennis, F. A., from Indianapolis to Crawfordsville, Ind.

Evans, O. H., from Columbus to Thurman, Ohio.

Fitz, G. G., from Iowa City to Emmetsburg, Iowa; Forrester, J., from 904 Peach St. to 814 Sassafras, Erie, Pa.; Fanning, G. J., from Red Lake Minn. to Harlem, Mont.

Graham, D., from Duluth to West Duluth, Minn.; Ghrist, D. M., from Pella to Ames, Iowa; Griffith, W. A., from Keokuk, Iowa to Kinderhook, Mich.

Heury, F. P., from 721 Spruce to 1635 Locust St., Philadelphia, Pa.; Hobbs, A. S., from 199 to 339 N. Illinois St., Indianapolis, Ind.; Holz, A. P., from Milwaukee to Seymour, Wis.; Hovender, J. H., from Chicago, Ill. to Lake View, Iowa.

Jordan, L. H., from Richmond to Mount Jackson, Va.; Jackson, G. E., from Minneapolis to Wheaton, Minn.

Loew, Alex, from 3603 Indiana Ave. to 3929 Prairie Ave., Chicago, Ill.; Lydston, G. F., from 661 Fullerton Ave. to 1095 N. Clark St., Chicago, Ill.; Lemen, H. A., from Augusta, Ga. to Denver, Colo., Box 14; Le Count, E. R., from 1302 to 1415 Madson St., Chicago, Ill.

Moran, F., from Milwaukee to Luxenbourg, Wis.; McKenney, from Des Moines to Davenport, Iowa; Montgomery, F., from Keokuk, Iowa to Clayton, Ill.; Moffit, E. D., from 16 to 8 W. New York St., Indianapolis, Ind.; McKenuey, A. D., from Des Moines to Pierson, Iowa.

Purdon, C., from Topeka to Coldwater, Kan.; Parker, E. E., from Indianapolis to Maxinkuckee, Ind.; Petersmeyer, W., from Chicago, Ill. to Odebolt, Iowa.

Rogers, E. C., from Keokuk to Cotter, Iowa.

Smith, J. W., from Richmond to Cumberland, Va.; Stevens, S., from Coloma to Dowagiac, Mich.; Smith, F. L., from Great Barrington to Sheffield, Mass.; Shortridge, W. R., from Hopkinton, Iowa to Elgin, Ill.; Spencer, N. W., from Des Moines to Walnut, Iowa; Sinclair, J., from 4045 Grand Boul, to 740 E. 43d St., Chicago, Ill.; Spivak, C. D., from Calif Building to Denison Building, Denver, Colo.; Shipley, W. M., from Des Moines to Ottosen, Iowa; Spurlock, G. L., from Dade City, Fla. to Gainsville, Texas.

Talford, P. B., from Columbus, Ohio to Adrian, Mich.; Thornton, H. T. from Iowa City to Pocahontas, Iowa.

Wilson, E. F., from 138 E. State to 230 E. Long St., Columbus, Ohio; Windrow, S., from 233 LaSalle Ave. to 408 Dearborn Ave., Chicago, Ill.; Wenzlick, W., from 77 Rush St. to 336 E. North Ave., Chicago, Ill.; Williams, D. H., from Washington, D. C. to 3034 Michigan Ave. Chicago, Ill.; Weaver, T. A., from Toledo to Dalton, Ohio; Williams, W. H., from Chicago to 1 Freeman St., Valparaiso, Ind.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.; Ashford, J. B., Sherwood, Texas; Anders, H. S., Philadelphia, Pa.

Barnes Medical College, St. Louis, Mo.; Brown, Mark A., Cincinnati, Ohio; Berry, W. F., Mt. Clemens, Mich.; Bjorkman, D., Racine, Wis.

Colorado Midland Railway Co., Denver, Colo.; Cramer, P. S., Cincinnati, Ohio; Cain, J. S., Nashville, Tenn.

Dellenbach, C. C., Portland, Mich.

Electro-Medical Manufacturing Co., Chicago, Ill.

Fernald, W. J., Rantoul, Ill.; Florer, T. W., Waxahachie, Texas.

Gerstein, Morris, Boston, Mass.; Graham, J. W., (2) Denver, Colo.

Hummel Advertisiug Agency, A. L., New York, N. Y.; Hare, H. A., Philadelphia, Pa.; Hektoen, L., Chicago, Ill.

Kinkead, Richard R., Norwich, Conn.; Kennedy, W. W., Winchester, Ill.

Le Fevre, Edwin, Boston, Mass.

Miller, J. P., Des Moines, Iowa; Medical College of Georgia, Augusta, Ga.; Morse Advertising Agency, Lyman D., New York, N. Y.; Musser, J. H., Philadelphia, Pa.; Mink, Arthur E., St. Louis, Mo.; Mason, D., Spokane, Wash.

Norris, D. L., Tupelo, Miss.; Norwich Pharmacal Co., Norwich, N. Y.

Ox Chemical Co., Louisville, Ky.

Parke Davis & Co., Detroit, Mich.

Roberts, H. H., Paris, Ky.; Rio Grande Western Railroad, Salt Lake City, Utah.

Sprouse, Jennie G., Paw Paw, Ill.; Simmons, D. G., Louisville, Ky.; Sterman, W. F., Louisville, Ky.; Saunders, W. B., Philadelphia, Pa.; Sanderson, J. H., Detroit, Mich.; Schieffelin & Co., New York, N. Y.; Smith, J. Whitefield, Bloomington, Ill.; Smith, Kline & French Co., Philadelphia, Pa.

Todd, G. M., Akron, Ohio; Turner, M. L., Griswold, Iowa; Thomas, Homer M., Chicago, Ill.; Tucker, Ernest F., Portland, Oregon.

Voje, J. H., Oconomowoc, Wis.

Walton Oxygen Works, New York, N. Y.; Woods, R., Shickley, Neb.; Wilson, A. J., Chicago, Ill.; White Rock Mineral Spring Co., Waukesha, Wis.

Yates, H. W., Detroit, Mich.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medi Department, U. S. Army, from April 16 to 22, 1898.

Lieut.-Col. Albert Hartsuff, Deputy Surgeon-General, will proceed from Hdqrs. Dept. of the Lakes, Chicago, Ill., to Chickamauga Park, Ga., for temporary duty.

Major Egon A. Koerper, Surgeon, is relieved from duty at Ft. Crook, Neb., and will report by letter to the commanding officer, Dept. of the Missouri, for assignment to duty as chief surgeon of that Department.

Capt. Rudolph G. Ebert, Asst. Surgeon, is relieved from duty at Ft. Missoula, Mont., and will proceed to Tampa, Fla., and report to the commanding officer, Seventeenth Infantry, for duty.

Col. Charles R. Greenleaf, Asst. Surgeon General, will tranfer his duties pertaining to the medical supply depot at San Francisco, Cal., to Lieut.-Col. Johnson V. D. Middleton, Deputy Surgeon-General, chief surgeon, Dept. of California, who will perform them in addition to his present duties, and will also perform the duties of chief surgeon, Dept. of the Columbia, during the remainder of the absence on leave of Lieut.-Col. William D. Wolverton, Deputy Surgeon-General.

Major John Van R. Hoff, Surgeon, is relieved from duty at Vaucouver Bks., Washington, and from the temporary charge of the office of the chief surgeon, Dept. of the Columbia. Col. Greenleaf and Major Hoff will repair to Washington, D. C., and report in person to the Surgeon-General of the Army for duty.

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ORIGINAL ARTICLES.

THE CLIMATE OF COLORADO FOR RESPIRATORY DISEASES.

BY CHARLES DENISON, A.M., M.D.

Emeritus Professor of Diseases of the Chest and of Climatology, University of Denver; Ex-President of the American Climatological Association, etc.

DENVER, COLO.

PART I.—THE ATTRIBUTES OF CLIMATE AND AIR-RAREFACTION.

The request of our Chamber of Commerce Committee, to give the facts concerning the kind of climate we have in the vicinity of Denver, is complied with reluctantly, only because the author fears his inability to do the subject justice in the space allotted. The evidence depended upon is too voluminous to mention at all, and the author will have to refer the reader to his other writings[1] for the details, and to state some positive conclusions, which might otherwise be challenged if they were not based upon a twenty-four years residence in Colorado, in which time some thirty-five hundred pulmonary cases have been recorded. Experience is what tells, and the experience of the medical profession in Colorado unquestionably sustains the conclusions here presented. We may differ as to the advisability of inviting the weaker, the invalid class to come out here and live. The fact remains, however, that our recovered invalids have ceased to be a detriment to the communities in which they have mingled and that they constitute, in a large degree, the life and success of our new civilization. It is therefore with hope and confidence that we refer to the proofs which substantiate our experience in this elevated section.

Before proceeding with the summary of the evidence on hand, let it be admitted that some medical minds are not wholly in accord on the question of climatic effects in the causation and cure of disease, probably because of local bias or that their estimation of the attributes of climate is measured by a limited experience. This is unfortunate, but has to be admitted if any credence is to be given to such medical gatherings as the late "Congress of Medico-Climatology, Auxiliary of the World's Fair." At that meeting reports were presented from widely separated districts, high, low, inland, sea bounded and both within and without the United States. These reports were so exaggerated in praise of each special locality represented, that the listener, without a settled basis of judgment as to preferable climatic attributes, would be deceived into acquiescence to absurd propositions in turn alike contradictory. This going into the minutiæ of local weather statistics (as the daily range of temperature, or the extremes reached in a given month or year) as many have done, is of questionable use.

Such a mass of unessential particulars, however laboriously tabulated, only consumes time in its study and detracts from the consensus of knowledge needed.[2] [3]

Climate has to do with many special diseases, and its effects upon kidney diseases, the nervous system, age, sex and occupation would be instructive if time permitted to consider them; but we are now to study chiefly the class of diseases with which climate has both the greatest causative as well as curative effect, namely:

Chronic pulmonary diseases.—This study[4] of the air with regard to the causation and cure of respiratory diseases ushers us immediately into a controversy which has more than any other occupied the attention of climatologists for the past thirty years. It is the question of air pressure and the susceptibility or adaptability of the human organism to it under varying states of health and disease. Without seeming to controvert the great general argument, that of purity of atmosphere, always used by those who do not admit the importance of this air pressure consideration (for the pure air argument is an admitted issue and needs no proof), the question of altitude or sea level pressure can not, we believe, be ignored in the climatic prescription we are required to inscribe.

The purpose in the following presentation is to ignore any given locality and consider the chief attributes, those variously considered as most effective in the production of what is called climate. These are; 1, elevation above the sea (rarefaction); 2, dryness of the air, both absolute and relative; 3, temperature of the air, whether cold, cool or warm; 4, sunshine, its preponderance or average daily duration at a given place, which introduces the important questions of cloudiness and the diathermancy (clearness) of the air; 5, the winds which introduce many correlated causes, such as the seasonal changes, the configuration of the earth's surface at a given place, the ocean tide, storm winds, daily or periodical currents of mountain or sea air, etc; 6, the character of the soil, which is of great importance with reference to the proportion of forests to dry land, the contiguity of the sea or large bodies of water, and the general configuration of the earth's surface; 7, the variability or equability of the

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[1] "The Rocky Mountain Health Resorts," Cloth and Paper covers. Houghton, Mifflin and Co., Boston, Publishers. Descriptive of the interior health resorts of the United States. "The Climate of the United States in Colors." The W. T. Keener Co., 95 Washington St. Chicago, Publishers. A graphic description, in twelve colored charts and eleven tabulations, of over 8,000,000 separate observations of the United States Signal Service Bureau, given in Annual and seasonal representations of cloudiness, temperature, rainfall, winds and combined humidity statistics, for the professional and lay reference. "The Preferable Climate for Consumption." Congresses of 1886 and 1887. Somewhat elaborate arguments founded upon the analysis of climatic attributes independent of locality.

[2] To be commended: A recent historical and geographical study of the climates of that part of the world inhabited by the English-speaking people, issued by MacMillan and Co., London and New York, on "The Treatment of Lung Diseases by Climate," by Dr. C. Theodore Williams.

[3] "A Handbook of Medical Climatology" by S. Edwin Solly, M.D., M.R.C.S., Lea Bros. and Co., Publishers, Philadelphia and New York 1897.

[4] Largely drawn from the Author's article on "Climatic Treatment," in Foster's Practical Therapeutics.

air-temperatures, which are largely relative, the former to altitude and the latter to the sea; 8, the electric condition of the atmosphere, which mysterious agent is also decidedly relative to mountain and sea currents, but which is none the less important as affording desirable stimulation.

In choosing from such attributes the most desirable combination for the arrest of lung disease, the writer feels called upon to explain why he does not place altitude the most important of all, at the head of the following list. It is; 1, because altitude shows its effect upon each important attribute, and thus in a fair analysis gets a reasonable allowance of praise; 2, because the special consideration of altitude is needed in presenting air-rarefaction as a potent force in treating respiratory diseases, hardly second, by itself, to any other attribute, yet at least entitled, in the minds of the majority of physicians, to hold the third place in such a classification.

Dryness is preferable to moisture.—We should have a line of demarcation between these two opposing qualities of the atmosphere, so that there could be no confusion in the use of the terms dryness and moisture. It seems that the average of the combined hygrometric conditions of the atmosphere, for the whole inhabited portion of the country, is a fair criterion between these two opposite conditions, and we will accept this as the line of definition between dryness and moisture. Temperature must be accounted for, as the capacity of the air to hold moisture varies so greatly, according to this record, the variation being from about one-half grain of vapor to the cubic foot, at zero, to nearly twenty grains at 100 degrees F., when the air is saturated. This was the foundation of the writer's rule for the determination of moisture and dryness.[5]

This rule was based upon a calculation of a table representing the average of the combined humidities of the air (cloudiness, absolute and relative humidity) for the whole United States, and for every degree of temperature. The average of these three evidences of humidity were found to be 44.5 per cent. for the time (average proportion of each day) the sky was clouded, 67 per cent. of saturation, for relative humidity, and, consequently, 67 per cent. of the weight of vapor the air could hold, for absolute humidity.

The graphic illustration of this rule on colored maps, compared with mortality statistics, shows that the arrest of consumption is far more surely to be accomplished as you go toward the extreme of dryness, from the mean, than toward the extreme of moisture. Indeed, it is the very moist climates which furnish most of the cases to be arrested in the dry sections.

The chief argument in favor of atmospheric dryness is based upon the increased transpiration of aqueous vapor from the lungs, in a degree according to the dryness of the air breathed. The germs of disease need warmth and moisture in which to live and flourish, a climate tempered and constituted according to the requirements of their peculiar existence. It is reasonable to infer that the preference shown by tubercle bacilli for a *locus habitandi* in pulmonary tissue is in no small degree governed by the catarrhal or other products of inflammatory change which clog or close the air cells and connecting tubes. If these secretions or morbid products could be removed at the same time the bacilli which inhabit them were thrown off, the result would certainly be salutory. These could be so expelled if they could be reached by the inhaled air, and this in turn had the requisite absorbent power. This absorbent power is just what the inhaled air possesses through its quality of dryness, and in proportion thereto. Absorption takes place through the difference in percentage of saturation (relative humidity) between the inspired and the expired air, and also much more through the difference in quantity (absolute humidity) between the moisture inhaled and that expelled. This especially takes place if cold air is inhaled, which is raised to the temperature of the body and then has greater power for holding moisture. Valentine, Sanctorius, Lavoisier, Seguin, Dalton and others have investigated the subject of transpiration, but not to differentiate between persons at different altitudes and temperatures. In this analysis of humidity statistics, ("Moisture and Dryness") the writer made an attempt to compute the difference in transpiration. He took Draper's statement as the basis of his calculations, namely, that the dew-point (the temperature at which the vapor present would make saturation) of the expired breath is 94 degrees, F. Three kinds of estimates were made by way of comparison.

1. Difference in vapor transpiration between a warm moist (Jacksonville, Fla.) and a warm dry climate (Yuma, Ariz.), of about the same elevation and temperature. This calculation, for an ordinary sized man, gave for Yuma, 3937 grains vapor exhaled, and 3073 for Jacksonville, or an excess for Yuma over Jacksonville of 864 grains a day, when no exercise was taken. When one makes allowance for the increased respiratory activity due to exercise, he can realize the still greater difference in transpiration as shown by Dr. Edward Smith's statement that, "one at sea level, walking at the rate of three miles an hour consumes three times as much air as when at rest." The ordinary exercise of a man would make this difference in transpiration under the given condition equal to about a gill in twenty-four hours.

2. When we make this calculation for places of different temperatures and elevations, the evidence becomes still more conclusive, for cold is probably the most important factor in the production of dryness, and elevation is not far inferior, because it, in turn, produces cold as well as expansion in the volume of the air. It is right to allow for the elevation an equivalent to the proportionate rarefaction of the air, that is, if the pressure is one-fifth less (twelve pounds to the square inch) at Denver than at Jacksonville, then one-fifth more air will be breathed at the former station. In this calculation we will assume a good sized man, 30 years old, as breathing both in Denver and Jacksonville twenty breaths a minute and thirty cubic inches to a breath (Dr. Grehant), ordinary exercise included, and for the same season at each place. This gives by the same method of reckoning, vapor exhaled above that inhaled in twenty-four hours, 8900 grains for Denver and 4939 for Jacksonville. This is an excess of transpiration moisture in favor of Denver of 3961 grains, or over 8 ounces, in twenty-four hours. Two important considerations would further add to this effect in favor of the high altitude station: *a*, the expansion of the air, in being raised in the respiratory tract from the lower temperature of the atmosphere to the high temperature of the body; *b*, the increased amount

5 "Moisture and Dryness." Report made to the American Climatological Association, 1884, Rand, McNally and Co., Chicago.

exercise naturally indulged in at the higher station, due to the stimulation of the cold, and the possible electric influence, quickening and deepening respirations.

3. For the purpose of still further comparison, it is instructive to take a cold, dry place in winter (Cheyenne, Wyo.) and a warm, moist one in summer (Charleston, S. C.) on the same basis (though Cheyenne is a little more elevated than Denver). The calculation results in vapor exhaled above that inhaled in twenty-four hours, 9881 grains in Cheyenne and 3615 in Charleston; excess of respiratory evaporation in favor of Cheyenne in winter, over Charleston in summer, is 6266 grains. If the two modifying effects previously mentioned were to be taken into consideration, together with the usually increased activity of the respiratory organs in such cold, as compared with such warm weather, the result would show for Cheyenne in winter a daily passing of vapor from the lungs of at least a pint more, than for Charleston in summer.

Coolness or cold is preferable to warmth or heat. The importance of cold in the composition of the curative atmosphere we seek is hardly less than that of dryness. In fact the two are so interdependent and necessarily associated that they can not be easily separated. If the thermal units coming from the combustion of effete material which should be thrown off through the lungs may be considered as indices of the natural cleansing of the system, then the tremendously augmented expenditure of heat units required in cold climates to maintain an equilibrium of bodily temperature must be credited for this great purifying influence. This potent effect is still further increased by the greater transpiration of vapor from the lungs in dry, cold climates, above proved to take place, because such transpiration is represented by the latent heat of vaporization, also necessarily thrown off. This temperature problem naturally introduces the following considerations:

1. How much atmospheric humidity is influenced by the element of temperature is shown by the sensory effect of cold. It is through conduction chiefly, that the body parts with its heat. Evaporation and radiation together do not equal this power of conduction, which the atmosphere, in common with everything that touches the body, possesses. Now, the conductivity of the air depends greatly upon its moisture. It is with the air as it is with solid substances. A bar of iron feels very much colder than the same shaped piece of dry pine, though they both may be of the same temperature. The iron is by far the better conductor, just as moist cold is, compared with dry cold air. To those who have never previously experienced a dry, cold and sunny morning on the eastern slope of the Rocky Mountains, there is a deception in the sensation of cold, which is equivalent to from 15 to 20 degrees. One seems to be in a much warmer atmosphere than that in which he really is. Temperature then is a relative attribute, and can not be considered as independent of humidity. Besides, the drying effect of cold upon the atmosphere, low temperature will be found to have other useful effects in the arrest of consumption.

2. Heat expands the air, so that the contrast between the temperature of the atmosphere and that of the body indicates the swelling effect cold air produces when full breaths are taken. Any doubt about this may be settled by trying the simple experiment of breathing one's utmost into a spirometer in a heated room when the air is frozen outdoors. Then step to the door, take a full breath and try again; the difference should in part indicate the expanding force heat imparts to the inhaled air. This lung-stretching capacity of inhaled cold air is especially appreciated by those who hold that it is most often the lack of use which paves the way to infiltrations or tubercular deposits in the tops of the lungs. It is to such secluded places in the lungs that the expanding air carries the evaporating influence of dryness.

3. Cold stimulates and heat depresses. This is a generally accepted proposition, which needs no extended elaboration. The sensations themselves are a good guide, and the colder the air the more stimulating it is. "A bright sun and blue sky overhead, a clear and quiet atmosphere, distant sounds transmitted to the ear through the still air, combine with the charms of the scenery to produce such buoyancy of spirits that a man is braced and invigorated for almost any exertion." (Dr. A. Tucker Wise in "Alpine Resorts.") It is in harmony with this stimulating effect of cold, that the respiratory function is diminished in activity in hot climates, and an increased amount of blood is found in the lungs of residents in cold countries, as shown by Parkes, Rattray and others. Dr. Francis, of the Bengal army, found, from a large number of observations, that the lungs were lighter in Europeans in India than the European standard. The increased quantity of blood circulating through the lungs means increased oxidation of the blood and renewal of tissue. The pulmonary lymphatics join in the increased activity, the nervous system is exhilarated, and the whole nutrition is improved.

Cold not only stimulates and encourages needed exercise, but under certain conditions it may result in a desirable sedative effect. The sleep which comes at night after a day's exhilaration and excitement induced by cold is the most refreshing of all rest.

The influence of cold in destroying or impeding germ life, especially the life of the bacillus of tuberculosis, is a most important consideration. This is diametrically opposed to the fostering of nearly all germ life by moist and mild heat. If one has ever "camped out" on the top of a Rocky Mountain pass, he will never forget the stillness of that insectless and germless locality. The nightly freezing of the air, together with its dilution through lessened air pressure, is enough to render germ life impossible. But the best evidence is that which has reference to the climate and natural life conditions of the bacillus, limited as they are to a narrow range of temperature.

"The air we inhale does not perhaps so often contain the fully developed bacillus as is supposed by many people, for this microbe does not thrive in the air at the usual temperature, but requires, according to Koch, a temperature approaching that of the human body. Its growth entirely ceases below about 82 and above 107 degrees F., and it thrives best at about 98 to 100 degrees, while other pathogenic microbes have a much wider field—for instance, the anthrax bacillus, which grows luxuriantly between 67 and 74 and up to 110 degrees."[6]

The study of seasonal effects in phthisis shows the salutary influence of cold. This may appear strange to those people of the North Atlantic, Middle and Lake States who flee south in terror of the winter

[6] Dr. Weber, in the "Croonian Lectures on Chronic Pulmonary Phthisis."

weather. True, yet do not thousands yearly leave moist England for a winter stay in the frozen uplands of Switzerland? The force of this consideration is not appreciated except through a recognition of the importance of dryness. Notice on the winter seasonal map, previously referred to, the prevailing northwest, west and southwest winds, some one of them everywhere moving toward the great interior lake region of the United States. The cooling of these air currents, causing condensation of vapor, with the addition of moisture already existing, is enough to produce cloudiness in this interior lake section for from six to eight-tenths of the winter season. The effect of the cold moisture renders this a climate to be avoided by enfeebled lungs. However, where the other attributes—dryness, elevation and sunshine—are favorable, the winter is the best time of the year for most consumptives. In cases suitable for positive treatment, these favorable climatic conditions, by means of this cooler temperature, can be increased to a climax of success not otherwise obtainable. The experience of invalids in Colorado bears out this conclusion. It is to secure the cooler temperature in summer time that some of the consumptive patients from the plains are sent higher up to the parks and divides of the Rocky Mountains. The effect of the change is very generally good, and a tubercular fire, which had rekindled in Denver on the advent of warm weather, has been arrested, as appearances indicated, by a sojourn in a cool park 8000 feet above the sea.

Rarefaction is better than sea-level pressure.—The consideration of elevation is divided into: 1, the effect upon other climatic attributes. Then aside from this there is the mechanical effect of rarefaction; 2, the physical influence upon man in health; 3, the influence in disease and the experience of invalids; 4, the evidence of a certain immunity from consumption.

We have already referred to the influence of rarefaction in producing dryness and coolness. Its effect upon sunshine, diathermancy, variability of temperature, wind movements, radiation, evaporation, etc., will appear as we proceed. The expansion of the air is equivalent, in degree, to any given elevation. The additional space occupied carries with it its due proportion of atmospheric moisture. In localities favorable for health resorts, this deprivation more than counterbalances the condensation of vapor by cold. The result is a total decrease of moisture, which is shown by a small percentage of cloudiness, a low relative and a very small absolute humidity. Then through its expansive effect as well as by its influence upon other producers of dryness, elevation is a powerful agent in controlling atmospheric humidity. As to temperature, elevation has a constant effect in the production of cold. It is differently estimated by authors, but does not vary greatly from about 3 degrees decrease in heat for each 1000 feet rise in elevation. In some favorable localities, such as the eastern slope or base of the Rocky Mountains, this lowering temperature is neutralized by local conditions, such as the excess of sunshine, the character of the soil—being dry and sandy—and the protection of mountain ranges, which drain the western, humid air currents of their moisture, so that the isotherms, as a given elevation is reached, continue directly in a western course until the very high mountains turn them southward.

The physical effect of rarefaction upon human beings.—Dr. Jourdanet, of Paris, gave us a most complete and elaborate exposition of the physiologic effects of the diminished air pressure, and not content with this analytical investigation, he induced Paul Bert to work out by experiment, chiefly on the life of birds, the effects of the equivalents of various elevations, even up to starvation limits, as to the supply of oxygen. These and many other studies might be elaborated if space permitted. Ignoring their trivial differences, we will state only settled conclusions. Lessened atmospheric pressure leads to an equivalent loss of oxygen, which deficiency, Parkes, in his "Practical Hygiene," says is not felt by animals till a rarefaction equal to 14 per cent. is reached. This loss is about equivalent to an elevation of 10,000 feet, and many animals do begin to live an abbreviated existence at this height. But there are previous effects which man can appreciate all the way from 3000 to 6000 feet, at which latter limit the air is one-fifth rarefied. This appreciation, in a state of rest, is from nothing to considerable, according to the sensitiveness of the heart or lungs, or both of them. There is an adaptability of these organs in perfect health which more than compensates for a rarefaction of one-fifth, so that only a pleasant exhilaration is felt, even with moderate exercise. Much exertion strains this adaptability, and a degree of breathlessness may be reached, which indicates a decided deficiency of oxygen compared with the immediate requirements. However, it is not the point of injury or danger that is here referred to, but the altitudes which produce healthful and well-borne respiratory activity when at rest and even during moderate exercise. The effects of altitude vary according to the pulmonary or cardiac susceptibility of an individual, and are divided into, 1, first effects; 2, permanent effects or acclimatization.

On the arrival of a healthy individual in a high altitude, say a mile above sea level, there is first an increase, both in frequency and depth of respiration. When adjustment to the new conditions has taken place, which requires a variable period, according to the altitude and the individual, the respirations are not nearly so much increased in frequency during rest, but the depth of breathing is habitually greater. This is shown by the large spirometric records of those who reside at great elevations, and the increased size of their chests both in adults and children. This is farther shown by the necessity of the climatic change to supply the usual, if not augmented, demand for oxygen, which is to meet an increased combustion or change of tissues. The increased exhalation of carbonic acid and the lower air temperature, as well as the increased chest measurements in those invalids who are not so far advanced in disease but that the affected lung tissue can be returned to use (an effect noted in the writer's cases, as well as those of C. T. Williams, Weber and others), are in perfect accord with the habitual use of more air for all the purposes of living in high altitudes. The heart and lungs having a reciprocal relation to each other, are both proportionately more active. In imperfect respiratory states, such as incipient consumption, the impeded circulation feels the stimulation, especially in those portions of the body which were the least active before—in the lung periphery and the capillary system generally. The result is a more perfect circulation of the blood and oxygenation of tissues, also of carbonaceous and effete materials. The supply and waste are more completely attended to, and the "sewer work" of the respiratory system is more complete. There

is a change in the relative density of the air in the lungs, due to this increased activity and to the fact that the air breathed is rarefied. There exists an alternate greater pressure or density of the air with expiration, and diminished pressure or rarefaction during inspiration, with each respiratory act, compared with the air pressure outside the body, and also compared with the usual change of density of air in the lungs during respiration at sea level. Here is found the best form of "pneumatic differentiation" because it is natural. This increased outward pressure within the lungs is especially salutary in the chronic thickenings, etc., of the lining membranes of the air cells and bronchial tubes, and it has a tendency to open up passages closed by disease and non-use to the entrance of pure, dry air. Some of the worst cases of consumption are those where the air can not reach the microbes or morbid products.

The augmented respiratory activity.—This with the rush of blood into and through the pulmonary capillaries, which seem to disturb the judgment of a few physicians with reference to the liability to the occurrence of pneumonia or pulmonary hemorrhage in high altitudes, requires some further explanation.

There is no cause for fear of hemorrhage if proper precautions are taken as to extreme elevations and the character and stage of the disease existing in the lungs. There should be no spots of softened lung tissue, especially near the root of the lung which have not had time to be protected by nature's great conservative process—the deposition of fibrous or hardening tissue. Only those patients should be sent to very high places who can bear the rapid expansion and augmented circulation without rupture of blood vessels. In portions of the lungs where there is no softening this increased pressure acts helpfully on the distended vessels, just as a properly adjusted bandage does on a swollen limb. The alternate crowding of the dry air against hypertrophied or diseased alveolar walls, and the suction directly applied through the push given to the circulation, tend to clean out the products of morbid processes and relieve congestion. There is, as mentioned by Dr. C. T. Williams, 1, hypertrophy, or more complete development of certain portions of healthy lung tissue; 2, emphysema (dilation) of other portions, especially of those in the neighborhood of the consolidations and cavities. This increased action and the stretching help to isolate caseous or tubercular portions, prevent the spread of infection, and promote cicatrization or fibrination of the affected parts.

As to pneumonic and hemorrhagic cases, the writer's later experience tallies well with that tabulated in his report to the International Medical Congress of 1876, in which were presented his first records of 202 consumptives who had spent a total of 350 years in Colorado. The pneumonic cases and the hemorrhagic, without cavity, were by far the best influenced of all varieties. Very acute cases, during the time inflammation or hemorrhage is active, need to be treated upon the rest principle, and such should be excepted from the foregoing.

Altitude of immunity from phthisis.—There is presumptive proof that those climatic conditions which prevail where phthisis seldom or never originates are best suited to arrest the disease when it has commenced elsewhere. Reference must be briefly made to the considerable evidence of medical writers in favor of an altitude of approximate immunity from consumption which, with us in America, ranges not far from 8000 feet in the southwestern part of the United States; to nearly 5000 on our northern boundary.

As to the quality of the climate which affords this partial immunity, Jaccoud of Paris, says, "altitude is the most important element; climates with a high altitude, having tonic and stimulating effects, can alone confer on the inhabitants absolute or relative immunity from pulmonary phthisis." While altitude is the governing element, all the associated favorable conditions of the atmosphere, somewhat in the order in which we have named them, seem to go hand in hand until they reach a climax of success in conferring a more or less complete immunity from consumption upon the residents at the given altitude. In illustration of this influence, the records of mortality from phthisis in the city of Denver and in Colorado generally, might be cited. Up to the year 1896, out of twenty deaths from this disease, eighteen or nineteen were from the imported cases, a fact which should always be taken into account as explaining the mortality from consumption in this State. Since the date given, the consumptive mortality in the city of Denver has shown an increase undoubtedly due to local conditions in which a greater liability to infection has to be admitted. Even thus the proportion of indigenous cases of tuberculosis to all deaths is now and for some time will continue to be far below that of any American city of like size.

Sunshine is superior to cloudiness.—There is little necessity of advocating the utility of sunshine. Proof is sufficient, but is necessarily combined with that of other climatic attributes. Every one acknowledges the benefit of sunshine, though in summer time he may have a personal preference for shade. Undoubtedly the effect of light upon man's physical and moral well-being is analogous to the fructifying influence of the sun's rays upon the vegetable kingdom. All life depends upon sunshine, and for successful existence must have it. The proportion of sunshine to cloudiness depends on the length of the day, on the exposure of a place, as on whether or not it is concealed in a valley, and on the cloudiness of the sky. The distribution of clouds in the United States is computed by the Signal Service Bureau in tenths of obscuration of the sky, and from these observations the percentage of cloudiness, and conversely of approximate sunshine, may be noted for the whole country. Reference is made to the first of the charts in the "Climates of the United States, in Colors" already referred to, for an eleven year average of the distribution of cloudiness. The variations of cloudiness range from above 60 per cent. of the time over the interior lake region down to less than 30 per cent. in the southwestern portion (New Mexico and Arizona). Taking so broad a field into calculation, a striking harmony is noted between cloudlessness or sunshine, and other favorable attributes. They all go together. A preponderance of sunshine should be mentioned as favoring the possibility of the desirable outdoor life, and also of camping out in summer time.

(To be continued.)

Hooks for Mastoid Operations.—P. J. Zaalberg has devised a couple of rake-like hooks to hold the soft parts spread in these operations. The hooks are slipped into knots at the ends of a piece of rubber tubing that passes around the head. The teeth of one are so arranged as to form an angle of 30 degrees with the pulling line, thus holding the parts without drawing them up.—*Cbl. f. Chir.*, April 2.

MEDICAL OR TISSUE ASEPSIS.

Read at the Thirteenth Annual Meeting of the Fifth District Branch of the New York State Medical Association, held in Brooklyn, N. Y., May 25, 1897.

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NEW YORK, N. Y.

MOTTO:—CLEANSE AND STRENGTHEN.

Medical asepsis is but the inward application of the principle contained in the ordinary surgical asepsis, supplemented by the enhancement of the bactericidal properties of the blood serum. The words cleanse and strengthen include all the essentials of tissue or medical asepsis. Wherever water will flow, no matter how small the stream, it will cleanse, and the cleansing power will be proportionate to the size and number of the streams. Water has been used for ages for its curative action in disease, but not, to my knowledge, with the idea of establishing an aseptic condition of the tissues by effecting and maintaining tissue cleanliness. While to many, the presentation may seem a novelty, it is founded on years of careful study and practical application. The absence of any authorities on tissue asepsis as such, and its proven value in practice, will be sufficient apology for this paper.

Tissue asepsis has become, in my practice, a firmly fixed principle of treatment, both capable of absolute clinical and practical demonstration and gratifying in its results. The skepticism with which the theory of internal or tissue asepsis may possibly be received will no doubt be based on a wrong conception of the conditions which require its use and an imperfect knowledge of its practical application. In the uncleanliness of the tissues we have the products of fermentation or decomposition absorbed either through the lymphatics or blood supply, or it may be inflammatory exudates or other products, which have not been eliminated by the fluids of the body. But if there is an increased ingestion of water of carefully regulated temperatures and in stated quantities, along with systematized exercise of the muscular tissues, then the fluids becoming more abundant and less dense will cause the waste of the body and the pabulum for the development of micro-organisms to be removed, with the result that finally a sterilized surface of tissue is obtained in many cases. In internal or tissue asepsis we can do no more in one particular than in external or surgical asepsis. By the latter, we can ordinarily only remove the detritus or debris, leaving a clean surface so that no micro-organisms can have food or habitation resulting in development. While in tissue asepsis we can not only cleanse, but in many cases, so strengthen and invigorate the tissues as to increase its resistance to the spread of infection. The cause of the grave results in internal disease is presence of decomposing exudates or retained nitrogenous waste products. These exudates or effusions undergo decomposition or putrefaction as the result of the advent of micro-organisms. Micro-organisms primarily and waste products and weakened tissue secondarily, are the two factors in the production of the decomposition or disease. Hence micro-organisms are not the sole factor in the cause of disease. The devitalized or deteriorated structure, effusion, or exudate must be present before putrefaction can take place, and where there is no putrefaction or decomposition there is no constitutional disturbance which in the body could imply the presence of non-vital tissues or exudates and micro-organisms. Devitalized structure, or those of lowered vitality often readily degenerate into pus, as the result of irritation, suppuration being the degeneration of imperfect or devitalized tissue caused by the inflammation, the result of the effects of the micro-organisms. As in an external wound we remove from the surface the materials which undergo septic changes in order to establish resolution, so in internal inflammation the need of tissue lavage is imperative and possible, and is immemediately beneficial within the circulatory field. The filtration of water through the body is the result of definite physical and chemic laws, the nature and workings of which are becoming more clearly defined and understood, and it would be childish to presume that we have reached the limit of knowledge on this question, while in all other fields the searching torch is held aloft, seeking to enlarge the vision of the truth-seeker. The physical theory of medical asepsis is based upon anatomic and physiologic investigation, study and practice. One has but to thoroughly familiarize himself with the conditions which regulate the endosmosis of fluids through animal tissues in order to clearly understand the peculiar phenomena connected with medical asepsis.

If, in ordinary surgical asepsis, the value of the solvent properties of water is admitted, is it difficult to comprehend that the same properties and offices are not lessened by ingestion? It has been truthfully said that, with the exception of air, water is the most transient of all the elements received into the body. It is a general eliminator—nature's own cleanser. Its increased use augments the elimination of the waste of the body, increasing the metabolism of tissue, and in the words of Ringer "increasing vigor alike of body and mind." Our body corresponds exactly in many ways with artificial mechanism. The organs of secretion and excretion are similar in their action to an ordinary filtering apparatus. As the activity of filtration depends not only on the size of the pores in the filter, so the diffusion also varies according to the nature of the material of the porous body. The different membranes of the body can change their operations by the activity of the contracting tissues. This change is automatic; it completes and perfects other bodily functions. The amount of liquid increment equals the amount of liquid decrement in the urinary secretion, perspiration and watery vapor from the lungs. In speaking of the physiologic action of water taken inwardly, if we were to start at the very beginning and describe all the bearings that water has in the physiology of the body, while it might make one's conception of the elucidation of the method much easier, such a description is apparently unnecessary, as the important part played by water in the economy is well known to all. Still, a résumé of a portion of the subject is not out of place here.

Valentin says, "a filtrum is any porous material. The molecules of the body might be said to filter water in the same way that it passes through sand in the earth, taking up all sorts of minerals and earthy salts. When some kinds of freestone, powdered charcoal, flannel, or unsized paper are used, the fluid is passed through for the purpose of separating it from the material suspended in it."

Water, in passing through the body, gives up its salts in a similar way, and also absorbs the waste while in transit, which it carries out through the emunctories. Impure water brings disease to the tis-

sues; pure water carries it away from them. In studying the physical properties of the human body, the limitation of our senses, even with microscopic aid of the highest magnifying power, makes them insufficient to show us many of the minute but important constituents of the various tissues. The ultimate molecule is so small that the human eye can not see it. In the arrangement of every organism it moves in limited spheres. It is, as Valentin says, the smallest possible but independent, and by this arrangement there are many important advantages. Subdivision into the smallest masses is of advantage in the enlargement of the free surfaces, for thus more molecules of the solid and liquid substances are brought into mutual contact. The minute subdivision of the circulating fluid enables it to give off nutriment to the various tissues, and, making an exchange of gases with the atmosphere in the skin and lungs, its basis being water, it takes up the waste of the tissues by its solvent power. The endosmosis of fluids through the bodily tissues, following mechanical and chemic laws with an anatomic basis, allows the water to filter out through the tissues as urinary secretion or perspiration. Minute anatomy, physics and chemistry explain clearly the mechanics of medical asepsis. The cleansing function is increased when larger surfaces of the circulating fluid come in contact with the walls of the vessels; the enlargement of surface for bathing purposes, which is obtained by means of the capillary system and the minute lymphatics, is enormous. When we consider the chemic and physical properties of the tissues, the advantage resulting from their extremely minute division is readily shown. The suppleness and pliability of the organs depend in a great measure on the amount of water they contain, as when thoroughly dried by heat they are extremely brittle. Five-sixths of the body can be volatilized under moderately high temperatures.

In a consideration of the velocity of water filtering through the body, the form of the aperture of exit, the shape of the stream, the nature, diameter, and course of the tubes through which the fluid mass is driven, and the resistance of the bodies with which it meets on the way, the adhesions to the walls of the tubes and friction against them, are the important circumstances which control the degree of rapidity of the filtration. The fine canals which are found in our body are much more minute than any capillary tubes with which hydraulic experiments have been made. The fluid which is driven through them generally passes through the same medium. At other times, liquid masses are expelled into the air. The velocity with which a liquid flows through a capillary tube to pass into another uniform liquid, varies with the nature of the moving fluid. Warmth hastens the passage of fluid through minute tubes in a great degree. This explains why the higher temperature in warm-blooded animals is of great advantage in this respect, and why warm water is more readily diffusible and more readily absorbed. It also shows the reason the flow of blood in the cutaneous capillaries is retarded, or even checked, when the temperature of the skin is much lowered by the application of cold.

Every part of an organ is a mass which is traversed by interstices in all possible directions. The peculiarity of structure gives the tissues when dry the power of absorbing fluids, and the amount of the absorption or imbibition depends upon the nature of the organized body and of the fluid together with its temperature, the pressure and the duration of the operation. Watery solutions are inferior to pure water, since a certain amount of attractive force is expended in the powers of solution. Besides this, many fluids such as pure water and all incompletely saturated solutions not only penetrate the interstices of the organized mass, but can chemically take up some of its constituents and very essentially change others. The filter through which the fluid passes is a porous partition which first absorbs the liquid constituents of the fluid submitted to it. The pressure received by the numerous strata of the mixture then drives the fluid through the pores as through a system of fine tubes.

Very considerable amounts of pressure do not only increase the rapidity of transudation, but also extends the skin itself and by thus enlarging the interstices allows thicker fluids to pass through. The albumin of the serum of the blood is unable to pass with the pressure of a column of small height, but with increase of pressure it soon transudes. The evaporation which takes place through porous partitions, as in the lungs, constitutes a kind of inverted filtration. It is quite unnecessary that the liquid mass should be in immediate contact with an organized partition. If it can evaporate with the existing temperature and pressure, it saturates with its vapor the space of air above it, if an apparatus is used, and this vapor transuding the organized partition becomes free as soon as the exterior atmosphere has also become saturated though in a less degree. If the interstices of a porous body imbibe a fluid of any kind, it will, to a certain extent, be condensed when it is in immediate contact with solid walls. And if there are solid matters in solution these may to a great extent be kept back during the filtration.

The fundamental condition for endosmosis is the presence of fluids between which there exists an affinity, and which are separated by a porous partition. It is, therefore, only miscible fluids that are susceptible of diffusion. When fluids are driven through by mechanical pressure the resistance is greatly increased by a diminution of the diameter of the conducting tubes. If these tubes are of small caliber the influences which differences of hydrostatic pressure will exert on the two fluids may be disregarded as unappreciable. Under these circumstances diffusion is independent of hydrostatic influences. But where one fluid exerts a much stronger pressure than the other, the organized membrane will yield, acquiring larger pores, thus offering fewer obstacles to transudation so that there will be not only diffusion but also filtration. The behavior of the partition in respect to the form, size and subdivision of its interstices, and the attraction which its walls exert on the liquid which they contain is capable of great variation. They vary, not only in different animal membranes, but also in different portions of them. These circumstances influence the strength and rapidity of diffusion. The manifold character of the partitions through which are transmitted the liquids in our bodies, allow of an infinite variety of diffusive results, and as porosity is often affected by the influence of the nerves and other circumstances, the same membrane may at different times produce very different results.

When two different solutions are separated by a porous partition, a chemic attraction is added as another cause of diffusion. If thicker membranes are made use of in diffusion, such as the coats of the small

intestine, the aorta or vena cava. The simplest endosmotic fluid transudes in a very short time. In the living tissues diffusion is almost instantaneous when the necessary conditions are present. Abdominal pressure by manual treatment has an important influence on the absorption and diffusion of water taken into the stomach and intestines.

In the normal tissue, owing to its porous structure, there are numerous and mutual actions between the juices of the body and the fluids which come in contact with its organs. Special means of favoring these actions allow foreign solutions to be taken up and absorbed in large quantity. That solution of solid bodies, which is necessary to diffusion, may be affected by the organic mixtures themselves. The solutions first gain the nutritive fluid which soaks the tissues, and then pass immediately into the blood. It is often necessary that they should first enter the lymph and flow with this liquid through the absorbents or lymphatics and then become mixed with the blood: therefore, we distinguish between immediate and mediate entrance into the blood, or between entrance directly and entrance into the blood through the lymph. The porosity of animal membranes is capable of being altered by numerous circumstances. The relaxation of the limitary walls leads to the enlargement of their interstices. These may also be dilated under the influence of very powerful pressure. If, as an example of the absorption of the alimentary substances, we introduce into the stomach a large quantity of spring water containing .05 per cent. of solid residue, it will dissolve many organic matters which it meets with, and which the neighboring juices of the body retain in a less diluted form. The first current of diffusion is, therefore, concerned with a nutrient and secretive fluid which moistens the coat of the stomach. The blood which contains the most solid matter will act with greater energy than the lymph, which is more watery. The process of diffusion, therefore, must continue until the densities of the two fluids become equal to each other. The blood and lymph of the wall of the stomach would thus become much diluted and the remainder of the contained water will be correspondingly concentrated. This is what would occur if the solutions remained at rest, but since the blood and lymph are in active movement, new portions of these dense mixtures are continually exposed to the operation of diffusion. This arrangement, therefore, which holds good for absorption generally assists in the interchange of fluids in a most important manner. The lymph flows more slowly than the blood, and this explains why the greatest part of the water we drink enters the blood and decreases the percentage of solid residue therein. That the purely physiologic method is sufficient to explain satisfactorily the phenomena of blood washing in the living body, a study of the processes through which water goes when taken into the system in absorption, and following it through to its final excretion is all that is necessary. The fluid secretions of the glands of the mouth and stomach contain about 99 per cent. of water, and yet after having extracted nutritive material from the food, they still contain more water than the blood or lymph. This explains why the more dilute solutions disappear so readily in the stomach itself. That the process of absorption goes on in the intestines is due to its large supply of blood vessels and lymphatics. The chief object of the lymph and chyle seems to be that of ensuring a normal mixture of the blood. When the blood passes through the capillary vessels of the various parts of the body, it allows the exudation of a fluid which is more diluted than its own serum. This fluid permeates the tissues, giving up to them the necessary nutritive substance while taking up or washing out the waste matter. In this way we get a more watery residuum, containing less of nutritive matter and more of the waste of the body. The absorptive canals are probably intended to withdraw this fluid, and their contents are improved by a process of diffusion with the blood, the lymph glands having a very essential function in this respect.

To recapitulate the subject of absorption:

During the passage of blood through the capillary system a very important series of changes take place in its ingredients. These ingredients, whether in the blood or lymph, are transformed to tissue, while at the same time they are replaced by other ingredients which are taken by absorption through the adjoining parts. Water is the basis of all the fluids of the body, and the phenomena of absorption, with endosmosis and exosmosis, depend upon it. Endosmosis is most active when the temperature is moderately raised; pressure also exerted upon fluids in the body favors their endosmosis; in fact, the imbibition of the waters by the tissues is an endosmosis, while its secretion and excretion is an exosmosis, or in other words, the whole process is simply a filtration through the body.

The process of endosmosis is essentially one of imbibition or absorption of the liquid by an animal membrane composed of organic ingredients. Over twenty-five pounds of the animal fluids transude through the internal membrane and are restored to the blood by reabsorption in the course of a single day. It is by this process that the natural constitution of the parts, though constantly changing, is still maintained in its normal condition by the movements of the circulating fluids, and the incessant renovation of their nutritious materials.

In medical asepsis our agents are the eliminatives; these are remedies which increase gland secretion, and the most important is water.

It is much more important, by working toward medical asepsis, to insure proper excretion and elimination in fever, than to rely on other means for reducing temperatures, as for many reasons it is not always wise to attempt to reduce temperature by drugs. We supply the system with alkalin salts in an abundance of water, in order to ensure proper excretion and to maintain the action of the kidneys, the bowels, and skin. Chlorid of sodium and the alkalin potash salts also tend to the increased elimination of urea. Laxatives are of value in medical asepsis, as, by ensuring proper excretion, there is an exosmosis toward the intestines, and the abnormal products present in fever are thus removed from the blood, in a great measure, in many cases. The temperature frequently falls, and great relief is experienced as the result of their use. The natural watery excretions of the skin and lungs are considerable, and nature increases these after imbibition of a large quantity of water. In the lungs, water diffuses through the mucous membrane and is evaporated. In bronchitis (and this is especially to be noted in children), the use of an abundant supply of water is extremely beneficial.

Böcker demonstrated that the blood contained more water in a quarter of an hour after swallowing large quantities of the fluid but that within half an hour there

was return to the usual amount. Lichtenstein asserts that, "even in the case of a larger quantity of water being absorbed in a short time and the intensity of the discharge of water from the body falling far short of the intensity with which it is taken in, the current of the blood protects itself from being overloaded with water, which does not distribute itself to the blood current alone, but to the fluids of the parenchyma all over the body. Water saturates and fills all tissues and tissue spaces." He italicizes the following assertion: "We have at hand in copious water drinking a means of subjecting the whole system to a powerful washing out. A consequence of this is the temporary increased excretion of certain products of change of tissue." The increase of salts in the urine after copious water drinking has been proved by the experiments of Beaqueral, Chossat, Lehmann, Genth, Mosler and Falk.

Does the increased current, which permeates the tissues after large amounts of water have been taken, favor the conditions for the decomposition of albumin? Does it increase this and thus augment the excretion of urea? Bischoff, Böcker, Voit, Hermann and others answer this in the affirmative. Winternitz says, "simultaneously with the increased discharge of water by the kidneys, however, the solid constituents of urine will be eliminated in greater quantities, particularly the urea. Metabolism in the nitrogenous formations of the body is therefore materially promoted thereby. The conclusion that oxidation increases and becomes more complete under the same influence, may be drawn from the diminution in the amount of and complete disappearance of oxalic acid, which before the increased supply of water was very abundant. Moreover the increased oxidation following increased water drinking may be proved, directly, by the increased carbonic acid excretion and assumption of large amounts of oxygen. Salts likewise and inorganic materials, such as the potassium salts, which chiefly spring from the metabolism of the muscles, the fire-proof salts of the bones, and the phosphates and sulphates of the brain and glandular functions are eliminated in great quantities. The universal stimulation of retrograde change and acceleration of tissue metabolism caused by increased methodical drinking of common water is still too little utilized in therapeutics."

Wm. H. Thomson in his recent lectures says: "One of the most important functions of the liver is the separation of effete nitrogenous matter from the blood; and the imperfect discharge of this function is always indicated sooner or later by the accumulation of urates and oxalates in the blood, and by an excess of uric and oxalic acids in the urine—a condition which, if continued, induces a gouty diathesis, biliousness, constipation, piles, slow digestion, loss of elasticity of mind, etc. Not infrequently patients with these symptoms, failing to obtain relief from medicine, go to a mineral spring or some hydropathic establishment, where they are markedly benefited: for water itself, if taken in sufficient quantity by increasing the fluidity and consequently the solvent power of the blood, is often an effective remedy in these cases."

George Henry Fox says, "it is quite certain that few people drink too much water, and I feel sure that many unpleasant feelings and symptoms of actual disease would quickly disappear if the sufferers only appreciated the value of this best and cheapest of all remedies. The interior of the body needs cleansing as much as the exterior, and a liberal supply of pure water in the treatment of our patients will often bring about the desirable results which drugs have failed to accomplish."

Lichtenstein says, "we make the most extended use of this washing-out power of water in therapeutics. When it is the object to bring exudations to absorption, to wash out accumulated particles from the blood and from the tissues, and to remove certain poisons from the system, and to wash out blocked-up urinary tubuli, copious water drinking may be used efficaciously in many cases. As water in large quantities is better borne by the stomach taken warm than cold, the use of the former is preferable and is more rapidly diffused."

Other excretions besides that of urine are influenced. The sensible and insensible transpiration of the skin is increased in many diseases. The cleansing action of cold water is familiar as exciting the peristaltic action and as an aperient.

The *New York Medical Journal* of October, 1894, contains the following: "Elimination of the diseased products is of extreme importance in all acute and chronic diseases. If the diseased materials are allowed to remain the growth of bacilli will be correspondingly great. When the vitiated matter is removed by elimination the disease can not be so severe, as then there is an internal asepsis which prevents bacillary development. The eliminating organ should be stimulated, and hot water is the blandest and most efficacious means of accomplishing it." In the *Medical Record* of Nov. 9, 1895, I also wrote: "If the constitution is improved and the pabulum upon which the bacteria thrive removed or its formation prevented, their development is hindered or entirely checked and thus the severer forms of inflammation are obviated. A plant can not grow upon a rock or thrive upon barren soil, and so it is with all forms of life even the minute organisms. The substances upon the surfaces of wounds which cause the development of micro-organisms and thus produce infection are readily removed by the most important and chief means for all sterilization, that is the mechanical purification by washing and cleansing with water. Why should not the substances in the interior of the organism, which are the pabulum for bacterial development, also be removed, at least to a great extent, through the channels of the body which terminate directly in the emunctory organs. It is quite possible that the sewage system of the tissues when properly stimulated in the work of elimination will carry along in its circulation much of the material which causes infection, and thus produce what might be termed an internal sterilization or asepsis. Many seem to think that because a germ has once entered the human body it can not be removed until it is thoroughly digested, but why should not cleanliness applied to the internal organs whenever possible aid in the elimination of micro-organisms?

Dr. Charles H. Shepard of Brooklyn published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION Sept. 14, 1895, an exceptionally able article on "The Bath in Modern Medicine," which should be read and studied by every practitioner.

Medical asepsis is the result of prophylaxis in the individual. By inhaling only pure air and by taking only sufficient quantities of nutritious sterile food into an aseptic alimentary canal the lymphatics and the blood are kept free from the irritating products of fer-

mentation or putrefaction. If decomposition is further prevented by a plenitude of the natural digestive secretions and pure water is taken in proper quantities and of stated temperatures along with the employment of regular systematized, strengthening exercise of the different bodily functions and with proper psychic conditions, medical asepsis is established and continued. A definite knowledge of the method of medical asepsis and its indications will alone lead to its satisfactory employment and the results will as in the use of any other agent be much more beneficial when it is methodically employed in a proper manner. Like other agents it has its limitations.

The following cases show the practical application of the principles here spoken of. In any method practical or clinical experience is the proper test upon which we must rely.

Case 1.—Sadie W., age 24, complexion fair, rather tall and slender, countenance pale; general expression heavy and listless; has a badly developed thorax and the muscles of the chest and neck are thin and also poorly developed. Family history good. Her occupation has been an indoor and sedentary one requiring a stooping posture, thus interfering with the respiratory function. The ventilation of her work room was also defective. For several years she has suffered with constipation and attacks of indigestion and biliousness. During the summer of 1895 she was feeble, easily fatigued and short-winded on going up-stairs. October 20 after a cold, a dry hacking cough came on which was much worse during the night from 2 to 4 A.M. Expectoration after a time became copious and muco-purulent. December 15 she was taken with an attack of pleuritis of the base of the right lung; after about a week pain came on also at the same place in the left side. During this time she was under the care of her family physician, who gave her the usual symptomatic treatment. Jan. 3, 1896, a specimen of her sputa showed the presence of tubercle bacilli. The patient continued to grow worse, and after giving a bad prognosis January 8 he turned the case over to me for treatment. I found the patient in bed with a temperature of 100, heart's action weak and rapid, heavily furred tongue, complete loss of appetite, constipation, shortness of breath, night sweats, hands and feet cold. Her menstruation had been absent for four months with the exception of one day. She had a disrelish for fats and wholesome food and had morbid cravings for pickles, pastry and strong coffee. The physical signs showed bronchial catarrh, a slight infiltration of the left apex and pleurisy at the base on two sides.

January 15 examination of the sputa again showed the presence of tubercle bacilli. January 24, after sixteen days' treatment, examination failed to show the presence of any tubercle bacilli. February 8, one month after commencing treatment, she was discharged as cured, entirely free from cough and with a good appetite, digestion, color and greatly increased in strength, flesh and spirits.

The treatment consisted of internal and external hydrotherapy, curative exercise, manual treatment (massage) and special feeding. The internal hydrotherapy consisted of the ingestion of two quarts of hot water daily, taken an hour before each meal and half an hour before retiring. After the fifth day the patient was required to go out daily for an hour or two, well protected. regardless of clouded skies, east winds or snow, for proper oxygenation of the blood. There is much more danger in staying in-doors than in going out into the fresh air, even when the patient suffers with some muscular weakness. It is a physiologic principle that the only way to retain or increase the muscular strength is by its daily use. No drugs were employed, not that they are not often useful and in advanced cases mitigate many distressing symptoms, but in this case they were not considered necessary.

To increase the vigor of the body in a constitutional disease like tuberculosis, which is also infectious, we should never depend exclusively on drugs, but adopt a course which will stimulate and assist nature to throw off the disease, and we should force the nutrition at the same time to the highest point with easily digested nitrogenous food and a sufficiency of carbohydrates. The great principles underlying oxidation, elimination and repair should guide us in the treatment of this very frequently fatal disease.

Case 2.—Fannie C., age 20, weight 125 pounds is a tall and anemic brunette with hectic flush. July 30, 1896, she stated that about two months previous she was taken with a dry and persistent cough. It occurred occasionally during the day. After a time it grew worse and became very severe at night, weakening her very much from loss of sleep. During one of these attacks of coughing a hemorrhage of the nose came on. About two weeks prior to my seeing her she was taken with an attack of vomiting; this caused a severe hemorrhage which quite exsanguinated her. She was compelled to remain in bed from weakness for five days. She complained of much soreness of the trachea and bronchi; bowels always regular; some tenderness in the hypogastric region; always menstruates excessively for five days.

On physical examination I found increased vocal fremitus over the lower half of the left lung. There is some dulness on percussion; abundant mucous râles. August 1 a specimen of her sputa showed the presence of tubercle bacilli. August 20 she stated her cough had ceased for four days. Under forced coughing she raised a little mucus which did not show the presence of any tubercle bacilli. She has gained seven pounds in weight, now weighs 132 pounds and is robust and strong. The treatment is similar to that in Case 1.

Case 3.—S. J., age 42. About twenty years ago this patient had attacks of diphtheria, scarlet fever and typhoid fever. After this she was troubled by a cough which lasted for a considerable time; this disappeared. About five years ago she had an attack of pleurisy which kept her in bed for three weeks; this left and was followed by a cough which came on gradually. She was seen by her physician, who said that she had "a general catarrh of the stomach, throat and lungs and phthisis." She gradually became worse, a large cavity forming in the right upper lobe. Last June she was in very bad condition, with severe night sweats, emaciation and frequent attacks of weakness; had three hemorrhages, one very severe. Her expectoration was very profuse and muco-purulent. I placed the patient under careful dietetic treatment and the methodical use of internal and external hydrotherapy for relative medical asepsis. Cold baths were used for their tonic effect in giving exercise to the vasomotor system, with the result that her general nutrition was greatly improved. She had taken creosote and cod liver oil with no apparent effect. She has been under treatment for ten months with great benefit. She does considerable housework, feels very much stronger, has gained in weight and her expectoration is not nearly as profuse as formerly nor her cough so troublesome. She still has tubercle bacilli in her sputa.

Case 4.—S. M., age 30, rather short, stout, blonde; addicted to the beer habit; has an excessive craving for carbohydrate food. Two of her sisters died of consumption and her mother of cancer. I saw this patient April 21, 1893. There was some elevation of the temperature and an extremely rapid pulse. The tongue was dry and heavily coated and the teeth were covered with sordes. I found the left lung completely consolidated from apex to base with an unresolved pneumonia, from which she had suffered six weeks previously. She had been constantly under treatment by her physician during this time without appreciable benefit. I felt that the case was a serious one and that it would require the earnest co-operation of the patient in a careful regimen if recovery was to follow. The indulgence in alcoholics and carbohydrates to excess combined with her sedentary life, surcharged her system with the products of fermentation, and this acted as a predisposing cause to the pneumonic attack. I considered the case an excellent one to test thoroughly the resources of my method of treatment by medical asepsis, and I feel that had the treatment been continued for at least two months she would have made a perfect recovery. After but a few days' treatment the tongue became clear and moist, the temperature and pulse became nearly normal. The patient went about and in a month the exudation in the lung was apparently two-thirds resolved and was rapidly undergoing complete disappearance when the family moved to a small town in the suburbs. The patient now took milk punches with no restriction as to carbohydrate, discontinued the method of internal asepsis and other strengthening modes of treatment, thus renewing the supply of fermentable material in the blood, which in the tissues

became the nidus and pabulum for micro-organisms, with the result that in about three months the patient was dead.

Case 5.—T. C. J., age 22, a telegraph operator. A sister and several cousins died of tuberculosis. He has been for years living on insufficient and improper diet, principally of improperly cooked carbohydrates. His cough was very severe; copious muco-purulent expectoration containing tubercle bacilli. Under a course of internal hydrotherapy, curative exercise, with an out-door life and manual treatment, and some correction of his dietary he made a slow but perfect recovery.

Case 6.—K. C., age 30, school teacher; several relatives died of tuberculosis. Owing to improper food, worry and hard work she became excessively anemic. There was a spot of infiltration with mucous râles in the upper lobe of the right lung. She was under the care of two physicians, who found tubercle bacilli in the sputum in moderate numbers. They gave a bad prognosis. Under internal hydrotherapy and careful dietetic management, increasing the amount of digestible proteids taken daily and without the advantages to be derived from mechanical treatment and external hydrotherapy, she made a rapid and complete recovery, having gained twenty-three pounds in weight within six months.

Case 7.—M. C., aged 20. When I first saw this patient in 1893 the left lung was consolidated as the result of an unresolved pneumonia; mitral regurgitation was also present as a result of rheumatic endocarditis which had occurred some years previously. There was apparently perfect compensation, the heart being only moderately enlarged. Her diet had been so insufficient in nutrient materials that nature had been unable to resolve the exudate which filled the lung substance. She had been seen by three physicians who gave a bad prognosis, nevertheless, under the method of tissue lavage in a very short time the lung cleared up perfectly. The dietetic treatment hastened the convalescence, and now, after four years, she feels perfectly well.

Case 8.—M. B., age 42. Jan. 20, 1897, when I saw him he had been constantly undergoing drug treatment for digestive derangement for the past eleven months; had but little appetite and digestion was poor; was much emaciated; extremely despondent. Under two weeks' treatment by internal hydrotherapy and manual treatment he entirely recovered, and says that he now eats and assimilates more at a meal than he formerly did in three weeks.

Case 9.—F. C., aged 22. A year ago last April, after an extreme hemorrhage following a miscarriage, she began to have a slight cough and pain in the apex of the left lung. She has continued to grow worse ever since. Her cough is especially troublesome at night. Shortly before consulting me her expectoration becamc very copious, frothy and muco-purulent. There were night sweats and chills; her appetite was very uncertain; she was very despondent. She takes four glasses of hot water daily with an increased quantity of proteid food, and two months after beginning treatment was very much improved in strength and spirits. Her cough is not now so troublesome as formerly and her expectoration is less copious and thinner.

Case 10.—P. H. M., aged 75; of vigorous constitution; has until this winter remained well, in spite of the consumption of large quantities of sugar, pastry and strong coffee, hard boiled eggs and fried steak. Has had two attacks of what was termed "grip," characterized by neuralgia, pain in the head, sweats and chilliness. His grip was simply the outcome of loading the tissues with the products of fermentation from a catarrhal digestive tract. His last attack was accompanied by severe vomiting and abdominal distension and tenderness. Under the use of hot water for two days his tissues cleared up, the epigastric tenderness became less pronounced and his appetite and digestion returned. He entirely recovcred within two weeks.

Case 11.—B. A. W., age 54; consulted me May 1890. He has been in the habit of drinking three glasses of whisky before meals daily for the last eight or ten years. Eats nothing in the morning except tea and bread; at the other meals his food is wholesome. There is considerable tenderness over the epigastrium; his tongue is heavily coated; bowels regular; has gout in right big toe joint. I made local application to the toe joint and ordered him to drink very large quantities of a pure soft hot water daily. He has continued this and has had no trouble from the gout since beginning treatment—over six years ago.

Case 12.—W. H., aged 30; bookbinder. When I first examined this patient in February, 1896, there was considerable consolidation of apex of the right lung. He had had several hemorrhages and his cough was severe and distressing. The expectoration was profuse, muco-purulent and contained numerous tubercle bacilli. Under treatment he has gained in weight from 124 to 140 pounds. The apex expansion in the right side has increased very much and the consolidation has almost entirly disappeared; he coughs less frequently and the sputa is very scant and contains no bacilli. His color is ruddy, appetite excellent and he feels very strong. The treatment here also consisted of the establishment of relative medical asepsis by internal hydrotherapy, mechanical and manual treatment, along with a proper dietary containing much minced beef and milk.

Case 13.—Mrs. R., aged 38; is anemic, emaciated, neurasthenic and weak. Her appetite and digestion are poor and there is constipation and much flatulence. Under tissue lavage with the addition of manual, mechanical and dietetic treatment she improved rapidly in strength, and from 118 pounds in weight she increased within three months to 130, and says she has not felt so well in many years.

Case 14.—D. D., aged 38; engineer; works at night; family history good; had a severe attack of pleurisy in 1892, from which the convalescence was slow and imperfect; bronchitis was also present and the sputum was copious and muco-purulent. There was marked shortness of breath and diminished respiratory murmur over the front and upper portion of the right lung. The diagnosis of phthisis pulmonalis was made, but there was no examination of the sputum for tubercle bacilli. Under tissue lavage and dietetic treatment he improved and with the exception of occasional slight asthmatic attacks now enjoys fair health. At present there is no cough or expectoration.

Case 15.—M. G., aged 17; at college; is chlorotic and weak. She says that she has been delicate all her life and has consulted her family physician about once a week ever since she can remember. She has a number of malarial symptoms, flushes, perspiration and headaches; her appetite is very poor. She suffers with chronic constipation, and nearly every week has a sore throat. Micturition is frequent and her urine deposits large quantities of urates. There is no sugar or albumin; specific gravity 1015. After one month's treatment by tissue lavage, dietetic, manual and mechanical treatment she has gained in strength and weight. Her appetite is now excellent; she eats three good meals daily, and her color is greatly improved. During six months following the course of treatment she has gained thirty pounds in weight.

Case 16.—D. K., aged 23; two of his sisters are suffering with pulmonary tuberculosis, and three of his cousins have died of it. He began treatment Dec. 4, 1896. Works all night at in-door occupation. Weight 145 pounds; lung capacity 160 cubic inches; temperature 100; sputum contains tubercle bacilli; has had a cough for about a year which came on after taking cold. Last winter he had twenty hemorrhages; has had several since; has anorexia; bowels are regular. Physical signs show diminished respiratory murmur and increased vocal fremitus over the whole right lung, mucous râles at the base posteriorly. He coughs most on rising after sleep and the expectoration is over an ounce in quantity. There is considerable embarrassment of the breathing after excrcise. Under partial treatment for two months the amount of sputum diminished to about two drachms, and though formerly it was purulent and often blood-streaked, it is now mucous and frothy and there has been no blood present since the treatment began. In spite of his night work he gained very much in strength and spirits, and there has been an improvement in the condition of the lung.

In a number of cases of typhoid fever treated during the last twelve years by this method, the disease has never been very severe and in no case has there been a fatal issue.

The same method was also followed out in all my diphtheria cases with almost uniformly good results. Local antiseptics were also carefully employed.

A large portion of the body, with the exception of the framework, the padding and the nervous mechanism, is muscle, either voluntary or involuntary, and is therefore susceptible to the means employed for strengthening muscular tissue. The respiratory organs, the heart and digestive tube, if not wholly muscle, functionate only through muscular activity.

Some of the points in this paper may differ somewhat from the views of many able writers, but we must study and reason for ourselves, forming our own conclusions and stating them clearly when possible, otherwise there would never be any advancement in medical science.

THE PRACTICE OF MEDICINE IN THE NEW ENGLAND COLONIES.

Read before the H. C. Wood Medical Society of the University of Pennsylvania, Oct. 21, 1897.

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I propose to glance in a cursory manner at a few of the many interesting and curious facts concerning medical practice in the early days of the settlement of New England. It is a subject about which not much has been written and of which our knowledge is very scanty, compared with the thoroughness with which we know every other detail of the lives of the colonists. The truth is that our medical forefathers left but little literary material upon which to work in an investigation of their methods or experiences. But few of them devoted themselves to purely professional work, and their lives were too largely occupied with the battle against the difficulties which lay in the way of developing the new country to afford much chance for scientific or literary labor, had any of them the inclination for it.

In the records of the settlements of the New England colonists we find but few instances in which the expedition was accompanied by a regularly appointed physician or surgeon. In March, 1629, one John Pratt was appointed, by the Court of Assistants in London, as surgeon to the Salem Plantation, upon the condition, "that £40 should be allowed him, for his chest £25, and the residue for his own salary during the first year." This is all we know of poor Pratt. except his untimely end, which is recorded by Governor Winthrop in his history of New England. It appears that in 1645 he sailed for Spain in a vessel built and sailed by Thomas Hawkins of Boston, and that when in sight of the Spanish coast they struck a rock, the vessel sank and Pratt perished. Winthrop says of him: "He was above 60 years of age, an experienced surgeon, who had lived in New England many years, and was of the first church at Cambridge in Mr. Hooker's time, and had good practice and wanted nothing. But he had long been discontented because his employment was not so profitable to himself as he desired, and it is like he feared lest he should fall into want in his old age."

In April, 1629, the "Governor and Company of the Massachusetts Bay in New England" issued a general letter addressed to John Endicott, the leader of the settlers at Salem, in which they informed him that they had agreed with Lambert Wilson, chirurgeon, that he should act as surgeon to the settlers, and also to the neighboring Indian tribes, for three years, and he further engaged to give a medical training to one or more of the young men of the colony.

These are the only records of the appointment of surgeons to the settlements that I have been able to find.

Our forefathers seem to have placed much confidence in the medical skill of their spiritual and secular authorities. Cotton Mather was regarded as eminent authority on medical subjects, though with a knowledge of his opinions on the subject of witchcraft, one would have been rather disinclined to trust his judgment.

There is extant a manuscript of prescriptions or formulæ, which were furnished to John Winthrop, Governor of the Colony of Massachusetts Bay, by a Dr. Ed. Stafford of London, to be used in the treatment of various ailments which might afflict the colonists. I have transcribed some of these as illustrative of some of the standard treatments of the day. They were found among the Winthrop Papers and were published in the "Transactions of the Massachusetts Historical Society."

The first is curious, as it brings forth Dr. Stafford's belief in the so-called doctrine of signatures. "For the yellow Jaundise or Jaunders. Boyle a quart of sweet milke, dissolve therein as much bay salt, or salpeter, as shall make it brackish in taste: and putting saffron in a fine linen clout, rubb it into ye Milke, untill ye Milke be very yellow: and give it ye patient to drinke."

It is well for the people of the Southern States, in which yellow fever is prevalent, that the second prescription I quote is not still in use. It is entitled: "My Black powder against ye plague, smallpox, purple and all sorts of feavers, Poysons; either by Way of prevention, or after Infection. In the Moneth of March take Toades, as many as you will, alive; putt them in an Earthen pott, so yt will be halfe full; Cover it with a broad tyle or Iron plate; then overwhelme the pott so yt ye bottom may be uppermost: putt charcoales round about it and over it, and in the open air, not in an house, sett it on fire and lett it burne out and extinguish of itself: When it is cold, take out the toades; and in an Iron morter pound them very well, and searce them, then in a Crucible calcine them againe: pound and searce them againe. The first time they will be a browne powder, the next time black. Of this you may give a dragme in a Vehiculum (or drinke) Inwardly in any infection taken, and let them sweat upon it in their beddes: but lett them not cover their heads; especially in the Smallpox. For prevention half a dragme will suffice: moderate the dose according to ye strength of the partie, for I have sett downe ye greatest that is needfull. There is no danger in it. Lett them neither eat nor drinke during their sweat, except now and then a spoonfull of Warme posset-drink to wash their mouths. keep Warme and close (for a child of 5 years, 10 graynes is enough in infection, for prevention 4 or 5 graynes.) till they be pefectly well; and eate but little; and that according to rules of physicke."

But there is yet more service for his "Black powder."

"The same powder is used playster wise with Vinegar for a gangrene, or bite of ane Venomous beast, taking it likewise Inwardly: It is used likewise for all Cankers, Fistulas & old Ulcers & king's Evill, strewing it upon the sores and keeping them cleane."

The following is his prescription for "Ye Falling sicknesse: Purge first with ye extract of Hellebore (;black hellebore I meane;) and instead of St. John's Wort use pentaphyllon, (or meadow Cinquefoile:) use it as above is said of St. John's Wort, and God willing he shall be perfectly cured in short or longer tyme according as the disease hath taken root."

The list contains a recipe for "A broken bone, or a joynt dislocated, to knit them: Take ye barke of Elme, or Witch hazzle; cutt away the outward, and cutt ye Inward redd barke small, and boyle it in Water till it be thick that it Will rope: pound it very well, and lay of it hott barke and all upon ye Bone or Joynt, and tye it on: or with ye Mussilage of it, and bole Armeniack make a playster and lay it on."

The bole Armeniack of the prescription is an argillaceous earth, possessing astringent properties.

Dr. Stafford concludes with the following:

"*Nota benè:* No man can with a good Conscience take a fee or a reward before ye partie receive benefit apparent: and then he is not to demand anything, but what God shall putt into the heart of the partie to give him. And he is not to refuse anything that shall be given him, for it commes from God. A man is not to neglect that partie, to whom he hath once administered, but to visit him at least once a day, and to medle with no more than he can well attend. In so doing he shall discharge a good Conscience before God & Man. These receipts are all experimented.

ED. STAFFORD, London May 6, 1643."

The colonists welcomed the arrival of ships having surgeons aboard them and their services were eagerly sought for. Winthrop tells us that in the year 1644 "One of the deacons of Boston Church, Jacob Eliott, (a man of very sincere heart, and an humble frame of spirit,) had a daughter of eight years of age, who being playing with other children about a cart, the hinder end thereof fell upon the child's head and drove a piece of the skull before it into the brain, so as the brains came out, and seven surgeons, (some of the country, very experienced men, and others of the ships which rode in the harbour) being called together for advice etc. did all conclude that it was the brains (being about half a spoonful at one time and more at other times,) and that there was no hope of the child's life, except the piece of skull could be drawn out. But one of the ruling elders of the Church an experienced and very skilful surgeon, liked not to take that course but applied only plasters to it, and withal earnest prayers were made by the church to the Lord for it, and in six weeks it pleased God that the piece of skull consumed, and so came forth, and the child recovered perfectly, nor did it lose the senses at any time."

The Puritans, as is well known, had the most intense belief in the efficacy of prayer, as is evinced in the foregoing anecdote and in the following, also taken from Winthrop: "One Bumstead, a member of the church, had a child of about the same age (as the one above mentioned), that fell from a gallery in the meetinghouse about 18 feet high, and broke the arm and shoulder, (and was also committed to the Lord in the prayers of the Church, with earnest desires that the place where his people assembled to his worship might not be defiled with blood,) and it pleased the Lord also, that this child was soon perfectly recovered."

The first appearance of syphilis in the colonies was of such a curious nature that I have taken the chronicler's text verbatim. It is once more John Winthrop who narrates how this most grievous disease came amongst them. It was in the year 1646:

"There fell out also a loathsome disease at Boston, which raised a scandal upon the town and country, though without just cause. One of the town ——, having gone cooper in a ship into ——, at his return his wife was infected with Lues Venerea, which appeared thus; being delivered of a child and nothing then appearing, but the midwife a skilful woman, finding the body sound as any other, after her delivery she had a sore breast, whereupon divers neighbours resorting to her, some of them drew her breast, and others suffered their children to draw her, and others let her child suck them, (no such disease being suspected by any,) by occasion whereof about sixteen persons, men, women, and children, were infected, whereby it came at length to be discovered by such in the town as had skill in physic and surgery, but there was not any in the country who had been practiced in that cure. But (see the good providence of God) at that very season there came by accident a young surgeon out of the West Indies, who had had experience of the right way of the cure of that disease. He took them in hand and through the Lord's blessing recovered them all in a short time. And it was observed that although many did eat and drink and lodge in bed with those who were infected and had sores, etc., yet none took it of them but by copulation or sucking. It was very doubtful how this disease came at first. The magistrates examined the husband and wife, but could find no dishonesty in either, nor any probable occasion how they should take it by any other, (and the husband was found free of it.) So as it was concluded by some, that the woman was infected by the mixture of so many spirits of men and women as drew her breast, (for thence it began). But this is a question to be decided by physicians."

In times when sickness was rife or an epidemic prevailed, days were set aside for fasting and prayer. The earliest fast day held for deliverance from sickness was kept in Massachusetts, July 3, 1644. The records simply state that "there was much sickness in the land," and do not specify for what particular disease the fast was held.

Judge Sewall in his diary records a case in which prayer seems to have been unduly exciting to the sick man. It seems it was customary, when the patient was declared to be in a dying condition, for his neighbors to gather and make long prayers at his bedside. On Sept. 20, 1690, he writes: "Mr. Moody and I went before the others came to neighbour Hurd who lay dying, where also Mr. Allen came in. Nurse Hurd told her husband who was there and what he had to say; whether he desired them to pray with him; He said with some earnestness, Hold your tongue, which was repeated three times to his wives repeated entreaties; once he said Let me alone or Be quiet (whether that made a fourth or was one of the three do not remember) and My Spirits are gon. At last Mr. Moody took him up pretty roundly and told him he might with some labour have given a pertinent answer. When we were ready to come away Mr. Moody bid him put forth a little Breath to ask prayer, and said it was the last time had to speak to him; At last ask'd him, do you desire prayer, shall I pray with you. He answered, Ay for God's sake and thank'd Mr. Moody when had done. His former carriage was very startling and amazing to us. About one at night he died. About 11 o'clock I supposed to hear neighbour Mason at prayer with him just as my wife and I were going to bed."

The Judge dabbled a good deal in medicine, and writes in his famous diary very entertainingly of some of his experiences. He strongly advocated prayer at the bedside of the sufferer, as he quaintly expresses it, to "give him a lift Heavenwards." Possibly some might question the therapeutic benefit of a dying man receiving "a lift Heavenwards."

He tells us of a Mr. Brattle he visited, and who informed the Judge that his visits were not welcome; "he plainly told me that frequent visits were prejudicial to him, it provoked him to speak more than his strength would bear, would have me come seldom."

The mortality among the early colonists of New

England was appalling. They died off like sheep. The settlement of Plymouth had been made Dec. 28, 1620, by 102 settlers, who had landed from the *Mayflower*, and during the following January and February the deaths averaged two and three a day, a very high death rate in such a small community.

Winterbotham says, "the diseases most prevalent in New England were the following; alvine fluxes, Saint Anthony's fire, asthma, atrophy, catarrh, colic; inflammatory, slow, nervous and mixed fevers; pulmonary consumption, quinsy and rheumatism."

It seems probable from contemporary accounts which have descended to us, that many deaths occurred from "galloping consumption." Influenza epidemics swept over the colonies at intervals and were attended by a remarkable fatality. Dysentery was another disease which prevailed in epidemic form throughout New England at various times. Abigail Adams, the wife of President John Adams, has left us in her "Familiar Letters" a most graphic description of the epidemic of dysentery at Braintree, Mass., in the year 1775, in which she lost many relatives and friends.

The scourge which was most dreaded, however, was smallpox. The first medical publication in the colonies was a small pamphlet, entitled "A Brief Rule to Guide the Common People of New England How to Order themselves and theirs in the Smallpox and Measles," by Dr. Thomas Thacher. It was printed in 1677. Dr. Thacher was not only renowned as a physician, but was also the first minister of the famous Old South Church in Boston, and the author of a Hebrew lexicon. His little treatise, he says, was written "not to inform the Learned Physitian that hath much more cause to understand what pertains to this disease than I, but to give some light to those that have not such advantages." He embodies, in a popular form, the current ideas of the day as to the pathology and treatment of the two diseases. He considers them conjointly, because he thinks smallpox is a disease "whose nature and cure the measles follow."

In April, 1721, Lady Mary Wortley Montague having returned to England from Turkey, introduced there the practice of inoculation for smallpox, which she had learned from the Turks. At about this time the Reverend Doctor Cotton Mather of Boston read in the "Philosophical Transactions" of the London Society an account of inoculation, written by Pylarini and Timoni, two Italians. He asked a number of the leading physicians of Boston to try it, but they all treated the proposition with ridicule, except Dr. Zabdiel Boylston, who was an intimate personal friend of Mather, and one of the leading medical men of the town. June 27, 1721, only two months later than the introduction of the practice into England, Dr. Boylston inoculated his only son, a boy of 13, and two negro servants. The attempts proved completely successful, but the practice of inoculation brought such a torrent of abuse upon the Doctor as is almost incredible. His fellow practitioners, animated partly by jealousy, partly through ignorance, united almost to a man in reprobation of the custom. He was assaulted in the streets, his house was attacked by a mob, and a bomb was thrown into the parlor in which his wife was siting. But in spite of all opposition the method of inoculation prevailed and Dr. Boylston's triumph was soon complete. Hutchinson in his "History of Massachusetts" says, "in the year 1721, and first part of 1722, Dr. Boylston inoculated 247 persons, and 39 were inoculated by other persons, in Boston and its vicinity. Of this number only six died and several of these were supposed to have taken the infection before inoculation. In the same period 5759 took the disease the natural way, of whom 844 died, and many of those who recovered were left with broken constitutions and disfigured countenances." What were known as "classes" were formed for the purpose of being inoculated at the same time, or as it was called, "taking the smallpox together." Many doctors established private hospitals for the inoculation of the smallpox. There were two in the immediate neighborhood of Boston, one at Point Shirley, conducted by a Dr. William Barnett, from New Jersey, the other at Castle William, in Boston Harbor, in charge of Dr. Samuel Gelston of Nantucket.

Alice Morse Earle in her amusing little book, "Customs and Fashions in Old New England," quotes an example of the ordinary method of advertisment adopted by those who managed these establishments. It is from the *Connecticut Courant* of Nov. 30, 1767: "Dr. Uriah Rogers, Jr., of Norwalk County of Fairfield takes this method to acquaint the Publick & particularly such as are desirous of taking the Small Pox by way of Inoculation, that having had Considerable Experience in that Branch of Practice and carried on the same the last season with great Success; he has lately erected a convenient Hospital for that purpose just within the Jurisdiction Line of the Province of New York about nine miles distant from N. Y. Harbour, where he intends to carry said Branch of Practice from the first of October next to the first of May next. And that all such as are disposed to favour him with their Custom may depend upon being well provided with all necessary accomdations, Provisions & the best Attendance at the moderate Expence of Four Pounds Lawful Money to Each Patient. That after the first Sett or Class he purposes to give no Occasion for waiting to go in Particular Setts but to admit Parties singly, just as it suits them. As he has another Good House provided near said Hospital, where his family are to live, and where all that come after the first Sett that go into the Hospital are to remain with his Family until they are sufficiently Prepared & Inoculated & Until it is apparent that they have taken the infection."

We are glad to relate that Dr. Boylston's rewards for his services to humanity were commensurate to his deservings. He was invited to London by the eminent Sir Hans Sloane, then physician to the Royal Family, and was honored by an invitation to inoculate the Princess Caroline. He was the first American elected a fellow of the Royal Society, and before his departure from England he published, at the request of that Society, an account of his method of practicing inoculation. He returned to Boston, enjoyed a large practice, and lived to the age of 81 in the full possession of his faculties.

Leukemia.—Von Moraczewski concludes from a study of the metabolism in leukemia that it is an affection caused by diminished nutrition, essentially characterized by an insufficient disassimilation of nitrogen and phosphorus, only half of the phosphorus ingested being eliminated. Any medication that would further the metabolism and elimination would be effective, especially thyroiodin, as he has established in one case.—*Sem. Méd.*, March 26.

THE FREQUENCY OF APOPLEXY AMONG THE HIGHER CLASSES WITH SUGGESTIONS FOR ITS PREVENTION AND ESCAPE FROM FATALITY.

Presented to the Section on State Medicine at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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NEW YORK, N. Y.

It is rare that an animal dies of apoplexy, but man's days are frequently ended by this disease, coming upon him generally later than the age of 50. The contrast between the simple life of the animal and the complex one of the man is in favor of the former, so far as it relates to health. At the beginning, the young animal and the child are on the same natural footing, both are natures sweet and innocent children. Little by little the child grows away from dependence upon natural methods for its guide, substituting the artificial as life advances and ever becomes more complex. But the animal pursues an even tenor of regularity and simplicity, avoids the excesses and escapes the sad consequences of sickness, pain and premature death.

The beginning of disease is at that moment when the laws of health are first violated, and starts with infancy and childhood in the majority of cases. The great love of the parent for the offspring gradually yields to the desires of the young even though inconsistent with reason, and the gratification of them detrimental to its best present and future welfare. In the young vitality is vigorous, and in spite of bad care and over-indulgence from the well-meaning parents, it carries a large proportion of the children to adult age and beyond. The early mistake in the training of the child is the principal factor that develops into the disaster of the later years. When the child comes into the world it is ignorant of the requirements necessary for life and health, and is at the mercy of conditions beyond its power to change with reference to those who shall conduct the young life safely, or to its destruction. The laws relating to preservation of health being so little comprehended and so much neglected, affords just the state of things suited to start the beginner in life into the wrong path. The early impressions, very hard to correct later in life, added to misapprehension and error in the process of growth lay the certain foundations for disease and premature fatality.

Each nationality has its peculiar domestic customs which are transmitted to the offspring, and while some of these habits of life are innocent, many of them are directly fatal in due course. The German teaches the infant to cultivate a taste for mild liquor of the nature of wine and beer. The youth is encouraged to drink the health of the fatherland, while the adult saturates every cell and tissue in the body with a 4 per cent. solution of alcohol in malt, with supposed security and a conscious feeling of superiority to his neighbor, who tipples with high wine and whisky. The drinker of the weaker beverage makes up in quantity what his favorite drink lacks in strength, as compared with the stronger poison of French or English friends. The result in all cases is the same, provided enough is taken and for sufficient time to destroy vital processes.

The American is the jolly associate and imitator of the convivial foreigner, freely indulging in his virtues and vices, and equal to him in the consumption of potations both mild and strong. Familiarity with the titles and literature pertaining to alcoholic poisons, otherwise known in polite circles as "cocktails," "gin-slings," "brandy-smashes," "Tom and Jerry," and "nightcaps," together with a very long list of fantastic names supposed to represent some peculiar virtue, forsooth, that which is good for man, is early acquired by the youth who are to constitute later the apoplectic surprises which are noted in the daily morning paper, thereby forming a morsel for comment even by those who are in the same danger but heed it not. In natural health the ideal desire is to prolong life and to walk in pleasant paths. Every one hopes to escape pain and sickness, and of the many who so desire, a few only succeed. Nature is most gentle and tender, but at the same time absolutely just, and what is suffered by man is through either folly or ignorance in his blinded eagerness to attain the satisfaction of a bauble.

So long as the grape grows and the fermented juice is brought habitually in contact with the delicate cells of a human body, and while human food is mixed with acidulated alcohol in the form of frothing beer, that man who loves the solace of these potations, and who persists in the mistake that he is stimulated and thereby refreshed, is sure to fall a fatal victim to an implacable fate which patiently waits and finally seals his doom. There are many who belong to this unfortunate class that escape apoplexy to fall earlier in life from maladies with different names, but hastened and effectual in their fatality from even that abuse of the alcoholic influence disguised under the fair apology of moderation. With an error of life of such wide and extended daily use as that of habitual drinking of liquor is there anything strange in frequent fatalities due to apoplexy?

The number of fatalities from apoplexy would be even far greater if it were not that death claims many victims of wrong living ere the course of mistakes run by weak and deluded humanity reach the apoplectic goal. This is a frequent disease among the higher classes, for it is in this class that those excesses which contribute to produce apoplexy prevail to such a degree as to keep the press supplied with obituaries of those accounted distinguished and possessed of lovable characters.

Apoplexy refers to an accident to an artery in the brain resulting in intracranial hemorrhage and pressure, causing sudden loss or diminution of sensation and power of voluntary motion. The artery ruptures through inherent weakness of the wall from previous disease. The accident is likely to be fatal, but there may be one or several strokes or ruptures at varying intervals before the patient perishes. The rupture of an intracranial artery, if near a vital nerve center, rapidly brings the life which has lived in disobedience to nature to an abrupt termination, but if the artery ruptured is somewhat remote, protracted paralysis, more or less complete, is the result.

In the light of the experiences of yesterday, it would be possible to pass the earthly days without apoplexy save in most rare instances, were the wisdom heeded which is gained by the knowledge that not one who has lived in violation to natural law has escaped a penalty exactly in proportion to his transgression. So intense is the demand for artificial stimulation when

once the natural appetite is perverted by thoughtless and innocent indulgences, later by fierce and uncontrolled intemperance in eating, drinking and sinning, in desecration of the holy temple of health, that life without these health-destroying agents seems to such characters a failure. The use of artificial and false doctrines poisons in gradual degree the whole race. The American teaches the child to prepare for fatty degeneration and its consequent choice collections of bodily afflictions, by setting examples that if followed, lead to destruction of health and loss of life.

The coffee pot is high ruler of the table and the digestion of the American family and dyspepsia prevails to the consternation of all classes and of nearly every age. The sauces and vinegars, the relishes and dressings, the salads and sweets, innocent in themselves but habitually used and abused, poison the nourishment of the body, enfeeble the circulation and weaken the vital resistance. The source of weakness as well as that of strength is regulated by the stomach, and in this organ arise the initial causes that tend to sickness and death of the body. As has been truly stated by Dr. Page of Boston, "dyspepsia is incipient consumption," thus it may be also clearly proven that from the same source arises that condition which finally ends life in the apoplectic stroke.

Too much to eat is a misfortune which has for its penalty, lack of digestion and failure to relish with a keen satisfaction the whole blessing that food is intended to confer. While to the multitude, who have insufficient food, the hardship would not be a misfortune so great if the knowledge of food and its best use was better understood and practiced. One class has too much and the other too little, and to both come disease, for in each case the natural laws of health are violated in the selection of the articles of diet, and in the preparation which civilized cookery has visited upon the members of the human family.

The almost universal custom of three meals a day finds favor among physicians and the laity alike, and even in the treatment of sickness when the system is embarrassed and struggling to overcome the obstacles forced into the unwilling human machine against the prolonged remonstrances of the digestive organs. Through excessive feeding and insufficient elimination the load ever increases, and when nature is outraged to the limit of forebearance, mild protest is succeeded by partial or complete failure to proceed further. Strange as it may be, and frequently by advice of the professional mind, the very cause of the sickness is kept up by an amount of food and of an improper character, which, while it would not amount to a surfeit to the well, does further interfere with a rapid restoration to health, and is not infrequently a direct factor in stretching a slight matter into a long sickness with recurring relapses and death.

The hard out-of-door laborer, swinging his pick and working with the shovel, is entitled to three meals a day, for they are earned and likewise needed. But this class does not constitute the apoplectic victims. This advantage, if balanced with temperance among the wage earners, would augment their happiness and add years to life and minimize their sorrows. Correct information regarding the essentials of eating and drinking for the sustenance and comfort of health has and ever will stand as the first requisite toward the prevention of sickness and apoplexy, and while it is either misunderstood or neglected, life will be robbed of its sweets to the individual, and society of lovable and useful characters. Two moderate meals of natural and healthful food is the limit that constitutes safety to the higher classes. A morning and evening meal, with bread and fruit for the midday refreshment, with water instead of artificial drinks, would spare the waste of good friends and distinguished public men, a class generally at the mercy of fashion in eating, and to the quickening cup, with injury in the drop and fatality in excess. That person who has any symptom related to the digestive organs needs advice of the highest order and if the case progresses toward a worse condition it would be far better to seek counsel from a competent medical adviser, and never from the plausable and cunningly-worded falsehoods for whom newspaper and almanac cures are invented.

Careful experiments with different materials and weights used as clothing for the human body have established that the modern dress of heavy flannel beneath the woolens outside, with additional accessories to dress, even in cold weather, is in excess of the requirements. Then how much more unnatural is it to wear more than is needed in mild and warm climates, and such as that which includes New York and Philadelphia? By dressing the body with too much clothing, dangers to health are increased and recovery from chronic diseases retarded. As a plant would soon die without its trunk and branches freely exposed to air and light, so the human body dies gradually, though one of the causes is often overlooked or attributed to other explanations. The best light-weight underwear procurable in either silk, cotton or linen mesh for the youth and the adult, in health or sickness, is indicated both in winter and summer. Flannels are no longer recommended for scientific reasons.

Then with a correct food supply and the use of pure water for the drink, freely taken all through life, together with right use of covering for the body, which will admit of enough ventilation (seldom found among my patients and the sick generally), with sound medical counsel, places it within the reach of the average individual to avoid a premature fatality. Open air exercise is indispensable to the preservation of health and to the prevention of apoplexy. The causes of sickness and disease are the causes of apoplexy and prevention and escape from fatality means that the individual can not violate natural laws of organization and vitality, with coarse jeer at health requirements. To the hourly and daily and non-compromising demands to practice wisdom, there is no appeal, and the penalty for violations of nature's code for man's use, is paid with a forfeit of his life.

10 West Forty-ninth Street.

TYPHOID FEVER.

BY F. M. GREENE, M.D.
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Numerous articles have been published in the various journals, on the antiseptic and eliminative treatment of typhoid fever, and in none, as far as observed, has the action of the remedies been discussed. The question has been asked: How do the remedies recommended in the Woodbridge method bring about a cure in this disease? We shall endeavor in a short article, to explain their action as far as known. Abundant evidence has already been produced to show that by early use of these remedies, the disease may be aborted, and many of its dangerous complications and

sequelæ prevented. The opponents of the method account for our success by charging upon us errors in diagnosis: claiming that we have been treating other diseases for typhoid fever. While we acknowledge the difficulty of diagnosing the disease in its earlier stages, and of differentiating it from malarial fever, and other affections which it sometimes closely simulates, we claim an equal right to decide the question from experience, aided by the most improved methods of diagnosis.

During the past summer and autumn, we treated a number of cases in which both the Widal serum and Ehrlich's diazo-reaction tests were used. In two of the cases, the serum test showed positive reaction and Ehrlich's test failed to produce the garnet colored ring, or pink foam. In one case the Ehrlich test gave, apparently, the characteristic ring, and the serum test, after several examinations, failed to produce immobilization, or clumping of the bacilli. The clinical symptoms in this case, during the second week, were those of typhoid fever. The temperature ranged from 104.5 in the evening, to 102 in the early morning. The patient was now put on large doses of quinin and promptly recovered. In the Widal test, we have immobilization, and distinct clumping of the typhoid bacilli, as early as the fifth day of the disease; giving an opportunity to confirm the diagnosis, and of aborting it, by commencing the treatment early. We here use the word abort in the usual sense of cutting short or stopping a disease in its ordinary course.

The subject of the therapeutic action of remedies in disease is one of great interest and sometimes very difficult of explanation. Our knowledge of their effects upon the human organism in health and disease, especially their power, when administered internally, to destroy pathogenic germs, or to neutralize toxins resulting from their presence in the blood, can be determined only by experiment. One of the triumphs of modern medicine is the discovery of the microbic origin of diseases, and our efforts henceforth must be directed to the destruction of disease-producing germs, or failing in this, to counteract or neutralize the poisonous materials resulting from their activity.

There is an analogy between the action of these medicines in typhoid and that of quinin in malarial fever.

Malarial fever is caused by the presence in the blood of a hematozoon (plasmodium malariæ of Laveran), which, having invaded the system, multiplies enormously and ultimately destroys the red corpuscles. There can be scarcely a doubt that this particular micro-organism is the cause of malarial fever. While presumptive evidence is strongly in its favor, until its entire history outside the body has been fully traced and malarial fever produced by its inoculation, positive proof must be wanting. We have learned that the administration of quinin causes a disappearance of the intra-corpuscular parasites from the blood, and that soon the paroxysms peculiar to this fever cease, and health is restored. There may be difficulty in understanding how mercury and iodid of potassium cure syphilis, and yet physicians do not hesitate to trust to them in some stage of the disease. Typhoid fever is now classed among the infectious maladies and it is believed that its cause enters the system through food or water and selects a certain part of the alimentary canal for the place of its development. We are familiar with the fact, though unable to explain why the bacilli select this portion of the canal for their nidus, no more than we can explain why the diphtheria bacilli first commence operations on the epithelial layer of the mucous membrane lining the fauces or anterior and posterior nasal cavities.

Klebs, Eberth and Koch were the first to accurately describe the micro-organisms of typhoid fever. They are represented as small bacilli with rounded ends and are anaerobic in character. They are found most abundantly in the intestinal lesions, mesenteric glands and spleen. That they are not found more frequently in the urine and the alvine discharges is doubtless owing to the imperfection of our technic in isolating them. They have been recently found in the meninges of the brain, in a case which ended fatally and in which brain symptoms were prominent early in the attack. Gaffky found the bacilli only in about half of the cases examined by him and observed that they were not scattered everywhere, but appeared usually in foci. These facts are important because it has been claimed by some, that our efforts to cure are aimed solely at rendering the alimentary canal aseptic; whereas, we claim that the remedies act first locally, by destroying the bacilli in the lumen of the bowel, and intravascularly, by inhibiting their growth in the blood and tissues of the body. We may learn more of the nature of this disease by studying its minute pathology than by any other means. Green says, "the most characteristic changes in typhoid fever take place in the solitary glands and Peyer's patches. In most cases, the process is limited to those in the ileum and cecum, and those glands are always most affected which are situated nearest the ileocecal valve. The first changes observed are hyperemia and cell infiltration of the glands; many of the cells increase considerably in size and multinucleated forms are numerous. Both Peyer's patches and the solitary glands thus become enlarged and prominent and stand up as sharply circumscribed areas, above the surface of the intestine. The surrounding mucous membrane is also exceedingly vascular and is the seat of acute general catarrh, which is most pronounced before the glands begin to swell.

"The cellular infiltration, in many parts, rapidly extends beyond the confines of the glands, into the immediately surrounding and subjacent tissues, and in some cases even into the muscular and serous coats." This stage ends the first half of the second week of the disease; it is therefore usually after this that ulceration and necrosis begin to appear and the symptoms of delirium, subsultus tendinum and failure of the secretions, indicating profound toxemia, are present.

The primary action of the bacilli is upon the mucous membrane lining the intestine in the vicinity of these glands and it is here, in the lumen of the bowel, that we may accomplish much by the proper use of antiseptics and eliminatives. When the remedies are not commenced until some time during the second week, we may still modify the disease and prevent serious complications, which now begin to appear. The complete disappearance of fever after ten days when the treatment has been commenced early, is proof sufficient that we have not only destroyed the bacilli in a great measure, but neutralized the toxins which produce such disastrous results upon the brain and nervous centers and ultimately destroy the blood itself. It is now the opinion of the profession generally that, in all infectious diseases, it is not the mere presence of the micro-organisms in the blood, but the formation of toxins, which produce such grave results.

An attack of the disease is often insidious, and it has usually progressed to the second stage before we are called. Diarrhea is so frequent an accompaniment as to be regarded as pathognomonic. It should be looked upon as an effort of nature to get rid of the disease, and it is rare that it does not appear in some of its stages. We believe that constipation, when it exists, is an indication of the mildness of the attack, and many such cases recover without medicine, by proper regulation of the diet and hygienic measures.

Proper digestion of food can not go on either in the stomach or intestines, and a fermentative process is set up by the presence of typhoid bacilli and other micro-organisms which are present. Gases are evolved and meteorism is often a distressing symptom, increasing the danger of perforation when ulceration and necrosis are present. Physicians were formerly opposed to the use of purgatives, from the idea that they produced exhaustion, and that it was necessary to husband the strength of a patient in this disease. Hypercatharsis, from the use of even mild aperients, was regarded as a warning to desist from their use, and opiates were often given to restrain diarrhea, thus favoring a condition which we now regard as most unfortunate, namely, the retention of vitiated secretions, which should be removed at the earliest possible moment. At first we were alarmed at the frequency of the actions, which sometimes amounted to five or six during twenty-four hours, but when we found that after three or four days the diarrhea lessened and the temperature began to fall, we learned to appreciate the value of this method. The loss from diarrhea was more than compensated by maintenance of the secretions and the early return of the appetite. The calomel and podophyllum given in small doses keep up a flow of bile, which is itself antiseptic and promotes the peristaltic action of the bowels. The essential oils in this prescription are eliminated through the skin and kidneys, and when given with large quantities of sterilized water, doubtless favor the escape of poisons through these channels. We believe that the treatment is very much enhanced by large and frequent draughts of cool water given during the stage of diarrhea. Thus would we advocate the Brand treatment internally, instead of externally, producing equally if not more rapid reduction of temperature.

Lastly, we consider the use of the carbonate of guaiacol in this disease, and believe that it acts as a germicide both in the lumen of the bowel and the blood and tissues of the body. It belongs to the phenol group, which occupy an important place both as germ destroyers and germ poison neutralizers. We quote from Seifert of Berlin, who has shown that during absorption "the phenols, which are not found present in the blood in their free state, combine with the albuminous substances, and especially with the most readily reactive of them, the toxic albumins which are the products of microbic life. These compounds of the tox-albumins with the phenols are probably non-toxic. They rapidly undergo oxidation in the system and appear in the urine as etherial sulphates. To this group belong cresol, naphthol, thymol, creosote, guaiacol and others. As a class they are too irritant and caustic to be given alone. The guaiacol, when combined with carbonic acid, has proven to be non-irritant and decidedly antiseptic. During absorption it is decomposed into its constituents, pure guaiacol and creosote. The decomposition takes place so slowly and the quantity of each eliminated so minute that it loses its irritative effect and is germicidal." In experiments upon dogs and other animals Hoelscher found that it passed the gauntlet of the gastric juice unaltered, and eliminated its effective elements in the intestine where they are most needed. Whether or not the theory be true, we are most interested in the wonderful results which follow their administration. In all cases the gastro-intestinal canal is speedily improved, the tongue becomes moist, appetite returns, the thin stools become consistent and more natural, giving off the odor of guaiacol. The odor of creosote in the urine is evidence that it enters the circulation and is eliminated through the kidneys. We have frequently observed a dark color of the urine, as from the administration of the remedy in the ordinary way.

As regards the mode of administration of the Woodbridge remedies, we do not think it essential to give them as frequently as recommended by the author. We have found them equally effective given in larger doses and at longer intervals. The somewhat pungent and disagreeable taste of the tablets may be obviated by enclosing them in capsules and giving them every half hour or hour, being careful to administer a given quantity in twenty-four hours. It is important that the patient be encouraged to drink large draughts of sterilized water. There are doubtless other intestinal antiseptics which have proven of great value in this disease. The sulpho-carbolate of zinc has some reputation, and has also betanaphthol bismuth. In the treatment of this disease in children we have found the latter to be very effective as an intestinal disinfectant, but we have not been able to abort the disease with it.

It is remarkable that until Woodbridge called attention several years ago to the antiseptic treatment, comparatively little was known or said of intestinal antisepsis. Since publishing his cases and making the announcement that he could abort the disease numerous articles have appeared advocating the use of certain remedies for this purpose. Many have advocated a treatment which they have called their own, selecting certain remedies taken from the Woodbridge formula. One selects thymol, another guaiacol, other calomel and eucalyptol, rejecting the formula as a whole.

In regard to the method we add the following concerning patients in whom the disease has been aborted and who have apparently entered upon a favorable convalescence:

After the temperature has been reduced to normal the diet and exercise should be carefully looked after for some time, and the carbonate of guaiacol continued for at least two weeks, given at longer intervals. This is especially true of cases to which we have been called at the close of the second, or beginning of the third week. There are no means by which we can positively ascertain the condition of the bowels as to ulceration or necrosis at this time. It may exist and silently go on even after convalescence has been established, and errors in diet or exercise may be the cause of relapse even when we have supposed the patient to be out of danger. The history of the following case will demonstrate the importance of these measures.

October 9 I was called in consultation to Dr. Wilson, who resided two miles in the country. So far as could be ascertained, the patient had entered upon the third week of the attack. It was regarded as a typical case, the Widal test having shown positive reaction. The patient was removed in an ambulance to the Protestant Infirmary, and immediately put under

the Woodbridge treatment. On the second day of the treatment there was an alarming hemorrhage from the bowels. Notwithstanding this, on the tenth day of treatment the temperature reached normal, and eight days afterward the patient returned home. All medicine was withdrawn and he was allowed to exercise and indulge his appetite *ad libitum*. Ten days afterward his physician was recalled and the soft capsules were resumed. Five days later we saw him again in consultation, and found him with his knees drawn up, abdomen greatly distended and suffering great pain. The patient expired the day following, doubtless from perforation, and an autopsy could not be obtained. Here was a case in which the patient was allowed to leave the hospital too soon and lost his life from imprudence. We think it fair to report all cases, successful or unsuccessful, and we ascribe failure in this case to improper management. We should therefore be exceedingly careful of the diet, even in apparently mild attacks of this disease, for ulceration may already exist when we commence treatment.

In recapitulation we recommend that the treatment be commenced as early as the diagnosis can be made, and persistently carried out until the temperature becomes normal. A careful supervision of both diet and exercise is important to insure our patient against relapse. We have observed under it diminished mortality. It is a treatment pleasant to physician, attendant and patient. It produces early disinfection of the intestine at the seat of the disease, and prevents serious complications. Baths are unnecessary except so far as surface bathing may contribute to comfort and cleanliness. Antipyretics and opiates are dispensed with. There is a quick return of appetite and rapid convalescence.

26 North Mill Street.

THE EFFECT OF X-RAYS IN OPHTHALMOLOGY.

Presented at the Fourth Annual Meeting of the American Academy of Railway Surgeons, at Chicago, Ill., Oct. 6-8, 1897.

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PHILADELPHIA, PA.

In December, 1895, Professor Röntgen gave to the world his great discovery that an invisible ray, now known as the X-ray, produced by sending a current of electricity through a vacuum tube, had the power of penetrating solid and opaque materials and leaving its impress on a sensitive plate. Aside from its great scientific value, this event marks an epoch in the history of medicine comparable to such discoveries as anesthesia and of antisepsis. Although there are experiments being made throughout the world and apparatus being perfected in every way, the new force, so far as its scientific or practical value is concerned, may be considered in its infancy and, as in the case of the discovery of ether and antisepsis, it has so far given its greatest aid to surgery, yet I am sure it will only be a question of time when, as we gain further knowledge of its power and effect further improvement in the apparatus used, we shall see that it will give equally valuable aid in medicine in determining the diagnosis of obscure pathologic conditions. The practical utility of this wonderful force was first demonstrated in surgery. Experiments were concurrently being made in all branches of medicine, and ophthalmologists especially watched the early developments with great interest.

As nobody knew the extent of the new, wonderful force, as with all unknown things, there was a vast field for speculation. Many of the enthusiasts claimed, and the claim was taken up by the newspapers of the country, that the new discovery would confer upon suffering humanity one of the greatest boons conceivable: it would give to the thousands of inmates in blind asylums vision to their sightless eyes. On the other hand, from a diagnostic point of view, for which we had hoped so much, we experienced immediate disappointment. All experiments showed that owing to the unfortunate position of the eyeball, surrounded by the bony walls of the skull, which were at that time thought impenetrable to the rays, the value of the X-ray in determining the presence or in locating foreign bodies in the eye, was practically negative. As regards the hope of producing vision in the blind, these experiments, so far, have shown that for any practical benefits the X-ray is useless. Dr. Brandt[1] stated, at an early date, that by removing the lens, the retina becomes sensitive to the X-rays. This was immediately contradicted by Bullot,[2] who showed that the lens was also transparent as other neighboring tissues of the eye, the difference being due to their densities.

Experiments made by Dr. Hansell and Dr. Max Stern,[3] at the Philadelphia Polyclinic, on patients with defective vision, as leucoma of the cornea, capsular and lenticular cataract, central scotoma, due to a large patch of central retinal choroiditis and atrophy of the optic nerve, showed that patients were unable to see any more clearly through the fluoroscope than before the production of the rays. This is confirmed by the report by Dr. Wilkerson of the California School of the Blind. He selected six patients for testing, one with destruction of the anterior portion of the eye from an old traumatism, one with complicated congenital cataract, one with partial phthisis bulbi from ophthalmia neonatorum and three with optic nerve atrophy. In none of these cases did the rays assist the vision in the slightest degree.

Boch[4] suggests that persons blind from the loss of transparency of the media might be able to read letters painted on a card, varnished and dusted with a powdered metal, if these were subjected to the action of the X-rays. This is impracticable unless a fluoroscope or some other fluorescing screens, by which the shadows are rendered visible, be placed back of the opaque lens or cornea. Otherwise the source of illumination is no more available than before. All these experiments, I think, show conclusively that the X-ray, as it is known today, will be of no practical value to the blind; and this would seem also theoretically correct, as we know our retinas are only able to perceive a very small portion of the spectrum, namely, (1/20) that portion where the vibrations in the ether extend from four hundred million millions to eight hundred million millions of light. Vibrations of lesser frequency, although not seen, are demonstrated by certain instruments of precision, while vibrations above this number are known as the ultra-violet rays, invisible to the eye but demonstrated by a photographic plate. Now, as the rays are emitted from the tube at a very high rale of vibration, they may be conceived as analogous to the ultra-violet rays which are not

[1] Revue général des Sciences de Paris, No. 21, tome VII, p. 897, Nov. 15, 1896.
[2] Revue d'Ophthalmologie, February, 1897.
[3] Polyclinic. Philadelphia, 1897.
[4] Minor abelin, February, 1897.

perceived by our retinas, and no matter how much they are capable of penetrating obstacles to vision, they could not make the blind see when they are invisible to the normal retina.

As time progresses and as one series of experiments after another confirm the want of value of the ray in helping the blind, we are agreeably surprised to see the advances made in the other direction, from a diagnostic standpoint, which at first thought appeared so discouraging.

Among the most serious complications in the practice of ophthalmology and one that always gives the surgeon the greatest anxiety, is the severe traumatism of the eyeball produced by a foreign agent, causing the coats of the eye to be penetrated, and where the presence or absence of a foreign body in the eye is not known. The traumatism may be great enough to destroy the eyeball for all practical purposes of vision, but the anxiety of the surgeon does not end here, for if a foreign body remains within the eye there is always the danger of the dreaded sequelæ of sympathetic ophthalmia.

In the majority of cases of this kind, we are able to satisfy our minds as to the presence or absence of a foreign body by the history of the case, subjective symptoms and theoretic considerations leading us to a positive conclusion; but there are many times when owing to the obscure history, lesions of transparency and great destruction of the eyeball, our previously known methods of diagnosis are not available. That a positive means of determining the presence or absence of a foreign body would be of the greatest benefit in such cases is unquestionable, and I thoroughly believe we have attained the ability of not only determining the presence of the body, but exactly locating it in the eye by means of the X-rays. This does not pertain to particles smaller than the one thirty-second of an inch. The experiments at first were discouraging, and this was most probably due to the incomplete apparatus. Dariex[5] conceived that the low degree of permeability of the eye by the X-rays would undoubtedly be ineffectual in producing a radiograph. By others who worked with tubes of low penetrating power it was found that the eye, surrounded as it was by the bony walls of the skull, would be an insurmountable obstacle to the production of a radiograph. Van Duyse[6] stated that the anterior portion may be radiographed and suggests the procedure of injecting a salt solution under Tenon's capsule to make the eye protrude. Lewkowitz[7] showed that he was able to make a radiograph of the lids and summit of the cornea and to determine, by an elaborate method of figuring, the position of a gilt spangle placed in the conjunctival sac.

Harnisch[8] says, as the eyeball is almost entirely surrounded by bone, which is practically impenetrable to the rays, we could only hope to discover a foreign body as far back as the ciliary region or, in particularly prominent eyes, a trifle further.

The first cases reported that were of any practical diagnostic value were by Williams[9] and Clarke.[10] Both these gentlemen, by their results, show that the ray will penetrate the bones of the skull and, if a foreign body is in the eye, it will throw a shadow on the plate dense enough to be seen. Williams placed his patient on a table, with the cheek of the injured side resting on the sensitive plate, and allowed the rays to pass through the nasal bones and through the external wall of the orbit; while Clarke inserted a sensitized film into the nose and placed the tube to the outside of the temple. The reports of this case were followed during the next fall and winter by those of Hansell, De Schweinitz and Oram Ring,[11] assisted by Max J. Stern, who bandaged the plate to the side of the temple. Friedenburg[12] allowed the rays to be passed from behind the head and to strike a small sensitized plate which was cut to fit into the margins of the orbit. In all these cases the foreign body was successfully removed from the eye. These cases are exceedingly interesting, as they show a decided step in advance. They not only demonstrate that the bones of the skull can be penetrated by the ray, but the whole extent of the eyeball can be radiographed, although they all fail in giving us an accurate means of locating the position of the foreign body.

The method of not only showing the presence of a foreign body, but at the same time definitely localizing its position in the eyeball, was shown by the case recorded by Dr. Oliver,[13] assisted by Dr. Leonard, and by Dr. William Thomson,[14] assisted by Dr. William Sweet of Philadelphia. Dr. Oliver's plan is opposed to that brought forward by Exner,[15] in the fact that the base line for triangulation is made anterior to the cranial shadow, and the exposures are repeated sufficiently often at fixed distances and set situations so as to give a multiple series of relational sides and angles from which the exact position of a foreign body can be accurately determined. This is a very good method and has been successful in several cases, by Dr. Oliver, although not as clear and practical for the surgeon as Dr. Sweet's method.

As I have had the advantage of personally studying the case reported by Dr. William Thomson, from entrance to leaving the hospital, and also of using the method devised by Dr. Sweet in localizing the foreign body in cases of my own up to this time I think that it is the most successful method known to insure the required degree of accuracy. The details of the case can be seen in the report of the proceedings of the American Ophthalmological Society, but it is sufficient to say here that the patient was struck in the eye by a piece of steel, some eight months before presenting himself to the hospital with an exceedingly painful eyeball. The wound of entrance was plainly visible to the outside of the cornea, and an ophthalmoscopic examination showed a dense band of lymph extending from the wound of entrance to the retina, slightly external to the disc. The important diagnostic point to determine in this case was whether the steel was present in the eyeball or had penetrated and lodged in the orbit, in a benign position.

The case was radiographed by a series of pictures, each one of which showed the exact position of the foreign body. Dr. William Thomson operated, making an incision in the sclerotic and inserting a magnet, but without any result. However, having great confidence in the method, he picked up the band of cicatricial lymph with a strabismus hook, following it to its final insertion, the retina, excised it and, to his

5 Annal d'Oculistique, t. 115, p. 218.
6 Archive Ophth., Tes., 1896.
7 Lancet, 1896, II, p. 452, and Centralbl. f. Prakt. Augenheilk., January, 1897.
8 Annal. Oph. and Otol., 1896.
9 Trans. American Ophth. Society, 1896.
10 Ibid.
11 Am. Oph. Transactions, 1897.
12 N. Y. Med. Rec., 1896, p. 694.
13 Am. Oph. Transactions, 1897.
14 Trans. American Oph. Society, 1897.
15 Deutsche Medicinische Wochenschrift, Jan. 7, 1897.

great pleasure, found the foreign body in it at the exact position as demonstrated by the radiograph. The magnet was not successful, as the steel would not attach itself owing to its partial covering of lymph.

The other point illustrated by this case is that it showed accurately the foreign body, inside the eye instead of the orbit. I had an opportunity of seeing a case a short time ago where the eye was enucleated for a supposed foreign body. After enucleation a piece of steel was found to be lodged in the orbit, having completely penetrated the eye. An X-ray picture would undoubtedly have demonstrated this and saved the patient a serious operation and allowed him to retain the eyeball without danger. The case of Dr. Thomson not only shows the X-ray as an important means of diagnosis in these cases but also as a great help to the operator in removing the foreign body after its exact localization.

Another case which has come under my care recently, although too early to state positive results, will help to show the advantage of the X-ray in diagnosis, in a negative way, by excluding the presence of a foreign body. A man some seven weeks ago was struck in the left eye by a small piece of flying steel from a rivet. He immediately went to a hospital in New York, and was told by the surgeon that he thought the steel to be in eye, but preferred treating him conservatively for a few days. After a treatment of a week, as a traumatic cataract was probably forming, preventing observation of the interior of the eye, and symptoms increasing in severity he advised the removal of the ball. The man declined and consulted another surgeon with the same result. He presented himself before me with the following appearance: The eye slightly red, cornea clear, linear scar three millimeters, in the upper and inner periphery of the cornea, also wound of the iris immediately back of the wound of the cornea, this having the appearance of being dragged in as if it had been punctured, and a small synechia of the pupillary margin, dense, traumatic cataract, ball painful, fields good. I had the eye radiographed and six plates taken on the first day. These showed no signs of foreign body, but owing to the great heat of the weather, the developing was unsatisfactory. Thinking heat might have affected the plates, another trial was made the next day, and this time eight plates were taken. These were all good radiographs but no sign of the foreign body was visible. I therefore decided to be governed by the radiograph in the treatment of the case, and thereafter regarded it as punctured wound without the presence of a foreign body. As the lens became somewhat swollen I did a cataract extraction combined with an iridectomy, incising the iris at the point of injury, thinking I might find the foreign body at the lens or iris. This also proved fruitless. The case recovered from the operation and is doing exceedingly well, and I firmly believe, although too early to state positively that as there is no foreign body present in the eye, the man will retain not only his eye, but his vision.

Ophthalmology is undoubtedly indebted to the X-ray, as it has added another accurate method in diagnosis of the injuries complicated by presence of foreign bodies.

As regards the deleterious effects of the X-ray, they are small in comparison to the great benefits derived. I have seen several instances of the hair falling out and slight dermatitis, but this is always due to the act of the vacuum running down and the rays not penetrating, and to long exposures. I have never seen any serious damage to the eye.

[Dr. Thomson then showed the apparatus and demonstrated Dr. Sweet's method of localizing from the charts made in the case of Dr. William Thomson. The following description being given by Dr. Thomson from "Transactions of the Ophthalmological Society" for 1897:]

For this purpose an indicating apparatus is used, carrying two steel rods, each with a rounded end. The indicators may be supported by a head band, and the plate held to the side of the head by an ordinary bandage. The balls of the indicator are at a known distance apart, one pointing to the center of the cornea, and at a known distance from the eyeball, while the other is parallel to the first, toward the external canthus. The visual line is parallel to the indicators and to the plate. The balls should also be perpendicular to the plate.

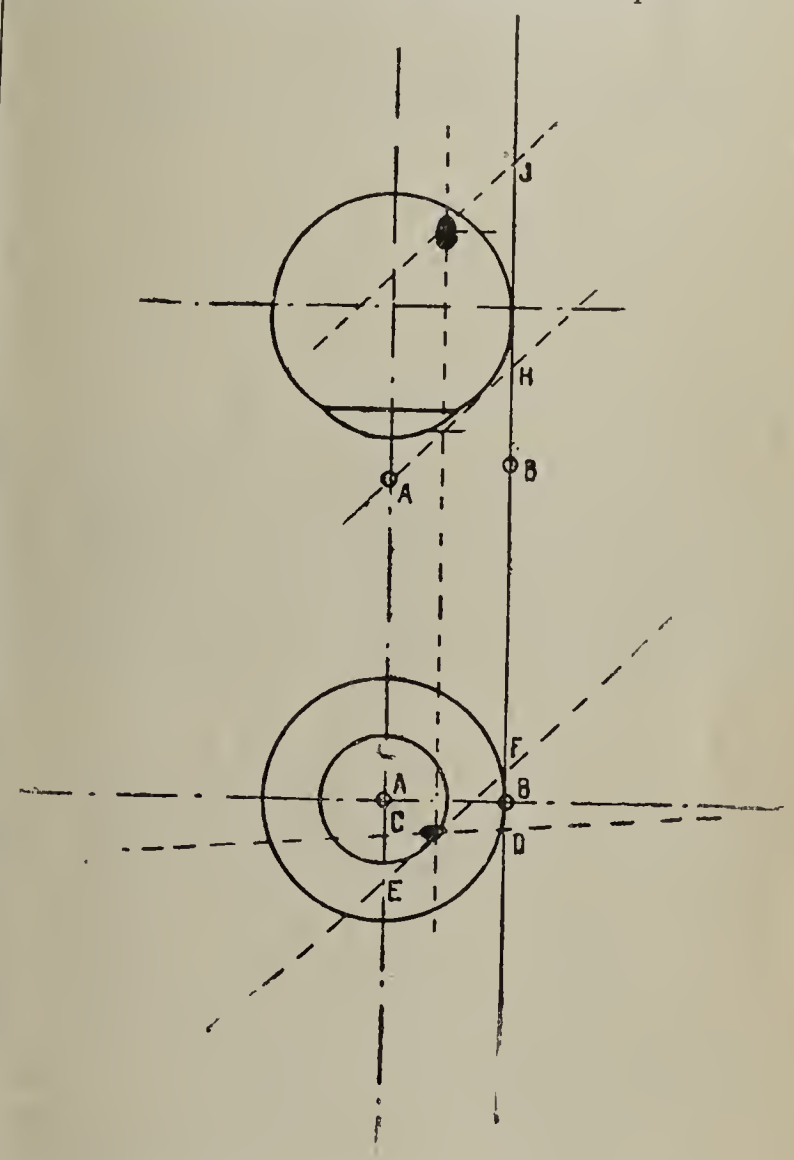


FIG. 1.—Diagrammatic circles of the eye upon which the measurements are made to show location of foreign body. Upper circle horizontal section; lower circle vertical section of eyeball.

In making the negatives the tube is in front, about thirteen inches from the plate, and at an angle of from 15 to 40 degrees, with a vertical plane passing through the apex of each cornea. The plate is at the opposite side of the head, and the rays pass through the eyeball and the external orbital wall before reaching the sensitive film. Two exposures are made, one with the tube in a horizontal plane, or nearly so, with the two indicators, and the second at any distance below. The angle of the tube below the horizontal is unimportant, so long as the two exposures give different relations of the indicators on the negatives.

In determining the position of the foreign body in the eye, two circles, twenty-four millimeters in diameter, equivalent to the size of the globe, are drawn upon paper. One circle represents a horizontal section of the eyeball, and the other a vertical section. Upon the vertical section a spot (A) is made at the center of the circle, indicating the position of the central indicator of the apparatus. The distance between the two indicators is measured toward the temporal side, and a spot (B) made to show the position of the external indicator.

On the circle representing a horizontal section of the eyeball,

a spot (A) is made anterior to the center of the cornea, and at the same distance that the center indicator was from the eye when the radiograph was made. Another spot (B) to the temporal side, measured by the distance between the two balls of the apparatus, marks the situation of the external indicator.

Taking the first negative, with the tube nearly horizontal to the two indicators, we measure the distance of the foreign body below to the two balls of the apparatus. These measurements (B to D and A to C) are indicated on the circle representing the vertical section of the eye, and a line is drawn

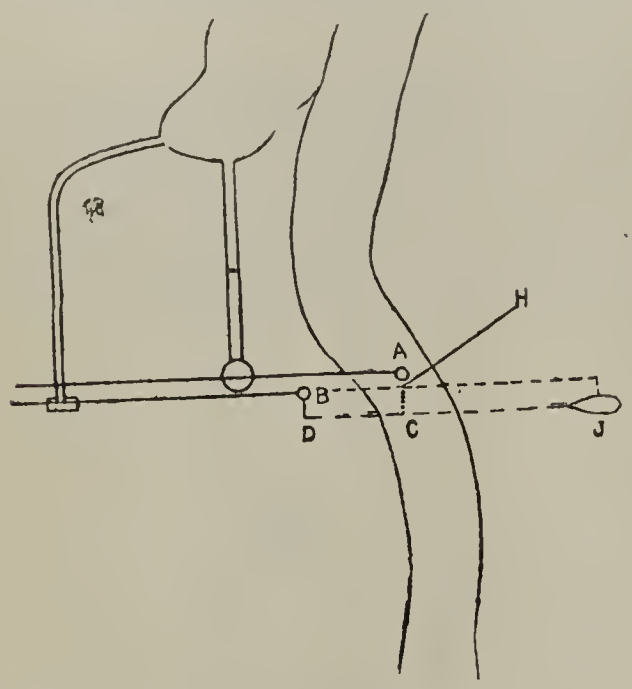


FIG. 2.—Outline drawing of negative made with tube nearly horizontal.

through the points (C, D). At some point along this line is situated the foreign body. From the secend negative (Fig. 3), made with the tube below the plane of the two indicators, the measurement is taken of the distance (A, E). The shadow of the foreign body is below the center indicator, and this point (E) is indicated on the first circle. The distance the foreign body is above the external indicator (B, F) is measured, and the point indicated on the circle at (F). Where a line drawn

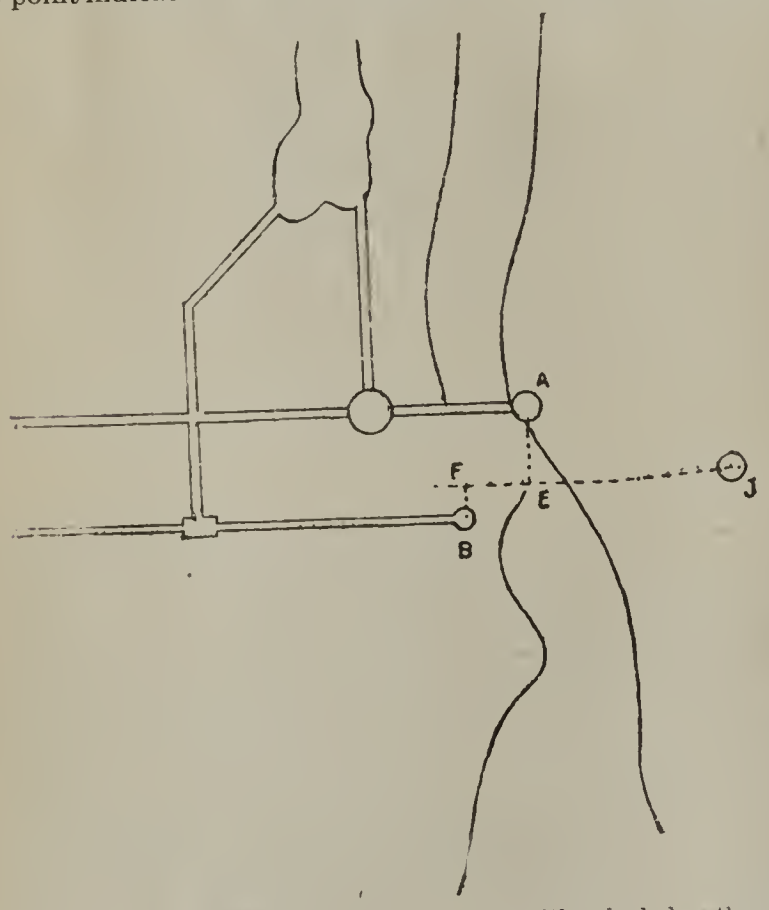


FIG. 3.—Outline drawing of negative made with tube below the plane of the two indicators.

through these two points crosses the line of measurements made from the first plate is the situation of the foreign body, as respects its horizontal and vertical position in the eyeball.

To determine the distance of the foreign body behind the apex of the cornea, the negative made with the tube nearly horizontal is taken, and a measurement made of the distance the shadow of the center ball is posterior that of the external ball (B, H). The distance is entered directly above the external ball on the diagram representing the horizontal section of the eye. From this point (H) a line is drawn through the ball (A) of the center indicator, which indicates the direction of the rays from the tube when the exposure was made. Taking the negative again, we measure the distance that the shadow of the foreign body is back that of the external indicator. This distance (B, J) is marked perpendicularly to the spot representing the ball of the external indicator on the diagram, and a line is drawn parallel to the direction of the rays from the tube (A, H). Where this line cuts a line perpendicular to the position of the foreign body shown on the vertical section of the eyeball is the distance the foreign body is behind the anterior portion of the cornea.

DISCUSSION.

Dr. D. C. BRYANT of Omaha—On account of the location of the eye within its bony cavity, it is difficult to find a foreign body with the X-ray or anything else in many instances. It is exceedingly difficult to locate the exact position of the foreign body. The use of the X-ray, so far as the eye is concerned, will always be somewhat limited in those few cases that we need help. If in a few cases it does help us to locate foreign bodies, or to prove that there is or is not a foreign body in the eye, it will be of great advantage. Outside of the eyeball itself, in the orbital cavity where we have larger foreign bodies, we know it is of great value.

Dr. ARTHUR D. BEVAN of Chicago—I imagine that this method of locating a foreign body in the eyeball might be enlarged and applied to the location of foreign bodies anywhere in the orbit, and I think it is very valuable because of a recent experience which I had in removing a bullet from the orbit, which I reported six months ago to the Chicago Medical Society. In this case a thirty-eight-caliber bullet struck the temporal bone. Probing could not locate it. There were no cranial symptoms. A blood clot, evidently in the orbit, protruded the eye. There was complete blindness for some days in the eye of that side. Within a couple of weeks the eyesight began to return. I had an X-ray picture taken and it located the bullet from one plane, but it was impossible to obtain good X-ray pictures at right angles in order to locate exactly its position. However, I determined from an analysis of the data at hand, with the X-ray picture, that the eye had been blind for some days afterward and pushed out of the orbit, and that the bullet must be somewhere in the orbit behind the eyeball. With that conclusion I operated and removed the bullet, but it took me an hour and a half. I had the general location of the bullet, in one plane, sufficiently accurate in my mind, but I was certainly three-fourths of an inch off in my position in the other plane, and in operating in the posterior portion of the orbit, in the position of the nerves and optic artery, I found it was slow work. I feel satisfied that the work could have been much simplified by an apparatus such as Dr. Thomson describes, and I can readily understand its great value.

As to the statement made in the paper that the disadvantages of the X-ray, using it in a wide sense, are very small and do not at all weigh against the advantages; there are disadvantages in the X-ray that we, in Chicago, are very familiar with, and I think from the reports of cases tabulated and published in the *Johns Hopkins Bulletin*, in regard to the injurious effects of the X-ray, should be very generally known.

I know of some cases in which great injury has been done by the X-ray. We are all familiar with the dermatitis which follows the use of the X-ray. I have seen two cases in which this effect has been extreme, followed by total destruction of skin, the superficial and deep fascia, and the existence of an ulcer for months after the use of the ray. I have also seen total destruction of the eye from the use of the ray and absolute loss of the ear from it. These are points which we should keep prominently in mind.

At the meeting of the American Surgical Association, held in Washington this year, Dr. White of Philadelphia read a paper on the same subject which seemed to belittle the possi

bilities of doing damage with the X-ray. I think we should all be very cautious of this. These serious effects are not so apt to occur now as they did heretofore, because the exposures are much shorter, and serious damage rarely follows exposures of fifteen or twenty minutes. So much is thought of the injurious effects following the X-ray, in Chicago at least, that the majority of men do not, themselves, take X-ray pictures. They throw the responsibility on the photographer, so much so that one whom I know, practically compels patients to sign a contract to assume all responsibility of injury when he takes an X-ray picture. I feel quite positive that the days of serious dermatitis and injury from the X ray are numbered, because it is better understood and the exposures are shorter. But these injurious effects should be kept in mind and be widely known. They should be known to the patient who undergoes the X-ray exposure. We have no right to expose a patient without informing him of the possibilities. It should be done in order to protect surgeons from malpractice suits, and the photographer should be cautioned to exercise great care in the use of the ray.

Dr. R. HARVEY REED of Columbus, Ohio—I think the idea of using "triangulation" for the purpose of locating an object is a very valuable one, and it will undoubtedly aid us in locating bodies in the eye as well as in other parts of the body. But there is one point I will speak of, and that is the possibility of damages accruing from making an operation when the X-ray fails to locate what the surgeon is looking for. Here is a medico-legal point which is of no small importance, because, if the radiographist says that a foreign body of some kind is located thus and so and advises me to make an operation for its removal, and I make the operation and fail to find the foreign body, supposing it did not exist, then where would I stand from a medico-legal point of view? In the use of the fluoroscope and the X-ray in the bullet case which I reported this afternoon, the track of the spot was located nearly above the ear and a little above and back of the eye, and the radiographist, although not certain that was the point at which the bullet was located, felt quite sure that was the point at which we would find the bullet. I was not convinced and resorted to the ordinary methods that I would have used had I not had a radiograph taken, and the consequence was I trephined over the point of entrance and found the bullet in the skull as I had located it. Had I made the opening as indicated by the radiograph I would not have found the bullet, and the operation might have been followed by bad results. By using triangulation for the purpose of locating foreign bodies we can thus avoid, to a large extent, the possibility of making operations where no foreign body exists, or where we are mistaken as to its actual location.

Dr. S. C. BALDWIN of Salt Lake City, Utah—Reference has been made to the paper read by Dr. Willard before the AMERICAN MEDICAL ASSOCIATION, and in all of his experience the tube has been placed not closer than from twelve to fifteen inches from the body. As a result he has never seen any dermatitis, sloughing of the skin or anything of that kind. It is a point that might be considered in using the X-ray for this purpose.

Dr. JAMES BURRY of Chicago—Where crude methods have been tried in the location of foreign bodies in the body, they have not been successful in a great many instances.

The tabulation of errors by the X-ray process is valuable for us. Dr. Reed would have been in the same position if he had trephined for the bullet where the skiagrapher thought it was, as the man that cuts into a foot for a needle that is in there and does not find it. The needle is there, perhaps, but not where it is located by the X ray process. If we report such cases it will have value in giving the process its true standing, and I think its medico-legal relations will soon be settled. I imagine that the greatest difficulty Dr. Thomson would experience in these cases is to get correct pictures. I have tried many times to get pictures of the eye, and through the nose, and have not been very successful.

Dr. THOMSON—I think our results in the use of the X-ray are largely due to the apparatus that we use. It is perfectly evident that the tubes formerly used were so small and imperfect that it was extremely difficult to take a good picture of the orbit such as I have described.

I am not sufficiently familiar with the pathologic conditions in pictures, etc., to say much about it. However, I should think that if a series of pictures were taken with a good apparatus, they would be valuable both from a diagnostic and medico-legal point of view.

I have seen cases where the hair has come out, and again where the patients have had a slight dermatitis. Some gentleman has devised a scheme which prevents dermatitis, or any deleterious effects, by allowing the X-ray to pass through a small film of gold leaf.

OPERATIVE TREATMENT OF IRREDUCIBLE DISLOCATIONS OF THE SHOULDER JOINT, RECENT OR OLD, SIMPLE OR COMPLICATED.

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NEW ORLEANS, LA.

HISTORY.

One morning in 1895, upon visiting my wards in the Charity Hospital, I found an old man with a case of irreducible dislocation of the shoulder of three months standing. He suffered much pain and was anxious for relief. I remembered having seen, during the many years of my connection with this hospital, some eight or ten cases of such irreducible dislocations. Two, who had been put through the extension and manipulation processes, had suffered fracture of the bone near the head. None of those who had resisted tractions and manipulations of all sorts, had been operated; all had been turned away to remain crippled for the remainder of their days. And yet they were under the care of such men as Stone, Richardson, Smyth, Logan, Chopin, Schuppert, all men of recognized judgment and unsurpassed daring. Later, upon writing to a member of this ASSOCIATION, who had once graced the presidential chair, for information on the subject, he answered that very few surgeons operated upon these cases and they were left to be maimed for life.

To show the unsettled condition of mind of some prominent surgeons, I will state that in a private communication from one of them, attached to one of the largest hospitals in this country, he says that the question arose as to whether operative interference should be attempted, and having called in consultation two other prominent surgeons, it was finally decided to operate.

My first impulse was to follow the tradition, but the patient complained so much that I determined to operate, if but to relieve the pain due to the pressure of the dislocated head upon the nerves and vessels. Before doing anything, I attempted to post myself on the operation, but text-books were almost mute on the subject; standard works even said nothing, or very little; special cases or monographs were not at hand and too far away to be had in time. The history of the case is given further. Once engaged in this line of thought I became intensely interested, all the more so, that another case had presented itself at the hospital in the meantime and was awaiting treatment. Upon making bibliographical researches I was quite amazed to see how much the subject had engaged the attention of a number of surgeons, and also how inconceivable it was that in spite of this, so little was to be found in text-books and others on so important and captivating a subject. The first cases are reported by Weinhold and Swanzig in 1819, and by Wattman, 1820. After an interval of nearly twenty years comes a case by Dieffenbach in 1839, and after another lapse of thirteen years, the case of Simon in 1852. The indefatigable Langenbeck then follows with three cases in succession, and Post with one in 1861. Almost every year after this at least one case is reported. In the sixties, three cases; in the seventies, twenty-two; in the eighties, forty-nine. As we draw near the present date, cases become more numerous; the year 1891 alone saw thirteen cases; 1893, eleven;

1895, seventeen. Special papers or dissertations more or less important have been written by some eight or ten surgeons. Of these the particularly important, valuable and epoch-making are those of Knapp, 1889;[1] Smital. 1890;[2] Delbet, 1893,[3] and McBurney, 1895;[3]* all within these late years. In this array of cases American surgeons have contributed largely. Ollier says that the first resection for irreducible dislocation was performed by Post of New York,[4] and the second one by Warren of Baltimore.[5]

The second French Congress of Surgery put up the question of interference in irreducible dislocations; a certain number of communications were made regarding interference in dislocations of the shoulder,[6] but they are based upon insufficient data.

FIFTY-SEVEN DIVISIONS, FORMS AND VARIETIES OF OLD IRREDUCIBLE DISLOCATIONS OF THE SHOULDER.

The subject which is now engaging our attention presents from a clinical and practical standpoint a number of forms and varieties which must be well defined at the outset. By clinical form and variety we mean a condition characterized by some feature or features bearing upon the diagnosis, prognosis, treatment and result. These various forms and varieties may be summarily stated as being: 1, recent, simple or complicated, and operated by reduction or resection; 2, old and simple, forward, downward, etc., and treated by reduction or resection through an anterior incision or an axillary or a posterior incision; or treated by subcutaneous sections (fibrous, tendinous, muscular, osseous), or by osteoclasia; 3, forms and varieties due to causes anatomic or physiologic, to causes pathologic, to complications, to recurrences; 4, to the sequels of the operation.

Guide.—Each operated case presents to study the diagnosis or kind of dislocation, its duration or time of standing, the condition of the muscles, of the limb, shoulder, arm, forearm, hand; extent of each movement without or with participation of the scapula, paralysis, paresis, atrophy, weakness, electric reactions; of the artery as revealed by the radial pulse; of the veins, by the edema of the hand or forearm; of the nerves, by anesthesia or pains; the operation performed; the difficulties and complications during the operation; complications after the operation; the results immediate, the results remote or final; the remarks and the references.

We will not mention these headings in each case, but the reader will bear in mind the order followed in describing the peculiarities.

This study rests on 157 operated cases, of which 23 are recent and 134 old cases. It is rare cases that most require collective and minute investigation since one operator has seldom the opportunity to acquire extensive personal experience and has to rely upon that of others. Hence we report herein the histories of the cases with all details of interest, which are so eagerly sought and so gratefully appreciated by operators who have a rare and difficult case to treat.

We always append the year to the name so as to identify the case throughout, specially when the name of the same operator has been repeated in two or more cases.

Incomplete data is a very serious obstacle to a thorough study.

Important rule.—No operation should be attempted before all possible means of bloodless reduction have been conscientiously applied in recent as well as in old irreducible or unreduced dislocations. However, very sound judgment has to be exercised as to the degree of force to be used, lest more or less extensive tears take place in the muscles, vessels and nerves or fracture of bones, forcing an operation at a great disadvantage.

The word irreducible is here adhered to because it conveys the idea that all bloodless means have been attempted but in vain and that nothing remains to be done but operate. Whereas the word unreduced might lead one to think that nothing at all had been done.

IRREDUCIBLE DISLOCATIONS RECENT AND SIMPLE.

We will call recent all dislocations no older than a month; this is somewhat arbitrary but is adopted to fix a limit.

1. *Irreducible dislocations, recent, simple and forward, teated by arthrotomy and reduction through an anterior incision,* are three in number reported by Stimson 1890, Parmenter 1891,[8] Keener 1894.[9]

The duration of the dislocation was two days (Stemson), one week (Parmenter), four hours (Keener). In Stemson's case, the head was arrested by the tendon of the subscapular, which was sectioned and reduction easily effected; in Parmenter's case the tendon of the two spinous and of the subscapular muscles had to be divided and even then the reduction was difficult. Complications following the operation were totally absent in the three cases. All report primary union. The remote results are fair only in Parmenter's case, good in Stemson's and very good in Keener's. Therefore the early interference in these cases is favorable.

2. *Irreducible dislocation, recent, simple and forward, treated by resection through an anterior incision* is represented by the single case of Wyeth 1895.[10] It was twelve days old. Through an anterior incision McBurney's hooks were inserted in three different places, but without avail and the head had to be resected. Severe shock followed and death resulted in twelve hours. As far as this single case is concerned it seems to show that resection is a more secure operation.

3. *Irreducible dislocation, recent, complicated with fracture and having been subjected to violent efforts at reduction* should not be operated on until the inflammation has abated, lest we encounter bruised and lacerated tissues which would more easily suppurate and thus give rise to a double compound condition, the open joints and the focus of the fracture.

4. *Irreducible dislocation, complicated with fracture below the head and forward, treated by an anterior incision with arthrotomy and reduction.* has been recorded by Stemen 1893, two cases;[11,12] Porter (C. B.) two cases 1893 and 1896;[13,14] McBurney 1895 and 1896;[15,16] Berger 1896;[17] Bull 1897.[18]

The duration was a few hours in one of Stemen's cases, nine days and one month in Porter's two cases, two weeks in McBurney's, sixteen days in Berger's, two days in Bull's. All used an anterior incision down to the bone. Stemen seized the end of the upper fragment with lion jawed forceps. In one case Porter drilled a hole in the head of the bone and inserted a hook. McBurney inserted a peculiar one of his invention: Berger seized the tuberosities with strong forceps (Xavier Farebeuf), Bull tried McBurney's hook but had to pry the head into place with a periosteal retractor. No difficulties nor complications were experienced by Stemen, McBurney and Bull, but Berger states that he had to pull with great for

to disengage the head and bring it in the glenoid cavity; he mentions no injury to the tuberosities. Porter (No. 2) removed a number of fragments and stitched the head to the shaft. McBurney stitched the head to the tuberosity and shaft with catgut. No sutures through the bones were thought necessary in the other cases to insure proper adjustment of the fragments. No complication followed the operation and primary union took place, except perhaps in Berger's case where it is not stated, and in Porter (No. 2) where long suppuration followed and the head had to be removed. The remote result was only fair in Berger's case, good in Stemen's and Bull's, very good in Porter's No. 1, and in McBurney's; improved only in Porter's No. 2. The conclusion is that various instruments therefore can be used, carefully, to replace the head in obstinate cases, and that suturing may give a good result.

5. *Irreducible dislocation, recent and forward, complicated with fracture below the head, treated by resection,* is recorded only once by Tripear.[19] It was thirteen days old; there was a comminuted fracture with pieces wedged in between the humerus and the glenoid cavity together with a fracture of the surgical neck. A serious complication was an aortic insufficiency with a hypertrophied heart. The union was secondary and the convalescence delayed and interfered with by the circulatory disturbances just mentioned. The final result was only fair.

6. *Irreducible dislocation, recent, complicated with fractures of the head with dislocation of the head in the axilla treated by reduction,* is represented by the unique case of Wölfler,[20] who pegged the head back and reduced it. No difficulties or complications are reported; no complication is noted as following the operation; the union was primary and the final result good. McCormac says that Helferiot also used the peg, but he gives no reference. It is noticeable that the head loose in the axilla has never been known to become necrotic (McCormac). The danger of such procedures is the consequent callus causing more or less limitation of movement if it be large and irregular.

7. *Irreducible dislocations, recent, complicated with fracture of the head, with dislocation of the head in axilla and treated by resection or removal,* are comparatively numerous, reported by Morton, 1884[21] (T. G.); Manclair, 1889;[22] Croft, 1891;[23] Poirier and Manclair, 1892;[24] Clutton, 1892;[25] Monks, 1895,[26] and McGraw, 1896.[27] The duration or standing of the injury is laid down as recent (Morton and Croft), eight days (Clutton), four hours (Monks), four weeks (Poirier and McGraw). All were operated by an axillary incision and by resection, *i. e.*, by removal of the dislocated head, all without serious difficulty. McGraw notes also a second fracture below the tuberosities. No complications followed the operation and primary union is noted in all the cases. All recovered with a final result good in Croft's, Clutton's, Poirier and McGraw's; Monks' case died, apparently of shock. Clinical experience therefore is in favor of the removal of the head in such cases.

8. *A case of irreducible dislocation, recent and backward (subspinous), complicated with fracture of the head,* is reported by Brinton.[27*] The head was resected, *i. e.*, removed and the extremity of the fragment smoothed and brought into the socket. The wound suppurated, but the final result was satisfac-

Remarks.—Stimson condemns open arthrotomy, when a recent fracture is present.[28]

He also condemns primary excision of upper fragment; he says, wait until inflammatory and reparative processes have ceased, then remove the upper fragment if it seems advisable (Stimson, p. 257). In view of the results above recorded a more modern opinion was solicited from so high an authority. The courteous answer is as follows:

"The opinion expressed on page 257 is I still think sound, although added experience and improved technique have diminished the risk incurred by operating under the conditions mentioned. I still think that arthrotomy through torn tissues infiltrated with blood and inflammatory exudates is hazardous because of the chance of suppuration, and I think the special risk begins and increases after the first or second day. I do not condemn the early operation or primary excision when indicated; I have practiced both and with success, but I here warn against the risks of what may be called the tardy early operation cutting into swollen discolored tissues about severe injuries after the second day. The statement first referred to needs now to be supplemented by mention of McBurney's brilliant method of reducing the dislocated upper fragment, in which the incision does not open the joint or pass through torn tissues.[29]

The following remarks from McBurney's valuable contribution are worthy of note. Surgeons have been agreed that whenever fracture and dislocation of the same bone has occurred the dislocation should first be reduced if possible.[30]

We must again recall the important rule not to operate before trying to reduce, and the following remarks of McBurney are most timely. When the fracture is near the head the heel process is useless and dangerous.[31]

Manipulations by pressure with the thumbs and fingers on the head are most infrequently successful.[32] It succeeded in thirty-six out of eighty cases.[33]

Failing to reduce, some surgeons have treated the fracture until firm union had taken place, and using the repaired shaft for extension, rotation or leverage, endeavored to reduce.[34] Three cases out of ten are reported as successful but not without criticisms.[35]

Riberi practiced passive movements to establish a false joint at the point of fracture.[36] It may succeed where the fracture is high up and the lower fragment has been raised by muscular contraction outside the upper one and near to the glenoid cavity.[37] Seven cases are reported as successful but there are no details as regards movements, pain or disability caused by the dislocated head.[38]

Reduction by open arthrotomy and subsequent treatment of the fracture is preferable to resection of the fractured head, because it offers the prospect of a more nearly perfect final result than the other plan.[39] In case of reduction the bones should be sutured.[40] If union fails reaction should be made at once.[41]

If reasons exist for not performing the operation of open arthrotomy and reduction, the resection of the head might well be left for subsequent consideration, and then after all acute symptoms had subsided, be resorted to in case sufficient pain or disability existed to call for this secondary operation.[42] It has occurred to me that the hooks might be useful in some cases of old dislocation of the humerus in applying counter-extension to the scapula, *i. e.*, by applying also a hook at the base of the spine of the scapula.[43]

IRREDUCIBLE DISLOCATIONS, OLD AND SIMPLE (ONE HUNDRED AND SIXTEEN IN NUMBER).

9 and 10. *Irreducible dislocations, old, forward, treated through an anterior incision by arthrotomy and reduction, and by arthrectomy or resection.*[44 45] Some twenty different difficulties and complications have been mentioned by operators in dealing with those cases; capsule thick, dissection tedious, reduction difficult, excessive fibrous tissue around the head and surgical neck, head deeply seated, head adherent to ribs, extensive muscular dissections, old fractures of the tuberosities, of the glenoid cavity, of the humerus; glenoid cavity filled with remnants of the capsule and fibrous tissue, glenoid cavity readily freed or cleared; parenchymatous hemorrhage during the operation, wounds of vessels during the operation, rupture of the axillary artery in trying to reduce before and after cutting, and various other difficulties.

Some of these difficulties and complications are common to both operations or are as liable to occur in the one as in the other. They are: new capsule thick, dissection tedious, excessive fibrous tissue around surgical neck and head, head deeply seated, head adherent to ribs, old fractures of the tuberosities, glenoid cavity and humerus, glenoid cavity filled with remnants of capsule and fibrous tissue, parenchymatous hemorrhage during operation, wounds of vessels during operation and sundries.

We find the following more frequent in reductions: reduction difficult, extensive muscular incisions, glenoid cavity normal, glenoid cavity freed and cleaned; fracture of humerus in trying to reduce before or after cutting; one notes that the greater tuberosity had to be cut away in order to be able to unite the edges of the muscular and cutaneous wounds; one, that the head of the humerus was partially destroyed; another, that there was crepitation in the joint. We note as more common in the cases of resection: excessive fibrous tissue around fractures of the head or the surgical neck; hemorrhages and sundries. Although reduction difficult is naturally more frequently mentioned in cases of reduction 24 per cent., yet we find that in 10 per cent. of resected cases it was difficult to place the sectioned extremity of the humerus in or near the glenoid fossa. Excessive fibrous tissue is noted specially in 28 per cent. of resections against 15 per cent. of reductions. Hemorrhages have occurred oftener in resections, although there is no special reason to account for this; on the contrary, they should be more common in reductions since these usually require more extensive dissections. Most of the sundry difficulties and complications mentioned in connection with resection are all of such nature as to have rendered resection the only operation possible. The complications noted after the operation are, hemorrhage, gangrene of the limb, suppuration, necrosis of head and of sectioned extremity and the formation of a false joint in a case of fracture. Hemorrhages are more frequent in resections, 4 per cent. against none in reduction. Suppuration is twice as common after reduction. Necrosis of the head occurred in 16 per cent of the cases of reduction against 2 per cent. of necrosis of the sectioned extremity of the humerus.

As to results immediate, primary union is noted in 26 per cent. of reduction and 30 per cent. of resection. Short suppuration occurred in 17 per cent. of reductions against 22 per cent. of resections. Long suppuration shows 10 per cent. in reduction and 16 per cent. in resections. This is all the more remarkable that reductions necessitate more extensive dissection, and that the head and cartilage have often been reported as necrotic in reductions.

The results remote or final show: Death 10 per cent. in reduction and 12 per cent. in resections, the causes of the fatal result are in reductions, bronchitis, sepsis, apoplexy and tubercles in the peritoneum. In resections, sepsis, gangrene from ligation of the axillary artery, secondary hemorrhage and pneumonia. All these causes of death are preventable today except tuberculosis, apoplexy and pneumonia, which are accidental. Hemorrhage can be averted by keeping close to the bone all along; in the capsulo-periosteal sheath, using a sharp chisel and hammer against the bone throughout, actually scraping the bone of its superficial compact tissue, a sharp chisel will require less force to do effective work and is therefore less apt to slip and injure the vessels specially under the influence of the hammer strokes. The dissection should proceed from backward forward. Sepsis we understand how to prevent, but it seems that those cases call for extra care. The neglect to apply such systematic procedure as is recommended by Ollier to test the extent and strength of the various movements, renders it difficult to judge of the true benefit of the operations, and we must be contented with the results as expressed by the operators. In a number of cases the final result is not stated. Mere improvement is not so often noted in reductions 5 per cent., as in resection 28 per cent. Fair results are quoted as 16 per cent. in reduction and 6 per cent. in resections. Good results mark 5 per cent. in the cases of reduction against 42 per cent. in resections. Lastly, the results in good to very good is 3 per cent. of reduction and 87 per cent. of resection. If we consider only the cases noted as fair, good and very good we find 69 per cent. of reductions against 57 per cent. of resections, in spite of the comparatively frequent necrosis of the head in reductions. The 16 per cent. of necrosis of the head in reductions followed by resection of the head should truly be placed to the credit of resections. The figures of percentages are most likely only approximate, because in all probability all the operated cases, good and bad, specially the latter, have not been reported.

By comparing the dates we do not see that asepsi has as yet made its full impress upon either operation We find all the cases of necrosis of the head occurrin since 1887 (Blasius), when the new era is considere to have been in operation everywhere, specially unde the men of mark who stand as the operators.

General and final conclusions in regard to forwar dislocations.—From the foregoing study we feel just fied in formulating the following conclusions: Th anterior incision is the best route. Reduction is th more desirable operation because it preserves the hea and all the movements depending therefrom. Reduc tion should be done only in cases where the head an glenoid cavity are in good condition; when no exte sive dissections have to be made; when it is easi effected without any great effort; when the head do not need to be trimmed or the cup to be too deep scooped or enlarged; when the head readily remai in place but not too tightly. All this regardless the time or standing of the dislocation. It shoul however, always be attempted conscientiously, becau many have resected perhaps when the dislocati could have been reduced. Disregard of these ru may result in necrosis of the head, in recurrence

the dislocation or in anchylosis with their inevitable consequences.

Resection should be practiced in all other cases. When in doubt it is preferable to resect. How much to resect, *i. e.*, where to saw, through the anatomic neck or obliquely and downward outside the tuberosity, or horizontally on a level with the lower margin of the head, must be determined in each case; it is best to remove too much than too little.

All efforts should be made to secure aseptic results. Extra care is called for in these cases, but especially those of reduction.

Remarks.—We append here some interesting remarks on the causes of the difficulties of reduction, mostly from Delbet's paper, which was based specially on forty-four autopsies of old dislocations.

Exceptionally the fibro-cartilage of the margin of the cavity is detached, and also the periosteum, both remaining continuous with the anterior ligaments and forming a pouch under which the head is lodged; those are called subcapsulo-periosteal dislocations (Hartman and Broca). In place of the natural capsule, there is in some cases a thick fibrous mass extending from the acromion and the deltoid to the cup and to the head of the humerus; the head has truly lost its right of domicile.[46] Sometimes the remains of the old capsule becomes partly ossified[47] (*Key. Os sesamoids dans les tendons dessus épineux, dessous épineux et du petit rond.* Kocher, *Observation III*). The capsule, stretched over the glenoid cavity, may be found adherent to it (cases of Bourgeois, Bordet, Burckhardt, A. Cooper, Key, Demana, Hartman and Broca, Houel, Knapp, Kocher (one autopsy and two operations, *Obs. III* and *VII*); Lépine, Maas, Malgaigne (two cases); Pfeiffer, Quain, Smital (two cases); Thore, Vamossy, Wattman[48]. In some cases the rent in the capsule has healed so completely behind the head as to prevent reduction. The capsule was ossified in a case of Kocher (No. 3). In another the glenoid cavity was filled with a thick layer of bone.[49] It is very seldom that the cartilagious portion of the head gives insertion to fibrous bands.[50] Usually the new ligaments or adhesions or capsule extended from the margin of the new cavity to the neck of the humerus.[51] The anterior part of the neo-capsule is usually very thick, two millimeters or more, and very resistant; it is often adherent to the vessels and nerves. In one case of Lister, seven weeks old, the artery was surrounded by these fibrous bands.[52] Often a strong fibrous band, well described by Malgaigne, extends from the inferior surface of the acromion to the head of the humerus near the greater tuberosity. This is well mentioned in the cases of Gardenheuer, Faure, Fauratier, Houel (Dupuytren Museum, 731 A). Malgaigne.[53] The tendon of the biceps may remain in the groove and follow the humerus. It is more or less blended with the neocapsule and it is often difficult to dissect it. Sometimes it is adherent to the groove (Parmenter). In some cases the tendon is disinserted from the groove, rides behind the head, where it forms a tense cord in front of the glenoid cavity (Kocher, two cases, *Observations* V and VI; Gauderon, Knapp, Lépine, G. Smith, two cases; Schede).[54] In operating, take care of the long tendon of the biceps. It is said that it is never displaced from its sheath in ordinary subcoracoid dislocations of the limb.[55] The tendon of the biceps should be preserved or stitched back.

The muscles or their sheaths, or both, often undergo sclerosis and this prevents reduction of the head, as proved by successful reduction only after the section of the muscles (Dieffenbach, Weinhold, Bardenheuer, Ollier, Kocher, Bordet, Cooper, Parmenter). The deltoid and the supra-spinous are the muscles which oppose mostly the reduction.[56] In some cases the anterior edge of the glenoid cavity forms a part of the new cavity, and this condition renders reduction illusionary and probably useless. This is met with once in every five.[57] The old glenoid cavity becomes filled up by fibrous tissue.[58] The inner edge of the new cavity found on the scapula presents usually a high rough edge.[59] The head proper of the humerus may remain normal, but it is usually flattened behind where it is articular. Its front part becomes covered with more or less irregular projections or stalactites.[60] With all this it may also be very large, rendering reduction impossible. The small tuberosity is sometimes torn away by the subscapular.[61] The greater tuberosity when torn away and loose from the muscle drops into the old glenoid cavity. When it still remains attached to the muscle it becomes united, but in an irregular manner, causing deformity and considerable widening of the region.[62] In some cases the tuberosities are very much enlarged without any trace of fracture.[63] All those anatomo-pathologic changes occur sometimes rapidly. The adhesion of the capsule to the cup has been found after two or three months, the head flattened after one month, even twenty-three days; the muscular retraction after five weeks.[64] Usually several of the causes combine to prevent reduction or resection; it is very seldom that a single cause accounts for it.[65] What influences the results most is the degree of the lesions, the condition of the muscles, the manner in which the operation is performed in regard to asepsis, the individual predisposition: some patients manufacture fibrous tissue so rapidly that it is very difficult to prevent anchylosis, such as rheumatic patients.[66] The axillary route was advised by Langenbeck, because of the projection of the head into the axilla.[67] It allows an easy resection. But it does not permit reduction if it were possible; it does not enable to clean out the cup; the vessels and nerves are more exposed to being wounded, specially the circumflex; the upper parts of the new and of the old capsules are immovable and can not be destroyed, and as they prevent the head from bulging it renders the resection more difficult.[68] The posterior route was recommended by Charles Nélaton, but it does not allow of any access to the anterior part of the head and of the adhesions of that part.[69] The antero-external route is the one which has scored the greatest number of successes.[70] The incision of Langenbeck, acromio-humeral, is a more vertical one than the next one; it gives an easy access to the cavity, but it renders the head less accessible.[71] The inter-pectoro-deltoid incision is rather farther from the cavity, but it gives a better access to the head.[72]

The normal or good condition of the muscles of the shoulder is a circumstance which has been too little considered in regard to the probable result of a severe operation (arthrotomy or resection).[73] A most important point is to get primary union. Suppuration is more frequent in arthrotomy.[74] The functional result depends specially upon the after-arrangement. At first place the arm in the position which keeps best the head in the cup; next follow the instructions laid down by Ollier in his "Treatise on Resection."[75]

11. *Irreducible dislocation, old and forward, treated*

through an axillary incision by arthrotomy and reduction. is represented by one case only, that of Kocher (No. 1), 1889.[76] The greater tubercle, which was broken off, had to be resected in order to be able to reduce; the capsule was very much thickened. There was suppuration followed by resection of the head. Seven months after the joint was almost completely anchylosed.

12. *Irreducible dislocation, old and forward, treated through an axillary incision, by resection.*—There are eight cases on record, by Langenbeck 1860,[77] Lester 1873,[79] Spieker 1876,[80] two cases,[81] Langenbeck again in 1877,[82] two cases, [83] Volkman 1882[84] and Nélaton in 1888.[85] In Langenbeck's of 1860 the great tuberosity had been fractured; Lister had ruptured the artery in trying to reduce before cutting; Spieker also found that the great tubercle had been broken off in his two cases. Nélaton mentions the same complication. In case number two of 1877, Langenbeck found the operation laborious because the head was more deeply seated than appeared; there was also considerable hemorrhage requiring the ligation of many vessels, probably of the subscapular, in the depth of the wound. Volkman speaks also of great difficulty; the lower tuberosity was broken, there was hemorrhage due to injury of the axillary vein by a splinter of bone; the vein was ligated. Nélaton says that the posterior portion of the articular capsule was flattened against the glenoid cavity, was thickened and did not permit itself to be sufficiently separated to allow the head to be reduced; to overcome this obstacle it would have been necessary to split the capsule transversely, but the incision having been made in the axilla, the capsule could only be reached with the tip of the finger from deep in the wound and it would have been difficult to introduce a bistoury, so resection was done. Following the operation, Lister mentions great shock; there was suppuration in Spieker's two cases, erysipelas in Langenbeck's case number two of 1877. The cases of Langenbeck 1860, and number two of 1877, and of Volkman healed primarily; Spieker number one showed short suppuration, and his case number two long suppuration. Death followed in the case of Lister in three hours, of Spieker number two from sepsis, and of Langenbeck number two 1877 from erysipelas and sepsis. The results found are therefore three deaths (Lister, Spieker number two, Langenbeck number two 1877); little improved Langenbeck 1860 and Langenbeck one 1877; improved simply in Spieker one. This route is therefore fraught with danger and should not be followed in cases of forward dislocations.

13. *Irreducible dislocations, old and forward, treated through a posterior incision by arthrotomy and reduction.*—Two cases are on record by Schonborn (No. 3),[86] 1885, Mudd 1895.[87] Repeated attempts were necessary in the case of Schonborn; the acromion process, which had been detached according to Kocher's method, was with difficulty pressed back into position by Mudd. Recurrence of the dislocation upon dressing took place in Schonborn's case. The healing of the wound was even in Schonborn's; primary union took place in Mudd's case. The results remote were good in Mudd's case; it is not mentioned in Schonborn's.

14. *Irreducible dislocations, old, simple, forward, treated by subcutaneous sections of fibrous bands, tenotomy. myotomy.*—Five cases stand on record: Weinhold-Swanzig 1819,[88] [89] Dieffenbach 1839,[90] Simon 1852,[91] Polaillon 1882,[92] Mollière 1886.[93] Weinhold picked up a fold of skin, the external portion was incised transversely to the extent of half a finger's breadth from the insertion of the great pectoral, very forcible extension being kept up. While this was accomplished, wound was increased in length to the extent of nearly half a finger's breadth; immediately the humerus approached near the glenoid cavity and returned in place. The operation was simple in the case of Dieffenbach; it was done in one sitting when traction reduced the head: Simon did it in three sittings: Polaillon attempted reduction only three days after the tenotomy. There were no difficulties and complications during the operation nor after. The results remote are stated as being very good in all five cases. It is astonishing that a method so simple, so safe, and giving such perfect results, should not have been tried oftener. However, when we consider the great difficulties encountered in an open operation betore the head can be reduced, when it can be, after the necessary sections have been freely done, it is really most probable that the method has been tried but has been found wanting and the failures have not been recorded. It seems best adapted to selected cases.

15. *Irreducible dislocations, old, forward, treated by osteotomy of the neck.*—We could only find one case on record by Dr. Mears.[94] It was a subcutaneous osteotomy as practiced by Mr. Adams. The operation presented no difficulty nor complication, nor were there any complications after the operation. The wound healed without suppuration; the result remote was good for a while, but later a callus formed and the result proved to be very unsatisfactory. This ought not to encourage in such an operation. The writer proposes the following operation in place of subcutaneous osteotomy or osteoclasia, in cases where there are no serious pressure symptoms and the patient is not in a condition, from age or debility, etc., to stand a long operation with possible injury to the vessels and their consequences: After exposing the bone, resect at least one inch of the shaft where it joins the head; place the resected extremity in or near the glenoid cavity and begin passive motions early. This procedure leaves the head in an abnormal position, and that is the great objection to it, but it is a more simple and quick operation than the regular one for reduction and resection when the head is firmly and extensively bound down, in the class of cases above referred to. It is sometimes difficult to decide from the description of the case if it is a downward (subglenoid, axillary) or a forward dislocation (subcoracoid, preglenoid) that is meant.

16. *Irreducible dislocations, old and downward. treated through an axillary incision*, are represented by three cases: Langenbeck 1877,[95] Patterson 1879,[96] Thomas 1885.[97] There was no special difficulty or complication, except that in the case of Thomas the operation was long and tedious, great difficulty in freeing the head; it had to be removed by slices. In this case of Thomas there was suppuration after the operation. There was primary union in all the cases except Thomas', in which the wound closed at the end of the second month. In this same case there was little improvement; in the two others the final result is not recorded. The operation should be performed but may prove not so very easy.

17. *Irreducible dislocations, old and downward, treated by osteoclasia.*[98] One case that of Desprès. It

consisted in the deliberate fracture of the neck so as to be able to bring the arm closer to the body; the forced elevation of the arm causing it to press against the acromio-coracoid vault or arch, determined the fractures; a cracking sound was heard and crepitation felt. There was no difficulty, no complication during the operation. There was formation of a callus, it was impossible to obtain a false joint, and the operation resulted in a thorough failure. This procedure should be rejected except perhaps in special cases when a more serious operation is out of the question. It is to be remembered that several cases of fracture in trying to reduce have been followed by fair results.

18. *Irreducible dislocations, old and backward, treated by resection in the adult.*—There are three cases reported by Reid 1877,[99] Adams 1888,[100] Brinton 1897.[101] (The cases of Post 1881 and of A. M. Phelps 1895, are congenital and will be considered under that head.)

Reid's case was 53 years old. The age of Adams' case is not mentioned. No difficulties were mentioned. No complications after the operation are noted. The results immediate are not described. The results remote, not improved in Reid's case; fair in Adams'. Although these results are not brilliant they suffice to justify the operation.

Brinton's case was complicated with a united fracture below the tuberosity, the final result was satisfactory.

19. *Irreducible dislocations, old and simple, with a limb useful in its new position* to all intents and purposes to the patient should not be operated.

20. *Irreducible dislocations, old and congenital, operated by reduction*, are three in number, operated by Küster 1882,[102] Schede (No. 3) 1892,[103] and Brown 1897.[104]

Küster's case was 14 months old at the time of the operation. Schede's case was 8 years, but the luxation was congenital and intra-partum, as was proved by the doctor who attended the mother's confinement. Brown's child was several months old when operated. In Küster's case the head was freed, brought forward and rotated. In Schede's, the head was freed, the glenoid cavity enlarged and deepened, and the anterior part of the capsule removed; the posterior part is freed from the glenoid cavity and drawn forward so as to cover the head; dislocation reduced; the coracoid process had become more crooked and longer and bridged over the inner portion of the normal cavity in such a way as to prevent reduction; it was separated partially at its base by an osteotomy and broken so far backward that it no longer prevented reduction. The reduction is easy in Brown's case. There was fever and suppuration in Küster's case. In Schede's suppuration also and later the greater tuberosity was found to be necrotic and was removed and and the healing was gradual. Brown's case healed kindly. Death resulted in Küster's case, one month after operation, in Schede's the result was good. Brown's case was much improved. In Küster's case there was also a similar dislocation on the other side, but it was not operated.

In résumé the operation should be done, as there is no other alternative but observing the rules governing reductions as set forth above.

21. *Irreducible dislocations, old and congenital, treated by resection.*—There are three cases on record, one by Post 1861,[105] and two cases by Phelps (A. M.) 1895.[106 107] Phelps mentions one case operated by Gerster and four other operated cases, but he gives no references. All these cases are backward dislocations, subspinous. The operation performed in Post's case was a longitudinal incision made over the posterior edge of the deltoid, dividing the fibers of that muscle and exposing the head of the humerus, which was found to be dislocated on the back of the scapula; the capsule was denuded and the extremity of the bone turned out; a leaden spatula was pushed beneath the bone to protect the soft parts and exsection with a saw, made of the upper extremity to the extent of three quarters of an inch. On examining the limb and moving it in different directions it was thought best to remove an additional portion of the bone, the second portion removed being nearly as long as the first; the hand was then brought forward across the anterior portion of the chest, where it lay in a very easy position without apparent difficulty; the edges of the wound were brought together by means of eight twisted sutures made with insect pins. In Phelps' case (No. 1), a curved incision was made along the lower edge of the deltoid in the scapula and the flap turned down; it would, he said, have been better to curve the incision downward and turn the flap upward, as it would give better drainage. The posterior edge of the glenoid cavity was gone, the cavity was about two-thirds the usual size; it was considered whether to enlarge the cavity or trim the head of the bone; it was decided to do the latter, because, had the cavity been enlarged it would have been necessary to shorten the humerus in order to replace it; the remote result might have been, in bringing the two raw surfaces together, anchylosis of the joint; a portion of the head of the humerus therefore was cut away in order to fit it into the socket; also a portion of the redundant capsule, posteriorly; the bone was replaced and a stitch put in behind to help retain the head in place. There was no complication following the operation, except in Phelps' second case, which suppurated. The immediate result is not mentioned in Post's case; in Phelps' No. 1 the drainage tube was removed at the end of a week; in case No. 2 a counter opening had to be made. The remote result not stated in Post's case; in Phelps' No. 1 it was very good, and in case No. 2 only fair. The operation is thoroughly indicated. Dr. Phelps says the method promised success during the first year, although one case has been operated in which it was successful in the fifth year; he gives no references.

22. *Irreducible dislocation in young subjects*, that is, in children and in subjects under 17 and 18 years of age, should be treated by reduction, if possible, or by resection of only the cartilaginous portion of the head. It is most important not to injure the epiphysial cartilage. The ossified portion of the head may be removed, but the epiphysial cartilage between the head and the shaft must be spared if possible. A horizontal section, with the saw starting at the internal insertion of the capsule around the head will surely carry away the totality of the conjugating cartilage.[76] In young children, if the resection is made below the epiphysial cartilage the arm will cease to grow. The resected extremity should not be pushed into the glenoid cavity in children, lest the growth of bone cause anchylosis.[77]

23. *Irreducible dislocations, old, in old or debilitated subjects* should not be operated, except under very favorable local and general conditions, or under serious indications. Resection of one inch of the

shaft where it joins the head is best adapted to these cases.

24. *Irreducible dislocations, old and double, i.e., on both sides simultaneously, and operated.* have been reported three times: Lister (two cases), 1889–90; Reid, 1880. Lister's first case was operated by reduction on both sides, with an interval. His second case was operated by resection on the right side and reduction on the left. Reid's case was a double subclavicular, and the two sides were operated by resection at an interval of two and a half months. These cases have already been considered as regards operation, difficulties, etc. There are two or three more simultaneous double dislocations reported, but only one side was operated.

(To be continued.)

FIVE CASES OF SARCOMA OF THE HEAD AND NECK.

Presented to the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1–4, 1897.

BY VIDA A. LATHAM, M.D., D.D.S., F.R.M.S.
CHICAGO, ILL.

Many times it falls to the lot of some practitioners to see in dental surgery cases of mistaken diagnosis which become interesting studies. The question may be asked, "is the mistake altogether the fault of the graduate in dentistry or due to insufficient opportunities?" In looking back we find the training of a dental student decidedly deficient in many branches, just as is true of the medical man. Take for example the subject of oral surgery. The general type of teacher is often the instructor or assistant to the professor of surgery in the medical department (if the institution belongs to a university), a man who has seldom done anything beyond the more common minor operations, who knows little or nothing of the needs of the dental surgeon, and who often regards the dentist as not needing to know much beyond a few minor surgical subjects, such as wounds, fractures and dislocations. Indeed, he often looks down upon the profession, regarding it as nothing more than a mechanical business. I have often heard the criticism made by the surgeons, "Of what use is an oral surgeon? No man who knows his profession would care to be so narrow. In fact it is useless to urge the need of such a specialty at the present time."

Plastic surgery of any kind requires considerable thought and skill to prevent serious deformities, and particularly is this so on the face, where diseased conditions usually demand severe operations, involving considerable areas and dangerous localities. An oral surgeon must be a broad-minded conscientious man, a profound and able diagnostician, and a graduate in medicine as well as in dentistry, for it is only by a combined knowledge that many of these cases can be treated successfully. It is men such as these who should be encouraged in their work, and asked to teach or operate in our dental colleges. Think for a moment how few are the colleges that possess such a chair or teacher! To Philadelphia belongs the honor of showing how much good work was done by our revered and kindly teacher, the late Professor James E. Garrettson. Only a year or so before his death, when visiting the city, did the Doctor remark to me, "You little know the danger which arises from the indifferent training that is given in this line of work, and I do sincerely hope that before many years are gone the dental profession will demand the increased teaching of the subject, together with pathology and histology." It is some pleasure to see that the work of his late assistant is bearing out some of the Doctor's ideas, and it is to be hoped that the profession will in every way encourage such scientific work. I have reference to Dr. M. H. Cryer, whose studies in dental anatomy and on the maxillary bones are certainly of great anatomic and surgical value.

Let us recall the number of times we have casually noticed growths in the mouth and its adjacent parts. They may have appeared small and perfectly harmless, and we parhaps have thought it unnecessary to caution the patient to avoid all dangers from uncleanliness and irritation from rough stoppings or badly fitting plates, and in a short time have heard that the patient was suffering from a "tumor." I have seen and heard of the experiences often enough to have a vivid impression. There is a fault in our schools which is the cause of many such errors of judgment. The student is taught prophylaxis, in the abstract,

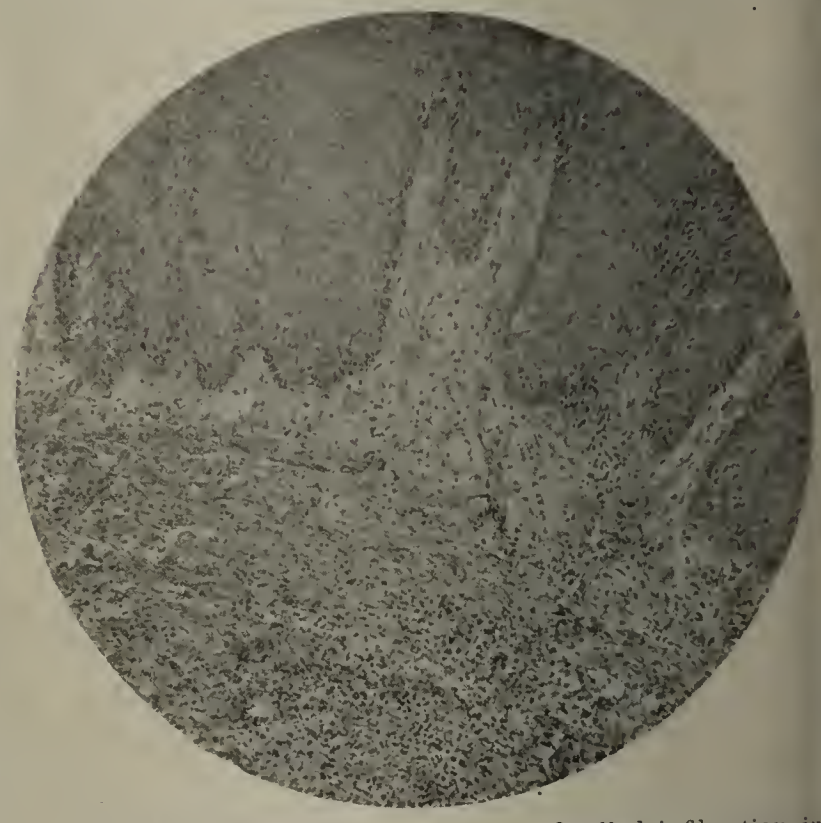


FIG. 1.—Epithelium, normal; early round-celled infiltration ju showing in submucous tissue. (From myeloid of jaw.)

but no theoretical teaching can impress the learner s forcibly as even one practical illustration. The fee ing of danger or seeming hopelessness with which a advanced sarcoma or carcinoma of the maxillæ or fac is met in the clinic, will not require emphasis in th student's mind as to prevention or early recognitio Every practitioner or dentistry at some time see cases of just this nature, perhaps when the disease in its earliest form. If he is able to recognize it an sound a note of warning, even though he may refe the case to a surgeon or specialist he has done a grea favor to the patient.

Case 1.—Myeloid sarcoma of the jaw.—Not long ago I sa a case which had been sent to a dentist for advice regarding right superior third molar that was troublesome. The patie was told to have the tooth removed, "as the wisdom teeth we of no value," and this was done. But there was no advice n suggestion of anything suspicious about the thickening of t gum around the outer side of the tooth. After a few mont the patient became a medical student, and as the "socke showed some irritability, a junoir teacher and dentist in t University Dental School was consulted. He pronounced t growth nothing but "thickened gum," and it was snipped and thrown into the cuspidor, and the place touched with styptic and counter irritant. In a little while it was thoug

to be recurring, but the dentist said, "No, it is all right," and as he held a place in operative dentistry, and was quizmaster on the subject, the matter dropped. Only a few months later the patient transferred to a different school and heard a lecture on the subject, the importance of which created a feeling of uneasiness in her mind. At this time the student consulted me for examination and advice. The growth was small and seemingly fibroid in character, but the recurrence was suspicious and I asked permission to watch the case for a short time. Finding that it grew larger, I advised immediate and thorough removal, as I feared a sarcomatous epulis. After a little persuasion, the patient consented to the removal of a small piece of tissue for examination, and I herewith present two photographs chosen from a number of slides made from it. The first (Fig. 1) shows a rare section to all appearance, normal glandular structure and evidently the gland of Serres from the buccal cervical portion of the gum. Other slides from near this showed the ordinary histologic structure of the gum. The opposite end of the tissue from the neighborhood of the periosteal surface shows the early but rapidly growing and malignant nature of the tissue (Figs. 2 and 3) a typical myeloid or giant celled sarcoma. In consequence of this examination, the patient, who knew something of the danger of such a growth, was eager for a thorough, radical operation, which was done by a consulting oral surgeon. At the present time, after the lapse of eighteen months, there has been no recurrence.



FIG. 2.—Gland of Serres (*a*) in a case of myeloid sarcoma of the right superior mandible.

The great danger in this case lay in the fact that the growth first appeared behind and on the buccal surface of the gum near the third molar, and its easy course of progression would have been up the palatal process along the maxillary tuberosity and posterior palatine canal, so invading the antrum and palato-glossal folds.

It is generally believed that myeloid sarcomata are common in the maxillæ, though Bland Sutton says they are rare, and as a rule arise in connection with the nasal process. In the maxilla or mandible they arise from the body of the bone. Most text-books imply that these myeloid growths are fairly frequent in the alveolar borders of the jaws; but this idea is due to the fact that we know very little regarding their origin in connection with developing teeth.

In regard to the classification of myeloid sarcomata, or as Mr. Bland Sutton calls them "myelomata," there has been some recent discussion (*Edinburgh Medical Journal*, February, 1897, illustrated). Sutton thinks these growths have been too long confounded with the sarcomata, and agrees with Butlin and Colby in an article published in St. Bartholomew's Hospital Reports for 1895 on "Sarcoma of the Femur and Tibia." "If they are sarcomata, they differ from other forms in a manner which the modification of their structure does not suffice to explain." Sutton points out that they are only found growing from those parts of bones where red marrow exists, and that they grow from it, just as innocent cartilaginous tumors spring from the epiphysial plate. They grow, in fact, from one of the normal constituents of the bone. His important conclusion, that they differ histologically, pathologically and clinically from sarcomata, crystallizes the view which must have existed, though perhaps in a somewhat dormant condition, in the minds of many surgeons and pathologists.

There are two schools of practitioners, the conser-

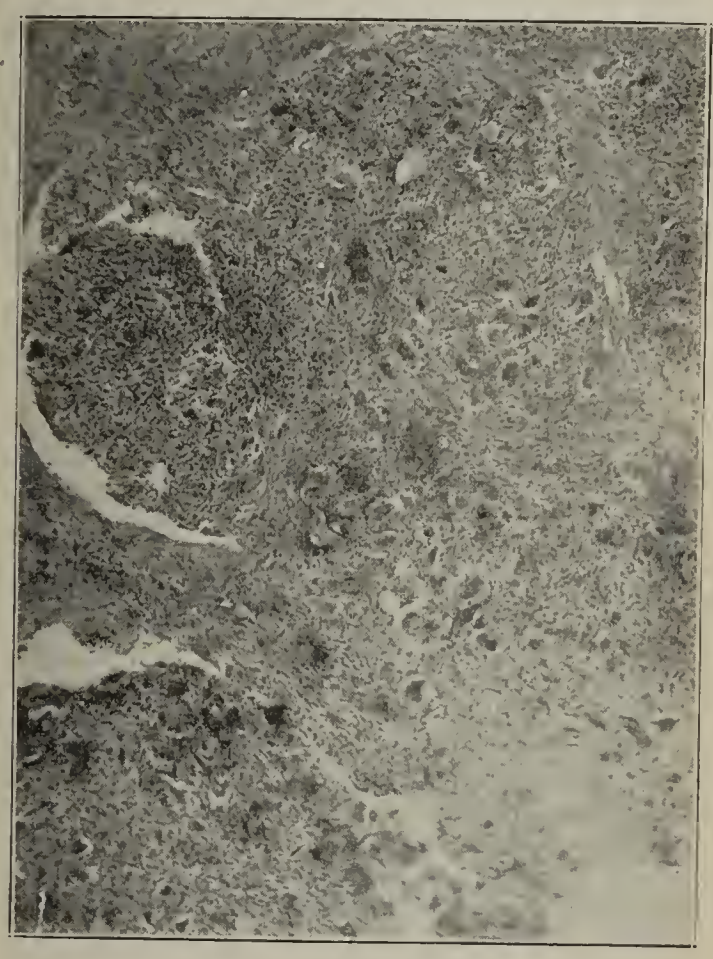


FIG. 3.—Gland of Serres (*b*) from right superior maxilla.

vative and the radical, and I am well aware that both make mistakes. But knowing how patients are liable to postpone operative measures until too late, I take the position that it is best to follow the broad general rule, that "wherever an abnormal amount of tissue appears it should be thoroughly examined and if even suspicious, should be removed as soon as possible," whether it prove to be benign or malignant, for the following reasons:

1. The excessive growth injures the normal tissues by abstraction of nourishment, causing atrophy in some other part.

2. Atrophy produces interference with function of injured part.

3. The irritation caused by the foreign growth is apt to excite inflammation in adjacent structures, the process stimulating the cells to a hyperplasia, which

produces at least a deformity, or which may later become malignant.

4. There is danger that patients will avoid operation until it is impossible to give relief, as active growth in oral neoplasms is the rule. The location of these tumors is dangerous on account of the great blood supply, cavity formation occurring in the bones of the upper extremity, and because extension is easy to vital centers, as the brain and the eye.

5. There is considerable danger of sepsis from infection by micro-organisms of the mouth.

Case 2.—Small spindle celled sarcoma of the palate (Figs. 4 and 5).—According to William Anderson in Christopher Heath's "Dictionary of Surgery," sarcoma of the palate is rare, and when it does occur is usually of the round-celled variety, but one instance reported by him being found to consist of fusiform or myeloid cells. In looking over the literature of the subject I find few reports of primary tumors of the palate are recorded. I reported a few cases in the "World's Columbian Dental Congress Proceedings," and wish now to place on record a recent case of small spindle-celled sarcoma of the palate.

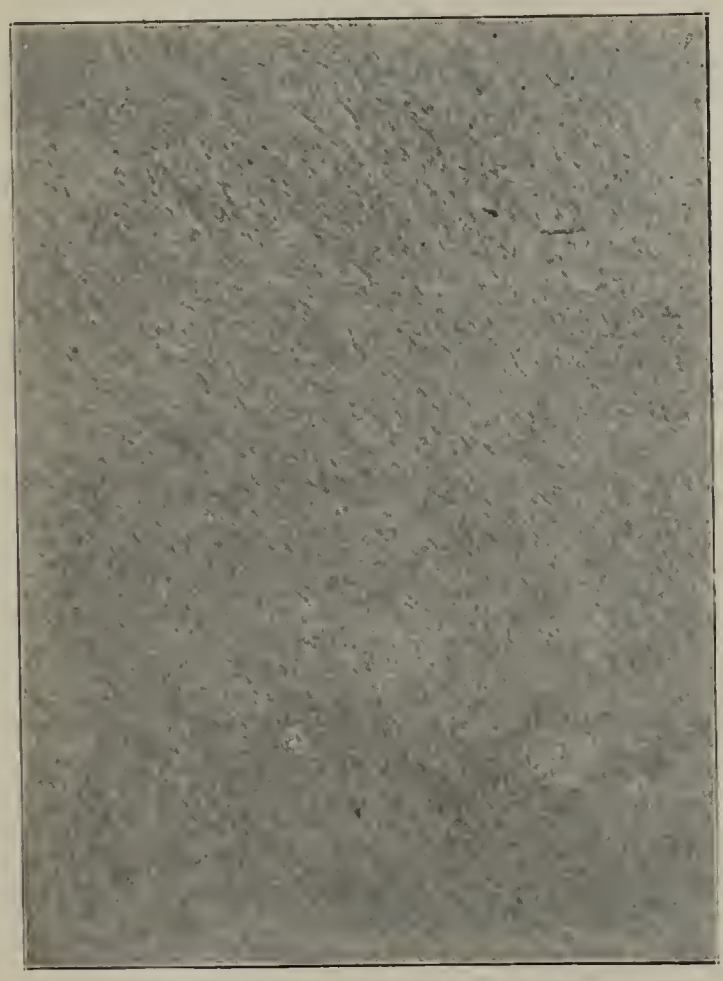


FIG. 4.—Small spindle-celled sarcoma. (Palate.)

The patient, a man aged 33 years, had been in perfect health up to six months previous to the time he came under my observation. What first attracted the patient's attention was a thickening on the left lingual surface of the palate. At first he was but little concerned, thinking it only a local irritation; but as it slowly increased in size he consulted a dentist, who told him it was a chronic inflammatory growth, and possibly due to his smoking a pipe. This habit was discontinued and the swelling treated by counter-irritation, which gave no relief. By this time the place was a source of annoyance, as the patient could not keep his tongue off it and he determined to have it removed by his family physician. The latter found that the growth extended from the first molar to the soft palate within half an inch of the uvula, and becoming suspicious of its nature he decided to be prepared for a radical operation and gained the patient's consent to do what he deemed best. The growth was periosteal in origin and was thoroughly extirpated, the teeth being extracted on that side and the alveolar border curetted, removing all tissue that looked even suspicious. So far there has been no recurrence.

The differential diagnosis between palatal abscess and sarcoma shows the following points:

Sarcoma springing from the periosteum of the hard palate appears as a soft, semi-elastic, more or less rapidly-growing tumor affecting the roof of the mouth. A palatal abscess originating from any of the upper teeth and burrowing backward beneath the bone and periosteum or in the soft tissues forming the roof of the mouth gives rise to pain, and inflammation attends its development: it extends more rapidly and gives an elastic feeling of fluctuation. There is the evidence of a carious tooth, and in chronic cases the diagnosis can be positively made by exploratory puncture.

Sarcoma of cheek (Figs. 6 and 7).—The patient, a healthy-looking woman aged 42, had detected, about three years before I saw her, a small, hard but freely movable lump behind her left ear, between the mastoid process and lobule. It increased slowly and painlessly until about six months before I saw her, when it began to grow rapidly and to cause considerable distress. The tumor was of a reddish-blue color, the size of a small tomato, which it resembled in gross appearance. The overlying skin was extremely thin, almost translucent, and apparently incorporated with the growth, which was only slightly movable on the subjacent periosteum. It threw the ear forward and from its lower border a hard ridge passed down behind the angle of the jaw and extended up in front of the ear nearly to the level of the second molar tooth. The operation consisted of a circular and a longitudinal incision, part of the ear lobe being carried away with the tumor, which was adherent to the periosteum and to the sterno-mastoid muscle, part of the latter being necessarily removed. The

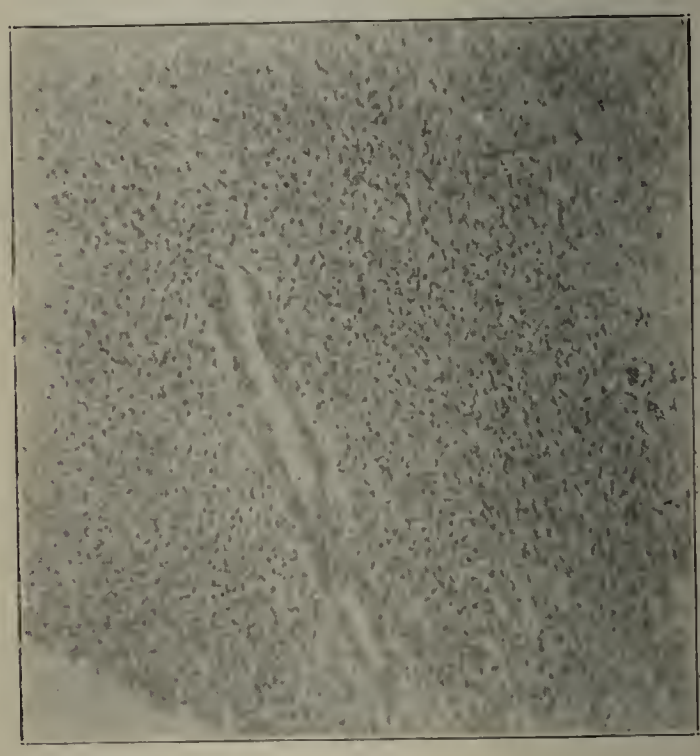


FIG. 5.—Blood vessels with sarcoma cells in wall.

ridge-like process, a large portion of the adjacent parotid gland and some cervical lymphatic glands from the carotid sheath were also removed. The mastoid area from which the tumor was excised was treated with the thermo-cautery. Much misgiving was entertained as to the thoroughness of the removal, as when the periosteum is considerably affected, the bone is almost always involved, and it was impossible to remove any more of the mastoid process and squamous bone. After some months the disease recurred in some granulations which crept over the area of operation, and in spite of curetting, cautery, etc., the growth extended rapidly. The patient succumbed from pain and an exhausting discharge some nine months later, death occurring about four years from the beginning of the disease.

The origin of this tumor was doubtful, but I believe it to be in the lymphatic gland found on the mastoid process behind the ear. The patient had been subject to abscesses from badly decaying teeth, and had received treatment and extraction. She gave a history of repeated attacks of lymphangitis, in all probability septic and had complained to her dentist and physician regarding the stiffness of the jaw and neuralgic pain in the left ear. She was an intelligent woman and insisted that

"the doctors said the swelling (which was small when seen by them) was only from her bad teeth," and would get well when her mouth was better. Removal of the diseased roots had at first checked the sepsis from which she was suffering, but the pain about the swelling continued and her physician referred her to me, evidently thinking the neuralgia of dental origin.

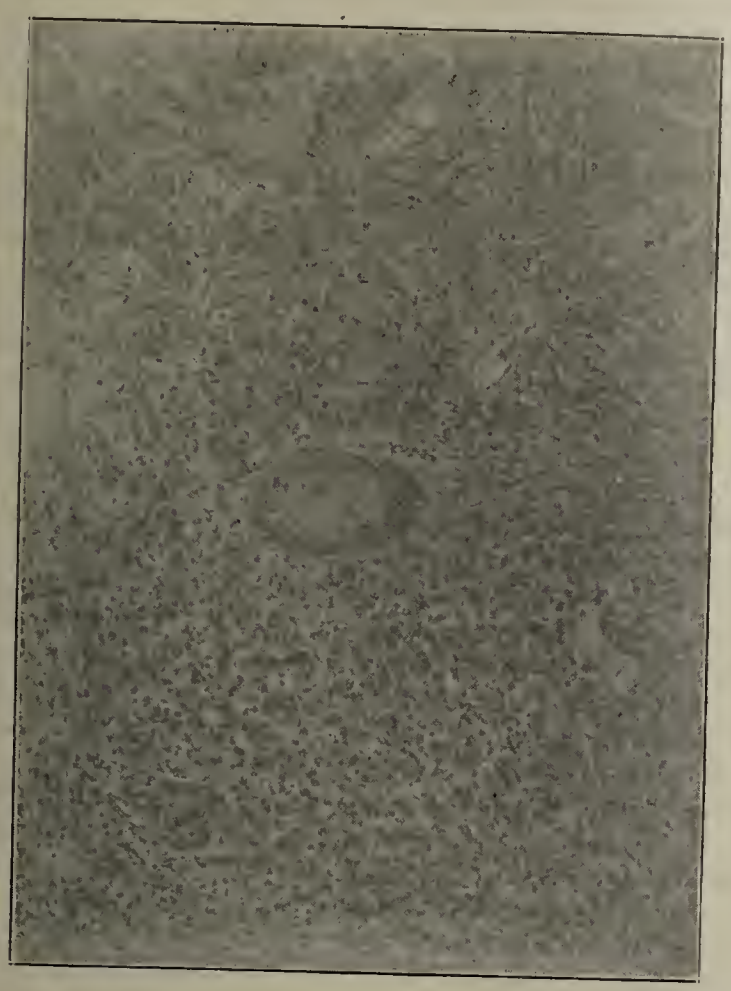


FIG. 6.—Sarcoma of cheek.

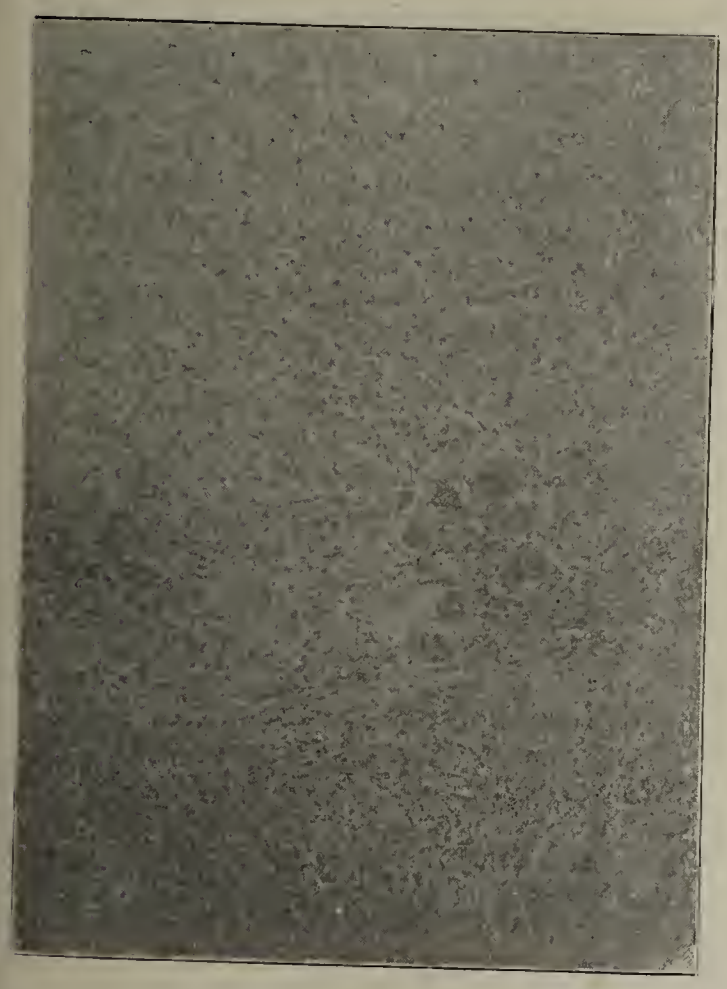


FIG. 7.—Sarcoma of cheek.

t is quite possible that this case might have resulted more uccessfully had it received early diagnosis and prompt treatıent by operation.

The photographs show the structure of a mixed sarcoma, resembling alveolar, in parts showing masses of sebaceous epithelium and sweat glands and some hair follicles, with the large sarcoma cells grouped in masses. In parts a fibrous matrix runs among the cells, giving the appearance of alveoli.

Sarcoma of antrum (Fig. 8).—The patient, a well-built boy, 15 years of age, had complained of constant pain in the left upper first molar, which was treated. In about three weeks his cheek began to swell and on returning to the dentist the boy was told that the swelling was an abscess. Free incisions were made and no pus found. As he got no better and the pain continued the patient left his dentist, going to one of the well-known advertising houses, and there was told to have the

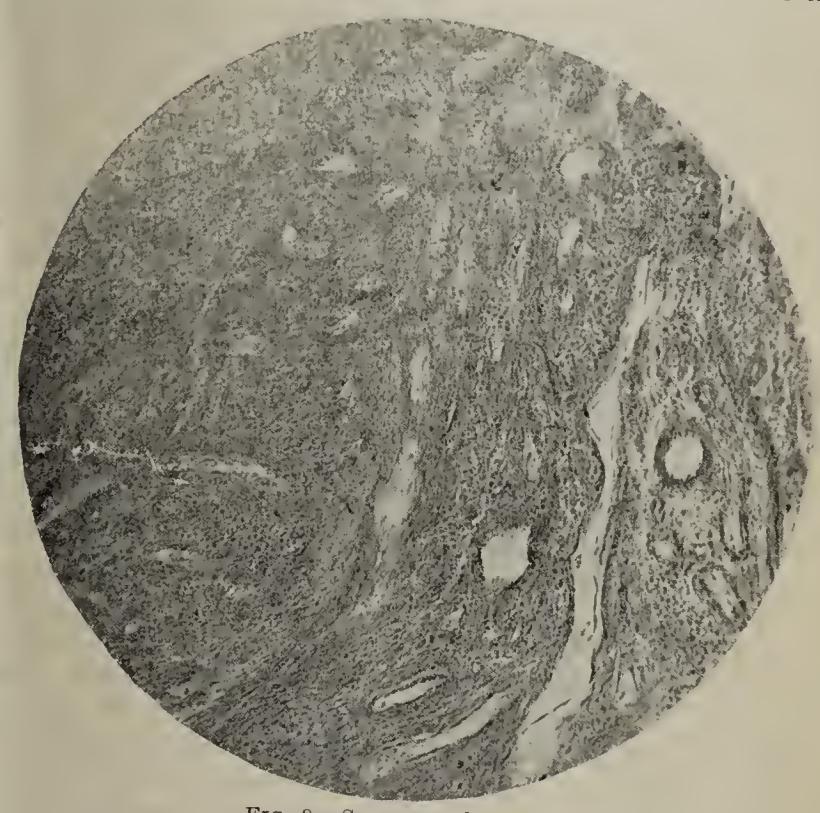


FIG. 8.—Sarcoma of antrum.

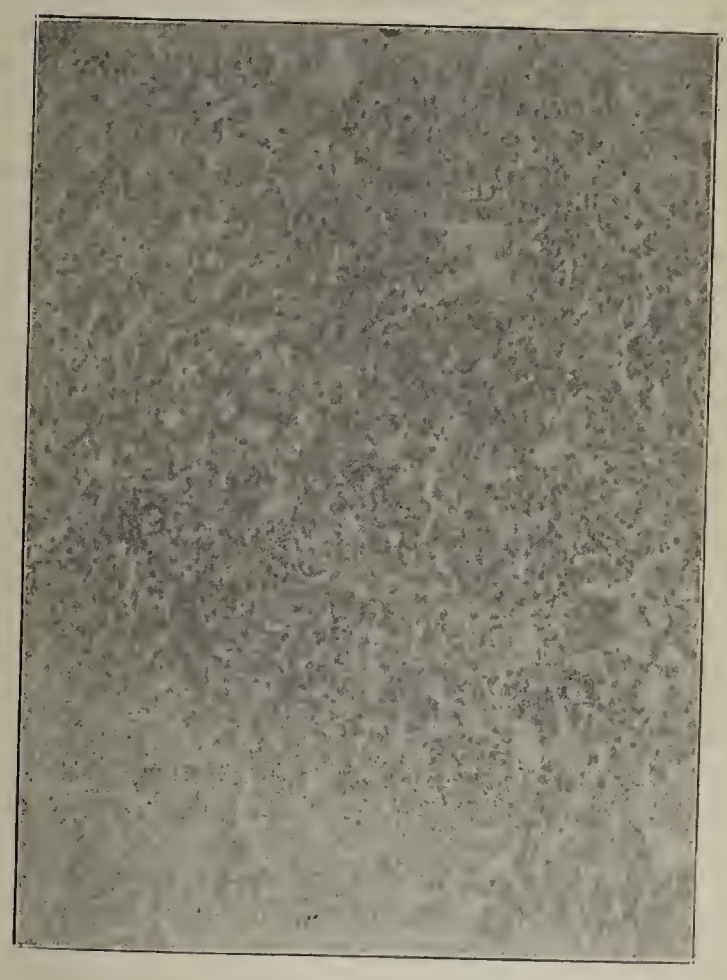


FIG. 9.—Melanotic sarcoma. (Neck.)

tooth extracted. This was done, and after the somewhat profuse hemorrhage which followed the pain was better. The swelling, however, did not disappear, and I saw the case upon recommendation of his family physician. The unilateral

bulging of the antrum and upward displacement of the eye-the slight amount of pain, together with the history and previous treatment led to a diagnosis of sarcoma of rapid growth. I gave the patient an unfavorable prognosis and urged a speedy removal of the upper jaw, which was done. When the soft parts were laid back the disease was found to be very extensive, requiring removal of the whole superior maxilla and malar bones, the zygoma and part of the temporal and masseter muscles. Hemorrhage was very severe, but was controlled by iodoform packing and tincture benzoin comp. In spite of this bold and severe operation the disease recurred and the patient died from exhaustion.

The microscope showed the tumor to be a small round-celled sarcoma.

Melanotic sarcoma of the neck (Fig. 9).—This specimen is from the neck of a woman 29 years old. It was situated at the angle of the jaw on the right side. The history is, briefly, that she had a dark brown pigmented mole in the above location, which annoyed her so much that she frequently "picked" it. About one year ago the mole seemed to be growing larger, but the patient was not alarmed until four months ago, when it commenced to increase in size very rapidly, to look inflamed, and to cause much shooting pain. Upon advice, the patient had the growth removed, which was done through an elliptic incision on each side at least one inch distant from the periphery of the growth.

As is well-known, pathologists are undecided as to whether this is a sarcoma or a carcinoma, though undoubtedly we possess both varieties. Sections were made in celloidin, paraffin and by freezing, the two last-named giving the best results. The majority of the sections show the tissue cellular in type, of mixed sizes and shapes, some with and some without pigment granules in the protoplasm, separated from each other by a variable amount of intercellular substance showing in some places a distinct fibrillation. In some places the pigment cells seem to invade the epidermis, as though the epithelium might be implicated in the growth, which layer is in connection with the cellular elements, and then further gives way for the usual normal subcutaneous connective tissue layer. The epithelium is not seen to be taking part in any of the growth, but here and there masses of sebaceous epithelium can be seen. The chief peculiarity of the growth is its superficial location and extent in a lateral direction.

The origin of the pigment is indefinite, the origin from blood being affirmed by Dressler, Kolaczek and Rindfleisch, and denied by others. Pigmented sarcoma cells do not fibrillate, which fact explains the great malignancy of melanotic sarcoma. The fibroplastic part of such growths is always made up of spindle cells which are not pigmented (Senn).

808 Morse Avenue.

SOME LITTLE POINTS IN SURGERY.

Read by request at the Twenty-sixth Annual meeting of the Southwestern Kentucky Medical Association, May 11 and 12, 1897, at Paducah, Ky.

BY E. B. SMITH, M.D.
DETROIT, MICH.

In preparing this paper I have endeavored to make use only of such points and suggestions as have come up before me in my every-day practice, and which I believe, are of daily thought and study to every surgeon who is actually engaged in relieving the suffering of humanity.

I am quite sure you will all agree with me that the little points in the practice of our profession are of pre-eminent importance. Of themselves, they are able to make or mar our success, according to our attention to or neglect of them.

In an injury to the head we must take into consideration every minute point, weigh each well and proceed as our best judgment dictates. If we suspect fracture of the skull we should examine the ears, and if a discharge is present, its nature should be noted, for on this—whether it be blood, the cerebro-spinal fluid or a mixture of them—will depend our diagnosis and prognosis to a large extent. The pharyngeal space and posterior nares should not be overlooked, and lastly, every surgeon should be conversant with the use of the ophthalmoscope and be able, roughly, to determine some of the more commonly occurring pathologic conditions of the fundus of the eye, such as choked disk, neuritis, hemorrhage, detachment of retina, and albuminuric retinitis, which conditions are liable to occur in cerebral apoplexy, meningitis, brain tumors, Bright's disease, and injuries to the head.

In all injuries about the body the positive, brilliant diagnosis is made by considering every little point; for example a man has been crushed between two heavy bodies and the head of the femur is thought to be involved. Everything that bears upon the question must be fully considered, and it will be found that the simple, plain little points will reveal the certain diagnosis. The position of the limb here, as in almost all fractures of the long bones, will indicate to the experienced surgeon, almost at a glance, just what the condition is. Yet it is well to fully corroborate the testimony of the eyesight with every means of evidence available. The result will then be safe.

In compound fractures a little point of importance is to make the right traction so as to fully reduce the fracture and yet produce as little secondary injury to the parts as possible, especially to the nerves and blood vessels. More than once I have hooked my little finger, rendered as thoroughly aseptic as possible, between the bones and soft tissues and used just enough traction to push the fractured end of the bone back into its original position. Again, it is a nice little point to know just how to cleanse and remove all débris from the wound. I always carry, both in my dressing and my surgical case proper, some fine rubber tubing. This can be made quite aseptic in a few minutes and an extemporaneous syphon made in as short a time. A sterile, neutral, alkalin or antiseptic solution can be prepared while the injured parts are being uncovered. I then apply to the wound my rubber tubing syphon, in one end of which a glass nozzle is fitted, in such a way that the inflow of water will drive out and not wash in the foreign material. In applying dressings it is a nice little point which comes only with practice to know just how snugly to draw them so as not only to hold the parts in position but give the patient perfect rest without pain. When the injury to the limb is below the middle third it is a good plan to pad the distal end well and begin the application of the bandage close to the extremity, bandaging somewhat firmly here, and as the bandage goes nearer and nearer to the wound making it slacker and slacker until the injured tissue is reached, when the bandage ought to be drawn only snug enough to simply hold the dressings firmly in place. I think the tendency is to apply too much dressing to stumps after amputations, and to extensive injury of soft tissues. I apply just as little as is consistent with the requirements of the case. When the patient is at home, with good atmosphere and sanitary surroundings, I am still more careful to apply as little dressing as possible.

In compound comminuted fractures the question is how many of the small fragments of bone to remove and how many or what to leave. It is good practice after having thoroughly cleansed the site of injury, to leave the cancellous pieces near uninjured cancellous bone, and to leave in place all peripheral portions which are attached to the periosteum, and thus if possible make the contour of the bone almost if not quite normal. One of the recognized procedures of modern surgery, when we have an extensive wound, be it operative or from accident, is to cleanse it with some substance that is as non-irritating as possible. The strong irritative solution of mercury bichlorid of the earlier practice in aseptic and antiseptic surgery is practically a thing of the past. For a thoroughly reliable antiseptic solution for irrigating wounds which are infected, I am in the habit of using 2 c.c. each of carbolic acid and tincture of iodin to a liter of sterilized water; I then rewash with sterilized water. Simple sterilized water, or sterilized normal saline solution makes an ideal cleansing fluid when we have no reason to suspect infection. For a dry dressing I use sodium chlorid and starch, in proportion of 1 to 4.

When called upon to go hastily to some remote house where an operation of some kind is found imperative, alone and partially unprepared, I usually proceed in the following manner: While my instruments are boiling in a soda solution on the kitchen stove, I prepare the patient. I then appoint three nurses if they can be obtained in the house or from the neighbors. One I assign to the anesthetic; the other two I make head-nurse and assistant, respectively. I then clean my hands, nails and arms, and instruct both nurses to do the same in every detail. I then say to them, "Do not touch anything with your hands or arms except as I direct." I then prepare my needles, dressings and instruments, placing all in a place convenient for picking up as needed; the assistant nurse handles the boxes, the jars and the pans only; the head-nurse may, if necessary, thread needles, cut gauze into convenient strips for sponges and assist me generally; I then put the patient under chloroform, give the inhaler to the nurse I have appointed for this duty, sterilize my hands again and then proceed with the operation.

In repairing the soft tissues, like structure should be brought into apposition with like, severed tendon to tendon, nerve end to nerve end, etc. To do this thoroughly, neatly and well, without too great tension, requires not only a delicate touch, but a firm, steady hand which experience alone will bring. To my young friends who are just entering the field of surgery I would say, "Perform operations on the cadaver, on the dog, the rabbit, anything you can get hold of. Do all kinds of work again and again until you feel that you are master of the situation, then when called upon to care for some unfortunate human being, you can enter the room of the injured or afflicted one with a confidence born of the certainty of success."

Do not use too heavy ligatures nor too large sutures. I wish to urge this very strongly. In my opinion the experienced surgeon can ligate vessels with a comparatively fine silk thread without running the slightest risk of cutting through the vessel; then with a well and neatly tied knot he can cut the ends quite close; and so too in tying off stumps. The point I wish to bring out is that the smaller the foreign substance which we leave in a wound or cavity the less liable we are to have trouble and irritation. In suturing an external wound it is well to remember that all knots should be tied upon one side or other of the incision. If a knot happens to be tied directly over the incision it can as a rule be easily slipped over to one side. The reasons for this arrangement are two. If the knot is left immediately over the incision or cut surface, the ends may dip down between the edges and so prevent primary union. Again, when we come to remove the stitch we can catch the knot with a pair of fine toothed forceps and, with blunt pointed scissors, depress the integument at the stitch hole sufficiently to cut off the suture at some distance below the surface; then making traction on the knot in a direction away from the newly united edges the shortest possible amount of thread is drawn through, saving the patient pain and preventing infection by carrying some of the external part of the suture through the tissue. When placing stitches in a wound or incised surface, great care should be taken not to injure any deep lying nerves or vessels or any organ adjacent thereto by passing the needle too wide or too deep.

When proceeding with an operation, and this applies especially where the blood vessels are numerous and tortuous, for instance about the face, neck, chest and extremities, it is well to have a qualified assistant to compress the important vessels leading to the field of operation. This materially aids in shortening the operation and helps the operator do neater and better work. All vessels from which hemorrhage has occurred should be secured before entering any cavity beyond. I emphasize this point by stating a case of my own, that of a boy suffering from diphtheritic obstruction of the larynx. This case I ultimately lost with a septic pneumonia when a little more care in securing the vessels might possibly have saved his life. The abdominal surgeon realizes the importance of securing all vessels before he enters the peritoneal cavity. The genito-urinary surgeon is careful, when passing through the perineum, to check all bleeding points with ligature, or catch forceps, or to at least thoroughly pack the site of the wound so as to completely control all hemorrhage in this region before entering the bladder. In the operation of perineal lithotomy there is a little point that is well to bear in mind, viz., when the sound is in the bladder, and the incision into the bladder has been completed, it will be very embarrassing to the surgeon to accidentally or intentionally remove both sound and forceps before the calculus has been grasped. It is a very difficult thing to reintroduce them. I would advocate more general blood letting for cerebral apoplexy; for mastoiditis early incision and exploration if necessary; for cellulitis early and multiple incisions. After operations give as little anodyne as possible, none at all is better. Here codein is preferable to morphin, on account of its less depressing, less constipating after-effects. If morphin must be given it is preferable to use the hypodermic syringe. For the pain after an operation involving the brain, give bromids. For abdominal pain after laparotomy give teaspoonful doses of *hot* water and apply hot water to the abdomen, where it can be done without infecting or wetting the wound. Be careful to prevent vomiting after abdominal incision. This may be done by cocain spray to the nares, by laying a cloth wet with vinegar over the face, or by counter irritation over epigastric regions, etc. The pain, after bladder operations, may

be relieved by rectal injections of hot water, or when severe, by a suppository of opium; the same for pain following rectal operations, when not extensive. For preventing the extreme thirst following abdominal operations, it is a good plan three or four days before the operation to commence having the patient drink large quantities of water. In this way you will get rid of much of the thirst which is so intolerable after an extensive operation. There are points all along the road of surgery. Last, but not least, let me try to make a little point on thorough preparation, even in the smallest operations. When opening the smallest abscess, when removing a foreign body however minute, when introducing an instrument of any kind into a wound or into any of the natural cavities or orifices of the body, remember in all cases, to have your hands and instruments surgically clean; look well to the field of operation, see that it is as thoroughly prepared as though you were going to do a capital operation, for more than once you and I have seen disastrous results from not being careful enough.

A MODIFICATION OF THE MURPHY BUTTON.

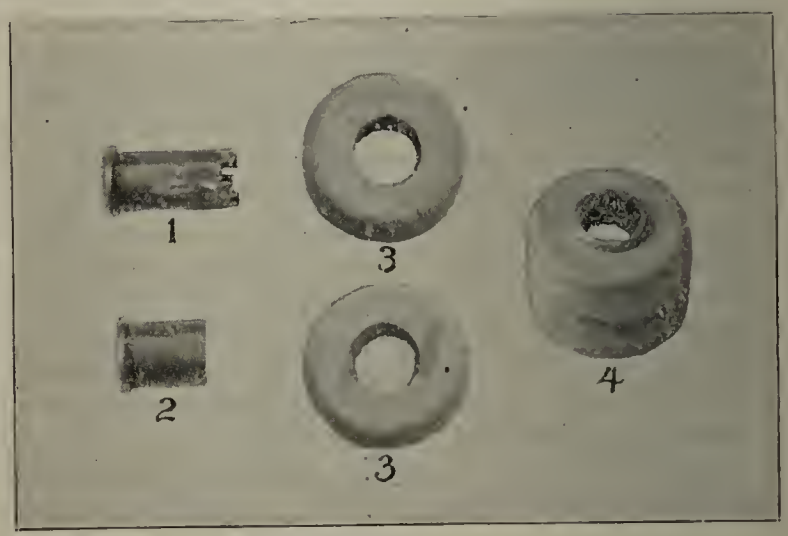
BY ARTHUR E. HERTZLER, A.M., M.D.
HALSTEAD, KANSAS.

The time required to suture the ends of the intestines, and the necessity of pushing in the suture threads after tying the plates, and the uncertainty of an adequate opening, in the use of the decalcified bone plates of Professor Senn; the large size of the body to be extruded, the danger of lodgment and the occasional undue pressure of the spring, in the Murphy button; the time required to make a union by the Czerny-Lembert suture, seem a sufficient apology for continued investigation in the perfecting of a method for uniting the various parts of a digestive tract in case of disease or injury. That many advances along this line have been made is evident, and it is equally obvious that there is still room for improvement. It is with the hope of contributing to this advancement that this modification of existing methods is offered.

The present combination is the result of an attempt to unite the decalcified plates of Senn without the use of sutures. After using various devices, an exploded pistol shell was used. Little strips, two millimeters wide, were cut down the sides and bent outward to form hooks to catch in threads in the female part of the button, as in the Murphy button. The regular lock of the Murphy button was also used, but this locks only about every one-thirty-fifth of an inch, which was not sufficient. I used thirty-two caliber for cats, thirty-eight for small dogs and forty-five caliber for large dogs, in lateral anastomoses and colectomies. Four catches, instead of two, were used on the male portion of the lock, the two opposite acting together. This gives a firm lock and at the same time allows it to fasten every one-seventieth of an inch with a thread of one-thirty-fifth of an inch in the female portion of the lock. This allows accurate coaptation and does away with the necessity of a spring plate, as used in the Murphy button. At first a spring was used. A coil spring was placed between the head of the tube and a shoulder in the disc made to receive it. I found, however, that this is entirely unnecessary, as the slight elasticity of the disc is all that is needed.

Plates of fresh bone of from six to seven millimeters thick are cut into circles a little less in diameter than the gut it is intended to unite. Holes are now drilled just large enough to admit the central tubes. These are made larger and of lighter weight than the central tubes of the Murphy button of the same diameter. The inner side is now reamed out about the central opening for the puckered part of the gut to lie in after the draw suture has been tightened. All edges are now rounded, the discs decalcified and dried between filter paper, under pressure, then hardened in alcohol.

I have made more than a hundred experiments to determine the length of time necessary to decalcify, but the results are still not entirely constant. One difficulty that can never be entirely overcome is the fact that the various conditions of the digestive tract affects the rapidity with which the bone will be absorbed. Still, the results may be stated in a general way. For use in the intestines the discs should be decalcified for four days in a 10 per cent. solution of HCl of twenty-five times the volume of the discs, and changed but once at the end of forty-eight hours. After decalcification is complete the discs should be dried for twenty-four to forty-eight hours between several layers of filter paper, under pressure, and then hardened in alcohol of ascending strength, as in



1. Male portion, showing four catches which are adjusted to work in pairs. 2. Female portion, containing thirty-six threads to the inch on its inner surface. 3. The two decalcified plates separate from the metallic portion. 4. The button closed, showing how the central tubes slip into the plates and then shove together, like the Murphy button.

hardening tissue for the microtome. After hardening they may be kept in alcohol indefinitely. They have no tendency to warp, and are sufficiently firm for the purpose. A disc thus prepared will require about from 3 to 5 days time for absorption enough to take place to release the central tube. Discs intended for use in the stomach should be decalcified for twenty-four to thirty-six hours only, in fluid of the above strength, without change, and then dried and hardened as above described. Such a disc will absorb in from seventy-two to eighty hours. If the animal is given food absorption is hastened, while opium retards the process.

I have tried ivory and, while it is more easily worked, the time required for its absorption is not so constant, and is on the whole less desirable than bone.

Besides the usual rules observed in this class of operations the following points are suggested:

1. In end to end anastomosis the draw stitches should be regularly placed and should not include too much tissue, two millimeters is enough.

2. In gastro-enterostomy a circular patch of tissue,

the size of the central tube, should be cut out of the stomach and intestinal walls. An opening of this size will stretch over the disc and give a snug fit without wrinkles, making a most perfect coaptation.

3. In uniting the two parts of the button, they must be firmly pressed together, tighter than a Lembert suture would be drawn. At the same time the tissue must not be unduly crushed. This is the most particular part of the operation, and if rightly done removes the necessity of a spring, the slight elasticity of the discs, as before stated, being all that is required.

By this method the following points of merit are believed to be obtained in the highest degree:

1. The junction is strong and food may be given at once if this seems necessary.

2. No foreign body remains after union is complete.

3. The small size of the body to be extruded. This is an important point should there be a constriction below.

4. In gastro-enterostomy the button can not become lodged in the stomach and cause trouble. In the stomach the disc becomes digested off first, forcing the remainder into the intestine. Even should the disc, in the intestine, be the first to become absorbed, after the remaining disc is digested, the central tube will pass out readily.

5. It can be as quickly applied as any method known.

6. There are no sharp points in contact with the intestinal wall.

7. The opening is as large, and has as little tendency to contract, as that obtained by any method heretofore employed.

This method has never been used on the human subject, but judging from results obtained upon animals, it seems to leave but little to be desired.

SOCIETY PROCEEDINGS.

American Surgical Association.

Thirty-ninth Annual Meeting, held at New Orleans, April 19, 20 and 21, 1898.

First Day—Morning Session.

This session was devoted to an address of welcome by Dr. J. Holt of New Orleans, announcements of various committees and the reading of the President's Address on

THE FUTURE OF THE ASSOCIATION,

by Dr. T. F. Prewitt of St. Louis.

After referring at some length to the formation and organization of the society, he referred briefly to some of the men who had preceded him in the office of president and particularly to the founders of the Association. He then dwelt upon the character and standing of the present and future members and particularly in reference to their standing and advances in surgery. In commenting upon the achievements of the nineteenth century he referred to the progress of railroads, steamboats, telegraph, telephone, electric light, photography, to say nothing of the rapid strides in surgery, and urged the earnest and cordial co-operation of all distinguished surgical practitioners, writers and teachers in enabling the Association to occupy the proud position its founders destined for it.

First Day—Afternoon Session.

Dr. Charles A. Powers of Denver read a paper entitled

THE QUESTION OF OPERATIVE INTERFERENCE IN RECENT SIMPLE FRACTURES OF THE PATELLA.

The author opened his paper by quoting extracts on the subject of writing by Dennis, Bull, Czerny and Myles and then took up the tests, first structural and second functional, for fracture of the patella. In referring to the mechanism he stated that the majority of his accidents were due to muscular action, the patient endeavoring to save himself from falling, the quadriceps femoris being strongly contracted at the time. In taking up the question of the pathology it was shown that in the fracture due to muscular action there are but two fragments, of which the upper is generally the larger, while the fractured surfaces are as a rule irregular and the line of fractures may be transverse or oblique. In commenting upon the conditions tending to cause imperfect union and the obstacles to union, the author enumerates them as follows: 1. Separation of fragments, due to: *a*. Retraction of the upper fragment from contraction of the quadriceps femoris and a slight drawing down of the lower fragment through a shortening of the ligamentum patellæ. *b*. Effused blood. 2. Tilting of the fragments (this may be present to a marked degree and unrecognizable without operation). 3. Rupture of the tendinous expansion of the vasti and of the lateral portions of the capsule of the joint. 4. Prolapse of the pre-patellar tissues into the breach. 5. Atrophy of the quadriceps femoris due to: *a*. Disuse. *b*. Arthritis. *c*. Marked contusion of the muscles. *d*. Blood extravasated from the joint through the rent in the upper part of the capsule. 6. Arthritis of the knee-joint, this possibly resulting in, 7, adhesion of the patella. Further, though of but little value, may be added, 8, natural poverty of the blood supplied to the bone (rendered negative by the fact that vertical fractures healed satisfactorily), and 9, exceptional tendency to osteitis, seen in fat people, in the aged and in certain conditions of the blood. As to the non-operative management of these cases the speaker considered that no better evidence of the unsatisfactory results attending treatment of fractured patella by mechanical means need be adduced than the great variety of plans and devices which have been set forth from time to time. A few of these devices were referred to, among others the use of properly applied bandages or strips of plaster followed by a splint or plaster-of-Paris dressing, Malgaigne's hooks and the so-called "Dutch" method or massage.

Dr. Powers then quoted at great length from a very large number of personal letters from prominent surgeons all over the United States, each setting forth his opinion and preference as to the treatment of these cases. Elaborate statistics follow giving the results of various kinds of treatment by many different surgeons and showing comparative mortalities from the different methods. The subject was then taken up very fully under the headings of: "dangerous," "limitations attending the operation; selection of cases," "time of operation," "operative procedures" and "immediate and remote results of operative management and comparison of these results with those attained without operation."

Dr. J. D. Bryant of New York, in discussing this paper, referred to the work of the late Prof. Frank H. Hamilton on this subject and, in computing the comparative worth of the different methods, called attention to the importance of the following determining factors: 1, the degree of physical infliction; 2, the duration of confinement in bed as bearing respectively on the comfort, health and business demands of the patient; 3, the character and importance of inherent and acquired complications of respective methods of operation; and 4, the final burdens imposed by the sequels of different plans of cures. The Doctor then discussed these four points at considerable length and again quoted to some extent from the writings of Hamilton. He stated that he was not inclined to the practice of suture in the patella except in instances emphasized by a special indication for that step, but he considered it a justifiable measure in selected cases.

The technic of operations which he at present employs consists: 1, in making a short vertical incision; 2, removing the blood clots from the fractured borders of the bone along with the interposed fibrous tissue that is sometimes present, and cleansing the joint cavity; 3, draining the joint with a few strands of silkworm gut at the outer side; 4, uniting the fracture with a small wire so placed as to cause retention, and proper apposition of the fragments; and 5, closure of the wound, antiseptic dressing and fixation in bed for two weeks, followed by plaster-of-Paris spica and out of bed on crutches.

In conclusion, he called attention to a mechanical method of treatment wholly or in part employed by himself in the treatment of fifteen cases of simple fracture during the last twenty years, for which he claimed: 1, greater comfort and efficiency; 2, less danger and only a week's confinement to bed; and 3, results equal to the best of other mechanical methods. Drawings illustrating this method were shown.

Dr. M. H. Richardson of Boston referred to the importance of good surroundings, good health of the patient, surgical experience and experience in aseptic technic in the treatment of these cases. In his opinion there was no need to open a joint if one could get complete control of extension, and where this is lost owing to extensive laceration, he thought wiring should be seriously considered. He was also of the opinion that the time of confinement in ordinary cases should be six

months. He defined aseptic healing as being an unsuccessful infection and believed that a wound of the knee-joint was especially liable to infection. The wiring of the patella he thought should be considered when the failure of conservative methods had been demonstrated.

Dr. JAMES E. MOORE of Minneapolis, felt that Dr. Powers' paper represented the opinion of American surgeons of the present day and commented on such a low mortality as less than 1 per cent., believing it to be better than the best results reported by using non-operative means. He laid great stress upon the importance of asepsis, proper environment and surgical experience in performing operations about the knee joint and believed that the passage of ligaments around the patella would be more fatal than an open arthrotomy. He was in favor of immediate operation and considered that approximation of the fragments would thus be rendered easier. Referring to the matter of technic, he believes the best results will be gotten by temporary drainage so as to avoid over-distension and interference with circulation. He does not feel, however, as mentioned by Dr. Richardson, that the amount or separation is any index as to the future usefulness of the limb.

Dr. W. S. HALSTED of Baltimore was not in favor of draining in every case, but thought it well to do so when the tissues about the wound were not themselves in shape to take care of the micro-organismal infection. He was in favor of immediately opening the joints and thoroughly washing out, and preferred to at all times wear rubber gloves during these operations.

Dr. POWERS, in closing the discussion, stated that in the body of his paper he had expressed the opinion that if a surgeon felt competent to undertake one of these operations he should feel equally safe in dispensing with drainage.

Dr. NICHOLAS SENN of Chicago, read a paper entitled

THE ETIOLOGY AND CLASSIFICATION OF CYSTITIS.

After dwelling at great length on the anatomico-physiologic construction of the bladder, and referring to its lack of absorptive power, the author took up the question of the etiology, which he divided into, under the head of predisposing causes, retention of urine, unrest of the bladder, abnormal urine, tumors, calculus and foreign bodies, pressure, exposure to cold, venous stasis and trauma. Under the heading of exciting causes, he mentioned first infection to the urethra, infection by the urine, infection from adjacent organs, infection from the blood, etc. He then took up the subject of classification, and after mentioning Guyon's classification, divided the subject into: 1, the anatomic; 2, the pathologic; 3, the clinical; and 4, the bacteriologic. He then subdivided the anatomic into pericystitis, paracystitis, interstitial cystitis and cystitis; the pathologic into catarrhal cystitis, suppurative cystitis, ulcerative cystitis, exudative cystitis and exfoliative cystitis; the clinical into acute cystitis, chronic cystitis, and the bacteriologic into staphylococcus infection, streptococcus infection, bacillus coli communis infection, saprophytic infection, diplobacillus infection, streptococcus erysipelatosus infection, gonococcus infection and tubercular infection. Each division and subdivision was discussed at great length and the details of many series of experiments were outlined in full.

Dr. JOHN PARMENTER of Buffalo, N. Y., in discussing this paper referred to the remark that the bladder did not possess any absorptive power and mentioned his experiment of injecting into the bladders of twelve healthy, eight drops of sulphuric ether in a drachm of water and detecting the odor of ether on the breath within a minute. He also pleaded for greater care in the disinfection of the urethra before sounding and considered that the infection was usually due to a combination of traumatism and micro-organism.

Dr. W. S. HALSTED of Baltimore, referred to the work of Dr. Young, one of his assistants, in this connection, and stated that Dr. Young had found the gonococcus was sometimes present in acid urine, sometimes in neutral and once in alkalin.

Dr. ALEXANDER of New York, took exception to Dr. Senn's statement that the mucous membrane of the bladder was devoid of glands, and mentioned that lymph nodules were almost always present in the bladder and the ureters, giving rise at times to a peculiar inflammation which he had termed nodular cystitis. He also referred to some recent investigations tending to prove that in a proportion of normal bladders in which the middle portion of the prostate was enlarged, accessory prostatic glands were found around the trigone of the bladder. He believed that retention was responsible for most cases of inflammation of the bladder and stated that an appreciable amount of residual urine is found in cases of moderate degree of stricture or a moderate prostatic congestion as a result of sexual hyperemia. Referring to the question of traumatism, he thought this was often due to destructive diseases brought about by the irregular catheterization of the patient, and mentioned that where a patient suffering with prostatic enlargement is catheterized with an absolutely and perfectly clean catheter, still infection will at times take place. He also explained that if a man is catheterized at nine o'clock in the morning, again at five or six in the afternoon and not again until noon the next day, trauma will be produced by over-extension permitting the more rapid occurrence of infection.

Dr. SENN closed the discussion by stating that he thought the appearance on the breath of the smell of ether so quickly in Dr. Parmenter's cases, was due rather to a process of diffusion than of absorption, as he believes the urethra and neck of the bladder possess absorptive power, but that the vesical mucous membrane proper did not.

SECOND DAY—MORNING SESSION.

Dr. W. S. HALSTED of Baltimore, read a paper entitled

OPERATIVE TREATMENT OF CARCINOMA OF THE BREAST.

After referring at great length to a large number of cases seen and operated upon, and giving the statistics of the results for the past nine years at the Johns Hopkins Hospital, he referred in detail to the undescribed, not infrequent, cancerous tumors of the breast, to the relative malignancy of the various breast cancers, to the frequency, significance and treatment of cancerous supra-clavicular glands, and then referred in some detail to the operations themselves as performed by himself and his assistant.

Dr. CHARLES B. NANCREDE of Ann Arbor, in discussing this paper said that he was struck by the large number of cases of cancer of the breast occurring under thirty years of age, and that he had a limited experience of between 200 and 300 cases. A girl in the early part of her 25th year, who unquestionably had the same tumor in her 19th year, was operated on this winter by him. He asked if any one's experience coincided with his as to the large number of cases that occurred before the age of 30 years.

Dr. ROSWELL PARK of Buffalo, inquired what Dr. Halsted's teaching was with regard to endothelioma.

Dr. M. H. RICHARDSON of Boston, referred to the work done by Dr. Halsted, and stated that he had observed many cases where there had been no infection of the axillary glands. In two cases he had made the diagnosis of a tumor merely upon the symptom of pain. He believed that there was usually early recurrence of cases in which the axillary glands were infected. In commenting on the value of gross appearances he referred to a case where the microscopic appearance did not at all agree with the diagnosis, although the clinical appearance proved its correctness. In his opinion three years was not enough to consider a cased cured, as he had seen recurrences in from seven to ten years.

Dr. J. D. BRYANT of New York, stated that he had found enlarged glands in the axilla in some cases where the increase in size was not sufficient to warrant the belief that the glands were infected, until a microscopic examination had been made. He commented on the fact that patients possessing a morbid growth not only very often kept this fact to themselves, but their physicians encourage them in so doing.

Dr. J. MCFADDEN GASTON of Atlanta, commented on the occasional disappearance spontaneously of carcinomatous formation and inquired if constitutional measures employed synchronously had been observed to have any effect.

Dr. ROSWELL PARK continued his discussion by stating that he had for several years been collecting data on the subject of the spontaneous disappearance of tumors and was anxious to get as much information on the matter as possible.

Dr. RUDOLPH MATAS of New Orleans, in discussing this paper, gave a lengthy synopsis of twenty-seven operative cases of malignant disease of the breast or its immediate vicinity, which had come to his notice between the years 1887 and 1898. There were no fatal cases from operative causes. Eleven of the cases are living and well and one has had three recurrences in three years and ten months. In two cases death resulted from accidental causes not connected with the operation. In performing the operations two excisions were done, eight Gross operations and seventeen complete (Halsted and Meyer) operations. One case which survived two years died finally from metastatic cancer of the uterus. The male operated upon is still living, eight years later, and is free from local recurrence. The author then referred at length to fifteen complete operations performed since November, 1894, and gave the results in detail. In conclusion he gave a synopsis of five cases that are living without recurrence, after complete operation.

Dr. F. H. GERRISH of Portland, Me., referred to the work done by Dr. Halsted and to the fact that a recent text book contains scarcely anything on the subject. He then referred

to the various operations which have been performed and showed how, step by step, the present method was arrived at. He considered that one of the most important points was the necessity for the removal of all mammary tumors whether benign or malignant. He also laid great stress upon the thoroughness with which the operations should be performed and the length of time required to do it. After commenting on the hopefulness of the prognosis in these cases at the present time, he referred to the fact that many cases referred to in the author's paper would until recent years have been regarded as absolutely unfit for operation.

Dr. HALSTED, in closing the discussion on his paper, said he was surprised to learn that Dr. Matas had had such marvelous results in operating by the old methods. As to age, he had seen one case at about 28 or 30 years of age and had also had one of cancer of the liver at the age of 21 years. Referring to Dr. Park's inquiry as to the teaching regarding endotheliomata, he said this was a difficult question to answer. These tumors, as far as they go, are believed by some to be alveolar sarcomata, and there are no doubt some examples of sarcomata where evidence is found of endotheliomata, as for example in the parotid and the testicle. With regard to the spontaneous disappearance of tumors, the author remembered one typical case of cancer of the breast in which this occurred, and also a case of epithelioma of the face. With regard to the non-involvement of the glands of the axilla, different surgeons had different experiences and no rule could be laid down on the matter.

AN INQUIRY INTO THE ETIOLOGY OF CANCER WITH SOME REFERENCE TO THE LATEST INVESTIGATIONS OF THE ITALIAN PATHOLOGISTS,

was presented by Dr. ROSWELL PARK of Buffalo, who stated that to attack this problem successfully pathologists of the future must begin by studying tumor formation in the vegetable world before studying it in animals, *i. e.*, the comparative method of investigation must be adopted, as the xylomata or woody tumors are so exceedingly common that they have failed to attract the attention which they deserve. The lipomata are the most frequent, frequently multiple, usually symmetric and of traumatic origin. The fibromata are usually of traumatic origin and the majority contain foreign bodies which have acted as the exciting cause. The myofibroma of the uterus is, strictly speaking, a leiomyoma and, according to Billroth, always commence by formation around a small blood vessel. Chondroma is most common in infancy and childhood and practically inseparable from rickets. Osteoma is often seen as an exostosis or as an ossification. Adenoma frequently becomes converted into carcinoma. The only two theories worthy of consideration in reference to malignant tumors is the embryonal and parasitic. In the vegetable kingdom it is hard to distinguish between various grades of malignancy, but nevertheless that tumors kill a large proportion of trees and shrubs will not be disputed by those who have studied the subject. Cancer has been happily defined as an abortive attempt of gland epithelium to reproduce itself, and sarcoma is a similar process pertaining to mesoblastic cells. It used to be taught that cancer was exceedingly prevalent at certain ages, but the author stated that, living in a region where cancer is exceedingly prevalent, he had witnessed the ravages of the disease in many relatively young people.

Among the many clinical considerations pointing to the study of cancer the writer mentioned influence of sex, age, brunette or blonde, heredity, size of heart, arteries and lungs, and geographic locality. As to the influence of sex, Dr. Williams has found that for every 100 males dying of cancer, 225 females perished from the same disease. With regard to age, the most prolific cancer-producing age is between 55 and 65 years. Williams has also found that, at least among females, the disease is twice as frequent in brunettes as in blondes, while Beddoe states that red haired individuals are the most exempt of all. As to heredity this is one of the most vexed questions, and opinions differ very much. Patients with large hearts, arteries and small lungs are often the subject of cancer, whereas in tubercular patients the opposite is true. Speaking geographically, cancer is certainly on the increase in certain parts of the world, and so true is this that the neighborhood of Buffalo, N. Y., has been termed "tropic of cancer."

The question has often risen as to whether cancer can be disseminated through the agency of insects and whether water, especially in the neighborhood of woods, could act as a medium of transport, which it is believed is at present conceded. Up to the present time experimental auto-inoculations have practically failed.

Taking up the subject from a historic standpoint, the writer, with Roncali, divided the past few years into four periods, *i. e.*, The period of inaccurate observation and erroneous conclusion which began with Nepveau in 1872; the period of accurate observations and inaccurate conclusions, which is essentially the coccidial period and began with the discovery by Halle, Virchow and Gubler of protozoa in human tumors; third, the iconoclastic period of doubt as to the accuracy of all past researches, beginning with Russell's work in 1890 and ending with the research of Banti and Nisser in 1894; and the period of successful inoculation, practiced for the most part by Italian pathologists. As an illustration of Roncali's method of securing cultures, he prepared in one case sixty tubes of distilled water containing a little sugar and acid, and in each of them he placed small bits of tumor cut with a sterilized knife. These were kept at 37 degrees C. for ten days, when surface growths were found upon thirty-seven of them, which when examined in the hanging-drop were easily recognized as blastomycetæ. In conclusion the author stated that when it comes to the detection of fungi in microscopic sections the methods are more or less complicated and require considerable training in special manipulation and observation and gave in detail two methods for this work.

Dr. J. MCFADDEN GASTON of Atlanta read a paper entitled

REMEDIAL MEASURES IN OBSTRUCTION OF THE COMMON BILE-DUCT.

He said that cases of jaundice which result from the temporary closure of the common bile-duct are usually left to the treatment of the physician and yet are the precursors of derangements which require surgical interference. They commence with functional disturbance, but terminate in organic derangements. Murphy lays great stress upon the relief of jaundice by pilocarpin. The reliance of the greater number of practitioners for relief in this class of cases has been, and continues to be, upon the phosphate of soda. But there have been more good results claimed from the employment of olive oil internally than from any other remedy of this class. After exhausting medicochirurgic means of treatment for biliary complications, without arresting obstruction of the common bile-duct, the surgeon is confronted with conditions calling for operative interference. There may exist a stenosis or stricture of the walls of the duct, without occlusion of the canal, dependent upon inflammation, or there may be a partial obstruction of the lumen of the duct from the presence of a gall-stone which permits the bile to pass around it to a limited extent. In some cases Fenger has demonstrated that a gall-stone may be so located as to form a valvular closure. Though an outlet may be artificially provided for the bile by connecting an opening in the gall bladder with one in the abdominal wall, there is not always relief to the cholemia, and its effects upon the general health of the patient continue even to a fatal termination. In a case presenting no enlargement of the liver, the incision should be made on a line an inch and a half below the border of the costal cartilages, and should be about three inches in length. He said that he had elsewhere given an unfavorable opinion in regard to exploratory puncture, and does not consider it entitled to recognition as a means of diagnosis or measure of treatment. The various measures recognized for the relief of construction of the common duct by gall-stones are, breaking up of the calculi by the needle, crushing by padded forceps, forcing them into the gall bladder or duodenum, catheterization and excision through the walls of the duct. In some cases it is impracticable to attach the gall bladder to the parietal opening or to suture the incision in the wall of the duct when a stone is extracted, and thus it becomes necessary to provide for drainage by packing with gauze around the field of operation, leaving the ends of the strips extending out of the wound.

In doing operation upon three white women for obstruction of the common bile duct, by forming a fistulous opening for the bile externally, the cholemia persisted in an aggravated form until death supervened in each case. In some conditions of temporary impediment to the flow of bile through the duct into the duodenum, the attachment of the incised gall bladder to the parietal opening has relieved the obstruction and been followed by the restoration of the bile. It is in order to state that only in complete occlusion of the duct, which has proved intractable to other procedures, has an artificial opening from the gall bladder or common bile duct into the alimentary canal been thought proper. This anastomosis is effected in various ways, either with the duodenum, the small intestine or the colon, the last named being least desirable, as it fails to secure the advantages of the bile in the process of intestinal digestion. My experiments upon dogs demonstrated the feasibility of this fistulous communication of the gall bladder with the bowels, and it is a matter of minor importance by what process it is accomplished.

The statistics in the past show that the various modes of procedure are comparatively free from danger and are attended with a marked degree of success, so that we may reasonably expect cholecystenterostomy to be recognized as a safe and efficacious recourse in the future annals of surgery.

Dr. H. W. CUSHING of Boston, read a paper entitled

TRAUMATIC RUPTURE OF PANCREAS; FORMATION OF HEMORRHAGIC CYST; OPERATION FOLLOWED BY A PANCREATIC FISTULA AND RECOVERY.

He reported a case in which a blow on the abdomen had caused a rupture of the pancreas followed by the rapid formation of a larger pancreatic cyst simulating closely an abdominal aneurysm. Four weeks after the injury he evacuated the cyst through an abdominal incision and drained it. The wound in the pancreas was found near the mental tubercle, but the critical condition of the patient contraindicated any attempt to suture it. For two days the patient was quite dangerously ill. On the third day following the operation a subphrenic abscess was evacuated through a bronchus and the patient rapidly recovered. There was a profuse discharge of pancreatic fluid from the abdominal wound. The cyst contracted rapidly to a small sinus, which healed on the seventy-seventh day after the operation. The case during its convalescence furnished the rare opportunity for an investigation of pancreatic fluid in a human subject. This showed a fluid strongly alkaline; specific gravity 1011 instead of 1030 as is usually stated. It removed the epidermis of the patient whenever it came in contact with it, causing great discomfort. It did not effect the peritoneum. The rate of secretion was measured and varied from 5 to 60 c.c. for an hour. The maximum was during digestion. The total daily amount was 500 to 660 c.c., or double the amount generally stated by physiologists. The complete analysis and the physiologic reactions were reported in full. The patient when last seen, fifteen months after the injury, was well and showed no functional disturbance of any alimentary process.

Dr. W. W. KEEN of Philadelphia, spoke of the rarity of these cases, and mentioned one occurring in his own experience. In this case there was no wasting of the patient, no sugar in the urine nor any fatty stools. He believed that ordinarily one should be content to simply open and drain.

Dr. W. S. HALSTED of Baltimore, referred to four or five cases of pancreatic cysts occurring in his practice.

Dr. T. F. PREWITT of St. Louis, commented upon a case of enlarged spleen which came under his observation fifteen years ago. Upon operation it was found that a cyst of the pancreas was connected with it. The cyst was tied off and the woman made a perfect recovery. A second case was that of a patient who had been in bed for four months and had lost much flesh. Upon cutting down in the median line over a swelling, much pus and fluid was found, and it was observed that the tumor extended to the backbone, necessitating a counteropening. A large calculus was found and removed, and was believed to have been the cause of the trouble. This calculus was supposed to be pancreatic in origin.

Dr. N. B. CARSON of St. Louis, read a paper entitled

CEREBELLAR TUMORS.

He stated that his object in reading the paper was to add somewhat to the literature on the subject, and to call attention to a symptom which has been much overlooked or neglected, namely, the so-called "Cranial Cracked-pot Sound" due to separation of the sutures from internal pressure, caused by the accumulation of fluid in the brain cavities produced by the closing of the latter or pressure upon the veins of Galen or both. After referring at some length to the history and treatment of four cases in which this sound was present, he stated that this sound must not be mistaken for the high pitched sounds present in some cases of brain tumor. It is not necessarily a sound of childhood either, but may be present at any period before the sutures have become permanently united. In an analysis of forty-nine cases of cerebellar tumors the author had found mention made of the presence of hydrocephalus in twenty-two of them, which makes this sound an even more important symptom. In an examination of the literature Dr. Carson could only find reference made to this "Cranial Cracked-pot Sound" twice, which led him to conclude that the symptom had been overlooked.

Dr. W. W. KEEN of Philadelphia, in discussing this paper stated that the first time his attention was called to the sound was by a patient who had noticed it when feeling his head soon after fracturing his skull by falling through the roof of a veranda. He believed it would be found to be a symptom of value, especially where there was doubt as to the existence of the fracture and the necessity for operation. As to hydrocephalus, he had observed this in many cases in the acquired form and moderately early for some years past. Where the edges of the bone have separated it is impossible to get this sound, but early in the case it may be gotten and heard as much as ten feet from the patient. In his opinion it should receive more attention in the future.

Dr. DEFOREST WILLARD of Philadelphia, referred to a case of hydrocephalus recently brought to his office, in which the existence of a cerebellar tumor was suspected. And in this case the sound was absent, although it could hardly have been expected, as the child was less than a year old. There was total lack of cerebral development and extreme rigidity of all the muscles of the body.

Dr. CARSON stated that it was true that this sound was only present in cases of acquired hydrocephalus and extensive fracture of the skull. He agreed with Dr. Keen that where the sutures are widely separated the sound is not likely to be elicited.

Dr. W. W. KEEN of Philadelphia, read a paper entitled

CASE OF APPENDICITIS IN WHICH THE APPENDIX BECAME PERMANENTLY SOLDERED TO THE BLADDER, PRODUCING A URINARY FECAL FISTULA.

The case occurred in a man of 24 years of age, from whose urethra, at the age of 7, a pin was removed, no history of the insertion of which was obtainable. Some years subsequently the patient suffered from a supposed abscess of the prostate, from the spontaneous bursting of which a fecal fistula was established between the bladder and the rectum, and several attacks of cystitis followed. Numerous efforts were made to locate the two ends of the fistula, and the conclusion was reached that the rectal end was very near the surface. At the age of 25 years he was first operated on and a perineal section done, but the fecal fistula still continued. The formation of an artificial anus was then decided upon, the result of which was not altogether satisfactory, fecal matter frequently passing into the bladder before any was passed out of the artificial anus, and after eating strawberries the seeds were found in the urine before any escaped from the anus. These facts seemed to indicate that the fistula was between the bladder and some point in the intestinal tract considerably above the site of the artificial anus. The third operation was consequently performed and a very long appendix found dipping into the pelvis, the tip lying just behind the prostate and solidly incorporated into the wall of the bladder. A cuff of peritoneum was dissected from the appendix and used to cover the stump and the meso-appendix was then divided. The cecal end of the appendix was treated in the same way and the abdominal wall closed without anything being discovered in the way of a point of connection between the bladder and the bowel. Subsequently a fourth operation was performed to close the artificial anus and to destroy a spur which existed at the site of the anus, so as to destroy the entire caliber of the bowel. Shortly after leaving the hospital attacks of vomiting and constipation occurred and twenty-four days after the last operation the patient died. At the necropsy, twenty-seven hours later, the one striking fact observable was the absolutely black color of the small intestines in the lower part of the abdomen, and examination showed that seven or eight feet of the ileum had been rotated to the right in one vast volvulus. Its mesentery formed a band which stretched across the ileum just before it joined the cecum, and this had evidently obstructed the ileum sufficiently to cause gangrene.

The diagnosis of a prostatic abscess was a very reasonable one as so long an appendix dipping into the pelvis and anchored by its meso-appendix immediately behind the bladder and a terminal appendiceal abscess so close to the prostate might well be mistaken for this condition. The possibility of the involvement of the appendix never occurred to those in attendance. Although appendicular abscesses bursting into the bladder are not at all uncommon, I know of no case in which the appendix has been so thoroughly united to the wall of the bladder as to form, as it were, a third ureter. While it may be said that a fifth operation in the form of an exploratory abdominal section should have been done, the uncertainty of the diagnosis, together with the fact that the patient had been operated on so much, caused me to refrain.

Dr. ROSWELL PARK of Buffalo, referred to two cases in which pins had been found in the urethra, and in neither case could the patient explain how the pins got there, but he believed they had probably been swallowed. He stated that he had oftener found pins in the appendix than grape seeds.

Dr. N. B. CARSON of St. Louis, mentioned one case in which a pin had been found in the urethra. He also referred to a case of remarkably long appendix. It was a horse-shoe shape and he thought it was the longest on record, being about thirteen inches.

Dr. KEEN, in closing, said it was quite possible that the pins had been swallowed.

Dr. Geo. R. Fowler of New York, read a paper entitled

THE USE OF ANIMAL TOXINS IN THE TREATMENT OF INOPERABLE MALIGNANT TUMORS.

He discussed the subject under various heads, among others, "The Cure of Malignant Disease by Accidental Erysipelas," "The use of Septic Products of the Streptococcus Erysipelatis," "The Use of the Mixed Toxins of the Streptococcus Erysipelatis" and the "Bacillus Prodigiosus, "The Dangers of the Treatment," "The Condition of the Tumors under the Influence of the Erysipelas," "Treatment with the Toxic Blood Serum of Animals Infected with Streptococus Erysipelatis," "The use of the Venom of the Cobra Capella" and "The Influence of Artificially Produced Suppuration upon Malignant Growths." This paper being read by title was not discussed.

A paper by Dr. L. C. Lane of San Francisco, on the "Hypertrophy of the Prostate Gland and Suggestions in Regard to its Treatment," was read by title.

After giving the location and average size of the normal gland together with its principal constituents, the author referred briefly to various palliative methods of treatment as well as operative. He believed that castration would have a permanent place in the treatment of prostatic enlargement in the future. He then quoted briefly from two cases upon which he had operated, one of whom died and one recovered.

Dr. Morris H. Richardson of Boston, read by title a paper entitled "Rapid Disappearance of an Apparently Hopeless Sarcoma of the Scapula with an extensive Streptococcus wound Infection;" also a paper entitled "A Case of Violent Streptococcus Infection of an Amputation Wound, with Three Months' Treatment by Antitoxin Injections of a Round Celled Sarcoma of the Ankle."

Dr. David W. Cheever of Boston, read by title a paper on "Some Cases not Operable."

THIRD DAY—MORNING SESSION.

This was devoted to Council and Executive Meetings.

AFTERNOON SESSION.

Dr. T. F. Prewitt of St. Louis, read a paper on

GUNSHOT INJURIES OF THE SPINE, WITH REPORT OF A CASE.

He referred in detail to a case of fracture of the spine due to a gunshot injury, resulting in recovery. He then quoted at length from a number of prominent authors on the subject of operative interference in these cases. He divided gunshot injuries of the spine into three classes: 1, those that simply fracture the arches; 2, those that invade the canal, crushing the cord and damaging the vertebra, and 3, those complicated by serious injury to abdominal or thoracic viscera. He then gave some particulars of cases referred to by various surgeons with the results, and stated that he had tabulated forty-nine cases treated since the aseptic era, of which twenty-four were subjected to operation, with eleven recoveries and thirteen deaths. The conclusions reached by Dr. Prewitt were: 1. That it is the duty of the surgeon to advise immediate operation in all cases of gunshot wound of the spine, provided the wound has involved the posterior or lateral parts of the spine at an accessible part, unless the condition of the patient is such as to indicate clearly that he is hopelessly crippled. 2. To wait to see whether nature is competent to restore the damage is to wait until irreparable damage has been done in many cases and rapid degenerative changes, meningitis and myelitis have resulted. The delay permits of the continuance of the conditions, the removal of which is the purpose of the operation. These considerations apply with greater force, if possible, in gunshot injuries than in others. 3. The presence of complications due to penetration of the great cavities and injury of the viscera will influence the question of operation, but not necessarily forbid it. At the end of the paper there was a very extensive tabulation of cases.

Dr. W. W. Keen of Philadelphia, expressed his belief in operating for gunshot injuries of the spine unless the indications pointed to a total transverse lesion. He doubted very much the probability of such a lesion unless it was proved that the patellar reflexes were entirely absent. He stated that some years ago, when looking up the question of the surgery of the spine, he observed that there were very few cases reported of suturing the spinal cord, and in no case was it thought that good resulted. In general he was of the opinion that if there was not a transverse lesion, suturing was not advisable and he doubted its efficacy.

Dr. Maurice H. Richardson of Boston, referred to the difficulty of diagnosis in these cases as to the exact condition of the spinal cord and expressed himself as very undecided what to do when accidents happened to this region.

Dr. H. F. Burrell of Boston, did not think it possible to come to a proper recognition of these cases until the pathologic condition in the cord as the result of the injury was clearly understood and the only way to understand it was by opening up and examining, except in the case of shock, when this procedure would be contraindicated. He referred to the case of a woman whose spine was doubled on itself by jumping from a window, from which injury she died thirty-six hours later, after being completely paralyzed from the time it happened. At the autopsy there was no compression of the cord although red softening had already begun, thus proving that if any operative interference is to be attempted for the removal of a clot, bullet or fragment of bone it must be done immediately. Although the mortality will doubtless be very great there will be a certain number of cases terminate favorably. In 1894 he presented to the British Medical Association some statistics on this subject which he divided into those extending from 1864 to 1886 and those from 1887 to 1894. During the former period the cases had been treated by immediate rectification of the deformity by force with a percentage of eighteen recoveries out of one hundred cases. The second group was treated by immediate suspension followed by the use of plaster-of-Paris, with the result that 28 per cent recovered, an increase of 10 per cent.

Dr. N. B. Carson of St. Louis agreed with Dr. Burrell that a certain number of cases would no doubt recover after operation. He mentioned a case of a man who was caught by the neck and pulled forward while trying to enter a low doorway riding on a load of hay. Complete dislocation of the spine resulted with loss of sensation and retention and paralysis of the bladder. Upon the patient consenting to an operation he was immediately suspended by the Sayre's suspension apparatus and dislocation was reduced. Immediately thereupon there was collapse and loss of consciousness. The man was at once lowered and after being well padded left alone. Later a plaster-of-Paris jacket was applied and an excellent recovery resulted.

Dr. P. S. Conner spoke in favor of exposing the damaged part in order to ascertain the exact character of the injury and to remove anything that might be pressing upon the cord. He did not believe that the symptoms ordinarily clearly indicated the character of the lesion and although the mortality from operation would be heavy he considered that a moderate amount of gain was preferable to an excessive amount of loss.

Dr. F. S. Dennis of New York referred to the publication from him, some time since, of a number of cases treated with the plaster-of-Paris jacket, in which excellent results followed. He strongly urged the ministration of large doses of the iodid of potash during the time the patient was wearing the plaster as he believed it had great advantage and benefit on the absorption of the clot.

Dr. Carson again spoke on this paper and stated that he was not very much impressed with the results obtained by the use of the plaster-of-Paris jacket, especially if applied after inflammatory changes had taken place.

Dr. W. H. Carmalt said he should have no hesitation in operating in the case of gunshot wound in order to prevent infection. He quoted one case where operation was refused and the patient recovered after simply being treated by the application of the plaster-of-Paris jacket. A second case, where operation was also refused and in which practically the same symptoms were present was treated in the same way and died in three days so that he did not believe surgeons were at present in a position to formulate any rules on this subject.

Dr. Burrell again discussed Dr. Prewitt's paper and commented upon the case reported by Drs. Carson and Carmalt. He believed that sometimes there is a reunion of the fibers of the cord by the formation of connective tissue, which is subsequently absorbed.

Dr. W. H. Halsted of Baltimore, agreed with the previous speakers and stated that he had only had one successful case.

Dr. Prewitt closed the discussion by referring to the excellent work done by Drs. White and Burrell on this subject. In his opinion such fractures as those referred to by Dr. Carson should be called simple fractures, ofttimes resulting from a displacement of the body of the vertebra itself. It is quite possible for dislocations to cause pressure on the cord without there being any fracture, especially if the lamina be fractured. Gunshot wounds, he stated, are always compound and local, and he believed the great difficulty in determining what to do for these cases was the fact that one did not know the exact condition present, and this could only be ascertained by cutting down upon the cord. Seeing that most of the cases would die anyway, he did not think any harm could be done by opening up and disinfecting the wound. If the likelihood of meningitis can be lessened, the benefit of the doubt should certainly be given to the patient. He then referred to cases reported by

Cooper and especially to one reported to Hawley where the man lived for five and a half years after a gunshot injury, subsequently dying from irritation caused by the fragment of bone. Had these been removed the man would probably have lived many years longer. With regard to the complete severance of the cord he thought the condition of the case reported by Dr. Briggs pointed strongly in this direction as pain, sensation and motion immediately appeared after the suturing of the cord whereas all had been absent before. He did not believe in waiting several weeks before operating but was in favor of immediate interference.

He reported having seen good results in several cases from the application of the plaster-of Paris jacket and quoted the statistics of Dr. Burrell in this connection. He would not urge operative interference where it was apparent that pressure was not being exerted upon the cord but he believed that in gunshot injuries one would almost always find spicules of bone and pieces of lead long after the accident. In conclusion he agreed with Erichsen that but little harm could be done by operation anyway and if a few cases could be rescued it was worth doing.

The following papers were read by title: "Nosology and Morphology of Tumors, True and False," by Dr. Souchon of New Orleans. "Radical Cure of Femoral Hernia in the Light of Recent Methods," by Dr. Rudolph Matas of New Orleans. "A Case of Fecal Communication," by Dr. Geo. R. Fowler of Brooklyn.

Dr. JAMES E. MOORE of Minneapolis, read a paper entitled

HYSTERIA FROM A SURGICAL STANDPOINT.

He said that hysteria is so frequently met with in surgical cases that the surgeon must always be on the alert or he will be guilty of grave errors in diagnosis and prognosis. Hysteric symptoms frequently develop as a post-operative complication. Rise of temperature following operation may be purely neurotic. He cited some cases. Persistent hiccough, cough, or emesis following an anesthetic may be hysteric. Cases of hysteric aphonia following an operation in an adult male. Phantom tumors mentioned. The surgeon shall be careful in operating upon or advising neurotic females in whom the subjective symptoms are out of all proportion to the objective, because they will often be willing to submit to grave surgical proceedings when their sufferings are purely imaginary. Such patients frequently derive morbid pleasure from an operation. These patients are better subjects for the osteopaths and Christian scientists than for the surgeon. The author cited a case in which the patient had had several operations performed and who was willing to submit to an operation for appendectomy although she had no appendicitis. Hysteric hyperesthesia, anesthesia, paresis and seemingly complete paralysis may be so mingled with real pathologic conditions as to mislead skilled diagnosticians. Patrick's method of diagnosticating hysteric hyperesthesia or anesthesia by means of the shifting border of the affected area he found helpful in diagnosis. The surgeon meets with hysteria most frequently in joint and spine ailments. Hysteric joints are a close resemblance to diseased joints and should always be remembered by the surgeon to avoid mistakes in diagnosis and prognosis. The hysteric joint usually follows an injury. There is slight atrophy, no local rise of temperature or it may be subnormal; no marked swelling but may be slight puffiness; marked restriction of motion, but is voluntary in character and readily overcome when the patient's attention is directed to something. The muscular spasm is different in character and more pronounced than that from tuberculosis. The deformity is often exaggerated and often differs from that of disease. Hysteric joints are most common in hysteric persons, but may occur in persons with no such history. A hysteric patient may develop a tubercular joint. Prognosis in hysteric joints is good, organic changes rarely if ever present. Suggestion is a valuable means of treatment. Correction under anesthesia is recommended. Cutting operations are not necessary. Cord changes do not occur from hysteria. Hysteric spine is easily diagnosticated because it does not resemble deformity from disease. A number of cases were reported illustrating hysteria as met with by the surgeon.

The following officers were elected for the coming year:

President, W. W. Keen of Philadelphia.
First Vice-president, A. Vanderveer of Albany.
Second Vice-president, C. H. Mastin.
Secretary, H. L. Burrell of Boston.
Recorder, DeForest Willard of Philadelphia.
Treasurer, G. R. Fowler of Brooklyn.

Delegate to the Association of American Physicians and Surgeons, Wm. H. Mastin; Alternate, F. H. Gerrish of Portland, Maine.

Place of next meeting, Chicago, Ill., at a date to be determined later.

Medical Association of Georgia.

Proceedings of the forty-ninth annual meeting, held at Cumberland Island, April 20, 21 and 22, 1898.

FIRST DAY—AFTERNOON SESSION.

The Association met at 2 P.M. in the Auditorium of the Georgia Teachers' Association, and in the absence of the president, Dr. James B. Morgan of Augusta, the meeting was called to order by the first vice president, Dr. L. G. HARDMAN of Harmony Grove.

Divine blessing was invoked by Dr. J. W. Duncan of Atlanta.

Col. R. E. PARK was then introduced and delivered an "Address of Welcome" on the part of the Cumberland Island Club.

Dr. J. A. BUTTS of Brunswick welcomed the Association on the part of the local profession.

The response to these addresses in behalf of the Association was made by Dr. Hardman.

Dr. J. G. HOPKINS of Thomasville read a paper entitled

A FEW CASES FROM MY NOTE-BOOK.

Case 1 was that of a man 30 years of age who complained of having "a chafe which would not heal." Upon examination the Doctor found two fistulas centrally located over the lower end of the sacrum, one inch apart, and about one-twelfth of an inch in diameter. He converted the two openings into one and found a bunch of curly blonde hair about two to two and a half inches long, and in amount sufficient to fill a No. 10 thimble. After scarification and cauterization he left the wound to heal by granulation. A month later the patient returned saying that the wound had never healed. On examination the cavity was found well filled with new tissue, but there were several small fistulous openings instead of the two, as before. From each of these openings he drew several strands of hair, similar to those first removed. He cut down again to the bone, drew a lot of hair out of the flesh from different directions and packed the wound. He again allowed the cavity to fill and the same result was obtained. He again cut down and resorted to the same procedure, and the wound is now open and the same condition exists. He said that a dermoid cyst was not a very uncommon thing, but the sex, situation and constant recurrence of the hair in this case rendered it rather unique.

Another case was that of a mulatto, aged 28 years. His personal history was good and he was never sick except with a slight attack of the influenza in December, 1896. He was seen first on Sept. 20, 1897; had had fever about twenty-four hours; temperature 102 degrees and pulse 128; had a few bullæ on lips, face, wrists and shins. A diagnosis of pemphigus was made and quinin and arsenic treatment begun. Local applications of dry boracic acid were resorted to. The bullæ appeared thick and fast, varying in dimensions from the size of a filbert to that of a walnut and required but a few hours to reach full growth. They were punctured at each visit, giving exit to the fluid contents at the most dependent point, leaving the cuticle otherwise intact for protection. In a few days almost the entire cuticle had been separated from the cutis. The scalp, palms, and the mucous membrane of the nose, mouth and throat were extensively involved. Deglutition was difficult and painful and liquid diet a necessity. The symptoms in this case were those of pain, itching and fever. The treatment, while in the hospital, was mercurial cathartics, followed by salines and liquor potassii arsenitis in increasing doses; also large doses of the sulphate of quinia. The local treatment consisted of alkaline baths and a paste compound of aristol, bismuth, oxid of zinc and vaselin. The patient was enveloped in absorbent cotton from head to foot, the same being held in place by roller bandages. His mouth and nose were kept clean with peroxid of hydrogen and he was subjected to formaldehyde fumigation. The skin remained pigmented for three months after. Patient was discharged cured, Oct. 27, 1897.

Dr. WILLIAM C. LYLE of Augusta followed with a paper entitled

THE IMPORTANCE OF CAREFUL CHEMIC ANALYSIS IN GASTRIC DISORDERS

In which he showed that the technique of chemic analysis of the gastric contents was by no means difficult, and that in the determination of a correct diagnosis it was of the utmost value. He said that the skill to obtain and analyze the contents of the stomach did not lie beyond the dexterity and ability which every physician ought to possess, and it certainly should be utilized, when we consider that the diagnoses of diseases of the stomach are based as much upon the results of our own investigations as upon the statements of the patients themselves. The author contented himself by referring to only a

few of the more important tests, tests requiring no apparatus nor reagents that the average practitioner does not possess. He first spoke of the test meal, then stomach contents, lactic acid, pepsin and absorbent tests, after which he reported cases, that had recently occurred in his practice, where a positive diagnosis would have been very difficult without frequent chemic tests. The first case was one of simple dilatation of the stomach: the second, round ulcer of the stomach and acute gastritis; the third, cancer of the pylorus; fourth, obstruction of the portal circulation due to cirrhosis of the liver, as shown by autopsy.

The next paper, entitled

GERMS OF HEALTH AND DISEASE.

Was read by Dr. J. W. Duncan of Atlanta.

The author said that much attention had been given to the germ theory of disease for a number of years, and much had been learned through patient and faithful bacteriologic research. Reference was made to the contributions of Dr. Heneage Gibbs, one of the foremost bacteriologists, and who for several years occupied the Chair of Bacteriology in the University of Michigan. While recognizing the existence of bacteria, and their possible influence, Dr. Gibbs denied their importance as a causative factor of disease. He conceded to Dr. Koch the discovery of the tubercle bacillus, and the bacillus of cholera, but he denies that in either instance has the etiologic influence been demonstrated. He denies, furthermore, that these pathogenic micro-organisms are always present in certain diseases. He declares that he has conducted hundreds of autopsies on consumptives without finding a trace of the bacillus of tuberculosis. He said: How can we most successfully limit the spread of contagious diseases? In the operating room extensive major operations are being done daily under aseptic and antiseptic regime, and notwithstanding the extensive field explored, not a microbe or bacterium can gain a foothold. Much is being done in private practice to limit the spread of the disease, but very much more should be done. The excreta from the sick, whether from the bowels, kidneys, lungs or skin, should be disinfected, and as soon as possible the house should be fumigated. It has been said that "cleanliness is next to Godliness," and therefore our sanitary boards should be vigilant in keeping everything clean, that is, in their province. There should be more attention given to the matter of the milk we drink, and that there be no sources of contagion from them. Meats and vegetables demand investigation. Each individual should observe the laws of sanitation and hygiene relative to his own person and premises. By so doing he will be the better able to resist contagion should he be exposed. He then dwelt upon antitoxins, the results from which he considers far from satisfactory and spoke of the use of antiseptics, what they were, and how they acted.

Dr. W. Z. Holliday of Augusta, said that he had recently treated a well advanced case of consumption, where a microscopic examination was first made. The expectoration from this patient consisted of lumps of sticky mucus in which one would expect to find colonies of so-called specific germ of the disease, but repeated microscopic examinations failed to demonstrate the presence of the tubercle bacillus.

Dr. Duncan in closing the discussion, said that tubercle bacilli were frequently found during the incipient stage of tuberculosis, but that later in the disease, although the expectoration was carefully examined none were to be found, while still later tubercle bacilli might be found in the sputum in abundance.

Dr. W. H. Elliott of Savannah, read a paper entitled

MUSHROOMS—A FOOD AND A POISON.

He stated that the number of mushroom-eaters in this country was steadily growing larger, and it was encumbent upon physicians to know how to recognize and treat cases of mushroom poisoning. Mushrooms belong to that order of plants known botanically as fungi. There are many thousand species. By far the larger number are microscopic, such as the mildew, the smut on grain, and the mold that forms on cooked fruit, etc. The larger forms of fungi are known indifferently as toadstools or mushrooms. These number about one thousand species. While mushrooms grow in many different forms, the commonest and best known is the campestris, or mushroom of commerce. This belongs to the class of agarics, or gilled mushrooms. Dr. Elliott then described the structure of an agaric. He spoke of three classes of mushrooms ordinarily used for food; agarics, boleti and puff-balls, and described their structures. He said that in the United States food was so abundant and mushrooms so little known that tons of delicious food were allowed to go to waste for the want of the gathering. Their use in this country was limited to a few botanists and others, members of mushroom clubs of Boston, New York, Philadelphia and Washington. In Europe mushrooms were in general use as food. They were gathered in the woods and fields, regularly sold in the markets, and in Paris miles of cellars were maintained for the artificial cultivation of the mushroom of commerce. He had in the past two seasons tried about one hundred varieties of mushrooms without any unpleasant consequences. To the beginner he would say, avoid all mushrooms with a cup or the suggestion of a cup, especially if the mushroom has white gills. Reject all that are not perfectly fresh, or that are worm-eaten. In short, mushrooms should be gathered with care and studied well.

FIRST DAY—EVENING SESSION.

This session was largely taken up with the consideration of routine and miscellaneous business.

SECOND DAY—MORNING SESSION.

Dr. Howard J. Williams of Macon, read a paper entitled

A SUPERNUMERARY CERVICAL RIB; A DECEPTION OF SKIAGRAPHY.

The author said that while the discovery of Roentgen was a material advance in surgical diagnosis, it was not an infallible aid. Mistakes in interpretation could lead to mistakes in operating, and its value as medicolegal evidence was doubtful. Three times during the past year the speaker had been misled by X ray photography; twice into performing useless operations for lesions supposed to be dependent upon apparent bone injury, and in one case a supposed tumor proved to be an anomalous rib. Fortunately, the operation was necessary, and the results were as satisfactory as they would have been had a tumor existed. The speaker thought that either of the two photographs of the bone injury exhibited in a court room would have been damaging evidence in a malpractice suit, had not the operation disclosed the fallacy of the skiagraph. Dr. Williams then detailed the case of supernumerary cervical rib. In looking up the literature of anomalous ribs he found that Quain described an occasional supernumerary rib which sprang from the body and transverse process outside of a vertebral arterial foramen. This was, however, a false rib, having no distal attachment. He could not, in the books to which he had access, find any description of a supernumerary rib corresponding to the one he presented, that is, a rudimentary rib springing from the sixth cervical vertebra with a single attachment, a complete arch, and a long insertion on the first rib. The patient pursued the usual normal course after aseptic operations, had primary union and was restored to health without pain or interference with the functions of the parts involved.

Dr. Samuel Lloyd of New York, said the use of the X-ray in medicolegal work without careful preparation for that work on the part of the surgeon, would do great harm. To leave a skiagraph to a single individual who might be interested in the case and go into court would be a grave error, for the deformity might be accentuated very decidedly by placing the tube in an improper position, and consequently in every case that has to appear in court the X ray picture should be taken before witnesses who can swear to the position of the photographic plate, the position of the patient on the plate, and the position of the tube, and at the same time, who can swear to the distance at which the tube was placed from the patient, so that allowances may be made for any distortion that may appear in the picture, and as far as possible to avoid distortion.

Dr. T. S. Hopkins of Thomasville, read a paper entitled

DISLOCATION OF THE SIXTH AND SEVENTH CERVICAL VERTEBRÆ, WITH GENERAL PARALYSIS.

On March 3, 1897, Col. H. sustained an injury, the results of which made the case not only interesting, but remarkable. The history of the accident is as follows: While riding on a crank-car, the car collided with a wood cart. The shafts of the wood cart were elevated and one of them struck the patient on the forehead, knocking him over backward, his neck falling across a thin iron bar. He was lifted from this position unconscious. At the end of an hour consciousness was restored. He was taken to the house of a friend, placed in bed, and medical aid called. Diagnosis of shock was made. Next morning a consultation was held, and the condition of the patient pronounced serious. On lifting him it was discovered that his head would fall over his chest. It was also found that with the exception of the respiratory muscles, every muscle below the cervical part was paralyzed. The patient was then transferred to a Savannah hospital, where he received the best medical skill, and three or four days after admission the neck trouble suddenly disappeared. The neck became the only unparalyzed part of the patient. The diagnosis made by Dr. Boyd, the surgeon in charge, was dislocation of the sixth and seventh cervical vertebræ, with crushing of the cord, and spontaneous reduction by muscular contraction. After three months of

hospital treatment the patient was sent home as a hopeless case, the only improvement being a slight ability to move the right leg.

During the months of June and July last, Dr. Hopkins frequently visited and examined the patient. He was on a very restricted diet, and there was much muscular waste and atrophy. He feared the patient would never walk again. As he knew of no curative plaster to apply to a crushed cord, he advised that the restricted diet be abandoned, that physic be thrown to the dogs, and he be allowed to indulge in every article of food he could relish. This advice was carried out. Very soon the patient's dyspepsia disappeared and his appetite and digestion improved. He had beef steak, ham, eggs, oysters, shrimps, crabs, fish, and every variety of vegetables and fruits, and under this treatment gained flesh and strength. When he left him, about the first of last October, he had entire control of the right leg and arm. The index and middle fingers of the right hand were contracted. He could lift the left arm and hold it in any position except a perpendicular one, but the hand fell over on the wrist. This was not the result of contraction of the flexors, but the powerless condition of the extensor muscles. The bed sores had healed. The catheter and syringe which he had used for months were dispensed with, being no longer needed. The left leg was still paralyzed. Although the patellar reflex and motor power were absent in this leg, sensory power was present. Time and again he would say to the patient: "Lift this leg; you can if you will," but he always declared that it was impossible.

Having observed, in cases of locomotor ataxia, that though the patient could hobble about with his eyes open, when he closed them he would fall, Dr. Hopkins determined to aid the muscular power with the visual power. He therefore uncovered the paralyzed limb so that the patient could see it, and commanded him to lift it, and instantly the leg was lifted, but fell again. Some two weeks later the patient's then condition was compared with his condition six months prior, and there was found to be decided improvement in the case. He was able to draw up both his legs, and extend them with perfect ease; has gained flesh and strength, and is looking much better. If he continues to improve in the next six months as he has during the past six months, he will be able to walk.

Dr. Hopkins asked whether anyone could tell how it was that while life had been restored to the dead limbs, the bowels and bladder, without any evidences of wound or disease of the cord below the seventh cervical vertebra, that power of locomotion was still absent. The case had been submitted to a neurologist and a pathologist for opinion. Neither of them would believe that a dislocation of the sixth and seventh cervical vertebræ could produce paralysis of the upper extremities. He differed with them, and is consoled with the fact that the diagnosis of Dr. Boyd was endorsed by such men as Carpenter and Gross. During the patient's long suffering his intellect has never been impaired. He swore from the first, and still swears, that he will not die, and will before long be restored to his normal condition. Dr. Hopkins is now inclined to endorse his prognosis and, if verified, the case will be one without a parallel.

Dr. ELLIOTT of Savannah rose to answer the question in regard to paralysis of the upper extremities in such cases. He said many years ago he attended a woman who was shot directly from behind, by a pistol, in the fifth cervical vertebra. She lived a little less than five days after being shot, and was paralyzed from the site of the injury down to the bottom of the feet. She could move neither arms nor legs, nor anything else but her head.

Dr. J. W. DUNCAN of Atlanta, said that some years since he attended a negro man who had received an injury by a post falling upon him while taking down the scaffolding of a new church. He was struck on the back of the head, causing partial dislocation of the fourth and fifth cervical vertebra, followed by complete paralysis of the upper and lower extremities. The man could talk, and was rational. He lived about thirteen days. At the autopsy Dr. Duncan removed a portion of the cord involved in the partial dislocation and found that it had undergone degeneration and softening, and was very much like an ordinary abscess.

Dr. SAMUEL LLOYD of New York, said that some ten years ago he published the statistics of over two hundred cases of operations upon the spine for injuries, and for Pott's disease, and since then he had operated on a considerable number of cases. In Dr. Hopkin's case he thought that one part of the diagnosis must have been in error, and that was in regard to the crushing of the cord. A patient who has a crushed cord never recovers. The probabilities were that the cord was compressed, and from the progress of the case Dr. Lloyd suspected that the compression was a hemorrhage, and the absorption of the clot accounted for the recurrent power in the cord itself. Most assuredly, there was no injury at the time of the receipt of the trauma that destroyed the elements of the cord itself, for had it been the patient would have had an ascending and descending myelitis, and a consequent increase in the area of paralysis. Last summer he saw a patient who was shot four years ago, and received an injury to the right lamina of the seventh dorsal, a fracture of the spine of the eighth dorsal, a fracture of the left lamina of the ninth dorsal, and a fracture of the articular process of the tenth. The man had complete paraplegia below the segment of the cord injured. He had, however, increased reflexes, and particularly on one side, so that he had to travel around with the leg strapped up. If he let the right leg dangle it would throw him over his crutches as soon as anything touched him. He had compression by callus over the right lamina, and it was thought he would probably get well. The lamina of the fourth vertebra was taken out, after which adduction and abduction, and the reflexes, were normal.

Dr. HUNTER P. COOPER of Atlanta, read a paper entitled

A REPORT OF SURGICAL CASES.

The first case was that of a stone impacted in the deep membranous urethra of a child. There were no renal calculi nor any colic. There was retention of urine for thirty six hours. The author made a suprapubic cystotomy, and then a perineal section, removing by the latter a stone, the size of a small bean, which completely occluded the caliber of the urethra. Recovery ensued. The interesting point in this case was the rarity of it. The object of the double operation was to secure efficient drainage, and to satisfy the essayist that there was no stone left behind in the bladder. The after-course of the case justified the double operation, in that there was no untoward symptoms.

The second case was one of nephrotomy for a stone in the kidney, the patient being a member of the Association.

The third case was one of crushing wound of the lower end of the femur, received in a railroad accident in October, 1897. Amputation of the lower third of the thigh was done by one of the surgeons on the Georgia Railroad, immediately after the accident, followed by infection of the wound, profound and intense septicemia, necessitating the reopening of the whole wound, and the end of the bone projected between the flap, so that when the patient was brought to Dr. Cooper on the 10th of last December, the temperature was 103 degrees and the pulse 140. From the lower end of the stump to Poupart's ligament there was a large abscess necessitating operation under ether, and a pint of pus was evacuated. The patient did well for ten days, and then it was found that the granulations were in such condition that the lower end of the femur could be safely removed. Two inches of the lower end of the femur were removed. Later, large granulating masses appeared in the wound, which were found to contain bone, a microscopic examination of which revealed the development of osteosarcoma at the lower end of the femur. On January 18, Wyeth's bloodless hip-joint amputation was done. There was severe shock from operation, but recovery followed.

The fourth case was one of wry-neck, with open section of the sterno-cleido-mastoid muscle throughout its whole extent an inch and a half above the clavicle.

The fifth case was one of keloid on the back of the head and neck.

Dr. DUNBAR ROY of Atlanta, contributed a paper on

PERITONSILLAR ABSCESS.

The author said that the reading of this paper was more for the purpose of precipitating a discussion than an effort to add any new ideas upon the subject. A great deal had been written by laryngologists concerning the cause, symptoms and treatment of acute tonsillitis and chronically hypertrophied tonsils, but very little could be found concerning the manifestations of peritonsillar abscess, and even the various textbooks dismissed this practical subject with a few words. He quoted from the writings of Ingals, Lennox Browne, Max Thorner, C. E. Bean, showing that these writers differed materially as to the pathology and morbid anatomy of this affection. He then dwelt upon the anatomy of the affection. He had never seen a peritonsillar abscess the result of infection through the tonsillar lacuna but what had its seat posterior to the tonsil. Abscesses which occurred anteriorly, in his experience were the result of suppurative processes from the posterior portion of the alveolar process of the lower or upper jaw on the same side. He had seen abscesses in the front of the tonsil of most painful character, which were the result of a pathologic process in the last molar tooth. As to the cause of these peritonsillar abscesses, it is held by some authors that they are always the result of a previous tonsillitis. In the light o

our present knowledge, there could be no doubt as to the bacterial origin of this affection. Most writers hold that peritonsillar and tonsillar abscesses are more common in children than in adults, and yet the author's experience is just the opposite. With the exception of two cases only, all of his cases have been in adults.

Treatment.—Can the abscess be aborted? The author's views are that if the patient is not one of those predisposed to peritonsillar abscess, and the inflammation in the tonsil has started upon its surface, we may in some cases abort the abscess, but in the large majority of cases, we are powerless to stay its course. The treatment of tonsillitis and peritonsillar abscess naturally divided itself into the medicinal and surgical. On medicinal treatment the author quotes Ingals, who says: "Early in the attack the disease may be aborted, as in acute tonsillitis, in about one case out of four, by the application to the inflamed glands, once or twice daily, of a 60 grain solution of nitrate of silver, two or three applications usually being sufficient." Dr. Roy spoke in the very highest terms of his treatment in all forms of acute tonsillitis. He agrees with Ingals that guaiac is unsatisfactory. He is also in full accord with Max Thorner, who recommends the administration of large doses of salol in addition to local applications, but who says it is much better to begin early with hot fomentations around the neck, hot gargles, and hot inhalations in order to hasten suppuration, and in this way to shorten the duration of the disease. As to the surgical treatment of peritonsillar abscess, it is governed by a rule which the author has adopted in the treatment of all patients, and that is, adapting the treatment to the individual case, and not the patient to the treatment. It was the extreme of fallacy for physicians to have fixed rules for the management of all cases. It might be highly proper in the case of a big, strong lymphatic workingman to pick up a bistoury and plunge it into the abscess, press its sides, and evacuate the same thoroughly, and he perhaps would hardly flinch, but to undertake the same procedure in the case of a highly nervous and sensitive woman, was not right. Besides, the formation of a peritonsillar abscess was not near so painful in some patients as in some others and, therefore, did not require such active surgical measures. As the majority of abscesses follow from tonsillitis, his efforts are always to abort the inflammation, and this he accomplishes, if at all, by the administration of a good dose of calomel, followed by a saline purge. The tonsil and surrounding pillars are painted thoroughly with a 60-grain solution of nitrate of silver, repeated once daily. He starts early with hot gargles of vinegar and hot water, and then hot fermentations are applied externally. Salol and phenacetin always make the patient feel more comfortable, and for this reason alone he prescribes them. His experience with lactophenin has not been satisfactory. The author favors surgical measures when medical means fail.

Second Day—Afternoon Session.

Dr. Willis F. Westmoreland of Atlanta, reported twenty-one successful cases of tracheotomy for foreign bodies in the air passages, and exhibited specimens.

Dr. M. F. Carson of Griffin, followed with a paper entitled

THE CONDITION OF IMPERFECT SEPTUM BETWEEN THE MOUTH AND NASOPHARYX, USUALLY TERMED CLEFT PALATE,

which he advocated early operation for the closure of the cleft.

Dr. J. H. Shorter of Macon, read a paper on

SUPPURATIVE DISEASES OF THE MIDDLE EAR, AND THEIR SEQUELÆ.

He said that otitis media purulenta may be acute or chronic, the latter often a sequence of the first. The former, as is the case in most affections, yields the more promptly to treatment, with altogether a better prognosis both as to cure of the suppurative process and restoration of the function in the diseased ear, while, at the same time, the risk of serious secondary complications was much less. The exciting cause of an otitis media acuta may be an influenza and acute pharyngitis, improper use of the nasal douche, and sea bathing, diphtheria, etc. It was particularly liable to occur in the course of exanthemata, especially scarlatina, and sometimes is a complication of other fevers, as pneumonia and typhoid. It may be traumatic, as from injury to the drumhead or injection of irritant fluids through the Eustachian tube, a mode of treatment for chronic middle ear catarrh favored by some men of eminence, but which he has quite abandoned on account of having seen many cases of violent middle ear reaction, and even suppuration set up by it, not alone in his personal practice, but in that of other surgeons, some of them of noted skill and experience. In New York there were always a large number of acute middle ear inflammations during the season of surf bathing. This he attributes, not as he first thought, to the impact of the sea waves on the side of the head, or the canal over the drum-membrane itself, but to the spasm accompanying the sneezing, swallowing and gagging caused by water entering the nostril, driving the liquid up the Eustachian tubes into the tympanum. Among traumatic causes may be mentioned picking the ear with a sharp instrument for the removal of wax or a supposed foreign body. Not a few times he had known the drumhead to be lacerated by this foolish performance, and had a case on record where most of the membrane was removed, and with it the malleus and incus, done by a machinist who used a long awl in attempting to remove a supposed foreign body from the ear of a fellow workman. Predisposing causes are important factors in otitis media, both acute and chronic, and chief among them being obstruction in the nasal cavities or nasopharynx, adenoid or lymphoid tissue in the fold of the pharynx, hypertrophied faucial or pharyngeal tonsil, etc. The author then dwelt at length upon the treatment he carried out in dealing with these cases.

Dr. James M. Crawford of Atlanta, read a paper on

TONSILLOTOMY; WHEN AND HOW TO MAKE IT.

He said that tonsillotomy should be resorted to when the tonsils extend much beyond the pillars, not waiting until they touch each other, especially when oral catarrh exists. It is indicated even when the tonsil is slightly hypertrophied, if the lacunæ are inclined to inflammation from collections of caseous secretions. Shaving the tonsil destroys these lacunæ, thereby preventing frequent and painful inflammation. Not even the most timid operator would hesitate to make the operation when the tonsils are so large as to reach the uvula, thereby making it laborious to breathe, especially when the patient is asleep, and these diseased conditions often prevent respiration. Below the age of 15 years the tonsil is usually soft, and when cut with the tonsillotome the cut edges are more or less mashed or pressed together, thereby stopping the hemorrhage. In older persons, however, the tonsil is more fibrous. The walls of the cut vessels are pulled apart, as it were, by the firmness of the tonsil itself. He would not hesitate to make the operation when it was needed, even in the oldest. Fortunately, after a certain age the tonsils atrophy, and require to be removed rarely. Fewer cases of hemorrhage occur when the operation is made with the tonsillotome instead of the vulsellum forceps and bistoury. When using the forceps and bistoury the operator is apt to pull the tonsil too much with his forceps. In such a case he knows not where he is cutting. On completing the operation and looking into the mouth of the patient, he sees a sulcus where a portion of the tonsil should have been left. A sulcus, besides endangering the life of a patient by hemorrhage, is a source of constant annoyance in that it is a lodging-place for food. The author prefers Mackenzie's tonsillotome, or some of its modifications, to all others, for the reason that it is more simple, more easily managed, and less cumbersome. There need be no fear of the tonsil falling into the larynx, as it nearly always adheres to the instrument. Where it does not adhere to the instrument it falls into the mouth and is expelled. By applying a little cocain, say a 6 per cent. solution, to the tonsils and fauces, sensibility of the throat is allayed, which is a great aid in the operation. While acting as assistant to Dr. Calhoun, he could recall five or six cases of frightful hemorrhages from tonsillotomy made by him with the knife and forceps. In each case the hemorrhage was stopped by Dr. Crawford putting a wet sponge or pledget of cotton on the cut surface and applying pressure. In each of these cases a sulcus existed, making it impossible for him to see the bleeding artery, and forcing him to resort to the only safe method in such cases, namely, pressure. The first time he used this method for controlling hemorrhage was in the fall of 1889. The two means for arresting hemorrhage in connection with tonsillotomy were the cautery, when the bleeding point could be seen, and in other cases the application of pressure.

Dr. W. Z. Holliday of Zugusta read a paper on "The Use of Ethyl Chlorid as a Local Anesthetic," in which he recommended this agent very highly for local anesthesia.

Dr. R. M. Harbin had used ethyl chlorid and agreed with the author as to its efficacy. In selected cases it was an ideal local anesthetic.

Dr. J. G. Hopkins asked as to the danger in handling the tubes, to which Dr. Holliday replied that there was very little danger from explosion if the physician was careful.

Dr. Graham of Savannah had used with satisfaction the combined method of anesthesia, namely, ethyl chlorid and the infiltration method of Schleich.

THIRD DAY—MORNING SESSION.

Dr. J. T. Ross of Macon reported an interesting case of

OSSIFIC AND CALCIFIED OVARIAN FIBROMA

And exhibited the specimen. The specimen had very much the appearance of a fetal head. On one side a portion of the broad ligament, the Fallopian tube and ovary were seen. Almost all, if not all, of the fibroid enlargement was encrusted by an osseous deposit about one-sixteenth of an inch in diameter. The interior of the tumor was more firm and studded with calcareous deposits. Striæ could be seen running down into the tumor from that portion of the ovary which formed the growth. Authorities are agreed that only 3 to 5 per cent. of all tumors of the ovaries are solid, and that a fibroid of the ovary is very rare. The condition presented in the case of Dr. Ross was still more rare. In fact, the speaker does not remember to have seen a record of an ovary which had undergone both osseous and calcareous degeneration.

Dr. K. P. MOORE of Macon read a paper entitled "A Very Interesting and Unusual Monstrosity in the Form of Twins," and exhibited the fetus.

Dr. E. R. CORSON of Savannah contributed a paper, "A Rare Form of Bone Atrophy Following an Ununited Fracture, as Seen by the X-ray."

Dr. J. I. GRIFFITH of Danielsville read a paper on

PUERPERAL ECLAMPSIA AND SOME PROBABLE CAUSES OF IT.

As to its etiology, the author quoted from Hare's work on "Therapeutics." He said that in order to arrive at an intelligent treatment there must be a clear understanding of the condition the physician is called upon to treat. The treatment should be classified as preventive and curative. The preventive may be subdivided into medicinal and hygienic, and the curative into medicinal and obstetric. These forms of treatment were then dwelt upon at some length. The author reported four cases. Some probable causes of eclampsia he mentioned, as albuminuria, toxemia, uremia, pyelitis and pyelonephritis. He thinks albumin is one of the causes of puerperal eclampsia, for it is found in the urine of pregnant women.

Dr. GEORGE H. NOBLE of Atlanta made some remarks on

ALCOHOLIC IRRIGATION IN PUERPERAL SEPSIS.

He pointed out the difference between the ordinary method of removing the secundines with douches, and the alcoholic treatment. He said that the alcoholic treatment was gradually forcing itself upon the profession. When his attention was first called to it he had little or no confidence in it, for the reason that he did not believe in the antiseptic properties of alcohol, but the more he studied it the greater seemed its need of application in certain directions. The successful treatment of puerperal infection depended upon the selection of cases. The practitioner who failed to properly select his cases and properly apply treatment would be the man who would lose patients. No treatment applied to the cavity of the uterus could be expected to save a case of puerperal infection that had gone beyond the endometrium to any extent. Therefore it was necessary to exclude diseases of the appendages, as pus tubes, abscesses, etc. The treatment of the cavity of the uterus, where there was a pus collection in the appendages, was futile. Again, the practitioner might think the appendages were absolutely healthy, that there was no infection in the uterine cavity that could be detected, and yet the patient was in a hopeless condition, whereas the trouble might be an abscess in the uterus proper, or its parenchymatous structure. The practitioner should bear in mind that if he has a case in which the appendages and peritoneum are not involved, and in which there is no material discharge from the cavity of the uterus, where the uterus is shrunken in size, the os non-patulous, he is likely to have uterine abscess, but it is a rare condition. There may be one abscess or two. He had previously reported four such cases in which he made an incision into the abscess, curetted, cauterized and drained through the abdominal cavity. He cited an illustrative case, the woman having miscarried the day before she was admitted to the hospital, particles of placenta remaining. When admitted the pulse was 149 and temperature 102.1 degrees. The uterus was thoroughly curetted and cleansed. The temperature fell after curetting. The pulse dropped in the afternoon, after the curettement, to 136, and the temperature to 100.4 degrees. The next morning it was 100.3 degrees, the pulse remaining the same. On the third day the temperature arose in spite of careful irrigation in careful hands. He then instructed the house surgeon that if the temperature rose to 103 degrees to discontinue the other treatment and put the patient upon alcoholic irrigation. The next morning the temperature rose to 103 degrees and after alcohol irrigation it fell to 100.3 degrees. The course of the pulse and temperature then was steadily downward. At the end of eight days the patient was completely relieved. In this case there was a mixed infection, there being streptococci and diplococci found in the secretions. He said that alcoholic irrigation could be done by the general practitioner. The practitioner should use a rubber catheter thoroughly sterilized; take two yards of small gauze, the width of the finger, stitch it to the end of the catheter, introduce it carefully into the uterus, after it is cleansed, and loosely insert the gauze around it. The object of the gauze is to hold the alcohol. The alcohol is renewed through the end of the catheter, at variable intervals. Alcohol possesses considerable antiseptic properties, and has some inhibitory effect upon the spores of the virulent streptococci. Alcohol acts more powerfully where there is a good deal of water in the tissues. He believes it is the simplest method for treating puerperal infection confined to the cavity of the uterus. It must be remembered, however, that all local treatment must be confined to those cases in which the infection is limited to the uterine cavity.

Dr. W. E. FITCH of Savannah, contributed a paper on

TIGHT LACING—ITS RELATION TO UTERINE DEVELOPMENT AND THE DISEASES OF THE FEMALE ORGANS OF GENERATION

In which he called attention to the evil effects of tight lacing. The subject is of special interest to the practitioner as well as to the gynecologist, while to the race it is of serious importance. He thought the importance of the subject as an etiologic factor in diseases of the pelvic organs had been lost sight of in the mad rush in scientific research. Tight lacing, in his opinion, is not the only cause of maldevelopment of the uterus and accessory organs, causing diseased conditions, but one of the chief factors. He then reviewed the anatomy of the female pelvis. The corset is so constructed that when worn it exerts its greatest influence, pressure, from above the brim of the pelvis downward, constricting the abdominal walls, the lower part of the thorax, and pushing inward the costal cartilages and often the seventh and eighth overlapping. The greatest constriction occurs in the immediate neighborhood of the stomach, which, when distended, as after a hearty meal, produces the hour-glass stomach found at times in this class of patients. Compression is so great in most cases as to interfere with the normal peristaltic action of the intestines, thereby producing constipation. Compression in any part interferes with physiologic functions, and therefore the author arrived at the following conclusions:

1. The normal breathing of woman is like that of man, abdominal. Tight lacing changes the type to costal.

2. The pelvic organs normally make a considerable excursion with each respiration. Tight lacing in the upright position checks this motion almost entirely.

3. Sitting or leaning forward lessens intra-abdominal pressure. Tight lacing in these positions greatly increases intra-abdominal pressure.

4. The uterus is displaced downward by tight lacing from one to two and a half inches. The pelvic floor is bulged downward and the circulation rendered sluggish.

5. Uterine development is greatest from the twelfth to sixteenth years. Tight lacing is usually commenced at this, the period of the beginning of uterine development.

Tight lacing produces maldevelopment and displacement of the uterine organs and appendages. Amenorrhea is frequently the result of a poorly developed mucosa and its adnexa, together with faultily developed ovaries, a condition which if neglected, often leads to atrophy or congestion with long continued profuse flow. Dysmenorrhea is a condition which the author thinks is mainly due to maldevelopment of both the uterine appendages and the nervous system, also the muscular and cellular tissues, rendering them inadequate to their physiologic requirements. He said the only benefit obtained in the treatment of pelvic disorders with electricity is mainly due to its efficacy as an aid to more completely develop the much-abused organs. All women who have practiced tight lacing complain of pain on removing the corset, this pain being due to the effort of the organs to assume their normal position.

Dr. J. L. HIERS of Savannah, read a paper on "Malarial Asthenopia."

Dr. A. A. DAVIDSON of Augusta, read a paper on

HYSTERIA.

Hysteria, he said, is a disease wherein the emotional is in the ascendency over the volitional, and characterized by marked and marvelous expressions of the propensities of the idiosyncrasy of the person affected, and is not hysteria necessarily because of any abnormal condition of the uterus, but a manifestation of a morbid and inco-ordinate activity of brain and nerve forces, volition being subordinated, characterized by symptoms motor, sensory and sympathetic, abnormal in nature. In expression it frequently simulates symptoms of various path-

ologic or diseased states, such as hyperesthesia, anesthesia, paralysis, convulsions, general or local suspension of functions, secretory and excretory, etc. The causes of this condition are predisposing and immediate or exciting. Hereditary stands among the first of the former. Family history of phthisic, strumous or neurotic antecedents may confidently be sought; many conditions of unsatisfied nature, long mental worry and physical strain and protracted suspense. Hysteric attacks tell upon the constitution. General muscular spasms are common in women who are the subjects of hysteria, less so in boys, rarely in men. A comatose state is not infrequently met with in them.

In the treatment of hysteria the thing of first importance is to obtain the confidence of the patient that his or her symptoms have been carefully sought out and weighed, that the promise of complete recovery may be held out as the result of careful study of the case, else little can be effected. In seeking the mode of management of this disorder we look away from drugs except in case of complicating intercurrent diseases. This is the rule and principle, but there arise conditions at times which must be met by the energetic use of active medicinal agents. One can not in every instance douche a pail of ice-water in the face of a patient if convulsions be present, though they be hysteric. The patient is a lady of social standing, of integrity and of delicate constitution; what is to be done? Power of moral suasion is not applicable by reason of the patient being in a semicomatose, if not pseudocomatose state, and will not be thus reached. Eminent writers would eschew such antispasmodics as bromids or chloral. Experience leads him to the conclusion that where sleep can be induced and maintained for some hours, a great advantage is gained. This can be effected by using chloroform to offset the paroxysm, continuing the sleep by use of chloral per rectum. The subject wants to be taking medicine and so reconstructives, tonics, etc., may very well be administered, since malnutrition, debility and anemia are favorable to the development and aggravation of hysteric symptoms.

A plan of treatment given by the author is that adopted by Dr. Weir Mitchell of Philadelphia, introduced into this country by Dr. Playfair, which consists of complete isolation of the patient and maintenance in bed, milk being given in increasing quantities. Massage is used in lieu of exercise; brilliant results have thus been secured. However the plan is rarely practicable. If it be impossible to place the patient among non-apprehensive and unsympathetic attendants, for the patient's sake and theirs, the family or those immediately interested should be acquainted with the true condition and educated to deal intelligently with hysteric attacks and phases. Parents should know what their impressionable children read; unlimited open air exercise should be encouraged. The mind should be engaged and kept off the imagined condition of self. The cardinal motive in treatment should be to so environ the patient as to call forth no expressions of an emotional nature, but rather conduce to exercise of reason and will.

INDICATIONS FOR AND ANTISEPTIC TECHNIQUE OF UTERINE DRAINAGE AFTER LABOR AND ABORTION

was the title of a paper by Dr. R. R. KIME of Atlanta. The author stated that when it is considered that at least 30 to 50 per cent. of diseascs of women are traceable directly or indirectly to injuries or accidents during or after labor and abortions; that fully one-half of that number were due to infection in some one of its various forms, no apology is needed for presenting this subject. Some use antepartum douches, some postpartum douches, others condemn both. Some use antiseptic methods of prevention, some aseptic methods, others none whatever. Some advise washing out the uterus with strong antiseptics in puerperal infection, some use weak antiseptic solutions, others condemn the use of any. Some advise curetting the uterus in all varieties of infection, some curette only in putrid infection, others condemn the curette in all cases. Some advise abdominal section in severe cases, some perform hysterectomy, others condemn such operative measures and resort to vaginal drainage by incision as a life-saving measure. Some advise stimulants in large quantities, some depend upon strychnia, quinin and nourishment, while others kill their patients with the coal tar group of antipyretics. Some use the serum treatment, some the nucleins, others fail to get good results from either. Some administer opiates in full doses, some advise salines, while the author favors elimination and drainage. Happy is the man that can judiciously select and apply to each individual case such treatment as will not only save life, but conserve the generative organs for future physiologic functions.

In the treatment of puerperal infection, the practitioner must consider the anatomic relations and physiologic functions of the female generative organ. The author does not believe that all cases of puerperal infection are due to contamination by physician or nurse, nor that the physician can always prevent such infection. We have sufficient clinical evidence to prove that where a uterus fails to properly drain itself, remaining large and flabby, a blood clot, portions of placenta, or a cotyledon is retained, infection occurs from putrefaction and absorption of uterine contents. Such cases are usually sapremia or putrid infection, but may be a mixed or true septic infection, due to the presence of septic germs in the genital tract previous to confinement. In cases of septic infection the author believes that the curette and gauze tampon have killed more patients than they have saved. When an active puerperal septic condition exists long enough to produce constitutional and local symptoms and signs sufficient to establish a diagnosis, the currette can not reach the diseased parts on account of the germs having extended beyond the endometrium into the uterine walls, blood vessels and lymphatics, and in rapid septic cases has extended so far that even hysterectomy is not justifiable in but few instances. He cares not if small portions of adherent placenta or cotyledon be present, efficient drainage will eliminate the toxins sufficient to wait for nature to separate these structures far more efficiently than the curette, when they can easily be removed by forceps without traumatism of the parts and with greater safety to the patient. The gauze tampon should never be used in a puerperal septic uterus except to check hemorrhage. So far as the present treatment is concerned, he considers uterine and alimentary drainage and elimination the most potent factors at our command. Uterine drainage is secured by use of drainage tubes and strips of gauze or wicking. The tube should bc removed and uterus irrigated once or twice in twenty-four hours in severe cases, being governed by pulse and temperature. If they rise it is an indication for irrigation or that the drainage is obstructed.

As to drainage in cases of incomplete abortion, there are different conditions to deal with. Thc author limits the term abortion to interruption of gestation any time prior to the complete formation of placenta. At least 90 cent. or more of cases of infection occurring during or after abortion are putrid infection, hence easier controlled and with less demand for drainage. If an active septic infection occurs, then drainage is demanded even in cases of abortion. The dangers and contraindications to the use of the curette and tampon in septic cases increase in proportion to the advance in pregnancy and the increase in size and vascularity of the pelvic organs. While the author advocates an antiseptic gauze uterine tampon after curetting the uterus in cases of abortion, it is to act as a surgical dressing, prevent further infection, check hemorrhage, stimulate uterine contractions, and not for the purpose of drainage. The tampon should be removed in twenty-four to forty-eight hours and not repeated. If after gauze is removed there is elevation of pulse and temperature with constitutional and pelvic disturbances, then drainage and elimination are indicated.

The following officers were elected for the ensuing year: President, Howard J. Williams of Macon; first vice-president, J. G. Hopkins of Thomasville; second vice-president, I. H. Goss of Athens.

Place of meeting, Macon, the third Tuesday in April, 1899.

PRACTICAL NOTES.

Analgesic Application for Burns.—Vergely of Bordeaux, in burns of the first and second degree, covers the parts with a thick layer of paste of calcined magnesia and water, letting it dry on, replacing, as any becomes detached, by fresh paste. Pain ceases immediately, and the wounds heal without leaving any traces. Another treatmcnt consists in the use of potassium nitrate as a refrigerant, in the form of baths or lotions. If a burn on the hand or foot is placed in a basin of water to which a few teaspoonfuls of potassium nitrate are added, the pain ceases. After a while, as the water heats up, the pain returns; then add more potassium. Continued for two or three hours, it frequently dispels the pain, and often prevents blisters. Compresses steeped in a saturated solution has the same effect.—*Am. Therapist.*

Lactophosphate of Lime for Acne and Furunculosis.—Purdon has been most successful with the treatment of acne and furunculosis with the syrup of the lactophosphate of lime. He regards it as "an agent of nutrition, and thinks it is appropriately given

in the conditions above referred to, as they are evidences of depraved nutrition." Be that as it may, the administration of this drug, coupled with the advice to the patient to wear Balbriggan linen undershirts, will prevent outbreaks of acne which occur from time to time on the shoulders and chest. If it is thought best to add cod-liver oil, the following prescription will be found palatable: Acaciæ, aquæ, syr. calcis lactophosphat., ol. morrhuæ, ol. amygd. amar. Rub the gum, water and syrup together until a smooth mucilage is made, then gradually add the cod-liver oil with constant stirring, and lastly, the essential oil of bitter almonds. Thus made each tablespoonful of cod-liver oil and syrup of the lactophosphate of lime contains 4 grains of lactophosphate of lime and 50 per cent. of cod-liver oil.—*Dublin Journal of Medicine*, February.

Epithelioma of the Face Treated with Arsenious Acid.—Dr. Hermet, before the Paris Dermatological Society, reported a successful case of the above nature. The patient went to him in October, 1897, for the treatment of an epithelioma of the face. Arsenious acid was applied, the surface of the ulcer being left exposed to the air after the method of Czerny. The new growth was destroyed by the early days of January, 1898, and cicatrization was completed by February. The patient had previously been treated by chlorate of potassium without the slightest benefit. Czerny's method employed by Dr. Hermet consists in using three solutions of arsenious acid in equal parts of water and ethylic alcohol. The first solution, of the strength of 1 in 150, is applied to the ulcerated surface. The second and third, which are stronger, are applied to the scab. The ulcer is swabbed with the solution every day and excessive pain is kept in abeyance by a hypodermic injection of morphia. When the scab falls off the raw surface is treated as an ordinary wound. The case was reported to the society in March.—London *Lancet*, March 26.

Differentiation of Brain Tumors.—(From L. Bruns' address at Moscow Congress, *Wien. klin. Woch.*, 1897, 45, 46.) Although many of the symptoms of frontal and cerebellar ataxia are identical, he considers that monoplegia, Jacksonian convulsions, tonic deviation of the head and eyes to one side, and especially motor aphasia, denote frontal ataxia. On the other hand, paraplegia and alternating hemiplegias, visual paralysis on the side toward the tumor with crossed hemiplegia, double paralysis of the optic muscles and paralysis of the facialis and acusticus, distinguish cerebellar ataxia. He does not lay much stress on homonymous hemianopsia unless it exists on the right side from the first, combined with alexia and optic aphasia, when it indicates a tumor in the medulla of the left occipital lobe. He concludes by recommending percussion as extremely valuable. When the sensitiveness, tympanism and cracked pot noise are pronounced and extensive, they indicate plainly the general diagnosis of tumor, and when distinctly localized they point to its seat with precision, especially when the indications of the percussion sounds coincide with the symptoms observed. In the difficult differentiation of tumors in the central convolutions and neighborhood, distinctly circumscribed percussion sounds will often help more than even the cerebral symptoms, as they are scarcely possible unless the tumor is located at least near the cortex.

Kadner's Method of Investigating the Function of the Stomach, is described in the *Deu. med. Woch.* of March 31. It consists essentially in the test breakfast followed, just before the contents of the stomach are withdrawn, with the ingestion of 100 of a solution of sodium phosphate. The mixing of the solution with the test meal is facilitated with a few movements of the trunk, and the contents of the stomach are then withdrawn with ease. He has frequently used this method with great success in his practice, especially with ladies, and recommends it as simple and reliable. The phosphoric acid in the aspirated contents is then precipitated with an uran. solution, so concentrated that 25 c.c. precipitates all the acid out of 25 c.c. of the phosphate solution. The latter is saturated with acid and the amount of free acid in the aspirated contents is indicated with a one-tenth sodium (Lauge) solution and methyl orange. His formula for the phosphate solution is, $10\,Na_2HPO_4 + 12\,H_2O$ in 500 water with 28.10 c.c. normal salt solution; the mixture filled up to 1000. The formulæ for the tests are, $m = 100\,(u - u') \div u'$, in which m = the amount of stomach contents being examined; u = 25 (amount of the uran. solution corresponding to 25 of the phosphate solution); u′ = number of c.c. of the uran. solution required for 25 of the aspirated contents; $s = n\,(100 - m) \div m$, in which n = the number of c.c. of the one-tenth sodium solution required for 10 of the mixture to turn the methyl orange brown; s = the number of c.c. of hydrochloric acid in 10 c.c. of the original contents of the stomach.

Progress in the Immunization Treatment for Diphtheria at Berlin Hospitals.—When a case of diphtheria occurred in the surgical wards of the Kaiser and Kaiserin Friedrich Spital, of which Professor Baginsky is the Director, he immediately had all the other children immunized. In private families, when a case of diphtheria occurs, he does not consider immunization so necessary. Prompt segregation often prevents the disease from spreading to other members of the household, and as the doctor in such cases is in daily attendance, the serum treatment may be begun as soon as the first suspicious symptom is noticed in another child. Antitoxin, when given thus early in the disease, he considers an unfailing remedy. In patients injected during the first forty-eight hours of the disease there is absolutely no mortality. As Professor Heubner has for some time made it a practice to immunize all the children in his wards at the Charité every three weeks, it may be seen what a prominent place immunization has taken here during this last year. For a while Professor Heubner had to give up his immunizing injections because the hospital directorate thought it savored too much of experimental investigation on the children, and might arouse popular indignation. They were resumed after an interval of only two months, however, as it had become clear that they were wonderfully efficient in preventing diphtheria in the wards of the hospital. Absolutely no inconveniences have resulted from the practice.—*Medical News.*

Success of Local Frigor Therapeutics in Tuberculosis.—The refrigerating well at Geneva with its unparalleled low temperatures, —110 C., about —100 F., into which patients are lowered (*vide* JOURNAL, xxvii, 548) is chiefly remarkable on account of the ravenous appetite that follows the seances. This effect is particularly desirable in tuberculosis, but the treatment is too heroic for this disease. Letulle and Ribard now announce that by modifying the method and applying the refrigerating process locally for twenty to forty minutes they have succeeded in every case in restoring the appetite to such a degree that the patient starts upon a new existence, both physically and morally. They apply once or twice a day on the epigastric and hepatic region, a bag containing about two kilograms of solid carbonic acid, which has a temperature of minus 80 degrees C., and evaporates without moisture or residue. The skin is protected with a layer of cotton, and the peculiar effect is observed that it does not grow cold, but retains a temperature of plus 25 C., showing that it is diathermane, while the organs within evidently feel the effect of the cold much more, and the organism rallies to protect them. It first utilizes the available stores on hand, as is shown by the fact that well nourished persons do not experience the same degree of hunger at first as those more emaciated. Their report in the *Bull. de la Soc. Méd. des Hôp.* for March 24, concludes: "This new crymotherapy, simple, harmless and effective, can not be too warmly recommended, as it is evidently the physician's first duty to ensure sufficient alimentation to his tuberculous patients."

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SATURDAY, MAY 7, 1898.

THE OBJECTIONS TO INTRAPERITONEAL DRAINAGE.

In a critical review of 1700 cases of abdominal section from the standpoint of intraperitoneal drainage, published by Dr. J. G. CLARK,[1] resident gynecologist of the Johns Hopkins Hospital, the objections to intraperitoneal drainage have been brought forward in a very clear and convincing manner.

Having considered quite extensively the physiology and anatomy of the peritoneum, with a view to bringing out its capacity for the absorption of fluids and solid particles from the peritoneal cavity and for disposing of irritant and infectious material, the following objections to drainage after abdominal section are considered.

Trauma and chemical irritation produced by the drainage material.—The effect of a foreign body upon the peritoneum is to cause endothelial destruction and inflammatory reaction. Anyone who is in the habit of making postmortem examinations will have observed that there is usually a much more intense inflammatory reaction around iodoformized and other forms of drainage than elsewhere in fatal cases of post-operative peritonitis. The action of the foreign body employed for drainage is very often aggrated by the action of the chemical substance, as for instance iodoform, with which the material is impregated. Any mechanical or chemical irritation of the eritoneum must certainly be looked upon as tending reduce its resisting powers against infection.

Retardation of healing.—In the drainage chart hich Dr. CLARK has constructed from the 1700 cases is very clearly shown that drainage retards local healing. It can also be observed that the percentage of local suppuration conforms strictly to the rise and fall of the drainage line. These facts may be explained by mechanical injury, but the fact that the discharge from the drainage tract most often contains the bacteria normally found in the skin seems direct proof that they are introduced with the drain or gain entrance afterward. After the removal of the drain healing by granulation tissue, which is necessarily slow, is the only kind of healing that can take place. Hence the drain cases invariably remain much longer in the hospital than the undrained ones.

Drainage not effective in removing fluids and infectious material.—Postmortems show that all forms of drainage are quite frequently without success in removing fluids from the different parts of the abdominal cavity. The artificial efforts to remove fluids by means of the syringe, by means of mopping with pledgets of cotton, or by means of capillary absorption by a gauze drain, are not to be compared with the ability of the peritoneum for absorption. The presence of drainage material handicaps the peritoneum in various ways: the normal currents in the peritoneum are disturbed; the circulation of fluids and foreign bodies toward the diaphragm is interfered with; a reactive inflammation is set up by the drain which limits the action of the peritoneum, and within a few hours the general peritoneum is debarred from participating in the work of absorption, the work being thrown upon the drain, which can only remove fluid from a small pocket. A limited quantity of fluid is removed by the drain during the first few hours, but after that the drain rather acts like a plug by preventing the outflow of fluid, which then accumulates in the independent pockets. In some cases of drainage the drained fluid in CLARK's cases showed myriads of microbes, while the portion of the general peritoneal cavity walled off by adhesions showed no traces of bacteria. Now, the advocates of drainage cite such cases in favor of the drain, as proving that it limits infection to the drained field, but Dr. CLARK thinks that the better explanation is, that the healthy peritoneum has successfully removed the infection while the drain has failed in its task of removing microbes from the pocket.

It is a general experience that there is a limit beyond which the peritoneum can not resist infection, and abdominal operations during active infection, especially of puerperal type, often terminate fatally, whether drained or undrained.

Infection frequently occurs from the drainage tract.—The bacteriologic investigations made in Dr. KELLY's wards show that a gauze drain almost invariably becomes contaminated sooner or later, the variety and virulence of the micro-organisms depending upon the cleanliness of the surrounding skin, and to some extent upon the purity of the air. In every instance

[1] Johns Hopkins Hospital Reports, Vol. vii, Nos. 1 and 2, 1898.

of the sixteen tabulated cases in which the intraperitoneal gauze drain was examined bacteriologically organisms were obtained from some part of the drain.

In one hundred undrained cases referred to by Dr. CLARK where there were more or less adhesions, the operation being made for such conditions as tumors, cysts and extra-uterine pregnancy, only one case was complicated by the formation of post-operative pelvic abscess. In one hundred similar cases which were drained eight such undesirable sequelæ occurred. This fact goes far toward proving that the coagula and exuded fluid following these operations seldom suppurate if left to the care of the peritoneum, even though this may be more or less disabled.

Drainage in cases where infectious matter is supposed to be present at the time of the operation, is also shown by statistic studies to be unsatisfactory. In the first place a general review of the bacteriologic conditions in such cases, as pyosalpinx, abscess of ovary, peri-oophoritis, etc., seem to show that infection of the peritoneum from the diseased area at the time of the operation is not likely to occur, because the initial infecting organism has then generally disappeared or lost its virulence.

In the summary of the results in two series, each of one hundred cases of pelvic inflammatory disease, drained and undrained, it is shown that there were eighty uncomplicated recoveries in the one hundred undrained cases and only forty-six in the drained. It may be said that this comparison is not admissible, because the drained cases were probably the more serious. When, however, Dr. CLARK reviews the general abdominal operations in groups of hundreds, with the following drainage percentage: First hundred 74 per cent; second hundred 57 per cent; third hundred 48 per cent; fourth hundred 7 per cent; fifth hundred 10 per cent; and when many undrained cases in the last hundred are identical with some of those drained in the first and second hundreds then the essential difference between the drained and undrained cases would seem to be very slight.

Among the evil consequences of drainage are mentioned post-operative obstruction of the bowel, on account of the matting together of the intestines around the drainage tract, like a tangled skein of yarn; fecal fistulæ following drainage: in the only one in which this occurred in the Baltimore cases the fistula resulted from pressure necrosis produced by the glass tube; vesical complications, such as inflammatory reaction around the drain involving the fundus of the bladder and causing vesical irritation and dysuria; post-operative hernia: from certain statistics gathered by Dr. RUSSEL, one of the Gynecologic Clinic of the Johns Hopkins Hospital it appears, that at least 8 per cent. of the cases in which extensive drainage has been established have been followed by post-operative hernia.

Dr. CLARK then urges the following measures in order to avoid the supposed necessity for drainage in abdominal operations. These measures are aimed at preventing and removing infection without the drain. 1. Thorough disinfection of the hands. In view of the recognized difficulty, if not impossibility, of thoroughly cleansing the hands, ZWEIFEL'S recommendation of suspending all operations for at least three days after contact with an infectious case, is urged as of value. 2. Control hemorrhage. 3. Avoid bruising or otherwise injuring the tissues. 4. Isolate the general peritoneal cavity during the operation. 5. Preserve the peritoneum. 6. Conserve the bodily heat, because it is generally accepted that resistance to infection is greatly decreased by lowering the temperature of the intestines. 7. Avoid rupture of intraperitoneal abscesses. 8. Irrigate the peritoneal cavity, which should be done after every operation, with normal salt solution, with a view of washing out all foreign matter that is possible. 9. Promote absorption by infusion of normal saline solution into the peritoneal cavity, followed by postural drainage. For this purpose from one-half to one liter of salt solution is introduced into the peritoneal cavity, especially when the operation has been prolonged or the presence of septic matter is suspected and the foot of the patient's bed is elevated 18 inches for the first twenty-four hours after the operation.

There can be no question concerning the first seven of these procedures. The last two may perhaps be open to discussion, especially because many surgeons insist upon dry technic in abdominal operations.

The postural method of draining the peritoneal cavity is recommended: 1. Because stagnating fluids are prevented from collecting in the dead spaces in the pelvis. 2. Infectious organisms are then quickly carried into the normal parts of the body, where they are destroyed before they can increase in number. 3. Toxic substances elaborated by the organisms are diluted and prevented from further injuring the wounded area. Dr. CLARK then presents certain facts that show the value of submammary saline infusions as a therapeutic agent in septicemia, and, finally, after this critical review of all classes of drain cases, the conditions in which drainage may be indicated are reduced to the following:

1. In appendicitis when the peritoneum and tissues adjacent to the appendix are infiltrated with inflammatory products, and when the appendix has ruptured and either cause localized abscess or general peritonitis. A definite objection to drainage in the area of the appendix is the liability of post-operative hernia in this district.

2. Localized collections of pus in the pelvis. Here the abscess sac should be enucleated and the abdomen should be closed without drainage, or it should not be opened from the abdomen if it is possible to enu

cleate it safely. These cases are the ones especially suitable for vaginal incision.

3. Suture of the intestines. Here a drain should be employed only when there is doubt as to the integrity of the sutures.

4. Excision of fistulous tracts, leading from the intestine to the abdominal wall. In these cases it is safe to pack gauze down to the sutured areas of the intestine, because they are especially prone to break down and re-establish the fistula.

5. Purulent peritonitis. In purulent cases PAWLOWSKY has shown that the general avenues for absorption of fluids in the abdominal cavity are closed, consequently the surgeon must endeavor to supplement them by thorough irrigation of the abdominal cavity and free drainage.

THE ETIOLOGY OF CANCER.

The cause of cancerous disease is one of the questions that has been most actively discussed for a number of years past, and that still remains without a perfectly satisfactory solution. The general medical opinion is possibly inclined to be uncertain between a provisional theory that it is a reversional tissue degeneration and one that is of parasitic or infectious origin. The latter has had the strongest advocacy of late years in one form or another and suspicion that it may be correct, is at present, it may be, predominant.

The latest contribution to the subject is that of Dr. ROSWELL PARK in the May issue of the *American Journal of Medical Sciences*, and like other articles from his pen, it is interesting and suggestive. According to him, in order to attack successfully this problem of the origin of cancer, "pathologists of the future must begin by studying tumor formation in the vegetable world before studying it in animals, *i.e.*, the comparative method of investigation must be adopted." He calls attention to the xylomata or woody tumors, some of which he does not hesitate to call by the name of vegetable cancers, and suggests the possibility of their being directly contagious to the human species, insects acting, it may be, as the carriers of the contagion. In support of this idea he adduces certain facts of the distribution of cancer, and the researches of NOEL, who found a relation between it and vegetable growths. Foresters and excise officials who have to spend much time in shady wood paths, it would seem are especially liable to cancer, as are also those who dwell in wooded districts or shaded dwellings. This fact has not been generally recognized in the etiology of cancer, but it seems worthy of consideration and further investigation as to its universal applicability. It would be, it would seem, worth while to collect more statistics on this point and find whether malignant tumors are increasing as our prairie States become more timbered or decrease with the clearing of the forests in those regions where deforestation is still in progress. In New York, according to the figures of the State Board of Health, quoted by Dr. PARK there has been a steady increase of deaths reported from cancer; 1882 deaths in 1885; 2878 in 1890, and 3454 in 1895, or nearly twice as many as ten years before. It is not probable that the timber distribution alone could account for this difference, and so far as they go these figures give no special support to the theory suggested, but rather indicate that there must be other and still more effective causes at work that are still undiscovered. The possibility of an increasingly malignant contagion is strongly suggested by such statistics and accords with the parasitic theories of the disorder that are coming into vogue.

Dr. PARK gives an interesting review of the studies and theories of the etiology of cancer and divides them into three periods: 1, that of inaccurate observations and erroneous conclusions, beginning with NEPVEAU in 1872; 2, that of accurate observation but of mistaken deduction (the coccidial period); 3, that of iconoclastic doubt, from RUSSELL (1890) to BANTI and NISSER (1894); and 4, that of successful inoculation by the Italian observers RONCALI and SANFELICE within very recent years. From the results obtained by these last it would appear that the infectious nature of cancer has been fairly established, at least within certain limits, and that certain fungi, the blastomycetes, are probably the most active agents of the infection. This accords with the theory of the vegetable origin of the disease, a low vegetable organism and one of a class that has not hitherto been so commonly regarded as containing pathogenic species, being apparently the source of the infection. It is entirely possible, nevertheless, that in the future we may yet find other germs capable of exciting the morbid process under certain conditions, and among them some of those forms that have been from time to time offered as the causative factors. The failure of inoculation experiments is not an absolutely conclusive fact against their active agency, and the cancerous process in cell growths may easily be one that can be set up by more than one kind of irritation.

If cancer is increasing elsewhere at the rate it appears to be in New York State, the question of its etiology and its prevention will before long be well to the fore amongst the sanitary problems that interest our profession.

THE ARMY AND NAVY MEDICAL DEPARTMENTS.

Great interest is naturally felt by the medical profession in the composition and organization of the Medical Departments of the Army and Navy on their war footing, and particularly of that part which will constitute the column of attack upon the Spanish forces in Cuba. The call for volunteers to sustain the National flag has stirred the pulses of many medical men, young and middle-aged, who are earnestly inquir-

ing how their professional services may be utilized. Their questions can be answered readily, for the ranks of the Medical Corps of the Army may be said to be already filled. A board is now in session in Washington, D. C., examining candidates for position in the regular medical service, but this is not a war measure. It is the routine process by which the vacancies occasioned by death and retirement are filled annually, and it would have been in session now irrespective of any declaration of war by this country. The regular regiments have been gathered up from the garrisons of the interior and concentrated at certain points in the South. Each regiment brought with it to the rendezvous its quota of medical officers and members of the hospital corps, and it lies now with the chief surgeon of each division thus aggregated to organize its medical department, under instructions from the Surgeon-General, in the manner most suitable for the service that seems in immediate prospect. There is yet, fortunately, on the active list of the Corps a number of officers who are competent to supervise this work by virtue of having served their apprenticeship with large bodies of troops during the Civil War. In like manner each regiment of State volunteers will bring with it to the rendezvous its surgeon, two assistants and its hospital corps men to be mustered into the United States' service and to be drilled, disciplined and organized under the instructions of the Surgeon-General and the supervision of veteran officers. As these volunteers come mainly from the National Guard it is safe to say that the medical officers of the Guard will not give State governors the opportunity of filling many vacancies by the appointment of men who have not heretofore manifested their military proclivities in a practical way by membership in the Guard. There is therefore no likelihood of an immediate opening for the many who are anxious to serve their country under the Red Cross flag of the Army Medical Department.

Nor does the Navy offer any greater facilities for service. Several cruisers have been extemporized out of ocean liners and these require a medical staff; but the Department, in consideration of a few acting assistant surgeons recently appointed under the authorization of Congress, would be able to fill all the necessary positions if its own ranks were recruited up to the maximum allowed by law. We understand that the only volunteers acceptable to the Navy Medical Department are volunteers to compete for the seventeen vacancies now existing in the Corps. The limit of age for candidates has recently been extended from 26 to 30 years, thus allowing many to compete who have hitherto been ineligible.

Surgeon-General VAN REYPEN'S ambulance ship, the *Solace*, was expected to be ready for sea service by May 3. This vessel is a new departure in naval warfare. We had hospital ships in the War of the Rebellion, but they were merely transports. This is intended to be to the battleships, during an engagement, what the field division hospital is to the line of battle of the Army. She is outfitted with steam launches to convey the wounded from their stations to the comparative quiet and security guaranteed by the flag of the Geneva Convention. The *Solace* has beds for two hundred patients, and in an emergency hammocks can be slung for one hundred additional cases. The after part of the hurricane deck has been set aside as an isolation ward for cases of infectious disease. Change in the construction of war ships necessitating change in the methods of caring for the wounded has been met promptly by the Navy Medical Department.

THE PRESIDENT'S CALL FOR VOLUNTEERS.

The call of the President for 125,000 volunteers gave occasion to military writers to discuss the status of the National Guard, volunteering individually or by organizations and the appointment of officers. Were medical writers to discuss the call they would probably animadvert on the physique of the volunteer and the need for careful medical inspection to ensure that only the right men obtained position in the ranks. This appears to have been provided for by the authorities, for although local medical officers have no doubt passed on the physique of all members of the National Guard, army medical officers have been sent to the rendezvous to inspect the men prior to their muster into the United States service. As the number called out is small compared with the population of the country, only well-grown and perfectly sound men should be accepted. The minimum age for enlistment in the army is twenty-one years. This is as it should be; but the acceptance of volunteers from eighteen to twenty-one will crowd the ranks with immature constitutions which will break down under the strain of war service, giving a large sick list, a heavy death rate and a long pension roll for consideration hereafter. Britain accepts youths of this age, but she keeps them at the home stations, as at a training school, until they have attained their maturity.

The danger from yellow fever is another subject which runs in the minds of medical men in this connection. The newspapers have discussed it so freely that every volunteer in considering his risks thinks less of Spanish bullets than of this dangerous pestilence. Disease is usually more fatal to armies than battlefield casualties. For every man who was killed or died of wounds during the civil war two men died of disease, although yellow fever contributed but little to the total. It was expected that our armies would be more than decimated by this fever, but they were not. New Orleans was kept free free from fever, although garrisoned by unacclimated men from the

North. Troops at New Berne, Hilton Head, Key West, Wilmington and several other points became infected, but military discipline and military sanitation prevented any spread of the disease. It is well to enlist regiments of immunes for service in Cuba, and particularly to garrison any infected town, but we are of opinion that the danger to our troops has been unnecessarily "exploited" and exaggerated. It should be remembered that the discipline and sanitary administration of a military camp afford the very means for preventing the occurrence of the disease or stamping out its infection if it should be introduced. When the city of Memphis, Tenn., suffered so severely in 1879, those of the inhabitants who moved into camp at a distance of a few miles were preserved, although the government of the camp was not as strict as it should have been. The surgeon-general of the army has made yellow fever the special study of his life, and it is certain that every precaution will be taken to prevent disability and death from its infection.

THE JOURNAL SPECIAL TRAIN TO DENVER.

The Journal Special Train will leave Chicago, Saturday, June 4, at 11 P.M., via the Chicago, Burlington & Quincy Railroad, arriving in Denver Monday morning 7 A. M., in time for the meeting of the American Academy of Medicine, the American Medical Editors' Association and other medical organizations holding sessions on Monday.

The "Special" will run through. Tickets will be good for thirty days. The rate will be one fare and $2 for the round trip, the most favorable rate yet granted the ASSOCIATION.

PROGRAM OF SECTIONS.

The Secretaries of Sections will, if they have not already done so, please forward program of their Section immediately to the JOURNAL office. This year we desire to get out the program on time, and it will not be the fault of the JOURNAL office if it is not ready.

CORRESPONDENCE.

The Yellow Fever Amebæ.

CHICAGO, May 1, 1898.

To the Editor:—General Sternberg is in error if he suggests that I have not taken the trouble to read his report on yellow fever which he gave me personally after having discussed the question with him (1895). I have not only studied his very valuable but not fruitful researches, but have expressed also the highest respect for his investigation in my papers.

The report of Dr. Councilman, as I now see, is the most valuable work done to this time on the pathology of yellow fever. I did not at this time, to my regret, given it enough weight; but may be excused, as he himself rejected the idea of parasites and declared his finding as a curious form of necrosis, sometimes affecting only portions of the liver cells. As Councilman found the same masses in rapidly advancing cases of cirrhosis of the liver, in phosphorus poisoning and in other cases of rapid fatty degeneration, particularly in cases of yellow atrophy of the liver, the observation was not retained in my mind as possibly of a higher value than the author himself laid upon it. Indeed, I did not remember it at the time. I commenced my own researches at the commencement of this year and found in the liver the same startling alterations described so well, but misinterpreted, I think, by Councilman. Permit me to explain in brief.

1. I have never seen such forms of partial necrosis of liver cells in any of the cited liver diseases; the amyloid and colloid affections of the liver are quite different; possibly only some forms of acute red atrophy of the liver may contain similar bodies, described by me long ago as yellow atrophied liver cells (Klebs, "General Pathology," T. 2., p. 364, Table 21 and Fig. 32). Looking at this picture, I can not refrain from the suggestion, that amebæ were also present here. Of these oval and egg-shaped bodies, some contained a nucleus, some did not. The preparation was stained with carmin-alum. These bodies are found in the interstitial tissue and between the liver cells, the protoplasm of the latter showing a fine network, very similar to the yellow liver cells. I remarked (l. c., p. 368): "Whether in this case other forms of parasites, for instance, 'gregarinæ,' are present for which the yellow bodies could be taken. I do not venture to decide."

2. As to my opinion upon these bodies in the yellow fever liver, I may be permitted to repeat the following remark from my paper: "The sharply defined form of these bodies, their different staining, their disposition in the interstitial tissue and in the liver cells, their forming of vacuoles and pigment in the more advanced stages, certainly indicate them to be parasites of the class of protozoa; but having only dead material before me, I will not decide the question, unless they could be found in other organs in physiologic connection with the liver."

With what is clearly expressed, that only a detection of the same bodies in the parts connected with the liver or stomach and duodenum would give a higher degree of probability to my suggestion, Dr. Sternberg himself pointed out to me the affection of these organs as a constant feature of yellow fever. So I was very much gratified to find in the inflammatory areas of these organs quite the same bodies and also sporulating forms. It is not justifiable, therefore, to declare my opinion not tenable, as it is based on much more extensive observations than Councilman's.

3. I will repeat here from my paper, that this new theory of yellow fever as a protozoic affection "must be supported by the examination of yellow fever patients." EDWIN KLEBS.

Foreign Bodies Removed from Abdomen.

VIROQUA, WIS., April 19, 1898.

Dr. M. R. GAGE, Phoenix, Ariz., *Dear Doctor:*—Aware of the interest you have hitherto taken in the case of Miss Clara Condit (the late Capt. Condit's daughter), now an inmate of our County Asylum, I have thought best to put you in possession of some facts of late development regarding the unfortunate woman which, I think, will prove of interest to you. Saturday morning last I was requested by Dr. Morley of this place, physician in charge at the asylum, to see with him the patient referred to. The nurse in charge informed us that early that morning the patient called her attention to a small swelling in her right upper groin which was painful and interfered with her movements more or less, and also reiterated the statement made a month or six weeks before that she had swallowed two teaspoons, a table knife, and the glass tube of an ordinary thermometer broken into fragments for convenience in swallowing. Her statement first made seemed to the nurse, superintendent and wife to be so improbable that but little attention was given to it especially in view of the fact of the absence of gastric and intestinal symptoms from first to last, with the exception of an occasional attack of diarrhea

with "black looking stools," to use the nurse's expression; her appetite was good, pulse and temperature normal, and she had the freedom of the ward at will.

Our examination disclosed at the upper margin of the right groin an oblong swelling, hard, tender to the touch, of a dusky red color, of small dimensions, and nonfluctuating; from right to left obliquely upward a hard, resisting, oblong shaped mass could be distinctly outlined without subjecting the patient to any pain to speak of. In answer to my question whether she had swallowed what she told the nurse four or six weeks ago she had, her reply was affirmatively.

We rather concluded that a foreign body of some kind was located in the region alluded to, and in order to determine its nature, metallic or otherwise, thought best to make a needle exploration; this proved the lodgement of a metallic body of some kind, probably a spoon large or small. The pulse and temperature taken at this time was normal, and abdominal palpation revealed nothing of consequence. The following day the patient was chloroformed, an incision of the tumor made by Dr. Morley and a table knife ten inches long, five-eighths wide, presenting blade end first was drawn through the wounds without difficulty; it was blackened, with a somewhat serrated edge and had adhering to it a number of raisin seeds. No fecal matter or odor escaped from the cavity in which the implement was lodged showing, it seems to me, no communication with the lumen of the cecum. The operation, happily, was extraperitoneal. I, therefore, see no reason why the patient should not recover from its effects, and, moreover, had not the conditions of things been discovered at the time already stated, nature would have anticipated the knife by an opening within a few days through which the foreign body could have been readily extracted. It is rather surprising that such a foreign body received into the stomach by accident or design, could traverse almost the entire length of the intestinal canal, pass through the ileo-cecal valve into the cecum, there lodge for a time, finally to penetrate its coats into the ileo-cecal fossa and become imbedded in exudate tissue from time to time shutting it off from the abdominal cavity, without causing a train of symptoms indicative of mischief. In this case, however, there were as stated absolutely no symptoms attending the travels of the knife as far as it went in the intestinal canal.

Yours truly, WILLIAM A. GOTT.

Section on Cutaneous Medicine and Surgery.

SAN FRANCISCO, CAL., April 23, 1898.

To the Editor:—In the issue of the JOURNAL of April 9, 1898, there is published the masterly address of Dr. A. Ravogli, the chairman of the Section of Cutaneous Medicine and Surgery, delivered at the forty-eighth annual Meeting of the ASSOCIATION, in which there appear one or two inaccuracies, which would work an injustice to the session of the Section at the Meeting of the year 1895, at Baltimore, Md., and of which I had the honor of being chairman, and furthermore might incidentally reflect unfavorably upon the Pacific coast unless corrected. I would have written to my friend, Dr. Ravogli, and I feel assured that, after his attention had been called to the matter, no one would have been more willing to rectify the errors which no doubt crept unwittingly and unnoticed into his address, than the Doctor himself, but as you as editor corroborated his statements, with which issue is taken here, I feel it incumbent upon me to kindly ask of you the insertion of this communication in the next number of the JOURNAL, so that justice may be done all around. The inaccurate statements complained of occur in Dr. Ravogli's address on page 814 in the following phrases, to-wit: "At the meeting in San Francisco in 1894, Dr. Ohmann-Dumesnil of St. Louis, was chairman, and Dr. L. F. Frank of Milwaukee, was secretary. In 1895 Dr. E. [meaning A. E.] Regensburger of San Francisco, was chairman, and Dr. D. H. Rand of Portland, Ore., was secretary. No report of the work of this Section can be found in the JOURNAL for these years and not even the programs appear in the records."

The foregoing assertions of the Doctor are strengthened by your foot note to the effect that "None of the papers were received by the JOURNAL.—Ed." These statements, if allowed to go unchallenged might lead anyone unfamiliar with the facts of the case to believe that this coast took no interest in dermatology, or at all events in the Dermatological Section of the ASSOCIATION. This is very far from being so. While I admit that the session of 1894 at San Francisco was not as interesting as it might have been, yet there was a good attendance and when we consider that both the chairman and secretary were absent from the session, we must concede that the Section did quite well under those circumstances. As regards the meeting of the Section in 1895 at Baltimore, I can safely affirm without fear of contradiction, that the number of papers presented and read, the character of the discussions, and the high scientific standard and practical value of the work accomplished will compare favorably with that of any other session of the Section. Dr. Duhring of Philadelphia and Dr. Bulkley of New York, who were present, were more than pleased. Dr. Bulkley said that some of the work, especially referring to a paper on psorospermosis cutis by Dr. Gilchrist of Baltimore, was some of the best ever presented in the Section. Other excellent essays were contributed by Drs. Bulkley and Gottheil of New York, Ohmann-Dumesnil of St. Louis, Mathews of Louisville, Ky., and Mathews, as well as the chairman's address by your humble servant. Dr. Ravogli himself sent in a very creditable production on "Ulcerative Syphilide of the Pharynx," which with some other papers read there is printed on page 102 of the *Journal of Surgery*, 1896.

How Dr. Ravogli could have forgotten all these facts I am unable to say. Now that his attention has been called to them he unquestionably will admit their correctness. Most of these papers and many others read before the Section at that session were printed in the JOURNAL. A program of the work of that session, although not perfect, can be found in the JOURNAL of April 6, 1895, page 526, and still more complete ones in subsequent numbers of that publication.

Hoping that these explanations will set things aright and give credit where it is due, I remain, Yours fraternally,

ALFRED E. REGENSBURGER, M.D.

Parovarian Cysts.

MILWAUKEE, WIS., April 28, 1898.

To the Editor:—I notice, in the last issue of the JOURNAL, reference made in regard to Beyla's and Kelly's cases of enucleation of parovarian cysts without the removal of the tubes and ovaries, with the remark that those are the only cases ever reported.

I have reported one case in the Transactions of the Wisconsin State Medical Society, 1897.

The operation was done in July, 1895. Two parovarian cysts were removed; the right one was about the size of a small cocoanut. It was very easily enucleated. The top of the broad ligament was torn open with the finger and the cyst readily shelled out intact. The one in the left broad ligament was also enucleated, but with greater difficulty. Both were successfully removed without interfering with the tubes and ovaries. The patient made an uninterrupted recovery.

Yours respectfully, F. SHIMONEK, M.D.

The "Inverted Pyramid of Accumulated Honors."

SHELBYVILLE, IND., April 30, 1898.

To the Editor:—I do not wish to be hypercritical, nor to b considered an *old fogy*, but I have often been painfully in

pressed with the thought that perhaps too many of the valuable papers in the JOURNAL are over-burdened with the various titles and honors that have from time to time been conferred on the author.

When I read an article in a medical journal I like to know the name of the writer, especially if there is anything new or original in it, but I confess it makes me *tired* to see a long list of colleges and hospitals he may have performed brief service in, as well as the various societies into whose *not exclusive* halls he has been admitted, hanging like an excrescence to his ethical title of M.D., in the shape and size of a huge *Abracadabra.*

W. GASTON MCFADDEN, M.D.

ASSOCIATION NEWS.

Section on Practice of Medicine.—All members of the AMERICAN MEDICAL ASSOCIATION expecting to attend the banquet of the Section on Practice of Medicine are requested to notify Dr. S. A. Fisk, Chairman, 37 Eighteenth St., Denver, Colo.

The Journal Train.—Arrangements have been perfected with the Burlington Route for the Journal Special to the annual meeting of the AMERICAN MEDICAL ASSOCIATION, to be held at Denver, Colo., June 7 to 10, 1898, leaving Union Passenger Station, Canal and Adams Streets, Chicago, and to be run on the fast schedule shown below:

Schedule of Burlington Route. Leave Chicago 11 P. M., June 4; Mendota 1:40 A.M., June 5; Galesburg 4:10 A.M., June 5; Burlington, Iowa, 5:40 A. M., June 5; Fairfield 7:25 A. M., June 5; Ottumwa 8:10 A. M., June 5; Chariton 9:50 A. M., June 5; Osceola 10:35 A. M., June 5; Pacific Junction 2:10 P. M., June 5; Lincoln, Neb., 4 P.M., June 5; arrive at Denver 7 A.M., June 6.

Equipment. The Journal Train will run solid from Chicago to Denver and will be composed of the Pullman Company's finest equipment. It will carry a Burlington Route dining car through to Denver, in which meals will be served *à la carte*, special attention being paid to this part of the service.

Rate. A rate of one fare plus $2 from Chicago, St. Louis, Peoria, St. Paul, and all territory within the Western Passenger Association, has been secured. Net fare from Chicago and return, $31.50. Tickets may be purchased June 2, 4 and 5 at your point of departure, and are valid for passage to final destination point in Colorado up to and including June 7.

Special forms of tickets will be used and purchaser may begin return trip on any date desired between June 12 and July 6. Railroad passage and Pullman tickets may be obtained at any Burlington Route ticket office. Chicago offices are located at 211 South Clark Street, corner of Adams, and at Union Depot Passenger Station, corner of Canal and Adams Streets.

The hour of departure, 11:00 P.M., is most convenient, as it will enable passengers on trains from the East to arrive in Chicago in ample time to make connections with the Journal Train. The schedule will also allow delegates throughout Iowa to meet the train at convenient hours, and will arrive at Denver at an hour which will enable the members of associations other than the AMERICAN MEDICAL, which hold their meetings previous to its meeting, ample time to attend them.

Sleeping car rates are $6 for a double berth from Chicago to Denver. Two persons can occupy a double berth, if they desire, making the cost $3 for each person.

The entertainment of members and their families is being planned on an elaborate scale, and the committee promises all who come a most enjoyable time and a meeting full of scientific interest and social entertainment unsurpassed. Denver is an interesting city and the State offers many and varied attractions to visitors. Local excursions are being arranged to take place after the meeting, that all may have ample opportunity of visiting various points of interest in the State and seeing the best scenery of the Rocky Mountains.

A complimentary excursion has been arranged to Colorado Springs and Manitou, which will enable the delegates and friends to visit Pike's Peak, Ute Pass and "Garden of the Gods."

Information regarding the Journal Train will be promptly furnished in reply to application by letter or telegram addressed to City Passenger Agent Frank E. Bell, 211 South Clark Street, Chicago, who will also reserve sleeping car space and furnish tickets.

Trans-Mississippi Exposition.—No doubt many of the members and their friends will wish to visit the Trans-Mississippi Exposition at Omaha on their return. In order to permit of this, arrangements have been made for a stop-over as long as desired, up to the time limit of the tickets purchased for the Journal Train. A cordial invitation is extended the members and their families, by a committee appointed by the leading physicians of Omaha, for the purpose of extending to them the hospitalities of the city, and also by the Medical Director of the Exposition, Dr. E. W. Lee, to make the hospital their headquarters while on the grounds, where every courtesy and convenience will be arranged for their comfort.

Section on Ophthalmology.—AMERICAN MEDICAL ASSOCIATION, annual meeting at Denver, Colo., June 7–10, 1898.

Chairman's Address.

The Percentage of Color Blindness to Normal Color Vision as Computed from 3019 Cases, by J. Aloysius Miller, Houston, Texas. Discussion opened by Frank Allport, Chicago, Ill.

Glioma of the Retina, by J. L. Thompson, Indianapolis, Ind. Discussion opened by J. F. Fulton, St. Paul, Minn.

A Case of Mathematically Perfect Eye, by Geo. M. Gould, Philadelphia, Pa. Discussion opened by Henry Gradle, Chicago, Ill.

SYMPOSIUM, USES OF ELECTRICITY IN OPHTHALMOLOGY.

a, Some Uses of Electricity in Ophthalmic Practice, by H. M. Starkey, Chicago, Ill. *b*, Galvanism in Choroiditis, by R. F. Le Mond, Denver, Colo. *c*, The Uses of Electricity in Ophthalmology, by S. Lewis Ziegler, Philadelphia, Pa. Discussion opened by C. H. Williams, Boston, Mass., and by W. H. Wilder, Chicago, Ill.

The Treatment of Corneal Ulcers with Pure Oxygen, by T. H. Woodruff, Chicago, Ill.

Phlyctenular Keratitis, by D. S. Reynolds, Louisville, Ky.

An Easily Overlooked Form of Keratitis, by Henry Gradle, Chicago, Ill. Discussion opened by J. J. Kyle, Marion, Ind.

The Treatment of Blepharitis with Formalin, by Herbert Moulton, Ft. Smith, Ark.

The Frequency of Senile Opacity in the Crystalline Lens and the Proper Definition of Cataract, by Edward Jackson, Philadelphia, Pa. Discussion opened by E. C. Rivers, Denver, Colo.

Accidents in Eye Operations, by F. C. Heath, Indianapolis.

Bacteria one of the Chief Etiological Factors in Diseases of the Eye, by Ellet, Orrin Sisson, Keokuk, Ia.

Conclusions from Some Clinical and Bacteriological Experiments with Holocain, by Robert L. Randolph, Baltimore, Md. Discussion opened by H. V. Würdemann, Milwaukee.

Five Cases of Congenital Bilateral Dislocation of the Crystalline Lens in Three Successive Generations, by Edward F. Parker, Charleston, S. C.

An Additional Case of Double Microphthalmus, by Cassius Wescott, Chicago, Ill. Discussion opened by G. E. de Schweinitz, Philadelphia, Pa.

The Use of Aluminium for an Artificial Vitreous, by D. C. Bryant, Omaha, Neb. Discussion opened by Herbert Claiborne, New York, and L. Webster Fox, Philadelphia, Pa.

Gonorrheal Iritis and Conjunctivitis, by Frank S. Milbury, Brooklyn, N. Y. Discussion opened by F. J. Sampson, Creston, Iowa.

Iritis Spongiosa, by Adeline E. Portman, Washington, D. C.

Serous Cysts of the Iris, by Louis F. Love, Philadelphia, Pa. Discussion opened by Wm. L. Dayton, Lincoln, Neb.

Report of a Case of Hemorrhagic Retinitis (idiopathic?), by Vard H. Hulen, Galveston, Texas.

A New Perimeter, by C. H. Williams, Boston, Mass.

Report of a Case of Quinin Amaurosis, by J. M. Ball, St. Louis, Mo.

Some Severe Cases of Tobacco and Quinin Amblyopia, by E. C. Ellett, Memphis, Tenn.

Some Results in Cases of Tobacco Amblyopia, by L. J. Lautenbach, Philadelphia, Pa.

Amblyopia from Auto-Intoxication, by Henry B. Young. Burlington, Ia.

The Clinical Aspects of Toxic Amblyopia, by Casey A. Wood, Chicago, Ill.

The Pathology of Toxic Amblyopia, by G. E. de Schweinitz, Philadelphia, Pa. Discussion opened by F. C. Hotz, Chicago, Ill., and W. H. Wilder, Chicago, Ill.

SYMPOSIUM; THE TREATMENT OF AFFECTIONS OF THE LACHRYMAL APPARATUS.

The Conservative Treatment of Epiphora and Affections of the Lachrymal Apparatus, by Samuel D. Risley, Philadelphia.

Treatment of Disorders of the Lachrymal Apparatus, by Leartus Conner, Detroit, Mich.

The Treatment of Suppurative Dacryocystitis, by Arthur Prince, Springfield, Ill.

The use of Large Probes in Strictures of the Lachrymal Duct, by G. M. Black, Denver, Colo.

The Value of Large Probes in the Treatment of Strictures of the Nasal Duct, by H. O. Reik, Baltimore, Md.

On the Use of Probes in Affections of the Lachrymal Apparatus, by F. M. Chisolm, Baltimore, Md.

Some Experience with Extirpation of the Lachrymal Sac, by J. E. Colburn, Chicago, Ill.

Extirpation of the Lachrymal Sac and Gland, by C. R. Holmes, Cincinnati, Ohio. Discussion opened by B. E. Fryer, Kansas City, Mo., and Chas. Robertson, Davenport, Ia.

Report of a Few Cases of Acute Glaucoma, by H. Bert Ellis, Los Angeles, Cal.

A Case of Hereditary Glaucoma, by H. Harlan, Baltimore.

Glaucoma and Detachment of the Retina, by Wm. Cheatham, Louisville, Ky. Discussion opened by J. L. Thompson, Indianapolis, Ind., and John Chase, Denver, Colo.

Regular Astigmatism is not Always Congenital, Neither is it Unchangeable, by Wm. C. Bane, Denver, Colo. Discussion opened by S. B. Risley, Philadelphia, Pa.

The Field of Fixation or Home of the Guiding Sensation, by G. C. Savage, Nashville, Tenn. Discussion opened by F. B. Eaton, San José, Cal.

The Dynamics of the Extrinsic Ocular Muscles as the Result Obtained by the Examination of 100 Medical Students, by Flavel B. Tiffany, Kansas City, Mo.

Eye Muscle Tests with Colored Glasses, by F. B. Eaton, San José, Cal.

A New Element in the Etiology of Strabismus, by Geo. T. Stevens, New York, N. Y.

Unsatisfied Sexual Desire a Cause of Heterophoria in Both Sexes, by L. R. Culbertson, Zanesville, Ohio. Discussion opened by J. M. Bannister, Ft. Leavenworth, Ark., and D. W. Stevenson, Chicago, Ill.

Epithelial Lip Grafts for Large Wounds of the Conjunctiva, by F. C. Hotz, Chicago, Ill.

Recent Experience with Advancement of the Recti Muscles, by C. H. Beard, Chicago, Ill.

Additional Notes on the Employment of Absorbable Sutures in the Operation of Looping the Tendons of Ocular Muscles, by J. O. McReynolds, Dallas, Texas. Discussion opened by O. Dodd, Chicago, Ill.

Variability of the Visual Field in the Case of Disease of the Heart, by W. F. Southard, San Francisco, Cal.

Preparation of Macroscopic Eye Specimens, H. V. Würdemann, Milwaukee, Wis.

Report of Some Cases of Hereditary Ectopia Lentis, by W. H. Wilder, Chicago, Ill.

Remarks on De Zeng's Refractometer, by Frank Allport, Chicago, Ill.

SOCIETY NEWS.

American Medical Temperance Association.—The eighth annual meeting of the American Medical Temperance Association will be held at Denver, Colo., June 8, 1898. The meeting will be confined mostly to the annual business of the society, accepting the address by the President, Dr. N. S. Davis of Chicago. The members of this society are all members of the AMERICAN MEDICAL ASSOCIATION, and the various papers which naturally would be read before the society are now presented and read before the different Sections This is thought to be more practical, in attracting attention and discussion, and bringing out the facts before a wider audience. This association is composed of physicians who wish to study the alcoholic problem above all theory and prejudice, and who believe there is a medical and scientific side of this subject not well known, but of the greatest practical interest. This society has already a membership of two hundred physicians, and is modeled after the English society which has a membership of six hundred medical men. France, Germany and Switzerland have similar societies, and the membership comprises many of the leading medical teachers of the world. These societies have all the same end and purpose, viz: to ascertain the value of alcohol as a remedy, and its physiologic action in health and disease. It is believed that medical men can not only decide these questions but can point out solutions of the many vexed problems of alcohol as a beverage, and its effects on society and civilization, and also the practical measures to break up the evils which follow from it. The American Association, like the other societies of Europe, simply aim to ascertain the facts about alcohol, irrespective of all conclusions, and are confident that when the profession takes up this subject in this spirit the most practical results will follow. A "Bulletin" is published giving the new facts along these lines. All members of the AMERICAN MEDICAL ASSOCIATION who would like to help on this work are most cordially invited to join this society. The secretary will furnish all particulars and blanks for membership by addressing him. He will also be pleased to meet any one in Denver who may wish to join in the work.

Address, T. D. CROTHERS, M.D.,
Secretary, Hartford, Conn.

American Neurological Association.—The Council announces that the twenty-fourth annual meeting of the Association will be held in New York at the New York Academy of Medicine, No. 17 West Forty-third Street, May 26, 27 and 28, 1898. There will be two sessions daily, one from 10 A.M. to 12:30 P.M., the other from 2 P.M. to 4:30 P.M. Send the title of your paper to the secretary, 1719 Walnut Street, Philadelphia, as soon as possible, so as to facilitate the publication of a preliminary program.

Cumberland County (N. J.) Medical Society.—This Society held its annual meeting at Millville April 12. The following officers were elected for the ensuing year: President, Dr. Judson, Newport; vice-president, J. B. Ware, Bridgeton; secretary, Hamilton Mailly, Bridgeton; treasurer, Joseph Tomlinson, Bridgeton; reporter, J. C. Applegate, Bridgeton. Delegates were elected as follows: AMERICAN MEDICAL ASSOCIATION, Drs. H. W. Elmer, T. G. Davis, W. L. Newell; State Medical Society, Drs. L. L. Hand, M. K. Elmer, J. B. Ware, Ellsmore Stites, D. H. Oliver, Rulon Dare; Gloucester County Society, Drs. D. H. Oliver, Ellsmore Stites and J. C. Applegate.

Kentucky State Medical Society.—The following papers are to be read at the Maysville meeting of the Society, May 11, 1898:

A Contribution to the Study of Eye Strain as a Cause of Nervous Diseases, by A. G. Blincoe, Bardstown.

Vaccination, by B. W. Smock, Louisville.

Treatment of Fistula in Ano, by John M. Williams, Louisville.

A Case of Bright's Disease in a Child Three Years of Age, by T. B. Greenly, Meadow Lawn.

Causes and Prevention of Glaucoma, by Richard Taylor, Louisville.

Utility of the Blood Clot in the Treatment of Wounds, by R. C. McChord, Lebanon.

Diagnosis and Treatment of Stricture of the Urethra, by W. R. Blue, Louisville.

Analysis of the Earliest Manifestations of Tuberculosis, by Frank C. Wilson, Louisville.

Uterine Displacements and Their Treatment, W. Esterly Ashton, Philadelphia, Pa.

Ether Pneumonia, by James M. Anders, Philadelphia, Pa.

Gummatous Deposits in the Iris, by Crittenden Joyes, Louisville.

Hazardous and Unwarranted Substitute Procedures in Ophthalmic Surgery, by W. B. Meany, Louisville.

Remarks on the Treatment of Cystitis, by J. G. Garrick, Lexington.

Membranous Croup and Intubation, with Report of Cases, by G. G. Thornton, Gravel Switch.

The Diagnosis and Treatment of Stone in the Common Duct, by H. J. Cowan, Danville.

Abortion and Its Treatment, by E. A. Cherry, Morgantown.

The Rational Therapeutics of Some of the Animal Extracts, by R. Alexander Bate, Louisville.

Treatment of Typhoid Fever, by James F. Rinehart, Springfield.

Ether Anesthesia, by Robert Carothers, Newport.

Mental Responsibility, by Dudley S. Reynolds, Louisville.

Surgical Treatment of Hemorrhoids, by P. H. Stewart, Paducah.

The Physiology of the Liver and the Role it Plays in Digestion and Nutrition, by George E. Davis, Lawrenceburg.

Preventive Medicine and Allied Sciences, by Lyman Beecher Todd, Lexington.

Kidney Failure, by Ewing Marshall, Louisville.

Diagnostic Value of the X-Rays, by J. T. Dunn, Louisville.

Deflection of the Nasal Septum, by Thomas C. Evans, Louisville.

Typhoid Fever; Etiology and Treatment, by J. P. Heavrin, Owensboro.

Constipation, by G. J. Monroe, Louisville.

Cholera Infantum; Report of a Case, by Hugh J. McLean, Wilmore.

Malignant Disease of the Uterus, by Louis Frank, Louisville.

A Case of Hematoma of the Vulva Following Normal Delivery; Operation; Recovery, by Isaac A. Shirley, Winchester.

Induction of Premature Labor for Neuro-retinitis Albuminurica to Save the Eyesight, by J. G. Carpenter, Stanford.

Puerperal Eclampsia, by M. C. Cash, Salyersville.

Smallpox and Vaccination, by Albert Bernheim, Paducah.

Exhibition of an Obstetric Outfit, by Henry E. Tuley, Louisville.

Vesico Vaginal Fistula, With Report of a Case, by D. B. Knox, Newton.

Influence of Age and Race in Surgical Diseases, by W. L. Rodman, Louisville.

The Curative Treatment of Hemorrhoids by the Country Practitioner, by J. L. Atkinson, Campbellsville.

Extra uterine Pregnancy, by F. F. Bryan, Georgetown.

The Midwife and Midwifery, by L. C. Wadsworth, Newport.

Syphilis, Whence Does it Originate and Where is it Now? by Henry Plummer, Harrodsburg.

Special papers for Discussion: Pathology of Osteomyelitis, by Arch. Dixon, Henderson.

Diagnosis and Treatment, by James B. Bullitt, Louisville.

Pathology and Diagnosis of Diphtheria, by C. W. Aitken, Flemmingsburg.

Treatment of Diphtheria, by S. G. Dabney, Louisville.

Relation of State Boards of Health to Medical Practice, by William Bailey, Louisville.

NECROLOGY.

Cornelius Nevins Hoagland, M.D., died at his home in Brooklyn, N. Y., April 24, from hepatic trouble. On January 25 he left for a Mediterranean trip and returned on April 5 with cardiac symptoms which culminated in a short and quiet slumber. He was born in Neshanic, N. J., Nov. 23, 1828, but was brought up in Ohio, where his parents removed in 1834 and where, in Cleveland, he received his medical degree from the Western Reserve University. In 1854 he was elected county auditor of Miami County, Ohio, and was re-elected in 1856, which constituted a term of four years. The breaking out of the war found him a private in the Lafayette Blues, a company recruited in Troy, Ohio, and in 1861, in response to the call of President Lincoln for troops, he became its first lieutenant and with them was assigned as Company H, Eleventh Ohio Infantry. In October of the same year he was appointed surgeon of the Seventy-first Ohio Infantry and served as such until January, 1866. He took part in several engagements and was wounded in the breast at Nashville, Tenn. Coming to Brooklyn, N. Y., in 1868, he engaged in business and in 1876 retired with a competency. Although his name is best known in connection with the laboratory of the Long Island College Hospital, he had many other affiliations such as a Fellow of the Microscopical Society of London, besides being more or less actively identified with the American Geographical Society of New York, the New York Genealogical and Biographical Society, the Long Island Historical Society, the People's Trust Company and the Dime Savings Bank, but most of all does he deserve the grateful remembrance of the medical profession to which he was devotedly attached. He leaves three daughters.

Henry C. Crouch, M.D., Denver, Colo., died April 20, aged 40 years. He was graduated from Yale in 1879, represented the United States as consul at Milan from 1886 to 1890, and in the latter year the University of Giessen conferred the degree of Doctor of Medicine upon him. In 1891 he came to Colorado. Dr. Crouch was appointed a member of the State Board of Health in 1892 and bacteriologist both to the State and city boards of health in 1895, holding both positions at the time of his death. From 1893 to 1897 he occupied the professorship of bacteriology in the medical school of the State University.

William Meacher, M.D., Portage, Wis., died April 22, aged 65 years. Dr. Meacher was a member of the board of censors of the Wisconsin Medical Society, an ex-president of the State, the Northwestern Medical and the Central Wisconsin Medical Society. He was a graduate of Rush Medical College, class of 1862, and during the civil war was commissioned assistant surgeon of the Sixteenth Wisconsin. He was at the siege of Atlanta and in the march to the sea with Sherman.

David W. Yandell, M.D., ex-president of the American Medical Association, Louisville, Ky., died May 3, after long lingering illness. Further notice will appear in the Journal of next week.

Ellsworth D. Whiting, M.D., Rush Medical College, 1897, of the Presbyterian Hospital staff, Chicago, died at Aurora, Ill., April 26, of typhoid fever.

Martin Van Buren Bogan, M.D., Washington, D. C., April 19, aged 69 years.——Elizabeth R. Hess, M.D., Iowa City, April 21, aged 54 years.——Benjamin K. Johnson, M.D., Norristown, Pa., April 23.——James A. Leason, M.D., Dillon, Md., April 21, aged 43 years.——H. G. McNaughton, M.D., Albany, N. Y., April 18.——Charles W. Meyers, M.D., Clinton, Iowa, April 21.——Alexander J. Dunne, M.D., Springfield, Mass., April 22, aged 36 years.——Daniel Smicer Forney, M.D., Burlington, Iowa, April 20, aged 90 years, a graduate of Washington University School of Medicine, Baltimore, class of 1828.

BOOK NOTICES.

International Clinics. A Quarterly of Clinical Lectures, etc., etc. Edited by Judson Daland, M.D., J. Mitchell Bruce, M.D., David W. Finlay, M.D. Volume 1, Eighth Series, 1898. Philadelphia: J. B. Lippincott Company, 1898.

Contributors to this volume are as follows: T. McCall Anderson, M.D., J. W. Ballantyne, M.D., Cecil Y. Biss, M.D., Byrom Bramwell, M.D., F.R.C.P., Norman Bridge, M.D., Henry C. Coe, M.D., Charles Greene Cumston, B. M. S., M.D. Samuel G. Dabney, M.D., Judson Daland, M.D., N. S. Davis, Jr., A.M., M.D., Prof. Hayem, J. O. Hirschfelder, M.D., M. B. Hutchins, M.D., Prof. Jaccoud, Alexander James, M.D., F.R.C.P., I. N. Love, M.D., Herman Marcus, M.D., Prof. Marfan, M.D., Joseph M. Mathews, M.D., Ernest Maylard, B.S., M.D., E. E. Montgomery, M.D., William Oliver More, M.D., Paul F. Mundé, M.D., LL.D., Thomas Oliver, A.M., M.D., A. Pinard, M.D., Thomas R. Pooley, M.D., B. Alexander Randall, M.D., W. O. Roberts, M.D., Albert Robin, M.D., Graham Steell, M.D., Charles G. Stockton, M.D., J. D. Thomas, M.D., Nestor Tirard, M.D., J. S. Todd, M.D., Prof. E. Van Leyden, H. O. Walker, M.D., William H. Wathen, M.D., LL.D.

The volume is well illustrated and gives a fair presentation

of the clinical teachings of the day on the subjects mentioned in the work.

An American Text-book of Genito-Urinary Diseases, Syphilis and Diseases of the Skin. Edited by L. BOLTON BANGS, M.D., and W. A. HARDWAY, A.M., M.D. Illustrated with 300 engravings and 20 full-page colored plates. Philadelphia: W. B. Saunders, 1898. 8vo. pp. 1230. Price $7.00.

This voluminous work is thoroughly up to date and the chapters on Genito-urinary Diseases are especially valuable. The illustrations are fine and mostly original. The section on dermatology is concise and every way admirable. We regret to see that the old system of weights and measures has been used instead of the decimal system, but the work as a whole is worthy of all praise.

Chapin on Insanity. By JOHN B. CHAPIN, M.D., LL.D., Physician-in-Chief, Pennsylvania Hospital for the Insane; late Physician-Superintendent of the Willard State Hospital, New York, etc. 12mo, 234 pages, illustrated. Philadelphia: W. B. Saunders, 1898. Price $1.25.

This is an admirable manual for those who wish to obtain a general knowledge of the subject without the labor or burden of the study of more voluminous text-books. The essential forms of diseases of mind are well presented, and the work is intended to be for popular as well as scientific reading.

A Laboratory Text-book of Pathology for the use of Students and Practitioners of Medicine. By HORACE J. WHITACRE, B.S., M.D. Illustrated. 8vo. Cl., pp. 172. Philadelphia: P. Blakiston, Son & Co. 1897. [Chicago, E. H. Colegrove, agent.]

This work is not intended as a complete treatise on pathology, but it furnishes the student with an excellent text-book for use in the Laboratory.

Photomicrographical illustrations are used throughout the work and are a very satisfactory method of illustration. None of the more pronounced pathologic lesions are omitted.

Fat and Blood, an Essay on the Treatment of Certain forms of Neurasthenia and Hysteria, by S. WEIR MITCHELL, M.D., LL.D. Seventh Edition. 12mo. Cl. pp. 178. Philadelphia: J. B. Lippincott Company. 1898.

When a book has passed to its seventh edition the most that can be done by the examiner is to record the fact, and to note the changes that have taken place since the preceding edition. The author says, "The present edition like the last has been carefully arranged by my son, Dr. John K. Mitchell. Some changes were made in the sixth edition and a few more have been made now as a result of added years of experience. Some points of treatment have been more fully dealt with. The Chapter on Massage has been wholly rewritten, in order to describe the process according to the methods which on use and observation appear to be the best, and to notice the last physiologic studies and its effects."

Atlas of Internal Medicine and Clinical Diagnosis. By Dr. CHR. JAKOB, of Erlangen. Edited by AUGUSTUS A. ESHNER, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic; Attending Physician to the Philadelphia Hospital. 68 colored plates, and 64 illustrations in the text. Pp. 260. Philadelphia: W. B. Saunders. 12mo. Cl. Price $3.00.

This atlas contains a selection of the most important clinical conditions a knowledge of which the practitioner must acquire, and the acquisition is made more simple and easy by its means. We predict a large sale for this work.

Clinical Reports and Notes on Unguentine, Fourth Edition. Paper, pp. 140. Norwich, N. Y. Press of Norwich Pharmacal Co.

This monograph tastily gotten up, contains clinical reports and comments favorable to unguentine. Copy may be had for the asking.

Arsenauro and Mercauro. Paper. Pp. 32. Illustrated. New York: Charles Roome Parmele Co.

This brochure contains clinical records of arsenauro and mercauro as reported in medical journals with several full-page plates in colors.

Daydreams of a Doctor. By C. BARLOW, M.D. 12mo. Cloth. Pp. 252. The Peter Paul Book Co. Buffalo, N. Y. 1898.

This work is an incursion into the field of literature from the standpoint of a physician. It is a rather successful attempt of imitating the style of Ik Marvel in the Reveries of a Bachelor, and will be found very interesting and very instructive. Its style is pleasant and the book will prove an agreeable companion for the doctor when more or less weary by the reading of heavier scientific productions.

PUBLIC HEALTH.

Progress in the Official Organization of Disinfection at Paris.—The Parisian bureau of disinfection has made an important report to the Municipal Council upon the results accomplished under the modernized methods employed for the restriction of infectious disease. From this report it appears that in seven years with a staff which numbers eighty people the organization has carried out in Paris more than 171,000 disinfections, the annual average being at present nearly 40,000. In 1886, before the service was organized, there died in Paris nearly six thousand persons, carried off by epidemic diseases. Ten years afterward, in 1896, the number, which had been gradually falling, fell to below two thousand; that is to say, that three or four thousand human lives were saved every year. Without doubt the works which have been carried out of bringing water straight from the springs have contributed greatly to the amelioration of the sanitary condition of Paris, but disinfection has also played a large part. The total mortality, which was 54,536 in 1892, the date at which the disinfecting service was first organized, fell in 1897 to 46,987, that is to say, an average of 18.54 per 1000 inhabitants in place of 22.47. The principal part of this very considerable diminution in the mortality of Paris is accounted for chiefly by the diminution in zymotic diseases. The mortality from these diseases, which was formerly one-tenth of the whole, fell gradually to one-eighteenth between 1891 and 1895, one-twenty-sixth in 1896 and one-twenty-seventh in 1897. Enteric fever in 1892 accounted for 691 deaths and in 1897 for 231. In 1892 there were 42 deaths from smallpox and only 12 in 1897. In 1892 there were 909 cases of measles and only 811 in 1897. The deaths from scarlet fever, which were 158 in 1892, fell to 76 in 1897. There were 334 cases of whooping cough in 1892 and only 282 in 1897. Finally, diphtheria, which gave rise to 1403 deaths in 1892, was the cause of only 306 in 1897. M. Landrin observed that tuberculosis remained stationary because prophylaxis against this terrible disease, which is accountable for one-quarter of the whole mortality, is not yet a definite part of the social system. He reminded his audience that both the municipal council and the government are ready to make a great effort to fight against tuberculosis. In addition to the measures taken in hospitals and the system of treating the poor at their homes as well as those unfortunates who are under the care of the Assistance Publique, measures were taken during 1897 by the municipal disinfecting organization with the view of carrying out a more complete and methodical campaign against tuberculosis. The report concludes with the recommendation that measles, which is today one of the most fatal zymotics, should be made a compulsorily notifiable disease.

Progress in the Preparation of Glycerinated Vaccine Lymph in England.—The London *Lancet*, March 5, adverts to an announcement that has been made in some of the medical journals to the effect that the local government board will at once proceed to distribute glycerinated calf lymph to public vaccinators. The statement is evidently premature, for although the board are making arrangements to secure a proper laboratory where the necessary processes of preparing and storing the lymph can be carried out, these arrangements are not yet completed

There must also necessarily be delay after the laboratory and its staff are in working by reason of the necessity of keeping the glycerinated lymph a sufficient period of time for the destruction of extraneous organisms and for testing the keeping qualities of the lymph. If, as announced by Mr. Chaplin, glycerinated calf lymph is to be available for all vaccinations it is clear that the use of humanized lymph must practically cease, and before this can take effect the department supplying the glycerinated lymph will have to feel confident that it can meet the many demands which will be made on it by supplying in large amount a lymph that can be depended on. We therefore doubt whether any such supply as is needed will be forthcoming for some months to come. But there is reason to believe that such a supply will be issued quite independently of the passing of any vaccination bill. The editor further states that he has received specimens of lymph from the Jenner Institute, prepared and glycerinated in strict accordance with the methods now well known and first advocated by Dr. Copeman. The tubes, it is stated, are only sent out after testing by plate cultivating, and after negative evidence has been obtained of the complete absence of the "adventitious" microbes, as Lord Lister has described them. The calves from which the lymph is obtained are first tested with tuberculin prior to being inoculated. The glycerin used is kept under strict aseptic precautions. As is well known, lymph prepared in this approved way is bacteriologically pure and free from pus producing organisms.

MISCELLANY.

The Sense of Smell in Troubles of the Ears.—Collet has established the fact, with Zwardemaker's olfactometer, that the use of smell is materially diminished in all disturbances of the ears; least in otitis media and cicatrized tympanum, most in sclerosis.—*Deu. Med. Woch.*, February 24.

Pasteur Institute at Florence.—A Pasteur Institute is to be established at Florence, Italy, for the treatment of rabies, the latter being of common occurrence in Tuscany, where most of the population is engaged in agriculture. Milan, Rome and Naples are already provided with institutes in which the Pasteur treatment is employed.

A Blow at "Face Specialists."—A bill has been introduced in the New York assembly to put a stop to unprincipled persons who make a business of removing facial blemishes and making dimples. The bill provides that such work may not be done by any but practicing physicians. A fine of $250 and imprisonment for six months will be the penalty for the first offence, a fine of $500 and a year's imprisonment for a subsequent conviction.—*Medical News*, April 2.

The Second French Congress of Gynecology and Obstetrics.—The second periodic French Congress of Gynecology, Obstetrics and Pediatrics will be held at Marseilles, France, from October 8 to 15 under the presidency of Professor Pinnard (Section on Obstetrics), Professor Pozzi (Section on Gynecology) and Professor Broca (Section on Pediatrics). All communications should be addressed to Dr. Quirel, general sectretary of the Congress, 20 Rue Grignan, Marseilles.

The Prevention of Fire in Lodging Houses.—The New York houses for lodgers are said to number 113, at least that is the number on record in the Department of Health as being operated under an official permit. In consequence of the disastrous fire which recently occurred at one of the Bowery houses a simultaneous inspection was made of the entire number on a recent night. The result was quite satisfactory, as only five of the houses were discovered to be conducted in violation of the terms of their permits or the requirements of the lodging-house law.

Swiftwater Biological Laboratory.—Dr. Richard Slee, formerly of Brooklyn, has established at the above named town in Pennsylvania a plant for the production of therapeutic animal products, as antitoxins and vaccines. His laboratories have been planned in conformity with the requirements of the State Board of Health, of which he is an officer. Bovine vaccine will be produced in the form of glycerinated virus in Sternberg bulbs or in capillary tubes, or on ivory points.

The "Strabo" at New York Quarantine.—The Health Officer of the port of New York, Dr. Doty, has detained for disinfection purposes the English coffee steamship, *Strabo*, because of a death by yellow fever on the voyage north. Both the captain and cook were taken with the disease on the way up. The former recovered and was able to resume command of his ship. The cook died and was buried at sea. At St. Lucia the ship was disinfected. As there was no evidence of sickness on board at the time of her arrival in the harbor, Dr. Doty directed that the steamer be disinfected again and then be allowed to proceed.

The Rotation Method of Reducing the Blood Pressure.—Von Wenusch has been testing the effect of fastening a person on a revolving table in a dark room, and finds that the frequency of the pulse and the blood pressure is much reduced by this centrifugalization, which he thinks may find some therapeutic application. The table makes sixty revolutions to the minute, but the patient feels no motion, only a tingling in the peripheral vessels from the accumulation of the blood.—*Klin. Therap. Woch.*, February 27.

Telegony.—This term was proposed by Professor Weismann to denote the cases where the female is so far influenced by the first sire to which she bears offspring that the subsequent offsprings to other sires presents some of the characteristics or peculiarities of the first. Early in the century Lord Morton bred from a chestnut mare a quagga hybrid, and the mare afterward produced to a black Arabian horse a filly and a colt marked like the hybrid. In the *Scottish Medical and Surgical Journal*, Dr. J. C. Ewart takes up the subject from the view-point of his own original researches. In 1895 Professor Ewart formed a small stud and commenced various crossing experiments between horses and zebras. He now has five zebra mare hybrids, and the dam of a last year hybrid has recently produced to an Arab horse a foal presenting numerous zebra-like stripes over the croup and loins. He enumerates the explanations of this phenomenon that have been suggested by Sir Everard Home, Herbert Spencer and Weismann, all of which he thinks are highly improbable.

The Antitoxic Action of Nerve Pulp in Strychnin Intoxication announced by Widal and Nobecourt, is now explained in a disappointing fashion by Thoinot and G. Brouardel, who find that a number of inert substances are also capable of neutralizing the poison, and by the simple mechanism that they absorb and retain its toxic essence so that the filtered fluid contains none of the actual poison, and can be injected with impunity. Nerve pulp, talcum powder, charcoal, etc., were nearly equally effective in thus "neutralizing" the poison. *Presse Méd.*, March 26. They are now investigating whether these conclusions will also apply in any degree to Wassermannn's successful experimental neutralization of tetanus with emulsioned brain matter injected several hours before the tetanus toxin. *Vide* JOURNAL, pages 449 and 935.

A Hint to Advertisers.—To our friends in the drug trade and elsewhere, who deal in artistic ways of announcing their products, we may say that an antique glyptic portraiture of Esculapius has recently been discovered and introduced into English literature. In Professor J. G. Frazer's book, on the "Description of Greece by Pausanias," appears a photo-illustration of a marble relief showing the medical divinity as found in the Epidaurian sanctuary. The figure of Esculapius is an

eminently dignified one and if properly reproduced in illustration will be quite sure to arrest medical attention, and this is what our friend, the artistic advertiser, is glad to do. The best imprint is to be found in the *Ephemeris Archæologica* for 1896.

Bequests of a New York Physician.—Under the will of the late Dr. Edward C. Seguin of New York City the Academy of Medicine will fall heir to an oil painting of his father, the late Dr. Edward A. Seguin, together with a frame autograph letter dated Dec. 16, 1847, of Pope Pius IX. He leaves to the same institution a bronze medallion of Charcot and a large photograph of Brown-Séquard. All his instruments and appliances for the study of the nervous system and also all books in his library relating to the anatomy and physiology of the nervous system, he leaves to the pathologic laboratory of the Alumni Association of the College of Physicians and Surgeons, provided a special bookcase and drawers are set apart for their keeping and a catalogue of them is made. In case this bequest is not accepted the collection is to be given to the New York Academy of Medicine, also his special collection of monographs and pamphlets on the nervous system and his other books on the same subject.

A "Healtheries" at New York City in May.—From April 25 to May 31 an International Health Exposition will be held at New York in the Grand Central Palace, Lexington Avenue. The New York Household Economic Association and kindred organizations will co-operate with the management of the Exposition, which will embrace everything relating to health, both indoors and outdoors, and illustrate the sanitary and hygienic progress of the century. Mr. Charles E. Wingate is the supervising director. All exhibitions of this description should be encouraged, for they are of distinct benefit; first, in bringing together for comparison the latest sanitary appliances and methods, and second, in educating the public in their use and benefits. The second point is perhaps the most important, because whatever sanitarians may do with regard to the improvement of their science, the resulting benefits to the health of the community must be tardy unless the public is ready to aid in the application of the improved processes. In our own country we have far too few of these exhibitions, and sanitary science would be much benefited if the public were better educated in this matter.—*Medical News*, April 16.

Ligatures to Produce Atrophy in Inoperable Tumors have been revived of late, as mentioned in the JOURNAL, January 1, page 37, and examination of several of the neoplasms at the death of the patients, five to seven months after the ligatures had been applied, show that ligature of the uterine artery is far superior to ligature of the internal iliac in respect to the hemostasis of the uterus secured. The uterine artery is easily located by its relations to the ureter. A peritoneal incision in front of and parallel to the ureter in the bed of the ovary, discloses the uterine, without fail, at its starting point. In cancer of the uterus the atrophying ligatures seem to diminish the discharges, at least temporarily, but do not conspicuously modify the course of the neoplasm. An interesting point noted is that the ligature was never followed by the formation of a clot, thus confirming in man previous experimental results.—*Presse Méd.*, February 12.

Sixty-six Years Make an "Aged" Person.—The supreme court of Georgia thinks that it would be difficult to designate an exact period of life when one might with certainty be said to have become aged. And, while it concludes that the term "aged" as applied to human beings is not, for all purposes, susceptible of precise definition, and that it is not practicable to arbitrarily fix a period of life at which the condition of being aged may be said to have certainly begun, it holds, in the recent case of Allen vs. Pearce, that it is safe to say that a man 66 years old is entitled to an exemption of his property from levy and sale, under that clause of the constitution of Georgi allowing this right to "every aged or infirm person," and thi even though he may be a hale and hearty man. In an Englis case it has been held that persons 50 years of age are aged within the meaning of the statute of charitable uses, provid ing for gifts "for the relief of aged and impotent and poo people."

Egg and Coffee, the New Differentiating Culture Medium.—Whit of egg poured over raw grains of coffee turns a bright gree and bacilli develop readily in it, not affected by the color, bu with the peculiarity that each species is surrounded by a zon of some other color, which lasts as long as the colonies retai their vitality. Colonies of meningococcus and pneumococc are surrounded by a zone of bright orange. The staph. pyog aur. is encircled with a zone of light yellow and slightly liqu fies the medium, while around the proteus vulgaris extends reddish zone. If the colonies are killed the discolored zon gradually returns to its original green. The fresh albumir 100 grams, is poured over green coffee grains, 20 grams, an set aside for two or three days, then filtered into 10 c.c. tes tubes and sterilized by exposure 60 to 65 degrees C. for couple of hours each day for six days, when it is solidified b raising it to 70 degrees. Acids produce a different effect, s the discoloration by the bacteria is not due to an acid. Th green of the albumin is not caused by chlorophyl as the spec trum is quite different, resembling more that of xanthophy (Pacinotti and Municchi in the *Gaz. degli Osp. e delle Clin* March 13.)

Skin-Grafting Case at the Antipodes.—A curious case was trie recently at Sidney, where a woman brought an action for dan ages against a doctor who had removed fifty-two square inche of skin to graft on a patient who had been severely burnec It must be admitted that this was a rather a large draft o any one's abnegation, and the good lady seems to have regre ted her generosity when it was too late. Unfortunately fc her, the fact that she was a consenting party was held by th jury to exonerate the doctor, so she is minus both skin an damages. Possibly a claim would lie against the beneficiar though even a committee of experts would find it difficult t appraise the value of skin per square inch. On any futu occasion we would suggest that she stipulate beforehand ho much skin she was prepared to "shed." However, the plai tiff appeared to have just cause for complaint, and we a quite unable to approve the conduct of the surgeon who, eve by consent, partially flays one person in the interest of anothe —*Medical Press and Circular.*

A Railroad Hospital Car in Belgium.—A modern improvemer that Belgium has put upon one of her railway systems is specially designed and specially built hospital car, which wi be available in the case of a serious railway accident. It ma also be employed in conveying invalids from one point t another as, for instance, from the inland towns to the healtl giving sea-side watering places. The interior of the carriag is divided into a main compartment and two small rooms at th end. In the larger room are twenty-four beds, and each patie lies in front of two small windows which can be opened at wil A movable table can be lowered over each bed. There a lockers in the corridors for ice-chests, provisions and linen. necessary a part of the saloon can be transformed into a operating chamber. In connection with the hospital is a sma chapel for religious services, and the patients will be in charg of a surgeon and nurse. Although primarily designed to me the wants of the traveling public, this car may be readi adaptable to the needs of injured railroad employes.

Primary Disseminated Sarcomatosis in the Soft Membranes the Central Nervous System.—F. Svenson has classified the fifte cases on record. Three were tumors of endothelial origin wit endothelial cells, rapid in their development, three and a ha

months maximum; five of endothelial origin, in which the cells had lost their endothelial type, course from two months to six years, besides the symptoms indicating pressure there were other morbid manifestations; and seven round-celled sarcomas, average age at death thirteen years, course rapid, from two and a half to twelve months. In his personal case, belonging to the second group, the base of the brain was found dotted with large and small tumors in the pia mater, respecting the nerve substance almost completely, and a single large tumor in the lower part of the occipital and temporal prolongations, distinguished by an alveolar structure, although three kinds of tissue were evident, granular nuclear cells clearly defined, surrounded with a thin layer of protoplasm, ramifying on all sides. These ramifications united with others and formed a myxoma-like tissue. There were also other similar cells without clear outlines. An ependymitis sarcomatosa was also noted. The first manifestations were headaches and convulsions followed by inco-ordination, facial paresis, blindness from papillary stasis, frequent unconsciousness and diminished psychic functions; after six years death in coma, interrupted by convulsions. His article in the *Nordiskt Med. Ark.*, No. 32, 1897, is finely illustrated.

Pill-dipper Patent Void.—Letters patent No. 389,485, issued by the United States, Sept. 11, 1888, to John B. Russell, was for "device for holding and dipping pills," etc. This device has been described as consisting of a bar having a number of hollow seats for the reception of pills, which bar is adapted to be connected with an exhaust or sucking apparatus, so that the pills to be dipped are held to their seats by atmospheric pressure while being dipped. The specification of Russell's patent contained the following: "Pills are now dipped in gelatin by the use of what is known as a 'needle bar,' viz., a bar in which are set a number of needles. The pills are impaled on these needles, partially dipped, are allowed to dry and then removed from the needles, usually by spring fingers, and the uncoated portion dipped. This, of course, makes a hole in each pill, and requires considerable manipulation. My invention consists in holding the pills on the dipping mechanism by atmospheric pressure, and I do this by maintaining a partial vacuum behind the pills when in position." Unfortunately, however, for the validity of the patent, the United States circuit court of appeals holds, reversing the circuit court, Frederick R. Stearns & Company vs. Russell, February, 1898, that, notwithstanding the utility and success of the application of the device to pill-dipping, this was but a new application of an old device and hence not patentable.

Goat's Milk "Cures" in Switzerland.—Dr. Irving Richman, of the Consular service, writes from St. Gall, Switzerland, that he has been able to find few specialty-cures for the treatment of the sick by the use of goat's milk in that country. There would seem to be a few, if any, purely goat-milk cure establishments in the country. At all the mountain resorts and "*Kurorte*," goat milk is provided as well as the milk of the cow. Goat's milk is believed to be immune to tubercle and more nourishing than any other milk, and hence is often prescribed for patients with a consumptive tendency. I am told that, except for the above mentioned qualities, goat's milk is of no greater value than the milk of the cow. In fact, it is stated that the latter, when boiled, is quite as good as the milk of the goat; inasmuch as many persons dislike to drink boiled milk, fresh goat milk is prescribed instead. In French Switzerland, at Lausanne, Vevey, and other places, boys go from house to house with a half dozen goats, supplying milk as it is called for by milking the animals on the premises. The price of goats is from $5 to $8 each. The canton of Appenzell, in northeastern Switzerland, is particularly noteworthy for "*Kurorte*," whence is dispensed the milk of the cow and the goat, the towns of Gais and Appenzell being the principal points.

Carne Liquida, a new Uruguayan Food Product.—The *Consular Reports* inform us that 200,000 cattle are slaughtered yearly in Uruguay in the production of meat extracts. Taking into consideration that 100 pounds of good, solid meat yields only 2¼ pounds of extract, the immense loss of alimentary substance to the world may be imagined, and therefore from a standpoint of national economy, as well as food, the production of meat extract must be considered as a great wastage of alimentary matter. No doubt this fact has given rise to the various and extensive experiments made in the field of chemistry everywhere, as well as in the great meat-producing country of Uruguay, and beyond question has also led to the discovery made by the Uruguayan chemist, Dr. Valdes Garcia, of the so-called "*carne liquida*" (liquid or fluid meat), in which he endeavors to combine the qualities of the extract of meat with the nourishing properties of the meat itself. This is already the third in prominence of the meat products of the country. The success of this comparatively new product has been so far very satisfactory, as regards the purposes for which it was intended. It is building up a considerable reputation the world over, and is already called for by merchants of Europe, Africa, America, and Australia, so that the factory is pushed to supply the demand. This very digestible and nourishing aliment is recommended especially to hospitals by the various chemists who have analyzed it.

Dentistry Practice—Kind of Certificates Required in Maryland.—An interesting point of statutory construction is involved in the decision of the court of appeals of Maryland, which was handed down Feb. 10, 1898, in the case of Knowles against State. An 1896 act of that State declares that it shall be unlawful for any person to practice dentistry in the State without first obtaining a certificate as provided by the act, while section 12 thereof excepts from its operation certain classes of persons, providing, among other things, that nothing therein shall be construed as to interfere "with persons holding certificates issued to them prior to the passage of this act." In this case, after a conviction in the criminal court of Baltimore City for unlawfully practicing dentistry without having obtained from the State Board of Dental Examiners a certificate as required by the foregoing act, appeal was taken, contention being urged that the trial court had erred in rejecting as evidence a certificate of qualification and registration issued by the Board of Dental Examiners of the State of Ohio. But the court of Appeals of Maryland takes the position that it was the intention of the legislature to confine the act of 1896 in its application to certificates which had been issued by the Dental Board of that State, under article 32 of the Code of Public General Laws, and to save all certificates which had been previously issued thereunder, without giving the act any extra-territorial force, especially as its language, taken in connection with the previous legislation on the subject, shows conclusively that the act refers only to certificates issued by the Board of Dental Examiners of Maryland, and not to those issued by other States. For these reasons, it holds that there was no error in the rejection of the testimony offered in presenting the Ohio certificate.

Postponed Impregnation.—A rather puzzling class of cases for obstetricians is that of delayed conception. De Koninck has, in the *Revue Médicale*, October 30, analyzed about 400 cases of primaparous labor in wives married for several years and relatively mature. He favors the thirtieth year as the earliest proper to be included under the term of "maturity," or the *primapares agées* of the French writers. It appears that in a genuine uncomplicated case of delayed impregnation the advent of the catamenia is always found to have occurred late in youth. Out of 401 such cases menstruation was retarded till 20 in 39, till 24 in 4, and till 26 in 1. As to the retarded first pregnancy, such complications as abortion, ectopic gestation, twins and

special renal mischief, are relatively frequent. Above all, lingering labor is especially common, statistics even exceeding guesses and *a priori* reasoning in this respect. In 12 out of 17, noted by De Koninck, labor lasted from forty to fifty hours, the remaining labors being yet longer; one exceeded ninety hours. Feebleness of uterine contraction is absolute from first to last, and independent of any obstetrical combination. They also cause far more physical and mental exhaustion than the vigorous contractions of a young uterus, and at the same time are more painful. There are discrepancies in the "pains" seen in mature primaparæ of the same age, probably homologous with the great variations in the age of menopause observed in otherwise normal women. The uterus may be older in one woman aged 35 than in another of the same age. The forceps and other obstetrical operations are often required in the mature. Most of the above facts are easily explained. The excess of male infants borne by mature primaparæ (30 per cent.) is a less explicable phenomenon. Hecker considers the predominance of male infants as a specialty of all primaparæ, but Rumpe turns attention to the fact that in a family of children the predominance of males is commoner the further the mother is from her first menstrual period.

When Doctors are Baffled.—An important precedent, of particular interest to physicians and surgeons, is established by the decision rendered by the appellate division of the supreme court of New York, in the case of Yaggle vs. Allen, January, 1898. This was an action brought against two doctors, father and son, for negligently causing the death of Frederick Yaggle, who had called at their office to have a shoulder set, that was subject to dislocation. After this operation had been performed, and while still under the influence of the chloroform, or while recovering from its influence, or just after recovering from its influence, as to which there was a conflict in the evidence, but while still in the operating-chair, Yaggle suddenly expired. There were only three persons present at the time of the administration of the chloroform to, and the performance of the operation upon, the deceased, viz., his son and the two doctors. The son and the doctors were in direct conflict in regard to the amount of chloroform used, the manner of its administration, and several other details, which were relied upon as evidence of the negligent and unskilful manner in which the operation was conducted. Moreover, the only physician sworn on behalf of the plaintiff testified, from the plaintiff's own evidence as to what took place, that he was unable to state the cause of death. One of the physicians sworn for the defendants stated that he was unable to give the cause of death, and two others stated that, from the condition in which the lungs were found, death was not the result of suffocation or strangulation, but, in their opinion, was produced by calcareous degeneration or fatty change of the vessels of the heart. Under such circumstances, which it distinguishes from a case of conflicting expert evidence, the appellate division holds that a jury could not determine the cause of death, because neither juries nor courts are permitted to render verdicts or judgments upon guesses or surmises. For these reasons it reverses a judgment that was rendered in the court below against the doctors, and grants a new trial.

Restates the Law Relating to Malpractice.—The court of appeals of New York says, in the case of Pike vs. Honsinger, March 1, 1898, that the law relating to malpractice is simple and well settled, although not always easy of application. A physician and surgeon, by taking charge of a case, impliedly represents that he possesses, and the law places upon him the duty of possessing, that reasonable degree of learning and skill that is ordinarily possessed by physicians and surgeons in the locality where he practices, and which is ordinarily regarded by those conversant with the employment as necessary to qualify him to engage in the business of practicing medicine and surgery. Upon consenting to treat a patient, it becomes his duty to use reasonable care and diligence in the exercise of his skill and the application of his learning to accomplish the purpose for which he was employed. He is under the further obligation to use his best judgment in exercising his skill and applying his knowledge. The law holds him liable for an injury to his patient resulting from want of the requisite knowledge and skill, or the omission to exercise reasonable care, or the failure to use his best judgment. The rule in relation to learning and skill does not require the surgeon to possess that extraordinary learning and skill which belong only to a few men of rare endowments, but such as is possessed by the average member of the medical profession in good standing. Still, he is bound to keep abreast of the times, and a departure from the approved methods in general use, if it injures the patient, will render him liable, however good his intentions may have been. The rule of reasonable care and diligence does not require the exercise of the possible care, and, to render a physician and surgeon liable, it is not enough that there has been a less degree of care than some other medical man might have shown, or less than even he himself might have bestowed, but there must be a want of ordinary and reasonable care, leading to a bad result. This includes not only the diagnosis and treatment, but also the giving of proper instructions to his patient in relation to conduct, exercise and the use of an injured limb. The rule requiring him to use his best judgment does not hold him liable for a mere error of judgment, provided he does what he thinks is best after careful examination. His implied engagement with his patient does not guaranty a good result, but he promises by implication to use the skill and learning of the average physician, to exercise reasonable care, and to exert his best judgment in the effort to bring about a good result.

Bellevue Hospital Overcrowded.—A telegram from Albany, N. Y., shows that the State Board of Charities are about to report certain serious defects at the Bellevue Hospital. The cellars especially of that institution have not been properly cared for. The wooden floors were found in a very bad condition, the boards being rotten and broken. They contained several old and leaky ice boxes. The exhaust from a service steam pipe enters the sewers within ten feet of some of the ice boxes and ends there. Several of the cellars are used for storage purposes, but there is little system, and their use for this purpose should be discontinued. In the carpenter shop there were several lighted candles unprotected by wire screens. Heaps of shavings on the floor suggested the danger of fire from an overturned candle. Recommendation was immediately made that the carpenter shop be removed from the cellar. Other cellars were occupied as eating places for self-committed men who work a few days for their board. In one of these were several dining tables made of rough wood, one of which at least was uncleanly. An adjoining cellar was used as a dormitory for homeless men. It contained thirty-two beds. It was very dark, badly ventilated and out of repair; unfit for decent human habitation, and greatly overcrowded. Preliminary measurements show that the lawful amount of cubic space is not given the inhabitants of the cellars. The same conditions apply to a cellar room used as a dormitory for male help. The cellars were found in a condition that must be dangerous to the health of the inmates of the upper floors, as well as unfit for occupation. The orderlies' dining room, in the basement, was a dismal apartment in bad order. The alcohol ward overcrowded. In the sitting-room of that department were twenty men, convalescent, and for want of space several of them were obliged to lie on the floor. The female ward was also overcrowded; there were eighteen inmates and only fourteen beds.

Insane Person not Deprived of Liberty Without Due Process of Law.—There are many cases, says the supreme court of errors of Connecticut, in which a man may be restrained of his liberty

by any one and without warrant. These have always been holden not to infringe the constitutional provision which says that no person shall be deprived of his life, his liberty, or his property without the due process of law. Thus, one who is prevented from injuring another can not justly assert that he has himself been deprived of any right. And an insane person, whose going at large is dangerous to others or to himself, and who is restrained, can not maintain that he has been deprived of any right or that he has suffered any injury. But a private person can act in restraining another of his liberty only in an emergency, and then only at his peril, the peril of being unable to prove the existence of the emergency which is his justification. So the court goes on to say in Porter vs. Riech, January, 1898, that a wise administration of government does not leave it to private persons to decide when these restrictions shall be exercised, but statutes are passed which directly name or authorize a municipal board to appoint some one to judge of the emergency and direct the performance of those acts which any individual might do at his peril without any statute, and where private persons might not be willing to take the hazard. Such a one as is so named or appointed is the agent of the law and incurs no personal liability. Statutes of this kind, and in many States, the court adds, have been upheld, and so far as it knows without exception. Upon this basis the court especially holds that a statute naming the judge of probate in each district as the agent of the law to determine whether such conditions exist as make it necessary to confine a person supposed to be insane for a temporary period, as pending proceedings for a hearing and examination does not violate any constitutional provision, but is clearly within the police power of the State.

The "Fango" Treatment.—According to the correspondent of the London *Lancet*, March 5, at Vienna, this subject has recently been discussed in one of the medical societies of that city. The "fango treatment" consists in the therapeutic use of a kind of mud obtained from the five lakes of Bataglia, fango being the ordinary Italian word for mud. The substance in question forms a grayish-brown homogeneous mass which adapts itself to the body like a plaster-of-Paris bandage, it retains its heat for a longer time than any poultice does, and it has the advantage that it does not cause the rashes which were brought out by moor (a kind of peat). It contains abundance of oxid of iron, salts of calcium and magnesium, silicic acid and a little organic matter. In the paper on the application of fango read by Dr. Rufschnaiter at the last meeting of the Vienna Medical Society he stated that the affected part of the body is plastered with it and covered with a cloth. At the commencement its temperature ought to be 42 degrees C. (106.6 F.), and may be increased to 54 degrees C. The application lasts twenty-five minutes and produces copious perspiration without any increase of either the respiration or the pulse-rate, and there are no symptoms of weakening of the heart such as result from bathing in water, but the temperature may rise 1.5 degrees C. (2.7 F.) Analysis shows an increase of the nitrogen and the uric acid excreted and a diminution of the water in consequence of the diaphoresis. Fango may be applied over extensive surfaces without producing congestion; it acts as a diaphoretic, as a derivative in hyperemia of the internal organs, as an anodyne in neuralgia and rheumatism, and as an absorbent in joint affections and chronic endometritis.

Experiment Upon Dead Body Not Satisfactory.—The judgment for $1,741.66 recovered in the malpractice case of Hastings vs. Stetson was affirmed by the supreme judicial court of Maine, January, 1898. The evidence tended to show that the plaintiff having suffered a subglenoid dislocation of his right shoulder on November 6, called in the defendant, who failed to discover the dislocation until the twelfth day after the injury. This leads the court to hold that the jury were justified in finding the defendant guilty of negligence in the case, for if he had exercised the care the law requires of a surgeon, it declares he could and ought to have ascertained the fact of dislocation before the lapse of twelve days. But, it says, he was responsible only for the consequences of that negligence. The dislocation was reduced on November 20 by another surgeon. Nearly complete paralysis of the arm and hand had resulted before the reduction. The plaintiff contended that this was caused by the head of the humerus resting upon and pressing the brachial plexus, a network of nerves in the armpit, for twelve days; and that the defendant's negligence in failing to reduce the dislocation for that length of time caused the paralysis. The defendant, on the other hand, maintained that the head of the humerus, in that kind of dislocation, does not and can not rest upon the brachial plexus, and that the paralysis was the result of the blow which dislocated the shoulder, the head of the bone, in its progress from the socket, lacerating the nerves of motion and sensation which supplied the arm. Many experts in surgery and nerve troubles were examined. Some of them said that, in a subglenoid dislocation of the shoulder the head of the humerus can not rest upon or press injuriously the brachial plexus; that it is an anatomic impossibility; that an experiment upon a dead body demonstrates this; while others said that in that dislocation the head of the humerus would rest upon the brachial plexus; while still others said that in such a dislocation the head of the humerus does not ordinarily rest against the brachial plexus, though it sometimes does, but not frequently. The experiment upon a dead body, the court declares not satisfactory, as there must be a difference in the action of a living sensitive muscle from that of a dead one. And, while the experts were likewise divided as to the cause of the paralysis, the court holds, particularly as it came on gradually for several days after the injury, that the long delay before the dislocation was reduced was the proximate cause of the paralysis; that the defendant was liable for that delay, and that the award of damage therefor could not be said to be too large.

Did the Plague Exterminate the Hellenic People.—A writer in *Lippincott's Magazine* advances the theory that the Greek nation, of the classic period, was wiped out by the plague in the eighth century; and that therefore, the modern Greek is not a Greek at all. He says that the classic Hellene, the typical Greek of antiquity as depicted in sculpture and described in poetry was tall and powerful. So peculiar to his race was his nose that the occasional occurrence of the same kind of nose among modern nations is called Grecian. No other nation, ancient or modern, shows this nose except in rare and sporadic instances. From the Greek sculptures we are led to believe that practically all ancient Greeks had this nose. The ancient Greek was a blond. His hair was of tightly clinging reddish curls. His eyes were blue. The modern Greek possesses none of the foregoing physical characteristics save the curly hair, which is dark. Indeed, no Indo-European nation is a more complete contrast to the general conception of the ancient Greek type. Observing these things it is not strange that a number of German scholars declared that the modern Greek is not a Greek, and that the ancient Greek has passed from the earth, well nigh as extinct as the dodo. At first thought the evidence would seem to prove this theory conclusively. Not only does the modern Greek differ in physical characteristics from the type of ancient Greeks as generally accepted, but there are historical grounds for believing that there is no kinship between the two. In the eighth century a plague devastated Greece, Slavs and Albanians emigrated to fill the depopulated regions. This plague is supposed to have caused the disappearance of the Greek population and the substitution of Slavs and Albanians.

A Distinguished Sanitarist of Scotland.—The *Scalpel* for February contains a portrait, with life-sketch, of Sir William Ten-

ant Gairdner, M.D., a prominent Glasgow member of the British Medical Association, a physician to her Majesty in Scotland, professor in the Glasgow University in the Theory and Practice of Medicine for over thirty years, and member of the General Council of Medical Education and Registration representing his University. In 1848 he succeeded that pathologist and author so well known and admired by Americans, Dr. Hughes Bennett, as Pathologist at the Edinburgh Royal Infirmary, where he remained nine years until called to Glasgow. In 1863 he became the health officer for Glasgow, and his accomplishments in the sanitary field lost nothing in comparison with his deeds in the less important duties of teaching and medical politics. This last appointment was accepted with some hesitation, but Sir William Gairdner has since on many occasions borne witness to the great influence for good which the experience gained in that office has had upon his career as a clinical physician and as a teacher of medicine. The sanitary condition of Glasgow at that time was most deplorable. In some parts there was such great overcrowding that nearly 1,000 persons lived upon an acre of ground. The habits of the people were often extremely filthy, and the possibility of cleanliness was too often denied to them by the faulty construction of the enormous tenement houses in which they dwelt, and by the insufficient supply of water, which in any case was of doubtful purity. The prevalence of typhus fever was only an index of the numerous other preventable diseases produced or fostered by insanitary surroundings, but having enlisted the support of the lay officials of that day, an immense transformation was worked under the Glasgow City Improvement Act, and when the great epidemic of cholera reached Glasgow so many improvements had been effected, and public opinion had been so completely won over, that the city was able to face it without panic, and the citizens showed no disposition either to conceal or to exaggerate individual cases of diarrheal disease. As a matter of fact, Glasgow was able to show a death-rate from cholera very much less than that of any other large town in Scotland, except Paisley, which had been the first to adopt similar precautions. Not the least of the services which Sir William Gairdner rendered to the city of his adoption was that he was able, when he resigned the office of medical officer, to point out as his successor Dr. J. B. Russell, whose name is known the round world over as a sanitarian indeed in whom there is no guile, with his whole soul in his work, and an ample Scottish brain to co-ordinate it. On New Year's Day of 1898 Dr. Gairdner received his latest title of honor, having been designated by his Queen to be a knight, with the right to use K. C. B. after his name. He is also the Dean of the Medical Faculty of his University.

Bequests to Brooklyn Institutions.—Under the will of the late Mrs. Charlotte Buck, of Brooklyn, the City Hospital and the Long Island College Hospital will each receive $5000. Also, under codicil the Brooklyn Eye and Ear Hospital has the reversion of an equal amount, while other donations will eventually reach about twenty more charitable homes and societies, the aggregate of which is about $340,000.

Many Returns of the Day.—The University of Pennsylvania owns as one of her worthy sons, Dr. Samuel C. Busey of Washington, whose class was that of 1848. The Doctor recently celebrated the golden anniversary of his graduation as Doctor of Medicine, as we published at the time. Among the out-of-town guests were Dr. Jacobi of New York, Dr. Pepper of Philadelphia, Dr. Blackader of Montreal, and Drs. Kelly and Hurd of Baltimore. It may be added that Dr. Busey's connection with our ASSOCIATION was only five years later than the date above given. He was one of our vice-presidents in 1876.

Medical Officers of the Asiatic Fleet.—The following is the list of medical officers attached to vessels of the U. S. Navy under command of Admiral George Dewey, who won the great naval victory at Manila May 1, 1898: *Olympia*, flagship: Medical inspector, A. F. Price; passed assistant surgeon, J. E. Page; assistant surgeon, C. P. Kindleberger. *Raleigh:* Surgeon, E. H. Marsteller; assistant surgeon, D. N. Carpenter. *Boston:* Surgeon, M. H. Crawford; assistant surgeon, R. S. Blakeman. *Baltimore:* Passed assistant surgeon, F. A. Hesler; assistant surgeon, R. K. Smith. *Concord:* Passed assistant surgeon, R. G. Broderick. *Petrel:* Passed assistant surgeon, C. D. Brownell.

A Combatant Medical Man.—Captain Leonard Wood, Assistant Surgeon, U. S. A., for some time past on duty as assistant to the attending surgeon, Washington, D. C., has been granted authority to raise a regiment of volunteer mounted riflemen, to be organized under section 6 of the Act of Congress approved April 22, 1898. He has been directed by war department orders to proceed to Muscogee, Indian Ter.; Guthrie, Oklahoma; Santa Fe, N. M.; Prescott, Ariz.; Carson City, Nev., and Salt Lake City, Utah, to expedite recruiting, examine the volunteers as to their physical qualifications and muster the accepted recruits into the United States service. It is understood that he will be appointed colonel of this regiment of "rough riders," and that the present Asst. Secretary of the Navy, Mr. Theodore Roosevelt, will become its lieutenant-colonel. There is no particular or essential reason why a medical man may not at least succeed as well as those entering the volunteer service from any other profession or trade, but heretofore the legal profession have had a monopoly of the commissions in the volunteer service.

Mustering in of Volunteer Medical Officers.—In the instructions just published by the War Department for the guidance of officers assigned to the duty of mustering into the United States service the volunteers who respond to the call of the President it is stated that during the organization of a volunteer regiment, its medical officers may be mustered in at any time to aid in recruiting the regiment; but before being mustered they will be required to pass a satisfactory examination as to character and professional ability before a board of army or civilian surgeons, or both, designated by the Surgeon-General of the army. It is provided also that if there be no medical officers duly appointed present, the mustering officer on consultation with the regimental commander, will select and engage the services of one or more physicians having diplomas, and of well established capacities and character, to assist him in inspecting the officers and men to be mustered, and so attend upon and accompany the troops on their march till relieved by others regularly appointed.

To Medical Officers of the Army.—Surgeon-General Sternberg has issued a circular of instructions to medical officers of the army giving directions for obtaining the best sanitary conditions in camp, and for protection against malarial and yellow fevers. It reads as follows:

In time of war a great responsibility rests upon medical officers of the army, for the result of a campaign may depend upon the sanitary measures adopted or neglected by the commanding generals of armies in the field. The medical officer is responsible for proper recommendations relating to the protection of the health of troops in camp or in garrison, and it is believed that as a rule medical officers of the United States Army are well informed as to the necessary measures of prophylaxis and the serious results which infallibly follow a neglect of these measures, especially when unacclimated troops are called on for service in a tropical or semi-tropical country during the sickly season. In Cuba our army will have to contend not only with malarial fevers and the usual camp diseases, typhoid fever, diarrhea and dysentery, but they will be more or less exposed in localities where yellow fever is epidemic and under conditions extremely favorable for the development of an epidemic among unacclimated troops. In view of this danger, the attention of medical officers and of all others responsible for the health of our troops in the field is invited to the following recommendations: When practicable camps should be established on high and well drained ground not previously occupied. Camps should be changed to fresh ground every ten days or oftener. Sinks should be dug before a camp is occupied, or as soon after as practicable. The surface of fecal matter should be covered

with fresh earth or quicklime or ashes three times a day. New sinks should be dug and old ones filled when contents of old ones are two feet from surface of ground. Every man should be punished who fails to make use of the sinks. All kitchen refuse should be promptly buried and perfect sanitary police maintained. Troops should drink only boiled or filtered water and coffee or tea (hot or cold), except where spring water can be obtained which is pronounced to be wholesome by a medical officer. Every case of fever should receive prompt attention. If albumin is found in the urine of a patient with fever it should be considered suspicious (of yellow fever) and he should be placed in an isolated tent. The discharges of patients with fever should always be disinfected at once with a solution of carbolic acid (5 per cent.) or of chlorid of lime (6 oz. to gallon of water) or with milk of lime made from quicklime. Whenever a case of yellow fever occurs in camp the troops should be promptly moved to a fresh camping ground located a mile or more from the infected camp. No doubt typhoid fever, camp diarrhea and probably yellow fever are frequently communicated to soldiers in camp through the agency of flies, which swarm about fecal matter and filth of all kinds deposited upon the ground, or in shallow pits, and directly convey infectious material, attached to their feet or contained in their excreta, to the food which is exposed while being prepared at the company kitchens or while being served at the mess tent. It is for this reason that a strict sanitary police is so important. Also because the water supply may be contaminated in the same way or by the surface drainage. If it can be avoided, marches should not be made in the hottest part of the day, from 10 A.M. to 5 P.M. When called upon for duty at night or early in the morning a cup of hot coffee should be taken. It is unsafe to eat heartily or drink freely when greatly fatigued or over-heated. Ripe fruit may be eaten in moderation, but green or over-ripe fruit will give rise to bowel complaint. Food should be thoroughly cooked and free from fermentation or putrefactive changes. In decidedly malarious localities from three to five grains of quinin may be taken in the early morning as a prophylactic, but the taking of quinin as a routine practice should only be recommended under exceptional circumstances. Light woolen underclothing should be worn, and when a soldier's clothing or bedding becomes damp from exposure to rain or heavy dew the first opportunity should be taken to dry it in the sun or by fire.

Typewriters' Cramp.—Sufferers from writers' cramp are, in the majority of cases, quite able to produce manuscript by means of a type-writing machine, but an instance in which this resource failed is recorded by Dr. F. Hampson Simpson in the *Birmingham Medical Review*. He states that he is not acquainted with any authentic record of a similar case, although he has recently met with two examples of what was called typewriters' cramp; one of these patients, however, seemed to suffer from neuritis and the other from pain and fatigue in the right hand unaccompanied by muscular weakness or spasm. The patient is a muscular man, 33 years of age. He became a clerk when 18 years old and then wrote with a pen on an average from seven to eight hours daily. In March, 1889, that is, after about seven years of this employment, the initial symptoms of writers' cramp declared themselves and at the end of three months all the fingers of the right hand were invaded by spasm, which seriously interfered with writing. In 1889 he learned to use the typewriting machine and he commenced learning to play the harp, but after a few months he found that playing brought on cramp, affecting the right hand generally, more especially the first and second fingers, so that he gave up the harp at the end of 1890. For three years he was at sea as interpreter on board a transatlantic steamer. In January, 1897 he entered an office as typewriter, but was only engaged in working the machine for two or three hours daily. Toward the close of one of the days in the end of February, whilst at work "typing," his right index finger became bent by cramp. From this time on, a repetition of the cramp occurred toward the evening of each day, a slight involuntary flexion at the wrist being superadded, and in less than a month the exaggeration of the spasm led him to substitute the middle of the index finger; six or seven days later this middle finger also became the seat of similar spasm. Dr. Simpson observed very little tendency to spasm in the operating finger of the right hand during the early portion of a day's work, but after about two or three hours typing the index finger of the right hand became very fatigued and to the flexion of the finger and wrist incidental to striking the keys there was superadded a spasmodic contraction which overflexed those parts. This did not appear to seriously impair the precision of his touch and an inspection of his typewritten work revealed no objective evidence of the spasm in the right finger. It was suggested that he should strike the keys with a little hammer or percussor and he employed this with much benefit and relief for some little time, but the cramp now effects the whole forearm. He has been a pianist for many years and his piano playing is not in the least interfered with by any spasm.

Colleges.

THE SIOUX CITY COLLEGE OF MEDICINE, Sioux City, Iowa, graduated a class of twelve on April 5.——At the commencement of the Medical Department of Fort Worth University, Texas, April 7, twenty-one were graduated.——The graduates from Baltimore Medical College, April 21, numbered 144.——Buffalo University had sixty-three graduates in its medical department, April 26, and the recent commencement of the Toledo (Ohio) Medical College added twenty-seven to this years' medical graduates.

Societies.

The following meetings are noted:

Connecticut.—The 106th annual of the Middlesex Medical Association, Hartford, April 28; Tolland County Medical Society, Hartford, April 19.

Illinois.—Chicago Medical Society, May 4; District Medical Society of Central Illinois, Pana, April 26.

Indiana.—Wabash County Medical Society, Wabash, April 21.

Maryland.—Baltimore County Medical Association, Baltimore, April 21.

Massachusetts.—Hampden District Medical Society, Springfield, April 19; Middlesex South District Medical Society, Watertown, April 21.

Missouri.—Linn County Medical Society, Brookfield, April 19.

New York.—Syracuse Academy of Medicine, April 19.

Pennsylvania.—Blair County Medical Society, Altoona, April 21; Carbon County Medical Society, Mauch Chunk, April 22; Columbia County Medical Society, Blinnsburg, April 19; Franklin County Medical Society, Chamberburg, April 19.

Philadelphia.

THE EXAMINATIONS before the Pennsylvania State Board of Medical Examiners and Licenses will begin at 2 P.M., June 14; they will be held both in this city and in Pittsburg. Dr. H. G. McCormick of Williamsport is President, and Dr. Wm. S. Foster of Pittsburg, Secretary, for the current year, of the Board representing the Pennsylvania State Medical Society, which the daily papers seem to take a special delight in designating by the Hahnemannian epithet of "allopathic," in order to distinguish it from the homeopathic and eclectic examiners on the State Board.

THE WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, in order to raise money for the new laboratories, decided to give a series of entertainments of a popular character, the first of which was at the Academy of Music on the 25th ult. Ysaye, Marteau, Gerardix and Lachaume, were the principal artists.

THE WAR FEVER has broken out among the students at the colleges, and, on Friday night, last week, about 500 University men, headed by a band of music, had a street procession. The Medico-Chirurgical College men to the number of over 400 also marched down Chestnut street with flying colors and drums beating in military style; displaying much enthusiasm.

THE COUNTY MEDICAL SOCIETY at its business meeting held

on the 20th ult., received the report of the committee appointed to wait upon the Mayor of the city to urge upon him and upon City Council the necessity of taking immediate steps to secure filtration of the water-supply of the city. The committee consisted of Drs. Solomon Solis Cohen, Edward Jackson, Wm. W. Welch and James Tyson. The language of the report reflected the state of mind of the community on the almost criminal delay in providing the remedy appealed for. The Society adopted the following as the sense of the meeting:

"*Resolved*, By the Philadelphia County Medical Society that the public safety demands the immediate enactment of such legislation as may be necessary to authorize the construction, maintenance and operation, under public ownership and control, of a proper filtration system."

THE WOMEN'S HEALTH PROTECTIVE ASSOCIATION has handed over to the trustees of the proposed Hospital for Infant Diseases, the sum of $2,000, the proceeds of a recent entertainment held in this city.

THE PHILADELPHIA COUNTY MEDICAL SOCIETY held a very interesting meeting on April 27. Dr. Judson Daland demonstrated the methods of determining the percentage of red blood cells and hemoglobin, with remarks on their value. Dr. S. E. Solly of Colorado Springs read a paper, by invitation, on "The Blood Changes Induced by Altitude and Their Practical Value." The discussion was opened by Dr. E. O. Otis of Boston, followed by Roland G. Curtin, A. E. Taylor, J. P. C. Griffith, F. P. Henry, J. B. Walker and others.

THE PATHOLOGICAL SOCIETY listened to an address by Dr. F. B. Mallory, assistant professor in the Medical School of Harvard University, at its meeting held on April 28. Dr. Mallory's subject was "A Histologic Study of Typhoid Fever." After the exercises were concluded Dr. Mallory was a guest at a reception given in his honor at the University Club, which was largely attended by the profession.

DR. CHARLES W. BURR has resigned from the chair of neuropathology in the Philadelphia Polyclinic on account of pressure of other engagements.

YELLOW FEVER IN CUBA. — Dr. John Guiteras recently spoke (Press) of the danger necessarily arising from the occupation of Cuba by the United States troops. A great deal has been recently said of what is termed "individual precautions" against yellow fever while in an infected district, which Dr. Guiteras thinks is almost useless in time of war. He said that the disease ought not to be treated from the standpoint of the individual but from the standpoint of the mass. Possibly the most important measure to be exercised by the army would be general measures affecting the distribution of troops, the manner and place of landing, the location of distributing centers of supplies, and the selection of sites for the establishment of camps. The Island of Cuba is usually free from the disease till the middle of June, when it continues until the middle of October, being worse during the months of August, September and October. Outside of the large seaport cities the climate is most pleasant, malarial fevers and dysentery not being more prevalent than during the civil war. The interior of the island is free from the disease, while Havana and other seaport cities are the danger spots of the disease and always infected. Another important factor in the proper protection of the troops is the shipping of all food supplies from the United States. Dr. Guiteras holds to the belief that the whole island could be kept free from the disease the year round by means of proper sanitary measures, and that the island has always been a menace to the United States owing to the lack of proper precautions maintained under Spanish misrule.

MEDICAL COLLEGES OF PHILADELPHIA will all furnish their quota of men and trained nurses ready to go to war. It is gratifying to state that if their services are needed a full quota of physicians will be sent out by the faculty and students of the medical colleges of this city. Coach Woodruff, who began organizing a company some time ago at the University of Pennsylvania, has extended the invitation to other colleges and now has almost enough men to form two regiments. A number of students in the medical department have passed final examinations preparatory to going into camp. Dr. Martin H Williams, Chief of the Surgical Clinic at Jefferson Medical College, with four other physicians of the staff, eight trained nurses and a directress will offer their services and if need be will take charge of a hospital in Cuba. It is their intention to be an organized body and to work as such wherever placed. None the least enthusiastic are the faculty, class and trained nurses of the Medico-Chirurgical College, who have held an enthusiastic meeting in the clinical amphitheater and a large delegation have decided to answer the nation's call. Resolutions were adopted offering the services of the staff and the beds of the hospital free of charge. The trained nurses have also volunteered, so that it may be said that Philadelphia if called upon will do her full duty toward rendering first aid to the injured.

PHILADELPHIA COUNTY MEDICAL SOCIETY FOR FILTRATION. —At a recent meeting of this Society the subject of the water-supply was discussed and the Society came out strongly in favor of filtration and of the public ownership of the filtration plants. It was stated that "the public safety demands the immediate enactment of such legislation as may be necessary to authorize the construction, maintenance and operation under public ownership and control of a proper filtration system," and that "the Society warmly appreciates the course of those members of select and common councils who have earnestly and untiringly worked for filtration under public ownership."

NEW INSANE WARDS FOR THE PHILADELPHIA HOSPITAL.—It will be remembered that a short time ago the JOURNAL mentioned the fact that the condition of the insane wards at the above hospital had reached the stage of overcrowding and more room should necessarily be provided. It is gratifying to state that an ordinance has recently been passed by the Council Committee appropriating $60,000 for the erection of two wards for the insane at the Philadelphia Hospital.

EMERGENCY CORPS OF PHILADELPHIA WANT TO GO TO THE FRONT.—Dr. T. H. Andrews of the Emergency Corps of the Department of Public Safety recently tendered to the government the services of the entire corps, including the police surgeons and assistant medical inspectors. So far no word has been received from the proper officials regarding the acceptance of the offer, but all are eager to enlist.

Washington.

HEALTH OF THE DISTRICT.—The report of Health Officer Woodward for the week ended April 23 shows there were 105 deaths, of which 56 were white and 49 colored. The principal causes of death were, diseases of the lungs, 26, of which 18 were from consumption; nervous diseases, 19; circulatory, 9. There were 4 fatal cases of typhoid, 2 of diphtheria and 4 from la grippe. There were 35 cases of diphtheria and 47 of scarlet fever under treatment at the close of the week. Dr. Maurice E. Miller was appointed assistant medical sanitary inspector and Dr. Walter K. Brothly physician to the poor.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 280th meeting of the society was held on April 22 at the residence of Dr. H. L. E. Johnson. Dr. J. T. Kelly, Jr., read the essay of the evening, entitled "Vaginismus." A very interesting discussion followed, participated in by Drs. Sprig, S. S. Adams, Smith, J. T. Johnson, Acker, Bowen and H. L. E. Johnson.

MEDICAL SOCIETY.—The meeting of the Medical Society held on April 20, was conducted jointly with the Washington Anthropological Society, Dr. S. C. Busey, the president, presided. The general subject for discussion was the treatment and education of the deaf. Dr. Frank Baker discussed the anatomy and physiology of the ear; Dr. Reyburn, causes of

deafness; Dr. Lamb, the criminal and degenerate ear, and Dr. E. M. Gallaudet, the European methods of treating the deaf. At the meeting held on the 27th ult., Dr. Robert Fletcher read a paper entitled, "A Tragedy of the Great Plague of Milan, 1630;" Dr. Snyder, "Cerebellar Abscess Following Otitis Media; Case and Specimen;" Dr. Lamb, "Specimen of Anencephalic Fetus."

Complimentary Dinner to Dr. Samuel C. Busey.—On April 16 fifty members of the Medical Society gave a complimentary dinner to Dr. Samuel C. Busey, their president, in honor of the fiftieth anniversary of his graduation as Doctor of Medicine. Dr. A. F. A. King was toastmaster. Dr. T. C. Smith responded in an eloquent speech to the toast, "Dr. Busey, President of the Medical Society." Surgeon-General George M. Sternberg, in his usual classic manner, responded to the toast, "Dr. Busey, Citizen and Sanitarian." Dr. George M. Kober, in a brilliant speech, responded to the toast, "Dr. Busey, Physician, Author and Teacher." Dr. Busey's response was the feature of the occasion and will be pleasantly remembered by all present.

Central Dispensary and Emergency Hospital.—At the meeting of the board of directors, held on April 29, the following members were elected to serve as directors for three years, Drs. George B. Harrison, W. H. Hawkes, T. M. Murray, J. T. Johnson, Mrs. Arnold Hague, Mrs. Richard Mulligan, W. J. Boardman, John W. Foster, J. L. Bradley and George McLanahan.

Cincinnati.

The Regular Monday meeting of the Academy of Medicine of April 25 was devoted to reports of cases with discussion. Dr. Louis Stricker exhibited a patient aged 23 years who had suffered from the discharge of a couple of sinuses behind the left ear, evidently coming from the mastoid process, for twenty years. When first seen she was semi-comatose with attending symptoms. An immediate operation was advised and she was put on the table that same day. The Stacke-Schwartze was the operation made, and the antrum, the attic, the middle ear and the operative wound were all thrown open into one large cavity, which was subsequently treated with dry dressings. As was expected on opening the mastoid, extensive necrosis was present and the diseased bone was removed for the most part with the spoon. Dr. Joseph Ransohoff reported a case of uterine fibroid, in which the tumor mass had involved one of the cornua and had extended into the broad ligament, causing some pressure symptoms and giving the impression to the examining finger of ovarian and tubal disease. The same member also reported the following: Girl, 4 years of age, was brought to the city with a history of a tumor of the right neck of several months' duration and very rapid growth. Three weeks ago the parents had noticed that the child's feet and eyelids were somewhat swollen every morning but that this swelling promptly disappeared during the day. The tumor had pushed the larynx far over to the left, it was nodular, and these symptoms combined with rapid growth and situation of the neoplasm, determined him in the diagnosis of lymphosarcoma. The examination of the urine showed in addition to a considerable amount of albumin, epithelial casts and numerous blood corpuscles. It was thought that the acute nephritis was dependent upon septic infection from the tumor and it was determined to remove the latter, which was easily done under chloroform anesthesia. The result was gratifying in every respect; the albumin, casts and corpuscles disappeared completely from the urine and the dropsical symptoms also disappeared. Microscopic examination of the tumor confirmed the clinical diagnosis of lymphosarcoma. Discussion was by Drs. Ricketts and Kramer. Dr. J. M. Withrow read a report of fifteen cases of abdominal section supplementary to the thirty-five reported last fall, making a total of fifty consecutive cases without mortality. Dr. W. E. Keily reported a case of walking typhoid in a woman aged 60, who died of peritonitis following perforation of the bowel. The peculiar symptomatology led him at first to suspect acute dysentery, but this diagnosis was soon changed to appendicitis with rupture and an operation was advised, but was refused by the woman. The occurrence of five bloody stools rather invalidated the latter diagnosis and typhoid was next thought of. Postmortem showed the case as above stated. Discussion was by Drs. Cleveland, Ransohoff, Kramer (Widal reaction), Schenck (blood count), Oliver (perforating duodenal ulcer), Ricketts and Keily. After report of case of ophthalmia neonatorum by Dr. S. C. Ayres the meeting adjourned.

The Annual Report of the health department for 1897 is now being distributed among Cincinnati physicians. During the past year a laboratory has been fitted up in the city buildings where bacteriologic and pathologic examinations among the poor are made free of charge. For the most part these have been in diphtheria and tuberculosis patients. According to a law enacted by the department, cases of tuberculosis are being reported and more rigid measures than formerly taken to prevent the spread of the disease. The milk and water supply have also attracted the attention of the health officer and the lessening of the number of cases of typhoid and summer diseases of children is the best witness of the efforts made in this direction. The law passed by the legislature several years ago requiring midwives to report cases of ophthalmia neonatorum immediately, which had practically become a dead letter, is again in force, and many cases of purulent ophthalmia in infants have received early treatment with a consequent saving of sight. In regard to school inspection, which question has been agitated by the department for some time, very little progress has been made, the necessary expense involved being the obstacle. In order to improve the efficiency of the force, examinations are called from time to time, and records here obtained are used in bestowing promotions. Two large maps inserted in the report show that contrary to general opinion, diphtheria and tuberculosis are more prevalent and deadly along the river and Mill Creek than in the heart of the city where the population is much greater.

Vital Statistics.—The number of deaths during the year amounted to 5565, of which 5127 were white and 438 colored. The death rate for the total inhabitants on an estimated population of 405,000, was 13.74 per thousand as against 5916 deaths in 1896, a death rate of 16.90 per thousand on an estimated population of 350,000. For the whites the death rate was 13.14 and for the colored 29.20 per thousand of population, estimating the blacks at 15,000. The principal causes of death were: Phthisis pulmonalis, 675; pneumonia, 511; heart disease, 310; bronchitis, 235; diphtheria, 102; typhoid, 101; deaths by accident, 207; suicide, 69; homicide, 10.

THE PUBLIC SERVICE.

Vision of Recruits.

Washington, D. C., April 20, 1898.

In reply to Dr. L. R. Culbertson of Zanesville, Ohio, the following letter was written. Its publication is requested by Dr. Culbertson.

I am directed by the Surgeon General to acknowledge the receipt of your inquiry of the 18th inst., and to reply as follows:

Applicants whose eyes exhibit refractive errors requiring glasses for their correction should not be accepted for the line of the Army. Slight visual defects which, in the opinion of the examining officer, will not disqualify for service in the line, may be waived; but the same should be noted on the form for the physical examination of the recruit.

Color blindness is not a cause of rejection, but it likewise should be noted on the form.

Applicants may, however, be enlisted in the *Hospital Corps* who are subject to refractive errors of vision; provided these errors are not excessive, may be corrected by glasses, and are not progressive or accompanied by ocular disease. Nor do such defects disqualify candidates for appointment in the Medical Department.

Conjunctivitis, or other disease of the eye, if a temporary ailment, and susceptible of speedy cure without injury to vision, does not disqualify, but it should be noted on the examination form.

Respectfully, Charles Smart,
Deputy Surgeon-General, U. S. Army.

Physical Examination of the State Volunteers.

Arrangements bave been made by the War Department for the examination of the Volunteer troops called out under the President's proclamation of April 23, 1898, as to their physical qualifications for tbe military service. Medical officers of the Army have been assigned to the various rendezvous for this duty as follows:

State.	Rendezvous.	Medical Officer.
Alabama	Mobile	Capt. Wm. E. Purviance, Ass't Surgeon,
Arkansas	Little Rock	Major Harry O. Perley, Surgeon.
California	San Francisco	Major Robert H. White, Surgeon.
Colorado	Denver	Lieut. Col. Alfred A. Woodhull, Deputy Surgeon General.
Connecticut	Niantic	Major Ezra Woodruff, Surgeon.
Delaware	Wilmington	Capt. M. C. Wyeth, Assistant Surgeon.
Florida	Tampa	Major Henry S. Kilbourne. Surgeon.
Georgia	Atlanta	Major Blair D. Taylor, Surgeon.
Idaho	Pendleton	Major Louis Brechemin, Surgeon.
Illinois	Springfield	Capt. H. P. Birmingham, Ass't Surgeon.
Indiana	Evansville	Capt. Wm. J. Wakeman, Ass't Surgeon.
Iowa	Des Moines	Capt. G. J. Newgarden, Ass't Surgeon.
Kansas	Ft. Leavenw'rth	Major John M. Banister, Surgeon.
Kentucky	Lexington	Lieut. Col. William H. Gardner, Deputy Surgeon General.
Louisiana	New Orleans	Capt. C. E. Woodruff, Ass't Surgeon.
Maine	Portland	Capt. H. R. Stiles, Assistant Surgeon.
Maryland	Baltimore	Major Louis W. Crampton, Surgeon.
Massachnsetts	Springfield	Capt. G. E. Bushnell, Ass't Surgeon.
Michigan	Detroit	Capt. Benj. Muuday, Ass't Surgeon.
Minnesota	La Crosse	Major Philip F. Harvey, Surgeon.
Mississippi	Jacksou	Capt. J. D. Glennan, Ass't Surgeon.
Missouri	St. Louis	Capt. C. B. Ewing, Ass't Surgeon.
Nebraska	Omaha	Major Egon A. Koerper, Surgeon.
New Hampshire	Concord	Major Charles B. Byrne, Surgeon.
New Jersey	Jersey City	Capt. W. C. Gorgas, Assistant Surgeon.
New York	Peekskill	Major Louis M. Maus, Surgeon.
North Carolina	Raleigh	Capt. F. A. Winter, Assistant Surgeou.
Ohio	Columbus	Major Valery Havard, Surgeou.
Oregon	Portland	Capt. Edward R. Morris, Ass't Surgeon.
Penusylvania	Mt. Gretna	Major J. D. Hall, Surgeon.
Rhode Island	Providence	Major C. L. Helzmann, Surgeon.
South Carolina	Charleston	1st Lieut. W. F. Lewis, Ass't Surgeon.
Tennessee	Nashville	Major W. F. Carter, Surgeon.
Texas	Austin	Capt. E. A. Mearns, Assistant Surgeon.
Utah	Ogden	. . . . .
Vermont	Burlingtou	Capt. J. R. Kean, Assistaut Surgeon.
Virginia	Richmond	Major G. W. Adair, Surgeon.
Washingtou	Tacoma	Capt. J. L. Phillips, Ass't Surgeon.
West Virginia	Martinsburg	Capt. B. L. Ten Eyck. Ass't Surgeon.
Wisconsin	Milwaukee	Lieut. Col. Henry R. Tilton, Deputy Surgeon General.
Wyoming	Cheyenne	Major Curtis E. Munn, Surgeon.
Dist. Columbia	Washington	Col. W. H. Forwood, Assistant Surgeon Geueral.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from April 23 to 29, 1898.

Major William C. Shannon, Surgeon, having been found by au Army retiring board iucapacitated for active service by reason of disability iucident to the service. his retirement from active service this date, by the President, is announced. April 23, 1898.

First Lieut. Benjamin Brooke, Asst. Surgeon, is retired from active service as a Captain, upon tbe finding of au examiuing board that he is disqualified for the duties of Asst. Surgeon with the rank of Captain, by reason of disability incident to the service, to date from April 20, 1898.

Capt. Leonard Wood, Asst. Surgeon, is relieved from duty in tbis city, Washington, D. C., and will proceed to the following named places, in the order designated, for duty in connection with the recruitment of a regiment of mounted riflemen, to be organized under sectlon 7 of the Act of Congress approved April 23, 1898: Guthrie, Oklahoma Ter.; Santa Fe, N. M.; Phoenix, Ariz. Ter.; Carson City, Nev.; Salt Lake City, Utah; Cheyenne, Wyo.; Boise City, Idaho.

CHANGE OF ADDRESS.

Auderson, H. G., from 6658 State to 128 W. 67th st., Chicago, Ill.

Benuett, A. L., from Gross Batanga, Kameruns, to Gaboon, Libreville, West Africa.

Carr, B. M., from Chicago, Ill., to Cedar Springs, Mich.; Capron, V. J., from Kau, Haiwaii, to Everett, Wash.; Curtis, A. M., from Chicago, Ill., to Freedman Hospt., Washingtou, D. C.; Corbel, R. L., from Richmond to Chuckatuck, Va.; Caton, G. A., from Richmond, Va. to Grautsboro, N. C.: Couch, E. E., from Milwaukee to Glenbenlah, Wis.

Dillon, I. H., from Chicago, Ill. to Auburn, Neb.; Dickinson, J. W., from St. Louis, Mo. to Keswick, Ia.

Earll, R. W., from Milwaukee to Columbus, Wis.

Fuson, A. U., from Chicago, Ill. to La Pay, Ind.; Feeney, F. S., from Chicago, Ill. to Rochester, Minn.

Hartman, Jr., J. C., from Pittsburg to Keown, Pa.; Hawley, E. A., from Chicago, Ill. to Greenville, Tex.; Harrison, A. C., from Meyersdale, Pa. to Talleysville, Kent co., Va.; Holmes, E. L., from 206 Cass St. to 558 E. Divisiou, Chicago, Ill.; Hooper, E. W., from Des Moines, Iowa, to La Harpe, Kans.; Homer, H. C., from Chicago, Ill. to Crain Creek, Ia.; Hull, J. F., from Iowa City to Badger, Ia.

Korn, A., from 741 S. Halsted St. to 3269 Cottage Grove Ave., Chicago; Kinneman, J. G., from Mexico to Goodlaud, Ind.; Kilgore, F., from Yorktown to Parker, Ind.; Kime, J. H., from Bandou, Ore. to Fortuna, Calif.

Lucas, F. B., from Chicago to Peoria, Ill.

Miller, De Laskie, from 56 to 110 Astor St., Chicago, Ill.: Mosher, B. D., from Sandwich to Prairie Center, Ill.; Meek, J. H., from Glencoe to Smithfield, Ohio; McDougall, G. T., from Milwaukee to Osseo, Wis.

Ohresloffersou, A. L., from St. Louis, Mo. to Lind Ceuter, Wis.

Page, T. H., from Chicago to Jerseyville, Ill.; Pfouts, I. M., from Wilmot to Massillon, Ohio; Pilcher, J. E., from Fort Crook, Neb. to Carlisle, Pa.; Patch, Wm., from Ellsworth to Stamford, Ill.; Perkins, E. L., from Indianapolis to Owensburg, Ind.

Rumbold, T. F., from Uuion Trust Bldg. to Century Bldg., St. Louis, Mo.; Rawley, W. S., from 6325 Monroe Ave. to 63 and Wallace, Chicago, Ill.; Roby, Palmer Mrs., from Cleveland, Ohio, to New Castle, Pa.; Runkel, W. W., from Jefferson to Cambria, Wis.

Small, A. R., from 3131 to 3035 Indiana Ave., Chicago, Ill.; Snyder, L. A., from Columbus, Ohio, to 246 W. Adams St., Chicago, Ill.; Shastid, T. H., from Galesburg, Ill. to 175 Manchester St., Battle Creek, Mich.

Terrell, H. W., from Greenville to La Grange, Ga.; Turner, J. A., from Indianapolis to Martinsville, Ind.; Trueblood, Chas., from 302 E. New York St. to City Hospital, Indianapolis, Ind.

Visser, J., from Chicago, Ill. to Ogema, Wis.

Whiting, E. D., from Chicago to Aurora, Ill.; Walker, J. W., from 305 Park Ave. to 1629 West Adams, Chicago, Ill.; Witter, G. F., from Grand Rapids, Wis. to San Jose, Calif.; Waddell, G. from St. Louis, Mo. to Essex, Mo.

Yoder, J. A., from Cleveland to Millersburg, Ohio.

LETTERS RECEIVED.

Anderson, Winslow, San Francisco, Calif.; Alma Sanitarium Co., Alma, Mich.; Allen, F. H., Shelby, Iowa; Allaben, J. E., Rockford, Ill.; Applegate, J. C., Bridgeton, N. J.

Brown, Mark A., Cincinnati, Ohio; Barry, A., Providence, R. I.

Crothers, T. D., Hartford, Conn.; Culbertson, L. R., Zanesville, Ohio; Clark, E. S., San Francisco, Calif.; Cain, J. S., Nashville, Tenn.; Craue, A. W., Kalamazoo, Mich.; Crane, A. Melville, Marlon, Ohio; Chesman & Co., Nelson, St. Louis, Mo.

Dayton, Wm. A., New York, N. Y.; Dellenbaugh, C. C., Portland, Mich.

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ORIGINAL ARTICLES.

THE CLIMATE OF COLORADO FOR RESPIRATORY DISEASES.

BY CHARLES DENISON, A.M., M.D.

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DENVER, COLO.

(*Concluded from page 1073.*)

ART II:—SENSIBLE TEMPERATURE AND THE EXPERIENCE OF INVALIDS, WITH CONTRAINDICATIONS FOR THE HIGH ALTITUDE CLIMATE.

Variability versus equability.—The study of temerature ranges assumes importance from the undue eight given by the medical profession and the laity) supposed injurious effects of thermal changes. et us investigate and see if it is the dampness and ot the thermal oscillation which is responsible for ie injury. How uniformly variability goes with yness and equability with moisture may be illusated by the daily and monthly ranges of tempera- re at places which represent dry and moist climates. iosen without reference to this particular evidence, enty-five *dry* and twenty-five *moist* prominent sig- l stations and health resorts in the United States ve the following remarkable average excesses of ean daily temperature ranges. The excess of the yest one-fourth over the moistest one-fourth of them 22.9 degrees, and the same average excess for the nthly ranges of temperature is 2.1 degrees greater iation in the dry than in the moist localities.

Again, taking the fifteen *most* and the fifteen *least riable* signal stations in the United States (out of stations) for the year, we have an average excess temperature variability of the most over the least ngeable stations for spring, 18.5; summer, 16.2; umn, 17.6; winter, 16.5, and for the year, 16.8 rees F. The first fifteen are *extremely dry* with ly average for the year of 28.7, and the second en *decidedly moist* localities with a daily average iability of only 11.9 degrees F. This evidence is clusive that variability goes with dryness.

easonal ranges of temperature likewise show the inrability of equability from atmospheric moisture, of variability from dryness. Compare the winter summer temperature lines on seasonal charts. sea is the great equalizing influence, and the er land in winter turns these isotherms to the h for a considerable distance in the United States, on the western boundary, about parallel with the t. In the summer, however, when they leave the n, these lines are turned nearly as much to the h as the winter ones are to the south. The ier we get away from the humid influences the er is the variability of temperature. It is not tained that extreme variability should always be sought or that of two places, with all other advantages the same, the more variable one is the better. On the contrary, the less variable would certainly be preferred in cold weather. It *is* maintained, however, that variability is quite a uniform constituent of dry high places and that as the dryness predominates the marked variability is less felt and is less, if at all, objectionable. On the other hand, marked atmospheric equability, wherever found, is *prima facie* evidence of excessive humidity.

The worst that can be said against combining variability with the favorable attributes of climate for consumption is that its defence is necessary in order to overcome a prevailing prejudice and to show that this variability is a *sine qua non* of the preferable combination. But there would be no excuse for advocating a false theory of climate, even if this one element were unfavorable. There is a prevalent exaggeration of the effect of temperature changes. The change gets the blame which rightly belongs to the element of humidity, which constituent is always excessive when a given change is injurious. For instance, a change of 20 degrees from a warmer to a colder temperature, with the relative humidity 50 per cent. does not equal in the sensation or shock to the system a change of 8 degrees with the relative humidity at 80 per cent. The former change does not produce saturation, but the latter does; so does a change of 5 degrees with the humidity at 90 per cent., and even 2 degrees with the humidity a 95 per cent. of saturation (see Glashier's table). Therefore it is the humidity of the air which, through conduction of heat from the body, makes a slight temperature change, with the air near saturation, equivalent to a much greater change with the air dry. It is one of the mistakes of medical antiquity for equability to be insisted on as a constituent of the best climate for consumptives, yet this seems to be a fallacy most difficult to correct. It is essential to insist upon equability for humid climates, but for dry, cool, elevated resorts it is out of the question. There is something wrong with the reasoning powers of an author who jumbles together climatic attributes so that his "ideal climate" has no real counterpart among the known climates of the world. The trouble is chiefly with the vague use of the words equability and variability. Until now there has been no accepted line of definition between these two terms. This we should have. If the mean of variability for the whole country were taken as a just division, and the daily and monthly ranges of temperature were the criterion to decide by, we would then have a division line approximately represented by 18 to 20 degrees F. for the daily, and 46 to 48 for the monthly range, the same being in harmony with the dividing line between moisture and dryness on the writer's climatic charts. This is a fair line of division which is commended for general adoption, especially by those authors who write about equability as essential to pulmonary resorts.

Actual versus sensible temperature.—Captain W. A. Glassford, signal officer United States Army, Denver, Colo., has given much attention to comparing the actual with the apparent climate in Colorado. Omitting interesting but lengthy illustrations, he says: "Taking the city of Denver, we find that during the year there are 172 days on which the daily mean temperature is above 50 degrees F. and 64 days below 32. The 50-degree point is the lowest mean temperature which mankind considers comfortable, and it is the critical point as regards the growth and development of the most important staple crops. The same number of comfortable days prevail during the year at Albany, N. Y., as here, but instead of 64 they have 107 days with temperature below 32 degrees (freezing).

"Let us now turn to a few facts as to Colorado summers. Denver is on the line of 105 degrees extreme maximum temperature, that being the highest ever observed here. To the west of this line these extremes diminish and to the east they increase.

"I wish, here, to draw particular attention to the unfairness—unintentional to be sure—to which Colorado and the entire West is subjected in the official consideration and publication of its record of heat as affecting animal life, in that there is overlooked the important element of dryness, which moderates the sensible effect of the extremes of heat as well as of cold. There are in all temperature records two elements—the sensible temperature or that which expresses the heat or cold felt by the human beings, and the apparent temperature, a mere record of how the mechanical thermometer is affected. It is the apparent that receives publication, greatly to the undue advantage of the East and the detriment of the West.

"Strange as it has always appeared to me, the people of the West have always allowed this thermal element of climate to rest upon a common standard for the East and West, where the resultant effects are so dissimilar, in that the important factor of dryness of the air is entirely overlooked. The West should insist upon the publication of the sensible temperature, that is, what is technically known as the reading of the wet bulb. We would understand then why the high thermal conditions, apparently the same, do not here cause the cessation of business, prostration or death to man or beast, as among our Eastern neighbors. The difference between the apparent and the sensible heat in this vicinity being many degrees, explains our extreme comfort, while summer prostration in the East is explained by their slight range of difference. The very highest official record of heat at Yuma, Ariz., is 118 degrees, but the sensible heat at the time—that in the reading of the wet bulb—was 32 lower or 86 degrees. In the Eastern States 86 degrees of sensible heat is not uncommon when the thermometer stands in the nineties."

Besides the quality of stimulation which is associated with variability, there is an important consideration in the purifying of the atmosphere which variability indicates. This happens through the alternate expansion of the air by heat and its contraction by cold together with the nightly chilling and sometimes freezing, which regularly render it inimical to germ life. The purity of the atmosphere which is represented by warm, moist and equable climates, is not to be compared with that purity which is represented by the opposite attributes. The first is where the temperature keeps within the limits of the microbe's needs, where sound as well as heat i smothered within a short distance and the sun's ray give a dusky red glow. The second, indicating comparative absence of germs, is where exposed mea can cure and not spoil, where distant objects appea near and where the unobstructed rays of the sun giv nearly as white a light as an electric lamp does.

Diathermancy preferred to dense, moist or smok atmosphere.—This diathermancy is the clearness c transparency of the air, which is a decided indicatio of its purity. It is with the atmosphere as with wate The larger the lake, with perfectly clear water throug which one can see to a great depth, the better is th evidence of purity. So a large area, having through out a similar atmosphere, through which one can se to most remarkable distances, must indicate as i coldness, rarefaction and dryness do, that the purit is approaching the absolute. This increasing purit of atmosphere, the absence of dust, smoke or moistur with its attendant infusoria is a decided feature elevation, because with each rise of 1000 feet a equivalent stratum of air has been left below an according to Professor Tyndall, each higher succe sive stratum contains less and less of infusoria. Pr fessor Miquel of the Observatoire de Montsouris, ne Paris, has achieved a result in the analysis of the a which is very interesting in this connection.[1]

Miquel found the following numbers of bacteria ten cubic meters of air taken as nearly as possible the same time at the respective places: At an elev tion from 2000 to 4000 meters, none; on the Lake Thun (560 meters), 8; near the Hotel Bellevue, Thu 85; in a room of the Hotel Bellevue, Thun, 600; the Park of Montsouris (near Paris), 7600; in Pa itself (Rue de Rivoli), 55,000. These figures are c tainly suggestive of the fact that atmospheric pur keeps pace with diathermancy. A rule for the avera change in diathermancy, for each rise in elevati was devised by the writer in 1876 from consecut observations of the sun temperature at 2 P.M. and different elevations[2]: *For each rise of about 235 f there is one degree greater difference in temperatu between sun and shade at 2 p.m., as shown by meta thermometers.*

The distribution of atmospheric moisture clos coincides with that of the soils. The dry soils, rocky and sandy portions of mountainous configurati and the dry sandy loams, with rapid absorption of vapor and radiation of heat, nearly represent the climates. *Per contra*, the clay soils and marshes level sections, with their moist cold and the e solution of organic substances, are closely associa with the moistest atmospheres, excepting where hu currents come from over large bodies of water. T correspondence with reference to broad areas beco strong proof of the utility of our preferable combi tion of climatic attributes.

A mountainous country, aside from the benefit elevation, has many advantages over a level reg Chief among these are the quick drainage, wh allows of no detention of stagnant water, the gre surface of the earth exposed to absorb atmosph moisture, the many faces of rocks, etc., favoring ra tion of heat and reflection of light, the elemen stimulation, both atmospheric and electric, the trolling of severe winds, the variations of scen temperature and exposure afforded and the fac

1 "Chronic Pulmonary Phthisis," by Hermann Weber.
2 Rocky Mountain Health Resorts.

vith which one can indulge in climbing hills and in ›leasurable out-door activities. When these advan-ages are compared with the moisture-retaining prop-rties, the sameness, the "siroccos," the trade winds, nd the "northers" of level regions, one easily chooses ›etween them.

The changes in the atmosphere accompanying the ariability of temperature of mountainous places are ecidedly electric. There is an increase of electric ›nsion and there is an easier and more frequent ıterchange between the positive electricity of the ry air and the negative quality of the ground and louds. The condition is very stimulating. This uality in high altitudes is associated with light ıowers, especially in summer time when they are ıost needed to clear the atmosphere. The simultaneous hirl of a light wind, often seen at a great altitude, urifies by its substitution of an unused and fresh sup-ly of air for that which may be impure. Where people :owd together in large numbers, the daily freezing of ıe air is the only sufficient substitute for a mild ind. We thus arrive at the conclusion that in densely ›ttled sections continuous stillness of the atmosphere only to be preferred in the freezing weather of win-r. The warmer the atmosphere the more air move-ent is desirable.

It is where there is a total absence of land influence, ; at sea and on islands far out, or on dry, sandy ›asts, with favorable sea winds prevailing, that low titudes may best be substituted for high ones. The alarial and organic emanations from the soil, which 'e a fruitful source of increased mortality from con-ımption (Buchanan and Bowditch), are thus ex-uded from the climatic calculation. The aseptic ›ndition of the atmosphere out at sea (Miquel), its ıality of stimulation, and the tonic effect of the ıange, including the improvement of appetite and gestion, are all akin to the best effects of high titudes, though the elimination of septic germs is ›s perfectly performed.

The evidence of experience.—This is in harmony th these favorable climatic attributes. One diffi-lty is our inability to make use of statistics of low ıds which are fair for comparison with those which ve been tabulated for high altitude stations. We ve to explain in this connection, that the term ured" should be qualified as meaning a more or s permanent arrest of disease, and that the records ven. embrace only those treated during a limited riod by any of the observers.

The tabulated records at hand of careful and trust-rthy physicians, show the favorable results in both › Swiss Alps and in Colorado (4500 feet and up-rd) to be as follows: For all stages of the disease, 247 consumptives treated in the Swiss Alps, 38 per ıt. were "cured" among 72 per cent. benefited. In lorado 462 cases, 35 per cent. are recorded as ıred" among 75 per cent. benefited. This slight ference in percentage should be explained as quite ural considering the variable times of treatment, l the diverse interpretations by different physicians he extent of the disease and of the relief afforded. orado really has many advantages over Switzer-d as an all the year round resort, and also in the ility afforded to graduate the altitude to the season he year.

n conclusion it is apparent that the element of tude is inseparable from the best climate for chronic pulmonary diseases. The natural question then follows: What is the limit up to which this combination of qualities can be carried that the best results may be obtained? This is a question of individual adaptability which has to be settled by the attending or consulting physician. The best method of settlement is to determine what conditions or diseases are suitable for the extreme or the preferrable combination of attributes, and then arrive at modifications or rejections of the high climate cure by a system of exclusion. This method is that always advised by the writer (Rocky Mountain Health Resorts), and is seconded by the extended experience of Jaccoud as given in his work on "The Treatment of Phthisis." Jaccoud's conclusions are in the main correct, but it must be borne in mind that they, like those of Tucker Wise, Hermann Weber, and most of C. Theodore William's records, pertain to a more northern latitude than we reason about in the United States. In the Engadine, in Switzerland, the limit of timber growth is at or below 8000 feet, an elevation compared with a similar limit at or above 11,000 feet in Colorado. Here the gradual rise, the distance from the sea, and the peculiar protection of mountain ranges make the change from low levels less severe. Also, in America, we have an increased advantage over most of European high climates in that we keep up the curative effect by suitable increase of altitude in summer. Instead, they are compelled, as at Davos, St. Moritz, etc., to give up the chosen climate treatment during the warm weather. The plan of deciding if the preferable climate can be made use of in a given case by exclusion because of negative conditions will not be readily accepted by the over-zealous advocates of low climates. This is, perhaps, because generally speaking, the more reasons there are for exclusion from the better high climate, the less likelihood is there for an ultimate recovery. Besides, it is not always easy to decide what change of climate a given patient can have, because of the varying conditions to be weighed, both as to the patient and as to the climate. We have to summarize by saying that the preferable climate for the great majority of consumptives in the United States varies, according to the case, between over 2000 feet elevation in the north in winter, and 10,000 feet as a possible extreme in the southern portion in summer. As to patients, not omitting social and economic bearings, they vary also, all the way from those cases that are hopeless to those that are to prove curable. There must then, of necessity, be many very delicate and intricate questions to be decided by the attending or consulting physician. Of course, then, any rule of procedure must be susceptible of much variation. The physician who takes the most factors into account and weighs them best will be most successful in the management of each individual case. With this broad proviso we will state some general reasons why a given invalid may *not* go to an otherwise preferable high climate, and thus emphasize those who *may*. Assuming that he can relinquish home and business cares and is financially able to remain from four months to two years away from home, or better, perhaps, make a permanent residence where he recovers, then the following are what we may consider as possible contraindications to a climate above 5000 feet elevation. such as that along the eastern base of the Rocky Mountains from Wyoming through Colorado into New Mexico and northern Arizona.

POSSIBLE CONTRAINDICATIONS.

1. The coldest season of the year, intensifying the effect of altitude too much for very delicate and sensitive persons, coming from much warmer climates.

2. Advanced age of the individual, rendering acclimatization difficult; "senile phthisis" and the fact that the patients are too old and feeble to exercise out of doors.

3. A very excitable nervous temperament, aggravating the stimulation of the high climate, producing irritability, and possibly wakefulness in a few extreme cases.

4. The state of some women, because of a greater susceptibility and lesser adaptability to the change and to out-door life than men have.

5. Valvular heart lesions, with rapid action of the heart, especially with the previous exceptions. Diseases of the great vessels, such as aneurysm.

6. Marked and extensive emphysema, pneumothorax, and hydro-pneumothorax.

7. Active pneumonia and existing hemoptysis. If the pneumonia or the hemorrhage is recent, the contraindication amounts to little; if remote, such cases are usually favorable. If there is reason for doubt in any such hemorrhagic or inflammatory case, a gradual rise in elevation should be advised.

8. Very high body temperature, whether it is rather constant, as in some inflammatory states or in catarrhal extensions beyond a tubercular center in the lung, or whether it is regularly vacillating, *i. e.*, daily subnormal in the morning, and regularly up to 103 degrees or more later in the day, especially in so-called catarrhal phthisis and in laryngeal tuberculosis (unfavorable cases anywhere).

9. Too extensive involvement of lung tissue in diseased action, *i. e.*, so that the healthy spirometric record is more than one-half abridged.

"Phthisis with double cavities, with or without pyrexia; cases of phthisis when the pulmonary area at low levels hardly suffices for respiratory purposes" (C. T. Williams).

10. The active stage of lung softening, if accompanied by daily fever, or in one of a decided hemorrhagic diathesis. "Quick consumption" with or without intestinal ulceration or albuminuria (without predjudicing such a case if the acute symptoms are abated).

A proper estimate and consideration of these ten possible modifiers of the high altitude prescription tend to give the physician confidence of success in sending to well chosen elevated regions, such as the plains and foothills about Denver, incipient and first-stage tubercular pulmonary invalids, particularly if they are hemorrhagic or inflammatory cases without high fever, persons not too old and of fair resisting powers, and those with advanced or third-stage disease with a unilateral cavity already well protected by a conservative fibrosis.

The time to remain in a climate in which recovery seems to have taken place is a more delicate question than is generally considered. This is because tuberculosis is apt to be rendered latent by the climatic treatment and by nature's healing plan—the fibroid or hardening process. It is often essential not only that a patient should reside permanently in the new immunity climate he has reached, but that he should adopt a new and outdoor active occupation, in order to obtain the best results. In less urgent cases, encouraged by the absence of all physical signs of disease during a year or more, by gain in weight and by normal spirometer and manometer records, patients may return to their former homes to live with comparative safety. Many, however, find themselves deceived as to their real condition when they return to their old haunts and confined occupations.

The three principal agencies of relief or cure of tuberculosis thus far discovered, independent of a possible specific (some modification of tuberculin) to produce immunity, are diet, exercise and climate. These, rightly employed, tend to render the disease latent or innocuous through the process of fibroid healing in the lung tissue. The body resistance is strengthened, but the tuberculosis being latent, the individual has the same fight to go over again (it may be with a more unfavorable outlook) if he does not accept and act upon the lesson of experience. His climate, occupation and his habits of life, as to exercise and feeding, must thereafter coincide with what he has found to be most beneficial in his health-seeking journeyings.

Asthma and hay fever.—The name "hay fever" is a misnomer as applied to the breathing disability of many people, since the growth of hay has to do with only a small proportion of these cases. The causes are various, and whether having to do with the flowering of apple blossoms, the pollen of corn or of the Roman wormwood, nervous shock or to the dustiness of "dog-days," the fact remains that four-fifths of these so-called "hay fever" subjects are prone to cough and asthma. The nature of the affection is, like asthma, of nervous origin, and the best mode of relief in many cases is, much like that of asthma, to get out of the region of excessive vegetation into the rarefied air of the mountains.

One of the most troublesome complications in some of these "hay fever" cases is the asthma. The author gives it as his opinion, based upon an extended experience in Colorado, that there is no cure for pure and simple asthma equal to a resort to a well chosen high altitude such as the cool, dry and sunny inland plains and lower mountains of Colorado.

There is a prevalent misconception about this question of asthma, which explains the non-recognition of the above truth, by many sufferers or by their medical advisers. It is not well enough understood what emphysema is, that it is not asthma, but rather the result of it. Asthma is a nervous disease. It produces the undue spasm or contraction of the circular muscular fibers of the smaller bronchial tubes, and the consequent hindrance to the air-circulation, or free inspiration. On the contrary, emphysema is a mechanical state of the vesicular portions of the lungs which complicates such conditions as asthma, whooping-cough, bronchiectasis (dilated tubes) and bronchitis, until there exists a more or less permanent disability of the air-cells, leading to their over-distension and the loss of their natural elasticity. Hence the difficulty and incompleteness of expiration. The one condition — asthma — hindering inspiration, is helped and sometimes immediately relieved by elevation; while the other—emphysema—hindering expiration, is sometimes made worse by the same element of air rarefaction. This is because the affected air-cells and distended bronchial tubes in emphysema are still more crowded with air, especially under any physical exertion, by the necessity to breathe more air in the mountains, in order to get the required amount of oxygen. Therefore, those of the "hay fever" class who have, or are prone to asthma, might be expected to

find much relief, or a cure for the time being, in the high altitudes of the interior of Colorado. Pure and simple asthma usually meets at Denver, or in the hills to the west, with an elevation, aided by the sparcity of vegetable growths and the pollen-producing plants, which prevents the spasmodic contraction of the bronchial tubes, and the cure for the time of sojourn is established.

Malaria.—The aid of the high climate in eliminating malarial poison from the system of a person so charged, is a subject worthy of notice. The suspicion that malaria, like la grippe, bears a near relation to tuberculosis is firmly fixed in the minds of some physicians. So the opposite climatic conditions to those which produce the malarial complications are the more trusted to wear out these evils. It is rather a confirmation of this eliminating process that the chills, when one comes up here with them, are sometimes aggravated at first. The general result, however, is good. The elimination of the malarial poison, which many sojourners in Colorado from Texas and the Mississippi Valley have shown by their happy experiences does take place, constitutes the removal of one of the most fruitful sources of pulmonary consumption. Thus the fascination is explained which the high altitude climate has for many people, who have left behind them the "epidemic shades" of these low sections.

In sending invalids to Colorado, a correct diagnosis is an essential condition of success; for, the physician of much experience in high altitude resorts has to acknowledge that too many failures or limited recoveries can be accounted for by a previous neglect to duly estimate a lung disease as farther advanced than it had been announced, or by a failure to sufficiently recognize the damaging association of "mixed infections," such, for instance, as arise from other blood taints than tuberculosis, or from the non-recognition of the co-existent or causative effect of fermenting blood states, due perhaps to dyspepsia, or to the non-elimination of effete material, as in amenorrhea, with or without constipation.

Allowing patients to go to high altitudes as a *dernier ressort*, who have not a 5 per cent. chance of living six months anywhere, is strongly deprecated. It should be remembered that every rule has its exceptions, and the stated contraindications named may perhaps be neutralized by favorable circumstances, such as the best time of year for the change, previous experience of the individual in high climates or the combination of compensating conditions in the same patient.

The seasons.—These natural divisions of climate necessarily influence the journeyings of invalids, the time of going as well as the choice of the destination. The lack of space here to introduce them, and the advantage of the medical advisers to have on hand an ever ready reference to all important seasonal weather records, leads the writer to refer for all these data to his seasonal humidity, temperature, rain, wind and cloudiness charts.

The question of the season of the year is one of no small importance, notwithstanding the general truth that the best time for a person to go is when he has to, because of the beginning of lung trouble and not as a last chance. For one who really needs the change, there is no better time than the present. The season of the year does not produce so much difference in the indications for a given invalid's hastening away as does the advance of the disease from incipiency, or the first stage, to the ominous second stage, when the lung is "going to pieces." While the summer is by far the most satisfactory season to be in our mountains, and the autumn is a good season to get acclimated to a given high altitude before cold weather comes on, yet many maintain that the best results obtained by those suited to the rarefied air cure, are secured in the winter season. On the other hand, others not so well suited, such as neurotic persons, those unable to exercise outdoors because of advance of disease or extensive fibrosis leading to marked dyspnœa, or those with too sensitive mucous membranes to stand the cold, stimulating and dry out-of-door air, may do well to modify the effects by going first, via Texas perhaps, to southern New Mexico, Arizona or California, during the months from November to March, intending to reach Colorado afterward.

To this conclusion then we have arrived, namely, that for the great majority of cases of consumption this adaptation will be most fully secured in the dry, cool, rarefied, sunny, clear and pure, though variable, atmosphere of a well chosen high altitude, such as is fittingly represented by the region along the eastern base of the Rocky Mountains.

THE ADMINISTRATION OF ANESTHETICS.

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A man who desires to study medicine can find many places in Chicago where they will undertake to teach him, but I do not know of any place where they will teach him to administer anesthetics. There are many places where he may learn but no place where any provision is made for properly teaching the subject.

The student is not left to his own resources in the treatment of cases which come to the dispensary, but such treatment is always under the supervision of a teacher. The administration of anesthetics, however, is one thing which he is called upon to do practically without any instruction. This is one of the most difficult tasks to satisfactorily accomplish, one where skill, experience and personal judgment are required in the very highest degree and where rules are so obscured by exceptions as to be nearly useless. Yet such is the inertia of college management that after fifty years use of anesthetics, medical faculties are not yet awake to the necessity for adequate instruction in this very important branch of the medical art.

Many of the diseases which the student sees in the clinics will never be seen by him, as a general practitioner, in after life; many operations watched, he will never be called upon to perform, but no student or practitioner will escape being sometimes called upon to administer an anesthetic. Every case of disease brought before the classes in the medical colleges is utilized to the utmost as material for imparting instruction, except the numerous anesthesias. In these cases all the attention of students and teachers is concentrated on the operation, though it may be nothing more than opening a boil.

One reason for this apathy may be the fact that nothing can be learned about the administration of anesthetics from a distance even so great as the front row of seats in the amphitheater and, as but few per-

sons could get near enough to the patient to observe the phenomena of anesthesia, this source of instruction is wholly neglected.

A student will learn more in administering one anesthetic under the eye and direction of a competent instructor than by the administration of twenty, if left to his own resources. At present every student must get his skill by the hardest kind of experience and at an entirely unknown expense to his patients. He is called into the amphitheater and told to anesthetize a patient; he either gets no instruction at all or only that which some other student, who may have anesthetized two or three patients, is able to give him. He knows only what he has been able to learn from his seat in the amphitheater and that is little more than the fact that the patient's face is covered and the anesthetic poured on till he no longer moves. That this is playing at odds with death may perhaps be appreciated when it is realized that many times during the maintenance of anesthesia, safety or great danger, even death, depends on whither the anesthetist's judgment prompts him to give a little more air or a little more anesthetic.

These conditions will justify our writing on this subject with especial reference to the needs of the student who wishes to be able to give an anesthetic skilfully with safety to the patient and satisfaction to the surgeon. The student in this case includes not only the man in and just out of college, but also the practitioner who does not consider himself proficient in producing and maintaining general anesthesia.

The college clinic is the legitimate place for acquiring this experience and if properly conducted would turn out skilled anesthetists. The dispensary or clinic patient is entitled to the same consideration and treatment as is accorded those in private practice. In either case the anesthetist should try to make the acquaintance of the patient some time before the hour set for the operation and gain his confidence so far as possible. If he can control the patient, a few days preparation is a great advantage. In that case, examine the urine carefully for evidences of nephritis and ascertain whether the excretion of solids and urea is normal. Give the alimentary canal a thorough cleaning, and a few hours before the operation, the lower bowel a flushing. The patient should abstain from food for twelve hours before the operation, if this time includes a night's sleep; half that much daytime is enough; he should take no water within two hours of the operation. If the operation be done before noon the patient should have no breakfast, but about two hours before the time set should be encouraged to drink two or three glasses of water, preferably hot; this and the flushing of the bowel will usually prevent that dreadful thirst which follows anesthesia, the gratification of which causes such violent vomiting, which wears out the patient and affects adversely the result of the operation. For this reason castor oil is a better cathartic than the salines, as it does not abstract so much water from the system and is therefore less likely to produce thirst.

The heart and lungs should be examined carefully; in fact, the general condition of all the organs of the body should be known as far as possible.

It usually happens however, that the anesthetist does not see the patient until the hour set for the operation (in which case he must trust that the surgeon has seen to all these preliminaries) and he is frequently told "the patient is in that room, go in and get her to sleep as quick as you can." This I would not do. Insist that either the family physician or the surgeon take you into the room and introduce you to the patient. In doing this, he should assure the patient of your skill and of her safety in your hands. The anesthetist should then spend a few minutes talking to the patient and examining her heart. This should be done for the purpose of impressing the patient with your carefulness, even though you know that examination has already been made by a competent person. Assure yourself that there are no foreign bodies in her mouth; rub a little petrolatum on her lips, nose and cheeks so as to lessen the danger of blistering the skin with the anesthetic; place the mask over the patient's face and tell her to close her eyes as the anesthetic is irritating to them. Tell her to breathe regularly and rather deeply and to count after you; explain that sensations of suffocation are felt by most patients; that they have no adverse significance and will pass away after a few deep inhalations. In giving chloroform, tell her that every time she counts you will pour on a drop of chloroform. If the patient is very nervous, continue the counting a few minutes without giving any anesthetic. It is wonderful how this will, in many cases, bring down the pulse and steady the breathing. Then begin the chloroform, drop by drop, very slowly at first and more rapidly as the patient's voice indicates that unconsciousness is approaching. In this way patients are often put to sleep without experiencing any unpleasant sensations whatever, and seldom will there be any sign of the stage of excitement. After anesthesia is begun, the patient should not be moved any more than is absolutely necessary. If the patient is a man (or a woman who is not nervous) it is better to put him on the operating table before beginning with the anesthetic. The room should be quiet, no talking being allowed except that between the anesthetist and the patient; they should not be alone, however, unless some one is within immediate call to render assistance should any be necessary. A quiet room and an unexcited patient are the best possible conditions for the safe and easy induction of anesthesia.

From the beginning to the end of the operation the anesthetist must devote his entire attention to the condition of the patient and the conditions which conduce to the safety and the success of the operation. He must not watch the operation, though he must know in a general way how it is progressing, so that he may be prepared for any emergency. He must control the temperature and ventilation of the room, being less actively engaged than the surgeon he is better able to judge of the effect of these conditions on the patient. He must remember that the anesthetic is a drug, the administration of which very materially lowers the temperature of the patient, and he must insist that all parts of the body, which are not necessarily exposed, be thoroughly protected from cooling, by proper covering and hot water bottles when necessary. He must direct that the bed be properly warmed and prepared for the reception of the patient at the close of the operation, and must remove or superintend the removal of the patient to the bed. He must remain by the bed until the patient revives, and then give careful directions regarding care till recovery from the anesthetic is complete. The patient should be without a pillow for an hour or so, or until well recovered, though she should not

be allowed to lie with head hanging back in an uncomfortable position. If the patient is very weak or there has been much shock, the foot of the bed may be elevated.

Do not make a practice of giving drugs before or during every anesthesia. Occasionally, surgeons insist on giving a hypodermic of strychnia before beginning the operation, thinking that this helps to keep up the circulation and lessen shock. I have some times thought a hypodermic of morphin half an hour before beginning with the anesthetic, facilitated the production of anesthesia.

Resisting patient.—The greatest care is necessary in anesthetizing persons who actively resist. This will seldom happen except in the case of children; they will sometimes cry and scream and take deep and forcible inspirations. Under such circumstances, if the vapor of the anesthetic is concentrated, they may absorb into the blood, at one inspiration, sufficient of the anesthetic to completely paralyze the heart. I saw chloroform administered, under these circumstances, to a boy 14 years old. He was screaming at the top of his voice, and a napkin saturated with chloroform was placed over his mouth just as he took a powerful inspiration. Instantly his cry was checked, and he dropped as though he had been felled with a club. For a minute there was no sign of pulse or respiration, though I could hear a faint fluttering with my ear over his heart. In a moment there was a wavering pulse at the wrist, then it could be counted at 180. Respiration began slowly, and in ten minutes it was natural, but light, and the pulse had dropped to 120. The anesthetic was then resumed, though consciousness had not returned, and no further trouble was experienced. One can realize the character of the drug he is dealing with when it is known that a single inspiration of its vapor is capable of rendering a struggling boy instantly unconscious and keep him in that condition for ten minutes or more.

Ether and chloroform.—Ether should not be used on patients having diseased kidneys, as it may produce congestion of these organs and be followed by suppression of urine. Chloroform is less liable to produce this result. Ether is more dangerous than chloroform if the patient has atheromatous degeneration of the blood vessels. Ether stimulates the heart's action while chloroform depresses it, and any increase of pulse tension might rupture a diseased vessel. Emphysema, asthma and chronic bronchitis are aggravated by ether, and, where these conditions exist chloroform is to be preferred. In administering ether it is very important to begin very slowly, as concentrated ether vapor, suddenly coming in contact with the mucous membrane of the respiratory tract, is very irritating and may produce spasm of the larynx. If given slowly there will be less trouble from the secretion of mucus in the mouth and throat; there will be less nausea afterward and the patient will recover more quickly. Death from ether is said to be by asphyxia and not from syncope, consequently respiration ceases first when death occurs. Ether is said to be safer than chloroform in the hands of the unskilled, but that should never be made an excuse for trusting his duty to the inexperienced, except where it is absolutely necessary. Unfortunately, the inexperienced are too often allowed to administer anesthetics without adequate supervision. Too often the anesthetist is more interested in the operation than he is in the administration of the anesthetic. This is wholly inexcusable and should death occur under these circumstances it should be ascribed to criminal carelessness. Ether has been known to take fire fifteen feet from a gas jet, hence great care must be exercised in administering it at night. The container should be of tin, not of glass, and it should be securely corked in the intervals of use. The vapor is nearly twice as heavy as air, and in a still room it will settle to the floor and flow along it for a considerable distance before diffusing into the air. Hence a fire low down, as in a stove, is more dangerous than a gas jet high up.

When chloroform is used in a closed room, where there is a light, the vapor is decomposed, chlorine is set free, and some compounds formed which are very irritating to the respiratory tract. A towel saturated with ammonia and hung up, or a little ammonia scattered about will lessen this difficulty. Chloroform is more rapid in its action, less irritating to the respiratory passages, less unpleasant to the patient, less liable to cause nausea and vomiting, and produces less bad after-effects than ether.

The anethetist should bear in mind that when the anesthesia is prolonged it will require less of the anesthetic to maintain that condition than it did at the beginning.

Breathing.—While every sign which will give any indication of the patient's condition, is important, the character of the breathing is most important of all. The ear rather than the eye should be depended on for the assurance that the patient is breathing properly, for the chest may continue to rise and fall regularly and no air enter the lungs. The ear will instantly detect this condition, as the sound of air entering the trachea and the bronchial tubes is unmistakable. Snoring is an assuring sound, but the stertor produced by a partial closure of the glottis is ominous, and the moment it is heard the jaw must be brought more forcibly forward; if it does not cease then, the anesthetic must be discontinued until the condition is corrected.

It sometimes happens that the patient will take a long inspiration, like a sigh, due to some manipulation of the surgeon; when this occurs, the inhaler must be removed until the breathing is again natural. It is not necessary nor is it advisable that the anesthetist should concentrate his attention on the breathing or, in fact, on any point; his ear should be so well trained that it will instantly call attention to the slighest change in the character of the respiration, even while his attention may be directed elsewhere. It not infrequently happens, when the patient is just sinking into unconsciousness, that he will hold his breath; if the pulse is good this is not alarming, and the inhaler need not be removed; however, if there is any doubt as to the condition, the anesthetic had better be stopped until breathing is normal.

I have anesthetized two such patients, and in both cases it was necessary to perform a sort of artificial respiration by strongly and intermittently compressing the chest before complete anesthesia could be produced.

The Pulse.—The anesthetist should keep one finger constantly on the facial or temporal artery; without directing much attention to the pulse he will thus be warned if any marked change takes place. At the beginning of anesthesia the pulse will often be very rapid, due to the excitement of the patient, but as soon as unconsciousness is complete, it usually be-

comes much slower. With chloroform, it will be weaker and with ether, stronger. If the pulse is intermittent before beginning the anesthetic, as in excessive users of tobacco, it forbodes trouble and it behooves the anesthetist to be especially on his guard and to have assistance at hand prepared for any emergency. I administered chloroform to a man with "tobacco heart" on three different occasions. On the first and second his respiration stopped twice and resuscitation was slow. At the third ordeal I succeeded in escaping this complication by stopping the anesthetic every few minutes. I once gave chloroform to a man for an exploratory laparotomy whose pulse went up to 180 as soon as I began and remained at or above that figure during the entire anesthesia. The diagnosis in this case was alcoholic liver. In severe operations it may sometimes happen that no pulse can be felt at the wrist when the hand is held up, but the pulse reappears when the hand is lowered. All sorts of variations of the pulse may exist without serious consequences resulting, but only the steady regular pulse is assuring to the anesthetist.

The pupils.—The appearance of the pupils furnishes valuable indications of the condition of the patient. On beginning the anesthetic they dilate, then contract till normal or a little smaller and usually remain contracted during the maintenance of safe anesthesia. If they are dilated and respond to light, it indicates that the anesthesia is not profound, if dilated and do not respond to light it indicates that the anesthetic has been pushed to a dangerous extent and it must be instantly stopped, the variations of the pupils in different individuals is so great that too much must not be risked on their appearance. Occasionally the pupils will be as small as pin heads. I do not know that this has any significance but I am never at ease under these circumstances until the operation is complete. It is well, in such cases, to inquire whether the patient may not have been given a dose of morphin a short time before. Occasionally, the pupils will be very much dilated throughout the anesthesia, and this too is a disquieting condition. In fact, any variation from the conditions usually witnessed is to be looked on with suspicion and the vigilance of the anesthetist redoubled. On one occasion an anesthetist watched a patient's pupil for ten minutes without seeing any change whatever, nor was it affected by light when the lid was raised. Becoming alarmed he looked at the other eye and found that pupil much smaller than its mate. He called the attention of the surgeons to the anomally but they could offer no explanation. Picking up an instrument he touched the cornea with it and discovered that the eye was glass.

Color of the face and lips.—The color of the lips and face should be noted before beginning the anesthesia, for any marked change in their appearance indicates impending trouble. If the face becomes blue it shows that the patient is not getting enough air and the inhaler must be at once removed. I have on two or three occasions seen an ashy paleness suddenly spread over the face and in every case the patient had already, or immediately did, quit breathing. The color of the face is a valuable indicator in women, but is less useful in men. A patient with bright red lips or rosy cheeks is not in any immediate danger from the anesthetic.

Clothing.—The patient should have on no more clothing than is absolutely necessary and what clothing he has on should be easily removable so that if soiled, as is likely to be the case, it can be changed without too great disturbance of the patient. Clothing about the chest and throat should be loose. A woman wearing a corset is not a fit subject for an anesthetic. Care should be exercised that the surgeon or his assistants do not rest their elbows on the chest of the patient; they may unconsciously bear down so hard as to seriously interfere with respiration.

Position of the patient.—In giving anesthetics for dentists you must insist that the patient be placed in the recumbent position. Require the dentist to lower the chair till the patient is horizontal, then when the patient is asleep the chair may be raised a little so that the dentist can pull the teeth, but as soon as that is done the chair must be again arranged so that the patient's head is on a level with his feet.

Position of the arms.—The patient's arms should be folded across his chest unless in that position they interfere with the surgeon. They should not be raised above the head unless absolutely necessary as this position interferes with respiration. They should not be allowed to hang down over the edge of the table for this is liable to produce paralysis. I usually pin the sleeves of the patient's night dress across his chest. In putting the patient into bed care must be taken of the arms lest they become folded under the body, when a fracture or dislocation might easily occur.

While totally unconscious, the patient must be watched as closely after removal to the bed as while on the table, because moving is likely to cause vomiting and, unless care is taken, the vomited matter may be drawn into the lungs and do damage, even to complete suffocation.

Droppers and inhalers.—For chloroform, I use a common wire mask covered with one thickness of linen; for this purpose, I have pieces of old napkins or tablecloths. These are cut so as to project in a sort of ruffle, about an inch beyond the mask, all around except at the top where it is cut close to the wire in order to leave the eyes uncovered. This margin can be held down with the left hand if the patient is getting too large a proportion of air. These pieces of linen have two holes by which they are fastened to the mask and are bound on the edge with tape, or hemmed. These are used but once and then sent to the laundry. I know of no habit more filthy than that of anesthetizing patient after patient without changing the cover on the mask, as is done in some clinics.

For ether, I like the towel about a folded newspaper about as well as any of the elaborate patent inhalers in the market. Its simplicity and cleanliness are much in its favor, yet the ease with which the patient can be asphyxiated by a careless anesthetist renders it less satisfactory than it otherwise would be. For dropping chloroform, I use a two ounce bottle with a notched cork. A useful contrivance used by some anesthetists consists of a wick of cotton reaching from the bottom of the bottle to an inch or so outside of the cork, which is gently inserted into the mouth of the bottle. This acts on the principle of a capillary drain and the rate of flow is regulated by the angle at which the bottle is held and the tightness of the cork. I have never been able to satisfactorily regulate any of the patent droppers and regard them as wholly unnecessary. No special vessel is needed for ether, as it can be poured out of the container in which it is bought.

Preparation of the table.—In private houses where they do not have a trained nurse, the anesthetist should see that the table is properly prepared for the comfort and safety of the patient To this end, fold a quilt or blanket lengthwise, twice, so that it will be four thicknesses; lay this on the table; cover it with several thicknesses of newspaper, and over this throw a sheet. The blanket will be longer than the table and the extra length can be folded under at the head for a pillow, this will make the patient's head lie more comfortably than it would on a pefectly level table, and an ordinary pillow is usually too high. If an emaciated patient lies on a hard table during a protracted operation, decubitus may ensue. These pressure ulcerations are very hard to cure and add very much to the gravity of the case. If there is a carpet on the floor of the room in which the operation is to take place, a lot of old newspapers spread on the floor will protect it from damage. Such a precaution will be appreciated by the family though they would not think of it unless mentioned.

In curetting and other vaginal operations where much water is used, the clothing sometimes gets saturated to the patient's head. If there is no appliance at hand, such as a rubber pad, to prevent this, it may be avoided in a large measure by placing a couple of blocks of wood under the legs at the head of the table.

Let every man who is called upon to administer an anesthetic give the strictest attention to his work, remembering that it is second in importance only to the work of the surgeon; that it often requires more skill than is required of the surgeon, and is frequently attended with greater danger to the patient than is the operation. Then there will be more skilled anesthetists and fewer "unavoidable" deaths from anesthetics.

200 Oakwood Boulevard.

OPERATIVE TREATMENT OF IRREDUCIBLE DISLOCATIONS OF THE SHOULDER JOINT, RECENT OR OLD, SIMPLE OR COMPLICATED.

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NEW ORLEANS, LA.

(*Continued from page 1098.*)

25. *Irreducibile dislocations, old, spontaneous, or pathologic.*—No case similar to such cases of the coxo-femoral articulation has been found on record.

26. *Irreducible dislocations, old and paralytic,* are irreducible simply because they can not be kept reduced, although they are readily replaced in the socket, because the muscles have lost their power through paralysis of their nervous supply from peripheral or central causes. The peculiar joint diseases described by Charcot, specially in connection with locomotor ataxia, are also cases in point. The treatment should be directed to the cause. In irreducible old dislocations from paralysis of the deltoid, expose articular surfaces, pare them and let them become anchylosed. The following is a case in point: Julius Wolff, 1886.[108] Irreducible dislocation, old, downward paralytic), posterior incision, reduction, stitching of head to glenoid cavity, result, improved. Male, aged years. *Diagnosis:* This was a perpendicular luxation of the shoulder, downward, due to severe accident, and a traumatic myopathy. The head of the humerus had sunk about three centimeters from the acromion and glenoid cavity, so that one could easily push a finger into the space between the head and the acromion. *Duration:* Three years. *Movements, etc.:* The right scapula is slightly dislocated on keeping the arm quiet. The lower angle of the scapula stands off from the thorax and the angle, and the lower part of the inner border is nearer the spinal column on the right than on the left side. The arm hangs close to the thorax and moves like a pendulum when the patient, by changing the position of his body, starts its movement, or when one pushes the arm in any position it will swing back and forth without the will of the patient. The humerus is thereby rotated inwardly, so that the greater tuberosity points inward and the lesser tuberosity backward. The sulcus (intertubercularis), between the tuberosities is easily palpable and appears as deep as in the dry bone specimen. Acromion processus coracoideus, and the upper rounded, depressed and lowered head are prominent and are easily distinguishable. Patient raises the scapula and abducts the angulus scapulæ. The arm does not follow the movements of the scapula. When the patient makes a great effort he can, for a moment, raise the caput humeri and scapula, so that it may be at its normal height. More certain, and then only for a moment, the caput humeri will reach its normal height by reflex when one gives the patient a sudden blow on the back. Should the patient desire to elevate the arm he moves it, with the body, outward, with a swinging motion, pendulum-like, and then catches the right hand with the left and raises it. Atrophy of the deltoid so marked that if one attempts to grasp it with the fingers almost nothing could be seized. The supraspinatus and pectoralis major muscles were less atrophied, as well as the muscles of the forearm. However, the muscle pectoralis major is weak and only acts on fixing the head of the humerus, whereas, the muscle latissimus dorsi is under the same circumstances stronger. Every other action of the shoulder joint is impossible. One can passively move the humerus in any position of luxation or subluxation. The shortening of the injured upper arm in comparison with that of the healthy was two centimeters, of the forearm and hand one centimeter. Movements of elevation were only possible when the child by movements of the body gave motion to the arm, like a pendulum. The upper arm is greatly atrophied, and that very evenly on the anterior and posterior surfaces. The elbow-joint, owing to the flaccid hanging arm, could not be moved. When the upper arm is elevated and fixed the patient is able to actively straighten the elbow when it has previously been passively bent, or if the patient has allowed it to fall by its own weight into a flexed position. If one fixes the upper arm, then rotates it firmly inward and elevates it to an angle of 45 degrees there is a possibility of weak active movements in the forearm. Pronation and supination of the forearm is slight, and only possible when the forearm is bent. The closing and stretching open of the hand, with finger movements, can be easily done. On the pectoralis major one notices fibrillar movement, particularly when one breathes or blows on that region. Sensation to pain, temperature and position is equal on both sides. No vasomotor disturbances exist. Eulenburg's electric examination shows a marked decrease of nervous (irritation) excitement (faradic) in the axillaries and less in the plexus over the clavicle; no decrease in the other nerves of the arm. Marked decrease of faradic

muscular irritation in the deltoid, less decreased in biceps, triceps and supinator longus and no reduction of muscular irritability in the forearm muscles; marked decrease of galvanic muscular irritability in the deltoid; no arterial reaction. *Operation:* The arm was abducted so that the posterior border of the glenoid cavity could be easily palpated, and an incision was then made six centimeters long, beginning at the posterior angle of the acromion, along the posterior border of the glenoid cavity downward. This incision laid the joint open. The humerus was then rotated inwardly more than was natural and so much of the muscular insertions at the greater tuberosity as was necessary to permit of this abnormal rotation was cut away. This permitted a good apposition of the head of the humerus with the glenoid cavity, and after obtaining this marks were made on the head of the humerus and overlying the glenoid cavity, as it was intended to knit the humerus to the glenoid cavity by means of ivory pins. A thin layer of cartilage was then chiseled off the head and cavity and a hole drilled in the head of the humerus from the inner to the outer side, and on the border of the middle and outer third. In boring of the scapula it was sought to have the hole one centimeter from posterior border, for fear the bone would break off if the drilling were too near the border. In order to do this it was necessary to make a horizontal incision from the middle of the vertical one through the fibers of the infraspinatus. After boring the holes it was found that the ivory point could not be forced through both holes, as they were not in a straight line, therefore a strong silver wire was passed through both holes and then twisted until the chiseled surfaces of bone were in close apposition. The fixation was so complete that it was not necessary to make another knitting. The author then extirpated a portion of the articular capsule and left as much as would be necessary for the joint and closed the capsule with catgut stitches. Both muscle incisions were then closed with buried catgut suture and the skin wound closed. with the exception of a small point for drainage. *Result, immediate:* Primary union. *Result, remote:* Better than could have been hoped for. Patient can now, by means of scapula, lift and depress arm, which formerly dangled lifeless, and can also slightly abduct and adduct it. Against all expectation, it has happened that a form of new joint has developed, but with very limited motion, which does however permit rotation inward and outward, and even makes it possible upward and downward, no firm union having taken place between head of humerus and glenoid cavity. Head of humerus fixed to scapula. The author had hoped to obtain an osseous fixation of the denuded head and cavity, but did not succeed. It is therefore fixed by silver wire and by the fibrous tissue attached to the openings of the bored holes to the cicatrix, and we have therefore a new jointing with limited motion. There is slight rotation. Patient can throw a ball up or to the ground; can walk with a stick; can brush his shoes with the right hand, and can also write with it. None of these movements could be made before the operation. No marked progress in movements at the elbow. After the operation marked contractions were induced in the deltoid muscle, which previous to it did not react at all. This was the condition four months after the operation

27. *Irreducible dislocation, old, complicated with persistent atrophy of the muscles or with muscles not responding to the electric test*, should not be operated for obvious reasons unless to relieve troublesome pressure symptoms.

28. *Irreducible dislocation, old, complicated with fatty or sclerotic degeneration of the muscles;* the same applies. It is recognized by the fact that when under an anesthetic, while the muscles of the opposite shoulder are completely relaxed, yet those of the affected side are still rigid and tense and call for section of the unyielding muscles. This sclerotic and fatty condition is not rare in cases of anchylosis of old irreducible dislocations of the shoulder specially and is often one of the most potent factors in preventing the reduction of the bone even after the head has been exsected.

29. *Irreducible dislocation, old, in subjects rheumatic or gouty;* the same applies also because they are apt to be followed by anchylosis, specially if reduction has been done; these subjects manufacture fibrous tissue too readily.

30. *Irreducible dislocation, old, complicated with diseases at large*, should be treated with the greatest care. Tripier's case is one in point.

31. *Irreducible dislocation, old, complicated from having been subjected to great efforts at reduction* should not be operated for some two or three weeks lest we find bruised tissues, extravasated blood, etc. which may be the causes of suppuration and sepsis Langenbeck, 1877, is one example; also Kocher's No 3 and No. 6, 1889.

32. *Irreducible dislocation, old, complicated by arthritis acute*, should not be operated until the acute state is over.

33. *Irreducible dislocations, old, complicated with arthritis chronic* or with *suppuration*, are reported by Reid 1878. Bardeleben 1889, Fender 1889, Schede's No 2, 1892, Case 23, Bellamy 1887, Case 7. They should be operated as soon as possible.

34. *Irreducible dislocation, old, complicated with anchylosis of the head in the pseudo-cavity*, is mentioned by Post, 1861, and Hofmehl, 1881. They usually present great difficulties, specially if the anchylosis be fibrous and close, but particularly if it be osseous.

35. *Irreducible dislocation, old, complicated with pressure symptoms of the vessels and nerves* should be operated, if only for the relief to be obtained, provided no serious contraindications exist.

36 and 37. *Irreducible dislocation, old, complicated with fractures during attempt at reduction soon before or during the operation.* If the fracture is very high up it is safest treated by resection of the broken head; when the fracture is in the middle the head should be resected below the ball and the balance of the fragment brought in apposition with the lower fragment. Thiersch's case, 1874, is an example. We will recall here the following cases of old dislocations and new fractures of Kocher, 1889.[90] In case No. 2, one week before operating an attempt to reduce was made and the bone fractured through the anatomic neck; the greater tuberosity was torn off also the subscapular, the short head of the biceps the fractured head was resected or removed and the result was good. In case No. 4, attempt at reduction before operating was followed by fracture of the head of the humerus, the fracture line passing also through the greater tuberosity; resection of the head, result good. In case No. 5 there was an old united fracture of the head through anatomic neck and of the tuberosity; the bones were refractured in the manipulation

to try to reduce before operating; the fractured bones were removed, with an improvement of the case. The same accident, *i. e.*, refracture, happened to Edmann, 1896, and to Vander Veer, 1897.

38. *Irreducible dislocation, old, complicated with injury to the vessels before operating and followed by an operation* is represented by the clinical case of Lister, 1873, rupture of the axillary artery.

39. *Irreducible dislocation, old, complicated by injury to the vessels during operation* has been recorded in the case of Annandale, 1875 (circumflex and axillary arteries), Langenbeck No. 2, 1879 (subscapular artery), Hofwohl 1881, Volkmann 1882 subclavian vein), Vander Veer, vein and artery—axillary. The injury to the vein rendering ligation necessary and followed by threatening gangrene, calls for deep consideration of the advisability of ligating the axillary or brachial artery below the largest collateral. Injury to both artery and vein or uncontrolable hemorrhage must be met as done by Vander Veer by amputation of shoulder.

40. *Irreducible dislocations, old, complicated with old fractures; non-united of the tuberosities*, call for the resection of those pieces which are usually connected by more or less numerous short, dense fibrous bands. Irreducible dislocation, old, complicated with old fractures united of the tuberosities, of the anatomic neck and of the surgical neck are common, 36 per cent. of all forward dislocations. They are usually osseous and surrounded by such a great amount of fibrous tissue or by such callus as to render the operation very difficult. The partial resection of the tuberosities is sometimes required to obtain room to work, as in the Bickham-Souchon case.

41. *Irreducible dislocations, old, complicated with old fracture united of the shaft*, are not likely to give trouble, being low down.

42. *Irreducible dislocations, old, complicated by a previous unsuccessful operation*, give great trouble, as proved by the case of Bickham and Souchon, where the adhesions between the surgical neck and surrounding parts were great and resistant; also between the cartilaginous surface of the head with the surrounding tissues; the head was much hypertrophied and had to be partially resected with the gouge and hammer to make room to continue the operation; it was also very hard, almost eburnated. All this, due to the long suppuration that followed the first attempt. Irreducible dislocations, old, recurrent or habitual are irreducible in that they can not be kept reduced.

43. *Irreducible dislocations, old, recurrent, treated by stitching of capsule* (*reefing*) are reported by Picard, 1892, two cases.[109] [110] An anterior incision in the pectoro-deltoid interstice; at the upper end the incision is prolonged at right angle, following the contour of the insertion of the deltoid to the clavicle and acromion; the muscle is detached and turned outward and backward; the coraco-brachial is then cut by an assistant, the operator frees the upper inferior edge of the subscapular muscle at its humeral insertion; the arm is then rotated inward firmly, so that the anterior wall of the capsule is relieved of tension; then through the top of this wall, through this capsule and into the thickness of the subscapular muscle, the operator passes three stitches of coarse flat silk, vertically directed, and about two centimeters one from the other. The free extremities of these threads are tied two by two in order to reduce this anterior wall to the least but most resistant and rigid thickness. There were no difficulties nor complications during the operation nor after; the results immediate were not mentioned. The patient is reported as keeping well during the nine months following the operation, when he was employed wheeling a wheelbarrow. This surely is the ideal operation for habitual dislocations.

44. *Irreducible dislocation, old, recurrent treated by incision of capsule, overlapping and stitching*, is the first case of operation reported for recurrent dislocation, by Samosch, in 1889.[111] Through an anterior incision the capsule was reached and split longitudinally; the medial portion was drawn over the lateral and pulled strongly and stitched in this position. No difficulties of complications are mentioned; the healing was primary and the final result very good.

45. *Irreducible dislocations, old, recurrent, treated by resection of portion of the capsule, stitching.* Three cases were found, one by Gerster, 1884,[112] and two by Burrell in 1897.[113] [114] Gerster's is a case where reduction was effected without any difficulty, the arm put up in a plaster bandage for five weeks. Upon the removal of the bandage the dislocation reappeared and the mere weight of the extremity alone was sufficient to cause the reappearance of the dislocation. An anterior incision was made and the capsule exposed; its inner aspect, the side facing the axilla, was abnormally relaxed; a piece one inch long and two in width was excised from it while the arm was firmly rotated outward. A counter incision was made into the posterior part of the capsule for drainage, closing of the anterior incision. There was no difficulty nor complication during the operation. Septic fever set in a few hours after, due to the catgut drain; it was removed and replaced by a drainage tube; wound treated openly. There was long suppuration with erysipelas. After the healing the functions of the joint were fair and promised to improve.

Burrell proceeds also through an anterior incision; the operations were more elaborate and systematic; they presented no difficulties nor complications, healed primarily and gave very good results. The cut which accompanies his description shows the field of operation; it is a drawing from a dissection made to demonstrate this operation by Dr. F. B. Lund. The important detail, which is shown in the cut, is the divided tendon of insertion of the pectoralis major. This allows the retraction inward of this muscle, uncovering the capsule of the joint. In order to gain access to the joint the subscapularis muscle should be partially divided. Then with hooked retractors a piece of the capsule can be excised.

The following description gives in detail the operation:[79] The patient was etherized and the arm slightly abducted. An incision was made from the coracoid process downward and outward, following the line of the cephalic vein, to below the upper border of the tendon of the insertion of the pectoralis major. The cephalic vein was then recognized, drawn outward and the intermuscular septum between the deltoid and the pectoralis major was separated with the handle of the scalpel and with a few touches of the blade. This exposed in the upper part of the wound, the coracobrachialis and short head of the biceps, and in the lower angle of the wound the upper part of the insertion of the pectoralis major.[80] The acromio-thoracic artery was distinguished: the upper three-quarters of the insertion of the pectoralis major was divided in

order to allow the muscle to be retracted inward and thoroughly expose the head and neck of the bone. These now came into view, and in front of the head and neck of the bone, could be seen and felt, through its sheath, the long head of the biceps. It was found necessary to clear the tendon of the coraco-brachialis and short head of the biceps quite up to the coracoid process, and to carry the incision in its whole depth up to the coracoid process.[81] By externally rotating the arm and dropping it backward the insertion of the subscapularis muscle could be distinguished and its tendon was stretched over the head of the bone. A portion of this insertion was divided. The finger felt the head of the bone, the anterior two-thirds of which was very plainly exposed, and it tended to slip forward toward the coracoid process. The coracoid process could be plainly distinguished and the capsular ligament was apparently lengthened.[82] The arm was then abducted to an angle of 45 degrees and the head of the bone pressed backward to prevent the head from coming up under the coracoid process. By these means the front of the capsule was relaxed. The loose part of the front of the capsule was grasped with a three-pronged vulsellum forceps. Three sutures were inserted with a curved needle beneath this and this fold of the capsule was excised, three-quarters of an inch in length and five-eighths of an inch in width.[83] Two of the sutures were cut out at the time of removing the bit of the capsule. The other suture held and was tied. Another suture was introduced into the capsule. After these sutures were tightened and tied it was found that the capsule was distinctly tighter and shorter.[84] The acromio-thoracic artery was divided and was the only vessel requiring ligature. Sterile water was used for irrigation. Silk-worm gut sutures closed the whole length of the wound. No attempt was made to unite the partially divided insertions of the pectoralis major and of the subscapularis; as when the arm was brought to the side these structures came together without suturing. The wound was dried, an antiseptic dressing applied, and the arm was fixed to the side with the hand across the chest.[85] A clear differentiation must be made of all the anatomical structures, and with this accomplished, the operation is feasible. The use of broad retractors without sharp points, on the inner side of the wound to retract the coraco-brachialis and the vessels, is of great importance.[86] The important steps in the operation are, the free division of the tendinous insertion of the pectoralis major for three-quarters of its breadth, in order that the head of the bone and capsular ligament may be freely exposed by retracting the muscle; the division of a portion of the insertion of the subscapularis; raising the arm to a horizontal plane and pressing back the head of the bone, which relaxes the front of the capsule so that it can be grasped and a bit removed.[87]

The result of the operation in the first case is that a year and ten months after the operation the patient stated that there had been no recurrence of the dislocation; that he had been fishing on the Grand Banks during the summer of 1896, and that the motions of the joint were perfect. In the second case at the end of two months the patient is using the arm freely and has had no recurrence of the dislocation.[88]

The first operation took one and three-quarter hours. The second thirty-five minutes. It is purely an anatomical operation and each anatomical structure must be recognized as carefully as in the ligation of an artery. So far as one can generalize from these two operations, it is simple, efficient and curative.[89] This operation is a more severe one than mere stitching and should be reserved for when the stitching fails.

46. *Irreducible dislocation, old, and recurrent treated by reduction.*—There is one case reported by Albert, 1888.[115] It was of sixteen months standing. The joint was penetrated through a posterior incision. The head and glenoid cavity were deprived of their cartilage and stitched together. No complications followed the operation, but it resulted finally into anchylosis of the joint.

47. *Irreducible dislocations, old, recurrent, treated by resection of the head.*—Cases were reported by Cramer 1882,[116] Popke 1882,[117] Sacré 1883,[118] and Owen's No. 2, 1893,[119] Monks 1896.[120] They were all subcoracoid dislocations. The operation consisted in an anterior incision; Langenbeck acromio-humeral was used by Cramer. There were no difficulties or complications during the operation, nor any complications after. They all healed by first intention except Popke's case. The results, remote, were: fair in the case of Cramer and Owen, good in Sacré's and improved in Monk's. This operation appears as a rather severe one when contrasted with the result of Ricard. It is true in the latter's case there was no rent of the capsule; but when this exists it should be pared and stitched. Excision of the head of the humerus is a mutilating operation and will be very rarely necessary. It is conceivable that after an exploration of the joint, abnormalities might be found which would demand an excision.[90]

48. *Irreducible dislocation, old, operated by resection and reduction and followed by long suppuration*, has been met with in 32 per cent. of all forward dislocations. This is indeed too much and calls for the greatest care in asepsis and antisepsis in the future. The head had also to be resected after reduction in the case of Kocher No. 3, 1889, a case of forward dislocation operated through an axillary incision; also Socin's case, 1886, downward dislocation—reduction, necrotic pieces, then resection; also in Schede's case No. 3, 1892, backward dislocation—congenital reduction, necrosis of greater tuberosity. The same remarks apply here with much greater force. It shows also how considerate the surgeon should be before reducing instead of resecting.

49. *Irreducible dislocation, old, operated by resection or reduction and followed by necrosis of the bones*, is recorded in 2 per cent. of the resected cases as against 16 per cent. of the cases reduced of forward dislocation.

50. *Irreducible dislocation, old, operated by reduction and followed by anchylosis of the head in the old glenoid cavity*, is one of the dangers inherent to reduc tions. In has been observed specially when the surfaces were tightly bound down and when the after treatment had not been most carefully attended to from the beginning.

51. *Irreducible dislocations, old, operated successfully by reduction*, may be followed by recurrence and anchylosis in the pseudo-cavity.

52. *Irreducible dislocations, old, operated by resection and followed by anchylosis of the sectioned extremity of the humerus in or near the glenoid cavity* have been observed, specially in the case of Kocher No. 1, 1889, and of Bickham's and Souchon's, 189 Cases requiring the resection of the superficial pa of the head are apt to be followed by anchylosi

For this reason it is best in adults to resect more extensively than is actually necessary to produce movement, but in young subjects, especially in children, the great importance of not injuring the epiphysial cartilage will render the opposite course the rule to be guided by. This anchylosis of the sectioned extremity may require either section of the muscles or resection of the anchylosed extremity. The latter is often a laborious undertaking, on account of the extensive and resistant adhesions, due to the fact that the parts have been operated upon before. The muscles are also retracted and degenerated in these cases. This condition is often due to improper consecutive or after-treatment, either because it was not begun soon enough or because it was not kept up long enough.

53. *Irreducible dislocation, old, operated by resection is followed by dislocation of the sectioned extremity of the humerus under or inside of the coracoid process,* sometimes forms a coraco-humeral articulation, instead of a glenoido-humeral, or under the clavicle. Ollier mentions a case where he had much trouble in preventing it. It is usually the result of improper attention to after-treatment at the proper time. In one case, Luckie's, the resected extremity articulated with the under surface of the acromion. (Ollier.) Such occurrences interfere very much with the movements and may destroy the results of the operation. There was an articular capsule between the humerus and the inferior surface of the acromion. This later was covered with fibrous tissue, the small humeral head which projected into the capsule is a small projection as large as a pea, which was lined with hyalin cartilage. Outside of the articulation osteophytic processes extended into the muscular insertions; the glenoid cavity was lined with fibrous tissue and connected with the humerus by bands of connective tissue.[91] The case was an old patient of Langenbeck (it is related in Luckie).

54. *Irreducible dislocation, old, operated by resection,* is sometimes followed by anchylosis of the sectioned extremity of the humerus under or inside of the coracoid process.

55. *Irreducible dislocation, old, operated and followed by anchylosis of the pseudo-joint, due to hypertrophy or irregularity of the new ossification,* is only seen in cases of subperiosteal resections. New resection may be attempted, but may not do much good, on account of the condition of the tissues of the region. If there is only one bony projection it should be excised. (Ollier.)

56. *Irreducible dislocation, old, operated and followed by dry arthritis of the pseudo-joint,* is observed specially after reduction, but also after resection, when the subperiosteal method has been followed and a new head has been formed. It should be treated on general principles, unless too painful, when a new resection has to be made, but extra-periosteally. After a few years they present modifications analogous to those of ordinary dry arthritis. The joint becomes stiff and cracks. This is especially observed in rheumatic and tuberculous subjects; in the latter caries may develop. (Ollier.)

57. *Irreducible dislocation, old, operated by resection and followed by a dangling arm,* is often the result of an extensive resection, or an unnatural condition of the muscles. Prothetic apparatuses place the arm in the same condition as if it was anchylosed. When the distance between the resected humerus and the glenoid cavity is only six or seven centimeters the extremity should be pared and stitched to the glenoid. When the distance is greater the same should be done and the bone stitched as high up as possible. Bone grafting may be very useful, especially fragmentary grafting. (Ollier.)

Remarks concerning the operations, specially by resection.—The following points from able authorities, but mostly from the admirable book of Ollier,[122] should be well borne in mind by operators, especially in operations by resection. They are transcribed here from a previous paper by the writer, on anchylosis of the shoulder.[123]

Lagrange states that Boucher was the first who thought of resecting the upper extremity of the humerus, but it was White of England and Vigarous in France who performed the first operation.[124] In 1789 a boy presented, with his right hand, to the Academy of Surgery the head of his right humerus, which had been resected by the surgeon-major of the regiment, du Barri.[125] But Ollier asserts that Bent of Newcastle, in 1771, is really the first who resected the humeral head.[126] Post of New York was the first to resect for irreducible dislocation; the next was Warren of Baltimore, says Ollier.[127] However, we report a case of Langenbeck dated 1858. Ollier was the first to recommend (1858) the preservation of the capsulo-periosteal sheath without cutting the muscles, as a means of obtaining a new joint, and if possible to cause the formation of a new head.

Langenbeck's incision, starting farther behind the internal border of the acromion, sacrifices the innervation of a greater portion of the deltoid.[128] Ollier's rule is to expose the head by an incision as near as possible to the antero-internal border of the deltoid and, if necessary, by the disinsertion of the internal portion.[129] The incision should never be made internally (in axilla) on account of the nerves and vessels, except in rare cases of subglenoid dislocation where the head projects beneath the skin.[130]

The deltoid is the most important of all the muscles, as is demonstrated by the cases of paralysis of the circumflex nerve, when the insufficiency of the muscles which are inserted on the head becomes evident. The preservation of the circumflex nerve is also of great importance.[131] This nerve runs parallel to the posterior border of the acromion, from which it is distant in an ordinary adult by five and a half or six centimeters. This is important for the limit of perpendicular incision and for the incision for the drainage tube behind.[132]

The loss of the elevating action of the deltoid must be accepted, like the loss of the rotating power from the divisions of the muscular insertions into the two tubercles, as a necessary consequence of resection of the head of the humerus. But the holding or supporting power of this muscle, exerted upon the whole of the upper extremity, owing to its position, its extensive origin and the manner in which it embraces and protects the mutilated parts as well as its faculty of carrying the arm backward and forward, are all functions which may still remain and serve to point to the great importance of preserving its integrity as fully as possible. The wasting of the internal fibers, however, seems a necessary result of resection by the single incision, but it has this compensating feature, that it is a less serious loss to the patient than an atrophied condition of the outer and posterior fibers would be, because the upper clavicular fibers of the great pectoral can take the place of the

inner deltoid fibers to a considerable extent in supporting the shoulder and drawing it forward to the chest.[133] The movements of elevation are seldom required save by those who follow climbing accupations, as sailors, masons, etc.

The mode of performing the operation as well as the operation itself will naturally influence these movements. If the deltoid be cut completely across by means of an elliptical incision, the power of abduction of the arm and its elevation may be permanently lost. If its fibers be merely split by a longitudinal incision they may be preserved or regained in great part.[134] The incision should be as far forward as possible, because all that portion of the muscle which will be to the inner side will be paralyzed. It is best to avoid the interdeltoido-pectoral groove on account of the cephalic vein; make the incision a little behind.[135] In exceptional cases the clavicular portion of the deltoid may be disinserted, *i. e.*, by section of the insertion near the bone without preserving the continuity with the periosteum. It is different from the subperiosteal detachment of the muscle done with the gouge. The disinsertion of the clavicular portion of the deltoid, in part or in totality, is especially indicated when the head of the humerus is bound down and the arm can not be separated from the chest.[136]

The relations of the large vessels and nerves must not be overlooked. However, in subperiosteo-capsular resections they run no risk as long as the operator remains within the capsulo-periosteal sheath.[137] A great effort should always be made to recognize the tendon of the biceps and take care of it. If torn or cut it must be stitched back. To obtain satisfactory results, especially in reductions, it is the posterior part of the capsule that the surgeon must get out of the way of the humerus, and of the cup. Therefore it is particularly behind the displaced head that he should dissect and not so much in front as has been done hitherto.[139]

As one of the chief defects of the operation is the poor amount of adduction and elevation which remains, owing, in a large measure, to the humerus being too short to be brought into the glenoid cavity when the deltoid acts, Holmes thinks that in this joint a trial of the subperiosteal method should be carefully made to insure as much reproduction of bone as possible.[138] The resection should be done economically. First saw through the anatomic neck (see Kocher, No. 3, 1889). If the reduction is not possible saw off a slice and then try to reduce; if necessary saw off another slice or saw through the surgical neck. When the humerus is put back in place it must be neither too loose, because there will result a flake limb, nor too tight, because it may become anchylosed partially or totally; this has often happened[140] and is worse than a loose joint.

Ollier says to be careful about the replacing of the extremity of the humerus because the fibrous tissue might form a sort of interarticular cartilage between the end of the humerus and the cup. It will be well to stitch together the fibrous tissues so as to form a sort of capsule.[141] It is impossible to say how much of the head must be resected to reduce the dislocation. Sometimes a superficial resection of the convexed articular surface is sufficient to replace the head, but it must be remembered that the head must be maintained in the cup. A resection below the head insures a better false joint. A too close resection may be followed by anchylosis.[142] Only the head of the humerus, without any of the shaft, should be removed. However, it is best to remove too much of the head than not enough. The subperiosteal is the best method; too much dissection of the bone may cause necrosis.[143] After the head has been resected, the cup should be cleared so as to be sure that the extremity of the humerus will readily remain in the cavity, otherwise that extremity itself may become displaced (or dislocated) under or inside of the coracoid process.[144] When feasible, the capsule should be restored as much as possible over the reduced head or over the resected extremity.

Ollier described several cases of reproduction of bone after the subperiosteal method.[145] Langenbeck mentions a case in which the whole shaft of the humerus was necrosed and was removed, the elbow joint was resected at the same time and yet the reproduction of bone was so complete that the shortening was no more than one and one-fifth inches. The new humerus broke several times, but the movements of the shoulder and elbow were satisfactory and the hand capable of the most delicate movements.[146]

In cases of rarefaction of the bones it is important to seize the head with strong tooth forceps or rotating forceps; ordinary forceps smash the head.[147] The posterior drainage incision must be made at the most dependent part when the patient is lying down; this depends upon where the resection has been made. Care should be taken not to wound the circumflex nerve nor the artery. When the incision is made very low down, it is the musculo-spiral nerve that must not be wounded.[148] It is best to place the tube even in cases where the bones are not diseased.[149] In adults the rule is to push the resected extremity into the glenoid cavity when regeneration of the bone is not expected.[121] A thick pad should be placed in the axilla to prevent the humerus from being drawn inward. The preservation of the deltoid roundness is a peculiarity of the subperiosteal resection.[151]

Remarks concerning the after-treatment. — The sooner the passive movements are begun the better, a few days after the operation, because the resected humerus may become anchylosed.[152] The more the wound healing progresses the more the movements should be extended.[153] The muscles, especially the deltoid, must be soon massaged and electrified. It is especially in operations on the shoulder that the after-treatment is of importance. Too much care can not be given to that after-treatment; if incomplete or stopped too soon, almost all the benefits of the operation may or will be lost.[154] It must be kept up for weeks and even months.[155]

Extensive movements, especially those of abduction, should not be practiced until several weeks after the humerus is sufficiently fixed in the glenoid cavity, but the resected humerus may pass under the coracoid process, where it may form a coracoid articulation instead of a glenoid.[156]

The re-establishment of the complete mobility is retarded by thickening of the capsule, which in some cases is shrunken and in some points is as resistant as cicatricial tissue; also to the adhesions of the tendons and muscles with the surrounding tissues, also to the fibrous and fatty degeneration of the muscles.[157] This condition of the muscles is all the more difficult to overcome because the other muscles instinctively take their place, especially those that move the scapula.[158] Rotatory movements must be begun as soon as there is no pain.[159] Electricity, massage, gymnastic exer-

cises must be conducted slowly, carefully, but continuously, every day.[160]

Remarks concerning the final results.—In a number of cases of resection of the head operated on by Percy (1795) for various causes, the movements were all good except that of elevation, and the arm had to be rested against the chest to work the forearm, which then enjoyed all its strength.[161]

In order to appreciate the usefulness of the new joint, the following maneuvers should be practiced: To measure the force of the abduction, *i. e.*, of the action of the deltoid, weights should be fastened to the elbow, and the patient directed to raise the elbow outward, first before and then after fixing the scapula. Then do the same with the weights attached to the forearm or placed in the hand.[162]

To measure the movements of rotation, flex the forearm against the anterior surface of the thorax, and place some article in the hand; then fix the elbow and make the hand describe the arc of a circle from within outward, keeping the elbow well fixed.[163] In doing this we must watch the actions of the other muscles inserted in the humerus, which by the successive contractions of their various parts may, at a given time, become rotators.[164] The patient should be made to cross the arms, to place the operated arm behind the head, on the forehead, behind the back, on the buttocks, throw a stone, etc.[165] Some patients may perform some energetic movements and yet feel hampered in delicate movements requiring rotation. The resistance of a fibrous band or the existence of an abnormal projection on the new head explains these discrepancies.[166]

As for the conditions of the new joint, after resection from various causes, out of 213 resections, Gurlt observed 96 tight articulations, 21 anchyloses and 76 dangling limbs.[167]

Remarks concerning the findings at the autopsies of operated cases.—In some cases there is formation of a new head more or less irregular.[168] These gave an almost ideal result. In one case Testor found an intra-articular cartilage.[169] Chaussier, Roux, Syme, Breess, Hutchinson and others have dissected articulations of shoulders resected, from three months to twenty years. They all found a fibrous cord, strong and resistant, joining the humerus to the scapula, and adherent by its external surface to the surrounding soft parts more or less atrophied. But they never found a real articulation.[170] Ollier reports several cases of reproduction of bone after operation, found at the autopsies.[171]

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OBSERVATIONS ON WHEN TO APPLY HEAT AND COLD IN EYE TREATMENT.

Read before the Wayne County Medical Society Nov. 4, 1897.

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It is an undisputed fact that what are generally considered the simple things in the treatment of diseased conditions, whether medical or surgical, may if overlooked or misapplied, become serious, and sometimes be the means of bringing about untoward results. With this idea in mind, I have jotted down a few suggestions on when to apply heat and cold in eye treatment; not that these thoughts are entirely original, but in the hope that they may serve to remind us of a simple though useful adjunct, to our other treatment of the conditions mentioned as they may appear before us from time to time.

When we consider the general arrangement of the different tissues of the eye and its coverings, we are not astonished at observing the marked impression made upon the temperature of the different parts of the eye by the application of heat or cold, and we quite readily realize that the effect produced bears a direct ratio to the length of time of the application. In addition, however, to the influence which these agents exert on the temperature of the several parts of the eye, they exercise a controlling influence upon the circulation, which is fully as important and necessary to be borne in mind. While it is an old rule, that the temperature of the application which is most agreeable to the patient indicates which should be used, yet this can not be relied on absolutely, as instanced in many cases of external inflammations, where in the early stage hot applications afford relief, yet if persisted in too long edematous effusion ensues and possibly ulceration of the cornea with a lengthening out of the attack.

Either the dry or moist form of application may be made use of, but it is conclusively shown that better results obtain from moist applications, either hot or cold, not the least advantage possessed by moisture over the dry application, being the fact that it aids in keeping the conjunctival sac free of the unhealthy secretions. Moist applications possess more intensity of action, as is shown by the fact that the temperature is reduced much more rapidly by moist than dry cold; while on the other hand moist heat penetrates deeper and is more varied in the degree of heat obtained.

Both heat and cold exert a favorable germicidal influence. Cold, of no greater degree than can be well borne by the eye, prevents the growth and development of germs, and we well know that heat destroys many bacteria, a hot corrosive sublimate solution being over five times as effectual as a cold one. Of the external applications water is most frequently used, the effect being modified remarkably by the different degrees of temperature and the manner in which it is applied. For toilet purposes, in the majority of cases, more comfort will be derived from warm applications to the eyes, and the addition of a small quantity of boric acid to the water will be greatly

appreciated. Immersing the face in cold water and opening the eyes, as practiced by some, is to be deprecated, as the human eye is not suited to such treatment.

We will now consider more particularly the therapeutic application of these remedial agents, in some of the diseased conditions we see in our daily treatment of the eye. First, we may state as a general proposition that cold causes constriction of the capillaries, thereby checking the amount of secretion and exudation, and in this way acts as a sedative, relieving the pain in the beginning of acute inflammatory conditions.

On the other hand, hot applications are more useful in the later stages, bringing about a more healthful condition of the tissues involved, and relieving pain by stimulating absorption of the exudate and dilating the capillaries, not only in this way modifying the engorgement, but conveying to the part the life-giving principle for its proper nourishment. Again, we find that the quantity of a drug absorbed and the rapidity with which absorption takes place is greatly increased by the previous application of moist heat. This fact is frequently made use of when using mydriatics. In some cases of iritis, where owing to synechiæ the drug seems to make very little impression on the pupil, if we bathe the eye for eight or ten minutes with water as hot as the patient can bear, we will find absorption take place rapidly and we will get the desired action of the drug.

While moist applications are preferable, there are some cases where dry heat is more applicable and satisfactory, such as scleritis and iritis, where there is apt to be little or no secretion except of tears by reflex irritation.

We will find cold applications more suitable in the following conditions, viz.:

In conjunctival hyperemia, which consists almost exclusively in congestion of the vessels, with slight papillary engorgement, a very moderate increase in the secretion and with no swelling of the membrane, whether it is of traumatic origin or caused by eye-strain, the application of the cold douche or bathing with cold water for a few minutes, will be very effectual in bringing about a healthy condition of the membrane, care being exercised in not using water too cold or the reaction may be too severe.

In acute purulent conjunctivitis, which, as its name indicates, is characterized by a distinctly purulent discharge, thus differing from catarrhal conjunctivitis, for as Dr. Wecker says, "let a catarrh be never so intense it will not give rise to true blennorrhea or purulence." We need vigorous treatment from the beginning and as an adjunct to other treatment, to assuage the initial swelling and pain we use ice cold applications, either by using bits of muslin dipped in iced water, changing them every minute so that the cold may exercise its beneficial influence; or in some cases, if the eye will bear it, small pieces of ice wrapped in muslin may be held on the eye. We need have no dread of untoward results from prolonged use as the rule, especially in the early stages of this form of disease, is continuous cold to the degree of toleration. These applications are to be continued day and night, ever being watchful of the cornea to see that it is not becoming involved, in which case the cold applications must cease and be succeeded by hot applications persistently, at least four times an hour for three or four hours, by which time usually the threatened destruction of the cornea will have been stopped, owing to the improved circulation and nutrition.

In ophthalmia neonatorum, cold applied in the same manner will be found just as useful and grateful to the little patient.

Cold applications are also sometimes useful in cases of phlyctenular conjunctivitis when, owing to the distressing photophobia, we can not get the patient to open the eyelids for the necessary remedies to be used, we drop a few drops of ice water on the eye, which penetrate between the lids and aid us in gently opening them.

Sometimes in penetrating traumatisms of the eye where injury has been done to the iris and the lens, causing plastic iritis and traumatic cataract; ice cold applications are useful for their germicidal action as well as for overcoming inflammatory reaction.

We will now mention a few conditions where hot applications are more suitable than cold:

First, in acute catarrhal conjunctivitis, which while it may present somewhat the same symptoms we found in hyperemia, yet we have here a characteristic stringy, tenacious, flocculent, mucous discharge, with possibly some small masses of pus in it, having a tendency to stick the lashes together. At the very beginning of this condition we frequently find lukewarm applications very comforting and useful, but the error must be avoided of keeping up the treatment too steadily, as is sometimes done by the laity, who frequently make use also of such appliances as potato scrapings, bread and milk poultices, raw oysters, tea leaves, rotten apples and other disgusting substances, causing edema of the lids and conjunctivæ, intensifying the hyperemia, and finally, in some cases, producing ulceration of the cornea. Such conditions are not rarely met with in the clinics of public institutions.

In edematous conjunctivitis, a condition in which the hyperemia is not marked, where there is little pain and not much discharge, but a considerable effusion of serum beneath the conjunctivæ of both the eye and lids, causing a very uncomfortable swelling, bathing with lukewarm water will prove beneficial.

In trachoma, at the beginning of the disease, hot water is not usually well borne. As soon, however, as vascularity of the cornea arises with threatened ulceration, hot applications are indicated to stay the progress of destruction and assist in its repair. Hot compresses are oft times useful in causing the disappearance of the pannus by the inflammatory reaction which they promote.

In the less severe cases of phlyctenular conjunctivitis, lukewarm water will be very comforting and beneficial, helping to overcome the eruptive exudate.

In all forms of keratitis, hot applications are to be used, never cold, except possibly in phlyctenular, when ice cold water may be made use of for the immediate purpose of overcoming the photophobia, as referred to when speaking of phlyctenular conjunctivitis. This is practically the only time we use cold applications in corneal diseases.

The applicability of heat in diseases of the cornea will be well understood if we remember the anatomic structure of this membrane, it being non-vascular and dependent upon the surrounding tissues for nutriment, it follows that inflammatory or diseased conditions necessarily stop the supply of nourishment and death and destruction of the cornea results, as is evidenced by the ulceration. In order, therefore, to hasten the repair of the tissue it is necessary to overcome this stasis, which is accomplished by applying hot water, or sometimes better by dry heat, by folding

a napkin and heating it by the fire or with a hot iron.

Phlyctenular keratitis is undoubtedly the form which furnishes the majority of cases of corneal disease, occurring as it does among children who are delicate, ill fed, overfed or scrofulous, and in this class of cases we also see the disastrous results of ignorant interference in treatment by poulticing with the several harmful and repugnant articles mentioned previously, instead of using the simpler and more beneficial hot water compress.

On account of its stimulating properties, the hot compress will be found especially useful in the treatment of ulcers that do not heal readily, hastening the process of repair, while a drop or two of scalding water applied to a fungoid ulcer gives good results.

In suppurative choroiditis we find that hot applications are not only appreciated by the patient but are very beneficial, especially in mild cases.

Hot applications are often very grateful in muscular asthenopia, allaying the pain, and by stimulating the weaker muscle, removing the troublesome symptoms.

In a general way we may say the rule in all the milder cases, is intermittent use of the local applications of both heat and cold, from ten to thirty minutes at a time, and from three to ten times in the twenty-four hours, the continuous use of the applications being indicated only in the severer forms or in special cases.

270 Woodward Ave.

A CASE OF TACHYCARDIA.

Reported at meeting of the Toledo Medical Club.

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Mrs. ——, aged 40, has many times during the last ten years told me about attacks of palpitation which she has had and which have come on suddenly, lasted from a few seconds to ten minutes and then as suddenly stopped. Many times I have been sent for when she had been having the attacks, but the heart would have quieted before I reached her. After an attack had passed off she would be weak and exhausted for a few hours, and then be in her usual health, which in appearance was a little below normal. I could never discover any organic trouble of the heart, nor of any other organ.

Occasionally she would have attacks of urticaria, and 0.13 gram of quinia would produce intense redness all over her body. As often as every three months she had attacks of bronchial irritation, coughing almost incessantly for an hour at a time, and raising great quantities of thick stringy mucus, these attacks lasting for about a week. The bowels are usually very loose, often moving four times a day for weeks at a time. The urine is usually scanty and high colored and causes much irritation.

I was called to see her and found her sitting in a chair, pale, breathing hard and absolutely pulseless. Every few minutes she had attacks of blindness. She said she felt as if falling or floating through the air. The heart was beating much faster than I could count and, if such a thing is possible, I believe it was beating three hundred times a minute. There was this peculiar thing about the heart sounds, that while it was beating so rapidly both the first and second sound could be distinctly heard; not that both would be heard in any one beat, but by taking the attention from the first sound the second could be heard. The heart had been beating that way for two hours.

I gave her morphia and atropia. The woman was not excited, but was in great distress. Extremities were pulseless and cold. He feet were put into hot mustard water and I watched the effect of the hypodermics. Before I could tell what effect the morphia was having I decided to give her strychnia, and in about ten minutes it seemed that the heart was beating a little slower, and I gave her 0.0003 gram of nitroglycerin. Soon afterward she began to feel better and in two hours, as near as I could count, the heart was beating two hundred to the minute. About four hours afterward the heart began to intermit; the pupils became widely dilated; respiration was hurried; cold sweat all over the body; she could not see at all; complained of a sensation of sinking and I thought she was dying.

I gave her, in rapid succession, nitroglycerin and strychnia and she soon rallied and the pulse became regular and slow enough so that one could give a reasonable guess as to how fast it was beating, not less than two hundred. She was kept upon full doses of strychnia. About 6 P.M. she began vomiting and continued to vomit, at short intervals, until next morning.

The pulse remained at two hundred until 8 P.M., having been at the rate of two hundred and upward for twelve hours; after that time it became slower and the following day when the patient was quiet in bed, was 84.

There is a history of some special trouble when a child, of intense frequent headache for many years afterward, until she was fitted with lenses, since which time her headaches have recurred at long intervals only.

Riding upon steam cars had always caused dizziness. Turning over in bed often causes the same sensation; looking at moving objects, like the crowds upon the street, will do the same thing. Going up stairs has, for years, brought on palpitation. In summer walking out of doors makes her feel better, but in cold weather the palpitation with a feeling of suffocation comes on as soon as she goes into the cold air.

Her father, who is about 75 years old, has attacks of palpitation and a sister died of heart trouble at the age of 30.

This case suggests many conditions as the probable cause of the trouble. I have thought of eye strain, disease of the internal ear, aneurysm or pressure of something else upon the sympathetic, by which the nerve has been irritated or else by which inhibition has been cut off. I have looked for digestive disturbances that could possibly cause the trouble reflexly. Dr. Collamore called my attention to a mitral regurgitation which I think is not always noticeable. The heart is hypertrophied.

The attack referred to above occurred five weeks ago, since that time she has taken, as seemed required, strychnia, digitalis or strophanthus, principally the latter, and effervescent carbonate of lithia. For two weeks she remained in bed, then began sitting in a chair, and against advice, went down stairs. Tuesday, two days after, she did net feel so well. Wednesday her heart was beating two hundred per minute. In the evening she became nauseated and vomited all night. The entire body, as well as the bed, could be seen to vibrate with the action of the heart. I could not tell whether the rapid action of the heart caused the vomiting or the nausea induced the rapid action of the heart, or whether there was any connection

between them. I believe that the best treatment is rest in bed. Strophanthus seems to control the heart better than digitalis. Sleeplessness is troublesome. When her heart is troubling her she has insatiable thirst, the extremities are cold and sweat profusely. At such times, every few minutes, a sensation of tightness starts from the stomach and passes rapidly to the head, when she feels as if a violent stream of hot water had struck the top of her head. This sensation passes rapidly down over the body to the stomach and arms to the finger tips. Some authors say that tachycardia resembles epilepsy.

The patient's skin is always very pale, though her lips have a good color. The urine is loaded with urates, which prove to be principally soda and ammonium. I could find no casts.

NOTE.—The patient has since died in a condition of general anasarca.

DISCUSSION.

Dr. COLLAMORE thought medicines were likely to do no good.

Dr. FABER said that at the Hospital for the Insane he had frequently seen cases of rapid heart due to hysteria, and was inclined to that diagnosis. He argued that absence of fear as to results on the part of the patient, the aura described in the report and the general condition of the patient indicated that trouble.

Dr. LANDMAN had found far-sighted astigmatism, no hypermia or anemia of cornea. Thought that dilated pupils pointed to pressure upon the third nerve and suggested that from some obscure cause there might be pressure upon the medulla.

Dr. TRACY said that he had wondered if it could be that at times there was an increase in cerebro-spinal fluid, which pressed upon the sympathetic. He had thought of intestinal toxemia as a possible cause. There are passed in the urine in twenty-four hours an average of 800 grains of solids, which for a woman of her size is not abnormal.

PRACTICAL URETHROSCOPY WITH THE EXHIBITION OF A NEW INSTRUMENT.

Read before the Mississippi Valley Medical Association at Louisville, Ky., Oct. 5, 1897.

BY EUGENE CARSON HAY, M.D.

President Garland County Medical Society; Member Arkansas Medical Society, American Medical Association, Mississippi Valley Medical Association; Fellow of the American Academy of Medicine.

HOT SPRINGS, ARK.

Urethroscopy has been practiced, by a few of our profession, since the first attempt to inspect the urethra was made by Bozzini of Frankfort at the beginning of this century, but it was not placed on a truly scientific basis until Desormeaux invented his instrument in 1853, and named it the endoscope. It was far from perfect, and since then many different varieties have been invented, some with the light reflected from without, and others with it placed within the tube.

It is not my object to discuss the merits of all these different instruments. I will briefly mention two, but at best they are all far from satisfactory in the hands of most of us, and this is the true reason I believe why the endoscope has not been more generally adopted by the profession as a method of examination and treatment of all chronic urethral troubles. The Otis instrument, using the Klotz tube with a small electric light incased in a diminutive condenser, and this attached by a foot to the proximal end of the tube, is the one generally recommended by authors. This instrument has not proved satisfactory in my hands, and of recent years I have used nothing but an ordinary head mirror with reflected light; but the illumination secured was not always sufficient, and from this or my lack of expertness in manipulation, I was not able to obtain a uniform intensity of light until I adopted my present method.

Dr. Wassidlo of Berlin, in an article entitled "Practical Urethroscopy," published in the *Medical Record*, Sept. 7, 1895, gives a full description of the "Nitze-Oberlaender" urethroscope. But this is a very complicated affair aside from being an expensive instrument, which limits its use and general utility. I will give but a casual description of this instrument, and refer you to "Sajous' Annual of Universal Medical Sciences," 1896, Vol. 3, section E, page 18, where will be found a full description of the instrument and an abstract of Dr. Wassidlo's paper. In the "Nitze-Oberlaender" instrument, the light is applied within the tube by a platinum wire rendered incandescent by a galvanic current, and this is kept cool, to prevent burning the urethra, by a tunneled bar beneath, through which cold water circulates.

There seems several objections to this ingenious apparatus: 1. The tunnel through which the water circulates must be almost a capillary tube and I should think would become very easily clogged, and should such an accident occur while operating the result would be quite a severe burning of the urethral mucous surface. 2. I can not see how applications of nitrate of silver or any other liquid can be easily applied to the urethra without materially reducing or extinguishing the light; the same would result when operating through the tube if hemorrhage was produced. 3. The light carrier, lying in the bottom of the tube, must occupy some space, and when examining or operating through such a small aperture one wants a clear field and all the space is valuable.

Ocular examination of the urethra, in addition to the other methods now in use, is the only accurate manner by which we can arrive at a positive diagnosis in all old urethral troubles. Even after the microscope had been called to our assistance, I do not consider any examination complete until the urethroscope has been used. The endoscope is equally as indispensable to the genito-urinary surgeon as the ophthalmoscope and laryngoscope are to the eye and throat specialist.

An instrument that will simplify the procedure, is simple and easy to manipulate, always ready for use, not easy to get out of repair and illuminates the urethra perfectly, will commend itself to all, and cause endoscopy to be more universally adopted by the profession, as a most valuable accessory in the examination and treatment of that class of genito-urinary diseases to which it is adapted.

Last spring, while experimenting with an ordinary Mackenzie condenser with head mirror attached, which I used on a student lamp, I discovered that by placing the lamp by the side of my operating table, close to the patient's thigh, then inserting the endoscope and adjusting the mirror to properly focus the reflected light into the tube, that by placing my head behind (but close to) the mirror and looking through the small orifice in the center, with the left eye, keeping both eyes open as one does (or should do) in the use of the microscope, I secured a most excellent

illumination of the urethra; by far better than I had ever been able to obtain when the mirror was attached to my head. I also discovered that it greatly simplified the work, for when I turned to pick up an applicator to sponge the mucous membrane or make a topical application, I rarely lost my focus, and when I did, it required but an instant to secure it again. This led me to devise the instrument I present here.

The method of procedure in manipulating my apparatus is as follows: After placing the patient in proper position on your operating table or chair, the lamp stand is set close to the corner of the operating table and then the lamp is adjusted to a proper elevation and secured by a thumbscrew. The thumbscrews are then loosened for the transverse adjustment and the lamp is placed immediately over or close to the patient's left thigh. The endoscope is then

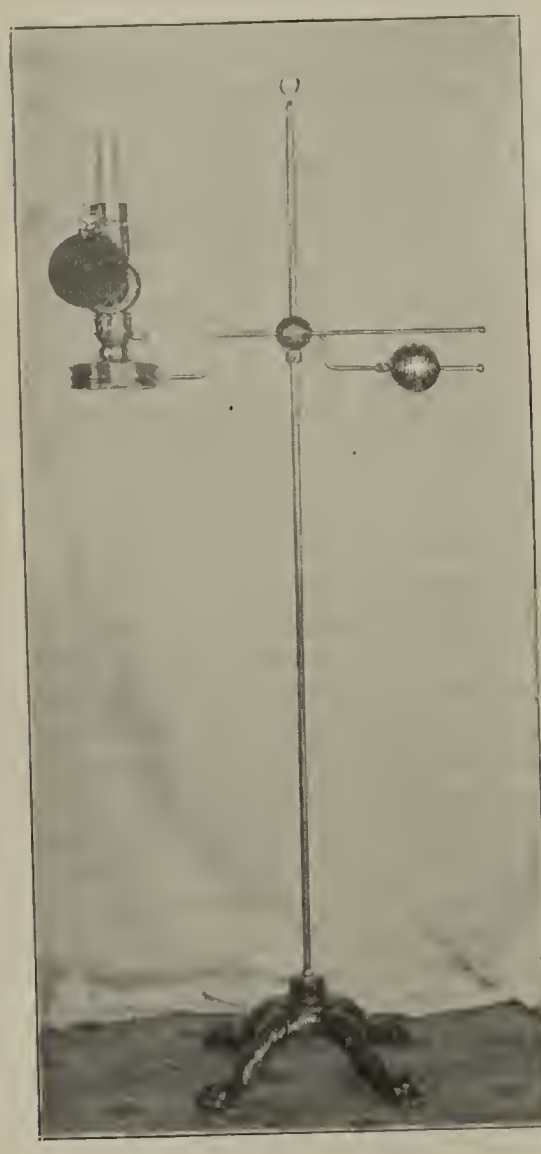


FIG. 1.—Front view of urethral illuminator.

inserted and the operator takes his seat between the patient's thighs before withdrawing the obturator from the tube. The obturator is then withdrawn and the mirror focused to properly throw the reflected light into the tube as previously described, the operator looking from behind the mirror, through the small circular orifice in the center. The endoscopes I use are thin metal tubes, Otis pattern, and I prefer them to Klotz's. I always use as large size as possible, as recommended by Oberlaender and Kollmann, as they state "that the lining membrane being longitudinally folded, it is desirable that these folds be smoothed out during examination, and this requires large-sized tubes. The only difficulty in introducing large tubes may be experienced at the external orifice or at the valve of Guerin, which, when present, is sit-

uated at the end of the fossa navicularis." In the cavernous and bulbous portion the urethra is relatively wide and in most cases will accommodate as high as No. 30 to 32, French scale, but a tube No. 28 French is the size that I most generally use. I use a plain straight tube, five inches long, for examining both the anterior and posterior urethra, and with the illumination I secure, do not find it necessary to use the three-inch tubes, as recommended by Dr. Klotz, for work in the anterior urethra. Since using Dr. Oberlaender's jointed obturator for introducing a straight tube into the deep urethra (making it assume the form of a Mercier catheter) I find it renders it a much simpler operation and materially reduces the pain for the patient.

When examining the anterior urethra with my instrument, I place the patient in a semi-recumbent

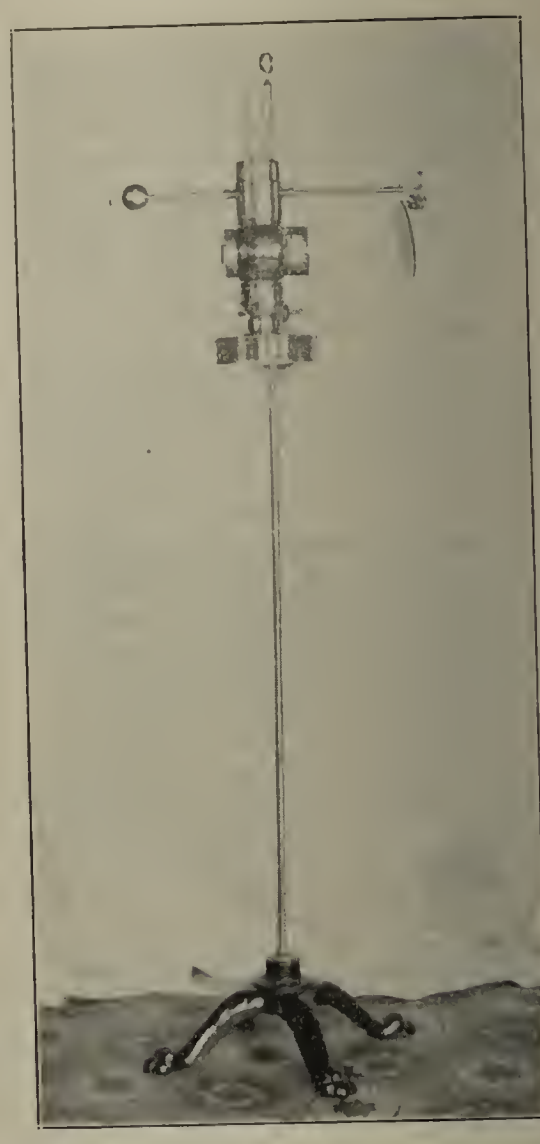


FIG. 2.—Side view of urethral illuminator.

position, in fact almost sitting upright, knees flexed and draw the nates as near the end of table as possible

When examining the deep urethra the position i the same, with the exception of having the patient li perfectly prone. I then insert the endoscope an when withdrawing it bring the tube out parallel wit the patient's thighs instead of following the arc of th natural urethral curve, as instructed by authors; an I have never found it any more painful. To pass straight tube into the deep urethra and retain it there is a painful operation unless the urethra is thoroughl anesthetized, and when this is done the cocain pr duces such profound anemia of the mucous membran that your pathologic picture is materially changed.

In conclusion, the advantages I claim for th instrument are simplicity, ease of manipulatio

excellent illumination of the urethra and general utility for the general practitioner, because it can be used to illuminate the nose, throat, ear, rectum or vagina, and it is a superior apparatus for use with the Kelly's proctoscope and sigmoidoscope or for catheterizing the female ureters, Kelly's method.

In large cities where the electric current can be secured during the day, an electric light or gas can be used, having the apparatus supported by an universal bracket and attached to the wall, which would dispense with the uncleanliness of oil and make the instrument much lighter.

I do not claim any originality in devising this instrument except this particular method of applying the light and illuminating the urethra.

EPILEPSY AND ERYSIPELAS.

BY ROBERT HESSLER, A.M., M.D.

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INDIANAPOLIS, IND.

"The disease known as epilepsy is probably the most isheartening condition as to treatment that the physician as to deal with, since it often resists the influences of all tandard remedies, and drives the practitioner from drug to rug in the hope of finding one which will be at least alleviatg in its effects."—(Hare, "Practical Therapeutics," p. 496.)

Soon after beginning service in the Northern Indina Hospital for Insane, in the summer of 1894, I egan to make a careful, systematic study of the male pileptics with a view of ameliorating their condition s much as possible. Among the 300 males in the ospital there are always present from 30 to 35 epiptics, changes being comparatively few. All are ell marked cases and exhibiting every grade of ental decay. Simple cases with few convulsions id without decided mental change are not admitted the hospital.

Syphilitic, toxic and apoplectic convulsion cases e not included in this paper; cases accounted for e what may be called, for convenience, "idiopathic ileptics."

A careful clinical record was kept of all cases. mong the remedies tried were potassium bromid, dium bromid, strontium bromid, opium, acetanilid, lanum carolinense and sodium salicylate. Some of ese were used for weeks and others for months at a ne. The results obtained were not of a kind to courage one's belief in the efficacy of medication.

Potassium bromid must be placed at the head of e list. In suitable doses it has a beneficial influence many cases; some are little affected by it, while in ners the convulsions are controlled for a time only d then they recur with increased frequency, and the course of a few days make up the usual monthly erage. Its congener, sodium bromid, does not differ terially from it. Strontium bromid is less apt to ng on an irritable or even maniacal state of mind, ondition noticed at times, in certain cases, with assium bromid. The largest continued amount en per day was 7.8 grams.

Opium, with and without potassium bromid, was d in several cases; the results were not very rked. Solanum Carolinense, in various sized doses, s tried in three cases and after several months distinued; it has little or no influence on convulsions hronic cases. One epileptic dement became very ve and maniacal under its influence but subsided promptly on returning to potassium bromid. Acetanilid was tried, and in one case 0.32 gram was given after each meal for a number of months without any results whatever. Sodium salicylate was given to three cases for several months, beginning with 0.97 gram after meals and increasing to 1.3 grams, no effects noticed. Salicylates are reported to aggravate convulsions, but certainly did not do so in my cases.

After keeping up my observations for a year without noting marked beneficial results from any form of treatment, I finally adopted a routine treatment for all chronic cases that bear bromids well, 3.9 to 7.8 grams of potassium bromid being given every day for a week or two, alternating with a solution of sodium chlorid for the same length of time. Many epileptics are constantly asking for medicine and live in hope while getting it, their faith in medication being unbounded. Laxatives were given whenever indicated.

While these observations were going on, one case had a singular termination. An epileptic aged 46, who had from forty-five to seventy convulsions per month, under any and all kinds of treatment, was attacked by erysipelas, toward the close of 1894, involving the face and neck. The temperature went up to 104, with delirium at the crisis. The disease ran the usual course and the patient recovered promptly. After this the convulsions practically ceased. The very few that occurred thereafter were light, *petit mal*. There was no mental disturbance as formerly, and the patient believed that he was well, and no longer was in dread of an oncoming convulsion.

During the year 1895 I often pondered on this remarkable change and at times even wished for more erysipelas among the epileptics. To inoculate the disease was, of course, out of the question; the frequently fatal termination of erysipelas forbade such a procedure. Then this thought occurred: Will the toxic products developed by the growth, by the artificial culture, of the streptococcus pyogenes (S. erysipelatus) produce a similar result when injected hypodermically? After much hesitancy I proposed a test to the medical superintendent and he readily agreed to a trial. A preparation of erysipelas antitoxin was obtained and used with gratifying results.

The patient receiving the preparation, or remedy, was a chronic epileptic, a hopeless case in the light of all previous medication, considerably demented, simple and childish, age 25, weight about 140, always tractable and never violent. Convulsion varied from one to four a day in number, or from twenty-four to fifty-two per month, under any and all kinds of treatment. Recently he had an attack of status epilepticus. Observations on the pulse, temperature and respiration were made for two weeks prior to treatment and then a preliminary hypodermic injection of normal salt solution was given, merely to see how he would bear hypodermics. March 19, 1896, the first dose of the antitoxin, or toxin, was given 3 c.c. in the arm. No local or systemic disturbance followed and two days later 5 c.c. more was given. No reaction was noticed and the dose was gradually increased, at intervals of a few days, up to 10 c.c. After about 45 c.c., or two ounces, had been given a marked diminution in the number of convulsions occurred and *petit mal* at times took the place of the customary *grand mal*, something not seen before, and the patient said that he could feel the attacks coming on and "could fight them off" at times. The longest period without convulsions was twenty days. The mental condition

improved, and the patient became brighter, more active and very hopeful. The injections were almost painless. No other treatment was given during this time and bromids had been discontinued some time before.

The following table shows the number of convulsions, the amount of toxin given, and dates:

	C.c. toxin injected.	Convulsions per month.
Previous to March, 1896, an average of about		45
March, from the 19th to 23d	18	
April, from 2d to 8th	27	
April		8[1]
May	0	
May		3
June, one dose on the 15th	8	
June		2
July, 8 c.c. on the 15th; 9 c.c. on the 23d	17	
July		8
No toxin after July 23.		
August	0	16
September	0	26[2]
October	0	28
November	0	33
December	0	53

Patient put on potassium bromid from December on.

The remarkable result obtained induced me, in April 1896, to try this remedy in other cases, but, only a very small quantity of the antitoxin could be obtained. The only use for this agent, it seems, had been in the experimental treatment of malignant tumors and cancers, and the supply on the market was very limited. After considerable delay a specially prepared supply was obtained and given to several patients, these being all considerably demented, and with an extremely unfavorable prognosis, in fact they were to be regarded as hopeless cases when viewed in the light of all previous attempts toward relief. The preparation used was the clear serum of a sheep which had been previously injected with a virulent culture of the erysipelas streptococcus, the method of preparation being that of Emmerich and Scholl. In this paper I have used the terms antitoxin and toxin synonomously; I do not know which should properly have the preference.

The next, or second patient to receive the injections was a man, almost six feet high and weighing about 180 pounds, age 36, who has had epilepsy for the past ten years; is deteriorating rapidly. Convulsions, all severe, varied from twenty-five to fifty-four per month while under my observation and were steadily increasing in number, even under large continued doses of potassium bromid. Injections were begun toward the middle of April 1896, and continued with intervals of a few days. I can not give the exact figures in this case, because my clinical chart for the month of May is missing. Convulsions continued with exasperating regularity and frequency for the next two months and then a decided change took place. The attacks became mild in character, and in July, a marked diminution in number took place; he would now miss an occasional day. After July 17, no toxin was given and soon thereafter the convulsions returned with their usual frequency and severity. He had thirty-five convulsions, mostly *petit* during July, and thirty-one during August. The number increased to fifty in September, and to sixty-eight in October and he was again placed on potassium bromid. The condition of the patient now was essentially as at the time prior to this treatment.

A man aged 20, in excellent bodily condition, has had epilepsy for the past five or six years, gradually growing worse, maniacal at times. This patient also improved, that is, the convulsions diminished in number and severity while under the influence of the remedy. After it was discontinued he gradually returned to his former condition.

A man aged 28, in fair physical condition, has had epilepsy for seven years, slightly disturbed at times, usually quiet and sensible, reported to have had from one to four convulsions per day while at home. He was greatly benefited by a course of bromids, but the convulsions would promptly return, and with increased frequency, on withholding the remedy for a week or so.

This patient had heard of the good results obtained with the new medicine and was very anxious to be given a trial. The remarkable inhibitory effects of the toxin were again shown in this case, in fact the patient improved so much that he went home on furlough and was ultimately discharged from the hospital; I do not know his history thereafter. The only incident out of the usual in the whole series of injections occurred in this case. While giving a large injection the lump raised by the fluid beneath the skin of the left arm suddenly disappeared and at the same time a general erythema, or reddening of the whole body appeared and he said he felt "queer" for a few moments. Evidently the toxin had suddenly found its way into the general circulation and brought on this disturbance; the effects passed off in a few minutes.

My experiments at the time were limited on account of the difficulty of obtaining a proper and sufficient supply of toxin and because it was an expensive remedy. All injections were made under strict aseptic precautions; the syringe was always washed out with boiling hot water before use and all air was excluded in filling it. There was not a trace of inflammation at the site of any of the numerous injections. The pulse, temperature and respiration at no time showed any variation from the normal, that is, a normal epileptic. A careful clinical record was kept. All of these patients were under close and constant observation by the attendants. No evil results followed the injections, and the beneficial effects are certainly remarkable. It should be borne in mind that my cases were all well advanced epileptics, and perhaps excepting the last one mentioned, not amenable to the ordinary methods of treatment; the usual remedies, like the bromids, had little influence on them. In my opinion, the old observation that all new methods of treatment have a temporary beneficial effect does not apply in the cases reported here, because decided results appeared only after repeated injections had been made, after the body had been saturated. Moreover, the time element is too great; such effects, due to mental influences, do not usually extend over a period of a few days, and in the case of chronic epileptics are scarcely noticeable. I have no doubt whatever concerning the beneficial effects resulting from the attack of erysipelas in the first case mentioned, and the results obtained by the method given are certainly very gratifying. No positive conclusions can be drawn from so few cases; observations must be repeatedly verified. The remedy may possibly be of still greater utility in recent or acute cases

[1] Several of this number being attacks of *petit mal*, heretofore all had been *grand mal*.

[2] In addition to these *grand mal* attacks, many *petit* appeared during September, October and November, but practically ceased by December; the convulsions from this on being of the former *grand mal* type, the modifying effects of the toxin having disappeared completely.

cases in which the epileptic habit is not fixed. My cases offered the least hope for a recovery on account of their long duration.

The pathology of epilepsy, especially when not traumatic, is very obscure, and so little is known of the products developed in the animal body by the growth of the erysipelas germ, that the subject of the relationship between epilepsy and erysipelas naturally becomes complex, and all facts and details must be worked out experimentally.

Recently, while in the library of the Surgeon-General of the United States Army at Washington, I was greatly surprised to find that there was no literature on the treatment of epilepsy by erysipelas antitoxin, and this fact leads me to publish these notes, though so long a time has elapsed since the observations were made.

Serum, toxin and antitoxin therapy is still in its infancy, and no one, it seems to me, can deny the efficacy if not as a cure, at least as a palliative measure of such a method of treatment, without first giving it a thorough trial. The results obtained so far, as given above, certainly justify a more extended application of this method of treatment for one of the most intractable of diseases.

SEROUS INFLAMMATION.

Read before the Milwaukee Medical Society, Nov. 9, 1897.

BY W. H. WASHBURN, M.D.

Professor of Principles and Practice of Medicine and of Clinical Medicine in the Wisconsin College of Physicians and Surgeons; Physician to the Presbyterian and Johnston Emergency Hospitals, etc.

MILWAUKEE, WIS.

According to the biologic theory inflammation, in its ultimate analysis, "is the reaction of phagocytes against a harmful agent." This theory, which Metchnikoff has done much to establish on a scientific basis, holds fair to be universally adopted by scientists within the next few years. Wherever there is phagocytosis there is inflammation and without phagocytosis there is no inflammation. In its most typical form inflammation presents well recognized features—redness, heat, pain and swelling, but viewed from our present standpoint, none of these features are essential or necessary parts of the inflammatory process. They are merely more or less frequent accompaniments of the essential feature, the reaction of the phagocytes, whether local or mobile, or vascular, against some irritant. That inflammation may exist in the absence of preternatural heat is proven by the occurrence of the process in the cold-blooded animals; that it may exist in the absence of redness and swelling is proven by its occurrence in such invertebrates as are destitute of a vascular system, and that it may be present and without pain is indicated by its occurrence in animals that are devoid of a nervous system, as the Spongiæ and acalyphæ (the medusæ, hydrozoa, etc.). In all inflammation, then, the essential and necessary thing is the reaction of the phagocytes against the irritant, generally chemic in character. In proportion to the virulence of the irritant and its amount will the inflammatory reaction be active or otherwise, and when the irritant is of overwhelming virulence the reaction on the part of the phagocytes may be impossible and death from general sepsis rapidly ensues, as in the case of experimental inoculation of guinea pigs with the vibrio Metchnikowii, of rabbits with the cocco-bacillus of hog cholera, or when rabbits are inoculated with microbes of very malignant chicken cholera. Here death ensues within a few hours without any phagocytic reaction and therefore without inflammation.

Some of the best known authorities on pathology have opposed the biologic theory of inflammation very vigorously, and many have found in serous inflammations a stumbling block to the acceptance of the theory. It is the purpose of this paper to attempt to show that serous inflammation is a process differing only in minor respects from the best known and typical inflammation, such as is seen in the development of a phlegmon and which process is attended by the accumulation of pus in an abscess cavity.

I speak now of the inflammations of the serous membranes, in which the exudate is serum with a very few cells, and not of what might technically be regarded as a purely serous inflammation such as show an entire absence of cells, if such ever does exist.

The irritant whose presence in the tissues occasions the phagocytic reaction which constitutes inflammation, may be of any grade of virulence, from the mildest to the most severe and rapidly fatal, and accordingly, we encounter the inflammatory process in all grades of severity, from that painless variety which results in the repair of trivial wounds to most virulent peritonitis due to septic infection. The inflammation-producing irritant, chemic in nature, may be of either organic or inorganic origin, that of organic commonly giving rise to the most violent phagocytic reaction.

In cases in which the irritant is of inorganic origin and a definite and moderate amount of the irritant is introduced into the tissues, the same is rapidly taken up, destroyed, carried away and eliminated by the phagocytes, or becomes encysted, the local disturbance subsides and we say that the inflammatory process has terminated by resolution. The same termination is also frequently observed where the irritant is certainly of organic origin, as in the resolution of inflamed lymphatic glands occurring in the course of scarlatina or diphtheria. I call your attention to one more common accompaniment of the process under consideration, the swelling.

In the most primitive form of inflammation the mobile tissue cells alone take part in the process. When the process is more complete the endothelial cells of the blood vessels react, contracting in such a manner as to allow of diapedesis, and at the same time permitting the escape of the fluid portion of the blood into the adjacent tissues. The swelling, therefore, in typical acute phlegmon is due in part to the escape of the blood serum and cells into the tissues and lymph spaces in the parts immediately adjacent to the localized irritant.

It frequently happens that the swelling extends to a considerable distance beyond the localized seat of the irritant. For example, a case recently under treatment presented a localized infection at the inner border of the nail of the great toe with active inflammation in the parts immediately adjacent. The dorsum of the foot was considerably reddened, painful and swollen, so much so as to suggest the existence of erysipelas. Beyond this and up the ankle, two or three inches above the inner malleolus, the parts were increased in size and pitted on pressure—inflammatory edema—the whole disturbance rapidly subsiding on incising and disinfecting the original site of the process.

Edema results from one of two things, there is either an increased transudation of blood serum into the subcutaneous lymph spaces, or, the transudation remaining the same, there is a lessened rapidity of absorption. It is more or less probable that in the case of inflammatory edema we may have a combination of the two.

The blood vessels being rendered abnormally pervious by the inflammatory process, there will, of necessity, occur an increased outflow into the lymph spaces, and in the case of inflammation of serous membranes the outflow will take place into the serous sac, itself an immense lymph space. In the ordinary course of events effusions into serous cavities are absorbed, in part by the lymphatics, and in part by the blood capillaries. That fluids are thus absorbed from serous cavities by the capillaries has been shown fairly conclusively by Orlow and Heidenhain, and facts tending in the same direction have been demonstrated experimentally by Kellgren and Colombo, whose work is quoted in the "American Year Book of Medicine and Surgery," for 1897.

In cases of serous inflammation, therefore, even supposing that the outflow of fluid is little if any increased there will be, in consequence of the condition of the blood vessels, lessened absorption and as a result accumulation of fluid in the serous sac.

The serous membranes, in general, are so situated as to be comparatively inaccessible to the ordinary inflammation-producing irritants. Inflammations of serous membranes are nearly always secondary affections, except when caused by traumatism. They are secondary to such diseases as tuberculosis, bronchitis, pneumonia, cancer, rheumatism, Bright's disease and gonorrhea.

Bacteriologic studies of pleuritic serum have shown the presence of various microbes, among others the tubercle bacillus, staphylococci, Eberth's bacillus, and various cocci of unknown species, but in the majority of cases of serous pleurisy bacteriologic studies have been negative, no micro-organisms of any kind being discoverable in the effused fluid. The fact that the fluid of serous inflammation was free from micro-organisms early attracted the attention of bacteriologists and it was theorized that the purpose of the serous effusion was the destruction of the germs which were believed to be the cause of the inflammatory process. The fact had been known for some time that the blood serum of certain animals possessed bactericidal properties, as for example that of the rat against the anthrax bacillus, and that of the vaccinated guinea pig against the vibrio Metchnikowii, at least, in test tube experiments. But that experiments of this kind are an insufficient basis for drawing conclusions has been shown by Buchner and others, the bactericidal properties of blood serum, which are so evident in test tube experiments, often failing to develop in the living body. Later experiments, moreover, have shown that many bacteria are able to live and multiply in the fluid of serous inflammation, and hence the purpose of the exudate can not be bactericidal.

Another theory then advanced, was that the purpose of the effusion was to neutralize toxins, in other words, that the serous effusions contained antitoxins. This theory was naturally suggested by the remarkable discovery of Behring and Kitasato in 1890, that the blood of certain immunized animals possessed antitoxic properties. Tizzoni and Cattani later showed that the serum of rabbits immunized against tetanus is capable of destroying considerable quantities of the toxins of this disease.

The same results have been secured with respect to diphtheria, and the Klemperer brothers believe that they have proven that the blood serum of animals (rabbits), that have been immunized against pneumonia, and that of men who have recently recovered from pneumonia, possess antitoxic powers. This theory also appeared to be supported by the fact that Behring discovered diphtheritic toxins in the pleuritic effusion of rabbits suffering from diphtheria. The more closely, however, this point has been studied the more evident it has become that this view is untenable, there appearing no necessary connection between the production of antitoxins and the occurrence of serous effusion.

The pleura is a closed serous sac applied to, and in organic union with, the lung and costal parietes. Its internal surface is lined with endothelium, and in the cellular tissue subjacent, lymphatics are abundantly distributed, which, in the visceral portion, freely inosculate with the pulmonary lymphatics on the one hand, and on the other communicate by innumerable open mouths or stomata with the closed pleural sac. Within the subserous tissue the blood vessels form a wide meshed capillary reticulum over the whole surface of the lung, and these capillaries freely communicate with deeper vessels which originate in the interalveolar septa throughout the lung substance and where ever there are fat sacs or lymphoid masses these are enclosed in capillary networks.

When we regard these anatomic conditions, in connection with the fact, that in case of infection in remote parts of the body the infectious materies may be brought, through the pulmonary and pleural capillaries, directly in contact with the visceral pleura before it is carried to other parts of the body. it will not seem strange that the pleura is very often the seat of acute inflammatory processes.

The fact that pleurisy is an extremely common affection is shown in the autopsy room, where it is comparatively rare to find perfectly normal pleuræ in adult cases. In a hundred autopsies, in adult cases, performed in the past three years, I have noted but eight in which there were no evidences that the decease had at some time suffered from pleurisy. So common indeed are inflammations of this membrane that it has well been said, that it is the chosen site for the manifestations of lesions from blood contamination.

Pus germs, or their products, so frequently present in the bronchi, can readily gain access to this membrane. The products of the bacillus of tuberculosis are frequently brought to the same situation with resulting serous inflammation, there being entire absence of tubercle bacilli in the exudate. The fact that very many serous pleurisies are due to the products of the tubercle bacillus is established by records showing that nearly 40 per cent. of cases of serous pleurisy later develop the clinical features of pulmonary tuberculosis.

The pneumococcus and its products are frequently the cause of serous pleurisy, and the process in this instance is established in the same manner as in the previous case.

Serous inflammation, however, occurs also in connection with the peritoneum and the pericardium, but inflammations of these membranes are of much less frequent occurrence than are pleurisies. In the

histology these membranes are nearly identical with the pleura, their lymphatics originate in the same way, and they contain a capillary net work of blood vessels differing in no material respect from those already described in connection with the pleura. But these blood vessels are much further from the ordinary sources of blood contamination than are those of the pleura, and hence the comparative infrequency of inflammations of these membranes. The blood vessels of the pericardium are nearer to the sources of blood contamination than are those of the peritoneum, and pericarditis, as a consequence of blood contamination, is much more frequent than is peritonitis. But I think another explanation of the relative frequency with which these serous membranes are involved in the inflammatory process, except as a result of local causes, may be found in the relative time at which these structures have been developed in the progress of evolution.

It is a fairly well established fact that those organs and tissues of the body which have been latest developed in the progress of evolution from the lower forms of animal life to the higher, are those which are most frequently the seat of pathologic processes. The muscular system is the oldest and diseases of the muscles occur infrequently. The respiratory organs, being very lately developed, are comparatively often the seat of disease. A fair idea of comparative frequency with which diseases affect these two systems, the muscular and respiratory, may be derived from a comparison of the space required in which to discuss them in works on the practice of medicine. In the "Twentieth Century Practice of Medicine," the article on diseases of the muscular system covers but 44 pages, while 946 pages are required to deal with the diseases of the respiratory system.

An inquiry into the chronology of the development of the serous membranes under consideration shows that the peritoneum is the oldest, the pericardium next, and the pleura is the youngest. And we find that these membranes are endowed with the power of resistance of pathogenic influences such as would be indicated by their comparative ages, the peritoneum being most resistant, the pericardium next, and the pleura least of all. Serous inflammation of the peritoneum is a comparatively rare disease and is produced by very few irritants, the most common cause of serous peritonitis being the tubercle bacillus.

On the other hand, serous pericarditis may result from a much greater number of irritants, as for example, the materies of rheumatic fever, typhoid fever, pneumonia, by extension of the process from the pleura in cases of simple pleurisy, as a result of the infectious materies in various acute febrile diseases, and in connection with chronic Bright's disease and pulmonary tuberculosis.

Reverting now to what has been said as to the inflammatory process in general, the phagocytic reaction will be in direct proportion to the number and virulence of the micro-organisms present unless these are in such overwhelming numbers and of such virulence as to preclude all phagocytic reaction.

Carrying this idea into our inquiry as to the inflammatory product in cases of pleuritis we shall expect to find present in the exudate, cellular elements in direct proportion to the micro-organisms present as a cause of the process. And this expectation is verified by the result, the majority of pleurisies being secondary to other processes, and not involving the localization of micro-organisms at the seat of the inflammatory reaction, we commonly find very few cells in the inflammatory exudate, but where the inflammation is due to the transfer of micro-organisms from some other situation in the body to the pleura, the process there set up is of a more acute character and the inflammatory product is rich in cells, in other words, we have purulent pleurisy.

In the first class of cases the irritant is readily seized upon, removed or destroyed by the phagocytes, this reaction being attended by a contraction of the endothelial cells of the blood vessels to an extent sufficient to allow of a certain amount of diapedesis, with accompanying transudation of serum, and at the same time a cessation of the absorbing function of the capillary blood vessels, with consequent accumulation of fluid in the pleural sac. This sac being regarded as a large lymph space we have a process here which differs in no material way from ordinary inflammatory edema.

It would then appear unnecessary to search for some obscure explanation for the peculiar character of the product of inflammation of serous membranes. When we bear in mind the histology of the pleura, its numerous and intercommunicating lymph channels opening into the pleural cavity through stomata and intervening canaliculi, its wide-meshed capillaries freely inosculating with those originating in the walls of the pulmonary alveoli, its vulnerability to irritant substances of either organic or inorganic origin, the fact that, when the seat of inflammation, its capillary blood vessels no longer act as absorbents, it would seem that this particular kind of inflammatory product ought to be expected in the great majority of cases.

And further, it would seem that the true explanation is as follows: That in inflammations caused by irritants other than micro-organisms a limited phagocytic reaction only is called for, and this reaction being accompanied by sufficient contraction of the endothelial cells of the capillary walls to admit of diapedesis a serous effusion follows; this serous effusion is coincident with a cessation of the functional activity of the pleural capillaries as absorbents, it being a self-evident proposition that capillaries that are pouring out serum will not at the same time act as absorbents. The result of this combination of circumstances is an accumulation of fluid in the cavity of the pleura; and this accumulation of fluid must be regarded as constituting no necessary part of the inflammatory process, but as a mere concomitant, and conditioned upon the anatomic and physiologic relations of the parts involved, the essential thing being the phagocytic reaction, which alone constitutes the inflammatory process.

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Ultimate Results of Operations for Spina Bifida and Encephalocele at the Prague Children's Hospital since 1888: Without operation, death; with operation for encephalocele, 38 per cent. saved; for spina bifida, 41 per cent saved. Of those that survived the latter operation, 59 per cent. died within a certain interval afterward. C. Bayer adds that a favorable result can only be expected of the operation when there is no hydrocephalus, paralysis nor defects in important regions of the central nervous system. He no longer operates if any of these are present. He covers the sewed up, reduced meningeal sac with a flap of fascia or muscle, periosteum on the skull, and consecutive skin flap suture.—*Cbl. f. Chir.*, April 2.

HYPERKINESIS OF THE MUSCLES OF MASTICATION A SYMPTOM AND AN ETIOLOGIC FACTOR IN NERVOUS AFFECTIONS

PARTICULARLY NEURALGIA OF THE TRIGEMINUS AND DISEASES OF THE JAW.

Presented in the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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Kinetic action or movement is recognized in contradistinction to trophic action, signifying growth and structural change, and indicates, in greater or less degree, an expenditure of nerve muscular action, implying also an expenditure of nerve force. This within the limit of natural involuntary muscular action implies a corresponding increase of trophic action conducive to the condition of health and development, but if the nerve stimulus be over excited or too long continued, whether by some exciting cause directly affecting portions of the brain or spinal cord, by a state of general excitement known as a nerve storm, excessive voluntary action, or in any other manner extreme muscular activity be induced, there is an arrest of structural development and thus trophic action ceases with a corresponding loss of vitality and substance. Having these simple facts in mind it is easy to understand why localized symptoms of brain lesion should be, as they are, evident in paralysis and spasm of the muscles supplied with motive force by the nerve centers affected by the lesion.

A diseased condition capable of producing a spasm may also produce paralysis and any abnormal muscular activity particularly confined to certain muscles or groups of muscles may be taken as an indication of some disturbance of nerve muscular action.

In discussing the symptomatology of nervous diseases writers make frequent mention of both tonic and clonic spasms of the masseter and pterygoid muscles as in tetanus, epilepsy, lunacy, chorea, etc., while tooth-grinding is a symptom noticed frequently in such nervous disorders as migraine, hysteria, tetany, neuralgia, neurasthenia, paralysis and neuritis, and though noticed as a symptom by several authorities, has not been given the full consideration that it deserves.

Tooth-grinding is produced, as we know, by the action of the deeply seated pterygoid muscles, champing of the jaws, or the intense unconscious pressure (so frequently disastrous) by the masseter and temporal muscles, all of which are supplied by the motor division of the fifth nerve, and it is to their condition that we must look for information as to the condition of the central origin of the nerve.

Warner tells us: "Tooth-grinding is noted as a symptom common among those who suffer from nervous disturbances, choreic and like affections."

In classifying the primary symptoms of fifty-eight cases of children of nervous mobile temperament, under 15 years of age, suffering from headache, Warner says: "We find the largest number referable to the mental and cerebral condition of the child. We are told that he is excitable, melancholy, passionate of temper. His sleep is restless and disturbed by dreams and night talking, by attacks of terror and night screaming, or by somnambulism." In studying this group of nervous, excitable children, in whom recurrent headache was the main symptom, it was first necessary to look for certain objective signs by which they might be identified, and these were principally found in the condition of the nerve muscular system, the teeth and urine. In a large proportion of cases the teeth were found flattened on the edges as the result of tooth-grinding.

After describing in detail the various muscular conditions, he says further: "We may look for signs of irritation of the cranial nerves; evidence of disturbance of the fifth nerve is seen in the great frequency of tooth-grinding. Ground teeth are very common in nervous children, such as those who suffer from recurrent headaches, restless sleep, somnambulism and finger twitching. In lunatic asylums and wards for imbeciles it is very common to hear tooth-grinding on every side. In such cases it is a sign of central irritation of the fifth nerve. Seeing that slight nervous disturbances occurring during sleep in many children cause the pterygoids to contract rhythmically, it is not surprising that grave disease should cause spasm of the other muscles supplied by the fifth nerve as in epilepsy and hysteria."

H. L. Ranney ("Lectures on Nervous Diseases," p. 406), describing symptoms of chorea, says speech, mastication and swallowing may be seriously embarrassed; even the teeth have been known to be broken by uncontrolled movements of the jaw.

Dr. Herman, Hughlings Jackson and others also call attention to this, in a similar manner, as a symptom of these diseases, but I am assured that the widespread influence of the action of these muscles, not only as a symptom, but as a factor in disease, is by no means appreciated, either by physicians or dentists, to whom we might naturally look for its more frequent mention.

We note in the references quoted that the tooth-grinding and the actions of the muscles of mastication are considered as symptoms of some general or central nervous condition, without apparent reference to the fact that such action might be, and frequently is, an active factor in the development of many pathologic conditions arising from irritation of the fifth nerve and its associates.

It is a common thing whenever people can be seen in moments of abstraction or deep thought, to see the lines of the masseter muscles, and also of the temporal, coming into prominence, as force is applied, disappearing and reappearing as the action is repeated, perhaps for hours at a time. And such a frequent occurrence is it to note this habit that it passes almost without significance, whereas such a freak on the part of any other portion of the body would be at once set down to some pathologic disturbance of greater or less nervous importance.

In my practice as a dentist it has become known to me through years of puzzling experience that the continuance of this effort at night, sometimes accompanied by a gritting sound as the crowns of the teeth are ground upon each other by action of the pterygoid muscles or, as more frequently happens, held forcibly together under severe pressure by action of the masseter and temporal muscles, without sound, which accounts for many cases in which the cause of trouble has remained undiscovered for a long period of time, is a frequent cause of reflex irritation.

The movement of the jaw in man, by reason of the freedom allowed at the point of articulation in the glenoid cavity, differs from that of the lower animals in its capability, not only of the perpendicular move-

ment accomplished in opening and closing, but of lateral, transverse and antero-posterior action as well.

The occlusal surfaces of the teeth when brought together in the normal arch are so arranged that each tooth from the lower jaw fits exactly inside and between the cusps of its antagonist in the upper jaw in such a manner that the application of force by the muscles is distributed among the whole number of teeth with comparative equality, save when engaged in the act of crushing and mastication. This muscular force, according to Black, is about three hundred pounds in civilized man, though probably much greater among the savage races unused to modern methods of preparing food, but if by reason of malformation of the jaw, or failure of perfect adjustment, or through slight shifting of its position in closing, the tips of one or two teeth are brought together instead of the whole number, naturally the effect of the force applied is many times greater than it should be, so that when constantly repeated as in nervous habit or spasmodic contraction (and it would seem not unlikely that under these conditions much more than the three hundred pounds allowed in voluntary action might be applied) through traumatism caused by a blow on the jaw, or in some other manner a like result be accomplished, it is at once evident how naturally injury must result to the extremely delicately organized peridental membrane surrounding the root, and the communicating artery, vein and nerve as they pass from the pulp, within the tooth, to join the main branch of the nerve supply, either or both of which frequently cause pathologic conditions of a grave character.

The peridental membrane has great power of resistance and recuperation, but the continued repetition of such undue force must set up an inflammation capable of effecting some pathologic change in the highly vascular and neural structure with which it is associated.

The first effect is naturally increased blood supply, and the bony walls allowing no expansion as the vessels become enlarged, the roots, being conical in form, widening from the apex to neck, are pushed a little out of the socket; thus an aggravating symptom is at once the result, since the crown of the tooth is raised a little above its fellows and liability to constant irritation is assured.

In the acute form of pericementitis usually the soreness compels notice and forbids biting, owing to its painful tenderness; while the rest thus enforced enables nature to effect recovery, unless the inflammatory condition be the result of too active irritation, as from the pulp chamber, in which case it may continue to the consummation of an alveolar abscess. In the subacute variety, as in other like affections, the symptoms are less severe and may proceed to recovery or become chronic. The chronic form may present little or no pain upon percussion or pressure, but at the same time may be a painful source of reflex disturbance; may cause exostoses or degenerative conditions favorable to, if not indeed a common cause of, pyorrhea alveolaris, and so cause the destruction of the membrane. Thus excitement of undue kinetic action of the muscles of mastication may be considered not only as an indication of some disorder of the nerve mechanism, with perhaps tendency to grave trouble, but may actively cause not only reflex pain in the form of distressful headaches, neuralgia, hyperesthesia, anesthesia, and other affections of sensation, but motor troubles as well, and is of important consideration in cases of epilepsy, chorea, and various other neuroses, in diseased conditions of the peridental membrane, death of tooth pulps, alveolar abscess, secondary formations within the pulp chamber, empyema of the maxillary sinus and secondary affections of the eye, ear, nose, throat and stomach.

In order to impress the fact that the foregoing is not mere theoretical deduction and to call attention to the clinical aspect of the subject, I describe the following cases.

Case 1.—History of pain almost continuously for about two years, excruciating at times, particularly at night, less severe at other periods, extending over right side of face, forehead and region of the occiput; hyperesthesia so great that the face had not been washed for months; slightest touch to the surface of lower lip and cheek would cause intense agony. Teeth were all particularly good; no evidence of caries; arch regular, no apparent sensation to heat or cold applied to teeth; there was a slight dulness of sound upon percussion of right superior of first bicuspid.

Upon extracting and splitting the root the pulp chamber was found filled with calcareous degeneration of pulp tissue and pulp nodules. Immediately upon its removal all hyperesthesia left the face while the patient was still in the chair. The pain in the head was much relieved, but not cured. A further history of the case with more recent reports, would seem to indicate that being a typical neurotic, and having had what were termed by herself "fits" some years before, the force applied to the affected teeth during and since the spasms, as a result of this condition during paroxysms of pain, had produced the pulp degeneration, which, while evidently accountable for the facial hyperesthesia and much of the pain, was really secondary to a deranged condition of some central nerve, in conjunction with other motor nerves, and by reason of the undue force applied to the particular tooth affected had caused irritation, leading to the formation of pulp nodules and calcareous degeneration.

Case 2.—Mrs. S.; had one child with cleft palate. Suffered pain since 8 years old, supraorbital, paroxysmal, intense; teeth sound; no evidence of caries; on percussion right superior second bicuspid gave a duller sound than its fellows in the jaw; was not sore to touch, but was intensely sensitive to thermal changes.

Upon extraction the tooth was decalcified, and upon making microscopic sections minute growths were found along the inside of the pulp canal in the form of spicula, extending into the pulp substance, and though the pain suffered was evidently of an epileptic nature, probably the result of a fall in early life, these growths must have added to the suffering and were undoubtedly the result of irritation from the intense pressure during the paroxysms.

Case 3.—Miss —, 17 years old, a typical neurotic; high contracted vault, irregular teeth with the usual accompanying symptoms of adenoid growths, catarrh, etc.

History of almost continuous pain for a period of two years; sometimes on one side of the face and head, sometimes on the other, occasionally bi lateral, and varying in intensity at different periods.

The pulps of seven teeth in both jaws were evidently hyperemic, and extremely sensitive to thermal changes where large amalgam fillings seemed to have excited undue irritation; the pulps were devitalized, an extremely painful process, only relieved by grinding down the crown of each tooth so that it could not touch its antagonist when the jaws were closed. This was the only thing that was found to give relief, and one after another the crowns of the affected teeth were ground down so that they could not strike in occlusion. This would give freedom from pain for a number of months, and upon the return of pain some tooth would be found slightly elongated. Again grinding would relieve for another period. It is of interest to note that when this patient became overtired, particularly with social efforts, she would frequently awake in the morning after a night of disturbed rest, with a sense of numbness in the teeth and jaws, due undoubtedly to severe pressure, or would be awakened by the return of severe pain.

About the beginning of the trouble she had become engaged to be married; the engagement was afterward broken. Another young man was then affianced to her; this was also terminated, and during this interval of several months, but little or no trouble was experienced. Recently, however, the third engagement was coincident with return of the trouble, and it was disclosed that after spending an evening in the young man's

company much difficulty was experienced in going to sleep. Therefore, our conclusions are that in this case the motor branch of the fifth nerve was excited in sympathy with sexual excitement; pressure upon the individual teeth was intensified by irregularity in the conformation of the arch, and this irritation was communicated to the sensory portion of the same nerve, with the usual painful result. Instead of grinding I have for some time past tied a piece of rubber dam, over the crown of one of the unaffected teeth so that the jaws can not be brought tightly together. Relief is complete after a few hours, or if applied in the night, next morning the rubber can be removed and the difficulty is completely averted for the time.

Case 4.—Mr. ——, much annoyed with slight tinnitus aurium on left side. No evidence of local oral or Eustachian trouble, as testified to by several aurists. Teeth much abraded. Has been much relieved by treatment and grinding off crown surfaces of several teeth.

An occasional slight return of his aural trouble is generally relieved by removal of some occluding portion of the left superior central incisor, which seems to be particularly in sympathy with the ear at this time.

Case 5.—I have under my care at present a woman of about 40, whose incisors are worn almost beyond recognition; tendency to intense mental excitement upon slight provocation, particularly on subjects of politics, dress reform, etc., exists. She suffers from a difficulty of the right inferior extremity, threatening at times loss of sensation and motion.

After typhoid fever or other unusual drain upon the natural forces there seems to be a tendency to develop this habit of the jaws, and in many instances pain in the head and face had been relieved in my practice, by removing the possibility of continued irritation in the manner before described.

The fact that there is seldom soreness on percussion of such teeth, makes diagnosis frequently difficult and doubtless accounts largely for its not having been considered, as it should have been, as a diagnostic indication, but the surfaces of fillings, abraded crowns of teeth, or a dulness of sound on tapping with a metallic instrument will often serve to indicate in the absence of other and more marked symptoms of peridental inflammation.

A frequent complication from this habit, is pyorrhea alveolaris for which condition I have over and over again relieved the discharge about the necks of teeth and have hastened the retightening process of those loose in their sockets, by grinding them down to relieve unsual force in occlusion; its very common association with tenderness and pain following the process of devitalization of pulps, should make its consideration far more frequent than has hitherto been the case. Therefore, in the field of medicine, as a symptom of some neural disturbance of kinetic function or the direct excitant of some pathologic condition, the study of any abnormal activity of the muscles of the jaw is without doubt of far greater importance than is generally realized.

THE LIMITATIONS OF SERUM THERAPY.

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A review of the literature of serum therapy of the last two years is likely to produce some confusion. In the light of what has already been shown to be true, much elaborate experimentation seems to have been purposeless and final failure might have been foretold at the beginning. One of the prime causes of much misunderstanding is the failure to discriminate between the production of immunity from a disease and the production of resistance against a disease toxin. There is a wide difference between the two processes and the probable manner by which they are brought about. In the former some change, the nature of which is not understood, has been produced which makes the body unfit as a culture medium for the growth of a particular bacterium and the consequent development of its special toxin. Ten years ago Buchner showed this substance to be an albuminous body which could be removed from the blood serum by dialyzation, and that it is the product of some unknown chemic reaction brought about by bacterial growth.

More recent investigations tend to show that a bactericidal substance resides in the granular matter of the leucocytes (Kanthock and Horry, Philadelphia Transactions, clxxxv, 1894; Vaughan and Novy, "Ptomaines and Leucomaines," 1896; Hankin, *Centralb. für Bakteriologie*, xii, and Mueller of Vienna, *Centralb. f. Allg., Pathologie und Patholog. Anatomie*, viii, 1896), and that these granules leave the white corpuscles and float free in the blood stream where they have the power of lessening the vitality of bacteria or destroying them altogether. In inflammatory diseases, such as pneumonia, pleurisy, rheumatism and erysipelas, there are an increased number of white corpuscles in the blood stream as well as a marked increase in the fibrinogen and serum-globulin (Halliburton, "Chemical Physiology and Pathology," pp. 306-7). It might therefore be assumed that here is an indication of disease producing its own antitoxin, and that when a sufficient number of white corpuscles are produced to destroy the invading bacteria the disease shall cease.

The problem, however, is by no means as simple as this. If the immunization or cure of a bacterial disease depended alone upon the mustering of an army of leucocytes sufficiently large to overcome and destroy the invading germs, then we should be able to show that the injection of anti-diphtheritic serum really increases the number of white corpuscles and that the subject is immune, not only from the Klebs-Loeffler bacillus but from invasion by all other bacilli as well. We should be able to show that vaccination with the kine pox permanently increases the number of leucocytes in the vaccinated subject and that he is rendered immune against all other bacteria forever.

As a matter of fact, however, when immunity is produced by an attack of bacterial disease or by inoculation in a modified form, that immunity is produced only against a subsequent attack of the same disease. It is clear, therefore, that the problem is a chemic one and that if the immunizing substance resides in the granular matter or if discharged from it, its chemic constituents must depend upon the disease against which the subject has been rendered immune.

If the chemic composition of the antitoxins thus produced were known as well as that of the toxins, the way would be paved for an exact knowledge of what might be expected as a result of applying antitoxin for the purpose of curing bacterial diseases; but so long as this remains unknown antitoxin therapy is liable to be more or less empiric.

It is well established that the changes produced in the blood serum by the development of an antitoxin is either for a time or permanently persistent. It also seems likely that the amount of antitoxin produced in each case is in direct ratio to the amount of toxin. This is well illustrated in vaccination with kine pox, in which the production of several well developed pustules attended with considerable febrile

reaction is usually followed by complete immunity against smallpox or against another vaccination. A very mild attack of scarlatina, measles, smallpox and some other eruptive fevers are sometimes followed by a second invason. Furthermore, in such diseases as are followed by only temporary immunity against subsequent attack, the more severe the attack the longer the immunity if personal peculiarities are eliminated. If this be true, it may be concluded that the antitoxin results from a reaction between the toxin and some albuminous constituent of the blood serum, not that the toxin makes a definite chemic compound as if it were an acid radical and the serum constituent a base, but the toxin is responsible for bringing the change about.

Granted, then, that the antitoxin is produced, it may act in two ways to effect a cure, by making further bacterial growth impossible or by combining with and neutralizing the toxin as fast as it is produced, until the bacteria cease from lack of pabulum to be virile. Indeed, it may be that the cell protoplasm, constantly bathed in the antitoxin serum, is in some unknown manner changed so that the toxin contact is no longer harmful and is eliminated without disease symptoms.

The next question is: Do all bacterial diseases produce an antitoxin? It is reasonable to conclude that in the self-limited bacterial diseases like diphtheria, typhoid, yellow and other eruptive fevers, a peculiar substance is produced which gradually increases and is persistent in the serum and acts as a remedial agent in some way similar to that indicated above. Is this self-limitation due to the production of the antitoxin? When more is known of the bio-chemistry of bacterial diseases this question will probably be answered in the affirmative. A powerful argument in favor of this answer is that bacteria will develop as long as a suitable culture medium is offered for their growth. Those taken from an old culture medium, the pabulum in which is almost exhausted and which shows very little vitality, become virile when transplanted into a new and favorable culture medium. With the tissue changes constantly going on in the body, even in disease, the blood serum is tolerably constant in its chemic composition; so we may conclude that the self-limitation is not due to the exhaustion of the culture medium in the involved subject. To further support this view, the tubercle bacillus and other bacteria may lose their virility by exhausting the pabulum of an artificial culture medium, while in the body they are virile during the life of the invaded subject, the culture medium showing no change detrimental to their growth.

The question whether an antitoxin may be produced without the intervention of the bacterium is not definitely settled. In 1887 Salmon and Smith succeeded in rendering doves immune against hog cholera by injecting the artificial culture medium freed from bacilli by filtration. Many other similar experiments have been carried out; but what warrant is there for saying that this substance contains the toxin of the disease alone? In the absence of exact chemic knowledge it might be assumed that, even in an artificial culture medium, there are antitoxins as well as toxins generated, and that by injecting the exhausted culture medium, the subject received both the antitoxins and the toxins, retaining the former and eliminating the latter, as is done in the course of disease. Here the presence of an antitoxin might easily escape notice in the overwhelming symptoms of poisoning produced by the toxin, if equal amounts were injected at the same time. Indeed, the antitoxin might be present in quantities much larger than the toxin, and, as far as its physiologic manifestations are concerned, entirely escape notice. As far as our knowledge is concerned all immunity produced by the injection of toxins may have been produced by the unnoticed antitoxins present.

We will now consider bacterial diseases which are not self-limited: tuberculosis, syphilis, leprosy and the like.

Do they produce an antitoxin? If so, why are they then not self-limited? There is no evidence that any of these diseases produce an antitoxin. The fact that they are not self-limited is a powerful argument against that hypothesis. If an antitoxin is produced by any of them, it is certainly different in all respects from that produced in the self-limited diseases, being insufficient in quantity, potency or persistency to produce any good result. When chemistry has mastered those complicated problems relating to the changes in the blood serum, produced by bacterial growth, we shall know why this is true, but for the present we must assume that the production of antitoxin in those diseases is an impossibility.

Certain animals are partly or wholly immune from particular bacterial diseases. The rat can not be inoculated with anthrax, the cow takes smallpox lightly and the horse is immune from tuberculosis. In some instances the blood serum of the immune animal will destroy the bacillus of the disease against which it possesses immunity, as in the case of the serum of the rat against the anthrax bacillus. In view of this fact, the question arises, whether the blood serum of an animal already naturally immune can be given greater bactericidal powers by injecting into the blood current the toxins of the disease against which it is immune? It can only be said that what evidence we have entirely supports the negative. The sheep and horse are both very susceptible to diphtheria and inoculation with the diphtheria bacillus produces a large amount of antitoxin. Shall we say that in exactly opposite conditions the same result would be had? Shall we say that the horse, immune against tuberculosis, a non-self-limited disease, will therefore yield a valuable anti-tubercular serum when injected with the toxins of tuberculosis? Certainly this is absurd; yet it is just what has been done during the last two or three years, by two or three men who have obtained considerable notoriety and profit. It certainly involves the heights of credulity to believe that the serum of an animal immune against a disease is rendered valuable, as a remedial agent for the same disease, by injecting it with the disease toxin without producing an antitoxin.

After the disastrous experience of a few years ago with Koch's tuberculin, it is not likely that any form or modification of the toxin, produced by the tubercle bacillus, will gain the confidence of the medical profession as a remedy for the disease. Tuberculin never did more than cause the breaking down of certain involved cell groups whose protoplasm was already surcharged with the poison. Under whatsoever modifications it may be used, it can never be of any value beyond an aid in making a diagnosis of tuberculosis.

As to the production of a resistance to a poison, that is quite a different matter from producing immunity, be the poison a disease toxin or something

else. Narcotic and other poisons may be taken in gradually increasing doses until an amount many times a poisonous dose, in the first instance, is readily tolerated. This means nothing more than that a resistance against that special form of poisoning has been established. Experiments of this kind have no value in serum therapy. It is quite likely that one might begin with a very small dose of some disease toxin, like that of tuberculosis or diphtheria, and by gradually increasing the amount exhibited, a resistance would be established which would make the injection of large quantities of the poison possible, but this is not immunity. The resistance would be speedily lost with the withdrawal of the poison, while a true immunity would persist for a longer or shorter time or permanently. The work of Calmette in establishing a resistance to snake poison is classed with serum therapy by some, but as a matter of fact it has nothing to do with serum therapy, unless it can be shown that these inoculations actually produce an antitoxin which renders the subject immune for a considerable time after the inoculations have ceased.

Referring again to the use of immunized horse serum for the treatment of tuberculosis and the favorable results reported, it is quite probable that all the benefits received by the patients subjected to the treatment were due to the serum itself and not to any added value it possessed by reason of the animal having been inoculated with tubercle poison. A Spanish physician, in Barcelona, reports good results from the injection of plain serum in cases of faulty nutrition in children. Indeed, the results reported are quite beyond belief. Its exhibition was followed promptly by an increase of the number of red corpuscles and a gain in weight. He also reported the cure of sixteen cases of chorea in a average of fifteen days, with the serum.

In conclusion it would seem, in the light of our present knowledge, that serum therapy is of value only in those diseases in which it produces an antitoxin and that an antitoxin is produced only in the self-limited diseases.

32 and 33 Sentinel Building.

PROLONGED GESTATION, ACRANIA MONSTROSITY AND APPARENT PLACENTA PREVIA IN ONE OBSTETRICAL CASE.

BY CHARLES REA, M.D.

PHYSICIAN TO CHILDREN'S HOME, YORK, PA.; MEMBER OF AMERICAN MEDICAL ASSOCIATION.

YORK, PA.

The following case, on account of its unique character, will probably be of interest:

About the middle of April, 1897, Mrs. F., 4-para, age 34, engaged me to attend her in confinement which was expected about July 1, 1897. When questioned, she told me her last menstruation occurred September 4, 1896, but did not indulge in sexual intercourse until two days before her next expected menstrual period, or September 30, and that she had not copulated for two months before this period and not at all afterward. Accepting these statements as facts, she should have fallen in labor about July 6, 1897. On June 20, I was summoned to her on account of a "severe period" coming on. Upon arriving at her home and making careful inquiry, I was told that two months before she had passed considerable blood and each time there was very little pain. A vaginal examination showed cervical dilatation to be practically *nil* and hemorrhage decided. Taking everything into consideration, it was decided to be a case of placenta previa. After concluding to dilate and deliver at once, the patient was ordered absolute rest, foot of bed elevated, cool drinks, etc., until an assistant could be procured. The patient when informed of what was proposed to be done strenuously objected and argued that she recovered all right from the attack of bleeding she had two months before and preferred to wait and see if she did not recover from this one. All my persuasion and instructions regarding the dangers of such a course were in vain. The next day when I called the patient was up and walking around the house as though nothing had happened. She was informed that she should send for me at once when the first evidence of her falling in labor occurred as it was then almost due. Nothing more was heard from her until Aug. 5, 1897, when the messenger announced that Mrs. F. had fallen in labor. Upon arriving at the patient's bedside and after thoroughly sterilizing my hands and arms, investigation showed labor well advanced with normal implantation of the placenta. To my surprise and relief, practically no blood was lost before or after delivery, but the child proved to be a monstrosity of the acrania variety. (For an almost exact picture of the monstrosity see cut on page 97 of "J. Lewis Smith's Diseases of Children" 7th Edition.) The vascular exposed mass looked as though it had been bleeding and had been partly covered by a very thin membrane. Probably less than one-half of the brain matter was present. In other words, if a plane had been passed from a point one-half inch above the supra-orbital ridges to the occipital protuberance it would cut off about as much of the brain matter as was absent in the child under consideration. The baby nursed naturally after the first day, but succumbed on the third day.

The first thing to engage our attention is the apparent prolonged period of gestation which, if the woman was not mistaken, was 305 days. We appreciate the fact that all histories regarding time of supposed conception must be accepted with considerable doubt, but, after questioning and requestioning the woman she would invariably tell me she absolutely knew there was no mistake. Inasmuch as several cases have been reported, from perfectly reliable sources, of much longer periods of gestation than this I simply bring out this feature of the case on account of the history seemingly being genuine. In one case, reported by Maur, gestation was believed to have lasted 334 days.

It is quite interesting to read the history of the theories as to the causes of these teratologic objects before the causes were analyzed and considered, from a scientific standpoint. Ambroise Paré,[1] says, "therefore, in times past there have been some, who nothing fearing the Diety, neither Law nor themselves, that is their souls, have so objected and prostrated themselves, that they have thought themselves nothing different from beasts: wherefore atheists, Sodomites, outlaws, forgetful of their own excellency and divinity, and transformed by filthy lust, have not doubted to have filthy and abominable copulation with beasts. This so great, so horrid a crime, for whose expiation all the fires in the world are not sufficient, though they too maliciously crafty have concealed, and the conscious beasts could not utter, yet the generated misshapen issue hath abundantly spoken and declared, by the unspeakable power of God, the revenger and punisher of such impious and horrible actions. For of this various and promiscuous confusion of seeds of different kinds, monsters have been generated and borne, who have been partly men and partly beasts." But it seems the real foundation for the scientific consideration of the subject was laid by Albrecht von Haller. His intelligent and scientific mind enabled him to analyze all the previous theories and make logical deductions. It appears that Bichat, the originator of the science of histology took up the subject where Haller left off. Through his efforts the subject of the study of monstrosities became identified with embryology. We believe now, as was

1 Ambroise Paré: Surgery, 1579. Johnson's Trans., London, 1634, Book xxv, "Monstrosities and Prodigies."

believed in Bichat's days, that monsters resulting from retardation or arrest of development are partly permanent embryos. Without going deeply into the various theories, it seems the effect of maternal impressions in producing monstrosities is little when we consider that, as yet, not a malformation has been found that is peculiar to the human species. Ballantyne,[2] in his recent work, expresses his opinion that a definite impression upon a pregnant woman's mind never causes a defect in the fetus closely resembling the thing producing the impression, but he does say that the state of a woman's mind during gestation does have more or less effect upon the unborn infant's development and that the cases which have been advanced to prove effect of maternal impressions have been coincidences rather than the effects of alleged causes. External mechanical influences may act partly or wholly as the cause in some cases, but the most logical explanation is pathologic influences analogous to those which occasion morbid conditions in the body after birth. However, probably in every monstrosity numerous conditions have operated to bring about the anomaly.

That there was an abnormal implantation of the placenta in this patient's uterus, almost any physician would have thought and would have expected alarming hemorrhages at or before birth. The patient being a multipara, the previous nearly painless hemorrhages, etc., seemed to foretell that. This must have been simply a case of menstruation during pregnancy, or a metrorrhagia. Hemorrhages, however, unless caused by a vicious situation of the placenta, are very rare so late in pregnancy unless there has been menstruation during the entire gestation.

DENTAL FACULTIES IN MEDICAL SCHOOLS.

Presented in the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY RICHARD GRADY, M.D., D.D.S.

BALTIMORE, MD.

There is a sentiment abroad that some dental schools have not the equipment of faculties and instructors that they should have. It is a prerequisite for admission to the National Association of Dental Faculties, that the applicant shall have the endorsement of the board of dental examiners of the State in which it is located; and it is the rule of the National Association of Dental Examiners that an application for recognition by that body must come from a member of the Association of Dental Faculties.

"Dental schools are not being formed now from an educational necessity. Two impulses control this matter: 1, personal ambition to have a position in and be connected with a dental school, for the prominence it is supposed to give; and 2, a purely commercial spirit on the part of medical schools. Over 60 per cent. of our schools are appendages to medical institutions; and nearly every dental school started in these later years has been under this outside influence."

The Committee on Colleges of the National Association of Dental Examiners, recently expressed the view that more should be required to establish the right of dental schools to recognition than the fulfillment of the rules of the Association of Dental Faculties; evidence should be furnished that the teachers are of high standing, and that they and the school have the confidence of the local members of the profession. The committee also called attention to the impropriety of schools advertising as instructors, practitioners who occasionally hold a clinic before the students, but are not a part of the staff of the institution.

While "anybody with fair mechanical ability could pull or fill a tooth, I have seen good fillings inserted in teeth by a man wholly ignorant of the science of dentistry, and we have all seen the botches which educated men have made in attempting a similar operation," yet (in the words of an editorial in the *Dental Cosmos*), "the ability to teach dentistry is an acquisition quite distinct from, though supplemental to, the ability to practice it. So important has the art of teaching become that the study and investigation of its principles now constitute a distinct branch of scientific work, viz., pedagogics. To know dentistry from the point of view of the practitioner is one thing. To know it from the teacher's standpoint implies not only all that is included in the educational equipment of the practitioner, but in addition to this the important qualification of ability to impart successfully this knowledge to others."

The plan of requirements of dental schools, hereafter making application for recognition by the National Association of Dental Examiners, provides that each dental school must have a teaching faculty of at least three professors of dental subjects, namely: for operative dentistry, for dental prothesis, and for dental pathology and therapeutics; and at least five professors for medical subjects, namely, for anatomy, physiology, chemistry, pathology and for materia medica.

Let us consider one thought in the discussion of "the equipment of faculties and instructors." In none of the dental departments of the medical schools known to us is there, in the teaching faculty, a professor for "dental pathology and therapeutics." The title used by faculties is "M.D., professor of materia medica and therapeutics," as certified to by official documents. Now, we maintain that more than a medical education (so-called) is requisite to teach dental therapeutics. The therapeutics of dentistry, unlike its anatomy, physiology and pathology, differs from that taught in the medical schools. It is medical, surgical and prosthetic. In so far as it is a direction of medical science to the prevention, modification or removal, by medicinal or hygienic remedies, of the causes and effects of disease in the dental organs, it forms part of a physician's practice, just as does the treatment of cerebral, cardiac or pulmonary disease. In so far as it is an application of surgical skill to the extraction of teeth, to the removal of tumors, to the treatment of fractures or of fissured palate, it is simply oral surgery, involving only such knowledge and skill in the use of instruments as every surgeon must possess. But dental therapeutics includes a class of operations which medical men were not taught in medical schools, and which as physicians and surgeons they do not practice. The prevailing and distinguishing feature of dental therapeutics is the art of replacement; replacement of dental structure in such manner and with such material as shall prevent further action of the destructive agencies; replacement of dental organs by substitutes which shall

[2] Teratogenesis: An inquiry into the causes of monstrosities. History of the Theories of the Past, J. W. Ballentyne, M.D.

physiologically restore impairment of function, and esthetically restore the natural expression of the face; and this a person with a medical education alone is not qualified to teach.

CATAPHORESIS VS. THE DIRECT APPLICATION OF THE GALVANIC CURRENT FOR OBTUNDING SENSITIVE DENTINE AND HOW TO EXCLUDE BOTH.

Presented to the Section on Stomatology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY W. G. A. BONWILL, D.D.S.
PHILADELPHIA, PA.

When I speak of cataphoresis and the galvanic currents without medicaments, in 1856 to 1859, you will see that with all that has been done by the few workers in our profession, a quarter of a century had passed and no one thought there was anything in electricity until some one in medicine attempted to keep up with electricity in other branches and carry medicaments through the tissues as copper is supposed to be carried from one pole of a battery to the other as in electroplating; and now some dentist takes that up and tells us that cocain can be carried through the dense tissue of dentinal tubuli, and every one is ready to take it up as an insignia that makes it no better than an advertisement that he can perform all operations on the teeth painlessly. I remember, when I sent out a circular, on going into a new town in Delaware to get practice, what a commotion was set up and how every one was ready to try the new obtunder. Now after so many years have passed and this comes again to the light, do you wonder that I am more amused than chagrined?

At the meeting of the Odontological Society of New York, in October last, I presented before them the original patent gotten in 1859 for obtunding dentine and extracting pulps by the electric current alone. I made no effort at the time, nor since, to sell a single right to any one.

At this late date I submit to you the original document obtained by me in 1859 for doing then by the current alone what you are now called upon to believe can only be done by cataphoresis.

Aside from my own statement that I did successfully produce analgesia by the current alone as early as 1856 to 1859, you may have the many strong testimonials of Dr. Horton of Cleveland, Ohio, who has been doing the same thing by an improved galvanic battery and apparatus. "Why did I not continue to use it?" My reply is that I found, while experimenting with electricity, something better, which I have used all these years with other additional means.

Now, what have I to say about cataphoresis? Is it a fact that a drug can be dissolved in water, or any other media, and be made to traverse the dentinal tubuli and enter the pulp chamber and produce an anesthetic or analgesic effect by osmosis? Or can it directly paralyze the sensitive dentine upon its surface and sufficiently deep to enable the operator to cut with impunity, painlessly, as is claimed for most obtunders now found in the market? All who support this, claim that some effect is produced through osmosis and electricity the power that enables the drug to produce its effect by direct circulation through the tubuli of dentine.

I should not attempt to quibble over osmosis, or how or what does produce this supposed effect, but my long experience, dating further back than Dr. Richardson of London, entitles me to ask what is the real agent in this so-called wonderful discovery after nearly one-half a century's burial.

There are so many means of influencing, not only the human being, but all animals below man, as to make them believe almost anything you wish, even to the complete annulling of pain, that we must be very conversant with past history in this line to enable us to say what agent has produced this so-called cataphoresis or, as with other pain annullers, what is the true philosophy or *modus operandi* in analgesia? It is a subject that has called forth the thought and research of men through all time, and there is still a mystery, though the agents are still appearing and the last is claimed as the best.

Osmosis, according to the best authorities, can only take place between two fluids of dissimilar natures or densities or gravities, where a porous membrane of tissue intervenes, or where a porous porcelain cup is used, as where salt of different specific gravity is used on either side of a porous membrane, when the fluids will in a short time, without any electricity, become of the same strength or gravity; or, in a Bunsen battery, where the porous porcelain cup that holds the bichromate solution, or nitric acid, and the glass or outer cup holding the sulphuric acid solution of 1 to 12, when the current is passed, what effect is produced on the liquids and what becomes of the bichromate or sulphuric acid? Do they pass around through the galvanic apparatus or coil and through the interrupter? You know this can not be. They are simply neutralized and lose their power to produce an electric current. How can copper be carried through a porous cup and be deposited upon the opposite pole? How can you take the fluid containing cocain and pass it through a membrane that is not porous? Dentine is porous only when the tooth has been extracted and dried and is void or all organic matter. So long as it is in the mouth it is full of fluid that is not interchangeable by osmosis, unless you can produce in the pulp chamber and canal a different density to the fluids in the peridentium. If equilibrium exist between this medium of dentine on either side of it, then there is a *statu quo* condition and no osmosis. You might as well tell me that a cup can be made of dentine to take the place of the ordinary porous porcelain or burnt clay cup in a Bunsen battery.

Now, when I assert that in 1856 I did all this obtunding by the simple galvanic current, without dam or any other adjunct, and that Dr. Horton has done the same thing with his improved instrument and battery, what can you say in refutation? Why will you persist in this absolutely useless and unnecessary procedure; in loss of time; demoralizing your patients; trying to believe you are doing something that was never done before and is superior to all that was ever done in the past history of dentistry?

It is well to try to alleviate pain in any operation, but when all this can be done without it, and the patient is enabled to see that dentistry is not the inhuman thing dentists would have them conceive, and have them feel and know that they can be taught to bear all the pain consequent upon any operation upon the teeth, in excavating or removing pulp why should you not adopt means long ago in your grasp.

From the many experiments of others in electro-

therapeutics, as far back as 1860 osmosis was proven to take place by a current of electricity through a porous membrane or diaphragm, but never through bone, either in the living or dead subject; and even when the osmosis was affected through a porous animal structure or membrane or porous cup, it was only done after many hours. Teeth were extracted by electricity, in this city, as early as 1859, perhaps 1856, but it was only by the shock produced at the instant the forceps were applied and which produced a diversion of the will force, by causing a sudden and violent inhalation into the lungs, and while the lungs remained inflated, the effect was good, for the senses were for the instant submerged or subjugated.

This was taken up quickly by the profession everywhere, but it failed because dentists generally had no idea of the agent or how to use it, or why it produced the effect. They did not see its simple philosophy. They supposed it was the potential and specific effect of the galvanic battery current with an interrupter. But this was not true in the manner in which it was practiced. Thousands of batteries were sold, and ignorance of the real cause of success made it a curse rather than a blessing.

I bought an instrument, such as was to be had then and which was recommended, and it worked well for a single extraction, but not when I had several teeth to remove, as I was compelled to do at that time in the country, for I had no experience nor the means to save human teeth. I soon found that the public preferred extraction because it was cheaper. But from my use of the battery and by becoming familiar with its working upon myself and patients, I found that the coutinuous current, or when interrupted several thousand times a minute, would annul pain when the positive pole was directly applied to the tooth in excavating and the negative pole on the face or in the hand with no dam or other agent.

All of this work, however, was preceded by experiments in the use of chloroform directly upon myself. That I may have you understand the steps leading up to the discoveries and principles involved, and the cause of failures in so many otherwise good agents that are overlooked and abandoned; and why I assert that all this cataphoresis in dentine is only the work of the current pure and simple; and how many agents we have had at our disposal that, had dentists only learned to apply scientifically, we would not be trying everything offered as obtunders or anesthetics or analgesics.

You have certainly had enough of obtunders in the past decade alone to freight a ship, and each has had its friends, but is now giving way to cataphoresis, and the dealers are delighted to have another craze and stock the dental market with enough batteries to sink several fortunes, and soon to be set aside for another. The world craves some agent to quell the simplest stomach-ache, that as boys we thought nothing of. We are driving people to seek these agents to destroy one of nature's most gracious and beneficent gifts—pain—and lowering the moral status of mankind and rendering them hypersensitive to every change of the atmosphere. This is wrong, and the medical world is no better. It is well for major operations in surgery, but not where your ingenuity can plan not to use these agents.

I had learned the use of chloroform and ether from my father, and particularly from an M.D. who was exploiting these new agents and also had a galvanic battery. At that time (1856) it was not known that chloroform had any other than an anesthetic effect. It was not discovered that it could be taken to a degree or in quantity to produce what is now known as analgesia.

You will now see the first dawning in my mind of the nature of these annihilators of pain, for the application was first made upon myself, and was administered by myself, which led to the discovery that chloroform could be taken to that extent that I could excavate my own carious cavities without pain and yet be sensible of the sense of touch and ability to perform the operation upon myself. It was an amazing thing to find that while the sensitive dentine was so obtunded that I could cut it with impunity, yet the special sense of hearing and touch was exaggerated. The excavator seemed to me as large as a hoe and the cavity as capacious as a bushel basket. There was no pain and my will sense was not subjugated, only the voluntary mind had been partially annulled. I could scarcely believe my own senses. Yet several separate trials convinced me that I had discovered a new property or rather phenomenon—the analgesic effects of ether and especially of chloroform.

Chloroform, while it would do what I wanted, would make my patients too sick and I had to abandon its use.

It was then that the battery, for extractions alone, was first brought out in Philadelphia. I mentioned above the philosophy of shock in its action on respiration, and soon had it exemplified to the satisfaction of the patient that, while electricity would annul pain in dentine, and living pulps (if not inflamed) could be removed, yet the too strong application of the current gave the patient such a severe shock while excavating that a violent inspiration led me to exclaim, "nature's anesthetic," and I then saw it was diversion of the will power, for when the lungs were being inflated so violently, the will could not take cognizance of actual pain. It was for the instant complete. Let any of you hurt a finger and how soon it is put in the mouth and a violent inhalation taken several times until pain is relieved. The infant in crying violently, while in pain from an accident, is relieved and falls to sleep from the constant sobbing and increased inspiration. All temporary teeth I extract by this one sudden inhalation or diversion of the will, without a tear nor complaint. Two or three can be extracted while the breath is held in the lungs.

This led to the discovery that rapid breathing for sixty to ninety seconds, at the rate of 100 to the minute, would produce such an obtundity of the nerves and nerve centers that analgesia would be produced and the patient still be conscious of touch. This enabled me to perform all cases of excavating—extracting both teeth and the bony pulp, as well as all minor operations in surgery. A single respiration quickly taken and the breath held in the lungs will suffice for many trifling operations and all that is needed in extracting the temporary and permanent teeth of children. This was the birth of analgesia, in 1856, as proven upon my own person while operating upon myself.

This property of all anesthetics is very little known by medical men, and they have missed a very important part of anesthesia. Analgesia should be better understood and the application of rapid respiration would come into use in thousands of minor cases of operations where the custom is to completely anesthetize the

subject. Let surgeons and dentists learn how to produce this effect and ether, chloroform and gas would no longer be used in three-fourths of the cases. In many cases of midwifery it is all that is desirable.

Let any one imagine that they are blowing a fire to make it blaze, taking full inhalations and forcibly ejecting or blowing, which can be done at least 100 times a minute, and while the patient is doing this the operator should talk to him, say no pain will be produced and urging him to breathe in this manner until sixty seconds have passed, when the patient can not feel any pain, as the voluntary system is subdued. The pneumogastric nerve now says, you can not go on as life would become extinct. For the next three minutes the respiration is only about six to the minute, showing the blood has been over-oxygenated. The patient has to be urged to breathe. When this is done previous to using ether or chloroform only one-half the quantity is used, the effect is more profound and there is not as much danger. Since this discovery of the rapid breathing method, in 1872, although analgesia was discovered by me in 1856, and was the stepping-stone thereto, I have used no other means of painless surgery in dentistry.

Cataphoresis is not a fact as applied to sensitive dentine and should have no place in dentistry.

You now know why I abandoned electricity for obtunding sensitive dentine and extracting; for this revelation of how nature relieves gave me the clue to a brighter step which dentists have been slow to recognize as a fact. Had they done so, then you would not today be looking for any other agent in most of the cases it is our lot to have.

NOTE.—For the history of rapid breathing and its applications, etc., see *Scientific American* supplement, April 9, 1881, No. 275, p. 4386.

SOCIETY PROCEEDINGS.

Michigan State Medical Society.

The Thirty-third Annual Meeting was held in Detroit, May 5 and 6, 1898.

The Society met in Harmonie Hall, with the President, Dr. JOSEPH B. GRISWOLD of Grand Rapids, in the chair.

Prayer was offered by Rev. JOHN REID, D.D., of Detroit.

An address of welcome was delivered by Mr. BLADES, city controller, in the absence of the Hon. WM. C. MAYBURY, Mayor of Detroit.

The annual reports of the secretary, treasurer and publication committee were read and adopted.

The committee to petition the legislature with reference to an improved plan of registering births and deaths, Dr. Leartus Connor, chairman, reported, and the report was adopted.

Dr. C. HENRI LEONARD of Detroit, chairman of the committee to take action on establishing a National Bureau of Health, read the report of this committee, as follows:

REPORT OF COMMITTEE ON THE ESTABLISHMENT OF A NATIONAL BOARD OR BUREAU OF HEALTH.

Mr. President and members of the Michigan State Medical Society: As your chairman of this committee I have to report as follows:

During the past year there have been two quite prominent bills introduced into Congress looking toward the end desired. One of these bills was so imperfect that it met with almost unanimous objections from the medical press of the United States, as well as from the medical men to whom it was submitted for approval. The other bill is very bulky in its provisions but, shorn of some of these, would have been quite acceptable to most of the profession outside of the Marine-Hospital clique; it was this bill that our committee would have been called upon to enlist your sympathies for, had it not been for the outbreak of hostilities with Spain. The momentous questions concerning Cuba have so overshadowed everything of a purely civil nature that this bill, with sundry others, has been relegated to a more convenient season for discussion by Congress, though not "pigeonholed." This bill, to give a brief *résumé*, incorporates within it the following main propositions:

1. To gather information upon the state of the public health and the existence of contagious disease in foreign countries through the consulates of the United States Government; to digest and communicate the same to all government posts and health authorities of our country; through medical officers attached to the consulates, when requested by the masters of vessels destined for ports of the United States, to inspect the vessels, cargoes, crews and passengers (including their personal effects), to use measures for cleansing and disinfection, and to vaccinate those requiring vaccination (all at the expense of the vessel), to furnish bills of health relative to the port of departure and full dealing with the vessel, or to notify the Bureau by telegraph of neglect or refusal to accept such service.

2. To serve as a medium of intelligence in sanitary matters, including vital statistics, between health authorities throughout the United States.

3. To inspect the various quarantine stations of the United States from time to time; to investigate outbreaks of pestilential disease in any part of the Union; to report such inspections and investigations; to recommend to local health authorities needed preventive and suppressive measures.

4. To conduct chemic, physiologic and pathologic investigations in the interest of sanitation.

5. To publish and distribute documents relative to public health.

This bill was drafted by a special committee from the AMERICAN MEDICAL ASSOCIATION and it has been endorsed and advocated by the American Public Health Association—the largest body of sanitarians in the whole world at the present time.

The Marine-Hospital corps is against its passage purely from personal and selfish reasons, as when passed, it makes them subsidiary to the Bureau, and so curtails some of the fat offices that are now at the disposal of the Marine-Hospital Service.

The bill as proposed recognizes each State of the Union, in that a member shall be chosen from each State to represent it on the general national board or Health Bureau, thus forming a sort of advisory council to the commissioner of public health, much as the President of the United States now has his cabinet officers about him for advice and counsel.

Your committee has just learned that the representative for Detroit in the House, Mr. Corliss, has recently introduced a bill to enlarge the Marine-Hospital and naval interests, so as to embrace the controlling of the States in medical matters by it, and so wipe out the chances of getting the bill passed that has met with the approval of the majority of medical men of the United States, and which we have above given the summary of. This we regard as inimical to the best interests of medical and sanitary control. We all know the offensive ways of these "water" medical boards, and your committee verily believes it will be a sorry day for the medical profession of the United States when this general control shall pass under the thumb of the bickering Marine-Hospital Service. Hence we offer the following resolutions for immediate action of this Society:

Resolved, That we, the members of the Michigan State Medical Society, view with alarm any attempts of our government to substitute a Marine-Hospital bill or medical Navy bill for the one now before Congress that has met with the endorsement of the American Public Health Association and the approval of the committee from the AMERICAN MEDICAL ASSOCIATION, the largest body of medical men on this continent.

Resolved, further, That a copy of these resolutions be sent to Representative Corliss, asking for his withdrawal of the bill he introduced, if possible, as being unrepresentative of the wishes of the medical profession of the United States.

Resolved, further, That a copy of these resolutions be sent to each Michigan Congressman asking for his help to defeat the Corliss bill, in case it is not or can not be withdrawn, and that each member of this Society write a personal letter to his Representative, asking him to use every means possible to defeat the Corliss bill.

Resolved, further, That the representatives from this Society to the next meeting of the AMERICAN MEDICAL ASSOCIATION be instructed to advocate measures looking to the defeat of this Corliss bill, when they meet with that great body of medical men so soon to assemble at Denver.

Resolved, That a copy of these resolutions be sent to the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for publication.

Signed, C. HENRI LEONARD, Chairman,
A. W. ALVORD.
D. W. C. WADE.

On motion, the report was unanimously adopted.

The committee appointed to consider the establishment of a Michigan State Medical Society journal, reported through the chairman, Dr. Hugh McColl of Lapeer, that after considerable correspondence with States which publish their transactions in journal form, the committee does not recommend any change in the present method, namely, of issuing an annual volume of Transactions.

The report was adopted.

Dr. H. W. Longyear of Detroit, delivered the annual address as orator of the section on obstetrics and gynecology, entitled

CONSERVATISM IN ABDOMINAL AND GYNECIC SURGERY.

He said the history of abdominal and gynecic surgery showed a very slow state of development until the advent of asepticism gave it an impetus that has caused more history to be written on these two branches of the surgical art than was recorded during all preceding times. Reference was made to the discoveries of Lister, which was the beginning of the bright era of surgery. The fearlessness of the peritoneal cavity had led to extensive experimentation within its once sacred precincts, much of which is already yielding large returns in the lessening of human suffering, the saving of human life and the glorification of the science and art of nineteenth century surgery. There was already springing up a class of operators in America, men of experience, skill and integrity, who were adopting the conservative plan in the matter of diseased appendages and of hysterectomy. Normal ovaries were not removed, and some operators even advocate the leaving of small fragments of healthy ovarian tissue, when possible, for the purpose of preserving the natural functionation of the generative organs. Healthy tubes were left *in situ*, and catarrhal uteri were treated by other methods than by removal.

Dr. William Fuller of Grand Rapids, delivered the annual address as orator of the section on surgery and ophthalmology, entitled

THE RELATION OF ANATOMY TO SURGERY AND MEDICINE.

He said, the present neglect of anatomy had arisen from the establishment of the laboratories in chemistry, physiology, pathology and bacteriology, besides the introduction of studies upon comparative anatomy and embryology, all of which might be of great scientific value, but certainly they had in his opinion deprived the medical student of the time and opportunity necessary to the acquisition of that knowledge which in practice will be of everyday use to him in the diagnosis of disease and at the side of the operating table. He believes that advanced courses of instruction, as preparation for the practice of specialties, for positions in the army and navy, railway surgeons, health officers, physicians of asylums and other public institutions, would be of great service in qualifying men to fill these responsible positions. If such degrees of qualifications were established by medical schools, it would surely follow that such degrees would be recognized by legislation, and that appointments would be made from among those who were especially adapted by a particular course of study. If some such plan of medical education was adopted there would be less excuse for the neglect of the primary and practical branches of medicine.

Joint Session of the Three Sections.

At this session there was a symposium on

SEPTIC DISEASES OF THE ABDOMEN AND PELVIS.

Dr. Charles T. McClintock of Detroit, discussed the etiology. For the production of sepsis in the abdominal and pelvic organs, as elsewhere in the body, two things were necessary: 1. The source of infection. Without bacteria there is no sepsis. 2. Lowered resistance of the tissues; healthy normal tissue does not suppurate. It was only in dead, wounded or weakened tissue that the suppurative bacteria grew and produced pus. The source of infection may be a suppurating focus in any portion of the body. We may have a peritonitis, the source of infection being an erysipelas of the face, or a suppuration in the foot. We have abscess of the liver traceable to amebic dysentery located in the colon. Of the causes that enfeeble tissues and render them susceptible to suppuration, probably inflammation is the most important, and this inflammation may be brought about in several ways. There are many examples where infection is traced to the open Fallopian tubes. Instances were cited. Tuberculosis of the genital organs is much more common in the male than in the female, yet peritoneal tuberculosis is very rare in the male, while not uncommon in the female, apparently pointing to infection through the Fallopian tubes.

Dr. Herbert M. King of Grand Rapids followed with a contribution on the blood. He showed a few of the practical advantages accruing to the practitioner by examinations of the blood in the diseases under discussion. There are generally recognized three distinct degrees, if not kinds, of sepsis, in any one variety of which the blood presents certain modifications not always, however, sufficiently marked to make the differential diagnosis a matter of certainty. The first and mildest form, termed by Bergmann fermentative fever, septic or resorption fever, is by many thought to be in reality a very mild sepsis, where for unknown reasons the pathogenic micro-organisms are at least virulent or where conditions of the body are such as to overcome immediately the toxic effects and to resist development from absorption of further toxic material. Such so-called reaction as tends to the absorption of small blood clots, post-operative, or following extravasation of blood from contusions, or perhaps a slight febrile reaction occasionally following parturition, subsiding within a few hours and without any untoward results, are all representative of this form of sepsis. In these cases the blood was less often studied.

The second form or degree is that most frequently met with, the one in which the reaction in the blood is most marked and characteristic, and in which the natural course tends to recovery, but which by long continuance of the septic leak in the circulation, or the supervention of the third and most malignant form, not rarely terminates fatally. This is a septic intoxication due to the entrance into the circulation of the toxic products of pyogenic organisms, but not to any extent of the organisms themselves. This is the common puerperal sepsis ending in recovery; or appendicitis, where the inflammatory focus remains localized; or the common form terminating in recovery following abdominal section, etc.

True septicemia constitutes the third form or degree of sepsis, and is distinguished from the other forms by the entrance into the circulation of sufficient numbers of pyogenic organisms themselves to overcome resistance, either in the form of phagocytosis or antitoxemia.

Blood examinations are of inestimable value as diagnostic aids in distinguishing between sepsis arising from pelvic and abdominal sources and certain diseases, which from clinical appearances simulate it closely. The state of the blood also aids greatly in the prognosis of septic disease, and is an indication for operative interference. Surgeons are more and more availing themselves of its aid, and with the establishment of a clearer comprehension of the causes of leucocytosis and the origin and destiny of the various elements, both normal and pathologic in the blood, there will no doubt be thrown a new light upon the history of the disease under discussion, as well as upon many others.

Dr. H. B. Osborne of Kalamazoo dealt with septic infection of the peritoneal cavity, its diagnosis and treatment from a medical standpoint. He enumerated some of the standard measures used in the treatment of the disease. He thought that we still had other valuable aids in the nucleins, the antistreptococcic serum, and the allotropic form of silver, brought to the attention of the profession by Dr. Credé of Dresden, at the International Medical Congress held in Moscow last year. This preparation is readily absorbed when applied to the skin and is soon found in the blood, the intestinal contents and the urine. The nucleins may be used per os and hypodermically. When a microscopic examination shows the presence of streptococcus infection, antistreptococcic serum should be used. In peritonitis arising from appendicitis, just so soon as the diagnosis is fully made he thinks the case becomes a surgical one and operative interference should not be delayed. When peritonitis arises from tubal infection a longer delay is justifiable with the hope of relieving the patient by remedial agents.

Dr. Hugh McColl of Lapeer discussed the medical treatment of septic peritonitis. The medical treatment of septic infection of any part of the great lymph sac (the peritoneum) is much the same. Whether the poison is in the pelvic cavity or in the region of the appendix, or in the liver or kidney, the cardinal principles of treatment are similar. The first and most important of all was rest, absolute rest. The patient should be put to bed and kept perfectly quiet till fully convalescent. If the temperature is high and pain severe, the cold coil will give relief and diminish the tendency to extension of the inflammatory process. In some cases, however, heat is better borne and should be continuous at as high a degree as the patient can bear, never allowing the temperature to fall. With either the hot or cold constantly kept up the diminution of blood supply is brought about and the exudate is lessened. Hot vaginal and rectal douches were very useful to relieve pain and to supplement the external applications when the inflammation is confined to the pelvis. Liquid nourishment in concentrated form should be used and no solids given till convalescence is established.

Dr. William F. Metcalf of Detroit spoke of the surgical treatment of septic diseases of the pelvis, and outlined the general principles which governed him in dealing with these

conditions. The character of the invading micro-organism, the location of the resulting lesions, the reflex disturbances, the resistance of the tissues, the age, circumstances and environment of the patient were the determining factors in the method to be employed. In cases of endocervicitis the application of equal parts of Churchill's tincture of iodin and carbolic acid was effectual. In many cases the sphincter at the internal os guards effectually the corporeal endometrium from invasion.

The author next considered septic invasion of the endometrium of the non-pregnant uterus. When a collection of pus is below the wall which separates the pelvic from the abdominal cavity, free vaginal incision and drainage were all that was required, provided the damage to the uterus and its appendages could be remedied, and in many cases where a radical operation was indicated, it was advisable to precede it by vaginal incision to relieve septic symptoms and increase the vitality of the patient. A typical case was cited in support of the above statement. The experience of the author leads him to assert that there is much less shock attending work done through the vagina than by the abdomen.

Dr. CHARLES B. NANCREDE of Ann Arbor spoke on the surgical treatment of peritonitis and stated, in the form of propositions, certain facts as they appeared to him, without any explanation or defense of the position assumed on account of the great scope of the subject and the limited time at his disposal. Post-operative peritonitis or that following infective processes in a parietal wound was usually a mixed infection, the predominating organisms being pyogenic cocci, rarely bacilli. The occasional presence of bacilli in conjunction with other micro-organisms, *i. e.*, mixed infection, shows that the surgeon is not always blameworthy because bacilli may either intensify the action of other germs present in too small number to be harmful or actually be the chief factors in a peritonitis following operative interference. Intestinal paresis can best be prevented by early operation because it results from an infective process which can often be successfully combatted in its earliest stages. Increased frequency of pulse, especially when out of proportion to either temperature or respiration, more surely indicates the need for operation than any other symptom. High temperature, great pain and abdominal distension, with or without vomiting, may be and often are sufficient indications, but may all be absent in some cases most urgently demanding surgical interference. Any extension of a peritonitis, shown either by an increase of the local or general symptoms, still more by both, usually demands prompt intervention as a life-saving measure. Generalized, *i. e.*, septic peritonitis, can not be efficiently treated by mere irrigation and the introduction of drainage tubes. Too much stress can not be laid upon the imperative necessity of previously walling off of the general peritoneal cavity by careful packing with gauze when opening any intra-abdominal pus collection, which alone renders the procedure either justifiable or safe. The pus, when possible, should be removed by pieces of gauze or sponges, rather than by irrigation, which might diffuse the infective material over a wider area. Irrigation, however, is sometimes the sole or most efficacious means of removing the pus. When doubt exists as to the necessity for drainage, the introduction into the peritoneal cavity of one or two pints of warm saline solution, close suturing of the wound, and elevation of the foot of the bed for about eighteen inches will often prove sufficient. This position tends to relieve the abdominal distention, favors the normal peritoneal current toward the diaphragm, the peritoneal covering of which Clark has shown plays an important rôle in the removal of fluids and germs from the abdominal cavity. Assumed immediately after operation, it materially lessens accumulation of blood in the abdominal viscera, one of the most important factors in preventing shock and lessens the tendency to oozing. Codein rather than morphia must be employed to secure sleep. Morphia if never indicated in the opinion of the author as a curative agent and should be rarely needed to secure sleep. Tubercular peritonitis is best treated by incision, separation of soft adhesions, free irrigation and closure of the wound without drainage.

Dr. W. H. HAUGHEY of Battle Creek read a paper in which he described "The Haughey Suture." A description of this suture was published in the JOURNAL Feb. 20, 1897, p. 346.

Dr. JOSEPH B. GRISWOLD delivered the annual address as President, entitled

WHERE ARE THE NINE?

He outlined the history of the art of medicine from the earliest times and traced the growth and development of it down through the Greek and Roman schools to date, referring in the highest terms to the code under which Hippocrates practiced as perhaps as perfect a one as that under which most physicians worked today. The speaker discriminated between medicine as a trade and medicine as a profession, pointing out that the difference was that existing between manual and mental labor. He censured severely the indiscriminate publication of successful surgical operations in the daily press as being on a par with the efforts of the tradesman to advertise his business. Who benefits by these publications but the operator? The habit was both undignified and pernicious. In spite of the recognized desire of newspaper reporters to get any and all the news they could, all high-minded physicians should refuse to cater to the natural inclination to put themselves in print. He referred to the necessity for every physician to keep himself in touch with the development of the profession. In these days, when tradesmen of all classes are high school, if not college, students, have their trade journals and maintain a high standard of education, the physician must keep up a continual course of study for the sake of the dignity of the profession. Dr. Griswold dwelt on the subject of medical legislation and said that all attempts in that line in Michigan had proved abortive. Nothing had been done to free the people of the State from parasitic quacks and sham doctors. He accounted for the lack of such legislation on the ground that every bill presented met with violent opposition from the profession itself, and every bill emanating from the profession was looked upon by the legislators with suspicion.

The Chairman of the Executive Committee, Dr. E. S. SHERRILL, had prepared an excellent entertainment which followed the President's address.

In the Section on Obstetrics and Gynecology Dr. JAMES G. LYNDS of Ann Arbor reported two interesting cases. The first was an unusually large ovarian tumor with numerous complications, the details of which were clearly set forth. Six weeks after operation, when the woman had gained probably twenty or twenty-five pounds in weight, she weighed 154 pounds, just 111 pounds less than before operation, so that the speaker estimated the weight of the tumor at 125 pounds, the largest tumor, so far as he knew, that had ever been successfully removed in the State of Michigan. The second case was one in which the production of premature labor was scarcely to be considered on account of the unfavorable position of the cervix and uterine axis, which would render the use of forceps, version or embryotomy unquestionable, and, in the opinion of those who saw the case, more formidable and dangerous than Cæsarean section. The author consequently selected the latter and decided that the Porro-Mueller modification was the precedure best adapted to the case. The case emphasized the value as well as the necessity of seeing such patients early, carefully weighing the value of each and every procedure and electing the one best adapted to the case, as well as the time most favorable for its performance.

Dr. A. N. COLLINS of Detroit, discussed the practical value of proper diagnosis of presentation in instrumental delivery. He said that if we are to use forceps intelligently, it is necessary to use them in conjunction with our knowledge of position as rotators first, as pulling instruments second. When we have become skilled in this, the cases will be found few and far between where the light Eliot forceps will not answer all purposes, and we will not need the lithotrite attachment except in cases demanding craniotomy.

Dr. J. PLAYFAIR MCMURRICH of Ann Arbor, reported an exceedingly interesting case of fusion of two kidneys. The speaker had looked over the literature of the subject of anomalies of the kidney as far back as 1623, and had only been able to find twenty-seven recorded cases similar to the one he had shown, his being the twenty-eighth case.

Dr. J. A. PORTER of Brooklyn reported an interesting case of kraurosis vulvæ.

Dr. E. M. HOUGHTON of Detroit read a paper entitled "Ergot Aseptic."

Dr. J. H. KELLOGG of Battle Creek, contributed a paper in which he dwelt upon physical training as an essential factor in the radical curative treatment of the chronic pelvic disorders of women.

In the Section on General Medicine Dr. William Fuller of Grand Rapids, exhibited several interesting pathological specimens, Dr. F. G. Novy of Ann Arbor, discussed the subject of, 1, the disinfection of rooms, and 2, the etiology of yellow fever.

Dr. C. D. AARON of Detroit, spoke of chronic dyspepsia and chronic catarrh of the stomach.

Dr. A. W. CRANE of Kalamazoo, read a paper in which he dwelt upon the missing links in the chemical examination of the blood.

Dr. C. G. JENNINGS of Detroit, made some remarks on infantile scurvy in Michigan. He was followed by Dr. F. W. Robbins of Detroit, who spoke on disease of the seminal vesicles.

In this Section, other papers that were read are as follows:

"Epidemic Jaundice," by Dr. E. H. Pomeroy of Calumet; "Sensory Nerve Endings in Striped Muscles," by Dr. G. C. Huber of Ann Arbor; "Syphilis of the Nervous System," by Dr. Charles W. Hitchcock of Detroit; "Vapor Massage in the Treatment of Respiratory and Aural Affections," by Dr. H. M. Dunlap of Battle Creek; "Minute Pathology of Acute Pancreatitis," by Dr. A. S. Warthin of Ann Arbor; "Antitoxin and Intubation, with a Report of One Hundred Cases," by Dr. B. R. Shurly of Detroit; and "Saline Cathartics," Dr. A. R. Cushny of Ann Arbor.

Dr. Samuel Bell of Newberry, contributed a paper in which he spoke of some of the results of the administration of the thyroid extract upon the red and white corpuscles and hemoglobin in cases of anemia associated with melancholia.

In the Section on Surgery and Ophthalmology, Dr. C. D. Aaron spoke of transillumination of the stomach, and made a demonstration upon a living subject.

Dr. W. F. Strangways of Flint, read a paper entitled "The Four Tonsils; Some Things Experience has Taught me."

Dr. H. O. Walker of Detroit, read a paper on the radical cure of hernia by the Fuller method, and reported interesting cases.

Dr. I. N. Brainerd of Alma, reported cases of brain surgery.

Dr. Theodore McGraw of Detroit, discussed Bottini's operation.

Dr. J. Henry Carstens of Detroit, read a paper on nephrectomy.

Dr. Fritz Maass of Detroit, spoke on the subject of the importance of rapid pulse in appendicitis. Does it contra-indicate operation? Dr. S. C. Graves of Grand Rapids, followed with reflections on the treatment of appendicitis.

Dr. F. B. Walker of Detroit, read a paper entitled "Some Remarks on the Practice of Surgery."

The following officers were elected for the ensuing year: President, E. L. Shurly of Detroit; first vice-president, A. W. Alvord of Battle Creek; second vice-president, Rush McNair of Kalamazoo; third vice-president, D. W. C. Wade of Kolly; fourth vice-president, J. Van der Laan of Muskegon; recording secretary, Collins H. Johnston of Grand Rapids; treasurer, C. E. Hooker of Grand Rapids. Place of meeting, Kalamazoo.

Medical and Chirurgical Faculty of the State of Maryland.

One Hundredth Annual Session, held at the Hall of the Faculty at Baltimore, April 26 to 29, 1898.

First Day—Afteenoon Session.

The session was called to order at 12 o'clock noon, Dr. Chas. M. Ellis of Elkton, President, in the chair. Drs. J. Williams Lord and Robert T. Wilson, Secretaries.

Dr. Charles M. Ellis, the President, spoke of the improved financial condition of the Faculty, and referred to the fact that in one year we would celebrate the completion of the one hundred years of existence as a medical society, and we hoped then to have all our debts paid and a sum of money as a surplus laid by. Up to the present time fifty-one members had applied for admission.

Dr. J. B. Purnell of Snow Hill, then read a paper on "School Desks, Eyesight, etc., Cases in Practice, Alcohol and the Gastric Secretions," in which he spoke of the size of the school desk in proportion to the children using them, and the effects it had on the eyesight, and referred also to the adjustable school desk. He mentioned several cases in which he had especially good results from the use of ordinary drugs, and in conclusion, referred to some of the ill effects of alcohol on gastric secretion.

Dr. Edward Anderson of Rockville, read a paper entitled

THE ANTISEPTIC OR GERMICIDAL TREATMENT OF DISEASE.

He said that we should not rely too much on text-books but use our own experience. We do not remember in using germicides that the blood has marked germicidal properties, and we should also bear in mind that such substances as common salt have a certain amount of antiseptic and germicidal power. In many cases of infant diarrhea he had found great benefit from antiseptics, and thinks that as soon as physicians cease to consider these as local troubles, the better it will be for the patients themselves.

Dr. W. B. Platt made report of

THIRTY-FIVE CASES OF HIP-JOINT DISEASE TREATED AT THE ROBERT GARRETT HOSPITAL FOR CHILDREN.

He said that hip-joint trouble is one of the most tractable diseases when treated early, but when treated late, one of the most intractable diseases. There is always a serious question about when to operate and when not to operate. Sometimes it is better to do it early and sometimes late. It depends on the condition of the patient, surroundings, etc. Some cases can not be kept in the hospital long and do not recuperate properly after the operation. The results after resection of the hip-joint are often very good even when done late. He had two or three cases of his own in mind—two doing well, and one not so well. One is wearing a brace and high shoe. The third case died of shock soon after the operation, but died outside of the hospital. Some cases will recover after careful curetting of the sinuses and cleaning them out. Hip-joint cases are extremely susceptible to eruptive diseases. He noticed that in the large number of cases he had in the Robert Garrett Hospital those with hip-joint trouble had been especially affected by such diseases as measles and scarlet fever. Joint diseases are usually attributed to injury, but this cause can not always be relied upon. In nine out of his thirty-five cases there was a clear history of injury. In eleven the right side was affected, and in twenty the left side was affected, and in these thirty-five, seventeen were boys and eighteen girls. Twenty-three had no sinus, and twelve had them. He showed two very interesting cases of double hip-joint disease, which were making a very good recovery.

Dr. Anderson, in commenting on this paper, said that he had often noticed a great amount of counter-irritation, and that when one hip became diseased the other grew better. He noticed also that in cases of consumption, when sinus was established, the lung trouble often grew better.

Dr. Platt said that it had been said that heredity played a great part in these hip-joint diseases, some asserting that it was hereditary for two generations back. Tuberculosis is so common that it is a little uncertain whether that has the influence it is said to have. We know that so many of these cases die of tuberculosis, but he did not think that the joint trouble was necessarily the cause of the tuberculosis. There is no reason why these hip-joint cases should die, and in fact, many do not die.

Dr. J. C. Harris spoke of the extreme tenacity of life exhibited by some cases of hip disease and instanced cases in his own recollection.

Evening Session.

After reading the minutes of the previous meeting, Dr. Charles M. Ellis, President, delivered his address entitled

THE COUNTRY DOCTOR.

He showed how the country doctor differed from the town doctor; what his needs were and the difficulties for overcoming them, and finally made some suggestions for helping him. He made no attempt to throw around him the glamor of romance and poetry, but exhibited the man only as he knows him, with all his virtues and his vices; often without the proper equipment; with no help at hand as in the case of the city physician. He then gave a very minute description of the life, habits and characteristics of the country doctor. Many a physician in the country grows to be a very important man, and takes the lead in his community, and such a man may have many faults, but they are known more to himself than to his neighbors. Such a man gains the respect of all around him, and soon grows into the perfect family doctor. He makes no attempts to specialism, but is ready in all emergencies. In surgery, obstetrics, in skin diseases, in fact, in any department he must be ready to act without consultation. And while he must succeed in all branches of surgery, he is also successful, as a rule, in internal medicine. There are few such men who can fill all these requirements, but the type serves to show the difference between the city and the country physician. But men who are so successful rarely stay in the country. Like Sims, Agnew, Goodell, and others, they soon find their way to the large cities where they make their mark.

The greatest objection to the country doctor is that, as a rule, he takes a short course in medicine, and then is launched upon his field of labor without any further experience. The city doctor has the advantages of medical societies and intercourse with colleagues and post-graduate experience, while the country doctor has to exercise his own ingenuity, and it is in the constant exercise of his own natural resources that his education is completed. It is this habit of self-reliance that makes him such a capable man, but he also may become too conceited and have too much self-esteem and self-possession. Then, in a small place there are the effects of social surroundings and professional jealousies which are more felt than in the large cities. The city and country doctor are supposed to be alike at the start, but the city doctor soon leaves the country one far behind. There is one way in which the facilities of the country doctor might be improved, and that is by the establishment of cottage hospitals throughout every community. Then again, the country doctor should take a post-

graduate course at the end of his fifth and his tenth year, and nothing should ever prevent his doing this. The county medical society should also be cultivated and the meeting never be missed. The country doctor should also belong to the State society, and this he should consider important second only to his own county society.

The want of books and the absence of hospitals is a great drawback to the country doctor. This could be, in part, prevented in Maryland by the State Faculty library. The country physician hesitates to read a paper before the city society on account of the critical audience. Educational clubs in country districts can help to enlighten and instruct the country physician, and books could be distributed by means of the cottage hospitals, and if there are no such hospitals, then the drug stores may be used as centers. There are nearly four hundred such cottage hospitals in Great Britain, a few in New England, and none in Maryland or the South. In the cottage hospital the country doctor can gain a certain amount of experience in exhibiting and in studying the various cases. He can perform a certain number of autopsies and have the advantage of using the microscope. The first hospital that was established in England was in 1853. There were no trained nurses at that time, but they have become very important now. There is very poor nursing in the country districts. The nurse not only helps the doctor, when in attendance with him, but she acts as subsidiary physician, and pays visits when he can not come. She should be an adaptable woman of good moral tone.

Some say that it would be very difficult to establish such hospitals, but in Maryland with the aid of the Faculty it would not be at all difficult. Assistance could be had from the State treasury, from the County treasury, from private subscriptions and from various organizations. The county medical officer could also act as bacteriologist and pathologist. Thus could be formed a kind of medical society. It would be a sort of university extension teaching, as it were. It would cause a great addition to the membership of the Faculty, and would be a power to command respect to their demands.

Dr. WM. S. GARDNER then read a paper entitled "The Vaginal Operation for Extra-Uterine Pregnancy." He related a series of cases, and showed that while these operations were not at all easy and that the number of cases reported were very small, still the success has been favorable, and it was evident that this was a very practical method of treating extra-uterine pregnancy.

Dr. H. A. KELLY said this matter was extremely important, and that it was one of the more serious and dangerous operation, but when properly done saves the woman from unnecessary mutilation. The operation as formerly done was to tie up the vessels and thus ward off the danger from hemorrhage. Another way was to open the cavity through the posterior vaginal vault, clean out the clots and thus save the patient. But there should be one word of caution to surgeons who do this operation. They must be prepared to open the abdominal cavity and take out all the structures necessary. All of his cases got well but one.

Dr. THOS. S. CULLEN spoke of the "Pathology of Endometritis." This inflammation of the uterine mucous membrane occurs in the acute and chronic stage. The histologic appearance of the epithelium covering the mucous surface is composed chiefly of large nucleated leucocytes; the epithelium is swollen and somewhat distorted. The uterine glands may be normal in part but the mouths of the glands are very much swollen, and there are many pus cells present. In chronic endometritis the mucous membrane is highly granular and has an appearance like polypi. Between the acute and the chronic stages are all transitions. The term granular endometritis is highly improper and should be abandoned. Endometritis is supposed to be very frequent but he has found only forty-nine cases in 1800 gynecologic cases at the Johns Hopkins Hospital. The treatment consists in dilating and curetting the uterus. Dr. Cullen exhibited several drawings.

Dr. HOWARD A. KELLY said that endometritis was exceedingly rare, about only one case in fifty that go to the clinic being really endometritis.

Dr. WM. H. WELCH said that some considered chronic endometritis very common and some rare. It is not uncommon to have variation in the number, shape and size of the uterine glands, and it is not right to call this endometritis even if it is clinically so. These scrapings are not normal, but they are irregular in shape and size and there is a sort of hyperplasia. There are cases with actual change in the stroma with hyperplasia of the stroma cells. As to the value of microscopic diagnosis of the scrapings, this is particularly of value in cancer. Many physicians are careful in risking a diagnosis in examining these scrapings. The negative results do not necessarily convince us, but experience has shown that cancer cells will usually show themselves in the scrapings.

Dr. B. B. BROWNE said that many cases of so-called endometritis got well after curetting, and we did not know what they were until the scrapings were made, that is, we do not make the diagnosis until they have been treated by scraping, so that the diagnosis does not make much difference.

Dr. CULLEN said, in conclusion, that he agreed with what Dr. Welch said; in his cases and a study of specimens found, the scrapings and specimens were hardened in different fluids.

Dr. W. W. RUSSELL then read a paper on "The Treatment of Tuberculosis of the Uterus and Fallopian Tubes," and said that the principal work had been done by Dr. J. Whitridge Williams of Baltimore. He said there were two forms of tubercular salpingitis, one in which the disease is found in the abdominal cavity and in the tubes, and the other in which it is found in the tubes, while the abdominal cavity is not necessarily affected. He had no cases of the first sort and twelve of the second. The uterus is found to be tuberculous in every case in endosalpingitis. If the disease is limited to these organs then the affected tissues should be removed, and the patient's general condition should be looked after, but if tuberculosis is in other parts of the body then it is useless to operate, and when there is dropsy and other symptoms, operation is not necessary. He then spoke of the various methods of removing the ovaries and the manner, whether by the abdominal or the vaginal. By the latter the dissection should be made carefully. He then described the operation in detail. He said that few cases are recognized soon enough to be operated on, and this is true in many of Williams' cases. Diagnosis is made in about one-half of 1 per cent.

Dr. HOWARD A. KELLY then read a paper entitled "Treatment of Fibroid Uteri." He said that rapid strides had been made in doing this operation, and it was but a little while ago that we hesitated to take out these tumors. This operation has gone through several stages in the last fifteen years, for at that time they were removed in a very haphazard way. The abdomen was opened, the uterus was pulled out, the peritoneum was sewed down around the uterus and pinned to it and the stump was left to mummify and slough off. Schroeder, of Berlin, urged us to treat this by creating a pedicle and dropping it back into the cavity with the result of a large mortality from sepsis. Futsch of Breslau, and Kelly of Baltimore, were the first to do the operation in the more modern way to avoid sepsis and hemorrhage. They stitched the peritoneum around the uterus. About this time, Stimson of New York suggested ligating the four sources of blood supply, and after tying these vessels the stump could be dropped back, and there was no sepsis. The technique is important and so is the time. It used to take from one-half to one hour to complete this operation, and then often the patient died. It was necessary to break up the adhesions and tie the vessels, but now the operation can be done in three minutes and the mortality should not be more than 3 or 4 per cent. He referred to two young women who had fibroid tumors, who were both engaged to be married, on which he had operated with success. He bases his remarks on an experience of ninety-one cases. He took out the tumors in these cases and left the uterus, and undoubtedly this can be done in nearly all cases, especially with women in the child-bearing period. He had four deaths in these ninety-one cases, but none in his experience became pregnant afterward. He wears gloves, uses gauze, and looks out for hemorrhage. He urges conservatism in the treatment of these cases, and also as to any operation.

Dr. THOS. S. CULLEN said that one of these cases which died was through his fault and not Dr. Kelly's. In one case which Dr. Kelly operated on she had had four miscarriages. He never does a myomectomy if he finds any evidence of sepsis in the tubes.

Dr. B. B. BROWNE then read a paper entitled "The Removal of Submucous and Intra-Uterine Fibroid Tumors by Enucleation and Traction," in which he mentioned a series of cases and showed results.

SECOND DAY—MORNING SESSION.

The minutes of the previous meeting were read, corrected and adopted, and fifty-two new members elected.

Dr. JACKSON PIPER then read a paper on "Interstitial Pneumonia," in which he related three cases, tending to show that: 1. Interstitial pneumonia, the result of acute pneumonia, is amenable to treatment even after some months' duration; 2. That a consolidation under the second day will terminate either in gangrene or consumption. His conclusions were that it was never well to leave a patient with unresolved pneumonia until all remedies had been tried.

Dr. J. E. GICHNER then made some remarks on

STATE SANITARIA AS A MEANS TO DIMINISH THE SPREAD OF TUBERCULOSIS

and said that the cause of disease is distributed by the consumptives, and that there is no place in Maryland where patients can be exclusively treated and taught how to live. Many cases get well without suspecting infection and the patient tends to recover when given the opportunity to create resisting tissues, and this tends to explain the many cases of recovery. He thought the best results of our labors to cure the disease were to prevent it. Physicians should be sanitarians. There should be a State sanitarium where patients should be treated properly.

Dr. WM. B. CANFIELD said he thought that one point which Dr. Gichner made was especially good, *i.e.*, that patients tended to get well when given the opportunity to create resisting tissues. He had been connected with a small hospital for the treatment of consumptives in the city of Baltimore, and had noticed a marked improvement in cases which had received no medicine, but only food. This hospital is supported entirely by private contributions and receives no city or State aid. There had been treated in the last two years, forty-two cases, and of these, probably one dozen had so far recovered that they were able to return to their former occupations. This hospital is for the treatment of incipient cases only and he would be glad to have physicians throughout the city and State, who had cases of early tuberculosis, notify him and they would receive free treatment.

Dr. GICHNER said in reply that he had purposely not mentioned this institution because of its being a private one and being situated on a dusty street where cars passed, and not in accordance with his ideas.

Dr. JOHN RUHRAEH then made a report of

A YEAR'S WORK IN THE PREVENTIVE TREATMENT OF RABIES.

He said that in the year past, at the Pasteur Institute of the College of Physicians and Surgeons, thirty-five cases had been treated, with no deaths. He was glad to say that the Germans had taken up the Pasteur treatment. Statistics of this institution would be issued yearly. He had divided his cases into three classes: Those bitten by animals which were undoubtedly rabid and proven so by inoculation experiments; those bitten by animals whose condition has been verified by a competent veterinarian; and those bitten by animals which are said to be rabid by others than veterinarians. His cases were principally from the first and third classes. Then it is necessary to classify the cases according to the position of the bite, as to whether the animal bit through the clothing or into the skin directly. If cauterization is to do any good it has to be done within the first half hour, and when done an hour or more later it is perfectly useless. The actual cautery or a hot iron will suffice. Nitric acid is the best chemic agent; nitrate of silver is perfectly useless, yet many physicians use this. There seems to be a great prevalence of rabies in Baltimore and surrounding counties. It seems to occur periodically among animals from time to time. Of the thirty-five cases treated, twenty-five were bitten by animals that were proved to be rabid afterward, and ten by animals so suspected. He then compared his statistics with those of other institutions.

(To be continued.)

Tennessee State Medical Society.

The Sixty-fifth Annual Meeting, held at Jackson, Tenn., April 12, 13 and 14, 1898.

FIRST DAY.—MORNING SESSION.

The session was opened with prayer by the Rev. G. T. Sullivan, pastor of the First Methodist Church, Jackson.

The first paper read was on the

HYGIENE AND MEDICAL SUPERVISION OF PREGNANCY,

by Dr. J. H. Preston of Humboldt.

He believes it to be the duty of the husband to early acquaint his physician that his wife is enceinte and place her under his supervision. Under normal conditions there might be little or nothing for the physician to do but give instruction regarding general hygienic regulations. But under our modern social regime, which is so full of various dissipations, he will sometimes have his hands full in getting instructions carried out. One of the greatest difficulties is in the matter of dress. A great many women are so loath to give up their social relations that they will persistently dress in a manner that is highly deleterious. Some will lace themselves in an attempt to hide their condition, as though their prospective maternity were a crime or disgrace. Moreover, some pregnant women immure themselves from all out-door exercise and fresh air and thus become victims of lassitude, rendering themselves unfit for the ordeal toward which they are tending. The prospective mother should have loose but comfortable fitting garments of medium weight, suspended mostly or entirely from the shoulders, without corset unless it be one especially provided for the pregnant condition. Many complications arise during pregnancy and at time of delivery because of improper dress, which may also have its influence in faulty development of the fetus. We should have a happy cheerful woman during pregnancy to expect a happy uncomplicated delivery of a healthy baby and a safe passage through the puerperal state. Maternal impressions affect the exterior of the fetus as well as its mental organization. The wise physician should aim to direct the mind of his patient as well as her physical welfare. Almost any disease may supervene in the course of gestation, thus engendering a grave complication, or pregnancy may occur and often does in spite of some chronic or inherited disease. Pregnancy may be the exciting cause which arouses some latent disease or predisposition to disease into activity. Besides, there are a number of disturbances that might be termed physiologic phenomena, such as the vomiting of pregnancy, neuralgia of the teeth independent of caries, cough and dyspnea. One of the most fatal diseases in the pregnant state is pneumonia, which can almost always be avoided by proper hygienic care. Diseases of the urinary system call for intervention perhaps oftener than any other class of troubles. Irritability of the bladder and dysuria occur often in first pregnancies, while incontinence is met with more frequently in later pregnancies. Retention of urine in pregnancy is sometimes a very grave accident. It may be attributed to reflex contraction of the neck of the bladder when met with early in pregnancy, but it is most frequently met with as a symptom of retroversion at about the fourth month, or later as a result of cystocele. But the renal function requires most care in the pregnant woman. Four forms of renal disease may be met with in pregnant women, viz., acute and chronic parenchymatous and interstitial nephritis, and a special form peculiar to pregnancy—pregnancy kidney or pregnancy nephritis. The last begins and ends with the pregnant state. The symptoms are edema and albuminuria. The course is usually favorable but eclampsia may supervene with sudden increase of albumin and dropsy with lessened excretion of urine. Acute nephritis may cause eclampsia, but it rarely occurs in the chronic form. For grave albuminuria the absolute milk diet is the best treatment. External palpation of the abdomen after fetal viability may give some information regarding the position of the fetus or multiple pregnancy. Every women in her first pregnancy, or who has had special difficulty in a previous parturition, should be examined by external and internal pelvimetry about the seventh or eighth month. If the labor promises to be long, painful or difficult from obstruction of any kind, the obstetrician ought to know it in advance that he may elect at a proper time before parturition whether to choose the induction of a premature labor, to depend upon the use of the forceps or to resort to podalic version, symphyseotomy or a Cæsarean section and thus avoid craniotomy. Often we are asked if there is no means of making child-bearing easier. The essayist had attended women who had used preparations advertised for this purpose, but had not seen any benefit.

The paper was discussed by Drs. J. S. Nowlin of Shelbyville, T. J. Happel of Trenton, Dr. Forshay, J. F. Griffin of Cronanville and Dr. Preston.

TWO CASES TREATED BY SODIUM INFUSION,

was a paper presented by Dr. W. F. ROCHELLE, Jackson. In the first case there was a temperature of 104 to 105 degrees with heart failure, loss of consciousness and other symptoms of impending death. A quart of saline infusion was injected into the veins and the pulse soon became full and quiet, dropping from 190 to 136 within half an hour. In a few hours consciousness returned and the patient recovered in the course of two weeks. The second case was that of a patient who had suffered about two years with diabetes. The symptoms of diabetic coma supervened. Hereupon some saline solution was injected into the cellular tissues with apparently no benefit. The same solution was then introduced into the veins. The pulse, which had been weak and compressible, became full and strong. The coma disappeared. This continued for three or four hours, when the injection was repeated with the same good result. The injections were continued at intervals of four to six hours for about two days, when the effect gradually failed, the patient grew weaker and died. The subject was discussed by Drs. D. J. Roberts of Nashville, J. B. Cowan of Tullahoma, Miller, J. L. Crook of Jackson, T. J. Happel of Trenton, J. A. Crook of Jackson and the essayist.

Upon motion the Society adjourned until 1:40 P.M.

AFTERNOON SESSION.

"The Pathology and Differential Diagnosis of Intestinal Obstruction," by Dr. RICHARD DOUGLAS of Nashville, was discussed by Drs. Deering J. Roberts of Nashville, W. K. Sheddan, Williamsport, W. D. Haggard, Jr., of Nashville, and by Dr. Douglas.

"Fever, Just Fever," by Dr. D. J. ROBERTS of Nashville, was a description of the peculiar continued fever found especially in the south, which is neither malaria nor typhoid fever, although resembling somewhat these diseases. The paper was discussed by Drs. J. A. Crook of Jackson, Witherspoon of Nashville, J. L. Crook of Jackson, T. J. Happel of Trenton, J. B. Cowan of Tullohoma, J. S. Nowlin of Shelbyville, W. F. Clary of Bellbuckle, W. K. Sheddan of Williamsport, J. D. Hopper, J. F. Griffin of Cronanville, and Roberts.

A PLEA FOR THE CONSERVATIVE MANAGEMENT OF UTERINE INFLAMMATIONS AND DISPLACEMENTS,

Was presented by Dr. I. A. MCSWAIN of Paris. He said: Tubercular and syphilitic infection, rheumatic and gouty conditions, general debility and enemia, may be predisposing causes of diseases and displacements of the uterus. The displaced womb may be only a part of a vast hernia of the pelvic viscera making a decent in various degrees through the pelvic outlet. Dilatation of the stomach, hepatic and splenic enlargements, the growth of tumors or constipation, may contribute to these troubles. The demands of modern society, dress, lacing, the uncomfortable load of skirts fastened around the waist are a fruitful source of uterine disorders. But by far the greater number of these cases owe their origin to negligence or ignorance during parturition or to exposure and bad treatment succeeding labors and abortions, non-observance by the attendant of the rules of antiseptic midwifery, failure to recognize and immediately repair injuries of the birth canal or perineum, and gonorrhea. Subinvolution is more often an effect than a cause. Frequently the puerperal woman gets up too soon after delivery and assumes her household duties, thus exposing her womb to many sources of infection. A flexed womb or one retroverted is in no position for drainage, and by retention of secretions provokes or perpetuates an inflammatory process.

By an examination we should ascertain the presence or absence of inflammatory disorders, the condition of the perineum, the tonicity of the vaginal walls, whether there has previously existed pelvic inflammations, and, if so, the nature and extent of the exudates or adhesions, the presence or absence of pregnancy, the size of the uterus, the length of the cervix, the condition of the ovaries, tubes and ligaments, whether there be any displacement of the organ, and if so the direction and extent, also whether the flexion, prolapse or version be due in whole or in part to the presence of tumors or enlargement of any other abdominal organ or is accompanied with prolapse or displacement of the bladder, vagina, rectum or kidney, also whether there be fistulous openings, cervical rents or abrasions, ulcers, excoriations or cancer.

In the treatment of malpositions and inflammatory processes of the uterus we should reduce existing inflammation and overcome if possible the resulting evils and restore the womb to its normal position in the pelvic cavity. The first essential is rest. The patient should be put to bed and kept quiet in both body and mind. This is especially required in all acute cases. The second essential is cleanliness, which implies antiseptic precautions on the part of the physician and nurse, bed and surroundings. The disease must then be treated much as you would any sore, that is, cleanse it. If the os is not sufficiently patulous, it should be dilated with a steel dilator and under an esthetic, every particle of foreign substance should be removed with a curette. Then thoroughly irrigate the uterine cavity with sterile water containing a proper percentage of one of the non-toxic antiseptics. Bichlorid of mercury or carbolic acid, if used at all, should be greatly diluted. Lysol, creolin, permanganate of potash, hydrogen dioxid in proper solutions, or the compound tincture of iodin, one ounce to the quart of water, are all admirable preparations for this purpose and are free from danger. Not every case will require the curette, but there are few, if any, cases of endometritis that do not require thorough irrigation. Having cleansed the organ local applications are in order. Perhaps one of the best combinations is equal parts of the compound tincture of iodin, glycerin and witch-hazel, or carbolic acid and tincture of iodin. Among the newer preparations europhen and aristol suspended in albolene have a soothing and antiseptic effect. There may be cases in which fuming nitric acid or chlorid of zinc is needed, but such cases are few and milder preparations should have preference. The third important step is drainage, which may be accomplished by inserting a drainage tube or a strip of gauze. An important step in securing drainage is to straighten the canal of the uterus. To this end all malpositions should be corrected. This is best accomplished by the use of tampons of prepared wool, which should be saturated with a solution of boracic acid in glycerin and ichthyol and inserted under the fundus, after having raised it from its abnormal position. The woman should then be placed in bed and not disturbed for thirty-six or forty-eight hours, when the wool should be removed, the vagina and uterus again irrigated and the packing replaced with fresh material. Persistence in this course will overcome the ordinary acute cases. The more chronic cases may require in addition massage, electricity, a repetition of curettage and various constitutional measures. In chronic cases with plastic exudation or where the uterus is large and heavy depleting measures are indicated. Hot vaginal douches must be used. Tampons of wool saturated with boracic acid or glycerin should be packed in the vagina and allowed to remain twenty-four hours, followed by hot vaginal irrigation, and the renewal of the packing day after day will hasten resolution of exudates, reduce the size of the womb and materially assist in restoring the parts to a normal condition. One of the best laxatives to secure daily evacuation of the bowels in cases of constipation is equal parts of sulphur, bitartrate of potash and sulphate of magnesia. After having reduced inflammation and its sequelæ and having secured absorption of exudates and the loosening up of morbid adhesions, the uterus may be placed in its normal position and retained by means of a well-fitting pessary. This does not always cure the misplacement, neither ventrofixation nor Alexander's operation. In cases where there are rents in the cervix or perineum repair is indispensable.

The paper was discussed by Drs. T. J. Happel of Trenton, Richard Douglas of Nashville, and by the essayist.

ULCER OF THE STOMACH

Was presented by Dr. J. T. Altman of Nashville. He said: Statistics show us that at least 5 per cent. of all autopsies reveal either an open gastric ulcer or the cicatrix of one that has healed. The etiology of ulcer of the stomach is not very clear, but there are three factors which enter into its production, viz., a local disturbance in the walls of the stomach, whether this be simply nutritional or due to trauma, an embolus or a thrombus; a hyperacid gastric juice, and a diminished alkalinity of the plasma of the blood. Age, sex, locality, occupation, corrosive poisons and alcohol are predisposing causes. The main diagnostic symptoms are pain, vomiting, tenderness on pressure and hematemesis. It is estimated that about 6 per cent. of all cases result in perforation. This is more frequent and fatal when the ulcer is in the anterior wall of the stomach. The differential diagnosis lies between ulcer and chronic gastritis, gastralgia, hepatic colic and cancer of the stomach. When ulcer is suspected put the patient to bed, keep him absolutely quiet and withhold all food from the stomach. Allow no food in the stomach for several days. In the meantime resort to rectal alimentation. Put only albuminous food that has been previously converted into peptones in the stomach at first, so that absorption will take place easily and rapidly and render the physiologic peristalsis and secretion of acid unnecessary. Milk that has been previously peptonized is the ideal food at first. But as this has a bitter taste it soon becomes repulsive, when we may give fresh milk with lime-water or some other alkali. By the end of the second week we may add egg albumin in the shape of raw eggs. In the third week soft boiled eggs with well toasted bread soaked in milk. Thirst is relieved by crushed ice. By the fourth week, if there is no pain or vomiting, raw beef steak finely scraped and raw oysters without vinegar is permitted. From this time a gradual return to a light mixed diet is allowed, but care must be taken for a long time not to eat coarse articles.

Next to rest and diet in importance comes lavage. This is of benefit to relieve the associated gastritis but must be used with caution, taking care never to over-distend the stomach, for by so doing we separate the edges of the ulcer, the granulated tissue is broken down and cicatrization is prevented. Also there is danger of inducing hemorrhage or perforation, unless care is taken to introduce a limited amount and see that it is all carried out. We scarcely ever see a case in which opium is not indicated at some time either to control pain or some complication. The diminished alkalinity of the blood and the excessive acid in the stomach call for the administration of alkalies. Bicarbonate of soda in twenty grain doses before taking food or when in pain acts admirably. Subnitrate of bismuth in half drachm doses also serves a good purpose. Carlsbad salt fulfils the same indications and at the same time keeps the bowels open.

When hemorrhage occurs the patient should be placed in the

recumbent position with the head low. Give morphia and atropia hypodermatically to quiet peristalsis, ergotin to contract the arterioles; apply an ice-bag to the epigastrium. In severe cases apply a ligature around the leg and arm. If collapse is marked inject saline solution into the veins. Perforation demands immediate operation.

As soon as cicatrization is fairly established the existing anemia should be combated by the milder preparations of iron. Three months are usually required for complete cicatrization. Even then relapses may occur.

The subject was discussed by Drs. J. B. Cowan of Tullahoma, J. A. Witherspoon of Nashville, Savage of Nashville, and Dr. Altman.

Evening Session.

The address of welcome, which had been deferred until this time, was delivered by the Rev. C. H. Strickler, D.D. This was responded to by Dr. D. J. Roberts of Nashville, the Vice-president for Middle Tennessee.

Next in order was the President's address: "The Relation of Public Morals to Public Health," by Dr. T. K. Powell of Dancyville.

Second Day—Morning Session.

The first paper of the day was "Puerperal Mastitis," by Dr. C. N. Sebastian of Martin. This was discussed by Drs. T. J. Happel of Trenton, J. B. Murfree of Murfreesboro, J. B. Cowan of Tullahoma, J. A. Witherspoon, D. J. Roberts, J. S. Cain and Richard Douglas of Nashville.

"Observations in Electrotherapy," was presented by Dr. G. P. Edwards of Nashville, and discussed by Drs. Cross, Gillespie, Douglas, Griffin and Edwards.

Dr. S. R. Miller of Knoxville. read a paper on

transfusion.

The essayist believed intravenous transfusion the quickest and most accurate. It requires more skill than the other methods and more attention to the details of asepsis than the subcutaneous injection or enema, but is to be preferred where there is immediate demand and the necessary preparation is made. It combats shock best. It is perhaps most useful in very bloody operations where otherwise the necessary loss of blood would prove fatal before the operation could be completed. The subcutaneous method is slower and requires less preparation and skill than the intravenous method. It does not depend so largely upon asepsis and should be employed where the intravenous method is not practicable. The introduction of fluid into the peritoneal cavity should be employed only in operations involving that cavity. It is probable that this may prevent to a small degree adhesion of the raw surfaces. Rectal injections are easiest and quickest of application. The essayest prefers this method for the purpose of avoiding rather than to combat shock. It serves best where there is least shock. The general surgeon should not allow himself to become "wedded" to any particutar method but should in each instance employ the one best suited to the individual case and its environments.

The subject was discussed by Drs. J. L. Crook of Jackson, J. S. Cain of Nashville, I. A. McSwain of Paris, D. J. Roberts of Nashville, Jelks and Miller.

"Illustrative Specimens of Perforative Appendicitis, Carcinoma Uteri, Gall Stones and Fibroid Tumors of the Uterus," were presented by Dr. W. D. Haggard, Jr., of Nashville. The specimens were discussed by Drs. Richard Douglas of Nashville, T. J. Happel of Trenton, W. K. Sheddan of Williamsport, J. B. Cowan of Tullahoma, J. A. Witherspoon of Nashville, Jelks of Memphis, J. S. Cain of Nashville, D. J. Roberts of Nashville, and Dr. Haggard.

Afternoon Session.

"Gunshot Wounds of the Abdomen" was a well rounded paper by J. B. Murfree of Murfreesboro. He advised operation (laparotomy) and the repair of the injury done. The subject was discussed by Drs. W. K. Sheddan of Williamsport, Nealy of Memphis, J. B. Cowan of Tullahoma, Richard Douglas of Nashville, and Dr. Murfree.

Election of officers resulted as follows: President, T. H. Marable of Clarksville; vice-president for Middle Tennessee, W. C. Bilbro of Murfreesboro; vice-president for West Tennessee, V. A. Biggs of Martin; vice-president East Tennessee, T. W. Gallion of Dandridge; secretary, W. D. Haggard, Jr., of Nashville; treasurer, D. E. Nelson of Chattanooga.

Next place of meeting, Nashville.

A paper on "Castration for Reflex Neuroses Following Mumps, with Report of Case," was read by Dr. J. S. Nowlin of Shelbyville, and discussed by Drs. J. Roberts of Nashville, J. A. Crook of Jackson, Griffin and Nowlin.

A paper on "Some of the Causes of Unsuccessful Treatment as Ordinarily given for Chronic Suppurative Otitis Media," was presented by Dr. L. B. Graddy of Nashville. Upon motion the discussion of the paper was deferred until the evening session.

Evening Session.

The first item of the program was the discussion of Dr. Graddy's paper, which was participated in by Drs. J. T. Herron, Smith, Savage, Goltman and Graddy.

Dr. John L. Jelks of Memphis, gave a "Report of Surgical Cases," which was discussed by Drs. Happel, Gillespie, Nealy and the essayist.

prevention and treatment of injuries to the parturient canal

Was presented by Dr. J. T. Reddick, an invited guest from Paducah, Ky. The paper dealt only with lacerations of the cervix and lacerations of the pelvic floor. Many of the injuries to the parturient canal may be averted by proper attention before and during labor. The urinary organs and bowels should be placed in a healthy condition before labor. Everything done to put the pregnant woman in a normal healthy condition will in a measure prevent lacerations of the cervix and perineal floor. Sedentary and indolent habits, pelvic and perineal irritations, or anything which may impair the nutrition of the pelvic floor, renders it irritable, soft and predisposed to rent. Fashionable women who live indoors, lace tight and wear improper dress, are enervated and and predisposed to lacerations of the pelvic canal. On the other hand, precipitate labors in strong, muscular women, with violent uterine contractions, especially if there is a medium-sized child and a rigid perineum, may rupture the pelvic floor. This may be avoided by complete anesthesia with chloroform. Lacerations may be frequently avoided by supporting the perineum during the second stage of labor, especially if there be a vertex presentation. An overloaded rectum and distended bladder, improper traction in forceps deliveries and the use of ergot, may produce lacerations of the pelvic floor. Hence the obstetrician by personal attention to many little things before and during labor may prevent injuries to the parturient canal. But lacerations do occur with the best physicians and surgeons, and extremely unfortunate is she who has received such lacerations and her attendant is unable or too negligent to detect them and give them prompt and competent surgical attention. Lacerations may be often detected by the educated finger, but to be doubly sure that there are no injuries an ocular examination should be made at once. In laceration of the cervix immediate operation is either one of election or strict necessity. Immediate operation becomes a necessity if the laceration involves the circular artery and the hemorrhage is alarming. Hemorrhage could be controlled by tampons, but the danger from sepsis would be greater than from an operation. Many cases of laceration of the cervix heal spontaneously, especially if the course of puerperium is aseptic, and for that reason the essayist deems it advisable to postpone the operation when possible.

The most important lesions to the parturient canal perhaps are injuries to the pelvic floor. The long train of symptoms which may follow a lacerated perineum, namely, hemorrhage and collapse, infection through an open wound, puerperal septicemia, a tedious and incomplete convalescence, subinvolution, endometritis, uterine displacements of different kinds and degrees, prolapse of ovaries, tubal disease, rectocele, neuralgia, functional derangement of adjacent and remote organs, and innumerable reflex troubles and hysteria, is a living monument to the incompetency of the medical attendant on such cases. About the only contra-indication to an immediate operation is exhaustion of the patient from prolonged labor or post-partum hemorrhage. Where the laceration is slight and requires but a few stitches, anesthesia is generally not required, as the sensibility of the parts is greatly diminished from the pressure associated with delivery. If the laceration is extensive it is best to administer an anesthetic to enable the physician to operate with care and save the woman unnecessary pain. The essayist entered into a description of the operations for the repair of lacerations of the cervix and of the perineum. The paper was discussed by Drs. G. B. Gillespie of Covington, J. L. Jelks of Memphis, T. K. Powell of Dancyville, and J. A. Crook of Jackson. It was then moved that the discussion be continued the following morning.

Third Day—Morning Session.

The session was opened with prayer by the Rev. Dr. Matthews.

The first order of business was a continuation of the discussion of Dr. Reddick's paper, which was taken part in by Drs. I. A. McSwain of Paris, Goltman of Memphis, W. D. Haggard, Jr. of Nashville, T. W. Gallion of Dandridge, Wm. Krauss of

Memphis, Yarbrough, E. W. Ridings of Dixon, Smith, W. K. Sheddan of Williamsport, J. F. Griffin of Cronanville, Jelks of Memphis, W. F. Clary of Bellbuckle, T. K. Powell of Dancyville, and Dr. Reddick.

A SIMPLE METHOD OF ESTIMATING THE SPECIFIC GRAVITY AND HEMOGLOBIN PERCENTAGE OF BLOOD

was demonstrated by Dr. WILLIAM KRAUSS of Memphis. The essayist had constructed a pipette graduated in hemoglobin percentages and used two fluids, one of 1000 sp. gr. at 60 degrees F. and colored with gentian violet, the other of 1060 at 60 degrees F. and uncolored, which would float blood up to 110 per cent. hemoglobin. The specific gravity of the two fluids is sufficiently alike to give uniform variations for temperature, and thus eliminate the temperature error without requiring calculation. The pipette holds 5 c.c. at the 110 mark. This quantity of the clear fluid is measured into a test-tube. A drop of blood is then floated on it. The pipette is filled with the violet mixture and introduced to the bottom of the test-tube and then allowed to discharge its contents which will rise in the fluid, being lighter, and can be seen by its color to diffuse itself in the clear mixture. As soon as the blood begins to recede from the surface, the additions are interrupted until the proper specific gravity is obtained. The hemoglobin percentage can then be read off from the pipette.

The paper was discussed by Drs. J. B. Cowan of Tullahoma, Max Goltman of Memphis. and Dr. Krauss.

"Report of Six Amputations for the Relief of Osteo-myelitis Following Severe Ulceration of the Leg," was presented by Dr. M. GOLTMAN of Memphis, and discussed by Dr. J. L. Crook of Jackson, and by the essayist.

The list of delegates to the AMERICAN MEDICAL ASSOCIATION was then read by the Secretary.

PRACTICAL NOTES.

To Abort Erysipelas.—Lobit uses a 10 per cent. iodoformed or iodoled collodion, with which he has cured twenty-five cases within three to four days.—*Sem. Méd.*, March 30.

Adhesivum is a thick, reddish, aseptic fluid which hardens rapidly in contact with the air and is then insoluble. Poured on a wound it forms a tenacious crust, uniting the lips of the wound and protecting it like a scab.—*Aerztl. Polytech.*, 1897, December 8.

The Success of the Impermeable Alcohol Vapor Compresses is confirmed by Lanz, who has not only cured a number of dermatoses with them, sycosis, acne, buboes, etc., but also reports a case of cutaneous tuberculosis completely cured.—*Sem. Méd.*, April 13.

Orthoform Combined With Arsenious Acid.—The application of arsenious acid in the treatment of epithelial cancer, which Cerny and Trunecek have found so effective (*vide* JOURNAL, xxix, page 83), can be rendered painless by adding an equal amount of orthoform.—*Sem. Méd.*. April 13.

Chloroform Applied to the Abdomen to control spasmodic contractions of the uterus intrapartum. The abdomen is painted with a mixture of one part chloroform to two or three parts olive oil and an air-tight covering applied over it, when the uterine contractions promptly lose their spasmodic character. *Sem. Méd.*, April 13.

Ventilated Shoes.—The disadvantages of the usual close moist leather shoes are obviated by Dr. Spener of Berlin, who has an ornamental design cut through the leather in the upper part of his shoes, to within an inch of the sole. The lining is of duck the same color as the leather and the delicate open. work is not noticeable, while the shoe is practically as waterproof as before.—*Deu. Med. Woch.*, April 7.

Salt Soiution in Infantiie Broncho-pneumonia.—The injections are followed by an increase in the arterial tension, the heart is relieved, the temperature falls gradually or abruptly, and all the natural emunctories seem to "feel the whip." Ausset agrees with Lépine that these injections stimulate phagocytosis, which explains their action in these cases.—*Nord Méd.*, April 1.

Glycerin Tampon for Inducing Premature Labor.—Wienskowitz carried to a successful termination a case of deformed pelvis in which a previous confinement had resulted in partial rupture of the uterus. A strip of gauze 75 by 1 cm. was dipped in glycerin until it had absorbed 15 c.c. and then introduced into the cervical cavity. Labor pains came on gradually and after thirteen hours the child was delivered alive, thirty-fourth week.—*Sem. Méd.*, March 30.

The Value of Ichthyol in Tuberculosis as a symptomatic and adjuvant of hygienic measures is confirmed anew by Combemale, who has completely cured with it one case of "rapid consumption" and has used it with marked benefit in 120 cases of tuberculosis in the last year, in different stages. It is most effective in the torpid forms, and is counter-indicated and sometimes injurious where there is erethism or fever. It stimulates the appetite, favors the nutritive processes, reduces the cough and builds up the general health, while locally it is an efficient disinfectant. With one to two grams a day the sputa are liquified and disinfected; drying up with larger doses. It is usually administered in pills or capsules just before meals, one to three grams a day, suspended for a while, or combined with two to five grams dermatol if it produces diarrhea, as occasionally occurs.—*Nord Médical*, April 1.

The Technique of Gastrostomy has been so perfected of late that E. Forgue urges not to wait for depressing inanition in fibrous or cancerous constrictions but to make the "gastric mouth" promptly and sustain the patient's strength. He has some cuts in the *Presse Méd.* of March 23, showing two plump individuals placidly feeding themselves milk through the tiny gastric aperture. The gastric mucosa is brought out and sutured to the wound, thus bringing only the lining of the stomach into contact with gastric juice and preventing possible corrosion. The opening is only large enough to admit a 12 or 14 Nélaton sound, which is withdrawn after meal times, when the folds of the mucosa protrude spontaneously closing the "mouth." By operating promptly the patient is saved from possible "Schluck pneumonia" from aspiration and regurgitation of the contents of the stomach, which find their way into the respiratory organs and are a frequent cause of fatal pneumonia in cases of cancerous constrictions. The "mouth" can be used to supplement the usual methods of feeding, and can be readily closed whenever it ceases to be needed.

Restitution of the Posterior Portion of the Urethra With the Soft Parts of the Perineum.—C. A. Ljunggren describes, in the *Nordiskt Med. Arkiv*, 1898, No. 1, his success in two cases of traumatic rupture of the urethra, one recent the other old, with a stricture, abscesses and fistula, resulting from a fall astride a beam. In both there was a gap of several centimeters, which he filled by substituting the soft parts of the perineum sutured around a permanent sound and drained. The sound was removed in twenty-four to thirty days; the urethra healed with a new mucous membrane lining and normal functions and no signs of a recurrence of the stricture since; four and one-half years in the last and two in the first case. He recommends removing all the diseased tissue, leaving a bridge of the urethral wall whenever possible, as it not only hastens the formation of new tissue, but prevents the stumps spreading farther apart, taking stitches also in the extra-urethral tissues. Guyon does not drain even in the infected cases, but Ljunggren considers it better technique to drain for a day or so, while the tissues are most sensitive, and his study of Guyon's published cases confirms him in this opinion, as slight suppuration at first was frequent. The most important point is to leave the medium-sized soft, permanent sound until the healing process is entirely completed. He adds that dilation is unnecessary if the healing proceeds regularly as in his cases, but it should be resorted to at once at the first indication of a stricture or induration around the new-formed urethra. His cases have never required a sound since first dismissed.

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SATURDAY, MAY 14, 1898.

THE HYGIENE OF CLOTHING.

It is probable that man was originally a tropical animal, perfectly adapted to his environment in a physical point of view, the natural product of evolution under the conditions in which he lived. Since he has emerged from his primal state and extended his habitat throughout nearly all latitudes and climates and has become a garment-wearing animal a host of unnatural and insanitary possibilities has arisen. The question of clothing, what to wear and how to wear it, has an importance altogether aside from the social and esthetic, and even from some of the ordinarily recognized considerations of comfort that commonly govern our selection. The hygienic choice of clothing, when it is not interfered with by conventional or economic or other factors, is usually a rule of thumb procedure, that takes little or no account of the chances or consequences of error. This is more especially true in our so-called temperate climates, where every extreme of temperature is experienced, often within the compass of a few days or weeks or in some localities even a day. The result is a sacrifice of human comfort, health and even of human life that is none the less formidable and real because it is unappreciated even by the victims themselves. The average layman's idea of hygiene is ordinarily that it is a matter that concerns diet, water-supply, drainage, etc., and the subject of clothing is one of the very last that occurs to him under this head. The relative importance attributed to these other matters by sanitarians encourages this error, and it may be asked whether, as physicians, we are not guilty of forgetting or condoning some of the commoner sins against good health in this regard; our familiarity with them has led to their neglect. We change our summer and winter costumes, for example, according to the calendar or our individual whims and feelings, and the result is often a crop of lung and bronchial affections and the aggravation of those already existing. According to RUBNER, the most recent writer who has treated the subject systematically, the average man is, as a rule, too warmly clothed in summer, and this, even with good ventilation, is an evil that should be avoided, and tends to increased perspiration and abnormal activity of the skin, which in many ways may lead to evil consequences. With ill ventilated clothing confining the perspiration and its excretions, we have a condition that interprets itself, often to our unaided senses, as hardly more compatible in principle with perfect sanitation than is an undrained cellar sending its exhalations into the living rooms above. The necessary removal of clothing at least once a day relieves matters somewhat, but the betterment is only in degree, not in kind, and is at best only temporary if the same under-garments are resumed the following day. The problem of a proper and thoroughly healthful and comfortable summer costume in our climate adapted to all the exigencies of weather and occupation is certainly a complex one, and it is perhaps too much to expect that it can be perfectly solved. The best we can look for, perhaps, is to reduce the possible evils to a minimum, not to abolish them.

The question of winter clothing is, according to RUBNER, a simple one, the chief demand is for sufficient warmth; the excretory function of the skin is not so actively in evidence and the difference of external and bodily temperature in itself is sufficient to effect or materially aid in such ventilation as is required. The external conditions themselves more directly indicate the needs than is the case in summer, and errors are less likely to be made.

It is in the variable climates of our Northern States that the hygiene of clothing needs most particular attention, and more especially in the changeable weather of the transitions from winter to summer and summer to winter. In the tropics one readily learns how to adapt himself to his surroundings, and as a rule the white race in those regions does not attempt occupations that are unsuited to his conventional costume, at least, for any length of time. In the arctic regions also, the clothing is rationally adapted to the climate, and the freedom from colds and lung disease experienced there is not altogether due to the absence of germs. It is in the middle lattitudes, in temperate regions, with their wide ranges of temperature and changing seasons, that the choice of clothing becomes a serious sanitary problem too often neglected,

but none the less important and worthy the earnest attention of the medical profession. The public is at present left too largely to its own devices as regards this matter, and while the result is not altogether as bad as it might be, it is certainly not an ideal one in a sanitary point of view.

JEALOUSY AS A DISEASE.

The *Lancet*, *British Medical Journal*, and other medical periodicals in Great Britain have lately been discussing the question whether jealousy can be regarded as a disease. Considering the number of physicians who have fallen victims to the morbid jealousy of inebriate husbands when suddenly called to a previously unknown parturient woman, the denial that jealousy can be at times morbid seems absurd.

As SPITZKA pointed out nearly two decades ago ("Insanity: Its Classification, Diagnosis and Treatment"): Delusions of alcoholism relate to the sexual organs, sexual relations and to poisoning. This fact is so constant a one that the combination of a delusion of mutilation of the sexual organs, with the delusions that the patient's food is poisoned and that his wife is unfaithful to him may be considered as nearly to demonstrate the existence of alcoholic insanity as any one group in mental pathology can prove anything. With this there are unpleasant hallucinations. There is this peculiarity of insane inebriates, that their acts are not consistently regulated by their delusions. Thus, one patient may live in comparative tranquility with a wife whom he suspects of committing adultery in the boldest way and before his face night after night. Another under the influence of the same delusions may, in mortal fear of being poisoned in her supposed paramour's interest, kill his wife in a fit of blind fury. These same delusions exist in women. KIERNAN has reported (*Journal of Nervous and Mental Disease*, 1886) two cases in which alcoholic insanity was correctly diagnosed from such symptoms in two American women who had never been suspected of the use of alcohol. Urticaria coincident with dysmenorrhea had led to the popular prescription of gin for this condition and its consequent abuse.

Although morbid jealousy may arise from neurasthenia, neuroses or psychoses taking the direction of the sexual organs especially in the degenerates, still, as just remarked, alcohol is particularly noticeable as a predisposing or exciting cause. Abuse of alcohol produces at first hyperesthesia and then resultant atony of the genital organs and diminishes the power of fecundation and sexual ardor. The genital pathologic lesions in inebriates resemble those of senility. The testicles atrophy, and the spermatozoa disappear. In the female menstrual irregularities occur, followed by amenorrhea. This degeneracy in sexual physiology is, according to STEFANOWSKI (*Alienist and Neurologist*, 1893), accompanied by physical and moral impotence, of which jealousy is a necessary concomitant. According to KRAFFT-EBING, morbid jealousy often occurs among inebriates which may be a part of a general persecutional state or may be a spontaneous phenomena at times. It is interlaced frequently like a red thread with the course of alcoholic psychic degeneration and appears often at the onset of alcoholic intoxication and leads the patients to bloody, sometimes mortal acts, against the innocent victims of their suspicions. KRAFFT-EBING has observed this morbid jealousy in 80 per cent. of inebriates still capable of sexual life. It can be explained as much by extreme enfeeblement of sexual power as by the erotic tendencies still existing. Such an inebriate feeling himself enfeebled in virility commences to have a suspicion, and to inquire, whether his wife have not become unfaithful. This suspicion becomes the point of departure of a morbid jealousy which has but too often fatal results.

Imperfect sexual anesthesia in the hysteric and sexual neurasthenic underlies the morbid jealousy so frequently shown by these. Prescription of marriage to sexual neurasthenics as a cure for their morbid state has sometimes dangerous results for this reason. Doubting their own sexual power, they are sceptical of being the parents of children born to them during the first year of marriage, and hence are victims of suspicions of marital infidelity on the part of their wives. In like cases during climacteric prostatic change, similar suspicions occur. In hysteric females, especially when masturbators, similar psychologic states are often present.

In dealing with the extent, influence, character and suffering from morbid jealousy, the fact should not be forgotten, that modern physiologic psychology denies any essential difference between mental and physical pain, both being species of the same genus. The experiments of OWSIANNIKOFF and DITTMAR prove that pain is accompanied by an arrest of nervous irradiation and spasm of the vasomotor nerves of the brain. MEYNERT interpreting these phenomena from a psychologic standpoint has constructed an ingenious explanation of morbid pain as produced by functional anemia of the cerebral cortex. FÉRÉ'S researches tend in the same direction to the opinion that all unpleasing sensation can be resolved into a sensation of feebleness produced by cerebral anemia. F. PAULHAN made a happy attempt to explain all affective phenomena as results of an arrest of tendencies. The jealousy conception should hence be considered as a species of arrest of psychic irradiation. Love experienced for a person can be measured by the place this person occupies in mental life and the rôle, the words and acts of this person play in the organization of habits of thought. Thus are formed systems of ideas

and tendencies which become more and more organized. The unfaithfulness of a loved one is then a disorganization of the person loving, a destruction of the *ego*, an arrest of a great number of systems of ideas and tendencies. As this suffering is produced by real and in no respects delusional causes, it must be regarded as normal. It may however attain such intensity as to be shown in a pathologic manner. This is particularly true of the cases in which the jealous conception does not yield to the action of time but lasts for months and years without enfeeblement as do the delusional conceptions of the insane. In such cases it is impossible to regard the affected person as normal since the intensity and duration of the conception clearly demonstrates its pathologic nature.

The morbid element of jealousy is particularly noticeable and especially dangerous to physicians in cases of late jealousy. These, as STEFANOWSKI has shown, are far from rare in forensic practice.

A man marries a woman who had in her past some gallant adventure. This adventure had not been hidden from him. Knowing already the fault of his future wife, he had pardoned her with all his heart. His love for her was then so strong that to possess her solely he closed his eyes willingly on the past. The woman taught by one bitter lesson has become an honest faithful wife, devoted to her husband with whom she has lived several years without giving cause for suspicion. Nevertheless the husband little by little becomes jealous of the past of his spouse, the fire of his love is extinct and illusion is dissipated under the influence of habit, satiety or monotony of sensation. Jealousy is no longer counterbalanced by generous love, and he commences to hate the unfortunate woman, of whose past he has a conception in which there exists a rival who was happy before him. This rival he can not reach and all his vengeance is poured on the head of his wife, the sole victim of this tardy jealousy.

The dangers to medical men of morbid jealousy of the hyperesthetic type due to alcohol were well illustrated in the death of Dr. F. G. WILDER of Chicago at the hands of an alcoholic traumatic lunatic. The homicide (who had had a sunstroke and sustained a skull injury) was, in consequence, a suspicional lunatic with the periods of pseudo-lucidity common in that type. He became an inebriate and developed the alcoholic delusions described by SPITZKA and KRAFFT-EBING. In consequence he was sent to an insane hospital, whence he was released on parole during a pseudo-lucid interval. He was later liberated by a jury despite the remonstrance of physicians. Six months thereafter he called Dr. WILDER by a telephone message to an alleged patient, met him at the door and shot him dead. During the same year eight attempts at homicide of physicians were made by inebriates laboring under morbid jealousy. In New York city one which was nearly successful was made by an inebriate husband on a passing physician, called to attend a woman, taken in labor on the sidewalk, who had been removed to the rooms of a family strangers alike to husband, wife and physician.

Morbid jealousy has not only its hyperesthesia as just described but also its anesthesia and its paresthesia. These alternating in the alcoholic type with the hyperesthesia constitute a treble danger. The sexual paresthesia of the hysteric is a fertile forensic source of danger to the character of the physician, but the morbid jealousy hyperesthesia is a source of danger to life as well.

CONCERNING ENDOCARDITIS, ITS PATHOLOGIC ANATOMY AND ETIOLOGY.

It might seem as though the study of acute endocarditis had been fairly well exhausted, if one were to judge by the large number of articles of various kinds that have appeared concerning this subject during the last few years. When one reads carefully, however, the recent monograph by FRANCIS HARBITZ,[1] of Kristiania, Norway, concerning endocarditis, its pathologic anatomy and its etiology, he may be agreeably surprised at finding that there are quite a few important clinical as well as etiologic and anatomic points in connection with this disease that have apparently escaped attention, and which could be brought out only by a careful histologic and bacteriologic study of a large series of cases.

HARBITZ passes in review the various phases of the history of endocarditis. He refers to the epoch-making work of BOUILLAUD, who was the first to establish the existence of endocarditis as a distinct clinical entity, and also the first to furnish the necessary anatomic basis. He then refers to the pioneer work of HEIBERG and WINGE, who, in 1869, were the first to establish the presence of microbes in the valvular excrescences and to demonstrate precisely their entrance through external lesions. He then shows that, after the discovery of the various specific micro-organisms, it was not long before many of them were assigned as the causes of infectious endocarditis.

In the description of the methods which he made use of in the study of his cases, HARBITZ lays particular stress upon the necessity of making histologic sections of the valvular vegetations and upon the study of cover-glass preparations in order to control the result of the bacteriologic examination and, finally, he refers to the necessity of comparing the pathologico-anatomic results with the history of the disease.

The classification he makes is founded upon etiologic principles and corresponds to that proposed by HANOT, and many other authors, who divide endo-

[1] Om endokardit, dens pathologiske anatomi og aetiologi, Kristiania, 1897.

carditis into two principal classes, viz.: the infectious and the non-infectious, the latter comprising also those whose probable infectious nature has not been demonstrated.

In the first class are arranged the various inflammations of the endocardium that are due to the presence of streptococci, pneumococci, staphylococci and gonococci. The existence of endocarditis due to the bacillus of typhoid fever is regarded as proved, although it is very rare. On the other hand, he finds that there is hardly enough evidence at hand to warrant the establishment of a tuberculous endocarditis.

In the second class he places the endocarditis of rheumatism, as well as the numerous instances of endocardial vegetations which accompany tuberculosis, carcinoma, Bright's disease, etc.

HARBITZ studied, thoroughly, fifty-four cases. Of these, thirty-nine belonged to the first class, and of this number seventeen were due to streptococci, five to pneumococci, seven to staphylococci, and two to gonococci. Two others are attributed, one to an unknown micrococcus, the other to an unknown bacillus. And, finally, there are included here six cases of infectious endocarditis followed by healing after having passed through the various stages of evolution. Fifteen cases belonged to the second class; five occurred in connection with acute articular rheumatism, seven with tuberculosis, and three with other chronic diseases.

After having made a thorough bacteriologic and histologic study of the infectious forms of endocarditis, HARBITZ finds it convenient, as well from the pathologico-anatomic point of view as from the clinical and etiologic, to distinguish between two great groups of infectious endocarditis. One includes the endocardites which are frequently accompanied by considerable outgrowths, which cover a large surface and which are composed partly of a hyaline thromboid mass and partly of embryonal connective tissue. It is rare to find in these excrescences, round cell infiltration, and there are no necrotic zones surrounding the masses of bacteria. The bacteria are more frequently found toward the border of the thrombotic mass, which they often surround quite completely. In order to demonstrate this relation of the bacteria to the vegetations, it is necessary to make careful sections. The whole histologic and pathologic picture indicates the existence of a limitative process in these cases and not that of a destructive and ulcerative process. In the autopsies upon these cases there were found quite frequently numerous infarcts of the variety which is called pale or anemic and which are free from suppuration. There were no foci of suppuration in any of the other organs. Now, these forms of endocarditis are in the majority of cases caused by the streptococcus and pneumococcus, and these bacteria are present, as stated, most often in huge masses. In general it is not possible to find any evidence as to the source of the bacterial invasion.

These forms of endocarditis present also certain striking peculiarities from a clinical point of view: their beginning is often insidious and their progress slow. There may be six months, and even one or two years, from the beginning of the disease while it comes under observation. Many of the cases appear to begin by cerebral embolism. In a certain number of the cases there was observed a slight fever of an indefinite type, and sometimes the joints would present symptoms that resembled very much the articular phenomena of acute rheumatism. Some of these cases also manifested marked renal symptoms, sometimes presenting the clinical picture of a hemorrhagic nephritis, due in part, perhaps, to mechanical disturbances in the circulation of the kidney on account of the valvular heart disease, although more likely to infectious or toxic agents.

As a supplement to this group HARBITZ describes certain cases of infectious endocarditis that heal spontaneously, in which there were large outgrowths upon the endocardium of the valves, as well as of the auricles and ventricles, but in which cultures remained sterile while the microscopic sections showed indistinct and degenerated bacterial masses at the borders of the vegetations. Judging by the appearances and by the resemblance of these cases to those already described, the author considers it very probable that these instances were cases of streptococcus infection. He believes that he has demonstrated the curability of infectious endocarditis. In these six cases there were also symptoms of infectious and toxic nephritis.

The second principal group of infectious endocarditis is formed by those cases in which the endocarditis represents part and parcel of a general pyemic process. These cases correspond to the clinical picture of malignant endocarditis. The lesions are most often ulcerative and destructive, and here one finds a necrotic zone around the bacterial masses, a marked round cell infiltration, and at the same time there will be found multiple suppurative foci here and there in the body, and also infarcts that are most often infected. These forms of endocarditis are most often caused by staphylococci. External lesions serve as the infection atrium and the evolution of the disease is rapid.

In two cases of infectious endocarditis the author found micro-organisms that morphologically and from the staining characteristics corresponded to the gonococcus. He was unable to cultivate them. After referring to the cases of gonorrheal endocarditis described in the literature, including that of THAYER and BLUMER,[2] HARBITZ concludes that it concerned here most likely the gonococcus.

[2] Archiv. de méd. experimentale, 1895.

Harbitz describes the endocarditis of rheumatism s characterized by small verrucose vegetations, which ppear by preference to affect the endothelium over ıe free border of most of the valves and which ɔmains strictly circumscribed in these localities. Vhen such vegetations are examined while fresh ıey are found to consist of a hyaline thromboid subance, at the base of which there is a small mass of nbryonic connective tissue. Bacteria are not found cover-glasses, cultures, or sections. After reviewg the literature of acute articular rheumatism as r as it bears upon etiology, he comes to the conclusion that rheumatism can hardly be considered as a ɔecific disease, but rather as resulting from the tion of various pyogenic microbes of a feeble virunce. This is also the opinion of Sahli and others. ı support of this statement various cases are cited fever and articular swelling connected with local ppurations. Now, as regards rheumatismal endorditis, Harbitz submits that this may be due to the me attenuated micı obes, which act either directly by ıplantation upon the endocardium or indirectly by e excretion of toxic products which circulate in the ood. By the production of a superficial necrosis of e endothelium of the valves along the line of close, which is the part most exposed to traumatism, ere results a precipitation of thrombotic material ɔm the blood, followed by a proliferation from the bstance of the valve.

Harbitz looks upon this pathogenesis as the one ɔst likely also for the small verrucose excrescences ıich so often accompany tuberculosis, cancer, ight's disease, etc., where the bacteriologic examıtion gives a negative result. In Bright's disease, instance, it lies very near at hand to assume that ɜ abnormal substances circulating in the blood may ıdily injure the endothelium. Harbitz was not able find tubercules or tubercle bacilli in the endocardial crescences in cases of tuberculosis in various parts the body. On the other hand, by inoculating one the vegetations into a guinea-pig, he obtained, in ɜ instance, positive results, but it may be that this s due to the implantation of tubercle bacilli circuing in the blood upon the vegetations.

Finally, it is to be noted that a number of animal ɔeriments were made, in which he succeeded in ɔducing an infectious endocarditis by the intravasar injection of different bacteria. On the other ıd, injection of sterilized cultures did not produce lesions of the valves.

THE BOYS OF NINETY-EIGHT.

n our issue of last week, in discussing the Presit's call for volunteers we deprecated the acceptance ninors for service. The country is populous and easily furnish the required number of well devel-d and hardy men. Were the war prolonged as was the civil war it might be needful to call the young men from their schools and colleges; but in the inception of a war this is not necessary and does not seem to be advisable. The boys are full of the war spirit and are anxious to be at the front; but the fatigues and exposures of active service would soon send them to the rear again, with, in many instances, the prospects of their lives destroyed. We cited approvingly the regulations for enlistment in the regular army which made twenty-one years the minimum age for acceptance into service; but while we were writing that approval an order was in preparation and has since been issued by the War Department making the mininum for enlistment in time of war eighteen years instead of twenty-one, as heretofore in times of peace. These requirements are alike opposed to the teachings of physiology and military experience. They should have been reversed. There is no objection to enlisting growing youths in times of peace as their years of service would be practically a course of athletic training and military discipline which would have a value in their future; but there are serious objections to calling them into the ranks in times of war while the country has able-bodied men available for service.

THE JOURNAL ON ITS TRAVELS.

A rather battered copy of the Journal of March 20, 1897, arrived in the editorial room this week from Cape Town, Africa, having left that city April 4, 1898.

It was accompanied by the following letter from the accomplished editor of the *South African Medical Journal:*

Claremont, Cape Town, S. Africa, April 4, 1898.

The Editor Journal of the American Medical Association, Chicago.

Dear Sir:—I forward to you by this mail your Journal of March 20, 1897, which is quite a curiosity.

Until quite recently it was my custom to pick out from among my correspondents a few of those likely to be especially interested in any medical journal I might receive and to send the journal to them in rotation, one forwarding it on to the other.

To illustrate this the accompanying Journal has drifted back to me after the following journey:

1. Dr. Welby, Colonial Surgeon, Island of St. Helena
2. Dr. Moffat, Chief Medical Officer, British East Africa, Warsinde Station, Varyoro, Uganda (the station is somewhere near Lake Victoria Nyanza).
3. Dr. Haw, Bartelson, Transvaal.
4. Dr. MacFarlane, scribe Basulaland.
5. Dr. Robertson, Johannesburg, Transvaal.
6. Dr. Leicester, Port Elizabeth.
7. Dr. Howard, Port Nollarth, Namaqualand.
8. Dr. Eyre (myself).
9. Dr. Fuller, Cape Town.

This round has taken some little less than a year. If you will trace this route on the map and think that the article sent was only a book packet you will, I believe, realize that it is not uninteresting, an instance of postal perfection as well as a gratifying proof of the obligation of the professional bond felt by many personally totally unknown one to the other.

* * * * * * *

[Signed] Yours faithfully, George G. Eyre.

We feel gratified that through the courtesy of Dr.

EYRE, the representative American medical journal has thus passed through the hands and met the eye of our colleagues in darkest Africa, and we trust that the casual acquaintance with the writings of our American medical men thus begun may ripen into closer reciprocal relation. May the African pioneer medical men live long and prosper, and may the *South African Medical Journal* long flourish!

THE JOURNAL SPECIAL TRAIN TO DENVER.

The JOURNAL SPECIAL TRAIN will leave Chicago, Saturday, June 4, at 11 P.M., via the Chicago, Burlington & Quincy Railroad, arriving in Denver Monday morning 7 A.M., in time for the meeting of the American Academy of Medicine, the American Medical Editors' Association and other medical organizations holding sessions on Monday.

The "Special" will run through. Tickets will be good for thirty days. The rate will be one fare and $2 for the round trip, the most favorable rate yet granted the ASSOCIATION.

CORRESPONDENCE.

Wyman's Method.

STATE BOARD OF HEALTH OF KENTUCKY,
EXECUTIVE OFFICE.
BOWLING GREEN, KY., May 2, 1898.

To the Editor:—In the April 1 number of "Health Reports," published by the United States Marine-Hospital Service, the statement was officially made that, during the recent epidemic of smallpox at Middlesboro, national aid was sent to this State at the request of this Board and of Governor Bradley, and that the representative of that Service found the methods of this Board inefficient. As the epidemic was practically under control at the time of the unwarranted interference of this Service, and as their interference was wholly uninvited, I at once wrote the Supervising Surgeon-General asking that the false and unjust statements be corrected. As he has declined to make this correction, and as this Bureau is the chief obstacle to the enactment of efficient national legislation for the protection of the public health interests of the country, I ask that the subjoined correspondence be given a place in your columns, that health officials and the profession may know what to expect at the hands of this Bureau should its persistent requests for increased power be granted. Very respectfully,

J. N. MCCORMACK, Secretary.

EXECUTIVE OFFICE,
BOWLING GREEN, KY., April 9, 1898.

DR. WALTER S. WYMAN, Supervising Surgeon-General United States Marine-Hospital Service, Washington, D. C.

Dear Doctor:—I write to correct a mis-statement made in the current number of your Public Health Reports to the effect that this Board, the Governor of Kentucky or anyone else having authority to do so, asked for national aid in suppressing smallpox at Middlesboro. The request was made by Representative Colson, who had no authority in the matter whatever, as you must have known. When your representative arrived the disease was under control, and a speedy termination of the epidemic was confidently expected, as he reported to you when he asked to be relieved. You ordered him to stay but, under his instructions, he refused to co operate with us or do anything unless given absolute control, and by reckless statements made to certain citizens as to government funds available if he got this control, so confused our efforts to get money from the county, which was amply able to raise it, that our Board withdrew and the State was forced to accept a co operation from your Service it had never sanctioned or needed. We hesitated to give you absolute control because of the ineffectual methods adopted by your Service in Alabama which had permitted the present epidemic in Tennessee and Kentucky, and of its similar history in former years in dealing with yellow fever and smallpox. After our inspectors left, your representative found that he had no authority to assume charge. Our quarantine was continued in force to protect the rest of the State but no one had charge in Middlesboro for almost a week, and the disease made such headway that it has required over a month to bring it under control to the same degree as when we left. With all due respect to you and your Service we are satisfied that your interference was unauthorized and unwise, and ask that this correction be given place in your next issue. With assurances of personal regard,

Very respectfully, J. N. MCCORMACK, Secretary.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL
MARINE-HOSPITAL SERVICE.
WASHINGTON, D. C., April 13, 1898.

DR. J. N. MCCORMACK, Secretary State Board of Health:

Dear Doctor:—In reply to your letter of April 9, 1898, in which you request a correction of alleged mis-statements made in the current number of the Public Health Reports regarding smallpox epidemic in Middlesboro, I have to say that the statements in said Public Health Reports are verified by the records of this office, which show that not only the Governor of Kentucky and a member of Congress for the District including Middlesboro, and the president and secretary of the State Board of Health of Kentucky, requesting national aid in suppressing the epidemic of smallpox at Middlesboro, but that a similar request was also made from the Mayor of Middlesboro; so that your request for a correction was evidently made under a misapprehension of the facts.

Contrary to your assertion, no instructions were given to Dr. Wertenbaker to refuse to co-operate or do anything unless given absolute control.

You are equally in error in regard to the success of the Service in the methods adopted for the suppression of the epidemic in Alabama, as the Service never assumed charge of smallpox throughout the State of Alabama, its operations being in Birmingham and vicinity.

With regard to the history of this Service in dealing with yellow fever and smallpox in former years, it is only necessary to call your attention to the Annual Reports of the Service, as well as the Public Health Reports, to prove the incorrectness of your statement.

Respectfully yours,
[Signed] WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

EXECUTIVE OFFICE,
BOWLING GREEN, KY., April 20, 1898.

DR. WALTER WYMAN, Surgeon-General U. S. Marine-Hospital Service, Washington, D. C.:

Dear Sir:—I regret very much that you feel it necessary to make the statements contained in your letter. Your records can not show that the officers of this Board or the Governor of Kentucky asked you to send any one to Middlesboro for the very simple reason that they did not do so. After Dr. Wertenbaker was sent without official invitation, he reported to you that we had the epidemic under control, that no inter-State question was involved, and asked to be relieved. You ordered him to remain for reasons best known to yourself, until his presence, and your promise to furnish funds, demoralized the local officials, who had from the first objected to bearing the expense properly imposed under our statutes. Under a gross

mis-representation of the facts the president of this Board and the Governor were induced to ask your Service for aid, and I withdrew our inspectors when it was found that Dr. Wertenbaker had no authority to do anything. Chaos reigned for several days, hundreds were exposed and the epidemic was again on, and was only prevented from reaching serious proportions by the systematic vaccination done by us before your interference. I have no means of knowing what instructions you gave Dr. Wertenbaker, but he stated in a public meeting, and often in private, that he could only co operate with us upon condition that he was given absolute control.

As you refuse to make the correction demanded alike by the facts and fair dealing, I will be forced to take my own methods of doing so.

Respectfully,

J. N. McCormack, Secretary.

Appendicitis.

New York City, May 8, 1898.

To the Editor:—There have been no responses in the Journal in answer to my request in a February number, asking correspondents to oppose the idea that appendicitis cases require operation as soon as the diagnosis has been made. Several references to my request have been made in other medical publications, however, and one which appeared as an editorial in the March number of the *Texas Medical News* covers the ground of the oppositionists so well that I have asked the editor of the *News* to allow me to answer in the Journal, because that was the medium which I chose originally for the discussion. (I have italicized the parts of the republished *News* editorial which are answered *seriatim.*)

EDITORIAL ARTICLE.

"There are always to be found men occupying *extreme positions* in every profession. This is especially so in medicine and surgery. Men, too, of learning and influence, teachers and authors, whose teachings and example are quoted and followed by men of less positive character. We feel that we are guilty of no exaggeration when we assert that such men have been in the past, and are yet, dangerous elements in the medical profession. They are a menace to the well-being of society. We are forcibly reminded of this fact by a letter from Dr. Robert T. Morris, in the February issue of the Journal of the American Medical Association, on the subject of operation in appendicitis. The clear inference which may be drawn from the letter is that operation should be resorted to without delay as soon as the diagnosis is made.

"We repeat that such extreme radical teaching by influential members of the profession, such as Dr. Morris, is well calculated to do great injury, by *precipitating an epidemic of laparotomies* by a large class of surgeons who always follow their leaders, and always consider themselves safe from adverse criticism as long as they are fortified by 'authorities.' Similar teachings a few years ago, precipitated upon the unfortunate women of this country an epidemic of operative procedure for the relief of *ovarian disease*, and there is not a doubt but that thousands of healthy ovaries were thereby sacrificed to the sinister teaching of a few leading members of the profession. We are glad to know that conservative surgery has at length placed a check upon this needless sacrifice of the procreative faculties of women, and the great pendulum of public opinion is moving in the opposite direction. And so it will prove, we trust, in operations for appendicitis. *Conservatism* will assert its influence and power, and *nature will first be given a chance*, assisted by the intelligent efforts of the physician, to remove *trifling ailments* in and about the appendix, before the peritoneal cavity is invaded by the surgeon's knife. We know from our own experience and observation that *a great majority of such cases recover without operation*, and we earnestly exhort the members of the profession to use *their own judgment* in every case of appendicitis as to the propriety of operation. We notice in the communication of Dr. Morris, above alluded to, an apparent *intolerance of the opinion, and even of the truthfulness*, of other members of the profession, which we think sadly out of place in the discussion of a subject involving as it does the lives and welfare of the people. Infallibility must not be accredited to any one, and experience from every source upon this important subject is valuable to the profession, and should not be captiously objected to or rejected because it does not accord with our own opinions or experience."

ANSWERS.

1. *Extreme positions.*—It makes a difference whether an extreme position is based upon knowledge or upon theory. The subject of appendicitis is so thoroughly understood by a part of the profession, and the data are so well classified, that we can now maintain the extreme position that operation should be done as soon as the diagnosis of appendicitis has been made. In diphtheria we take the extreme position that every case of true diphtheria should be isolated, because of the danger of its infecting other patients. In appendicitis we take the extreme position that the infected appendix should be isolated because of the danger of its infecting other structures. It is not a question of theory so much as a question of fact.

2. *Precipitating an epidemic of laparotomies.*—This is a matter for which society is responsible. The teaching is not at fault. If society allows badly educated men to graduate from medical colleges, and poorly equipped men to operate for appendicitis, to society must come the consequences.

The teaching of a correct surgical principle should not be abrogated on the ground that many improperly prepared men will try to carry it into effect. Judges know how many legal cases are lost for clients, because lawyers prepare the cases improperly for trial, but the judges do not argue that principles in law should not be taught to all classes of lawyers.

3. *The epidemic of operation for diseased ovaries.*—That again was a case in which correct principles were taught, and unprepared men often tried to carry them into effect. The careful, conscientious, educated gynecologist is a trustworthy man, and in him the good people may repose confidence. The responsibility for pendulum movements lies chiefly with the sort of people who do not choose the careful, conscientious, educated gynecologist or surgeon when wise counsel is needed.

4. *Conservatism in treatment of appendicitis.*—I would call the attention of philologists to the curious use that is made of the word "conservatism" as applied in appendicitis controversies. "Conservative treatment" is understood to mean medical treatment during a part or the whole of an acute attack of bacterial infection of the appendix. The death rate in appendix treated by medical means alone has been shown to amount to more than 10 per cent. in primary attacks, and more than 25 per cent. eventually. The death rate in appendicitis under proper surgical treatment at the proper time has been shown to be less than 1 per cent. at the hands of several American surgeons, but this is curiously enough known as "radical treatment" in contradistinction to "conservative treatment" with its high death rate. The suffering caused by bacteria during "conservative treatment" is much greater than the suffering caused by "radical treatment," if we may judge from the testimony given by a series of patients whose answers to questions are to appear in a forthcoming number of the *Medical Record.* The loss of time to the patients is greater under "conservative treatment" than under proper "radical treatment." We hear a good deal about treating cases "conservatively until operation is required." This phrase usually means that the cases are to be allowed to drift into such complications that the patient may be expected to suffer from the results of complications after the operation has been done.

Philologists then will please take note on the curious use of the word conservatism as it has come to be applied in appendicitis controversies. If the philologists wish to know the reason for this use of the word, I will remind them that conservatism takes the place of knowledge, that a large part of the profession is uninformed upon the subject of appendicitis, that the word "operation" has more disagreeable suggestions than the word "bacteria" unless one is fully informed upon both subjects, and that the very busy physician is in such demand by his patients that it is a physical impossibility for him to man-

age the unwieldy sum-total of our advanced medical knowledge of today. The outlook is more and more hopeless unless we can some day have a medical tribunal or clearing house, for classifying that part of our knowledge that has become scientific, and obstructing the publication of crude controversial articles which confuse the busy physician who is eager to be upon the the right side.

5. *Giving nature a chance.*—A chance to do what? To raise a thriving colony of bacteria or to destroy them with polynuclear leucocytes in the interests of the man? Nature presumably cares no more for a man than she does for a fine nest of growing bacteria. Both are her possessions. She wishes to have both of them survive. She has equipped both of them with means for offense and defense. When there is a struggle for supremacy and nature does not seem to know which side to favor, the well informed patient chooses a skilful surgeon for his ally, and nature is not given a chance to cultivate her bacteria at the expense of a beloved father, or mother, or sister, or brother. It is a pretty conceit on the part of man, this assumption that nature cares more for his welfare than for the welfare of a progressive thriving colony of bacteria. It is parallel to the idea that man must be a special creation.

6. *Trifling ailments about the appendix.*—None of my remarks apply to the matter of trifling ailments about the appendix. They apply only to cases of true infective appendicitis in which bacteria are injuring the tissues, and in which the physician possesses sufficient diagnostic acumen to know what is going on.

7. *Majority recover without operation.*—About 75 per cent. of appendicitis patients are believed to recover without operation (See "Lectures on Appendicitis," Second Edition), but at what cost? At the cost of risking a death-rate of 25 per cent. which need not be 1 per cent. At the cost of more suffering, and more loss of time, and more chronic ill health than any one within reach of the resources of modern civilization need suffer.

8. *Members of profession to use their own judgment about propriety of operation.*—Within a month I have seen two cases in which the free abdominal cavity was filled with pus, and in which some of the consulting physicians thought that symptoms did not warrant operation. Within a year I have seen at least six cases in which the appendix was the focus of tuberculous infection which was extending to peritoneum and neighboring bowel, and yet the symptoms were so mild that several consultants had advised against operation. I have seen a case of cancer of the appendix in which consultants were not at all agreed that the symptoms were sufficient to warrant operation, until the cancer had reached an incurable stage. Within a year I have operated upon perhaps twenty-five cases in which perforation of the appendix had already occurred, and in which some of the consultants thought that the symptoms were those of "catarrhal appendicitis" only. Shall we then let members of the profession all use their own judgment, or shall we ask the men who are thoroughly familiar with the subject to teach principles and make rules for aiding those whose opportunities for gaining accurate information have been more limited. Human life is directly at stake in this matter. Physicians are directly responsible, because trusting patients place their lives, their hopes, their all, in the hands of physicians who are not at all prepared to take such sacred responsibilities.

9. *Intolerance of opinion of others.*—I am tolerant of the opinion of every man who tries to obtain his facts in a scientific manner. I am intolerant of the opinion of any man who becomes intoxicated by the spirit of controversy, and who tries, when in that condition, to mislead himself and every one else. I have not questioned the truthfulness of any physician who has published lists of appendicitis cases cured by medical treatment, but have simply charged such authors with being slovenly and careless while they were intoxicated with the spirit of controversy. I have been, and shall be, upon the watch for all such published lists, and shall expect to find in the future, as I have in the past, that a very little cross-questioning is disastrous to the authors of lists of "cured cases." They will be requested to give us the time during which appendicitis patients have been watched, the number of recurrent attacks, the number of deaths, the number of patients who subjected themselves to operation, and the length, breadth, position and condition of the appendices as determined by palpation in the interval between attacks. Patients will not be considered to be cured because they did not return for treatment.

The particular author whom the editor of the *News* suspects has been charged with untruthfulness, published a long list of cases of appendicitis cured by medical means, and when I challenged the accuracy of his report he admitted that he did not know what had become of most of the cases. I learned shortly of three of his cases that had subjected themselves to operation, of one that was carrying a chronic pelvic abscess from appendicitis. Another one of the patients came to my office because the symptoms had recurred, and the case proved to be one of loose kidney, with the kidney in the appendix region. The appendix was normal.

I did not charge this author with being untruthful, but simply intimated that he was intoxicated with the spirit of controversy, and when in that condition he was slovenly in making up his report. Hundreds of physicians and laymen are misled by such reports. The farce tragedy has been played long enough. Human life is directly at stake, and I propose to call to acccount physicians who insist upon trying to mislead themselves and others. Call it intolerance if you will, but I have no motive excepting that of being useful to the profession to which I have sworn allegiance, and there will be no intolerance manifested toward the author of any paper which takes into account our classified knowledge on the subject of appendicitis, and which bears the ear marks of that degree of care which is required in reporting upon a subject which directly involves human life.

49 West Thirty-ninth St. ROBERT T. MORRIS, M.D.

Air is Food; Nitrogen; Correction.

NEW YORK CITY.

To the Editor:—In your issue of Feb. 12, 1898, there were omissions in "Air is Food; Nitrogen": page 365, column 1, lines 46 to 52; page 366, column 1, lines 1 to 5, 6 to 9, 16 to 20, 25 to 29, 34 to 39. These were quotations from the late Dr. W. Thornton of Boston. My explanation is that said quotations were in Prof. W. B. McVey's contribution and that I did not know they were Dr. Thornton's. Professor McVey says that he thought he had given credit. As he is now investigating N. on these lines, it is to be hoped that Dr. E. C. Hebbard of Boston (who kindly brought the matter to my attention and whom I thank), and all who feel that N. is not given its due dynamic influence, will work together, especially now when the whole world has been startled by the blowing up of the *Maine*, which would have been impossible without nitrogen.

Yours truly, EPHRAIM CUTTER, M.D.

Location of Intestinal Obstruction.

LA GRANGE, ILL., May 7, 1898.

To the Editor:—Supplementary to the suggestion of a "Simple and Safe Method in Determining the Location of Intestinal Obstruction," by R. S. Reed of Wheeling, W. Va., I call the attention of the writer to the curious fact, pointed out by Nothnagel of Germany, that when a crystal of carbonate of soda is applied to the peritoneal surface of the intestines, it will invariably excite its contraction and which passes upward toward the stomach, antiperistaltic; never toward the rectum. But one opportunity to test this has been afforded me, which, however, corroborated the assertion of Dr. Nothnagel.

F. A. SCHMIDT, M.D.

ASSOCIATION NEWS.

The Denver Meeting.

Announcement.—The following arrangements have been made for the Denver meeting of the AMERICAN MEDICAL ASSOCIATION:

Section Dinners will be given June 7, at 7:30 P.M., and social entertainments will be given on other evenings during the week.

Ladies' headquarters will be at Unity Church, where they will be received by the wives of physicians of Denver. Arrangements have been effected for their entertainment during their visit, and committees will escort the visiting ladies to the various points of interest in Denver.

On Friday June 10, a complimentary excursion to Idaho Springs and around the loop will be given by the Colorado State Medical Society. At Idaho Springs, the ASSOCIATION will be entertained by the citizens.

On Saturday, a complimentary trip will be made to Colorado Springs under the auspices of the Committee of Arrangements. At Colorado Springs the ASSOCIATION will be entertained by the local physicians and citizens. Visits will be made to all points of interest in the vicinity. Arrangements will be made for trips to Pike's Peak and the celebrated mining camp of Cripple Creek at low rates of fare.

At a date to be determined, special trains for Glenwood Springs will leave Colorado Springs via The Denver and Rio Grande Railroad and the Colorado Midland Railroad. Tickets $5.00, good going via one railroad and returning the other, and for ten days from date of issue.

The trip to Glenwood is one of the most attractive in Colorado, giving excursionists a view of some of the finest scenery in the Rocky Mountains, including Pike's Peak, Ute Pass, the Valley of the Arkansas, Hagerman Pass, Canons of the Roaring Fork and Frying Pan, Canons of the Grand and Eagle Rivers, Tennessee Pass and the Royal Gorge of the Arkansas and passing through the cities of Pueblo, Leadville, Canon City and Florence.

Special Hotel rates will be given by the Hotel Colorado and other Hotels of Glenwood Springs. The springs, baths and swimming pool will be free to the ASSOCIATION.

Special cars will be hauled on the Colorado Springs train and the Glenwood Springs Special, only when handed to the railroads with their full capacity.

Railroad Rates.—As previously announced, the Western Passenger Association (including all lines running between Chicago and Denver) has granted a rate to Denver and return of one-half fare, plus $2, thirty-day limit, for business from Chicago, St. Louis and intermediate points. Tickets on sale June 2, 4 and 5 east of the Missouri River; June 5 and 6 west of the Missouri River.

The same rate is announced by the Frisco Line, the Missouri, Kansas and Texas Railway and the Fort Worth and Denver City Railway.

The Central Passenger Association have agreed to adopt the rate of the Western Passenger Association throughout the territory covered by their lines, and formal announcement is expected shortly.

From Ogden and Salt Lake, the round trip rate of $20, thirty-day limit, will be in force.

The rate of one fare for the round trip from the common points, Pueblo, Colorado Springs and Denver, to points in Colorado is also announced.

Excursion tickets to Salt Lake and Ogden will be on sale at Denver on the closing date of the meeting and on the two days following, good to return twenty days from date of sale. Stop-overs will be allowed within a transit limit of ten days. Rate $18.

Rates over other lines will be announced as soon as determined.

COMMITTEE OF ARRANGEMENTS.

Section Dinners.—The following Section Dinners will be given at the Denver meeting of the AMERICAN MEDICAL ASSOCIATION on Tuesday, June 7, at 7:30 P.M.:

Practice of Medicine, Metropole Hotel.
Surgery and Anatomy; Obstetrics and Diseases of Women; Ophthalmology, Brown Palace Hotel.
Laryngology, L'Imperiale Hotel.
Materia Medica, Pharmacy and Therapeutics; Cutaneous Medicine and Surgery, Windsor Hotel.
Diseases of Children, The Albany Hotel.
Neurology and Medical Jurisprudence, University Club.
Stomatology, St. James Hotel.

In order that satisfactory arrangements may be made for dinners, it is essential that all members who expect to be present notify the Chairman of Committee on Section Dinners as soon as possible and not later than June 4.

E. C. RIVERS, Chairman,
16th and Stout Sts., Denver, Colo.

Railroad Rates for the Denver Meeting.—The Committee on Transportation, appointed at the Philadelphia meeting, consisting of Drs. H. L. E. Johnson of Washington, D. C., Charles A. L. Reed of Cincinnati and Henry D. Holton of Vermont, have been very active in their endeavors to secure a one fare rate with diverse return route and thirty days limit, to the members of the ASSOCIATION. The western roads have been late in promulgating their action to the other Railroad Associations, and the Central Traffic and Trunk Lines Association will not act until Tuesday, the 11th, instant, after which the Transportation Committee, which has co-operated with the Denver Committee of Arrangements, will make their report through the JOURNAL. The Pennsylvania road is in full sympathy with the rate movement of the physicians and it is working in the Trunk Lines Association to secure the rate desired. In securing reduced rates in the East, the Committee has had to face the fact that the ordinary rate per mile is less than the mile rate in the other passenger territory, hence the one and a third rate granted in the East is practically the half fare rate of the West. The Committee expects, however, to be able to report the one-fare rate, for the Denver Meeting.

H. L. E. JOHNSON, Chairman Transportation Com.

Hotels.—The following is a list of the principal hotels of Denver with the rates agreed upon for the meeting:

The Brown Palace Hotel, 17th Street and Broadway. Take 17th Street (red) car to Hotel. European plan, $1.50 per day and upward.

The Windsor Hotel, 18th and Larimer Streets. Take 17th Street car to Larimer Street. American plan, $2.00 per day; room with bath, $2.50 per day.

The Albany, 17th and Stout Streets. Take 17th Street (red) car to Hotel. American plan, $2.00 to $3.50 per day.

The Markham Hotel, 17th and Lawrence Streets. Take 17th Street car to Hotel. European plan, $1.00 per day and upward.

All reservations at the Albany and Markham must be for the full term of the Meeting, and be paid for whether occupied or not unless canceled ten days in advance. They reserve the right to place persons occupying a room alone in a single room.

The New St. James Hotel, Curtis near 16th Street. Take 17th Street (blue) car to Hotel. American plan, $2.00 to $3.50 per day.

L'Imperiale, 14th Street and Court Place. Take Colfax Avenue car to Court Place. American plan, $2.00 to $3.00 per day.

Metropole Hotel, Broadway near 17th Street. Take 17th Street (red) car to Broadway. European plan, $1.00 to $2.00 per day. $1.00 rooms, $1.50 if occupied by two persons. No reservations made.

The Oxford Hotel, 17th and Wazee Streets. Two blocks above depot. European plan, $1.00 to $3.00 per day. An extra charge for two persons in one room.

The American House, 16th and Blake Streets. Take 16th Street car to Blake Street. American plan, $2.00 per day.

The above hotels make no extra charge for reservations or for persons occupying a room alone except as stated.

The Hotel Broadway, Cheyenne Street and Broadway. Take Colfax Avenue car to Cheyenne Street. American plan, $1.25 to $1.50 per day.

The Vallejo, 1420 Logan Avenue. Take Colfax Avenue car to Logan Avenue. American plan, $2.00 per day and upward.

The Devonshire, 14th and Logan Avenues. Take Colfax Avenue car to Logan Avenue. American plan, $1.50 per day and upward.

The Albert, 17th and Welton Streets. Take 17th Street (red) car to hotel. European plan, $1.00 to $1.50 per day.

The Aldine, 1013 Seventeenth Avenue. Take 17th Street (red) car to hotel. American plan, $1.25 per day.

The Richelieu, 1727 Tremont Street. Take 17th Street (red) car to Tremont Street. European plan, $0.50 to $1.00 per day.

The Earl, 1430 Tremont Street. Take Colfax Avenue car to Tremont Street. American plan, $1.50 to $2.00 per day.

Glenarm Hotel, Glenarm and 15th Streets. Take Colfax Avenue car to hotel. European plan, $1.00 per day and upward.

The Bonaventure, 18th and Glenarm Streets. Take 17th Street (red) car to Glenarm Street. European plan, $0.50 to $1.50 per day.

The Drexel, 17th and Glenarm Streets. Take 17th Street (red) car to hotel. European plan, .75 to $1.50 per day.

These hotels make small extra charges for two persons occupying same room. No charge for reservation.

Applications for rooms should be made to the hotels direct. For special information apply to ROBERT LEVY, M.D., Chairman Sub-Committee on Hotels, California Building, Denver, Colo.

J. W. GRAHAM, M.D., Chairman.
W. A. JAYNE, M.D., Secretary.

Rush Monument Fund.—The following subscriptions to the Rush Monument Fund have been received:

June 10, 1897, Dr. Elmer Lee, New York	$ 1.00
June 10, 1897, Dr. E. D. Ferguson, Troy, N. Y.	5.00
June 10, 1897, Camden Co , N. J., Medical Society (through Dr. J. M. Ridge)	21.00
Dec. 14, 1897, Dr. H. D. Holton, Brattleboro', Vt.	100.00
Through Committee of American Medico-Psychological Association, from Dr. G. Alder Blumer, Utica, N. Y.	5.00
Dr. D. R. Burrell, Canandaigua, N. Y.	5.00
Dr. Gershom H. Hill, Independence, Iowa.	10.00
Dr. F. C. Hoyt, Clarinda, Iowa	5.00
Dr. C. S. Applegate, Clarinda, Iowa	2.00
Dr. Anna Burnett, Clarinda, Iowa	2.00
D. A. T. Gundry, Clarinda, Iowa	1.00
Dr. H. A. Gilman, Mt. Pleasant, Iowa	5.00
Total	$ 162.00
Before reported (June, 1897)	4112.44
Total	$4274.44

GEORGE H. ROHÉ, Secretary and Treasurer.

Section on Practice of Medicine.—The following papers are announced:

Address of the Chairman, by Samuel A. Fisk, Denver.

Discussion on Perforative Peritonitis, by J. C. Wilson, Philadelphia; J. B. Deaver, Philadelphia; F. C. Shattuck, Boston; Nicholas Senn, Chicago; W. S. Halsted, Baltimore; W. W. Keen, Philadelphia; J. H. Musser, Philadelphia; W. M. Polk, New York; C. G. Stockton, Buffalo; A. Lawrence Mason, Boston.

Yellow Fever, by P. E. Archinard, New Orleans.

Differential Diagnosis Between Yellow Fever and Dengue, with Some Account of the Epidemic in Texas of 1897, by H. A. West, Galveston.

(a) Diagnosis and Treatment of Headaches Due to Intestinal Toxemia; (b) A Case of Pernicious Anemia Due to Intestinal Toxemia, by Judson Daland, Philadelphia.

Weil's Disease, by N. S. Davis, Jr., Chicago.

Course and Management of Chronic Complicating Myocarditis, by Louis Faugeres Bishop, New York.

What Caused the Great Mortality Among the Plymouth Pilgrims in 1620-21, by I. N. Danforth, Chicago.

Physiologic and Clinical Relations of the Papillary Muscles of the Heart, by Henry Sewall, Denver.

Differentiation of Cardiac Incompetency of Intrinsic Heart Disease and Chronic Nephritis, by Frank Billings, Chicago.

Treatment of Diseases of the Duodenum by Direct Methods, by Fenton B. Turck, Chicago.

Dilatation of the Stomach, with Reports of Cases Treated by Diet, Massage and Intra-gastric Electricity, by Boardman Reed, Philadelphia.

(a) Nephritis Without Albuminuria; (b) Acute Febrile Jaundice, Arthur R. Edwards, Chicago.

Diabetes Mellitus at the Massachusetts General Hospital, from 1821-97; A Study of the Records, by Reginald H. Fitz and Elliott P. Joslin, Boston.

Subject to be announced, by James Tyson, Philadelphia.

Rare Forms of Arhythmia, by J. M. Anders, Philadelpia.

A Consideration of Four Cases of Epilepsy, with a Reference to the Cause, by Charles S. Bond, Richmond, Ind.

Rheumatoid Arthritis in a Child; Illustrated with Skiagraphs, by J. B. Marvin, Louisville.

The Association of Chronic Diarrhea with Achylia Gastrica, by Allen A. Jones, Buffalo.

Stomach Disturbances Caused by Hernia Epigastrica, with Report of Cases, by Charles D. Aaron, Detroit.

The Value of Sweat on Excretion, with Some Experiments, by Lewis R. Morris, New York.

Indol, Indican and Indigo Blue; Their Pathologic Significance and Clinical Value, by F. Leonard Vaux, Toronto.

Results from Some Experiments on Rabbits Imported to Colorado from the Sea Level, Conducted to Ascertain any Difference in the Bactericidal Action of Their Blood and the Accompanying Blood Changes, by Louis E. Livingood, Baltimore, and Gerald E. Webb, Colorado Springs.

The Influence of Sunlight on Tubercular Sputum in Denver, by W. C. Mitchell and H. C. Crouch, Denver.

The Treatment of Pulmonary Sepsis, by James T. Whittaker, Cincinnati.

The Treatment of Tuberculosis with the Products of Tubercle Bacilli, by Prof. Edwin Klebs, Chicago.

Some Neglected Physical Signs in Chest Diseases, by Norman Bridge, Los Angeles.

Additional Experiments with my Anti-phthisis Serum T. R., by C. Fisch, St. Louis.

Oxytuberculin in Tuberculosis, by J. O. Hirschfelder, San Francisco.

(a) The Diagnosis of Pulmonary Tuberculosis when the Tubercle Bacilli are not Present in the Sputum; (b) The Treatment of Pulmonary Tuberculosis, by DeLancey Rochester, Buffalo.

The Influence of the Climate of Arizona on Cases of Chronic Tuberculosis, by E. Everts, U. S. A., Whipple Barracks, Arizona.

Tuberculosis in Combination with Syphilis, by Carl Reudi, Arosa, Switzerland.

Tuberculosis and its Treatment by the Later Methods; Subject Illustrated by Twelve Clinical Cases, by A. G. Deardorff, San Francisco.

Modern Methods of Dealing with Pulmonary Consumption, by William F. Waugh, Chicago.

Permanent Cure of Tuberculosis by the Use of Anti-tubercular Serum (Paquin), by J. A. Dunwoody, Cripple Creek.

The Medical Treatment of Appendicitis, by Elmer Lee, New York. Discussed by E. J. A. Rogers, Henry Sewall, E. J. Rothwell, E. P. Hershey, B. C. Leavitt, C. E. Edson, Denver.

The Cataphoric Treatment of Cancer; a further Contribution, by G. Betton Massey, Philadelphia.

The Psychology of Habitual Constipation, by A. H. Burr, Chicago.

Rest; a Neglected Factor in the Therapeutics of Gastro-enteric Diseases, by C. D. Spivak, Denver.

Report of Case; Aneurysm of the Concavity of the Transverse Arch, Appearing Externally as a Large Tumor in the Region of the Heart; Exhibition of Specimens, by H. W. McLaughlin and William N. Beggs, Denver.

The Causes of the Inconstancy of Mitral Systolic Murmurs, by J. N. Hall, Denver.

Three Cases of Toxic Hemoglobinuria; Two Deaths, One Recovery, by George J. Hirth, Milwaukee.

Section on Obstetrics and Diseases of Women.—The following additional papers are announced for this Section:

Septicemia of Nasal Origin Complicating Celiotomy, Hugo O. Pantzer, Indianapolis, Ind.

Uterus and Child from the First Week of Gestation to the Commencement of Labor and the Formation of the Placenta, E. Gustav Zinke, Cincinnati, Ohio.

Treatment of Pelvic Abscesses, Howard A. Kelly, Baltimore.

Suspensio Uteri and Alexander's Operation; Which? When? How? D. C. Brockman, Ottumwa, Iowa.

The Rational Treatment of Chronic Endometritis and Metritis, Augustin H. Goelet, New York City.

Surgery of the Common Bile Duct, W. E. B. Davis, Birmingham, Ala.

The Use of the Curette in Acute Infection of Uterus with Adherent Placenta, D. S. Fairchild, Clinton, Iowa.

Gonorrhea as a Factor in Puerperal Fever, Albert H. Burr. Chicago, Ill.

A Valuable Modification of the Apostoli Treatment of Fibroid Tumors, G. Betton Massey, Philadelphia, Pa.

Sigmoid Surgery from the Intra-Pelvic or Intra-Abdominal Standpoint, J. G. Carpenter, Standford, Ky.

A Plea for the More Correct Application of the Emmet Method in Plastic Surgery, W. D. Haggard, Jr., Nashville, Tenn.

Section on Stomatology.—Dr. G. V. I. Brown, Milwaukee, Wis., Chairman: Dr. Eugene S. Talbot, Chicago Ill., Secretary. The following papers will be presented at the next meeting:

Chairman's Address, by G. V. I. Brown, Milwaukee, Wis.

Methods of Teaching Materia Medica, with Special Reference to the Needs of Dental Students, by W. B. Hill, Milwaukee, Wis.

A Method of Handling Alveolar Pyorrhea, by G. T. Carpenter, Chicago, Ill.

Only a Baby Tooth, by W. H. Hall, Denver, Colo.

The Management of Pulpless Teeth, by J. Taft, Cincinnati, Ohio.

Epulides, by W. Knight, Cincinnati, Ohio.

Dental Septicemia of the Antrum, by V. A. Latham, Chicago.

Some Facial Deformities and their Prevention, by A. E. Baldwin, Chicago, Ill.

Jaw Movements in Relation to Tooth Forms, by A. H. Thompson, Topeka, Kan.

Irregularities of the Dental Arch, by Eugene S. Talbot, Chicago, Ill.

The Resistance of the Mucous Membranes to Bacterial Infection, by V. A. Gudex, Milwaukee, Wis.

The Morbid Susceptibility of Dental Structures is Greater than that of Other Tissues, by A. H. Sawins, Denver, Colo.

Have We Progressed? by J. M. Porter, Denver, Colo.

SOCIETY NEWS.

Illinois State Medical Society.—For the forty-eighth annual meeting at Galesburg, May 17, 18 and 19, 1898, a rate of one fare and one-third on the certificate plan ($6.50 for the round trip from Chicago) is announced.

Association of Military Surgeons of the United States.—On account of the occupation of the members in connection with the war with Spain, it is announced that the eighth annual meeting, which was to have taken place June 1, 2 and 3 next, is postponed to a date to be fixed hereafter by the Executive Committee. JAMES E. PILCHER, Capt. Med. Dept. U. S. Army, Secretary; J. D. GRIFFTH, Lieut.-Col. and Med. Dir., N. G. Mo., President, Kansas City, Mo.

Association of American Medical Colleges.—The annual meeting of this association will be held at the Brown Palace Hotel, Denver, Colo., Monday, June 6, 1898, beginning at 10 o'clock in the morning. The Judicial Council will meet at the same place at 9:30 A. M. Each college, member of the association, is entitled to one representative and to one vote in all proceedings. The dean of the college is the official representative. When any other person acts in that capacity, he or she should bear an official appointment from the proper officers of the college. At a meeting of representatives of members of the association in Chicago, the following amendments to the Constitution were proposed:

Article III, Section 5 to read after "each course of at least six months duration," and each course of not less than 800 recitation hours, clinical and laboratory hours counting as half hours.

Article III, Section 7. A college not giving the whole four courses of the medical curriculum but otherwise eligible to membership may be admitted to membership the same as if it completed the curriculum and graduated students.

The members of the boards of examiners of the several states and all medical teachers are invited to the morning session and to listen to the president's address in the afternoon. HAYARD HOLMES, 104 E. Fortieth St., Chicago, Secretary.

The American Gastro-Enterological Association.—At the annual session of the American Gastro-Enterological Association held in Washington, D. C., May 3, 1898, the following officers were elected: President, D. D. Stewart, Philadelphia; first vice-president, Max Einhorn, New York; second vice-president, John C. Hemmeter, Baltimore; secretary and treasurer, Charles D. Aaron, Detroit. Council: Henry L. Elsner, Syracuse; A. P. Buchman, Fort Wayne; Frank P. Murdock, Pittsburg. The following papers were read:

A Case of Atrophy of the Stomach, with Exhibition of Specimen, by Julius Friedenwald, Baltimore, Md.

a, A case of Acute Pancreatitis; *b*, Carcinoma of the Cardia, by Morris Manges, New York.

Nervous Dyspepsia, with Report of Cases, by Frank H. Murdock, Pittsburg, Pa.

a, The Effect of Auto-intoxication on the Liver and Kidneys; *b*, Exhibition of New Instruments for Intubating the Duodenum and Outlining the Greater Curvature and Colon, by John C. Hemmeter, Baltimore, Md.

Precision of Terms in Diseases of the Stomach, by Chas. D. Aaron, Detroit, Mich.

Ohio State Medical Society.—Resolutions passed.

COLUMBUS, OHIO, May 5, 1898.

To the Editor:—The enclosed report with its recommendations, was adopted today by the Ohio State Medical Society. The immediate publication of it will be a favor, as it will be presented for action at the Denver meeting of the AMERICAN MEDICAL ASSOCIATION. Yours truly,

JNO. A. THOMPSON, Secy.

To the President and Members of the Ohio State Medical Society.

Gentlemen:—Your committee on National Legislation appointed in response to the overture of the New York State Medical Society has awaited the call of the committee of that society for a meeting in Washington to perfect a National organization, but so far no call has been received. Copies of the resolutions of this society anent the Antivivisection Bill of Senator Gallinger, still pending, were sent by your chairman to Dr. Busey, chairman of the District Committee of the District of Columbia, and likewise to Senators Foraker and Hanna. Your committee received a reply from Senator Foraker and a promise to give your request a favorable consideration, but so far received no reply from Senator Hanna. The District Committee, however, caused your resolutions to be printed and placed in the hands of every member of the Senate. Apparently, if we may judge from the circular letter sent out recently by Dr. Howard Kelly of Baltimore, Senator Gallinger is still obstinate in his determination to override the all but unanimous sentiment of the medical profession, and to push the enactment of his mischievous measure into law. But up to this time, owing in no small degree to the efforts of this society, he has not yet succeeded in bringing it to a vote. But the antivivisectionists are persistent; they have ample means and time at their disposal; they have able and influential advocates resident in Washington, and the medical profession must also have its men on the ground, acting with full authority delegated to them in order to counteract the efforts of the so-called humane organizations to hamper and hopelessly cripple biologic and physiologic investigation in the Government laboratories, and in the medical schools of the District of Columbia.

It seemed to your committee last year that the New York plan provided for too large a body, a body which from its very size would prove too unwieldly for prompt and effective work, but the need of a body which shall authoritatively represent the convictions of the organized medical profession upon those matters of legislation, regarding which the medical profession alone has the training requisite to speak with proper authority, become increasingly evident, and your committee beg leave to submit the following plan of organization for the consideration of this society:

1. That the AMERICAN MEDICAL ASSOCIATION be requested to appoint a standing committee of three on National legislation, one member to be a resident of Washington, one of Baltimore and one of Philadelphia. A committee so located could be called together at Washington on short notice and appear before the committees of Congress at any time.

2. That each State society of legally qualified practitioners of medicine be requested to appoint a committee of one on National legislation, such committee to keep himself in communication with the senators and representatives from his own State, so that they may be always kept in touch with the medical profession concerning matters of sanitary and medical legislation.

3. That a joint meeting of the committee of the AMERICAN MEDICAL ASSOCIATION and the committeemen of the several

State societies be held in Washington subject to the call of the Committee of the AMERICAN MEDICAL ASSOCIATION. The purpose of that meeting would be to give opportunity for each State committeeman to personally interview the Representatives and Senators from his own State, and for the committee as a whole or by subcommittees to appear before the various congressional committees to set before them authoritatively the sentiments of the medical profession regarding pending legislation, and to urge the passage of measures upon which the medical profession of the nation have already agreed, and to which they have already given support by formal action. Meeting thus on the ground and consulting together the members of such joint committee would moreover become better cognizant of matters upon which the medical profession ought to take action, and by embodying such matters in their annual reports to their respective societies the sentiment of the medical profession as a whole would become promptly and authoritatively declared. We should thus begin to act as a unit in matters of national legislation affecting the sanitary interests of the people as a whole.

4. That the necessary expenses of these committeemen be borne by their respective societies.

In conclusion, your committee would recommend the adoption of the following resolutions:

Resolved, That we again enter our earnest protest against Senate Bill No. 1063, entitled "A Bill for the Further Prevention of Cruelty to Animals in the District of Columbia," for the reason that existing laws amply provide for the prosecution and punishment of any real cruelty to animals which may be proven to occur within the District, and because the physicians and scientists of the District have not so conducted themselves in the past as to warrant the system of irresponsible espionage authorized by the bill, and further because the paramount interest of the sick and afflicted demands that the medical profession shall have liberty to investigate the nature and treatment of disease free from cumbersome and vexatious restrictions such as are provided in the measure in question.

Resolved, That we again urge upon Congress the necessity of thorough inspection by a medical officer of the United States of all immigrants and their baggage before they embark for this country, in order that the importation of contagious and infectious filth diseases may be more effectually prevented.

Resolved, That the secretary of this Society send a copy of these resolutions to each Senator and Representative in Congress from Ohio, and of the second resolution to the Chairman of the Committee on Commerce and on Immigration of both House and Senate. Respectfully submitted,

L. B. TUCKERMAN,
RUFUS B. HALL,
A. M. BLEILE,
} Committee.

PUBLIC HEALTH.

Non heredity of Tuberculosis.—G. Kuss concludes from extensive research that the immense majority of cases of infantile tuberculosis are acquired after birth by inhaling the germs. The conclusion follows that the children of tuberculous patients should be removed at once after birth from all danger of contagion and brought up in an environment entirely free from tuberculous products.—*Thèse de Paris*, 1898.

Lepers Before the Courts.—A number of lepers in a Russian leprosorium recently attacked and flogged the superintending physician and were summoned to answer at the bar of justice for their criminal assault. But the court and jail officials objected decidedly to their presence and appealed to the higher courts, which decided the unprecedented affair by canceling the summons and leaving the matter to the administration of the institution.—*St. Petersburg Med. Woch.*, April 9.

Endemic Pneumonia.—The *Deutsche Med. Woch.* of April 7 contains an account of four cases of extremely malignant lobular pneumonia in a family. The necropsy of one of the three fatal cases disclosed a mixed infection with the streptococcus and bacillus proteus. A parrot in the house was also affected, but no bacteriologic connection between it and the other cases could be established.

Bubonic Plague in Hong Kong.—Advices by the steamer *Columbia* from the Orient as reported from Tacoma, Wash., May 5, bring the current history down to April 6. In the week previous to the latter date cases in Hong Kong had increased a the colonial government was busy with plans to prevent spread. A correspondent of the Hong Kong press states th forty new cases were occurring daily. A medical inspection Chinese coming from Macao and Canton, where smallpox w also prevalent, has been instituted.

Pharmaceutic Advertisements in Non-medical Journals are n allowed in Russia, according to the *Progrès Méd.* No special can be advertised except in the medical press. A recent decr in Germany places "secret medicines" under the same regul tions as poisons. The name, price, composition and mak must be plainly indicated; no testimonials, etc., are allow on the bottle or wrapper. The administration reserves t right to prohibit the sale of certain remedies and establish maximum price. Similar regulations are already in force Russia.

How Long Will Diphtheria Serum Retain its efficiency was di cussed by Aaser of Norway (*vide* JOURNAL, page 1060), and h conclusions for that cold climate have been practically co firmed by Abba of Turin, who states that the shortest peri is a year and a half. It is not affected by light nor temper ture, and some specimens retained their efficiency three yea but as a general rule it can be injected with confidence und a year and a half, without regard to changes in its color transparency.—*Gazz. degli Osp.*, February.

NECROLOGY.

DAVID W. YANDELL, M.D., died at his residence in Loui ville, Ky., May 2, at 10 o'clock, P.M. He was taken serious ill about four years ago, never having been out of the house sin

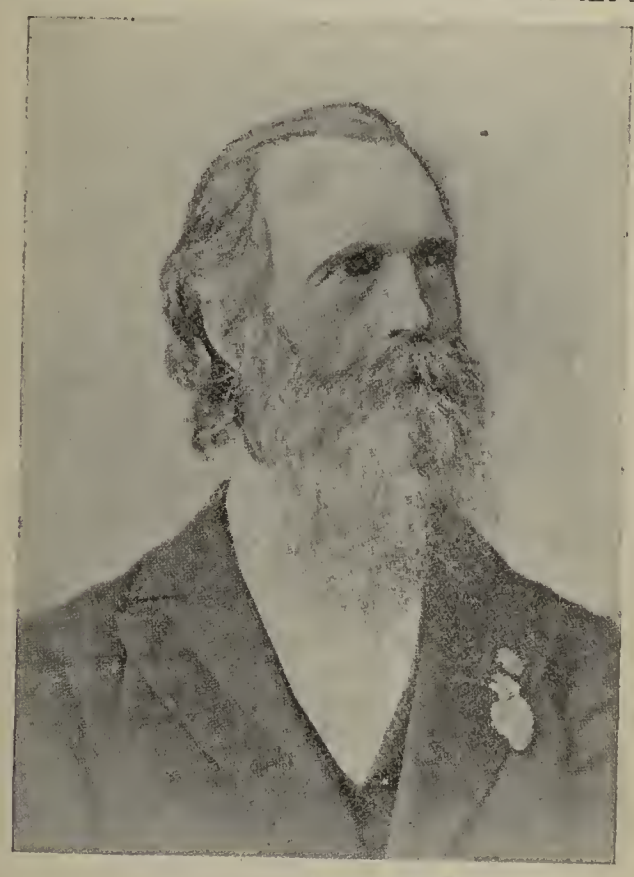


DAVID W. YANDELL, M.D.

that time, his end coming peacefully, surrounded by his famil Dr. Yandell was born in Tennessee, at Craggy Bluff, six mil from Murfreesboro, Sept. 12, 1826. This was near the sp afterward made memorable by one of the bloodiest battles the civil war. His mother was a Miss Waddell and his fath Dr. Lunsford P. Yandell, one of the leading physicians Louisville and a professor in Transylvania University at Le ington, Ky. In 1831 Dr. L. P. Yandell moved to Lexingto where he remained until 1837, when he came to Louisville a

founded the Louisville Medical Institute. The subject of this sketch studied under various teachers in Louisville and Lexington and afterward at Center College, Danville, graduating in medicine at the University of Louisville in 1846. In the fall of the same year he sailed for Paris, and studied medicine there for three years. In 1849 he returned to Louisville, but as his health failed he went to farming near Nashville, Tenn., and began the practice of his profession in Louisville three years later. He established the Stoke's Dispensary and conducted private classes in medicine for several years. In 1867 he was appointed professor in the University of Louisville, of the science and practice of medicine. He retained this chair but one year, when he resigned, but in 1869 he was elected to the chair of surgery and clinical surgery, which chair he occupied until his death. In conjunction with Dr. Parvin of the University he established the *American Practitioner*, which was afterward amalgamated with the *Louisville Medical News* under the name of the *American Practitioner and News*. Dr. Yandell was editor in chief and Dr. H. A. Cottell associate editor. The AMERICAN MEDICAL ASSOCIATION chose Dr. Yandell as its President in 1871, the year it met in Louisville. Dr. Yandell was a member of AMERICAN MEDICAL ASSOCIATION, the American Surgical Association, the Kentucky State Medical Society and all the local societies. He was a fine lecturer and held in the highest esteem by the members of his classes. Although he was not a church member he had the greatest reverence for religion and always endeavored to impress the same ideas on his pupils. His reputation as a surgeon was not acquired by any one remarkable operation but by close and diligent application to his chosen profession. In the fall of 1861 Dr. Yandell enlisted as medical director under Albert Sidney Johnston at Bowling Green, Ky., and continued with him to the time of Johnston's death at Shiloh, April 6, 1862 After General Johnston's death Dr. Yandell was appointed medical director on the staff of Gen. W. G. Hardee, and was with him at the battles of Perryville, Murfreesboro and Chicknauga. He remained with General Hardee until 1864, when he was transferred to the trans-Mississippi department, at his own request, under Gen. Kirby Smith, with whose command he remained until the end of the war. Dr. Yandell was a leader in all public movements. He took a great interest in the Louisville Legion and was its medical director for many years prior to his death. He was a great friend and admirer of Joseph Jefferson, the actor. He was a member of the Pennis, Filson and Salmagundi Clubs and had many good friends among the rich and poor alike. He was a fine sportsman and owned some very fine dogs, although he did not devote very much time to their breeding. He cared more for the dog's ability to find birds than he did for its pedigree. But many months passed without the Doctor taking a little rest and spending a few days in the country hunting. Dr. Yandell was a man of commanding presence and great ability. He was of rough exterior, plain spoken at times almost to the verge of harshness, his rugged bosom encased a heart whose pulsations were all tenderness for the suffering and distressed. Successful as a physician and surgeon he amassed a handsome competence and his purse was always open to the needy. He married Miss Frances Crutcher of Nashville, who survives him, with two daughters, Maria, the wife of Dr. W. O. Roberts, and Susan, Mrs. Jas. F. Buckner. He has one brother, a physician in El Paso, Texas.

ISAAC NEWTON QUIMBY, M.D., New York University Medical College, 1859, member of the AMERICAN MEDICAL ASSOCIATION, New York Gynecological Society of Boston, Mass., Society of Medical Jurisprudence of the Hudson County (N. J.) District Medical Society and a frequent delegate to State medical societies, died at his home in Jersey City, N. J., May 6. He was an active participator in medical debates, a writer of practical papers and at the time of his death was president of the staff of the Jersey City Hospital. Dr. Quimby was born Aug. 5, ... and left an orphan at an early age. In 1859 he graduated from his college with a special certificate of honor. On the breaking out of the civil war he entered the army as a volunteer surgeon, served with General McClellan's forces in the swamps of the Chickahominy and in the Seven Days' Battle. He was also at Antietam, remaining with his division until after the battles of the Wilderness. He was the originator of the Hudson County, now Christ's, Hospital in 1868, and surgeon to the same until 1873. He was one of the founders and the first chairman of the Section on Medical Jurisprudence of the AMERICAN MEDICAL ASSOCIATION. He was also a member of the American Public Health Association, the Medico Legal Society of New York, the Mississippi Valley Medical Association, member of the British Medical Association, of the American Association for the Cure of Inebriety, a delegate from the AMERICAN MEDICAL ASSOCIATION to the International Medical Congress, London, 1881, again in 1884, in Copenhagen, and again in 1894, at Rome, Italy, and a member of the First Pan-American Medical Congress, which met at Washington, D. C., in September, 1893. Dr. Quimby has devised several important improvements in surgical operations, reported in the "Transactions of the AMERICAN MEDICAL ASSOCIATION," and was one of the founders of the American



ISAAC NEWTON QUIMBY, M.D.

Medical Temperance Association in 1891, vice president in 1891. At a special meeting of the staff of the Jersey City Hospital, May 7, 1898, the following resolutions were unanimously adopted:

WHEREAS, Dr. Isaac N. Quimby, for so many years a member of the Jersey City Hospital Staff, has been removed by death, therefore be it

Resolved, That we, the members of the staff, fully realize how great is our loss in being deprived for all future time of the kindly counsel and companionship of our late associate, Dr. Isaac N. Quimby, that we feel that by his death, not only among ourselves, but in the community at large, a vacancy has been created which can not easily be filled. That we tender to his family our most sincere sympathy in their sad bereavement. That a copy of these resolutions be sent to the daily papers of the city and to the prominent medical journals of the country.

PETER GUNTERMAN, M.D., died May 1 after a brief illness. Dr. Gunterman was born in Germany, fifty-five years ago, received his early education there, and when a young man came to this country and was for several years one of the instructors in the Gethsemene Seminary near Bardstown, Ky., a Roman Catholic monastery. He entered the University of Louisville where he was graduated in 1869, beginning the practice of his profession at once in a little town in Indiana,

where he remained for five years, then removed to Louisville, where he practiced his profession continuously to the time of his death. He was a member of the Louisville Clinical Society for a number of years and has contributed some valuable articles at various times at its meetings. He was genial, courteous, kind and a most excellent friend, and his many friends mourn his untimely death.

CHARLES STORCK, M.D., Chicago, died May 6. He was born June 9, 1826, in the Grand Duchy of Baden, won distinction as a captain of engineers in the revolution of 1848, came to this country in 1851, and received his medical degree in 1855 at Albany, N. Y. He served as a surgeon in the civil war until symptoms of heart trouble obliged him to retire from service.

ALBERT BROWNELL WORTHINGTON, M.D., Middle Haddam, Conn., April 26, aged 79 years.——D. C. Durham, M.D. Anoka, Minn, May 20.

MISCELLANY.

The Bacillus Icteroides is said to be one of the most actively pathogenic germs yet discovered. Foa's tests with the serum furnished by Sanarelli confirm the latter's statements in every particular.—*Gazz. d. Osp.*, February.

The Cure of a Congenital Goiter in a Nursling, by thyroid medication taken by the mother, is reported by Mosse. The child showed the effects of the treatment more promptly than the mother—*Bull. de l' Acad. de Méd.*, April 12.

A Tumor in the Femur resembling the structure of the thyroid gland was recently removed by Goebel from a woman of 54 years, who had had femoral hernia twice and pseudo-arthrosis. This makes the sixteenth case of struma metastasis on record. —*Münch. Med. Woch.*, April 12.

The University of Michigan a Beneficiary.—Dr. Elizabeth H. Bates, who died recently at Port Chester, N. Y., has bequeathed property worth $135,000 to the University of Michigan at Ann Arbor. The bequest is to yield $6000 per annum with a view of establishing a professorship for the diseases of women and children.

The Typhoid Bacillus and Arsenious Acid.—Another means of distinguishing between Eberth's bacillus and the bac. coli is that the former will not develop in peptonized bouillon to which one centigram per thousand of arsenious acid has been added, while the bac. coli grows readily in the same containing even as much as one and a half grams of arsenious acid.—*Bull. de la Soc. Méd. des Hôpitaux*, March 24.

Army Surgeons.—The bill (H. R. 9638) to increase the number of surgeons in the United States Army, was passed by the Senate May 6. It is as follows:

Be it enacted, etc., That the number of medical officers of the Army be increased by the addition of fifteen assistant surgeons with the rank of first lieutenant, to be appointed by an Army medical examining board, in accordance with existing regulations.

SEC. 2. That in emergencies the Surgeon-General of the Army, with the approval of the Secretary of War, may appoint as many contract surgeons as may be necessary, at a compensation not to exceed $150 per month.

Radiography of the Stomach.—By mixing bismuth subnitricum with the food and beverages, Roux and Balthazard have succeeded in watching the contractions and action of the stomach during digestion, with the fluoroscope, and taking a series of radiographs of the entire process, in dogs.—*Deu. med. Woch.*, April 7, from *Arch. de Phys.*, x, p. 85.

Dr. Samuel H. Durgin Re-elected.—At a recent meeting, the Boston Board of Health organized by re-election of Dr. Samuel H. Durgin as chairman and Charles E. Davis, Jr., as secretary of the board. Commissioner Edwin L. Pilsbury, whose term of office expired on April 30, holds over until the election of a successor. He is a candidate for re-appointment.

The New Keratin Treatment for Syphilis.—De Lalande reports that he has treated thirty syphilitics during the last two years with a solution made of calves' horns pulverized, 60; chlorid of sodium, 10, and distilled water, 1000, injected subcutaneously, curing every case with from ten to thirty injections, and no relapses to date. He ascribes the effect to a combined sero- and opo- therapeutic action. Full particulars are given in the *Presse Méd.* of March 12.

Compensatory Hypertrophy of the Suprarenals.—Simmonds has observed a case in which one suprarenal, histologically normal, weighed 15 grams and the other, tuberculous, only 2. He has produced a similar compensatory hypertrophy in young animals, but his experiments on older animals were negative, which suggests an explanation of the few instances of this hypertrophy noted at necropsies.—*Münch. Med. Woch.* April 12.

Diphtheria Antitoxin per Os.—Zahorsky (*N. Y. Med. Jour.* March 19) reports results from a study of diphtheria antitoxin administered by the mouth. He found the great objection to its ingestion was its slow absorption, its effect not being noticed for from twenty-eight to thirty-six hours. The sequelæ by this method are similar to those produced by its subcutaneous use but joint pains, erythema, urticaria and dysmenorrhea are no prevented. Its absorption is sometimes delayed or wanting making this method less reliable than the subcutaneous. I should therefore be given by mouth only in exceptional cases in mild cases in adults, or for prophylactic purposes when i should be the preferable method. In the issue of April 9 Fisch reports experiments which confirm the slow absorption of antitoxin given by mouth, but he asserts that for prophylactic purposes it should be thus employed only with carefu discrimination of the conditions.

A Permanent Home for the Paris Académie de Médecine is now assured, as the government has recently appropriated abou $300,000 to erect a suitable building, rue Bonaparte. The rich library and collections of the Académie, containing 180,00 published works, portraits of 6000 physicians, priceless MSS. etc., are exposed to danger from fire in the old chapel of th Charité where the Académie has been installed since 1850. Th Académie has agreed to return one-third of the amount, havin nearly enough bequests already on hand for the purpose.

The Criminal Insane.—In the *Medical Record* for April 9, Wi liams gives some statistics on this subject. He finds that dur ing the past twenty-five years, 459 murderers have been appre hended in New York State, and of that number 40 per cen have been confined in insane asylums since their crimes wer committed, while 30 per cent. were insane at the time of the crimes. Again, fully 20 per cent. of all the murderers appre hended should, long before their crimes were committed, hav been confined where they could do no harm, their mental aberrations being so pronounced. He says the prison record show the average length of confinement, including life sen tences, is but a little over two years, while the average confine ment in insane asylums is over four years.

Colleges.

HARVARD UNIVERSITY, WASHINGTON, D. C., graduated thirt two from the Medical Department, May 6.——At the eight annual commencement of Laura Memorial College, Bosto there were seven graduates.——The graduating class of th St. Louis Medical College numbered twenty-eight, April 29.— Creighton Medical College, Omaha, Neb., had a graduatin class of fifteen.——The College of Physicians of Philadelph is to receive $1000, a bequest from the late Oliver A. Judson.

Boston.

SUFFOLK DISTRICT MEDICAL SOCIETY.—At the last annu meeting of the Suffolk District Medical Society, held April 2 1898, the following officers were elected: President, Francis I Brown; vice-president, Herbert L. Burrell; secretary, Jol Danc; treasurer, Augustus L. Knight; Librarian, B. J. Jeffries.

Appointment.—Dr. Fred M. Briggs has been appointed Professor of Clinical Surgery at Tuft's College Medical School.

The Warren Triennial Prize has been awarded to Dr. Howard Ames Lathrop of Boston, for an essay on "The Anatomy and Surgery of the Frontal Sinus and Anterior Ethmoidal Cells."

N. E. Physicians at the Denver Meeting.—The prospects are that a large number of New England physicians will avail themselves of the opportunity to visit the great West by attending the meeting of the American Medical Association at Denver. Dr. R. E. Campbell of Bellows Falls, Vt., is secretary of the New England Railroad Committee of Arrangements.

The Sharon Sanitarium.—The report of the seventh year of Sharon Sanitarium for pulmonary diseases is favorable to the methods employed in that institution. The results show, according to the report, that "incipient consumption can be arrested in a large percentage of cases even in the vicinity of Boston." An appeal is made for funds to enlarge the institution and thereby increase its usefulness.

Valuable Publication.—The Massachusetts State Board of Health has recently issued a publication on "Epidemic Cerebro-spinal Meningitis and its Relation to other Forms of Meningitis." It was compiled under the direction of Drs. Counilman, Mallory and Wright, and is the result of a clinical and pathologic investigation of 111 cases made by these gentlemen. Many new facts are brought out in the book, and it is believed to be really a valuable acquisition to medical literature.

Washington.

Health of the District.—The report of Health Officer Woodward for the week ended April 30, shows the total number of deaths to have been 90, of which 49 were white and 41 colored. The principal causes of death were: Diseases of the lungs, 24; diseases of the nervous system, 19; one death each from diphtheria and scarlet fever and two from whooping-cough. There were 32 cases of diphtheria and 46 cases of scarlet fever under treatment at the close of the week.

To regulate possession of deadly weapons.—The Senate has passed House Bill 5885 recommended by the commissioners, regulating the carrying and sale of deadly weapons in the District of Columbia.

Marine Hospitals.—The President has approved an order directing the use of any and all Marine Hospitals for the treatment and reception of sailors and soldiers of the army and navy whenever a necessity therefor arises. This was a superfluous order, as the regulations have provided for this for many years past.

Public vehicles to be regulated.—The Health Office is to be congratulated on discovering a law still in force, which permits that department to condemn or render sanitary any public vehicle used in the District, when such are found to be unclean and a menace to health. The physicians who are compelled to employ the "night liners" have been complaining for a long time of the filthy and disgraceful condition of many of these moving pest disease-spreaders, masquerading as vehicles.

Central Dispensary and Emergency Hospital.—At the annual meeting of the Board of Directors held on the 6th instant for the election of officers, the following were chosen: President, W. J. Boardman; vice-president, Henry F. Blount; secretary, W. C. Whitmore; treasurer, Hon. John B. Wight. Mrs. Senator Hawley reported that her committee of ladies expected very shortly to be able to have sufficient funds on hand to reconstruct and modernize the general operating room of the hospital.

Physician to the White House.—Surgeon-General George Sternberg, President of the American Medical Association is now the attending physician at the White House. Col. Wood, the former physician, will be stationed at San Antonio, Texas, with his regiment.

Medical Society.—At the meeting of the Society held on the 4th instant, Surgeon S. L. Allen read the essay of the evening entitled "Acute Hemorrhagic Encephalitis." Dr. Kane presented some interesting cases and specimens.

Washington Obstetrical and Gynecological Society.—At the two hundred and eighty-first meeting of the Society held on the 6th instant, Dr. Stone read a paper on Gramet's operation for relaxed vaginal outlet and lacerations of the perineum. Dr. Bovee presented a specimen of fibroma uteri.

Philadelphia.

Dr. John Guiteras Honored.—Dr. John Guiteras, professor of pathology in the University of Pennsylvania, and a prominent member of the Cuban junta in this country, has been summoned by the Government to report at Tampa, Fla., where he goes on duty as an expert on tropical diseases, and to give proper instruction to the United States troops relative to the prevention of the introduction of yellow fever into the United States as well as to instruct the troops of proper precautions to be used to prevent the disease while on the island of Cuba. His lectures have closed at the University and it is possible that his new duties will keep him away until the fall session begins. It will be remembered that Dr. Guiteras was called south last year during the epidemic of yellow fever, as authority on this disease.

Bequest to the College of Physicians of Philadelphia.—By the will of the late Dr. Oliver A. Judson of Philadelphia, the College of Physicians will receive $1000 to be held in perpetuity. A clause in the will stipulates that: "As often as the interest on the same shall amount to $100 the same is to be offered as a prize for the best original essay on 'The Practical Prevention of Disease,' and to be known as the 'Oliver A. Judson prize,' and need not be awarded if no essay merits it." In this way it is hoped to stimulate investigation in this special branch of medicine.

Appointment for Dr. William Pepper.—The Adjutant General of the United States Army recently advised Governor Hastings of the necessary physical examinations requisite before volunteers would be permitted to join a State encampment. An army surgeon and two civilian physicians will constitute such a board of examiners for the State of Pennsylvania. Governor Hastings has therefore appointed Dr. William Pepper of Philadelphia and Dr. W. S. Foster of Pittsburg, to conduct such examination on the part of physicians. In this way it is hoped to restrain those who are physically disabled from joining the militia.

Philadelphia Mortality Statistics.—For the week ending Saturday, April 30, there was an increase of forty-five deaths over the previous week, the total number of deaths being 472. Of this number there were from scarlet fever, 4; diphtheria, 16; typhoid fever, 6; as against 2, 13 and 6 respectively for the week preceding.

Louisville.

Ordinances.—Health Officer Allen has introduced an ordinance regulating the sale of milk, which has passed one branch of the general council and will be favorably reported by the Committee on Health of the upper board. Its exactions are as follows: The name of the dairyman must be placed conspicuously on the dairy wagons and in the store where milk is sold; defines good mik and prohibits its adulteration; cows must not be fed on swill, slop or other fermented foods; cows must not be crowded, must be kept clean; must be healthy and must be inspected by a veterinary surgeon every three months; samples of milk must be furnished the city health department whenever demanded. An ordinance was also passed regulating the collection and disposal of garbage or trash, making it unlawful not to have tarpaulins or covering to wagons. An ordinance was also introduced providing for an "embalming board" for licensing only competent embalmers. This board to consist of the president of the Board of Public Safety, the health officer, a competent embalmer, the Jefferson County referee of the State Board of Health and the coroner of Jefferson County. The ordinance was passed in one board and referred to the other for consideration.

State Guard.—There seem to be several hitches in the appointment of surgeons to the various regiments of the State Guard ordered into camp at Lexington. Deputy United States Surgeon-General W. K. Gardner is in charge of the examinations, with a board appointed by the governor. Drs. David Barrow and B. S. Coleman were at first appointed but resigned. Drs. W. B. McClure and Archie Barclay were appointed in their stead. Drs. Charles Farmer and R. N. Winn were passed for surgeons of the Second Regiment. Drs. E. L. Pearce, Irvin Lindenberger and Brent Palmer of Louisville for First Regiment, Dr. Waller Dade, formerly of Frankfort, and now of Chicago, and Dr. Grinstead of Bowling Green will also appear before the board.

Bullock.—Dr. Thomas S. Bullock has returned from Arkansas fully restored to health.

Kentucky School of Medicine.—The following members of the faculty, Drs. J. M. Holloway, J. M. Mathews, J. B.

Marvin, C. W. Kelly and S. E. Woody have filed suit in the law and equity court against Drs. W. H. Wathen, M. F. Coomes and Henry Orendorf to compel them to dispose of their share in said school. This suit is the culmination of an effort on the part of the majority more than a year ago to displace the three men mentioned as members of the faculty.

THE COUNTY BOARD OF HEALTH met at the office of Dr. W. H. Wathen, the Referee of the State Board of Health for Jefferson County, and organized by electing the following officers: George W. Griffiths, president; J. M. Krim, secretary; B. M. Smock, sanitary inspector. The board adopted the rules and regulations of the State Board and, as now organized, has under the statutes of the State full authority to abate nuisances or all conditions prejudicial to the health and happiness of the people and to enforce regulations in the interest of health and the prevention of disease, such as vaccination, etc.

THE PUBLIC SERVICE.

Circular Letter.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
WASHINGTON, D. C., April 25, 1898.

The number of physicians who have offered their services to the Government now exceeds 1500, and every mail brings numerous additions to the list.

The Surgeon-General highly appreciates the patriotic motives which have induced this offer of services—in many instances by men prominent in the profession and enjoying a lucrative practice—but the labor of answering these numerous letters interferes with the necessary work of the office, which has been *greatly* increased by the exigencies connected with equipping the Regular and Volunteer Armies for field service. It therefore becomes necessary to acknowledge letters offering service and inquiries relating to the Medical Department by this circular letter.

No appointments are made in the Regular Army except after examination by an Army Medical Examining Board, and all applicants must be graduates in medicine and less than 29 years of age.

The Surgeon-General of the Army has nothing to do with the appointment of medical officers for the Volunteer Army.

Comparatively few Contract Surgeons (Acting Assistant Surgeons) are likely to be required, and it is the intention to employ for service with troops going to Cuba or at hospitals on the Gulf Coast, only such as are immune to yellow fever.

All applications and offers of service will be placed on file for future reference, and for selection of the most available persons for the special duty required, in case of need.

No female nurses will be sent to Cuba or to hospitals on the Gulf Coast, and it appears probable, at present, that there will be no necessity for the employment of trained female nurses. All applications will, however, be placed on file for future reference in case of need.

GEO. M. STERNBERG,
Surgeon-General, U. S. Army.

Army Medical Examining Board.

The scope of the competitive examination for admission into the Medical Department of the Army has been extended, under the direction of the Surgeon-General, by the Army Board now in session in Washington, D. C. The number of subjects has not been increased, but so much more time is now given to oral examination in each subject that the ordeal lasts ten days instead of being finished in six. Formerly two subjects were disposed of daily, one in a forenoon, the other in an afternoon session, but now one whole day is devoted to each of the principal branches. Formerly also the examination began with an inquiry into the general education of the candidates, including arithmetic, geography, history and general literature, but now these subjects are brought in at the close of the competitive trial. This change appears to have been made in the interest of men who, while well versed in professional matters, have permitted themselves to lapse into forgetfulness of their early school branches. When the preliminary examination, as it was called, into general education came first, such men were likely to lose heart on account of their appreciation of their own shortcomings, and to withdraw from the competition before they had an opportunity of showing the strong points of their education and training.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from April 30 to May 6, 1898.

Acting Asst. Surgeon Francis Lieber, U. S. A., will proceed from this city, Washington, D. C., to Ft. Clinch, Berauadina, Fla., and report in person to the commanding officer of that post for duty.

Major Louis Brechemin, Surgeon, is relieved from duty at Ft. Sherman, Idaho, and ordered to Vancouver Bks., Washington, for duty, relieving Capt. Frederick P. Reynolds, Asst. Surgeon. Capt. Reynolds, on being thus relieved, will repair to Washington, D. C., without delay, and report in person to the Surgeon-General of the Army for assignment to duty.

Acting Asst. Surgeon H. W. Danforth, U. S. A., will proceed from Washington, D. C., to Tampa, Fla., and report in person to the commanding General of the troops at that place for duty.

Acting Asst. Surgeons John Guitéras and W. W. Calhoun, U. S. A., will proceed from Washington, D. C., to Tampa, Fla., and report in person for duty to the commanding General of the U. S. troops at that place.

Col. Charles R. Greenleaf, Asst. Surgeon-General, having reported in person to the Surgeon-General of the Army, the Secretary of War directs that he report in person to the Major-General commanding the Army, for duty on his staff as chief surgeon of the troops in the field.

Capt. Edward C. Carter, Asst. Surgeon, having reported in person to the Surgeon-General of the Army, is assigned to duty as assistant to the attending surgeon, Washington, D. C.

First Lieut. James S. Wilson, Asst. Surgeon, will be relieved from duty at Ft. Caswell, N. C., upon the arrival at that post of Acting Asst. Surgeon Frank Roberts, and will report in person for duty to the commanding General of the troops in the field at Chickamauga National Park.

Major Alfred C. Girard, Surgeon, having reported to the Surgeon-General of the Army, will proceed to West Point, N. Y., and report in person to the superintendent of the U. S. Military Academy for temporary duty at that post.

Major George H. Torney, Surgeon, is relieved from duty at the U. S. Military Academy, West Point, N. Y., to take effect upon the arrival at that post of Major Girard, and will proceed to New York City and take charge of the hospital ship "Vigilancia," under detailed instructions from the Surgeon-General.

Capt. Charles Willcox, Asst. Surgeon, is relieved from duty at Ft. Bliss, Texas, and ordered to report in person to the commanding General of troops in the field at Mobile, Ala.

Major William B. Davis, Surgeon, is relieved from duty with the Nineteenth Infantry at Mobile, Ala., and ordered to Ft. Myer, Va., for temporary duty.

First Lieut. William E. Richards, Asst. Surgeon, is relieved from duty at Ft. Apache, Ariz., to take effect upon the arrival at that post of Capt. Edward Everts, Asst. Surgeon, and will report in person to Major General John R. Brooke, commanding Camp George H. Thomas, Chickamauga National Park, for duty with troops in the field.

CHANGE OF ADDRESS.

Ammerman, N. S., from Harbine to Reynold, Neb.
Boren, S. L., from Galveston to Carthage, Tex.
Boyer, J. S., from Chicago, Ill., to Richardville, Va.
Brown, E. V. L., from 268 S. Wood St. to 349 Ogden Ave., Chicago, Ill.
Chapman, C. F., from 594 Washington Boul. to 833 Washington Boul Chicago, Ill.
Cox, J. E., from Los Angeles to Big Pine, Cal.
Dulaney, R. W., from Johnson City to Jonesboro, Tenn.
Engert, R. H., from Venetian Bldg. to 486 N. Clark St., Chicago, Ill.
Faris, J. W., from St. Louis to Caruthersville, Mo.
Fisher, B. B., from 2220 Walnut St. to 1095½ 3d Ave., Milwaukee, Wis.
Frederick, R. C., from Chicago, Ill., to Pte. Coupee, La.
Garrett, G. H., from Blue, Ind. Ter., to Miller Grove, Tex.
Gibson, G. G., from Des Moines to Odebolt, Iowa.
Grasse, D. F., from Chicago, Ill., to Fargo, N. D.
Guerard, A. R., from New York, N. Y., to Flat Rock, N. C.
Hayford, E. L., from 843 Jackson Boul. to 926 W. Monroe St., Chicago
Hamill, E., from 323 S. Western Ave. to 812 Warren Ave., Chicago, Ill.
Howard, R. E., from New York, N. Y., to Kasbeer, Ill.
Jenuey, F. L. B., from 1780 Wrightwood Ave. to 1033 Evanston Ave Chicago, Ill.
Jones, C. C., from Galveston to Brock, Tex.
Johnson, C. J., from 663 Jackson Boul. to 522 Congress St., Chicago, Ill
Kidd, O. R., from Hampton to Carrsville, Ky.
Klebs, E., from Hotel Majestic to 4419 Indiana Ave., Chicago, Ill.
Langdon, C. P., from Columbus to Westerville, Ohio.
Law, H. L., from Hartford, Conn., to U. S. R. S. "Wabash," Boston Nav Yard, Boston, Mass.
Maylor, H., from 305 W. Broadway to 1517 Southgate St., Loulsville, Ky
Mayhew, J. M., from 1393 Lake St. to 870 Warren Ave., Chicago, Ill.
McDanill, R., from Galveston to Granger, Tex.
McGauran, G. D., from 422 to 319 W. 51st St.
Meyer, A. G., from St. Louis to Ste. Genevieve, Mo.
Mitchell, G. D., from 1840 N. Clark St. to 7033 Honore St., Chicago, Ill
Miller, Y. Y., from Linn Grove to Brown's Grove, Ky.
Mock, J. H., from Richmond, Va., to Thomasville, N. C.
Nauce, W. O., from 5466 Monroe Ave. to 5311 Madison Ave., Chicago, Ill
Nicoll, D. T., from Kilbourn City, Wis., to Clinton, Iowa.
Nolder, S. M., from Newton, Kan., to Tipton, Ind.
Paine, H. M., from Glens Falls, N. Y., to West Newton, Mass.
Pence, L. W., from Fertile, Iowa, to Cherryvale, Kans.
Penuock, V. R., from Longmont to Cripple Creek, Colo.
Rowe, J., from Abingdon to Hos. Dept., 1st Cav., Camp Tanner, Springfield, Ill.
Rogers, M. W., from Galveston to Jones Prairie, Tex.
Schmitt, G., from 1498 Fulton St. to 120 Warren Ave., Chicago, Ill.
Sherman, A. W., from 291 Ogden Ave. to 944 Polk St., Chicago, Ill.
Sullivan, E. P., from 49 Park Ave. to 188 S. Oakley Ave., Chicago, Ill.
Turck, F. B., from 555 to 362 Dearborn Ave., Chicago, Ill.
Van Tuyl, H. I., from 3001 Calumet Ave. to 3133 Indiana Ave., Chicago
Wandless, H. W., from 272 Madison Ave. to 39 W. 36th St., New York
Ward, J. T., from Galveston to Huntsville, Tex.
Wearne, F. J., from 843 S. 19th St. to St. Joseph's Hospital, Omaha, Neb
Weitz, G. J., from Indianapolis, Ind., to Cleveland, Ohio.

LETTERS RECEIVED.

Anderson, W. D., Vallejo, Cal.
Battle Creek Sanitarium, Battle Creek, Mich.; Beach, S. C., McCook Neb.; Bonwill, W. G. A., Philadelphia, Pa.; Boehringer, C. F., & Soehne New York, N. Y.; Brinket, A. J., Detroit, Mich.
Chicago & Northwestern Railway Co., Chicago, Ill.
Davis, N. S., Chicago, Ill.; Denver Chemical Mfg. Co., Denver, Colo.
Edmiston, C. C., Buffalo, N. Y.; Edwards, Wm. M., Kalamazoo, Mich
Elliott, A. R., New York, N. Y.
Farrington, John M., Binghamton, N. Y.; Fessenden Mfg. Co., Pittsburgh, Pa.
Garcelon, Alonzo, Lewiston, Me.; Goldstein, M. A., St. Louis, Mo
Graham, J. W., Denver, Colo.
Hektoen, L., (2) Chicago, Ill.; Holmes, Bayard, Chicago, Ill.; Hodge Fred J., Anderson, Ind.
Kane, Thomas L., Kane, Pa.; Kentucky School of Medicine, Louisville, Ky.
Lander, Dr., Cincinnati, Ohio; Lewis, Robert C. M., Centerburg, Ohio
McGinnis, R. H., Charlotte, N. C.
Norris, M. D., Baltimore, Md.
Paquin, Laboratories, Paul, St. Louis, Mo.; Palmer, V. R., Mrs., New Castle, Pa.; Penhall, F. W., Morton, Minn.
Reed, R. Harvey, Rock Spring, Wyo.; Roseberry, B., Florence, Colo.
Smith, J. Whitefield, Bloomington, Ill.; Sternberg, Geo. M., Washington, D. C.; Stilson & Gates, Battle Creek, Mich.
Tebbetts, Frank M., Chicago, Ill.; Todd, G. M., Akron, Ohio.
Van Dyke, A. D., Marysville, Pa.
Waxham, F. E., Denver, Colo.; Wilder, W. H., Chicago, Ill.

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ADDRESS.

THE SURGICAL TREATMENT OF INTESTINAL TUBERCULOSIS.

Delivered at the Meeting of the Illinois State Medical Society, held at Galesburg, May 17, 1898.

BY N. SENN, M.D., PH.D., LL.D.

Professor of Practice of Surgery and Clinical Surgery in Rush Medical College; Professor of Surgery Chicago Policlinic; Attending Surgeon Presbyterian Hospital; Surgeon-in Chief St. Joseph's Hospital.

CHICAGO, ILL.

The title of this paper will probably appear somewhat strange and out of place to the general practitioner and the surgeons who have not kept fully abreast with the great advancements that have been made during the last decade in the diagnosis and surgical treatment of localized lesions of the intestinal tract. Our increased knowledge of the location, nature and clinical tendencies of accessible tubercular affections has opened a wide and fertile field for successful surgical intervention. There is hardly an organ in the body which when the seat of a localized tubercular process has not been exposed and subjected to direct treatment with a fair expectation of removing or limiting the further extension of the disease. The medical treatment of tuberculosis in its various forms at the present time is not much in advance of that of fifty years ago. The numerous specifics invented and vaunted in different parts of the world have all fallen by the wayside and the old-fashioned remedies are again taking their place. Leaving out the local measures we have to rely in the treatment of such cases largely on diet, change of climate and occupation, outdoor air and the administration of those remedies known to exercise a favorable influence in improving digestion, nutrition and assimilation, and thus indirectly antagonize the ravages of the disease. Powerless as we remain today in the successful systemic treatment of tuberculosis, it is a source of gratification to know that great improvements have been made in the local treatment of accessible tubercular lesions. The intestinal canal is one of the last territories opened up for successful surgical invasion. In the work done in this department of surgery dates back but a few years. The results obtained by the surgical treatment of localized intestinal tuberculosis are such as to encourage further effort in this direction. The number of cases operated upon so far remains a small one, and it is my intention on this occasion to bring them to the attention of the profession of this country and to describe the different operative procedures which have been employed by different operators with the same aim in view, either to remove the diseased tissue, or to render the affected portion of the bowel accessible to direct treatment, or to place it in a more favorable condition for spontaneous healing of the tubercular ulcers.

This paper will deal largely with localized primary tuberculosis of the intestinal canal, with cases amenable to successful surgical treatment. Diffuse primary tuberculosis of the intestines remains, for the present, a surgical *noli me tangere*. Surgical intervention is also contraindicated in secondary intestinal tuberculosis in all cases in which the primary disease, usually pulmonary tuberculosis, is far advanced and constitutes in itself an imminent source of danger to life. There are, however, cases of primary intestinal tuberculosis in which timely radical measures prove successful in eliminating the disease permanently and in restoring normal intestinal digestion and absorption. The attention of the mass of the profession must be called to the necessity of a more careful and thorough examination of chronic inflammatory affections of the intestinal tract, for the purpose of making an early and correct diagnosis and with a view of selecting appropriate cases for timely surgical treatment. The internist and the surgeon must co-operate with each other in the future development of this, one of the most recent departments of the healing art.

I shall quote and describe the cases operated upon for intestinal tuberculosis under the headings of the different operative procedures:

1. *Abdominal section and iodofumigation.*—Every surgeon is familiar with the curative effects of abdominal section and drainage, with or without iodofumigation, in cases of peritoneal tuberculosis. The modus operandi of this method of treatment has never been fully and satisfactorily explained, but the fact remains that it has proved eminently successful in the majority of such cases. There is no doubt in my mind that the local application of iodoform adds to the therapeutic value of this method of treatment. In one of the cases which has recently come under the observation of the writer abdominal section and drainage were resorted to on two different occasions, but the tubercular hydrops returned. Tapping and the injection of from 7.4 to 15 c.c. of a 3 per cent. of iodoform-glycerin emulsion repeated six or eight times at intervals of from one to two weeks finally succeeded in effecting a cure, and the patient remains in perfect health, more than a year after the last tapping. Future observations will undoubtedly prove that peritoneal tuberculosis is more frequently caused by infection from primary intestinal lesions than has been heretofore supposed.

It is not strange that the same treatment should occasionally prove equally useful and efficient in certain cases of intestinal as in peritoneal tuberculosis. Nové-Josseraud ("Tubérculose localisée du cæcum traitée par la simple laparotomie," Société des Sciences Médicales de Lyon. *Lyon Médicale*, 1896, No. 22) made a laparotomy on a child 12 years old for a swelling the size of an adult's fist in the region of the cecum. The incision demonstrated the existence of extensive tuberculosis of the cecum and adjacent portions of the ileum and ascending colon. The affected parts were not interfered with, except that they were wiped gently

with iodoform gauze and dusted with a thin film of iodoform, and yet the operation was followed by a speedy and permanent recovery.

This method of treatment has a limited application in the treatment of intestinal tuberculosis when the disease is too extensive for more radical measures and no obstructive lesion is indicated by the symptoms or discovered at the time of operation. Iodofumigation and capillary drainage with iodoform gauze for a few days would seem to be indicated in such cases.

2. *Enteroplasty.*—Plastic operations are indicated in solitary circular strictures following the healing of a tubercular ulcer and constituting the cause of intestinal obstruction. In narrow circular strictures an operation similar to that devised by Heineke-Mikulicz for pyloric cicatricial stenosis will yield the most satisfactory operative and functional results. The stricture is divided on the convex side of the bowel and the incision carried sufficiently far into healthy tissues on each side of the stricture, in a direction parallel to the long axis of the bowel, and the visceral wound closed transversely by two rows of sutures of fine braided silk, thus restoring the lumen of the bowel to its normal size.

Péan (*Bulletin de l'Académie de Médecin*, Dec. 30, 1890) performed such an operation for cicatricial stenosis of the ileo-cecal valve, following the healing of a tubercular ulcer. He made the abdominal incision above and parallel to Poupart's ligament. The bowel was tied above and below the constriction with a rubber cord passed through a slit in the mesentery. The intestinal wall was incised at the level of and at each side of the strictured valve for a distance of three inches. After washing out the opened segment of the bowel with a 1 per cent. solution of carbolic acid, the cicatricial tissue was excised. This being done, the two extremities of the intestinal wound were brought together by means of forceps. The incision, which was first longitudinal, soon took the form of a lozenge, two sides of which were represented by the lips of the small intestine and the other two by those of the large intestine. Bringing the forceps nearer together the incision became transverse, and in this position the edges were sutured in the usual way. Catgut was used for the inner and silk for the outer row of suturing. The patient recovered and remained in good health at the time the report was made.

3. *Enterectomy.*—The most radical treatment of intestinal tuberculosis, in appropriate cases, is resection followed by circular suturing. Resection is indicated in isolated intestinal tuberculosis as long as the swelling is movable and the disease gives rise to symptoms of obstruction; if, however, the disease is no longer limited to the organ primarily affected, or if it is complicated by advanced pulmonary or general tuberculosis entero-anastomosis should take the place of a radical operation. Experience has shown that it is neither essential or even necessary to add to the gravity of the operation by attempts to remove the products of regional infection. After removal of the primary focus of infection the lymphatic tuberculosis usually comes to a standstill, although cases have been recorded in which later reinfections occurred from this source.

Diffuse glandular tuberculosis in such cases is beyond the reach of safe surgery. Caseous glands in the mesentery, corresponding with the portion of the intestine excised, should be removed by including the mesentery in the excision. So far excision has only been performed in cases in which the tubercular lesion gave rise to intestinal obstruction. The results of this operation will be greatly improved in the future when intestinal resection will be performed as soon as a localized tubercular lesion can be diagnosticated, and before the patient's general condition has been seriously impaired by the mechanical obstruction.

Intestinal resection has been most frequently performed for tuberculosis in the ileo-cecal region. A number of cases, however, have been recorded in which the seat of the disease was the small intestine. Dr. Rudolph Matas made a successful enterectomy for intestinal stricture, following the healing of a tubercular ulcer involving the upper portion of the jejunum. The patient made a rapid and permanent recovery. (Personal communication.)

König ("Die stricturirende Tuberculose des Darmes und ihre Behandlung," *Deutsche Zeitschrift f. Chirurgie*, 1892, B. xxxiv, p. 62) reports five cases of stricture of the intestine caused by cicatricial contraction of tubercular ulceration, all treated by laparotomy and resection of the intestine with circular enterorrhaphy. Two of the patients died; one from exhaustion, the other from the giving way of a suture, an accident which resulted in leakage and diffuse peritonitis. He believes that this pathologic form of cicatricial stenosis is much more frequent and more easily recognized than has hitherto been thought. He has met with this affection most frequently in persons between 20 and 30 years of age, and especially in those suffering from other tubercular lesions. He has made a careful investigation of such cases and found that the clinical history usually reveals a chronic cause frequent attacks of colic with constipation, tympanites, visible peristalsis and peculiar splashing and musical sounds, ending with a sound which resembles that of fluid driven forcibly from a syringe. The disease invariably produces great emaciation and anemia In spite of the feebleness of the patients, König thinks surgical interference advisable, especially a the ulceration is probably still progressing in part o the cicatricial contraction and often the tubercula disease elsewhere is not far advanced.

Treves ("Resection of Intestine," *The Lancet*, Jan 4, 1896) made a resection of the intestine for tuber cular stricture and united the bowel ends by the us of Murphy's button. The patient made a satisfactor recovery.

Sachs (*Archiv für klin. Chirurgie*, 1892, B. 43 reports the following case of resection for intestin tuberculosis: A woman, aged 41, had suffered for long time from constipation, and for two years ha had loss of appetite and gradually increasing mara mus and debility. On examination a hydronephros of the right kidney was discovered, and also a swellir in the right iliac fossa, which was supposed to be of malignant nature. Laparotomy was performed whe the right iliac fossa was found to be filled up by a ha swelling, which was the size of an adult's fist. Su rounding the ileum was a band of contracted fibro tissue with tubercular granulations in some place The diseased parts were resected and the two ends the intestine joined together by circular enterorrhaph The patient recovered and was in a satisfactory conc tion several weeks after the operation. On examin tion of the specimen removed the ileum was seen be surrounded by a band of scar tissue and granu tions. At the junction of the ileum with the cecu there was a large tubercular mass, which extended

the mesenteric glands. The mucous membrane of the cecum was replaced by tubercular granulations, which extended into the muscular coat, and on microscopic examination were seen to consist of epithelioid and giant cells. He collected thirteen cases of resection of the ileo-cecal portion of the intestinal canal for tuberculosis, of which eleven recovered.

Zahlmann (*Hospitals Tidende* 1892, No 36) reports a case of tubercular stricture of the intestines removed by Tage Hansen of Denmark. The patient, a girl, aged 17 years, had been previously treated for tuberculosis of the phalanges of the fingers and toes. For one and a half years she had exhibited signs of stricture of the intestines, and at the laparotomy the entire cecum, with the adjacent parts of the ascending colon and ileum, was found to be the seat of an inflammatory mass which had produced a stricture an inch and a half in length, of a diameter corresponding to that of a lead pencil, while the walls were nearly an inch in thickness. Six inches of the ileum, the entire cecum and four inches of the ascending colon were removed. The healthy ends of the ileum and colon were united by means of Lembert's sutures, the difficulty in adapting the different lumina to each other being overcome by dividing the ileum by an oblique section at the expense of the convex side. The patient recovered and remained in good health at the time the report was made six months after the operation.

Of five cases of intestinal tuberculosis in which the cecum and colon were the seat of disease, and in which Czerny resorted to resection and circular suturing, two died of peritonitis and one of hemoptysis after complete recovery from the operation. In one case the peritonitis was caused by leakage through one of the needle punctures, and in the second the perforation occurred in consequence of abscess formation in the line of suturing. The patient died from the effects of peritonitis, septic pyemia and metastasis, five weeks after the operation. In one case the operation proved successful, but was followed by rapid generalization of the tubercular process, an observation fully corroborated by Wahlländer and Wolff, who have called special attention to the diffusion of tubercular processes after intervention for what appeared as localized processes. In one case of secondary tuberculosis, following rupture of a tubercular adnexal abscess into the intestine, circular suturing after excision was found impossible and consequently an artificial anus was established with an excellent functional result. Among the cases operated upon by Czerny, and reported by Rindfleisch ("Ueber die an der Heidelberger chir. Klinik ausgeführten Operation am Magen und Darme." *Beiträge zur Klin. Chirurgie* B. ix, p. 661), several in which the remote results of operations for intestinal tuberculosis have since been ascertained. In the case of a woman, 34 years of age, operated upon in 1886, nothing definite could be learned as to the subsequent history. In the case of an ileocecal resection performed in 1888, on a man 30 years of age, death resulted three years later from pulmonary tuberculosis. The postmortem revealed tubercular ulcers of the colon and small intestines, with miliary tubercles on the peritoneal surface and cheesy mesenteric glands. No information could be had in the case of a man, 54 years of age, subjected to ileo-cecal resection, but the operation appeared to have exerted no influence in checking the progress of the pulmonary affection. A man, 26 years old, died of pulmonary tuberculosis two years after the operation. A woman, 22 years of age, was in good health four years after the operation. A man, 31 years old, was found in excellent health four years after the operation, having gained during this time twenty-three pounds in weight. This patient suffered only occasionally from catarrh of the colon, the attacks being of short duration. These cases go to prove that resection for intestinal tuberculosis in well selected cases yields satisfactory remote results, while the reverse is true if the operation is performed under adverse conditions.

Rentier ("Cæcum provenant d'une résection iléo-sacrale pour tuberculose." Bulletins et Mémoires de la Société de Chirurgie, 1896, No. 7) resected the entire cecum for tuberculosis and united the bowel ends by means of Murphy's button. Death occurred on the sixth day after the operation. The lumen of the button, which remained *in situ*, was completely blocked by feces. Additional tubercular ulcers were found in the jejunum.

Caminiti-Vinci (*Riforma Medicinia*, July 11, 1896) reports the case of a man, aged 24, without any tubercular family history, who for the last nine months had suffered from severe pain in the left superior quadrant of the abdomen, aggravated after meals; no diarrhea or vomiting. In the affected region an ill defined swelling could be felt, descending slightly with inspiration, rather painful on palpation. The patient, not improving under medical treatment, was operated upon March 8, 1896. The omentum was found thickened, hard and adherent to the small intestine for about ten centimeters; this was excised, and also about thirty centimeters of the intestine itself, with its mesentery and glands. The bowel was united by circular suturing. The patient recovered and remained in good health four months after the operation. Macroscopic and microscopic examination proved the tubercular nature of the disease in the parts removed.

Courtillier ("Tuberculose chronique de l'angle ileo-cæcal. Resection, Enterorrhaphie, Guérison, Fistule pyo-stercorale, Operation, Mort, Autopsie." Bulletin de la Société Anatomique de Paris, 1896, No. 13) reports the case of a boy, 12 years old, operated upon by Broca for tuberculosis of the cecum. The entire cecum was resected and the ileum united with the ascending colon by circular suturing. The patient recovered from the operation and remained in perfect health for three years, when a fecal fistula appeared at the site of operation. Operation for closure of the fistula was followed by death. The autopsy showed the small intestine in a perfectly healthy condition, but the disease had reached the ascending colon and was complicated by tuberculosis of the left lung.

Durante ("Resezioni intestinali per tuberculosi del cicco." R. Acad. Medica di Roma, No. 4, 1895) has resected the cecum for tuberculosis five times. He calls attention to the difficulties presented relative to making an early diagnosis. Intermittent diarrhea for two to six years is a conspicuous and almost constant symptom. For a long time the general health is not much impaired. Symptoms of progressive cicatricial stenosis finally appear. In one case he was able to ascertain from examination of the specimen that the tubercular process had its primary starting point in the appendix. Of the five cases four lived and were in good health five to seven years after the operation. In one case relapse was due to incomplete removal of the infected tissues. He regards the prognosis as favorable after a complete extirpation of the affected portion of the intestine.

Emil Müller ("Extra-abdominal Tarmresection mid fortsatz; Extra-abdominal Behandling. *Hospitals Tidende* No. 3. 1896) resorted to resection in two cases of tubercular stricture of the intestine. In the first case the disease extended over the lower part of the ileum, cecum and ascending colon to within an inch of the right colic flexure. In the second case, the operation was performed extra-peritoneally. After opening the abdomen by lateral incision the colon was made movable by incising the external layer of the meso-colon, when the diseased portion of the intestine was brought forward into the wound. The inner layer of the meso-colon was sutured to the inner margin of the incision and the peritoneal cavity on the outer side of the bowel was shut out with an iodoform gauze tampon. After six days the affected portion of the intestine was extirpated extra-peritoneally. The continuity of the intestinal canal was restored by circular suturing, which could be done without invading the excluded peritoneal cavity. The external wound was sutured and drained. The patient recovered rapidly, without any untoward symptoms and was discharged from the hospital with his health restored.

To what extent operative procedure can be carried in true cases of intestinal tuberculosis with ultimate recovery is well shown by a case reported by Körte (Verhandlungen der Deutschen Gesellschaft für Chirurgie, 1894.) The patient, a man, 25 years old, was operated upon in 1891 for acute suppurative peritonitis. The following year, March 16, the appendix was removed. In August, of the same year, a swelling developed along the course of the cecum and ascending colon. August 27, the cecum and ascending colon, nearly as far as the hepatic flexure, were excised. Healthy tissue was not reached. An artificial anus was established. The microscope demonstrated the tubercular nature of the intestinal affection. The enterotome was used without any benefit. In November, twenty-one centimeters of the colon was resected. The end of the colon was invaginated and sutured and an entero-anastomosis established between the colon and the lower portion of the ileum. A fecal fistula followed the operation. In February, 1893, Diffenbach's enteroplasty was performed, but proved unsuccessful. In May, a loop of the small intestine was implanted into the sigmoid flexure. For two weeks there were normal evacuations per rectum, then a fecal fistula formed. July 3, what was left of the colon was permanently and completely excluded by closing both ends. Regular evacuations by rectum followed. July 23, the excluded colon was resected. Patient recovered. Subsequent treatment was with iodoform gauze packing. The fecal discharge from the fistula was always liquid, but as soon as it passed through what remained of the colon the stools became natural. Only one case of resection for intestinal tuberculosis has come under my own observation.

Tuberculosis of the cecum and ileum; resection of cecum and eighteen inches of the ileum with corresponding portion of mesentery. Restoration of continuity of intestinal canal by lateral anastomosis with the aid of decalcified bone plates. Recovery; return of the intestinal affection and death six months after operation.—The patient was a spare man of medium height, 37 years of age, and a farmer by occupation. He is unaware of the existence of any hereditary taint or predisposition to tuberculosis or malignant disease in the family. His health was excellent prior to Aug. 16, 1887. On that day he was taken suddenly ill with an attack of vomiting, without any obvious cause, which lasted for six hours. The patient insists that toward the last he vomited fecal matter. He recovered rapidly and remained in comparatively good health until the following October, when he suffered from a similar attack of four hours duration. This time he experienced a sharp pain in the ileo-cecal region, and soon after felt a distinct swelling in that locality. From this time on until March, 1889, the pain recurred periodically, the intervals becoming shorter until pain became almost continuous with few and incomplete remissions. During this time he suffered also a great deal from flatulence. The bowels were inclined to be loose, but the general health was not seriously impaired. Since March, 1889, diarrhea became a prominent symptom, the stools being liquid, but showing no trace of blood or mucus. Pain increasing in severity and more constant, and always partially relieved by the free escape of gas per rectum. At the time he entered the hospital (Oct. 9, 1889), he had lost forty-five pounds in weight. Examination at this time revealed the existence of a hard, nodulated, fixed swelling in the ileo-cecal region, and tympanites in the hypogastric and umbilical regions. Distention of the colon by rectal insufflation of hydrogen gas made the swelling more prominent and defined. Not much tenderness on pressure. Digital exploration of the rectum yielded a negative result. Marasmus and anemia were well marked. For the last seven months the patient has had daily from four to six liquid discharges from the bowels. Appetite is impaired, slight rise in the evening temperature, pulse from 80 to 90 per minute. From the history of the case, and more especially from the character and location of the swelling, a probable diagnosis of tuberculosis of the cecum was made. As the usual medical treatment, which had been pursued for months, afforded but temporary relief, the consent of the patient and his friends to an operation was readily obtained. Laparotomy was performed on the day of his admission into the hospital. The abdomen was opened by an incision from near the middle of Poupart's ligament to a point half way between the anterior superior spinous process of the ileum and umbilicus. On opening the abdomen the swelling at once came within easy reach. Examination showed that the swelling involved the entire circumference of the cecum, and its immobility suggested that it was intimately connected with the retroperitoneal tissues by inflammatory adhesions. The lower portions of the ileum and cecum were emptied by displacing their contents and each part was entrusted to an assistant, who was instructed to prevent fecal extravasation by digital compression, until the completion of the anastomosis. The ascending colon was divided about two inches below the margin of the swelling and the ileum near its junction with the cecum; both sections showed that the visceral incisions had been made through healthy tissue. The bleeding vessels were tied with fine silk ligatures. Several large partially caseous glands were found in the retroperitoneal space behind the cecum and enucleated in one large mass with the cecum and a portion of peritoneum which was adherent to the glands. After the removal of the cecum it was noticed that the mesentery of the lower portion of the ileum contained several enlarged glands, consequently after preliminary ligation, it was excised with eighteen inches of the ileum. During the whole operation a small compress was kept in the abdominal cavity to prevent prolapse of the small intestines, and to guard against infection. After all hemorrhage had been carefully arrested, both ends of the bowel were closed by invagination and a few stitches of the continuous suture; the first stitch was made to transfix the mesentery at the point where it was invaginated into the bowel. Medium sized perforated decalcified bone-plates were used in making the ileo-colostomy, by lateral approximations. An incision about two inches in length near the closed ends of both intestines was made at a point opposite the mesenteric attachment, and into each opening a bone-plate was inserted, and the lateral sutures, armed with a needle, were passed about an eighth of an inch from the margin of the visceral wound, from within outward and in such a way as not to include the peritoneum, at a point half way between the angles of the wound. The surfaces of the bowel corresponding to the part covering the plates were freely scarified with an ordinary sewing needle. The visceral wounds were now brought *vis-à-vis* in such a manner that both closed ends were directed downward, bringing in this way the free surface of the colon and ileum together. Before any of the plate sutures were tied a number of Lembert sutures were applied posteriorly, so as to approximate the serous surfaces along the margin of the plates, thus affording additional security in maintaining coaptation. The posterior pair of approximation sutures was now tied with sufficient firmness to hold the parts in contact without sufficient pressure to cause gangrene, after which both pairs of sutures not armed with needles were tied. During the tying of these sutures it is of the greatest importance that an assistant should keep the plates accurately and closely pressed together. The last to tie was the second anterior pair of tra-

fixion sutures, and as this was being done the bowel on each side was carefully pushed in between the plates with a probe. After all the approximation sutures were tied, it only remained to apply on the anterior side a few Lembert sutures. After the exposed parts were disinfected and dried, the bowel was returned into the abdominal cavity and anchored near the wound with a silk suture, which was made to embrace the parietal peritoneum on one side and the mesentery on the other, at a point opposite the anastomotic opening. The abdominal incision was sutured throughout, no provision was made for drainage. The subsequent history of the case was uneventful. The highest temperature registered was on the third day when it reached 101.5 degrees F., but returned to normal on the fourth day. During the first two days liquid food was administered by rectum. After that time the patient was allowed milk, beef tea and raw eggs, and after another week he was given the ordinary hospital diet, which he relished. The bowels moved several times a day, the passages gradually becoming normal in color and consistence. The external wound healed by primary intention with the exception of a small place where a stitch abscess formed at the end of the first week. At the ninth day half of the plate in the colon passed per rectum, and the following day the remaining half, with the plate from the ileum with the sutures attached, were found in one of the stools. The patient left his bed on the twenty-eighth day after the operation, and three days later he returned to his home. At the time he left the hospital nothing abnormal could be felt in the right iliac fossa, no pain and no tenderness on pressure. He gained rapidly in flesh and strength, and when I saw him again, during the latter part of January, 1890, he weighed nearly as much as before he was taken ill. Since the operation he has had no pain, no diarrhea, and the discharges from the bowels once or twice a day were normal in every respect. At this time, however, I was able to detect a small hard swelling behind the colon at a point above where the ileum had been attached, which I regarded as a recurrence of the disease along the chain of lymphatics behind the peritoneum, but no evidence of a return of the disease in the bowel could be found. In the course of a few months the patient died from the effects of the recurrent disease without any symptoms of obstruction.

I have had reason to regret that I did not resort to a second operation as repeated operations in similar cases have finally succeeded in eliminating the disease. The specimen removed represents the entire cecum, a number of cheesy mesenteric and retroperitoneal glands, eighteen inches of the ileum with the corresponding mesentery. A few small tubercular ulcers were found in the lower portion of the section of the ileum removed. The tubercular process had evidently started in the cecum which it involved in its entire circumference. The walls of the cecum had become greatly thickened by the infiltrations. The lumen of the ileo-cecal valve was not larger than an ordinary lead pencil, and the interior of the cecum, near the valve, presented a number of deep excavations resulting from the breaking down and ulceration of the tubercular mass. The ileum for a considerable distance was the seat of a well marked compensatory hypertrophy, the thickening of its walls being due to an increase in muscular fibers, a result which so constantly follows progressive intestinal stenosis. The presence of numerous caseous mesenteric and retroperitoneal lymphatic glands, the character of the ulcers and microscopic examination of the diseased tissues removed, proved the tubercular nature of the inflammatory process. Although in this and some other cases the use of decalcified bone plates proved satisfactory in establishing a lateral anastomosis, I have discarded largely this and similar mechanical aids in intestinal surgery and have learned to rely on suturing in all cases in which there are no contraindications presented to this method of dealing with intestinal wounds.

From the accumulated experience of the past in the treatment of intestinal tuberculosis by resection, it becomes evident that this operation is indicated in all cases in which the disease is sufficiently circumscribed to admit of complete removal, and the general condition of the patient is such as to entitle us to the hope that the operation will not prove fatal by its immediate effects. It is in such well selected cases that enterectomy will find far better results than any other operative procedure, as it has for its object the complete eradication of the disease, thus protecting the patient against reinfection from this source.

Partial physiologic exclusion of affected portion of intestinal canal by entero-anastomosis.—Ten years ago I made a series of experiments on the lower animals for the purpose of demonstrating the value of partial physiologic exclusion of the intestine by entero-anastomosis in the treatment of certain localized affections not amenable to resection. The results of the experiments proved that the excluded portion undergoes atrophy and is placed in a condition approaching physiologic rest. In none of the experiments did the excluded portion became the seat of fecal accumulation.

In the introduction to this part of the paper on "Experimental Intestinal Surgery," I said: "As extensive resections of the intestine are always attended by great risks to life from trauma, I concluded to study the subject of sudden deprivation of the system of a more or less extensive surface for digestion and absorption, by eliminating or diminishing the cause of death from this source, by leaving the intestine, but by excluding permanently a certain portion from participating in the functions of digestion and absorption; in other words, by resorting to physiologic exclusion. These experiments were also made to determine the tissue changes which would take place in the bowel thus excluded, and to learn if under such circumstances accumulation of intestinal contents would take place and constitute a source of danger, as had been feared by the older surgeons."

The results of the experiments, as well as clinical experience since that time, have shown conclusively that this fear is unfounded. In speaking of the results of the experimental work and its application in intestinal surgery, the following statements were made in the same paper: "The exclusion was complete, or nearly so, hence we must conclude from the postmortem appearances, that in nearly every instance the excluded portion presented an absorptic, contracted condition, and was only sparingly supplied with blood vessels. From a practical standpoint these experiments teach us that a limited portion of the intestinal canal can be permanently excluded from the processes of digestion and absorption in proper cases, by operative measures without incurring any risk of fecal accumulation in the excluded part. These experiments demonstrate also that physiologic exclusion of a certain portion of the intestinal tract is a less dangerous operation than excision, and that in certain cases of intestinal obstruction where excision has heretofore been practiced, it can be resorted to as a substitute for this operation in cases where excision is impracticable or where the pathologic conditions which have caused the obstruction do not, in themselves, constitute an intrinsic source of immediate or remote danger to life. The postmortem appearances of the specimens of these experiments tend to prove that as long as any of the contents of the intestines reach the excluded portion, the peristaltic or antiperistaltic action in that part is effective in forcing it back into the active current of the fecal circulation."

Since that time entero-anastomosis has become a well established operation, and has proved of signal success in the treatment of limited intestinal tuberculosis complicated, as it so often is, by cicatricial stenosis. The operation effects two desirable objects in the treatment of such cases. 1, it relieves the symptoms of intestinal obstruction; 2, it secures rest for the part affected. I have had an opportunity to perform entero-anastomosis in two cases of intestinal tuberculosis.

Intestinal tuberculosis complicated by acute intestinal obstruction caused by cicatricial stenosis; ileo-ileostomy; recovery; patient in almost perfect health two years after the operation.—The patient was a boy 16 years of age, member of a healthy family, free from any predisposition to tuberculosis or malignant disease. He had never been seriously ill and was in the best of health, weight 140 pounds when he was attacked with colicky pain, which he referred to the umbilical region, December, 1895, which continued for two days. He recovered from this attack and remained in fair health until Dec. 18, 1896, when he was again seized with fever pains in the abdomen of a colicky nature, which continued until he entered the hospital. Bowels had not moved for two days prior to his present illness. Vomiting which soon became fecal, and absolute constipation followed by great tympanites came on in rapid succession. The attending physician made a diagnosis of intestinal obstruction and resorted to the usual treatment including the use of high rectal enemata with little or no relief. When he was admitted into the St. Joseph's Hospital, March 1, 1896, he had lost forty pounds in weight. He was very anemic and the emaciation was pronounced. The abdomen was enormously distended, visible intestinal coils could be distinctly outlined. Temperature was normal, pulse small, 100 per minute. There had been no free movements from the bowels since the attack; frequent attacks of vomiting, at times fecal in character. Rectal examination yielded no information regarding the anatomic location or nature of the obstruction. The day after his admission into the hospital, after thorough preparatory treatment, laparotomy was performed. The abdomen was opened in the median line, half way between the umbilicus and pubes. Intestinal coils, enormously distended and exceedingly vascular, protruded at once from the wound and were carefully protected with compress wrung out of a hot physiologic solution of salt. One of the first things noticed was the existence of numerous enlarged mesenteric glands. Some of them were the size of a hazel nut and presented distinct evidences of beginning caseation. The visceral as well as the parietal peritoneum was studded with innumerable tubercle nodules. The existenee of peritoneal and glandular tuberculosis was at once made evident. In searching for the seat of the obstruction the distended intestine was traced in a downward direction, the intestinal loops being replaced as soon as examined so as to prevent extensive eventration. In reaching the lower part of the ileum, the obstruction was found about twelve inches above the ileo-cecal junction, in the form of a tight circular stricture. Above this point the intestine was uniformly distended, very vascular, while below the obstruction the intestine was empty, contracted and pale. An ileo-ileostomy was made by establishing an anastomotic opening between the lower part of the distended ileum and that part of the ileum between the obstruction and the cecum. Before the visceral incisions were made the serous surfaces of the convex side of the intestinal loops, which were to be united, were sutured together with a row of Lembert stitches, extending a little beyond the intended limits of the incisions. On incising the proximal, distended loop the bowel was drawn well forward, the patient placed on his right side and as much of the intestinal contents as could be poured out was evacuated through the incision. After incising the empty loop to the same extent the mucous membrane was sutured all around and finally a row of anterior serous stitches completed the operation. The parts exposed were thoroughly cleansed, dried and lightly dusted with iodoform, after which the intestines were returned and the external incision closed in the usual manner. The patient recovered promptly from the immediate effects of the operation. The incision healed by primary intention throughout. The bowels moved freely the day after the operation. The tympanites diminished rapidly and disappeared entirely in the course of a week. For a few days the stools were copious and liquid, later once a day and normal in color and consistence. Rectal feeding was continued for four days, later liquid food by the stomach, followed by solid food at the end of the first week. The patient left the hospital in excellent condition, March 30, 1896. A letter from his physician received recently, states that he is in perfect health, has gained twenty-seven pounds in weight two years after the operation.

Careful search for tuberculosis in other organs was made but proved negative. The tubercular nature of the intestinal affection in this case was obvious from the simultaneous existence of peritoneal and lymphatic tuberculosis. The entero-anastomosis relieved the obstruction promptly and placed the affected organs in a condition for spontaneous healing of the tubercular lesions. The patient was placed upon the prolonged internal use of guaiacol, which may have contributed to the remarkable result of the operation.

Tuberculosis of the cecum and ascending colon, complicated by tuberculosis of the urinary organs; ileo-sigmoidostomy; death forty-eight hours after operation from exhaustion.—The patient was a man 38 years old, who was admitted into the Presbyterian Hospital Nov. 6. 1897. His health began to decline four years ago, when symptoms of chronic cystitis developed. For a long time the urine contained pus and at times blood. In February, 1896, he had a chill followed by fever and pain in the region of the right kidney. A swelling developed below the costal arch on the same side and soon reached as far as the crest of the ilium, and to within an inch or two of the median line on the left. The temperature ranged between 102 and 104 F. for five days. A second chill occurred a few days later followed by slight jaundice, which continued for a few days. The swelling was diagnosticated as an abscess which was incised in front at a point half way between the last rib and crest of the ilium. On cutting through the abdominal wall the distended kidney presented itself and was incised and about a pint of pus escaped. The cavity was washed out and drained. For some time urine escaped through the drainage opening. Three weeks after the operation feces escaped through the opening and the fecal fistula has remained since that time. At the time the patient entered the hospital he was very anemic and greatly emaciated. Examination of the bladder and prostate left no doubt that both of these organs were the seat of a tubercular affection. Through the fistulous opening a probe could be inserted into the ascending colon. Gas and fecal material escaped through the opening daily. Action of bowels irregular, diarrhea and constipation alternated with each other. From the cecum in the course of the colon a resistant swelling could be felt, which extended somewhat above the fistulous opening. Examination of the lungs revealed a limited infiltration in the left apex. A slight rise in the evening temperature was almost a constant feature. The fistulous opening externally was enlarged and a large cavity found between the skin and abdominal muscles, which was lined with fungous granulations. These were scraped out with a sharp spoon and the cavity thoroughly disinfected and packed with iodoform gauze. This and the subsequent operations were performed in the clinic of Rush Medical College. The scraping out of the cavity was followed by increased fecal discharge and in a short time the fistulous opening in the colon was large enough to insert the tips of two fingers. Carbonate of guaiacol and tonics were admintered internally, but the patient continued to lose strength and flesh. Owing to the existence of formidable complications and the extent of of the intestinal affection I decided to exclude the cecum and colon, as far as the sigmoid flexure, from the fecal circulation by performing ileo-sigmoidostomy.

After making careful preparation the operation was performed Dec. 20, 1897. The abdomen was opened in the median line. The cecum and ascending colon, nearly as far as the hepatic flexure, were found imbedded in an extensive exudate. Numerous enlarged lymphatic glands especially in the mesocecum and mesentery of the ascending colon. The anastomotic opening was established between the ileum, about eighteen inches above the cecum and the sigmoid flexure. The operation was performed in a similar manner as in the case of lateral anastomosis after excision with the exception that no bone plates were used, the visceral wounds being united by two rows of sutures. The operation was completed in less than an hour. Very little shock followed. The next day, however vomiting and symptoms of prostration set in, the pulse became more rapid and feeble, but the temperature never exceeded 100 F. Death occurred forty-nine hours after the operation.

The clinical history in this case points to primary tuberculosis of the urinary organs followed by intestinal and, later, pulmonary tuberculosis. A number

of cases have been reported in which entero-anastomosis was performed for intestinal tuberculosis. Hofmeister ("On Multiple Stenosis of the Intestine of Tubercular Origin," *Beiträge zur Klinischen Chirurgie*, B. xvii, No. 3) reports a case of multiple tubercular strictures of the intestine treated by establishing an entero-anastomosis. The patient, a man aged 32, had suffered for four years with attacks of colic accompanied by vomiting and constipation, recurring at intervals of greater or less length, the last seizures had been particularly severe. Finally the patient was taken to the surgical clinic of Bruns, at Tübingen, with all the symptoms of a marked intestinal obstruction. The operation, which was undertaken without delay, revealed ten annular strictures of the small intestine, for the most part, very narrow and distributed over two meters of the bowel. The large intestine was absolutely empty and contracted. Resection being out of the question on account of the debilitated general condition of the patient an anastomosis was made between the intestines above and below the seat of obstruction. At the very outset the distended intestine was punctured with a small trocar, to evacuate its contents. The puncture was closed with two rows of sutures. The patient was temporarily improved by the operation, but died the following day in sudden collapse. The autopsy revealed the fact that death had been caused by a general peritonitis. Inspection showed that the sutures inserted for the purpose of closing the puncture-opening were insufficient to resist the intra-intestinal pressure by gas, and had given way, followed by fecal extravasation. Besides the ten discovered at the operation, two additional strictures were found, one near the ileo-cecal valve and the other a little higher up. When the strictures are multiple the disease usually involves the ileum. Hofmeister found records of eighteen cases of multiple strictures of the intestines of a tubercular nature.

Murwedel ("Ueber Entero-anastomosis," etc. *Beiträge zur Chirurgie*, B. xiii, Heft 3) reports a case of tuberculosis of the cecum treated by entero-anastomosis from Czerny's clinic. The patient was a man, 43 years of age. No hereditary predisposition to tuberculosis in the family. He suffered from two attacks of localized peritonitis, probably caused by appendicitis, the first in 1870, the second in 1887. Since last attack pain and tenderness in the right iliac fossa remained. In 1891, the pain increased, attended by colicky pains in the abdomen, the latter disappeared after two or three minutes under a loud pouring sound. Bowel movements were irregular. A few weeks before his admittance into the clinic eructations and transient vomiting returned. He was treated for some time in the medical clinic, by high enemata without any benefit. He was admitted into the surgical clinic, August 17, 1893. At this time with the exception of a chronic conjunctivitis, rhinitis and pharyngitis and a slight pulmonary emphysema, the general health of the patient did not appear to be much impaired. Cecal region was prominent, and to the right of the cecum and ascending colon, particularly the latter, a hard cylindrical swelling could be felt, extending from the iliac spine to the tip of the seventh rib. The swelling was fixed and tender on pressure, there was visible peristalsis of small intestines near cecum.

Clinical diagnosis: Stenosis and tumor formation in the region of the cecum and ascending colon, chronic inflammatory (perhaps tubercular) process. First operation, Aug. 20, 1893. Vertical incision in the linea Spigelii showed infiltration of pre-peritoneal tissues and firm adhesions between anterior abdominal wall and ascending colon. In separating the adhesions an ulcerated portion of the colon near its middle was torn and a quantity of pus but no fecal material escaped. From this opening digital exploration showed that the colon was ulcerated as far as the ileo-cecal valve, which induced the operator to abandon all thoughts of performing a resection. The tear in the bowel was sutured and an entero-anastomosis made. The lower portion of the ileum was distended and hypertrophied, on the other hand the transverse colon contracted and atrophied. These two parts of the intestinal canal were then brought into communication by establishing, by incision and suturing a free anastomotic opening. The sutured wound of the colon was fastened to the abdominal wall with two peritoneal sutures. External incision was closed with the exception of a space over the cecum to secure drainage, which was effected by using the iodoform gauze tampon. The diagnosis made at this time confirmed the previous suspicion of the tubercular nature of the affections. Bowels moved on the second day after the use of an enema. A week after the operation some fecal matter was mixed with the discharge from the wound. When the patient was discharged, four weeks after the operation, the wound was healed, with the exception of a fistula, which discharged a small quantity of pus, but no fecal material. Bowels moved without the aid of cathartics or enemata. General conditions much improved. During the fall of the same year, he was attacked with influenza and at the termination of the illness the parts around the fistula became inflamed and soon after, a more copious flow of pus ensued, which became mixed with feces. He re-entered the clinic Nov. 31, 1893. The swelling in the cecal region was smaller but firmer than at the time of operation. There was constipation, which when relieved by cathartics, was followed by diarrhea, some of the fecal material escaping through the fistula. At this time the fistulous tract was enlarged with the knife sufficiently to enable exploration of the abscess cavity with the finger. The cavity was about the size of a walnut, partly filled with hard fecal masses and lined with tubercular granulations. Curettage and iodoform gauze tamponade were used. After operation nearly all of the feces escaped through the fistula. Third operation was performed December 7 of the same year. The old scar was incised and the adherent ascending colon separated. During this step of the operation a small subcutaneous abscess was opened. The fistulous opening was next exposed and was found near the lower end of the ascending colon, where a defect was found large enough to admit the tip of the index finger. Exploration of the interior of the cecum revealed a large cicatrized surface. The margins of the intestinal fistula were vivified and the opening closed with two rows of sutures, the operation being entirely extra-peritoneal. The external incision was closed with the exception of a space large enough to bring out the iodoform gauze tampon. No unfavorable symptoms followed the operation. Normal stool after injection on the eighth day. Patient left the hospital with a small fistula on the last day of the same month, almost in perfect health and with normal bowel movements. One year later the fistula still remained

and at times small quantities of feces escaped, otherwise the patient was in good health and had gained twenty-three pounds in weight. Czerny attributes the healing of the extensive tubercular ulcerations to the elimination of the affected part of the bowel from the fecal circulation by the ileo-colostomy. Schiller reports three cases of intestinal tuberculosis treated by physiologic exclusion of the affected part, operated upon in Czerny's clinic during a period of four years. ("Ueber Darmoperationen an der Heidelberger Chirurgischen Klinik, etc." Dissertation, 1896.) In all cases the disease was located in the cecum and had given rise to chronic obstruction. In two cases the anastomotic opening was made between the ileum and transverse colon, and one between the ileum and the ascending colon. In two cases the cecum was incised and the tubercular ulcers curetted. The visceral incision was closed by suturing parallel with the long axis of the bowel. In one case the diseased appendix was excised in addition. In one the gall bladder was extirpated at the same time for lithiasis and chronic inflammation. In all of the cases the contraindications to resection were well defined. In one case the operation was done by the use of the Murphy button, which was removed from the ampulla of the rectum on the fifteenth day after a severe hemorrhage three days previously. The pulmonary symptoms became seriously aggravated after the hemorrhage. All these cases recovered and the patients left the hospital improved. In one case (reported *in extenso* above), a fecal fistula developed, which was sutured on two occasions with partial success.

The exclusion of the affected part of the intestine although not complete, led to speedy healing of the ulceration, as was shown in one case at the second operation, four and one-half months later. The healing of the ulcers was undoubtedly favored by the atrophy and diminished peristaltic action, conditions which are always established in the excluded part soon after the operation.

James Israel ("Ueber Chirurgische Heilung von Peritoneal und Darmtuberkulose," *Centralblatt für Chirurgie*, 1896, No. 4) reported to the Surgical Society of Berlin a case of tuberculosis of the cecum and ascending colon in a woman 20 years of age, greatly improved by establishing a communication between the ileum and the ascending colon. The disease was attended by symptoms indicative of chronic intestinal tuberculosis. Exploratory laparotomy was performed and a probable diagnosis of sarcoma was made. The mesenteric glands were found enlarged. Later a second operation was performed, when a swelling the size of an apple was found projecting into the ascending colon, complicated by disseminated peritoneal tuberculosis. The patient made a good recovery, gained in weight, and after seven months, the swelling was reduced in size to that of a walnut.

Gessner ("Entero-anastomose bei tuberculöser Darmstriktur," *Centralblatt f. Chirurgie*, 1896, No. 6) made a laparotomy on a case in which the cecum was tubercular and had attained the size of a goose-egg. The swelling was nodulated and the serous coat studded with miliary tubercles. The obstruction caused by cicatricial stricture in the region of the ileo-cecal valve was relieved by an anastomosis between the ileum and the ascending colon, which was made by the aid of the Murphy button. The button was discharged per rectum on the thirteenth day. The operation was followed by manifest improvement.

A very interesting case of intestinal tuberculosis complicated by invagination came under the observation of Czerny and is reported in detail by Murwedel ("Ueber Entero-anastomose, etc." *Beiträge zur Klinischen Chirurgie*, B. xiii, Heft 3). The patient was a boy 14 years of age who, two months prior to his admission into Czerny's clinic, was suddenly taken ill with vomiting and severe pain in the abdomen, attended with the appearance of a swelling in the upper and right side of the abdomen. In a few days the pain subsided and the vomiting occurred less frequently. A sausage-shaped tender swelling, above the umbilicus, remained. Bowels could only be moved by the use of injections. For a few days during the early part of the attack the stools contained traces of blood. On his admission into the clinic, June 2, 1894, the patient presented an anemic appearance and was considerably emaciated. There was no fever, lungs and heart normal. Inspection and palpation revealed the existence of a cylindric swelling, ten centimeters in length, in the region of the transverse colon. The swelling was slightly movable and tender on deep pressure. Liver, spleen and kidneys were normal in size and function. Under rectal insufflation the swelling increased in size, and dulness on percussion gave way to tympanitic resonance. Capacity of colon was only three pints. The rectal injection did not increase the dulness on percussion over the swelling and was followed by the escape of hard fecal masses. Chronic invagination of ascending and transverse colon was diagnosticated. Operation was performed June 6. Median incision was made from xiphoid cartilage to umbilicus, which later had to be extended two inches to bring the invaginated colon forward into the wound. The swelling, the size of two fists, was composed of the cecum and ascending colon, into which the lower portion of the ileum had become invaginated. The intussusception could be traced as far as the right flexure of the colon. Reduction, owing to the presence of extensive adhesions, was found impossible, and resection was contraindicated by the debilitated condition of the patient. An entero-anastomosis between the ileum above the invagination and the middle third of the transverse colon, was established by incising the previously approximated ileum and colon and suturing the visceral wounds with two rows of sutures in the usual manner. Abdominal incision was closed throughout.

The existence of a tubercular lesion of the invaginated bowel was suspected from the presence of a plastic caseous perityphlitis. Recovery was without any untoward symptoms. Patient left the hospital August 9, swelling much diminished in size, bowel movements normal. A year later the patient remained in good health and examination showed that the invagination swelling had nearly disappeared. The tubercular complication presented itself in the form of caseous adhesions found at the time the operation was performed. The infection probably occurred from the intestinal canal. Whether the tuberculosis occurred as a primary affection or whether it appeared after the invagination had taken place, would be difficult to determine. Flenier describes two other cases of intestinal tuberculosis from Czerny's clinic in which the pathologic conditions produced by the disease gave rise to invagination (Virchow's *Archiv*, B. 101).

The cases reported above furnish conclusive proof

of the therapeutic value of entero-anastomosis in the treatment of intestinal tuberculosis, sufficiently limited to warrant surgical interference and beyond the reach of successful treatment by more radical measures.

Complete physiologic exclusion.—Practical experience has demonstrated the value of partial physiologic exclusion in the treatment of certain forms of localized intestinal tuberculosis. It would be natural to assume that the therapeutic value of entero-anastomosis would be enhanced if the affected part of the bowel could be completely excluded from the fecal circulation, thus securing for the diseased tissue a condition of absolute rest. At the time the writer made his experiments on physiologic exclusion of parts of the intestinal canal, he had this object in view and made a number of experiments to demonstrate the possibility and practicability of the procedure. The exclusion was made by isolating a section of the intestine and closing its ends by invagination and a few Lembert's sutures. The continuity of the intestinal canal was restored by circular suturing or lateral anastomosis. The results of these experiments proved unsatisfactory, as it was found that the retained intestinal secretions constituted a source of danger. A few years later, Salzer modified the operation by establishing a fistula in connection with the excluded portion. This method of effecting complete physiologic exclusion has been resorted to only in a very few cases in the surgical treatment of intestinal tuberculosis. I will limit myself to a detailed reference to v. Eiselberg's case.

In a case of tuberculosis of the cecum, ascending colon and hepatic flexure, this surgeon ("Zur Casuistik der Resectionen und Entero-anastomosen am Magen und Darmcanal," *Arch. f. Klin. Chirurgie*, B. 54, Heft 3), resorted to complete physiologic exclusion, with temporary benefit. The patient was a man 35 years old, who was in good health until five years ago, when a tubercular affection of the foot developed, followed soon by symptoms of acute pulmonary tuberculosis. Three years ago, the head of the tibia was operated upon by curettage, for tubercular caries. During the healing of the wound the patient suffered from an attack of perityphlitis, from which he recovered, but the disease was followed by periodic pains in the ileo-cecal region, at short intervals. During the last few months the pulmonary symptoms became aggravated and an obstinate diarrhea set in. On admission into the hospital, examination revealed extensive tubercular infiltration of left apex of lung and a cylindric swelling in the region of the cecum; the swelling was somewhat movable and tender on pressure. Operation was commenced, by making an oblique incision directly over the cecum. The cecum was found smaller than normal and not adherent. The infiltration extended from the ileo-cecal valve to the middle of the transverse colon. The affected portion of the bowel was completely excluded and the continuity of the intestinal canal restored by circular suturing, the resected end of the ileum had to be joined with the transverse colon. The mucous membrane, at the points of section, appeared to be healthy. The ends of the excluded portion were fixed in the upper and lower angles of the wound, respectively, and the balance of the abdominal incision was closed in the usual manner. From the excluded portion of the intestine mucus and pus escaped in considerable quantities. The patient improved temporarily. On the seventh day the affected part of the bowel was washed out carefully, from both ends, with a warm physiologic solution of salt. These irrigations proved the competency of the ileo-cecal valve. The flushings were found useful in diminishing the amount of the inflammatory product. The patient left his bed in three weeks. A few days later the pulmonary symptoms became more marked and when the patient left the hospital, a week later, he was attacked with pulmonary hemorrhage, which recurred several times and from the effects of which he died two months after the operation. Diarrhea reappeared soon after the operation and continued to the end. The persistence with which the diarrhea continued soon after the operation tends to establish the existence of the tubercular lesion of the mucous membrane beyond the limits of the operation.

Complete physiologic exclusion will, in all probability, have a very limited scope in the surgical treatment of intestinal tuberculosis, as the immediate dangers to life are almost equivalent to the risks incident to resection and the advantages over those of partial exclusion are not sufficient to warrant a more general recourse to this procedure. There can be but very little doubt that with an increased knowledge of the etiology and pathology of intestinal tuberculosis surgeons will be induced to resort to operative treatment more frequently in the future, and that with further improvements in the technic of intestinal operations, the surgical treatment will yield more encouraging results.

ORIGINAL ARTICLES.

WHERE THE WEAK-LUNGED OR CONSUMPTIVE AND NEURASTHENIC MAY LIVE AND ENJOY LIFE.

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OBSERVATIONS.

My object in writing this paper is to call attention to conditions, localities and influences that are beneficial to certain classes of sufferers, basing my conclusions upon my own observations and the statistics and observations of others.

It is impossible for all men to be rated by one general rule, nor will one climate suit all conditions. There is a distinctive individuality that does not allow a fixed or arbitrary procedure, men differ in their constitutions, temperaments, likes, dislikes and necessities as they do in their faces and forms. A climate favorable to long life is the one thing sought by man. The question is, where can I go to prolong my chances of life, suffer least and get the most enjoyment out of the time allotted me? Thousands are asking these questions, the consumptive perhaps more than any other, since consumption is the greatest scourge of the human race. Another class is the rheumatic, then comes the ever-present nervous individual with his many troubles, insomnia, etc. It is in the interest of these several classes that I write.

Among civilized people in temperate regions consumption, it is said, carries off one-tenth of the population and, so far as we know, there is no country entirely free from its ravages. In Iceland the disease is rare, while in the West Indies it is of common occurrence. This shows that heat is not a preventive and that cold does not necessarily produce it. That medicines are of but little, if any, use can scarcely be doubted. Cod liver oil and immunized serum are of

little or no value, climate is the one thing most promising.

I do not favor a cold climate for a sick man; a low temperature is especially detrimental to the phthisical or consumptive, notwithstanding there are strong advocates of the North, as the Adirondacks. Many cases are very much braced up for a time in a cold climate; the electro-positive conditions tend to make the depressed and jaded person feel better, but it is absurd to send a person suffering from consumption into a cold climate, as he is of necessity a person with impoverished blood, enfeebled circulation, and to place him where he must be shut up in-doors, week in and week out, and expect any lasting results for good is beyond my comprehension. I will concede many try and are much of the time out in the cold air of northern resorts, as the physician often insists that it is positively necessary to remain out. The out-door air is necessary but more die in the attempt than get any lasting benefit from such ventures. While I do not approve of cold high altitudes and extreme changes, I also do not see a fitness in warm humid climates for the consumptive. I have sent many cases of consumption to Georgia, Florida and South Carolina in years gone by. In a few instances they have been benefited, but more frequently were not.

Aiken, Summerville and Thomasville, all of which have admirable climates in comparison with central or northern New York, for the comfort of the consumptive, but the variations are even there too marked, changes are too abrupt to be what is desired. The pine forests are no doubt beneficial and soothing, by reason of the ozone and sweet resinous odors of pine; this is especially true of bronchial troubles. The middle Southern States are better for the nervous class than for the consumptive. We have traveled over the Southern States at different times; I also visited the Territory of New Mexico with the express view of learning, if possible, of its value as a health resort for the consumptive. My first stop was at Eddy, located in the Pecos Valley at an elevation of about 3,000 feet. Here I found a clear sky and lovely climate and without the extreme changes of Northern regions; here we found many persons in the various stages of consumption (so claimed) that had come for relief, and that were to all appearances enjoying fair health, at least so long as they remained. To sufferers from, or rather those fearing lung troubles, New Mexico offers conditions favorable to the non-development of pulmonary diseases. It is a climate suited to cases before the destructive stage has arrived. Here is found a dry, aseptic air, a light atmospheric pressure, a large amount of sunshine and dry porous soil, and it is never too hot when one is shaded from the sun. The air is fresh and stimulating, the prevailing winds traverse a large expanse of arid regions and is consequently freed from all dampness; hence one can be out of doors a large share of the time, an almost positive necessity for persons with weak lungs. My observations were such that I would recommend the Pecos Valley to those persons who have not yet reached the stage of lung desintegration. My advice is to go there and engage in farm and stock raising, either of which offers large returns to the industriously inclined. Land is cheap and can be had on easy terms. Farming in New Mexico under irrigation is pleasant as well as profitable. I think that for the class named no better climate need be looked for: but once the disease has developed and there are cavities in the lungs I doubt the propriety of going to New Mexico at the present or for some time to come.

New Mexico has high winds which come up suddenly, as is always true of timberless countries; the soil is dry and loose by reason of little or no rain and consequently there is but little grass or other growth to prevent the winds gathering up the dust and loose earth; hence dust and sand storms are not infrequent, though becoming less frequent and less terrible in character as the lands are brought under cultivation by the help of irrigation. During the time of high wind the air is full of dust, driving all persons in-doors, often for some hours, and even in-doors the air is full of dust particles which prove deleterious to an inflamed and highly sensitive tissue or mucous surface. When one is caught out in these storms, even if free from any lung weakness, the sense of suffocation is dreadful to say nothing of the feeling of bronchial irritation which follows and continues for some hours. Such foreign matter certainly can not act beneficially upon diseased tissues, therefore I do not think New Mexico the country for a fully developed case of consumption. I believe, however, that the time will come when it will be largely the resort for consumptives by reasons of the changes that will be wrought through irrigation and by reason of its nearness to the now populous portions of the States.

Before giving my conclusions relative to Mexico as a resort or home for the consumptive I will endeavor to disabuse the public mind of much that is false relative to Mexico and the Mexican people. It has been well said that "Mexico is a land of romance and wonder and that every noted spot has its legend." An extended description of Mexican life and customs would require too much time and space. I had an ungenerous opinion of this near-by land, having throughout my life heard only unfavorable criticisms. My first impressions were varied; the longer I was with the Mexican people and the more carefully I studied them the more favorably I was impressed toward them and their unique country.

Mexico may well be styled the Rome of America, not strictly on account of her temples and palaces, but on account of her churches and other ecclesiastical buildings, many of which have been alienated from their original purpose. Everywhere, in all the Indian towns, the grand Gothic cathedral rises above all else In the metropolis the cathedrals are conspicuous many of them grand, commodious and imposing. Public monuments are on every hand, many are rea masterpieces. Upon the grand boulevard extending from the Alameda to Chapultepec, a distance of three miles, are numerous monuments to the memory of Aztec kings, also to King Charles, Columbus and others There is in Mexico a strong educational interest manifest; excellent facilities in this direction are afforded at the capital by a school of fine arts, professsiona schools for women as well as men, an academy of fine arts, a conservatory of music, school of mines, schoo of jurisprudence, military institute, medical and com mercial colleges, preparatory school for boys, dea dumb and blind institutes, national museum, a superl public library with over two hundred thousand volumes. President Diaz has an idea to thorough ness, as is evinced by his prescribing a seven years course in the national schools, the college of agricul ture and college of engineering. The course include French, English, German, Greek and Latin, geog

aphy, meteorology, chemistry, botany, geology, architecture, agriculture, surveying, bookkeeping and political economy. The medical course is seven years. Musical culture is a prominent feature in Mexico. One of the noble institutions is the school of arts for women; in this school poor girls have unequaled advantages for learning. The government gives them a comfortable room and two meals a day. Many of the poor are supplied with clothing. Can he United States boast of a nobler benefaction? As egards civility and politeness, they are certainly the nost polite people I have ever seen, with universal espect for age, genius and their superiors. Hospiality is a national characteristic; a leading inspiration mong them is to make home beautiful; to this end very element of refined taste and culture is brought o bear. Americans may well copy their taste in floral nd other home decorations.

The Republic of Mexico is a much misunderstood ountry; although near us, it has seemed to be a far ff land, without merit, beauty or other attraction; its nhabitants a people that are strangers to hospitality, who live within and for themselves, whose prejudices re deeply rooted by reason of a never-to-be-forgotten npleasantness that cost them many lives and much erritory. Such I am happy to say is a misconcepion. A more liberal, hospitable people are not to be ound. Instead of repelling they invite you to come, hey ask that Mexico be better known, they seek nvestigation of their great country, the advantages of limate, etc.

Before giving any specific information relative to Iexico as a health resort it is well to briefly discuss hat is, or should be, the accepted conclusions as to ffect of climate upon certain diseases. The chief ictors that act beneficially or adversely upon the onsumptive.

Phthisis is the most important of all diseases for ie amelioration of which climate is sought and over hich, I think, temperature and humidity are ruling ictors for good or evil, and that dryness is beneficial, umidity obnoxious and cold dangerous. Sunlight is feature to be sought after by all classes of invalids id neurasthenics, but more especially is it a requisite the consumptive.

There is little or no necessity for our dwelling to ny extent upon the value of out-door air and sunine; everyone acknowledges its benefit, though in ie summer they may have a preference for the shade. he effect of light upon man's physical and moral ell being is certainly analogous to the fructifying fluence of the sun's rays upon the vegetable world, e existence of which depends upon light. Sunlight, earness, transparency of air are certainly indications purity. An atmosphere through which one can e a great distance, as in the high altitudes of exico, surely implies purity, absence of dust, smoke id moisture. Absence of moisture implies absence infusoria and low forms of organisms. The changes atmosphere in high altitudes are largely dependent on electric conditions. There is an increase of ectric tension, a higher potential quality as we gain altitude; in other words, the dryer the air the more sitive are the electric currents that surround us. sitive currents are stimulative, while negative are n-stimulating. It is only in the high, dry altitudes at we get positive electricity, hence the universal pression uttered by every one visiting high altides, "how light and buoyant I feel; this climate seems to just lift me up, I feel that I have a great weight removed from me, etc."

The high-level resorts are being more and more appreciated and there is an increasing tendency to go to high altitudes. Seashore resorts are much less sought than they were ten years ago, unless it may be by those having no special need other than change from home and its environments.

The chief points of importance in climatic conditions are those favorable to non-development, retardation and cure of consumption, which are dryness of air, freedom from micro-organisms, irritants and noxious gases, the largest amount of sunlight practicable, diminished barometric pressure, ozoniferous atmosphere, and chief of all a climate that admits of an out-door life the largest possible amount of time. I am sure that high altitudes in a southern latitude are the only safe resorts and efford the advantages enumerated.

I believe portions of the Republic of Mexico, the high table lands at an elevation of from 3000 to 7000 feet above the sea level offer more and better advantages than any other country. When all is considered Mexico has climatic conditions suited to almost any possible condition that can exist, since temperature and barometric pressure depend entirely upon elevation, as do also humidity and dryness. In the high altitudes there is a positive freedom from sudden changes of extreme character, by reason of the lofty and continuous mountain ranges that surround the plateau lands of the republic.

In most of the mountain resorts of the world there are one or more serious objections to recommending them as a constant home or even as a temporary resort. In northern climes the extreme low temperature is inconsistent with out-door life a large portion of the time, which is a serious objection. No medical man can conscientiously advise a cold climate for an invalid, much less for the consumptive. Another objection to high altitudes in northern climes is the sudden fall of temperature, a thing that is dangerous to an enfeebled constitution. A low, humid, hot country is equally detrimental or nearly so as that of a cold frigid one.

Portions of Mexico and New Mexico are well adapted to certain classes of nervous cases and to the improvement of pulmonary conditions. Why? By reason of the high altitude that may be attained, the air being aseptic, free from dust, irritation and low forms of organisms or microbes; by reason of the rapid evaporation of morbid secretions in the lungs promoted by the reduced barometric pressure and the dryness of the air at the elevation named, the increased oxidation of the blood and tissue changes are due to increased metabolism, dependent on the sunlight of the high altitudes and lessened air pressure; by the increased quantity of blood circulating in the lungs due to the low air pressure of the high altitudes. In high altitudes there is an increase of blood circulating through the lungs, hence increased metabolism and tissue changes. The increased activity and deep breathing attendant upon a life in high altitudes tend to improve nutrition and glandular secretions. Along with the local and general nutritional effects that are manifest from a sojourn in the high altitudes of Mexico are the delightful and stimulating effects upon the nervous system. Still another noticeable feature and one much to be desired, is the increase of red blood corpuscles and hemoglobin. Such blood

changes are unquestionably due to increased amount of oxygen inspired. Anemic conditions rapidly disappear in the sunlight of Mexico's high altitudes: rapid and remarkable improvement in the local and general conditions are coincident with the blood changes in the consumptive who is transported from the sea level to altitudes of three or more thousand feet, as has been demonstrated by numerous careful observations in Europe, North and South America.

So far as we know the only successful means of combating tuberculosis is by improving the resisting powers of the system. Out-door life in a mild, dry climate where the general health can be kept at the highest possible standard offers certainly the best possible advantages and the longest immunity. The high lands of Mexico certainly offer all that can be desired in point of climate, being neither hot nor cold, and is as near as possible suited to each and all cases. Whatever rainfall takes place in Mexico is between the months of April and November, just when needed to cool the otherwise long and occasionally dry season, most of the showers occurring during the night hours consequently seldom interferes with out-door exercise, sports or employment. The opportunity for profitable employment is a strong argument in favor of Mexico and New Mexico; lands are cheap in either country and profits large. The accommodations for invalids are meager. The hotels are not, as a rule, what they ought to be and are not generally favorably located for the invalid class, nor are they built with any thought of providing open air exercise or sun baths. The hotels are in the midst of the noise and din of business. That no provision has been made for the invalid class is due to lack of demand; the people of the North that need just such a climate have never had their attention called to Mexico. The day is near at hand when the sanitariums for the people of the more northern sections will be in the Mexicos. The land of the Montezumas needs only to be seen to be appreciated, the enchantment grows with your stay in that balmy land. While there are English-speaking people to be found almost everywhere in the republic and especially in the City of Mexico, your comfort will be largely increased if you have sufficient knowledge of the Spanish language to understand and be understood.

CLASSIFICATION OF THE LESIONS CONSTITUTING THE SO-CALLED CHRONIC NASAL CATARRH.

Read before the Chicago Medical Society, Jan. 5. 1898.

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The term chronic catarrh was formerly used for all chronic affections of the nose manifested by more or less nasal obstruction and secretion. It is still so employed by the public and to some extent by physicians, yet the studies of the last twenty years have resolved this comprehensive name into a number of separate affections. The description of these various types of disease is, however, neither uniform in different text-books on the nose, nor do the types stated by authors conform always with actual observation. Perhaps the main reason for these discrepancies is the frequent multiplicity of lesions, so that quite commonly the symptoms of catarrh depend on several different morbid conditions co-existing in the nose.

My object is to classify the different lesions which make up this composite picture of catarrh. On the basis of many years' personal observation I wish to describe those types of morbid changes which constitute each a separate disease entity. Although these are often found in combination I shall base my description on cases which present the least number of lesions and hence the purest type of each disease.

The different lesions which simply or in combination make up the clinical picture of chronic catarrh may be grouped as follows: 1. enlargement of cavernous tissue; 2, simple nasal catarrh; 3, nasal suppuration, localized in nasal passages, accessory cavities, or the pharynx; *a*, rhinitis sicca anterior (perforating ulcer): *b*, ozena or atrophic rhinitis; 4, hypertrophic inflammation of mucous membrane and adenoid tissue; 5, septum deformities in the form of deflection, articular expansion or callus formation.

1. *Enlargement of the venous plexus* in the mucous membrane occurs in connection with all (except the atrophic) forms of nasal disease, but may exist in a nose not otherwise diseased at the time. It hence deserves to be described as a separate lesion. Its significance depends less on the permanent increase of vascular tissue than on its periodic dilatation under the influence of various stimuli. These periodic changes of turgescence cause the variable obstruction or even occlusion in nasal diseases. Except in acute inflammations the vascular distension is only one sided at a time; but alternating. The area where the veins are massed in the form of distinct cavernous tissue is the front region of the inferior turbinal and the posterior ends of all the turbinals. Enlargement of the cavernous tissue is not identical with hypertrophy of the mucous membrane and can be distinguished from it by the compressibility on pressure with the probe and by the contraction under the influence of cocain. It may, however, co-exist with moderate tissue hypertrophy.

The influence of the vaso-constrictor nerves upon the cavernous tissue is sometimes shown by its contraction under the effect of anxiety during an examination. Whether there are also vaso-dilator nerves is not known. Although enlargement of the cavernous bodies is mostly but a concomitant condition in other nasal diseases, yet it is sometimes found where no other lesion can be detected, especially in hay fever. As far as can be learned clinically. it is the result of often repeated attacks of acute inflammation in subjects with unstable nervous systems. Indeed vascular dilatability is the direct expression and, to some extent, a proportionate index of a neuro-pathic condition. In extreme instances sudden engorgement with sneezing and profuse watery flow simulates attacks of true coryza, but its non-inflammatory nature is shown by the short duration of the spell, as well as by the absence of corpuscles in the clear discharge.

2. *True nasal catarrh* is characterized by catarrhal secretion, a thick, viscid. turbid fluid, containing enough cells to make it appear whitish or gray. but not yellow or green and not at all purulent. In cities the discharge is commonly stained by inhaled soot and dust. This discharge flows over the soft palate and drops into the throat or is dislodged by forcible expirations which vibrate the palate. It is not blown out of the nose. Nasal discharge blown into the handkerchief is either purulent or a sudden flow of clear transparent mucus in consequence of acute irritation. Although nasal catarrh, described by the patient as "dropping in the throat." is the most common form of

nasal disease in this climate, I do not know of any accurate description of it in literature. It is usually classified as chronic hypertrophic catarrh, but the description does not conform to the reality. Various forms of hypertrophy frequently occur with true catarrh, but they are not a constant and hence not an integral factor. In uncomplicated cases of true catarrh there are no gross lesions visible to the eye. Yet I do not know of any author who has defined chronic nasal catarrh in this manner.

What, then, is the pathology of simple chronic catarrh? In those few instances in which it can be traced from its beginning, it is found to be the sequel of an acute coryza. Moreover, it is always intensified when the patient passes through a fresh acute nasal inflammation. This history suggests that it is due to a persistence of chronic inflammation. As far as can be learned clinically, the process is localized in the posterior and lower part of the nose. But in the pure type of the disease the inflammation does not reveal itself by either redness or swelling of the mucous membrane, at least as seen during life by anterior or posterior rhinoscopy. In view of the fact that the catarrhal secretion persists in some patients for many years without being followed by any visible tissue alterations, the term hypertrophic catarrh does not seem appropriate. Moreover, the hypertrophic areas which are often found associated with simple catarrh are not necessarily the source of any secretion.

Bosworth has emphasized that an important factor in nasal catarrh is stenosis of the nasal passage, especially when due to irregularity of the septum. The amount of catarrhal secretion and the annoyance to which it gives rise are more or less proportionate to the narrowness of one or both sides of the nose. But I can not accept Bosworth's view, that the secretion is the direct consequence of the stenosis. Stenosis of variable degree may exist by itself without nasal catarrh or secretion, especially in young persons under about 16 years of age, in whom nasal catarrh is quite rare. Adults, however, who have nasal stenosis, quite commonly acquire catarrh in addition, which proves persistent. On the other hand, I have observed chronic catarrh in noses which were not at all stenotic. The only method of estimating nasal stenosis is to listen to the sound produced by breathing through one side at a time. A normal passage allows the air to pass in and out without any sound whatever, while interference with respiration gives rise to a noise which varies from a gentle blowing to a sharp hiss. I regard stenosis as an important determining condition, which favors the persistence of chronic inflammation in the posterior parts of the nose, but not as an indispensable factor in catarrh. All operative procedures against stenosis relieve the catarrh in proportion to their mechanical influence upon the caliber of the nasal passage. Of similar importance are the transient occlusions due to vascular engorgement; hence removal of excessive cavernous tissue by snare or cautery is a valuable remedial measure in suitable cases.

The surgical cure of stenosis does not cure the catarrh. The secretion, though much diminished, still persists. As the patient feels very little annoyance from this when the nose is freely patent, he is generally satisfied, but the catarrhal secretion is there. I know of no method by which we can absolutely cure chronic nasal catarrh; it may however disappear in the course of time or under favorable climatic influences in noses without stenosis, or after successful operation for stenosis.

3. *Nasal suppuration* is separate and distinct from nasal catarrh. Its secretion is pus diluted with more or less mucus, and chronic pyogenic infection always involves a possibility of mischief by extension. The source of the pus may be in the nasal passages, in the accessory sinuses or in the pharynx. Grnenwald has shown clinically that chronic suppurative inflammation in the nose is usually not a diffuse process, but localized in some small area. In many of his cases he claims to have found caries or superficial ulceration of the bone as the lesion which explained the persistent suppuration. I have seen very little confirmation of this part of Gruenwald's view and I do not think that the information which he gets from the use of the probe is as trustworthy, regarding bone disease in hidden parts of the nose, as he claims. I also do not admit the existence of Woakes' necrosing ethmoiditis as a common lesion in nasal suppuration. My doubts are fully confirmed by the recent pathologic studies of J. N. Mackenzie and of Hajek. In seventeen amputated fragments of the middle turbinal, in the class of cases attributed by Woakes to necrosis, Hajek did not find bone destruction, anatomically, in a single instance. Destruction of bone does, however, occur in some of the more severe forms of suppuration of the accessory cavities, but such cases are relatively rare. The more common cause of osseous necrosis is syphilis in its late manifestations. A purulent discharge may also be due to foreign bodies and concretions in the nasal passages. Another cause for the persistence of purulent inflammation is the lodging of pus in various recess-shaped areas and in such regions where accidental configuration favors a damming up of pus; by reason of such imperfect drainage, acute attacks of coryza lead to the persistence of localized suppurative inflammation.

While disease of the accessory sinuses was considered scarcely more than a surgical curiosity until some ten years ago, anatomic work by Harke, E. Fraenkel and others has shown the frequency of acute affections at autopsies. Probably most of the milder acute cases escape clinical detection and heal spontaneously, but the more our methods of diagnosis become perfected, the larger do we find the proportion of diseased nasal accessory cavities as the source of nasal suppuration. It is beyond the scope of this paper to discuss the methods of diagnosis and treatment. While the more severe "text-book" cases of sinus suppuration can now be readily recognized, it often taxes the patience and ingenuity to determine the source of pus in the less pronounced forms. In the milder forms of even chronic suppuration from the frontal, ethmoid or sphenoid sinus, a cure can sometimes be obtained without surgical exposure of these cavities, if by minor surgical intranasal measures we can improve the drainage.

Pus secreted in the nose, the ethmoid cells or the sphenoid sinus may flow into the pharynx, as well as out of the nose anteriorly, where the configuration of the passages favors the flow toward the rear, but pus in the pharynx may also be formed in this space itself. Its source, in such cases, is the inflamed adenoid tissue at the roof, the pharyngeal tonsil. Mere enlargement of the adenoid tissue does not necessarily cause suppuration; the tissue must be besides in a state of inflammation. An enlarged pharyngeal tonsil does not suppurate continuously, although it does

so very often. On the other hand, there may be purulent inflammation at the pharyngeal vault without enough hypertrophy to cause the symptoms of obstruction.

In certain cases the morbid discharge formed at the roof of the pharynx dries in the form of adherent crusts. As a rule, we find in such instances only a slightly thickened layer of adenoid tissue. Sometimes the secretion issues from clefts in the adenoid tissue, the surface of which appears healthy. Whether some of these instances are not cases of ozena localized in the pharynx, is an open question.

3*a*. *Rhinitis sicca anterior of Sieberman*, a special form of nasal suppuration, is a disease limited to the anterior lower part of the surface of the septum. In this affection (usually one sided) the discharge forms a thin adherent scab on the septum, without any odor. Characteristic of the disease is the viscid secretion which, while scant and purulent, dries in so firm a manner that it can not be detached without injury to the epithelium, hence its removal leaves an abraded surface. A further peculiarity is the extensive hyaline degeneration of the involved mucous membrane. (Ribari). This form of disease causes but little subjective annoyance, but it is a frequent source of recurrent nose-bleed. More important, however, is the possibility of ulceration of the septum, for there can be but little doubt that the perforating ulcer of the cartilaginous septum is the occasional consequence of this disease, if not controlled by treatment. This typical form of ulcer has certainly no relation to either tuberculosis or syphilis.

3*b*. *Ozena* is another variety of suppurative inflammation of specific character. It is characterized by progressive atrophy of the mucous membrane and turbinate bones, and by a thick purulent secretion drying in crusts, which when allowed to remain give rise to a characteristic fetid odor. The peculiarities of this disease are so pronounced that most observers consider it as a separate affection, but its pathology is not yet clear. The older view, now almost discarded, that it is the terminal stage of hypertrophic inflammation, is unfounded. No one has seen the transformation of a pronounced hypertrophic rhinitis into an atrophic stage. Hypertrophies are common, ozena is relatively infrequent. Moreover, it usually begins in early life. Ozena occurs more commonly in relatively short and wide nasal passages, as Hopman has shown, while hypertrophy is favored by stenosis.

Ozena has been ascribed by Michel, and especially by Gruenwald, to suppuration of accessory cavities, or to circumscribed nasal foci of suppuration. Against this view it can be urged that autopsies have shown that the sinuses are not always involved, but that the greater extent of the mucous membrane is diseased. Undoubtedly sinus suppuration is a frequent and important complication in ozena, but it is only a complication, and one not always present. The microscopic changes in the mucous membrane are, flattening of the epithelial cells and fatty degeneration extending into the mucous glands. The inflammatory nature is shown by round cell infiltration, while fibrillary sclerosis of the mucous membrane leads ultimately to its shrinkage and to atrophy of the bony structures.

The symptoms and course of ozena suggest as its cause some specific microbe. A well characterized bacillus has been described by Loewenberg and studied by Abel, yet in view of the occasional occurrence of this bacillus without ozena, and in the absence o conclusive inoculations, its etiologic role can not b called well established. It is probable that the odo of the discharge is a secondary feature, due to the pro neness of this peculiar pus to a certain form of decom position, for by treatment the odor may be removed even without a complete cure. There is, moreover, form of atrophic purulent rhinitis identical in cours with mild ozena, but without the presence of odor.

4. *Hypertrophic inflammation* is described separ ately from simple nasal catarrh, as I do not conside the two affections identical. Many cases of catarrh ar not accompanied by any hypertrophy, while hypertro phies are sometimes seen without catarrhal secretion Moreover, when the two conditions co-exist the area of hypertrophy are not necessarily the source of th secretion. We must distinguish between hypertro phies of mucous membrane and of adenoid tissue.

Hypertrophy may involve diffusely the mucou membrane of the inferior and middle turbinal, or ma be circumscribed in small areas in the form of tumor Diffuse hypertrophy can be easily distinguished fro mere enlargement of the cavernous tissue by the rel tive incompressibility and the persistence of the thic cushion after the use of cocain. The hypertrophie membrane is usually pale in color, rarely injected. peculiar appearance is presented when hypertrophie mucous membrane is edematous; it then appears jell like and pellucid. This has been incorrectly terme myxomatous degeneration. The edematous cond tion, however, is shown by the great shrinkage excised pieces when placed on blotting paper. Diffu hypertrophic inflammation gives rise to no sympton beyond those dependent upon the stenosis which may produce.

Circumscribed hypertrophies assume various shap according to their site. On the front end of the inf rior and the inferior edge of the middle turbinal th appear as flabby overgrowth. Along the middle the inferior concha and sometimes on its posteri end the tumors are papillomatous in gross appearanc often resembling raspberries in shape and color. C the posterior ends of inferior and middle turbina hypertrophies are usually associated with caverno enlargement and present rounded, grayish, gelatino looking masses which may seem wrinkled when part collapsed, but bag-like and bluish when engorge A form of hypertrophy which has been described some of the older writers (Solis Cohen and Voltolin but which is very little mentioned in recent literatu is in the form of a grayish cushion on the surface of t septum close to its posterior edge. The best know growths however are polypi, which spring from t external wall in or above the middle meatus, or fro one of the surfaces of the middle or superior turb nals. It is not correct to call these tumors myxoma or fibromata. They are histologically the equivale of any other form of inflammatory hypertrophy the mucous membrane. The gelatinous polypi diff from the denser fleshy tumors only by their state edema. There are however other polypoid tum which are histologically different, sometimes mix angiomata, sometimes malignant growths of polypo shape.

The causes of hypertrophic inflammation are fully known. In the case of polypi, suppurati especially of the accessory cavities, is often a demo strable etiologic factor, but this is not always case. In some instances it can be observed that ac

inflammation is the determining condition, which is perhaps best shown by relapses of circumscribed hypertrophies in cases under continuous observation. In many instances, however, we do not understand why chronic inflammation persists and why it leads to overgrowth of mucous membrane.

Hypertrophy of adenoid tissue differs from the conditions just described, first, by its location, as it occurs only in the pharynx. It presents, moreover, this difference, that while of inflammatory origin at first the enlarged adenoid tissue, at least of the pharyngeal and faucial tonsils, is not necessarily in a continuous state of inflammation. This distinction is based on clinical data; whether it could be demonstrated histologically in adenoid tissue is perhaps questionable. We may thus observe tonsils which are enlarged, but pale, and cause no irritation for long periods of time, while in others the tonsils show by their congestion and liability to acute troubles that they are the seat of persisting inflammation. In the case of the pharyngeal tonsil the same differences may be observed, with the additional criterion that the enlarged but non-inflamed adenoid tissue in this location secretes only the normal clear mucus, while when inflamed it produces pus.

The most striking forms of adenoid hypertrophy are enlargement of the pharyngeal and the faucial tonsils. As far as etiology can be studied clinically it is evident that the over-development of adenoid tissue is the result of acute attacks of nasal inflammation. Where suitable opportunities are offered it can be observed that children with hitherto unimpeded nasal breathing get the characteristic stuffiness due to adenoid vegetations after severe attacks of coryza. The close relationship between nasal inflammation and the faucial lymphatic tissue is also shown by the not uncommon occurrence of acute tonsillitis from infection of intranasal wounds on the same side. Undoubtedly a certain predisposition favors the enlargement of the lymphatic tissue. This is suggested by the frequency with which it occurs in certain families and its absence in others. Clinical observation, too, suggests some relationship between hypertrophy of the pharyngeal tonsil and tuberculosis, but lymphatic enlargement is not a tubercular manifestation by itself, although various recent German and French observers have found that enlarged tonsils, both pharyngeal and faucial, may get tubercular by secondary infection, in perhaps one-sixth of all instances. This adenoid tuberculosis can not be recognized clinically, it is entirely latent. The common text-book statement that enlargement of the adenoid tissue is a manifestation of scrofula is very vague. It is more definite to say that some of the scrofulous appearances, the thick lips, the sub-acute catarrh, the eczema under the nose and the suppurative middle ear inflammation are the direct results of enlarged pharyngeal tonsils.

Besides, in the tonsils, hypertrophy of the lymphatic tissue may show itself as enlarged lingual tonsil, as separate follicles on the phayngeal wall, and as thickened columns of adenoid tissue in the posterior lateral corners of the pharynx. In all these locations the hypertrophied tissue is usually in a state of inflammation and the source of decided discomfort. I have, however, not been able to satisfy myself that purulent secretion is produced in any locality except at the roof of the pharynx and by the lymphatic tissue over the root of the tongue.

The term chronic pharyngitis has hitherto been used in a loose manner and often inappropriately. There is, however, a condition which fully deserves this name. It is characterized by persistent redness and thickening of the mucous membrane of the pharynx and annoys the patient mostly by the tendency to nausea and retching on slight local irritation. It occurs always in connection with some form of chronic nasal suppuration. Another potent etiologic factor, although not an indispensable one in this affection, is the abuse of tobacco and alcohol. It is hence rarely seen in women. On the basis of clinical data, I consider this affection as a diffuse inflammatory hypertrophy of the adenoid tissue which underlies the pharyngeal mucous membrane.

5. *Deformities of the septum* may be classified under three heads: *a*, deviations; *b*, articular expansions; *c*, callus formations.

a. Moderate curvature of the septum is so common that it can not be considered morbid. It is only an unfavorable structural peculiarity. Moreover, uncomplicated deflection of the septum, without additional malformation, causes stenosis only in narrow noses, where there is less than the average width between the two external walls. We know nothing definite concerning the conditions which lead to asymmetry. It is evidently the result of unproportionate growth of the septum and the bones with which it articulates. The deflection of the curved septum may be either horizontal or vertical, or exist in both planes.

b. The most common clinical malformations of the septum are projecting spurs, ledges or ridges, often but erroneously, termed exostoses. According to Zuckerkandl's extensive dissections, they are formed by overgrowth of the articulating surfaces of the various plates which make up the septum. The term articular expansion seems, therefore, an appropriate one. It is especially the strip of cartilage which persists during adult life on the upper border of the vomer, which expands. Being surrounded by bony walls this cartilaginous hypertrophy thus forms the nucleus of a bony projection on the side of the septum, while occasionally secondary ossification of the cartilaginous strip adds to the solidity. The usual site of these crests is along the upper border of the vomer, running in an oblique direction upward and backward toward the sphenoid sinus. A similar formation is found less commonly as a vertical ridge between the quadrangular cartilage and the perpendicular plate of the ethmoid. Such one-sided expansions are not rarely combined with deflection of the septum, which then presents an angular depression on the concave side and a protruding spur on the convexity. This malformation is often mistaken for a healed fracture.

c. Fractures of the septum are not common. It is doubtful whether they are possible without fracture of the bridge of the nose, and unless a characteristic flattening of the bridge is recognizable, the diagnosis of broken septum is questionable. Fracture of the septum usually leaves considerable deformity on account of the displacement and overlapping of the fragments.

The importance of deformities of the septum hinges largely on the stenosis which they cause. This in turn depends on the relative width of the nasal passages. Even when the nose appears normally patent during examination, transient stenosis may still exist during periods of engorgement of the cavernous tissue. But stenosis itself is not a disease. It is only

an important anomaly which predisposes to the persistence of chronic inflammation.

Irregularities of the septum may play a morbid role even without reducing the capacity of the nasal passage. An irregular septal surface favors chronic inflammation, perhaps by impeding the flow of morbid secretions. Hence, successful operations of septal deformities often prove of service even where no stenosis existed. They are not rarely the starting point of morbid reflexes, especially when the spurs are sharp, or when they come in contact with the surface of the turbinals.

For these various reasons operative treatment of septal deformities is often indicated and in the case of extensive malformation it is usually satisfactory. But the minor irregularities, and especially the deformities due to moderate septal deviation, are not se easily benefited mechanically. The novice can not be too strongly warned against attempting operations indiscriminately, as many of these fail primarily for mechanical reasons, or produce but a temporary result on account of relapses.

INJURY OF THE CAVUM PHARYNGEUM; REPORT OF A CASE.

BY EMIL ARONSON, M.D.

DALLAS, TEXAS.

Several years ago, while practicing in Europe I received a call to Mr. D., a gamekeeper, who had sustained an injury from the explosion of a gun In the morning Mr. D. had tried his first experiment with his new gun. While the members of his family were looking on they saw him fall to the ground with blood oozing from nose and ear. He was carried unconscious into the house. After some time he regained consciousness but did not complain of the presence of a foreign body in his throat, yet his family thought it necessary to send for their family physician. This gentleman arrived, examined the throat and stated that except a piece of a tooth which was lodged in the posterior wall of the pharynx, nothing could be found. Promising to return in a day or two to remove that remnant of the tooth he left the house. Other relatives of the injured man, much surprised at the indifference of this gentleman, decided to send for me.

Inspection reveals the following conditions: Upper lip swollen, upper right incisors are missing; some loose fragments are hanging in the alveoli. The palate, the mucosa buccalis, the tongue, uvula and posterior wall of the pharynx are discolored, powder-stained and covered with coagulated blood; on the right side of the posterior wall in the region of the constrictor pharyngeus superior and medius is a mass of indistinct shape and color.

The gun consists of two long tubes which can be attached to each other. After placing the cartridge in one tube, the other tube is screwed on to it. At the end of this long tube the inventor inserted an iron bolt, he put the tube to his mouth and expected that by very forced expiration the bolt could be driven against the cartridge. His calculation failed to prove correct at the first trial. He did not consider that the moment the bolt and cartridge, would meet explosive gases would become free, which, if no valve was provided, would drive the bolt back into the mouth of the experimenter.

Although the patient felt perfectly comfortable and there were no symptoms of stenosis, I managed to make out a large, smooth, round, metallic body in the back wall of the pharynx. Trying twice, I failed to grasp this with a long forceps, due to the impossibility of pressing the points of the forceps into the hard iron bolt. I then took a long Langenbeck retractor and using it as a lever removed the bolt, which weighed nineteen grams and was four and a half centimeters long.

I prescribed an antiseptic gargle and directed ice and antipyrin for the intense headache, which appeared in the course of the week. In about ten days the patient was well again. A few conclusive remarks about the direction of the projectile: The upper incisors were struck first and knocked out. The projectile then changed its direction and passed through the oral cavity to become imbedded in the muscles of the pharynx, where it lodged on one of the vertebræ. It is remarkable and of value in regard to diagnosis, how very little pain was felt by the patient, who for more than twelve hours did not believe there was a foreign body in his throat. This case shows how valuable an objective examination is and teaches us not to rely entirely upon the patient's statements or upon the observations of Schroetter (notably, on "Diseases of the Ear," 1876 and 1882), who says that in such injuries of the pharynx the patients always claim to feel the foreign body in the throat.

DISEASES OF THE EYE CAUSED BY DISEASES OF THE NOSE.

Read before the Chicago Academy of Medicine, December, 1897.

BY ALLEN T. HAIGHT, M.D.

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CHICAGO, ILL.

There are no organs of the human body more closely connected than the eye and the nose. No organ suffers more from reflexes than the eye from the nose. The slightest offense to the mucous membrane of the nasal chambers will instantly cause suffering to the eye. Let one come in contact with smoke or other irritants to the Schneiderian membrane and the eye will soon respond to its danger and shed tears. The reason for this is clear, as the eye is directly connected with the nose by the nasal duct, the same mucous membrane, histologically connected, continues to cover the eye lids, the globe and the orbits.

The lachrymal artery with its branch, the anterior ethmoid, supplies blood nourishment to both the lachrymal sac and the nasal duct. The nerve supply is received in common from branches of the ophthalmic nerve and Gasserian ganglion. The lachrymal sac, the dilated part of the nasal duct, is situated in a channel of the nasal process of the superior maxillary and lachrymal bones. Its formation is fibrous and elastic, lined with mucous membrane, continuous with that of the nose. The membrane of the lachrymal sac and canaliculi is lined with pavement epithelium, but in the main duct the epithelium is partly of a cylindric variety. The middle lachrymal organ (Fig. 1) consists of a small double puncta, located from six to eight millimeters from the apex of the inner canthal angle, opening into the corresponding superior and inferior canaliculi, which meet toward the inner canthus in the lachrymal sac.

"The lachrymal secretion is forced through the puncta into the canalicula, then enters the sac and

finally, into the nose through the nasal duct by a combination of winking and the suction force of the Horner's muscle, and possibly of the muscular fibers given off from the orbicularis and the tendo oculi. The canaliculi and puncta, therefore, are not merely drains to carry off the lachrymal secretions, but in conjunction with the muscular fibers mentioned act very much as a suction syringe. These canaliculi are not perfectly straight; the mucous membrane lining them is like that of the nose[1]."

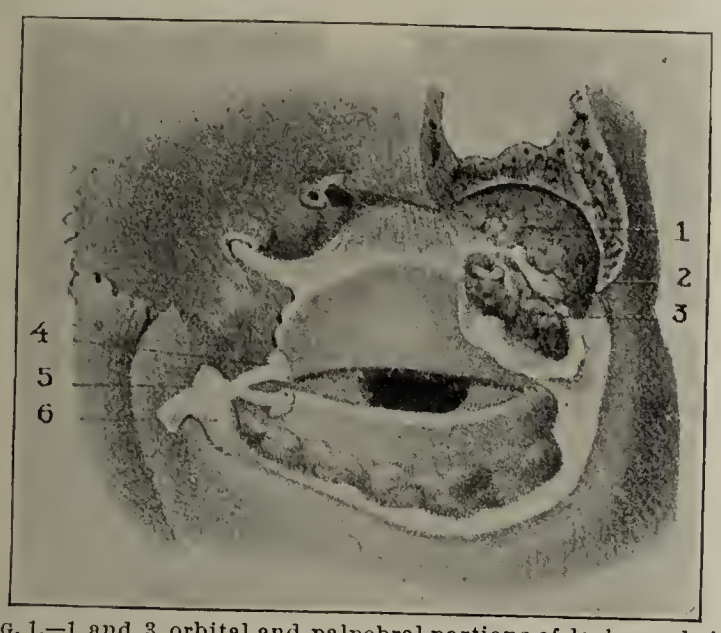


FIG. 1.—1 and 3, orbital and palpebral portions of lachrymal gland; 2, fibrous band dividing the gland; 4 and 5, orifices and branches of the lachrymal canal; 6, lachrymal sac.

The nasal duct, which is about three-fourths of an inch in length, begins at the somewhat constricted portion of the passage where the sac terminates, and extends in an osseous canal formed by the lachrymal superior maxillary and lachrymal process of the in-

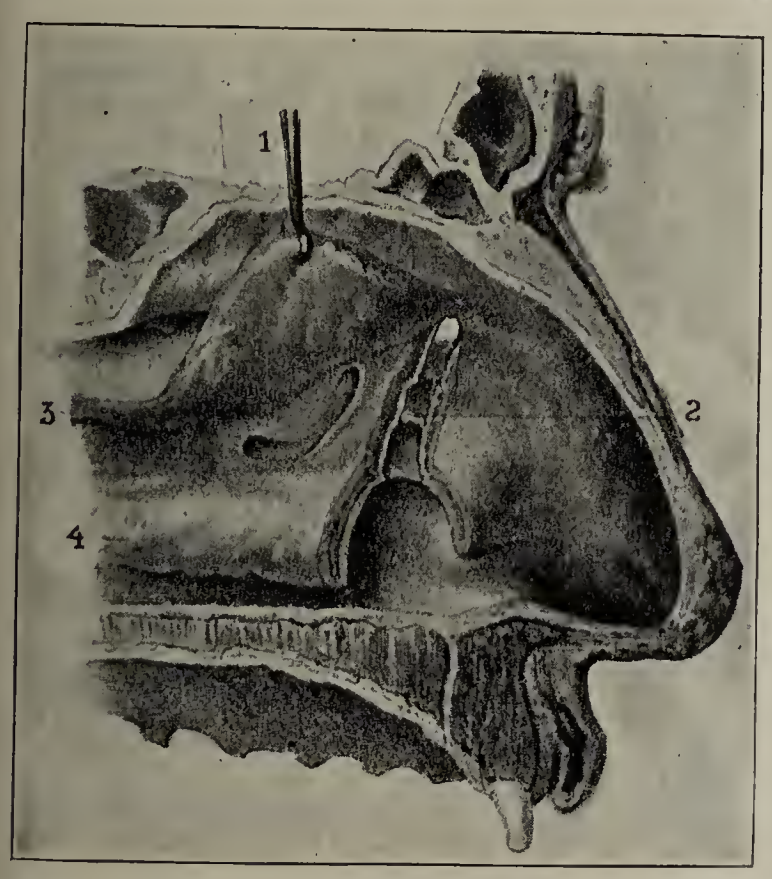


FIG. 2.—1, middle turbinated body turned aside and held by a hook; 2, nasal duct and valves: 3, canal leading to the maxillary and frontal sinuses; 4, inferior turbinated body showing location of the mouth of the nasal duct in the cul-de-sac.

ferior turbinated bone, in a direction differing almost (Fig. 2) in every case that presents itself downward, slightly backward or outward to the inferior meatus of the nose. Hence we have a direct route in the nasal chambers for the passage of morbific germs from the rhinal cavities to the eye, and under certain pathologic conditions the nose becomes a factor for aggravating causes of ocular disturbances. The ordinary blood supply with anastomosis from the duct and sac, and the connected relation of the accompanying veins manifest that certain mechanical or pathologic conditions existing in the nasal chambers may produce pronounced spmptoms in the eye. For example, an irritation of the Schneiderian mucous membrane may produce lachrymation, and more dangerous ocular disturbances often accompany coryza, measles, scarlatina, etc.

"Dr. Edwyn Andrew[2], M.R.C.S., says that the fluid of the lachrymal apparatus is continuous from the conjunctiva to the nose, and by the aposition of the lids to the eyeball and the attraction of adhesion and cohesion produced, a thin layer of tears is brought into contact with the cilia, and by them conveyed to the puncta, where capillary action of the canaliculi brings them within reach of the cilia and the lachrymal nasal canal, which pass them onward through the sac and nasal duct to the nose. This natural course of the tears is, however, easily changed, the power of the cilia is feeble and soon overcome by any increase or altered condition of the fluid in contact. Extra secretion is so easily excited through irritation of the branches of the fifth nerve, which supply the conjunctiva and lachrymal gland, that the whole lachrymal apparatus quickly becomes engorged with fluid, which if persistent, soon produce morbid changes in the adjoining mucous membrane. The irritation thus produced, which soon causes in the open eye change of the natural secretions to muco-pus or inflammation, ulceration, thickening of lids, inversion and eversion, closure of the puncta, etc., naturally becomes still more injurious to the almost pent up cavity of the lachrymal nasal canal, frequently converting it into an abscess, occluding the channel by exudation and causing stricture of the constricted portions, particularly at the entrance of the canaliculi into the sac, and at the junction of the sac and nasal duct."

Having examined the anatomy and physiology of the parts pertaining to the subject I will now proceed to the historical and pathologic comments of the best ophthalmologists of the present day, in addition to my personal observations. I will attempt to show that the eye specialist can not successfully treat the eye without attending to the nose. Foubert invented the lachrymal canula in 1819, on account of obstruction from polypi of the nose, but nothing can be found as to the results in his case, as very little is known of him.

Dr. J. Reeve, in 1821, in the "London Medical Reposit," first called attention to diseases of the eye affected by the nose. In 1859 Chalous[3] wrote on adenoiditis lachrymalis, but gave no description of his treatment except that of sounding and the usual eye water. In 1861 von Græfe[4], in 1862 Carl Schweigger[5], in 1863 Brueff,[6] in 1864 Minkiewiez[7], in 1869 Vassoux[8] and others, only alluded to diseases of the eye caused by diseases of the nasal chambers.

In 1887 Dr. A Blitz[9] reported before the Medical

[1] Dr. Casey A. Wood: International Clinics, 1895, p. 318.

[2] British Medical Journal, Dec. 15, 1883, p. 1185.
[3] Medic. Ztg., 1859.
[4] Archives of Ophthalmology, Berlin, 1861.
[5] Medic. Ztg., Berlin, 1892.
[6] Wratch, 1863.
[7] Goz. Lek., Berlin, 1864.
[8] Reprint from Archives d'Ophthal., 1869.
[9] Transactions Medical Society of Tennessee, 1877.

Society of Tennessee a successful operation of extirpation of hypertrophy of the lachrymal gland extending from the nose, saving the eyeball with complete recovery. In 1878 a wide chasm occurred which can not be overlooked. Wm. Hack of Freiberg, with his renowned monogram, which the world must follow, has shown not only that we have migraine, asthma, hay fever, etc., but that the eye also suffers in consequence of the obstruction of the olfactory canal.

Hack, and many others since his time, have only superficially mentioned the subject until in 1886 Dr. Grenning[10] in an article on "Reflex Ocular Symptoms in Nasal Afflictions," gave the first elaborate description of ocular symptoms caused by obstruction of the olfactory canal, and points out that photophobia may be readily produced by touching certain parts of the Schneiderian membrane with the sound, and *vice versa*, reflex nasal symptoms, for instance, sneezing may be effected by exposing certain eyes to the bright light. The leading ocular symptoms, which in certain cases depend mainly on the pathologic conditions existing in the nose, are lachrymation, photophobia, conjunctival hyperemia, pericorneal injection, smarting or burning and swelling of the lids, phlyctenular disturbanes, epiphora, etc. In addition to the symptoms I have described I recommend as a guide to the ophthalmic practitioner the systemized ocular symptoms, depending upon pathologic conditions of the nose by Dr. Gradle[11], which are as follows: "1, lachrymation without primary lesion of the tear passages of the eye and due to some chronic abnormality of the nasal passages; 2, fulness of the lids and itching, possibly with lachrymation and more or less pain, and with asthenopia especially marked in one eye. Patients with these symptoms aggravated have also a refraction or muscular anomaly; 3, periodic discomfort (itching of the lids), allied to hay fever, or coexisting with conjunctival lesions, at first of the follicular enlargement and finally of a formation of large, flat, yellowish follicular granules which disappear in winter; 4, photophobia, with or without pain in the eyes, these being often blood-shot with little nasal annoyance but with decided itching; 5, injection of the pericorneal vessels together with varying degrees of the above symptoms, chronic and persistent; 6, acute congestion of the lids with irritable nose, erysipeloid in character, subject to recurrence, lasting from two to six days; 7, sudden edema of lids without congestion, the attack lasting a few hours."

I shall now confine the principles of the subject to two classes; first, pathologic conditions of the eye depending on hypertrophies, deformities or mechanical abnormalities of the nose; second, pathologic conditions of the eye resulting from the passage of morbific material from the nose through the nasal duct or intermediate tissue of the eye.

One of the frequent causes of ocular disease is chronic hypertrophic rhinitis, especially in that form in which sudden dilatation of the blood vessels of the mucous membrane is apt to recur from very slight irritation. In such cases we have a copious aqueous discharge from the nose with severe inflammation of the inferior turbinated body, especially marked in the anterior half, associated often with mucous polypi in the middle meatus. Eye symptoms occurring with this condition of the nose are lachrymation, photophobia, burning and smarting of the lids with deep injection, particularly marked at the margin, and not infrequently ciliary and conjunctival injection. Polypi of mucous region situated so as to form a wedge between the septum and inferior turbinal, or situated so as to fill the superior meatus, give rise to persistent ocular lesions; deviated septum, spurs, fissures, post-nasal adenoids and synechiæ play an important part in the production of sympathetic ocular conditions.

Dr. Charles Michael describes a case of ectropion of both lower lids caused by complete obstruction of the right and left lachrymal passages, which was operated upon by him in a manner not found in the text-books or reported in literature. He says the patient was 62 years of age. There had been complete obstruction of the passages for periods of ten and twenty-eight years respectively. Dr. Michael received the idea of the operation in Paris in 1859, but did not bring out his method until 1871. For ten years he continued it and was successful in every case. He gave up the old method of introducing a canula, and believed that the only correct method of treatment of obstructed lachrymal passages was to clear the nasal cavity and secure a permanent dilatation between the nares and lachrymal duct, so as to allow a free exit of the secretions coming from the conjunctival surface and lachrymal canal.[12]

Bishop cites a case of amblyopia of the left eye cured by the removal of an osseous synechia between the left turbinated bone and the nasal septum.[13]

Dr. Bettman[14] reported a case of constant epiphora, which he cured by extirpating the hypertrophied tissue of the anterior portion of both turbinated bones.

The six cases reported by Hamilton and quoted by Gould are as follows:

Case 1.—Empyema of the antrum and unilateral hypertrophic rhinitis of the left side attended with the following eye symptoms: 1, concentric contraction of the visual fields for all colors; 2, accommodative asthenopia; 3, retinal hyperesthesia; 4, photophobia with blepharospasm and interorbital neuralgia. The evacuation of the empyema and its cure were speedily followed by the disappearance of the eye symptoms.

Case 2.—Ecchondrosis of the triangular cartilage and chronic rhinitis. This case was attended with the following eye symptoms: 1, asthenopia; 2, pain in the eyeball; 3, injection of the eyes when used for close work; 4, blepharospasm; 5, contractraction of the visual fields. These symptoms disappeared on removal of the growth.

Case 3.—Bony septum causing chorea, the following eye symptoms were present: 1, asthenopia; 2, subjective color sensations; 3, sneezing; 4, contraction of the visual fields. These symptoms disappeared on removal of the spine of the septum.

Case 4.—Advanced chronic atrophic rhinitis with middle turbinate hyperplasia. The following eye symptoms were present: 1, asthenopia; 2, lachrymation; 3, puffiness of the lids; 4, contraction of the visual fields. These symptoms were relieved by the treatment of the nasal condition.

Case 5.—Syphilitic ozena. The following eye symptoms were present: ("Transactions of the Intercollegiate Medical Congress of Australasia," 1889, Vol. ii, p. 779) 1, asthenopia; 2, lachrymation; 3, pericorneal injection on using the eyes; 4, contraction of the visual fields, which was temporarily removed by the use of amyl nitrate. These eye symptoms were ameliorated as the nose improved.

Case 6.—Polypi, nasal and naso-pharyngeal, with eye symptoms similar to those recorded.[15]

Polypi or vegetation, either in the superior or anterior nasal cavities, will ofttimes produce that peculiar deformity known as "frog face." When the nose becomes widened between the eyes and they protrude, the lids become granulated and drooped as seen in mouth breathers. Pressure on the upper part of the nasal duct

10 Archives of Ophthal., 1886.
11 Archives of Ophthal., 1887.
12 St. Louis Courier of Medicine, Vol. vi, p. 80.
13 Bishop on Diseases of the Ear, Nose and Throat, p. 284.
14 Journal American Med. Assn., May 7, 1887.
15 Burnette: System of Medicine, p. 169.

produces epiphora and sometimes conjunctivitis, which can only be cured by the removal of the obstruction and the restoration of the nose to its normal condition. Catarrhal conjunctivitis I find to be nothing but a reflex from nasal catarrh. Especially if the patient is of a catarrhal diathesis, a mere simple coryza of the nose will produce an inflammation of the mucous membrane of the inner surface of both eyelids, and will be reflected upon the ocular conjunctivæ. Abnormal developments of the ethmoid or sphenoid markedly affect the functions of the ocular muscles or the acuteness of vision. Over-development of the ethmoid, especially in the anterior portion, will sometimes produce complete stenosis of the upper part of the nasal duct, and there is epiphora from pressure; following this we get blennorrhea of the lachrymal sac and possibly dacryocystitis. Abnormal development of the posterior portion of the ethmoid may produce widening of the inter-orbital space, displacement of the origin of the internal recti muscles, with high degrees of astigmatism and occasional divergent strabismus following. Over-development of the sphenoid may, by pressure of the optic nerve, produce permanent atrophy limitation of the field of vision and partial or complete color blindness. Hypertrophies, polypi or tumors in the superior nasal sinus may produce temporary blindness or high degrees of amblyopia, which are ameliorated or cured by the removal of the obstruction.

Dr. Edward Nettleship[16], F.R.C.S., ophthalmic surgeon St. Thomas Hospital and Royal Ophthalmic Hospital, London, reports a case of a woman 50 years of age, who fell on her head (probably on her face). Vision failed about two days after the injury. She was unable to count her fingers with the right eye. Six days later hemorrhage of the nose set in. In twelve days the vision began to improve rapidly and fully recovered in four weeks.

The eye is rendered liable to infection from disease germs of every description that may find access through the lachrymal channel (Fig. 3), from the nose afflicted with diseases such as ozena, hydrorrhea, atrophic rhinitis, hypertrophic rhinitis with aqueous discharge, gonorrhea, syphilis, diphtheria, measles or scarlatinal deposits, etc. The conjunctiva is a very delicate and sensitive membrane, and easily yields to an attack of morbific germs. These sometimes gain entrance to the eye by direct migration, but are frequently forced into the eye by blowing the nose, sneezing and not infrequently by the use of the Politzer air bag, or by Butler's inhaler. The cul-de-sac of the inferior turbinated body is the receptacle for the collection of material which is, or becomes decomposed, and finds its way or is forced into the lachrymal sac and to the conjunctiva many times followed by blenorrhea, conjunctivitis, phlyctenular keratitis or ulcer of the cornea, which will not yield to treatment until the origin of the disease in the nasal cavity has been corrected. In specific diseases the lesions of the lachrymal organs including the canalicula, dacryoma in the nasal duct is usually found. Dacryocystalgia and purulent lachrymation may be caused by periostitis of syphilitic origin.

Dr. Bull[17] says, "It is not common to meet with a purulent dacryocystitis, unless there is present disease of the periosteum or endosteum of the nasal duct, or various disease of the bony canal of the lachrymal bone. In some cases it is possible that the focus of the disease started in periostitis or endostitis of the nasal duct of constitutional syphilis, and spread to the mucous membrane lining the duct and sac, thus causing the dacryocystitis."

Syphilitic infections in the nose may be hereditary or acquired, yet they do similar mischief, very frequently causing obstruction by incrustations, yet there are other phases of lachrymal inflammation and obstruction, as described by Dr. David Harrower, who says, "obstruction of the duct may come from inflammation of the mucous membrane in the nose, simple chronic catarrh from a scrofulous or syphilitic origin. The swelling of the mucous membrane may extend by continuity to the mucous membrane of the duct. In the ordinary forms of ozena there is no swelling but cicatricial contraction of the nasal mucous membrane, which may lead to the constriction of the inferior orifice of the duct. Ulcers of the mucous membrane and polypi are also causes of obstruction of the nasal ori-

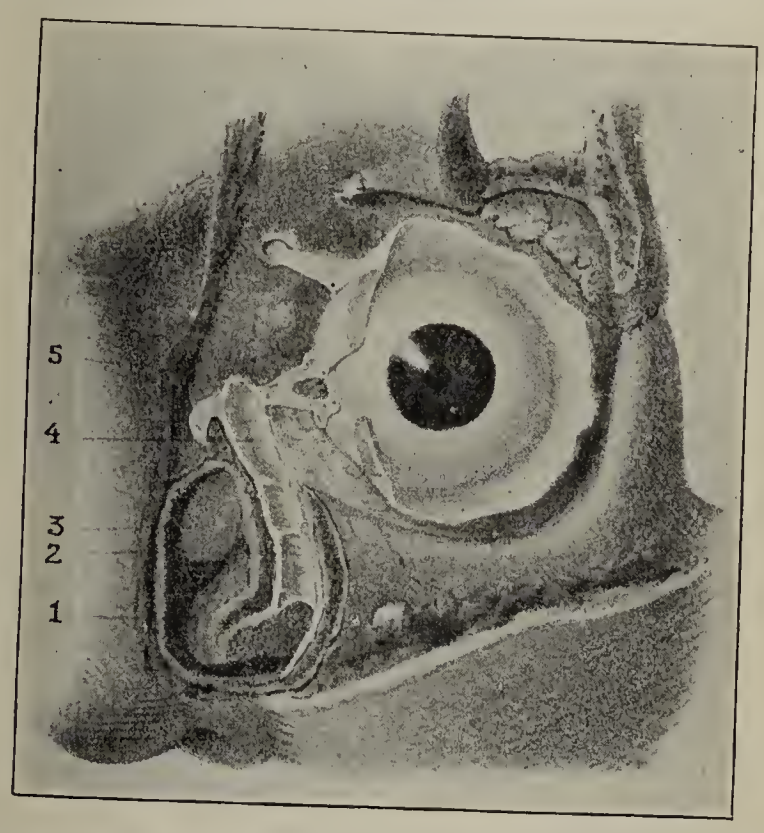


FIG. 3.—1, inferior turbinate bone; 2, nasal duct and valves; 3, middle turbinated body; 4, lachrymal sac; 5, lachrymal canaliculi and their orifices.

fices. The course is long, often extending years, if nothing is done for it; the secretion that at first was purulent becomes mucous and viscid, the mucous membrane may atrophy and the distended sac contain nothing but tears. The epiphora still remains. A person suffering from this chronic form may have an attack of acute inflammation suddenly develop. The skin over the sac becomes reddened and greatly swollen, the swelling often extending to the lids and to the conjunctiva, which may become chemotic. There is generally a great deal of pain, so much so that the patient is deprived of sleep. After a few days the skin at the apex shows a yellowish point and becomes perforated. The pus discharges and the swelling gradually disappears. Afterward pus followed by mucus, and later tears, are discharged. As long as this fistula remains open the patient is safe from another attack, but if it closes up a recurrence may ensue."[18]

In the spring and autumn of the year the attention of the practitioner is attracted by the number of chil-

London Ophthalmic Review, 1895, Vol. xiv.
Transactions of the Medical Society of the State of New York, 1882, p. 156.

[18] Boston Medical and Surgical Journal, July 29, 1897.

dren who present themselves with corneal ulcers or phlyctenular troubles usually attended by nasal disorders. In such cases there is great congestion of the turbinates, profuse watery discharge, and formation of crusts in the nostrils, the sores extending down on the upper lip. The eye symptoms are persistent and attended by lachrymation and increasing photophobia, which resist local treatment until the nasal affection is cured.

Among the most common ocular troubles caused by diseased conditions of the nose, as of the lachrymal apparatus, although we have many cases of lachrymal trouble which are in no way influenced by conditions in the nose, yet are caused by the passage of germs from the eye through the canaliculi to the lachrymal sac or the nasal duct. We may have stenosis of the canaliculi situated at any place between the puncta and the opening into the lachrymal sac. We then have epiphora as an early symptom, followed sometimes by a contraction or atrophy of the lachrymal sac, but more frequently dilatation and blenorrhea. When the stenosis is situated in the nasal duct below the sac we have abnormal dilatation of the sac, and accumulation of secretion which soon becomes mucopurulent. In these cases, also, the prominent symptom is epiphora, and we may have, following this, conjunctivitis and dacrocystitis. Atrophic rhinitis with fetid discharge is most frequently the cause of lachrymal disturbances. The germs pass through the canal to the sac and remain there, the nidus of infection, until the disease is established. Empyema of the antrum of Highmore may be the cause of lachrymal disease, as the contents of the antrum may enter the nasal duct directly, or purulent secretion from the antrum may pass from the nose through the nasal duct to the sac.

I have now exhausted the literature on ocular disturbances from nasal disease, and I will venture to assert that more than one-third of external ocular diseases have their predisposing cause in the nasal cavities. Hence, I recommend a treatment plain and simple—remove the cause and you have cured the disease. If the disease is traceable directly to pathologic conditions existing in the nose, then it should receive proper treatment, in conjunction with the treatment of the ocular disturbance. If the epiphora is due to stenosis in the canaliculi, occlusion of the puncta, blepharitis, eversion of the puncta, etc., these conditions must be remedied. When the lachrymal sac is filled with acrid or muco-purulent discharge, it should be evacuated by means of firm pressure of the thumb or finger on the sac, pressing the retained secretion out through the puncta, after which the canal should be probed and washed out. In order to introduce the probe or the syringe nozzle the puncta must be enlarged. This may be done by introducing the canaliculus knife into the canaliculi to the nasal bone, the cutting edge being turned toward the eye, and by retracting the lid with the thumb, and drawing the knife out, make a small incision in the punctum, perpendicular to the palpebral fissure, large enough to insert the end of a syringe or Bowman's No. 8 sound. This operation maintains the integrity of the canaliculus, and the pressure of the lids on the eye tends to keep the edges of the wound apart and prevents adhesion and subsequent closure.

For washing the sac I have derived great benefit from the following solution:

℞. Fl. ext. hydrastis.	ʒ iss	44	36
Zinci sulphat.	gr. iv		26
Aquæ destil	q.s. ad ʒii	59	14

To be injected with the lachrymal syringe every alternate day, the solution as hot as the patient is able to bear. If this or other conservative treatment fail, the obstruction can be relieved by surgical methods, which can be found in any of the ophthalmologic works of the present day.

In conclusion I will quote a few cases where I have successfully cured or relieved the eye symptoms by treating the nasal cavities and giving the eye little or no attention.

Case 1.—Mrs. G., aged 34, consulted me Oct. 15, 1894, on account of a spot on her eye, visible to herself (metamorphopsia). The eye was normal for refraction, the lids were red and slightly swollen. No muscular disturbance. The nose revealed extensive hypertrophy of both inferior turbinates with profuse mucoid discharge.

After the hypertrophies were reduced the lids cleared up and the spots that had been visible to her disappeared.

Case 2.—Mr. H., bookkeeper, age 30, consulted me September, 1895, for severe blennorrhea. Blurred vision and unable to continue work. Wore glasses for correction for ¼ D. Hypertrophic astigmatism, axis 90 in each eye. Examination of the nasal passages showed polypoid degeneration of the left inferior turbinate with two very large polypi, with pedicles attached in the middle meatus. On the right side were found two polypi and a large cartilaginous spur from the septum encroaching on the anterior third of the inferior turbinate. The cul-de-sac of the turbinate was filled with decomposed secretion. I removed all the obstructing difficulties of the nasal chambers, and three months after treatment the patient was discharged cured, and up to the present time has had no further return of the eye difficulties.

Case 3.—Mrs. S., age 26, consulted me November, 1895. An ulcer of the cornea of the left eye had been treated locally the preceding two months, with little or no result. Examination of the nose showed a long fissure on the right side of the septum and extensive posterior synechia. After surgical and medical interference in the nose, the ulcer quickly yielded to treatment. Patient was discharged well.

Case 4.—Miss K., school girl, age 15, consulted me February, 1896, on account of epiphora and blurring of vision. On examination I found the vision O D and O S $^{20}/_{20}$ each, without astigmatism. In the nose I found large polypi in the middle meatus with long ridge on both sides of the septum. On the right side of the septum a fissured ridge badly irritated. The cul-de-sac of each inferior turbinate was filled with thick yellow secretion that could not be blown from the nose by the patient. I removed the polypi, thoroughly cauterized the turbinates and locally treated the irritated ridges. The patient soon recovered and has been able to renew her studies without further trouble with the eyes.

Case 5.—Miss F., age 14, March 10, 1896, complained of constant severe frontal headache, shooting pains in the eyes. Examination of the eyes showed them to be nearly emmetropic, vision in both eyes being $^{20}/_{15}$, or a little better than normal, with perfect co-ordination of muscles. Upon examination of the nasal passages I found abundant post-nasal vegetation. Ten days after the removal of the adenoids patient was free from headaches and pain in the eyes, and has had no recurrence of the symptoms.

Case 6.—Mr. S., aged 33, occupation locomotive engineer. Was discharged from the service on account of color blindness. He was unable to distinguish red and green. There was no manifest lesion of the eye, fundus and refraction normal. Examination of the nose showed marked hypertrophy of the middle turbinates, and adhesion of the left middle turbinate and septum. I removed the left middle turbinate and cauterized the right, reducing it sufficiently. The color blindness began gradually to disappear, and in a period of four months the patient was able to successfully pass re-examination, and obtain his old position, which he now holds.

NOTE.—Cuts taken from the author's article entitled, "The Relation of Diseases of the Eye to Diseases of the Nose," in S. A. Bishop, on "Diseases of Nose, Throat and Ear."

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DISCUSSION.

Dr. HENRY GRADLE.—The statement that "about half of the external diseases of the eye have some connection with prior anomalies of the nose" is decidedly at variance with the

statistics I have gathered from my own experience. It is a very small proportion in which the nose plays any role at all. Two cases were quoted which seem to be open to serious doubt unless supported by much more detail than the brief synopsis given. One was ulcer of the cornea. I do not think it has ever been noticed by anyone before that ulcers of the cornea are in any way kept up by intranasal conditions. Indirectly an intranasal disease may lead to ulceration of the cornea, the infection may be conveyed through the fingers to the eyelids and conjunctival sac, or in some cases the infection spreads from the nose to the sac, leading to dacryocystitis. In either case the infection of the cornea having been started, the remote cause no longer has any influence over it. I have not seen anything suggested by actual experience which would show that nasal treatment would influence the course of corneal ulceration. Another instance was quoted, namely, color blindness having been relieved by intranasal treatment. Color blindness, as far as we can judge, is purely a psychic phenomenon. No one has demonstrated that there is a any anomaly of the eye. It is not an acquired thing. Outside of disease of the optic nerve it is a psychic occurrence, and how that could be induced by intranasal anomalies has not been shown by the experience of anyone else. Undoubtedly there are quite a large number of important troubles of the eye which owe their origin to the nose. To those which he has mentioned I might add two varieties. One is the production of iritis in consequence of intranasal suppuration. My attention was called to it by Ziehme, who claimed to have seen it produced by antral suppuration. I have the records of four patients with recurrent attacks of iritis, most of the attacks being distinctly preceded by purulent rhinitis, limited to one side, and the corresponding side of the nose was structurally anomalous. There was either narrowness or deviation of the septum or some of the other conditions known to influence unfavorably the course of nasal suppuration. A second observation is that in some instances peripheral paralyses of the ocular muscles are due to intranasal conditions. I have in a previous paper referred to three successive cases that had come under my observation. I have seen two others since, where the paralysis occurred in one of the branches of the third nerve or was limited to the abducens, where the entire course and recovery characterized the trouble as peripheral. In all these patients the paralysis was preceded by acute suppuration in the side of the nose corresponding to the affected eye.

Dr. William L. Ballenger.—The essayist mentioned enlargements of the sphenoid and ethmoid bones, and I am not sure whether he meant simply hypertrophy of the bony tissue or a dilatation of the cells. But what I want to refer to is suppurative diseases of the accessory cavities. Let us take, for instance, empyema of the sphenoidal sinuses. If you will recall the anatomy of the parts, the position in which the optic nerve passes through the foramen and on to the globe of the eye, you will see that it passes over the sphenoidal sinus, and if there is an empyema of any considerable extent of the sinus the bony tissue becomes inflamed, softens, yields and is pressed upward, and as it presses upward the optic nerve is choked or compressed at its entrance into the foramen and we may have either a sudden, partial or complete blindness as a result. If we have empyema of the ethmoidal cells, pressure inward will produce disturbance of the muscles of the eye, and strabismus of one type or another may result. There is another condition related to suppurative disease of the ethmoidal cells which resembles dacrocystitis very much. A little lump appears upon the skin, but not in the same situation as in dacrocystitis, but above the inner canthus of the eye. This is due to a pouching of the fluids or pus formation in the ethmoidal cells.

I have never seen a case of polypus of the inferior turbinated body reported. Zuckerkandl, in his great work, says he has never found polypus of the inferior turbinated body. I think it is generally accepted as a clinical fact that polypi do not occur here. I think that most of the inflammatory diseases of the conjunctiva and lachrymal apparatus, which the Doctor mentioned, would not necessarily be extensions from the nasal tract, but that the condition which caused the nasal disease also caused the eye disturbance. We do not understand very fully the nature of these inflammatory conditions, especially of the acute type. It is reasonable, however, to believe that the conditions have a common origin in something that has not been mentioned.

Dr. Haight.—In answer to Dr. Gradle's remarks about the condition of the nose having nothing to do with a persistent ulcer of the cornea, I will say that I had, in my clinic at the Chicago Eye, Ear, Nose and Throat College, a boy 12 years old, who had a phlyctenular ulcer of the cornea lasting one year. This boy had been treated in one of the post-graduate schools, in this city, nine months previous to the time he came to me, three months ago. He had much photophobia, profuse lachrymation, the upper lid was swollen so that the eye could not be opened by patient. There was watery discharge from the nose with post-nasal adenoids and enlarged tonsils. The adenoids and tonsils were removed and the nose treated in conjunction with the eye, and now the eye is entirely well with the exception of this resulting corneal opacity, which is clearing up. In connection with the case of color blindness I refer to the cases reported by Hamilton. While the case I reported of complete color blindness is the only one that came under my notice, still I have had other cases of contraction of the visual fields. What causes it I do not know. Dr. Ballenger misunderstood me. In my paper I spoke of polypoid degeneration of the inferior turbinated body, a condition which we frequently find.

TRAUMATIC CORNEAL ULCER; REPORT OF A CASE.

BY J. W. SHERER, M.D.
KANSAS CITY, MO.

Nov. 9, 1897, N. O., male, age 55, Swede laborer, applied at the clinic of Professor W. C. Tyree of the Kansas City Medical College, for dispensary treatment for an injury of the left eye.

Previous history.—No ocular disease had been experienced. Hard chancre was reported to have been contracted twenty years ago but none of the usual syphilitic sequelæ followed. General health has always been robust and an open-air life led. Of late years there has been some inconvenience from advancing presbyopia, but the aid of glasses has not been sought.

Present condition.—November 6, while crushing stone with a hammer a fragment, presumably of stone, struck the left eyeball and caused intense pain. Rubbing and wiping the eye, an effort was made to continue the work. Next day the eye was still painful, became red and some discharge was observed. The symptoms increased in severity, causing sleeplessness, loss of appetite, perpetual shooting pains through the head, violent pain in the eyeball and painful photophobia.

Examination.—November 9, the fourth day of the disease: O. D. V. = 5/x. O. S. V. =2/L. The vision secured with the right eye was practically normal for the light and card used; the exterior of this eye was also normal. Ocular tension normal. In the left eye there was severe bulbar conjunctivitis, most intense in the ciliary zone, and some injection of the blepharal conjunctiva. The lids were somewhat swollen, edematous and heavy. In the culs-de-sac some mucopus was found, but no microscopic examination was made. A shallow, central corneal ulcer was found which was foul and progressive. Its diameter was about three millimeters, its edges undermined and a narrow boundary of cloudiness marked the limit of cellular infiltration. The remainder of the cornea was clear. The iris was slightly injected, its motility sluggish. Pupil three millimeters. Ocular tension normal. Ophthalmoscopic examination of the right eye showed clear media, normal fundus and hypermetropia = +.50. In the left eye the fundus could not be readily seen but the reflex was normal and, obliquely, the media appeared clear and fundus normal.

With a + 16, the ulcer was seen to be an excavation with overhanging edges. It contained much débris, slough and pus. A diagnosis was made of infected corneal ulcer from traumatic contusion and laceration and treatment ordered as follows: Hot compresses four times daily twenty minutes at a time, the com-

presses to be kept constantly hot by plunging them in hot water; atropin sulphate 1 per cent. aqueous solution, 1 drop applied three times daily; free use of warm, sterile saturated solution of boric acid four times daily; a lump of 5 per cent. aristol ointment to be put in the eye each eve. The patient was requested to keep the eye bandaged and to report at the clinic three times a week.

November 11, patient reported improvement; "slept for first time in several days;" pain intermits and is lighter; pupil dilated to five millimeters only; swelling reduced Treatment was continued and calomel laxative added. November 14, some chemosis present; pain is severe at times. Patient has not worked since second day of the injury. The ulcer is spreading downward slightly. With a small Bowman's lens scoop and free irrigation with boric acid solution, the ulcer was curetted. The edges were much undermined. Remembering the patient's suspicion of specific taint I put him on potassium iodid 0.65 gram three times daily.

The patient attended the clinic regularly and reported that all directions were carried out, but his home was badly ventilated and warmed and his assistance was poor. After curettement some improvement was observed; epithelium proliferating over the upper part of the ulcer. November 20 there was an acute exacerbation with development of much chemosis. The ulcer was again foul and curettement was repeated.

When next seen the patient reported much improvement under the treatment. A little later the favorable progress of the case was again interrupted. The denudation of corneal epithelium had extended inferiorly. The iris was discolored and remained undilated. Intense ocular and blepharal conjunctivitis was present with sufficient swelling of the membrane to cause some eversion of the lower lid. Some pus was precipitated in the anterior chamber. The lids were rubbed with silver nitrate, 1 per cent. solution, and the ulcer wiped out with a wisp of cotton dipped in the same solution. A little later this was repeated with improvement, the hypopyon being almost completely absorbed. Then another relapse occurred, the ulcer spreading downward and a heavy hypopyon forming. The whole lower segment of the cornea was cloudy and was apparently becoming infiltrated with pus. November 20 the patient came into the hospital and paracentesis was performed by Professor Tyree. With antiseptic precautions and under cocain, section was made with a Graefe knife through a very tough cornea, in its lower segment, and a mass of pus sufficient to fill one-third of the anterior chamber was discharged on the cheek. After irrigation and applying aseptic dressings the patient was sent to the ward. The complete antiphlogistic and antiseptic treatment was now executed by skilled hands.

At this juncture elixir of quinin, iron and strychnin was ordered in place of the iodid. The patient's strength was somewhat impaired by the suffering and nervous strain. He now suffered less and felt better, but soon the entire cornea rapidly became opaque, the lower half yellow and apparently infiltrated with pus. The chemosis again became great; the conjunctivitis was general and increased in severity and the swelling of the lids became worse. Within a few days the lower half of the cornea became markedly staphylomatous; the loss of the eye seemed at hand. The treatment was carefully continued with the addition of applications of silver nitrate, 1 per cent. solution, to the blepharal conjunctiva every other day, and the exhibition of a calomel laxative, *pro re nata*.

The patient suffered but little from the time the paracentesis was done, and December 5 the general inflammatory condition of the eye and tutamina was perceptibly improved. Henceforth the improvement was continuous. The patient slept well, had a voracious appetite, little pain, and gained in weight. December 21, he was discharged from the hospital, all inflammation having subsided, with the cornea normal in contour and clear, except in the lower half, where a faint white, cloudy leucoma marked the area of the more severe keratitis. A few fine blood vessels had proliferated into this part of the cornea. At the time of writing, Jan. 7, 1898, O. S. V. = 3/50; the cornea is slightly facetted; the leucoma bids fair to clear up partly, either spontaneously or under stimulative treatment; the pupil is regular; the iris normal in motion and color; there seems to be no disturbance of the ocular metabolism, and the lids are healthy.

The points of interest are: 1, the extremely bad irritative symptoms caused by the movement of the lids over the wound and which were relieved by immobilization with a bandage; 2, the ulcer extended down in the line of gravitation of the pus in the anterior chamber and to the area of the cornea not covered by the lids; 3, the change in course of the disease with paracentesis, hospital and tonic treatment; 4, the utter failure of the antiseptic and antiphlogistic treatment at the patient's home under pernicious sanitary and hygienic environment and in unskilled hands; 5, the fortunate issue of the case from grave danger; 6, the disappearance of large quantities of pus from the anterior chamber by filtration through the mesh-work of the ligamentum pectinatum. 7, the certain loss of the eye had paracentesis not been done and had the patient not been kept in hospital.

310–11 New Ridge Building.

A REPORT OF A CASE OF ANOMALOUS THORACIC ANEURYSM.

Read before the Chicago Medical Society, Feb. 9, 1898.

BY G. W. JOHNSON, B.Sc., M.D.

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CHICAGO, ILL.

Aneurysm of the aorta is not an uncommon occurrence in the experience of every physician, and from the group of symptoms found in text-books on practice and surgery is not especially difficult of diagnosis. That there are exceptional cases, however, in which a diagnosis is somewhat difficult, there is little doubt. Such a case is the one herein reported.

After having studied this case for some months and then being unable to make a satisfactory diagnosis, I presented the case to the Chicago Medical Society for diagnosis. A number of its most able clinicians became interested, and after considerable study and repeated examinations agreed upon a diagnosis of lymphosarcoma of the mediastinum, the tumor occupying the right thorax. The clinical and personal history, together with postmortem notes and the author's deductions, are here given in full:

Personal history.—W. D., aged 53 years, Irish, unmarried, is a plumber by occupation, venereal history negative, no history of alcoholism, typhoid fever, pneumonia or pleurisy. Has

enjoyed perfect health up to two and one-half years ago, family history negative.

Clinical history.—Two and one-half years ago patient began to complain of shortness of breath on exertion and of pain in the left chest. He was unable to lie upon the left side. Dyspnea and pain in left side of chest increased. He was admitted to St. Elizabeth's Hospital, Chicago, where he remained six months. No diagnosis was made. Was discharged and later admitted to the Cook County Hospital, Chicago, where he also remained for some months. While there he was presented by one of the professors on general practice to his class as a case of greatly thickened pleura. Was discharged from Cook County Hospital and sent to the county institutions at Dunning, Ill., where he remained until his death, without a correct diagnosis having been made.

Examination on admission to the Cook County Infirmary was as follows:

Inspection.—Body somewhat emaciated and anemic. Has lost sixty-five pounds. No difference in appearance of the two sides of the chest save that on the right side there is a turgescent condition of the superficial veins. Face somewhat edematous, with slight bilateral exophthalmus and chemosis. There is absence of respiratory expansion on entire right side of chest. Superficial epigastric veins and other superficial veins of right side of abdomen are enlarged to the size of a lead pencil and tortuous. There is respiratory dyspnea. Caput medusæ is more marked when patient is in recumbent position.

Palpation.—Right axillary glands are slightly shotty. Behind inner third of right clavicle can be palpated one gland about one centimeter in diameter, other glands negative. External venous collateral circulation on right side is plainly palpable. There is complete immobilization of right side of chest. Vocal resonance is absent on entire right side of chest, except over a narrow strip posteriorly along right side of spine. There is no pulsus paradoxus, apex beat slightly down and backward. When one hand is placed flatly upon the chest wall and pressure made, a jogging sensation is imparted. With one hand on the posterior and the other on the anterior aspect of the chest and deep pressure made, the chest is found to be perfectly solid. Arteries are not sclerotic.

Percussion.—There is complete flatness over entire anterior and posterior aspects of right chest, save for a small zone along the right spine, which is dull, scapular region dull. Liver dulness extends from the sixth interspace to about five centimeters below the umbilicus. There is dulness over a small area of the sterno-clavicular region on the left side. Left lung is hyper-resonant. Area of cardiac dulness is practically normal.

Auscultation.—No respiratory excursion can be heard over right lung, either posteriorly or anteriorly, save a small zone along the spinal column and over scapular region, where the breath sounds are indistinct and feeble, vocal fremitus entirely absent. Over the central portion of the chest a loud systolic thrill can be heard, but it is not a bruit. There is no murmur in the heart. There is no arhythmia and the pulse is full and strong. Thoracic paracentesis is negative. Patient complains of no pain now, save a dull pain in the lower lumbar region, and coughs but very little. Has no elevation of temperature. Has dyspnea on exertion. Sputa, urinalysis and sphygmographic tracings were negative.

Such was the patient's condition until within three weeks of his death, when he was suddenly seized with a sharp lancinating pain over the right sterno-clavicular region, which was quickly followed by an emphysematous condition of the integument over the seat of pain. This condition, however, soon gave way to an edematous condition which progressively spread bilaterally until the facial folds were entirely obliterated. The exophthalmus and chemosis became more marked and the conjunctiva congested and the face and ears edematous, almost to bursting. This condition was followed by a deep purple cyanosis. From the face and neck the edema extended over the trunk, then the upper limbs became involved, the right forearm being more edematous than the left. Then followed edema of the feet and legs with universal superficial capillary distension and congestion. Dysphagia and dyspnea became so distressing that food could not be taken, nor the recumbent posture maintained. The physical findings remained unchanged save for the increase of the area of dulness over the inner and upper portion of the left lung.

POSTMORTEM EXAMINATION.

Inspection.—Body, that of a man of medium size, moderately well nourished. There is pitting on pressure over entire body. Stellate superficial veins are quite prominent over thorax and arms, both posteriorly and anteriorly. Large veins show with considerable distinctness on right arm, and over the right side of anterior surface of the abdomen. Right superficial epigastric can be traced as far as ensiform cartilage. The veins on outer side of the thigh are more prominent than is usual. Edema of the arms is more apparent than that of the legs, and more apparent in the head and neck than in the arms. Measurements over muscular portions of both arms and legs show the right limbs to be larger than the left by from one-fourth to one-half inch. Right chest and right side of face do not measure more than left. Conjunctival vessels are injected, and the sclera is yellow. Ears are thick, tawny and dark purple.

Findings on incision.—Diaphragm extends on left side to fifth intercostal space, and on right side to the seventh rib. The free border of the liver, in the middle line, comes about one-half inch below the umbilicus, its right lobe reaches to the level of the iliac spine. Superior surface of liver reaches to the level of the ensiform cartilage. The heart reaches, on the left side, to the third interspace and one inch to the left of the sternum. Apex is not markedly displaced to left, but displaced downward. The left pleural cavity contains considerable fluid. The left lung is congested and edematous, otherwise normal. On the right side is a large mass occupying the mediastinum and extending into right side of chest and reaches to the left, as far as a line drawn perpendicularly through sterno-clavicular articulations. The right pleural cavity is entirely obliterated. The layers of the pleura are much thickened, measuring about one millimeter in thickness. They are closely bound together by adhesions that are very firm. The right lung is compressed from apex of chest to diaphragm, but pressed into a narrow zone by the side of the vertebral column. It is congested and edematous, but otherwise normal.

The heart shows no marked changes in myocardium. On the endocardium several patches of endocarditis appear, which is subendothelial and shows best on cusps of mitral valves. Mitral valves otherwise normal. Aortic orifice takes two fingertips. The valves are affected near their free surface; they are somewhat stiffened and show some atheroma where they spring from the endocardium. Right ventricle and tricuspids are normal, pulmonary valves normal. Left pulmonary artery appears normal. Right pulmonary artery shows some atheroma.

The aorta is the seat of a very large aneurysm which springs from the first portion of the arch. The aorta is atheromatous, but the atheroma is accompanied by but very little calcification. There is a small deposit of fibrin upon the surface of the aneurysmal wall, which is not very thick, and in some places markedly thin. It begins to broaden out within one-half inch of aortic valves, and from it are given off the vessels of the convexity. It extends to the beginning of the descending aorta. The atheroma extends down the descending aorta. The circumference of the descending aorta just beyond the aneurysm is six and one-half centimeters. The aneurysm presses upon the right pulmonary artery and on the descending vena cava. There is no fluid in the pericardial sac. Adhesions of pericardium are moderately firm, are uniform and universal. No calcareous masses are found in the pericardium.

The liver measures twenty-seven, by twenty, by fifteen, by five, by four centimeters, surface mottled, left lobe finely nodular. Gall bladder is of the usual size, but contains a number of small calculi and a small quantity of turbid biliary fluid. The mouth of the cystic duct is partially occluded with calculi; hepatic and common ducts are negative. Cut surface is somewhat uneven, centers of lobules depressed, the periphery elevated, showing congested atrophy.

The kidneys measure twelve, by seven, by five centimeters. Capsule is slightly adherent. Kidney is very much congested, surface granular. Cut section shows the cortex to the medullary portion, to be as one to three. Striation is distinct. There is an appearance of venous congestion and probably amyloid. Spleen is negative.

Recapitulation.—Having followed the clinical history to its end we have now the postmortem findings to aid us in accounting for some of the strange clinical phenomena and the error in diagnosis.

1. The earliest symptoms, namely, shortness of breath upon exertion, pain in the left chest, inability to lie upon the left side and the establishment of collateral circulation through the superficial epigastric veins, were due to loss of function of the right lung from the pressure of the aneurysm, producing unilateral pulmonary congestion. Pressure upon the vena azygos major would cause a stasis of the intercostal veins on the right side, the vena azygos minor, the upper left azygos vein, several esophageal, mediastinal and pericardial veins. The lumbar veins finally be-

came affected and the entire difficulty was partially relieved by the collateral circulation through the superficial epigastric system.

2. Pressure upon the inferior vena cava would produce a passive hyperemia of the liver and kidneys through the portal and renal veins.

3. As the aneurysm increased in size the function of the right lung became completely destroyed and the lung was made to occupy a narrow zone along the spine, which accounts for the dulness and feeble respiratory excursion over this area.

4. The later symptoms, namely, increased bilateral exophthalmus, increased dyspnea, dysphagia, bilateral chemosis, general edema, cyanosis, and the congested and distended superficial capillaries and the invasion of the upper lobe of the left lung, can be accounted for by the still further increase in size of the aneurysm, obstructing the return circulation from above by pressure upon the superior vena cava. The innominate and jugular veins, as well as the great vessels given off from the arch, being so universally and evenly involved, account for the absence of pulse phenomena.

In conclusion, from the foregoing we learn that many of the symptoms were misleading. The absence of the pulsus paradoxus and other pulse phenomena, and bruit, the extreme flatness of the right chest on percussion, the symmetry of the chest walls, the practical absence of pain and cough, the negative paracentesis and the entire absence of any auscultatory phenomena so common in aneurysm, together with the absence of such clinical phenomena as would usually be present in an aneurysm of such vast proportions, makes an error in diagnosis somewhat pardonable. However, from the clinical history and physical examination we have many points suggestive of a solid tumor of the chest. The absence of any pulse phenomena and the negative paracentesis, the unilateral collateral circulation, the enlargement of the glands, the absence of pain and cardiac disturbance, the solidity of the right chest and the deep shadow thrown by the skiagraph, would rather favor the diagnosis that was made.

That such a case should escape from two of our best hospitals and from such a large number of eminent clinicians without a correct diagnosis, is enough alone to brand it as an unusual case. But situated as the aneurysm was, together with its enormous size, and the pleura so much thickened, a great many of the symptoms were perverted.

DISCUSSION.

Dr. ROBERT H. BABCOCK—I examined this patient twice and made a probable diagnosis of lympho-sarcoma of the mediastinum and pleura. The case presented many of the signs of solid tumor; some of the signs of aortic aneurysm were present. The points which were of particular weight in favor of solid tumor were: 1, the insidious development of the disease; 2, the absence of fever; 3, evidences of unilateral pressure; 4, the phenomena on percussion, absolute flatness anteriorly from apex to base from the left sternal border to the middle of the right axillary region, the flatness being accompanied by a sense of great persistence; 5, there was some enlargement of the right half of the thorax, but it failed to present any of the irregular enlargement which is sometimes present in a case of solid tumor. The auscultatory findings were such as pointed to a solid tumor with entire absence of breath and voice sounds over area of flatness. Percussion and auscultation posteriorly were such as to plainly point to compression of the lung toward the back and spinal column without other involvment of the lung than that of pressure. There was against solid tumor, the entire absence of pain at the time I made the examination, although it was evident that a tumor occupied the right pleural cavity. There was also no marked debility, although the patient has lost weight. Evidently the absence of pain was due to the fact that the tumor was not impinging upon the sensory nerves within the thoracic parietes. There were certain points in favor of aneurysm, and one was the jogging impulse, which was not very marked, but which could be perceived over the lower portion of the right thorax, and the transmission of the heart sounds at that point, in fact, more or less throughout the base of the right chest, and a murmur in the right infra-clavicular region. The pulses were apparently normal, although, at the first examination, in November, there was slight inequality in the two radials. The heart was pushed downward and outward, but evidently not greatly enlarged. These two things seemed to be rather against aneurysm, and the transmission of the sounds of the heart and the perception of a murmur in the infra-clavicular region were explained on the hypothesis of pressure from this solid tumor, and the transmission through the tumor of the heart's impulse. I am surprised that it did not occur to me that a tumor the size which this must have been, had it been solid, occupying so much space in the chest, should not have had an impulse imparted to it from the heart.

Dr. ARTHUR R. EDWARDS—I saw the case about a year ago, in the County Hospital, and at a still later time, when I examined him. There was the absence, at any time I examined the patient, of any murmurs, especially the absence of bruits, of any difference in the two radial pulses, or the exact quality of the two sphygmographic tracings when the patient was first examined. There was a finding at the second examination which was lacking at the first, namely, the development of a small, hard, presumably lymphatic node above the left clavicle or rather near the jugular, which was taken, in the absence of so many of the usual symptoms of aneurysm, and the presence of so many symptoms pointing toward the bronchial lymphatics as an evidence that the patient was suffering from a neoplasm rather than from simply a thickened pleura or an aneurysm. The lymphatic node was found about six weeks after the first examination. In cases falsely diagnosed previous to autopsy, and enormous aneurysms are found, it is because of clotting of the blood, or because of equal distention of the aneurysmal sac that no bruits are found. It will happen again that we will have murmurs in cases of mediastinal tumor, so that the murmur will make no difference to us in the diagnosis.

Practically all that can be said on the subject has been recapitulated by Fraenkal, that "aneurysms may produce such changes in the lung or respiratory apparatus that the aneurysm itself may be overlooked, and secondary changes may be the main findings clinically. The pleuritic effusion may cover up the aneurysm, or, after tension has disappeared, there may be a callosity of the pleura very much like a small tumor. By the pressure of the aneurysm upon a bronchus the lungs become impermeable to air, and finally there is enormous induration because of the atelectasis of the lung and disturbed circulation of the lung substance."

A case was seen, some three years ago, in the County Hospital in which almost the same symptoms were observed as in this, except the lymphatic glands pointed to mediastinal tumor. There was absolutely no murmur, and no inequality of the radial arteries and radial tracings, and yet a diagnosis of aneurysm was made and confirmed simply because of the slow progress of the case and the presence of a syphilitic history.

CUTANEOUS ADMINISTRATION OF SALICYLATES IN RHEUMATISM, GOUT, ETC.

BY GILBERT I. CULLEN, M.D.
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Dr. Edmund L. Gross of Paris, in a recently published brochure, presents several new ideas. He says that though the various affections classed under gouty or rheumatic often differ widely as to their manifestations, they incontestably possess numerous traits in common. Even though we may admit that gout and rheumatism are distinctly separate diseases we can not deny their close original relationship, both affections spring from the same soil, the arthritic temperament. That which above all else seems to prove their lineage is the common property which they possess of being amenable to the salicylic medications, though in different degrees. The benefits derived from the use of the salicylates in rheumatism are universally acknowledged and yet much difference of opinion

exists as to their real value. Some look upon them in the light of simple palliatives while others, and perhaps the most authorized, consider them real specifics. I firmly believe with Lecorde that salicylic acid is as much a specific in rheumatism as mercury is in syphilis. If the salicylate of soda is universally administered in all cases of rheumatism, it is less generally known that gout is greatly benefited by the same drug, especially when combined with colchicin. The great disadvantage heretofore met with in the exhibition of the salicylates has been their irritating influence on the digestive tract, which often excludes the advisability of their administration. These untoward results may be greatly attenuated, if not entirely avoided, by using the natural salicylates derived from the oil of gaultheria, betula lenta and other plants. This pure salicylate of methyl, as proved by the experiments of Professor Charteris of Glasgow, offers none of the inconvenience of the synthetic salicylate of soda and may be administered by the mouth in much smaller though equally effective doses.

There is another method of administration, however, rapidly coming into vogue in all hospitals. We are taught by the interesting researches of Professor Combemalle of Lille, and also of Professor Sigalas of Bordeaux that salicylate of soda, when dissolved in some oily vehicle, is rapidly absorbed by the skin, and in five minutes may be detected in the urine. This medication is now extensively used in the hospitals of Paris. Professor Déjerine has a favorite formula which he prescribes for all his rheumatic patients; it is the following:

R	Acidi salicylici.	Gm. 10
	Alcoholis	Gm. 50
	Ol. ricini.	Gm. 100 M.

This external application should be used in the following manner: A tablespoonful is poured into the palm of the hand and rubbed into the affected part for a few minutes; the part is then covered with oiled silk or rubber and again enveloped in several thicknesses of flannel or cotton.

The effect of this medication is very marked and the pain rapidly subsides. This is due to the fact that salicylic acid is one of the best of anodynes; it exerts this action over all pains even though they be not of a gouty or rheumatic nature. Professor Panas of Paris has sometimes used salicylate of soda as a substitute for morphia. In rheumatism there is, in addition to this anesthetic influence, a true specific action, probably due to the antiseptic properties of the drug.

There are many advantages in the cutaneous administration, of which the most important, perhaps, is the relief afforded to the digestive tract, but there is also the efficacy of a method which consists in applying a drug directly to the part affected, so that the greatest quantity is absorbed where it is most needed. This does not exclude the administration per os, but it it should be given in such minute doses that no evil effects will be felt.

I have been speaking of salicylic acid and salicylate of soda and yet I have long since abandoned this form of salicylate. I never use any but the pure methyl salicylate, as advised by Dujardin-Beaumetz, Sireday and others and find the natural product far superior to the artificial drug, both internally and externally. The above liniment used by Déjerine is far more effective if oil of wintergreen is substituted for the salicylate of soda.

It is remarkable what a wide application such a liniment has; all pains, muscular or articular, are greatly benefited. As a resolutive liniment it has no equal. I recently treated a severe case of phlebitis of the saphenic vein accompanied by a considerable tumefaction running the whole length of the thigh. The classic treatment, rest and calming applications, did absolutely no good, after two weeks of rest in bed. I tried the salicylic liniment and used the French formula known as betul-ol. After a few applications the case improved, the pain disappeared and the swelling melted away very rapidly. In fifteen days after I had used the liniment for the first time the patient was almost entirely well.

In lumbago no application is as effective as the methyl-salicylate liniment, vigorously rubbed in the part, then covered with oiled silk and several thicknesses of cotton, being held in place by a flannel band. I prefer the betul-ol formula because it contains a natural methyl salicylate dissolved in oleic acid, which traverses the pores of the skin with the greatest ease.

THE EXPENDITURE OF ELECTRIC ENERGY.

Read at the Seventh Annual Meeting of the American Electro-Therapeutic Association, Harrisburg, Pa., Sept. 21-23, 1897.

BY MARGARET A. CLEAVES, M.D.

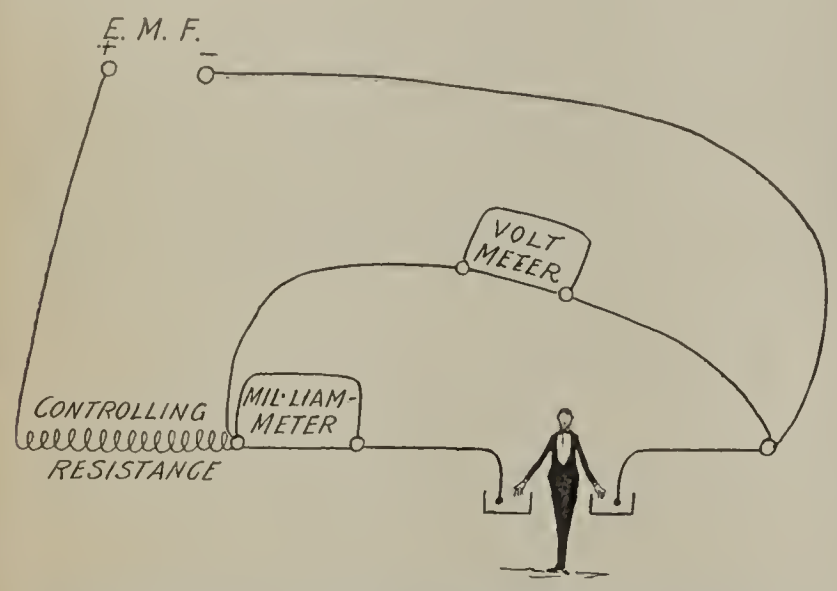
Director of the New York Electro-Therapeutic Clinic, Laboratory and Dispensary; Late Instructor in Electro-Therapeutics, New York Post-Graduate Medical School; Fellow of the American Electro-Therapeutic Association; Member Société Frangaise d'Electrothérapie; Fellow of the New York Academy of Medicine; Member of the Medical Society of the County of New York; Member of the American Medical Association; Member of the New York Electrical Society.

NEW YORK, N. Y.

To the physician, whose daily electro-therapeutic work is carried on with a voltmeter as well as a milliampere meter in circuit, the fundamental characteristic of electricity—pressure—becomes immediately a self-evident fact. While this may be a perfectly familiar truth in the abstract, it is impossible to have that clear perception of it which arises from the use of the means for its actual demonstration and measurement. So long as there is recognized in electro-therapeutic work only the rate of flow in milliamperes, it is not possible to have an intelligent conception of the force by means of which we make electricity available, or of the laws governing its action.

Whenever connections are made between the source of an E. M. F. or pressure (whether provided by chemic generators or dynamos) and the voltmeter, the needle swings to its place with certainty and precision, demonstrating the existence at the terminals of a pressure (potential difference) whose expenditure is capable of producing definite results, just so surely in electro-therapeutic work, as in electric engineering. Without a voltmeter there is no means of accurately determining the existence of this pressure. Who has not completed the conducting circuit to find that when the "current is turned on" the milliampere meter needle does not move at all, or else after a moment swings abruptly forward because resistance interposed in the circuit, perhaps due to an imperfect contact, has been suddenly overcome? There is thus caused a sudden expenditure of energy in the patient's circuit, resulting in severe shock and physiologic harm. With a means of determining the presence of

this initial pressure and whether it maintains itself steadily or whether, from imperfect contact, a variable E. M. F. exists, indicated by the fluctuations of the voltmeter needle, all question of trouble, in so far as the pressure at the terminals is concerned, can be eliminated before the conducting circuit is completed. If when the latter is accomplished and resistance placed in the circuit there should not promptly be established a rate of flow as indicated by the milliampere meter, the operator does not need to go back of his conducting circuit, *i. e.*, conducting cord, electrodes and patient, to determine the whereabouts and nature of the trouble.



The above diagram represents the manner of connecting the voltmeter in circuit so as to secure the necessary readings.

The connections of the voltmeter are across the electrodes, eliminating thereby the resistance of the controlling device with which our batteries and adapters are usually provided.

When connections are made for work there are certain facts to be observed from which certain others are to be calculated, in order that we may have some definite idea of the force with which we are dealing, of the expenditure of energy and of the resistance of the obstructions in the conducting circuit.

This brings us to the two grand divisions of our charts, namely observed and calculated facts.

Under the head of observed facts, we have first, the source at the terminals, or potential force in volts.

As will be seen from an examination of the charts, this varies greatly. The work was done with the Kennelly adapter, and the varying pressure obtained by shunting the excess of voltage through the lamps provided for that purpose; and as in some instances, the adapter was connected directly with the Edison incandescent or direct current circuit and in others with a motor dynamo, the result is a pressure at terminals of considerable variation, say from 15 to 120 volts.

With the direct current from the Edison incandescent circuit the potential force, pressure or E. M. F. varied at the terminals from 115 to 120 volts. With the motor dynamo, converting a Thomson-Houston alternating current at 104 volts into a direct current, the E. M. F. at the terminals varied from 40 to 60 volts. Whatever our equipment, with the existence of this potential force in volts, demonstrated beyond question, its expenditure at once becomes a matter of actual observation.

An E. M. F. is often likened to the pressure or head of a body of water, a reservoir for instance. As we have seen, the E. M. F. is the initial thing, and relates to that potential force which establishes the difference of potential. Nor is it possible to have an electric current without a difference of potential. As water flows from a higher to a lower level, so the electric current is assumed to flow from a higher to a lower potential. In order to secure and maintain a potential difference it is necessary to connect the initial pressure with a conducting path or circuit in which we wish to do work. And wherever we wish to do useful work there must be placed in the conducting circuit an obstruction or resistance. This we have in the person of the patient forming a part of our conducting circuit, as well as in the milliampere meter, conducting cords and electrodes. In overcoming this resistance or obstruction in our path a part or perhaps the whole of the initial pressure may be expended. "At every point in such a path, or more accurately, between the two points, no matter how large nor how easy the path may be, some fraction of the total pressure has been expended in exact proportion to the opposition it met, or in other words to the resistance which it encountered."[1] Were it not for resistance in a circuit, no work would be done. In the path of the pressure expended on the tissues of the body the same law applies as in electric engineering. The voltmeter needle indicates promptly and definitely the standard of pressure which can be relied upon to initiate and maintain this expenditure of energy, and thus we are able to record the second of our observed facts, viz., the available potential difference or available E. M. F. This difference of potential falls in value as the current flow increases, and if we will think of that current flow which we call milliamperes, or fractions of an ampere, as the expenditure of volts per ohm of resistance, just as the expenditure of a certain muscular force, moving a definite weight, results in a certain rate of work which we may call foot pounds, the fall in value of the potential difference as the current flow increases will be readily appreciated. In the latter instance the expenditure of muscular power leaves less for further efforts (a potential difference, or a difference of potential). In the same manner using up a variable proportion of the E. M. F. in overcoming a variable resistance, gives a variable remaining difference of potential.

Before the resistances of the patient and contacts are placed in circuit, the E. M. F. of the dynamo current (for instance) as registered by the voltmeter, will be, say fifty-two volts. These fifty-two volts do not represent the entire output of the dynamo, as there is a little loss in the voltage due to the resistance of the armature or what is known or the "internal drop," and also an additional loss in the conducting circuit as represented by the insulated wires running from the dynamo to the room in which the adapter is placed. Now, the fifty-two volts, which were shown by the voltmeter, when the dynamo was set in motion, is the initial pressure, E. M. F. or, as per our charts, the source at the terminals. As the resistance is overcome there is a current flow as the case may be, of .010, .015 or .020 of an ampere. When this rate of flow is established it is found by observation that the voltmeter registers, say forty-six volts.

The amperes, whatever their number, give the rate of expenditure of volts per ohm independent of time, or the rate of flow. The forty-six volts is the actual working pressure or E. M. F., *i. e.*, the available poten-

[1] Current Distribution. By W. J. Jenks, E. E. Transactions American Electro-Therapeutic Association, 1894.

tial difference at the electrodes (volts), the rest having been consumed in overcoming the resistance of the conducting circuit, *i. e.*, the milliammeter, conducting cords, electrodes and patient.

The six volts used in overcoming the resistance of the circuit is called the "drop." A part of this pressure has been expended on the conducting circuit other than the patient and is known as "conductor drop" and a part on the patient in doing "work." If there is added to these the potential difference, forty-six volts, or forty-six plus six, we have the total E. M. F. of the circuit external to the dynamo. The resistance of the milliampere meter as well as conducting cords and electrodes is practically negligible however. On expending a part or the whole of this initial pressure in overcoming the resistance of our circuit, and in doing useful work, a current is brought into existence, as we have seen, which our milliampere meter needle promptly and accurately registers, and which we record under the head of milliamperes as the third of our observed facts. This expresses the rate of expending volts per ohm of resistance, or in medical applications of millivolts per ohm, and is usually the only measurement recorded by the electro-therapeutist. Given then a working E. M. F. or available potential difference, and the rate of flow in volts per ohm of resistance, it becomes only a matter of calculation to determine the resistance of our conducting circuit, for the E. M. F. divided by the C. S. gives us the resistance in its unit of measurement or ohms.

This brings us to the second broad division of our charts, where we find that there are certain facts, which instead of being observed are obtained by means of calculation, and the first of these is the body and contact resistance in ohms. This is a step on our way, for the resistance of the human body in health and disease promises to be a matter of great importance to the physician.

It has been suggested by a well-known physicist "that an accurate knowledge of the resistance from point to point of an average human body might assist occasionally in the diagnosis of disease, and the comparison with the resistance of a corpse might have useful results to show.[2] But as yet, however, our conception of the expenditure of electric energy is very inadequate, for our only measurement thus far simply expresses the rate of flow in M. A., and conveys no comprehension of the rate at which we are doing work in the tissues. This can be only determined when the total expenditure of potential between the two given points in the electric circuit is found and multiplied by the rate of such expenditure in each unit of resistance between the same two points; or in other words, when the volts are multiplied by the milliamperes we secure a product in volt-amperes, or better, in the unit of electric power, watts. By this process the rate at which we are doing work or expending energy in the treatment of a given condition, whether a uterine fibroid, pelvic exudate or a wasted muscle, wherever or whatever it may be, is determined. But it is desirable that we should know not only the rate at which we are doing work but the total amount of work done. To secure this aggregate, it is necessary to add still another factor. By recording the observed time of an application (see fourth division of observed facts of our charts, "time in seconds"), it becomes at once an easy matter to obtain the total energy expended in the tissues; for the rate of work, the volt-amperes or watts multiplied by the time in seconds will give us the total amount of work done, the volt-ampere-seconds or *joules*. By referring to the third division of our second broad division we find recorded the total amount of work done (energy expended) in the units of work or joules. This may be in heat developed, as in cautery applications; it may be in mechanical work done, as with alternating currents, or it may be in chemic action as in the applications of the direct current.

The rate of work, as well as total amount of work done, can be calculated in fractions of a horse power or foot pounds, if it will convey any clearer conception to our minds of the rate of expending energy or the total amount of energy expended within the tissues. But the sooner we come to think in electric units, however, with a definite idea of their meaning, the sooner will we do our work understandingly and advance the cause of scientific electro-therapeutics.

Perhaps it may not be undesirable before further considering the expenditure of electric energy in the human body, to briefly recapitulate here the definitions of the less frequently used units of measurements.

The joule is the international unit of work, and is nearly equal to .7381 foot pounds at the latitude of Washington.

The watt is the international unit of activity or power, or of the rate of working per second of time, and is an activity of one joule per second. That is, the force that will raise one pound at the latitude of Washington through the distance of .7381 foot in a second, expends work at the rate of one watt, or one joule per second.

The horse power represents an activity of 550 foot pounds per second at Greenwich or 746 watts, so that one horse power equals 0.746 kilo-watts, that is one kilo-watt equals 1.34 horse power.

It is important that there should be clearly understood the difference between work or energy expended (joules) and activity or power (watts).

Work, *i. e.*, joules, is a measure of the expenditure of energy, and is equal to the product of a force and the distance of time through which that force acts.

Activity is the rate of expending energy (watts) or doing work, and is found, or at least averaged, by dividing the work done in a circuit, or a portion of a circuit, by the time occupied in doing it.

When a weight of one pound is raised through one foot, whether it be raised in a minute, or in a second, the same amount of work is done, but in the latter case, the rate at which the work is done or energy is expended is sixty times greater than in the former. Suppose a mechanical energy that is capable of raising 33,000 pounds 1 foot in 1 minute. This equals one horse power. It will be readily appreciated that here a tremendous force is exerted, and one which is capable of producing a serious injury to anything that may come in its path; but suppose that 33,000 pounds to be raised 1 foot in a period of time from 5 to 10 minutes, one can readily appreciate that this immense force could be applied without tending to cause mechanical injury. Thus we see that it makes a very great difference as to the rate at which the work is done. In the former instance just as much work was done or energy expended as in the latter, but at a very different rate. Or again, take the lightning flash, or an explosion of dynamite. If the same number of heat units which are in these cases exploded, perhaps

[2] A. E. Kennelly.

in one millionth of a second, could be so retarded in expenditure as to cover one second or one minute, no destructive action would be apparent.

When lightning strikes a forest tree, the inconceivable rapidity of expending a given number of heat units allows no time for gentle radiation, but instantly turns to steam the moisture in the tree trunk and beneath the bark, which then occupies 1600 times the space which it did in the form of water, and the steam pressure becomes so terrific that nothing can withstand its outwardly expended energy. With these examples it is easy to appreciate why there should be known not only the total energy expended, but the rate at which that energy is expended.

Suppose a pressure or E. M. F. of 120 volts, and a current flow of 50 milliamperes to be expended within the tissues, uniformly, during the period of 1 second of time, or during any other period; the rate of expending energy would be 120x.050 volt-amperes or 6 watts, and the total amount of energy expended in 1 second would be 120x.050x1 volt-ampere-seconds or 6 joules; such an expenditure of energy would have a tendency to disruptive action upon the tissues, and would be capable of causing great injury to them, while a lesser E. M. F., say 30 volts, a lesser rate of flow, say 25 milliamperes, extending over a period of 8 seconds, or again a pressure of 30 volts, but a still smaller rate of flow, say 12½ milliamperes, extending over a period of 16 seconds, would cause as great an expenditure of total energy, but one that would result in no disruptive action upon the tissues. On the contrary, the latter would prove an expenditure of energy which would not be felt in an appreciable sense, would cause no injury, and would tend only to the furtherance of physiologic action of the part to which it was applied.

To summarize: Force is a cause of change. Energy is the power of doing work. Work is energy expended (joules or volt-ampere-seconds). E. M. F. is measurable by the total potential difference at the electrodes (volts). Current is the rate of expenditure of volts per ohm (amperes) independent of time. Power is the rate of expenditure of energy not in time but in the total ohms, independent of time (watts).

It is essential then to know not only the rate of flow, as indicated by the number of milliamperes, but also the working E. M. F. (that is the available potential difference at the electrodes) and the time of a given treatment, so as to be able to calculate the rate of the expenditure of energy and the total energy expended, not for the satisfaction of making such a calculation simply, but because, to promote processes by means of which it is possible to restore healthful function, the same total energy should be expanded slowly, so as to give the tissues themselves, to their molecules and atoms, an opportunity to adjust themselves to the influence at work.

"We must bear in mind here that it is not the electricity itself which is directly effective, but that by its means there is conveyed to the proper point a potent energy so flexible, so obedient to known laws as to result in a transformation to heat and chemic action, or some other manifestation, *i.e.*, the energy peculiar to vital cells. And that energy should be expended at such a rate as to encourage this action, not militate against it, as would be the case in a sudden expenditure of the same amount."[3] And that rate of expending energy or volt-amperes must be obtained by the expenditure of only such a pressure as is necessary to procure the requisite current flow through the obstructions placed in the path, or the resistance of the conducting circuit. We are thoroughly cognizant of the inadvisability of using the same muscular force in handling a fragile microscope cover glass as in the iron plate covering the manhole of a sewer. We know at once that the result would be disastrous to the cover glass. On the other hand, we know equally well that the muscular force necessary to lift the cover glass will have no effect whatever upon the iron plate.

Physical laws are the same, no matter what the agency used. There is therefore every reason why our apparatus, whether used with chemic generators or dynamos, should be so constructed that the pressure in volts can be carefully graduated from the fraction of a volt up to the full E. M. F. of which the generator is capable.

The blow that will cause the death of an eagle will not only take the life of a tiny humming bird, but shatter it to atoms as well, while the power necessary to cause the death of the latter may have no effect on the former. Just so must our volt-amperes be regulated to the work done. The acute neuritis, as well as the acute and subacute pelvic inflammations, for instance, require the minimum rate of expenditure in volt-amperes and it is not only the milliamperes we must look to, but the volts as well. We may use 20x5 volt-amperes or 5x20 voltamperes in the treatment of a given condition. The rate of expenditure, or watts, is the same in both instances, but the action upon the pathologic condition must be different. In the one instance the pressure in volts is in excess of that needed with which to do the work and expended along our conducting path and can only result in physiologic harm to the tissues involved.

In the conditions which we have just indicated nothing is to be gained by carrying our applications to the point of pain. We must remember that we are expending an energy within the tissues which produces a silent chemic change, that our purpose is to expend that energy in such a way as to exercise a directive influence upon the molecules and atoms, not to cause any disruptive action of which pain might be a manifestation, and that to gain our end it is not only wiser but necessary to expend fewer volts per ohm of resistance (or fewer milliamperes) for a longer time. By increasing our time limit the volt-ampere-seconds or the joules are increased, but at no time is the rate of expenditure in watts, or fraction of a horse-power, sufficiently great as to cause pain or destructive action. In the treatment of fibroid tumors or exudates, on the other hand, greater pressure is required, in order to overcome the resistance of the denser structures in the conducting path, so as to secure necessary current flow.

In percutaneous applications the proportion of the volts and amperes must vary considerably from their proportion in mucous membrane contacts. In the former considerable pressure is expended to overcome the resistance with a minimum of current flow; in the latter, because of diminished resistance, less pressure is needed to secure the necessary rate of flow. In both instances, however, there may be the same rate of work or watts.

In our electro-therapeutic applications, however, there must be considered not only the expenditure of watts, but the path of its expenditure. This brings

[3] "Current Distribution," by W. J. Jenks, E. E. Transactions American Electro-Therapeutic Association, 1894.

Mrs. J. T., age 33; occupation, domestic duties; condition, married. Diagnosis: Metritis and endometritis with cystic degeneration of cervix. Treatment: Vaginal hydro-electric douche, three quarts 3 per cent. saline solution, temperature 100 F. negative; indifferent electrode 36 square inches in area to abdomen; intra-uterine silver electrolysis; indifferent electrode 36 square inches in area to abdomen negative; cupric puncture to cystic cervix, indifferent electrode 36 square inches in area to abdomen negative.

Date.	Observed.					Calculated.			Remarks
	Treatment.	Volts. Source term.	Volts. Avail. P. D.	M. A.	Time. Seconds.	Ohms, body and contact	Rate of work. Watts.	Total work. Joules.	
1896, Dec. 3.	Vag. hydro-electric douche.	45	43	20	600	2,150	.86	516	
1896, Dec. 4.	I. U. silver electrolysis.	45	43	10	300	4,300	.43	129	Here the current traversed the dense structures of the uterus, hence increased resistance over vagiuo hydro-electric douche; diminished rate of expenditure and less work done; but watts expended within a limited area, *i. e.*, current density instead of current distribution as in the douche.
1896, Dec. 5.	Vag. hydro-electric douche.	45	41	20	600	2,050	.82	492	
1896, Dec. 7.	Vag. hydro-elec tric douche.	44.5	41	20	600	2,050	.82	492	
1896, Dec. 8.	Vag. hydro-electric douche,	44	41.5	20	600	2,075	.83	498	
1896, Dec. 9.	Cupric puncture to cervix.	33	32.75	5	100	6,550	.16375	16+	Here again current density or localized expenditure of Watts.
1896, Dec. 10.	Vag. hydro-electric douche.	33.5	30	15	600	2,000	.45	270	
1896, Dec. 11.	I. U. silver elec trolysis.	45.5	41	20	300	2.000	.82	246	
1897, Jan. 29.	I. U. silver electrolysis.	44.5	41.5	20	300	2,075	.83	249	
1897, Feb. 1.	Vag. hydro-electric douche.	44.5	41	20	600	2,050	.82	492	Same rate of flow of milli-volts per ohm of resistance, same rate of work in watts, but twice the time, so twice work in Joules.
1897, Jan. 28.	Cupric puncture to cervix.	44.5	41	10	30	4,100	.41	12+	Here tissue dense.
1897	" "	44.5	41.5	10	30	4,150	.415	12+	Here cystic, small expenditure of milli-volts.
1897	" "	44.5	42.5	10	30	4,250	.425	12+	Here cystic.
1897	" "	44.5	42	10	30	4,200	.42	12+	Here cystic.
1897	" "	44.5	43	7	30	6,142+	.301	9+	Oxidation not removed from ueedle, after previous punctures.
1897	" "	44.5	43	8	30	5,375	.344	10+	Here tissue dense.
1897	" "	44.5	42	10	30	4,200	.42	12+	Puncture made where the mucous membrane of cervix merges into that of cervical canal.
1897	" "	44.5	42	10	30	4,200	.42	12+	Same as preceding.
1897	" "	44.5	42	10	30	4,200	.42	12+	Here cystic.
1897	" "	44.5	42.5	9	30	4,722	.3825	11+	Here cystic.

Chas. J.: age, 34; occupation, cook; condition, single. Diagnosis: Exudates about articulations of elbow, wrist and hand and sheaths of tendons, with impaired mobility from septic inflammation. Treatment: Continuous current, active electrode, hand and arm in warm saline solution negative; indifferent electrode, 9 square inches in area to nape of neck.

Date.	Observed.				Calculated.			Remarks.
	Volts. Source, Term.	Volts. Avail. P. D.	M. A.	Time, Seconds.	Ohms, body and contact.	Rate of work, Watts.	Total work, Joules.	
1895, Oct. 29..	Observer failed to record.	48	20	600	2,400	.96	576	Before treatment the thumb was brought to within 1⅛ in. of forefinger, 1¾ in. of the middle finger, 2½ in. of the ring finger.
1895, Dec. 3.	Observer failed to record.	51	30	600	1,700	1.53	918	Thumb brought to withiu ⅝ in. of forefinger, 1¼ of middle finger, 2 in. of ring finger.
1895, Dec. 7.	Observer failed to record.	48	26	600	1,846	1.248	748+	Can use forefinger better.
1895, Dec. 10.	Observer failed to record.	49	20	600	2,450	.98	588	Diminished rate of flow. Increased resistance. Diminished rate of expeuditure and total work done.
1895, Dec. 14.	20	18	30	600	600	.54	324	
1895, Dec. 19.	Observer failed to record.	49	30	600	1,633	1.47	882	Wrist joint more mobile.
1895, Dec. 21.	Observer failed to record.	19	20	600	950	.38	228	
1895, Dec. 24.	Observer failed to record.	19	20	600	950	.38	228	
1895, Dec. 26.	Observer failed to record.	52	20	600	2,600	1.04	624	
1895, Dec. 31.	Observer failed to record.	15	20	600	750	.3	180	
1896, Jan. 4.	Observer failed to record.	50	20	600	2,500	1.	600	
1896, Jan. 11.	50	46	20	600	2,300	.92	552	
1896, Jan. 16.	Observer failed to record.	16	20	600	800	.32	192	Improving.
1896, Jan. 18.	Observer failed to record.	52	20	600	2,600	1.04	624	Increased mobility of first phalangeal joiut.
1896, Jan. 23.	Observer failed to record.	49	20	600	2,450	.98	588	
1896, Jan. 28.	Observer failed to record.	49	20	600	2,450	.98	588	Second finger can touch thumb.
1896, Feb. 2.	Observer failed to record.	45	20	900	2,250	.9	810	Flexiou at wrist normal; supination and pronatiou normal.
1896, Feb. 11.	Observer failed to record.	47	20	900	2,350	.94	846	
1896, Feb. 15.	54	50	20	600	2,500	1.	600	Is making very satisfactory gaiu.
1896, Feb. 18.	42	42	20	600	2,100	.84	504	Increased mobility of articulations.
1896, Feb. 20.	54	49	20	600	2,450	.98	588	Can touch thumb to first and second fingers and to 1¼ in. of third.
1896, Mar. 4.	56	52	20	600	2,600	1.04	624	Passive motion of thumb complete; index finger to ⅛ in. of palm.
1896, Mar. 17.	54	50	20	600	2,500	1.	600	Index to ¼ in. of ring finger.
1896, April 4.	45	42	20	600	2,100	.84	504	*

*his patient, who could not lift a newspaper when he came under care and who had been treated by means of massage and passive movements, is now able to return to his work as a cook, with all the lifting that it involves. At first there was no play of tendons at wrist, and hand and arm felt like a board. Now there is normal play of tendons and muscular movement and tissue of arm and hand are soft.

K. J., age 21; condition, single. Diagnosis: Facial acne. Treatment: Percutaneous application, continuous current, sponge electrode to the face, 1½ square inches in area negative; indifferent electrode, 9 square inches in area, to nape of neck.

OBSERVED.					CALCULATED.			
Date.	Volts. Source, term.	Volts. Avail. P. D.	M. A.	Time, seconds.	Ohms, body and contact.	Rate of work, Watts.	Total work, Joules.	REMARKS.
1896, Mar. 11.	21	20	4	360	5,000	.08	28+	Small surface contact, hence greater resisitance. The greater the area of the gross section of the conductor, the less the resistance.
1896, Mar. 13.	31	29½	5	400	5,900	.1475	59	More volts expended per ohm of R., increase in rate of flow, therefore more volt-amperes, or greater rate of expending energy, and more energy expended in Joules.
1896, Mar. 17.	31	30	4	360	7,500	.12	43+	

The following observations were made in several different cases and the diagnosis is mentioned in connection with each application. The treatments are briefly indicated below: Utero-abdominal, metal electrode within the uterus, abdominal contact, 40 square inches in area; vagino-abdominal, metal electrode within the vagina, abdominal contact 40 square inches in area; vaginal bi-polar; percutaneous, neck to hand contact.

OBSERVED.						CALCULATED.			
Date.	Treatment.	Volts. Source, term.	Volts. Avail. P. D.	M. A.	Time, seconds.	Ohms, body and contact.	Rate of work, Watts.	Total work, Joules.	REMARKS.
1897, Sept. 15.	Utero-abdom. Endometritis.	Coil on Kennelly adaptor con. with Edison incan. cir.	5	8	360	625	.04	14+	The equivalent of the secondary fast interruptions, 1800 turns from the coil of the Kennelly adaptor.
1897, Sept. 15.	Pelvic conges.		5	9.5	360	526+	.0475	17+	The equivalent of the same, 1500 yards.
1897, Sept. 18.	Vag.-abdom. Pelvic conges. vag. bi-polar.		4	8	600	500	.032	19+	Here conditions more nearly approach a short circuit where but little pressure is required. The equivalent of the above, 1800 turns.
1897, Sept. 18.	Percutaneous from neck to hand contact.		10	0.5	90	20,000	.005	45	The same as above, 1800 turns, used to deaden skin sensibility over abscess. Immense R. because of skin contact limiting the output in M.A. Sensory disturbance not due to current flow, but to R. of skin contact, interruptions and irregular wave or graphic curve.
1896, Oct. 18..	Vag.-abdominal induced.		5	9	600	555+	.045	27	Equivalent of 1500 yards, secondary.
1896, Oct. 18..	Pelvic congest.		6	10	600	600	.060	36	Equivalent of 1200 yards, secondary.
1896, Oct. 18..	Pelvic congest.		7	11.5	600	608+	.0805	48+	Equivalent of 900 yards, secondary.
1896, Oct. 18..	Pelvic congest.		7	11	600	636+	.077	46+	Equivalent of 600 yards, secondary.
OBSERVATIONS WITH SINUSOIDAL CURRENT.									
1897, Sept. 15.	Percutan., hand to hand contact. Experimental obser.		12	10	600	1,200	.12	72	Kennelly inductor alternator used in all these instances.
1897, Sept. 18.	vagino-abdominal..		13.2	23.2	600	568+	.3062	183+	Frequency 100,800 alternations per minute; four ½-ampere lamps to alternator.
1897, Nov. 8..	Utero-abdominal; fibroid tumor.		6	12.5	300	480	.075	22+	Frequency 100,800 alternations per minute; two ½-ampere lamps to alternator.
1897, Nov. 8..	Vagino-abdominal..		10	18.5	600	540+	.185	111	Frequency 114,240 alternations per minute; three 1½-ampere lamps to alternator.
1897, Nov. 8..	Vagino-abdominal; fibroid tumor.		12.5	24	300	320+	.3	90	Frequency 100,800 alternations per minute; four ½-ampere lamps to alternator.
1897, Dec. 13..	Feet in bath, surface contact to abdom. Case of gout.		7.5	7	600	1,071+	.0525	26+	Frequency 112,120 alternations per minute; three 1½-ampere lamps to alternator.

us to a consideration of the density or degree of concentration of the current. The path of the greatest current density or expenditure of watts may or may not be in the most direct path between the electrodes. This will depend upon the pathology under consideration and the habit of the patient, as we shall see later on. However, as a rule we should expect that the densest current, in an intrauterine application in endometritis, for instance, would be the most direct. Increasing the distance traversed by the current tends to an increase of the resistance and as the expenditure is always in the lines of least resistance the tendency would naturally be in the lines directly between the two electrodes. But in such an application, as usually carried out, the greatest expenditure is on the anterior surface of the uterine canal, because of the direct path between that and the abdominal wall occupied by the surface contact or indifferent electrode. The expenditure on the posterior wall would thus be reduced to a minimum, because this would not be the conducting path owing to the greater distance to be traversed and hence greater resistance. To our failure to expend energy upon the uterine mucosa in its entirety must be attributed our failures in relieving existing pathology. In consequence of this law it will be better in such conditions to use both abdominal and lumbo-sacral surface contacts with a bifurcated cord, in order to insure as equal an expenditure of energy throughout the uterine mucous membrane as the character of the structures and their resistance will permit. It is not the agent which we use that is at fault, but it is our failure to adapt the means to the end. Electrodes are not constructed so as to produce complete contact, and our technique is at fault. It is not sufficient that energy be expended in the tissues, it must be expended in such a manner as to influence directly the diseased structures. And where this is a localized condition, as in a typical endometritis, at that point must be exhibited the greatest expenditure of watts.

For instance, in a vaginal hydro-electric douche with abdominal surface contact, a working E. M. F. of forty volts and a current flow of twenty milliamperes, the energy expended in one second of time would be eight joules, but that energy would be expended throughout all the tissues of the pelvis. On the contrary, in the intra-uterine treatment of an intramural

fibroid, anterior, with abdominal surface contact, given the same available potential difference, the same current flow, there would still be in one second of time an expenditure of eight joules, but that energy would be expended or work done at the site of the internal electrode, *i.e.*, on the anterior uterine mucous membrane, and secondarily upon that portion of the intramural growth directly adjacent, instead of being distributed, as in the former instance, over considerable areas of tissue.

These examples are multiplied in the charts which accompany this paper, and in some instances, attention is called to them under the head of "Remarks."

In a hydro-electric application, whether vaginal, intestinal, vesical or nasal, the idea is to distribute the current as thoroughly as possible throughout the diseased tissues. We do not desire a localized application or expenditure of watts in a limited path, as for instance in an endometritis, a urethral stricture or hypertrophied turbinated body, but wish to distribute the expenditure through large areas so as to bring the entire pathologic condition under its influence. In a pelvis filled with exudates, a foot or a hand the subject of a sprain, a rheumatism of a leg or arm, an articulation immobilized by exudative material or sheaths of tendons bound down by the products of inflammatory action, our aim must be current distribution, and to that end we utilize either electrodes of large square inch area, or warm saline solutions with which the part is filled or in which it is immersed. The saline solution becomes the electrode carrying the current to all parts of the diseased structures.

We are not to think of the current as flowing in direct lines through the region between the two electrodes, but as seeking its way from its positive to its negative pole by paths which are often devious, those of best conduction. For instance, in a vaginal or vesical hydro-electric, or intra-uterine treatment of a patient whose abdominal wall is thickly covered with fat, there is great divergence of the direction of the lines of current, because the fat itself is practically a non-conductor and only has conductivity by reason of the few blood vessels running through it. The energy is expended therefore, along the paths of least resistance, through the interstices, as it were, the blood because of its fluidity and salinity affording good conduction.

If the patient be of a lean muscular habit, there will be less divergence of the lines of the current, and greater current density, *i. e.*, greater expenditure of watts even with the same square inch area of electrode; because the conducting medium being good, and affording practically the same resistance in all parts the lines of the current will be more direct; there will be no seeking of by paths, but a straightforward push throughout the interpolar region.

The greatest expenditure of energy is always at the point of greatest resistance, but if we wish to expend the energy at such a point, then we must so adapt our electrodes to the condition to be treated that there may be offered little or no opportunity for any divergence of current flow, but a distinct localization within the prescribed limit. For instance, in epilation there must be had a minute, almost microscopic localization of the current. A tiny steel needle is inserted into the hair follicle and attached to the negative pole. Action upon the skin is to be avoided. The indifferent electrode is placed conveniently near at hand so that as little resistance as possible shall be interposed. In this application our desire is to avoid just as much as possible current distribution. Nothing is to be gained by it, but much to be lost. If the indifferent electrode be large (from three to six square inch area is abundantly large) there is a greater diffusion at that point and greater current density at the needle than is expedient. There is a convergence of the lines of current flow from the indifferent electrode to the tiny needle electrode placed within the hair follicle. At the latter the cathions are concentrated; at the former the anions are distributed over its surface. At the site of the internal electrode there is current density, at the indifferent electrode current distribution. The same conditions exist in any intra-uterine or intra-nasal application. In the destruction of a growth, as a fibroid tumor or a mole, current density is necessary at the site of the intra-uterine electrode or of the needle in the mole.

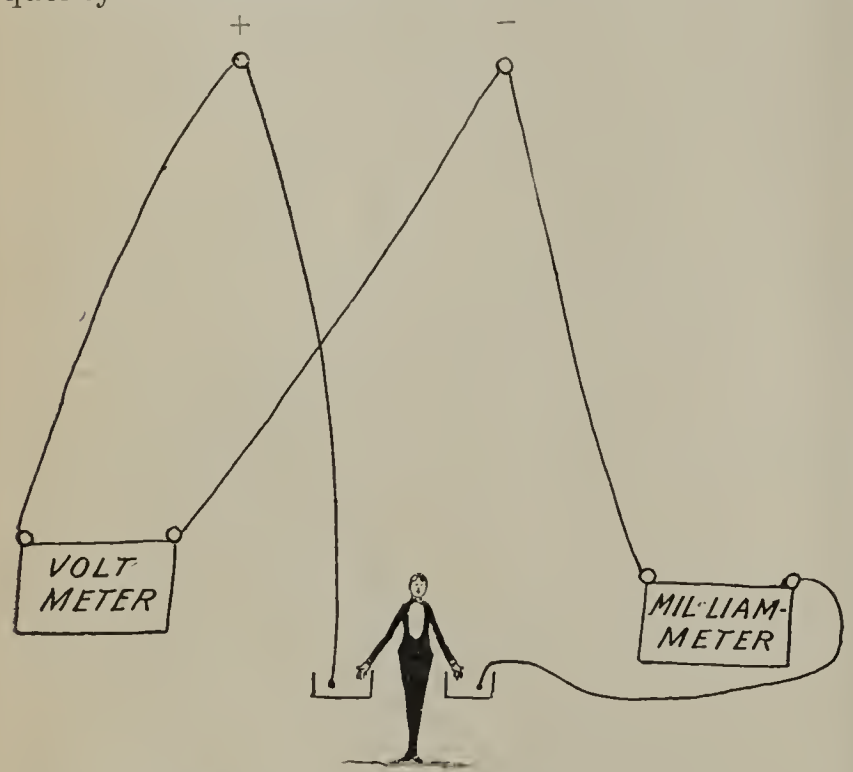
Whether current distribution or current density are required at the active electrode, depends upon the pathology underlying the condition you wish to treat. There are factors which must enter into every application and they are dependent upon and influenced by the resistance in the path of the current.

I have not thought it best at this time to draw any deductions from the resistances obtained in the various pathologic conditions or in the different applications of the current embodied in the accompanying charts. Under the head of "Remarks" on the charts will be found statements as to the difference in resistance in the hydro-electric applications to the mucous cavities and intra-uterine applications. In the former instance the cavity is filled with warm salt water, a good electrolyte with comparatively low resistance, and more than that the current as we have seen finds the way of least resistance. In the intra-uterine applications, however, the path is through the denser structure of the uterus itself, which must of necessity have greater resistance, and in addition these applications are nearly all of metallic electrolysis, where the formation of the oxid, and its transference increases the resistance of the conducting circuit. In the cupric and zinc punctures to the cervix in a series of cases, a difference in resistance will be noted between those made into the cystic portions of the cervix and those made in the denser portions, especially in the cases of cervical fibroids. A difference will also be noted in the resistance of the conducting path in vaginal hydro-electric and intestinal hydro-electric douches, while considerable increase may be noted in the percutaneous applications over those with one mucous membrane contact. The comparisons must be made in those instances where the available potential difference or working E. M. F. was practically the same. A high pressure was used in some instances where its use is considered undesirable, and where with the present means at command of limiting the source at the terminals, it would not again be used in similar conditions.

I call your attention to the chart, which gives in recognized units of measurements the same facts for alternating currents of both the symmetrical and dys-symmetrical types, or the sinusoidal, and faradic as for the constant currents. They are few in number, as the volt and milliampere meters were put in my hands but a week since, but have been very instructive, and through the agency of such instruments of precision, the therapeutic applications of these cur-

rents will soon be reduced to the same exactitude as those of the constant current.

In these observations the readings are given in virtual or effective milliamperes and also the working E. M. F. in volts employed in sending this current through the body. From the pressure in volts and the current flow in milliamperes thus obtained and time observed, calculations have been made giving the resistance, the rate of expended energy in watts and the energy expended in joules. Under the head of "Remarks" will be found a statement giving the equivalent as to coil, character of interruptions and number of turns of wire with the faradic and the frequency of the sinsoidal.



TERMINAL BINDING POSTS OF COIL OR ALTERNATOR.

The above diagram represents the manner of connecting these instruments both with the coil and the alternator.

These instruments have not been in my hands a sufficient length of time to make extended observations. I feel that this addition to our equipment marks a new era and one that can not fail to be fruitful in scientific results. Not until work was done in the manner indicated by the charts did there come the clear and definite conception of its nature now possessed. Instruments of precision have done much toward the establishment of scientific methods, and by carrying on the work in the lines indicated very much more will be accomplished. I would therefore most earnestly recommend the use of volt and milliampere meters and the watch or clock with both the directing and alternating currents, in daily work. Data will thus be accumulated, which can not fail to be of value to the profession and the cause of electrotherapeutics will be advanced along scientific lines.

79 Madison Avenue.

SOCIETY PROCEEDINGS.

Association of American Physicians.

Thirteenth Annual Meeting, held in Washington, D. C., May 3, 4 and 5, 1898.

FIRST DAY.

Dr. F. C. SHATTUCK of Boston, delivered the president's address. He said it was 450 years since this country was discovered, and 250 years since what is properly called a hospital was founded. In the large cities, in the early days, there were very few poor persons, and the neighbors all helped each other. Later, when Irish and other nationalities began to come to this country, and the older cities grew and new ones were created, there gradually appeared what might be called a poorer class, and these hospitals were opened for the care of the sick poor. At first, hospitals were started by private subscription, but as cities grew larger taxpayers were called on to support these institutions for the care of the sick poor. The medical profession has done much without pecuniary reward, but the physician gains experience and indirectly is assisted by attending these hospitals. The returns which physicians gain from this very work are ample. Virtue is not its only reward. Hospitals for the poor may be all very well, but there are also hospitals for the rich, although these two terms, poor and rich, are relative. Persons who could pay for an occasional visit were unable to stand prolonged medical attention, and the poorest necessarily need the best attention, because their surroundings as a rule are not favorable. Medical dispensaries and hospitals are free to all who need them and should be denied to those who do not need them. Questions should be asked; every claim should be scrutinized. The matter is in our hands. If the profession would refuse to help selfish institutions there would be fewer undeserving sick poor. Still, the hospital is an education for the physician. It advances his knowledge. The clinical teacher must study his cases carefully. The didactic lecture is gradually falling into decline. The teaching hospital is not free from blame. Complaints against such institutions have arisen of late in England, and also in this country, and there are some good grounds for these complaints. In his own experience in the Massachusetts General Hospital he has had to turn away cases who were not deserving. Some cases come to get information as to whether their physician was right, and people come from the country and think they have the right to free advice at the hospital, not knowing that the city hospitals are only for the taxpayers in the city. He referred to a case of his own knowledge where a physician had sent a patient to the dispensary, asking for free consultation. In the Massachusetts General Hospital dispensary many cases have to be excluded as unworthy. There a clerk is employed at a salary of $500 a year to weed out undeserving cases. Another ground for complaint by physicians is the attaching of pay wards to hospitals which are supposed to be free. A hospital which can not be supported without this should close its doors. He referred to one hospital which had an income of $55,000 a year from its private rooms. Many cases have to be treated in hotels and boarding-houses, who are able to pay for both attention and board. Such cases should not come to a charity hospital but should be cared for in a special hospital which is accessible to them. The small hospital makes good return on its investment. Those who are with hospitals are in a better position to treat cases than those without them. The using of pay rooms and pay wards attached to a charity hospital, to which only some physicians can attend, is in the nature of a medical trust and commercialism tends to degrade the medical profession. He mentioned one hospital that had a few private rooms and where patients pay a small amount for beds in the public ward. Such institutions can be established for clinical teaching.

Dr. S. J. MELTZER of New York, then read a paper entitled

CONGENITAL STENOSIS OF THE PYLORUS IN INFANTS.

After a brief review of the literature he said that he had had but four cases of this trouble. It seems to be becoming more common, or else the cases are more easily recognized. After the first case recorded was recognized there was a long interval, and then many cases seem to have been observed within a short period. In five cases the diagnosis was made and operation done and the lives of these were saved. Several physicians have made a diagnosis by having seen others at the postmortem. He then referred to a case in which he had made the diagnosis, and showed a very beautiful specimen in a child which had during life vomited occasionally and had great trouble with its nursing and feeding. Free hydrochloric acid was present in the matter vomited. It took its food greedily. By the use of diluted carbolic acid and bicarbonate of soda the food was held for some time, but gradually the child again began to vomit and then succumbed. He found a stenosis of the pylorus and atony and dilatation of the stomach. The child was forty-four days old when it was operated on by Dr. Willy Meyer. He did a gastro-enterostomy and used the Murphy button. The child lived a very short time after this. He then explained the gradual change which took place in the stomach in this trouble, and discussed briefly the diagnosis and treatment in these cases.

Dr. I. ADLER of New York, also showed some specimens of this same malformation and explained his method of treatment. He did not use the Murphy button. In his cases he found hypertrophy of the circular fibers, but the longitudinal fibers were very little altered.

Dr. A. JACOBI of New York, referred to a case which he had seen very recently and mentioned other cases, and said that this contraction of both ends of the stomach was probably the cause of this hypertrophy.

Dr. MELTZER, in conclusion, said that he had mentioned this hypertrophy of the muscles in relating his case.

Dr. D. D. STEWART of Philadelphia, then read a paper entitled

GASTRIC CARCINOMA ASSOCIATED WITH HYPERCHLORHYDRIA,

related a number of cases of this trouble and spoke especially of the position of the cancer. He said that a positive diagnosis was very difficult, especially when the cancer included an ulcer in which a certain amount of gastric fluid persists, even after the symptoms of this disease have been marked for a long time. He related at great length a case of unusual interest in which the operation was made before the patient came under Dr. Stewart's care, which showed that there was apparently a diffuse carcinoma, the stomach being too much involved for a gastro-enterostomy. One of the omental glands was found to be cancerous. In spite of all this the patient recovered from the operation and apparently became well. The symptoms returned later on and Dr. Keen was consulted. The case would have been considered one of chronic ulcer had not that gland been examined. The patient died after the second operation. The autopsy showed that there was a very large cancerous ulcer with a thickened cancerous pylorus. He had sent specimens to different pathologists for examination and had received a variety of opinions, some saying it was tuberculous and some asserting it was cancerous, which was right.

Dr. W. E. FISCHEL of St. Louis, reported an unusual case of disease of the stomach in which there was voluntary vomiting, no pain, and the patient gained in weight. The examination of the stomach was negative. Later on a tumor was felt. He was put on a strict diet for some time; after that he could eat anything. A gastro-neurosis was suspected. He used carbolic acid and morphia. After this the patient took solid food three times a day, and later on he had pain; the tumor increased in size; he was not able to take any solid food and the pain grew excessive. An operation was advised, the abdomen opened and a large tumor found in the pylorus, but nothing could be done and the patient died.

Dr. WM. H. WELCH of Baltimore, in discussing the diagnosis of Dr. Stewart's case, said that he had examined two nodules, one from the lymphatic glands and the other from the omentum, and the diagnosis seemed clear. It surprised him that it was diagnosed tuberculous by another physician in Philadelphia. He supposed that the follicles must have been mistaken for a tubercle. Notwithstanding this discrepancy the fatal end came. There was no difficulty in making the diagnosis and the clinical results must make physicians skeptic as to the value of microscopic examinations. He suggested sending specimens to Councilman, Prudden and others and was glad that they agreed with him. The apparent recovery is interesting. Multiple cancer is explained by being due more to implantation rather than to metastasis. It is due perhaps to contact. The specimen seen at the autopsy was in such a stage of decomposition that it was difficult to make out, but it was clearly an adenoma. There was a diffuse thickening of the anterior wall of the stomach.

Dr. J. C. HEMMETER of Baltimore spoke of the one in which the gastric secretion was affected by the cancerous growth. He said that Dr. Mall of the Johns Hopkins University had been carefully studying certain cells of the stomach glands, and finds that unless these are affected the gastric juice is still secreted. These are so-called border cells, and we can sometimes have free hydrochloric acid and a carcinomatous ulcer in the same stomach. Heidenhain and Lange have done much work in this direction, and they say that ulcers in the pyloric region of the stomach do not always help in the secretion of hydrochloric acid.

Dr. JAMES TYSON of Philadelphia referred to a case which he had recently in a hospital, a man about 60 years old, who complained of great pain and tenderness in the stomach. The matter vomited was acrid and a tumor was apparent in the abdomen. He was put upon milk diet. When he first came in he lost forty pounds, but after he was given milk diet he improved rapidly and finally sufficiently recovered to go to work, but the tumor was still apparent and the test meals gave the same results. A certain number of cases of this kind seem to show the presence of free hydrochloric acid, and the matter vomited showed that we must be slow to draw conclusions.

Dr. W. W. JOHNSTON said that the improvement in these cases is so marked that there must be some explanation, and it may be in part that the gastric catarrh which accompanies these troubles is improved by the treatment. A case of cancer of this kind gets better under treatment and often goes back to solid food and gains flesh, but in the end dies. This goes on to show that while our treatment is not curative it is beneficial.

Dr. D. D. STEWART of Philadelphia, in referring to Dr. Welch's diagnosis of his case, said he thought it was a case of cancer and treated it as such, and as for the gaining of weight in these cases, after treatment, one man went from 110 to 175 pounds.

Dr. F. P. KINNICUTT of New York said that even without a change of diet cases improved. In one instance he noticed a gain of twenty pounds and now the man is getting better.

Dr. E. G. JANEWAY of New York referred to two cases of gastric carcinoma in which there was a gain of forty pounds after washing out the stomach and giving proper treatment, but four months later the patient declined, had severe pains, returned to liquid diet and in three months died. The usual diagnostic rule of urea excretion failed in this case; the temperature for eight months was from 101 to 102 degrees. In one case there was also a change in urea secretion, and the patient, who was in bed, could always take food better sitting up than when lying down, the position probably removing the cancer from contact with the food.

Dr. CHARLES G. STOCKTON of Buffalo said that it was remarkable that in some cases of gastro-enterostomy successfully performed there was gain in weight and improvement. There may have been food stagnation with loss of weight, for if that ceases from whatever cause, the patients will gain weight.

Dr. A. H. SMITH of New York referred to a case of his in the Presbyterian Hospital in which there was the presence of hydrochloric acid but no lactic acid. The patient was very miserable so that he could not get out of bed, but on treatment he rapidly grew better and acted as assistant in the ward. He returned to his home and for five months had fairly good health, but later on grew worse and died. Evidently he had a cancer.

Dr. D. D. STEWART said, in conclusion, that his patient was exceptional in that he did not have to go to bed, and he gained sixty-five pounds.

Dr. SIMON FLEXNER of Baltimore then read a paper entitled

GASTRIC SYPHILIS, WITH A REPORT OF A CASE OF PERFORATING SYPHILITIC ULCER OF THE STOMACH.

He has collected the histories of cases of Chiari. In 243 cases of syphilis which came to autopsy, two were evidently cases of ulcer of the stomach due to this trouble. Some cases are hereditary and some are acquired. In the case he refers to, the history dates from 1892; the death occurred in 1896. The patient had ascites and edema of the lower extremities and the scrotum. The ascites was tapped, grew less, and the fluid was inconsiderable. Death came suddenly after a hearty meal. Just before death there was great abdominal pain and tympanites. The autopsy was a sero-fibrinous peritonitis. There was a perforation in the base of the stomach. There were several organisms in the peritoneal contents, among which were the bacillus aerogenes capsulatus and the colon bacillus. The liver contained a large gummatous mass. The diagnosis was based on microscopic examination.

Dr. I. ADLER of New York then read

SOME OBSERVATIONS OF CARDIAC SYPHILIS.

He spoke of the various forms of syphilis in the heart, such as gumma-endometritis, etc. The anatomic diagnosis is not infrequently doubtful. He examined the hearts of young infants. In four hearts of babies of a few months old he found signs of syphilis. It is hard to make this trouble out, for to the naked eye the heart is apparently normal. He hardened them in formalin and stained and examined them. In two there were no signs of syphilis. In the other two characteristic lesions were found. In one infant who was two years old there was one small patch found in the internal coat and a slight infiltration. The other child died at the age of $3\frac{1}{2}$ years, from what was apparently catarrh, and there were no signs of disease in the heart, to the naked eye. He thinks that the blood vessels are often the primary seat of the disease and the muscles are attacked later. In many cases the disease might be arrested early, if a diagnosis were made, but as a rule the disease is advanced too far when the clinical symptoms appear. There are really few distinctly diagnostic symptoms to the naked eye to distinguish it from other troubles. Often traces of syphilis can be found in other organisms than the heart. He thinks it is necessary to make methodic examinations of each case and to suspect syphilis in every case of heart disease, and give the iodid and mercury, as well as digitalis and other such drugs, and if it is not syphilis no harm will be done.

Dr. E. G. JANEWAY of New York then read a paper entitled

DANGER OF ERROR IN DIAGNOSIS BETWEEN CHRONIC SYPHILITIC FEVER AND TUBERCULOSIS.

He briefly reported a number of cases of a similar character. One case was a young man who had been sent to a sanitarium for consumption. He continued to grow worse, and an examination revealed syphilis. No tuberculous symptoms could be found and hepatitis had been the cause of his ill health. He promptly recovered under treatment. In one case there was fever, sweating, and pain in the side. He had been advised to go to the country on account of supposed tuberculosis of the right lung, but a later examination showed two ribs to be diseased and a small sinus apparent. Antisyphilitic treatment removed this trouble. He instanced several cases of this kind; one case in which a prominent physician had made a diagnosis of tuberculosis when no such lesion existed. In one case of a young child he suspected syphilis, but was persuaded into believing it a case of tuberculosis, and sent it to the hospital for treatment. The child died and the autopsy revealed the true condition. The specialist may be able to recognize these cases, but it must be remembered that the majority of them fall into the hands of the general practitioner. In obscure cases of apparently tuberculous miliary sepsis, syphilis should always be borne in mind as to the possible cause.

Dr. I. E. ATKINSON of Baltimore said that nothing shows more clearly the want of accurate attention on the part of the medical profession than this very frequent presence of syphilis complicating all sorts of obscure conditions. This is especially true in the class of cases referred to. The disease may simulate continued fever, although fever may be remittent in character, which may make us suspicious. He referred to a sailor in a hospital, from Calcutta, who had an enlarged liver and a severe cough, but no tubercle bacilli could be found. Albumin and casts were both present. He denied having syphilis and hepatic abscess was suspected and he was aspirated several times without result. The plasmodium of malaria was looked for but not found. His right testicle began to enlarge. He was given iodid of potash and in three or four days he had no fever and recovered entirely. It is in the late cases where the fever is apt to be obscure.

Dr. MELTZER of New York, said that Hansemann reported a number of apparent cases of tuberculosis in which no tubercule bacilli were present, and which recovered under the use of iodid.

Dr. F. P. KINNICUTT of New York, said that many had seen the presence of syphilis at the autopsy when they had not suspected it during life, and he also described some cases.

Dr. CHAS. G. STOCKTON of Buffalo, said that an examination of the blood may assist in the diagnosis, and that tuberculin test might be used to advantage in these cases.

Dr. V. C. VAUGHAN of Ann Arbor, said that the two affections might exist in the same person, and in many cases would give considerable trouble. The temperature curve is greatly different from that in tuberculosis. The finding of the bacillus of tuberculosis would confuse us.

Dr. JAMES TYSON of Philadelphia, thought that the use of antisyphilitic treatment would make the diagnosis.

Dr. JANEWAY said he had examined the blood for the plasmodium and leucocytes; the tuberculin test was not used; the antisyphilitic treatment furnished the test and produced a cure. In some cases it is extremely dangerous to use the tuberculin test. He mentioned a case in which such bad results had been brought about that the patient could hardly be induced to keep from suing the physician for malpractice. He has seen the two diseases in the same person. He used iodid of potash and bichlorid of mercury in combination with cinchona.

Dr. E. G. CUTLER of Boston, referred to a case in which tuberculin gave the characteristic action when no tuberculosis was present.

Dr. WM. S. THAYER of Baltimore, then read a paper on

NEPHRITIS OF MALARIAL ORIGIN.

He dealt largely in statistics based on cases in the Johns Hopkins Hospital. He referred to the frequency of albuminuria in malarial fever with other diseases. In looking over the statistics, and in his own cases, he found that a large proportion of cases of malarial fever had albuminuria and casts but principally the cases of estivo-autumnal fever. In 758 cases of malarial fever there was albuminuria in 321 and casts in 121. Albumin was present in nearly one-half the cases. He had nineteen cases of acute nephritis of malarial origin. He found that in general his own statistics agreed largely with others he had collected, except in some few cases. In scarlet fever there was a certain number of cases of albuminuria and casts, also in diphtheria and typhoid fever. Albumin is probably present in about one-half the cases of scarlet fever, and malaria seems to be the cause of more cases than is generally supposed, but not as often as in yellow fever, and for this reason we can not place too great reliance in the presence of albumin in yellow fever. Out of 152 cases of malaria there were fifty-two cases of nephritis. Seven were tertian, ten estivo-autumnal and three of varied type. There were thirteen recoveries and four deaths. Nine were doubtful. He also gave statistics of the age, sex and color of the cases. He thinks there is a possible etiologic relation between nephritis and malarial infection.

Dr. F. FORCHEIMER of Cincinnati, wished to corroborate the statement as to nephritis in estivo-autumnal fever. There are many such cases in Cincinnati. The kidney rarely escapes, and he found the majority of cases in children. He had found in a certain number of cases of nephritis the presence of a pigment which probably came from the blood. The urine was light above and dark below. There was blood pigment and casts. In most of them the pigment was a reddish-brown. This cause was described to be due to plasmodium, but he has studied a number of these cases and has found the pigment in connection with malarial fever. He showed a specimen from a child sixteen months old. He has made no complete chemic analysis but thinks it may be melanin.

Dr. WM. OSLER of Baltimore, in referring to these interesting cases of Dr. Thayer, said that the importance of albumin in the diagnosis of yellow fever from malaria lay in the fact that in yellow fever the albumin was found early, in the first twenty-four or forty-eight hours. In the hospital they had had no single case of malarial hematuria which could be attributed to the use of quinin, and many physicians in the South hesitate to use quinin on account of this complication.

Dr. JACOBI asked if the findings of Dr. Thayer were the same for every year. A number of observers say that they find no albumin for a number of years, and then in a large number it is found. He had seen a number of cases but none had had albuminuria.

Dr. I. E. ATKINSON has for years felt convinced that malaria was an important factor in nephritis, and it had been pretty constantly found in every outbreak of malarial fever, more so than we usually think. One of the difficulties in the way of decision is to know whether the nephritis is due to the malaria or the malaria to nephritis. Another point to note is whether in localities where mortality statistics are kept it is found that kidney complications are more common than where malarial fever does not exist. In Maryland there have been no vital statistics until the present time, but in Baltimore the records are carefully kept.

Dr. TYSON said that he noticed in Philadelphia what Dr. Jacobi noticed in New York, that some cases were of a mild type, and that there were severe cases at other times.

Dr. M. H. FUSSELL of Philadelphia, said that in Frankford, Philadelphia, he had seen a number of cases of malaria, but in none had he found nephritis and in none albuminuria.

Dr. THAYER, in answer to Dr. Forcheimer, said that he had seen very few cases in children; that only recently had there been a children's ward in the Hopkins Hospital, but he had an interesting case referred to him by Dr. Northrup. He has not had a case in which quinin has had an influence. Dr. Rampoldi of Rome, writes that he has never seen a case of quinin hemoglobinuria recorded from the Roman Campagna. He noticed that there were different epidemics in different years. In the 216 cases sixteen occurred in 1896, and last year there were very few cases.

Dr. W. T. COUNCILMAN of Boston, then read a paper entitled

ACUTE INTERSTITIAL NEPHRITIS,

an acute non-suppurative inflammation of the kidney, characterized by cellular and fluid exudation in the interstitial tissue, accompanied by but not dependent upon, degeneration of the epithelium. The interstitial lesion consists in the presence of cells similar to those described by Unna as plasma cells. These cells are due to emigration from blood vessels and proliferation of the emigrated cells. They are formed in other organs, chiefly in the spleen and bone marrow from lymphoid cells, and are carried to the kidneys by the blood. Accumulations of plasma and lymphoid cells may be found in the blood vessels of the kidney without any interstitial lesions. Such cases of acute interstitial nephritis are frequently found in the infectious diseases of children, notably in diphtheria and scarlet fever, but they may be found under other conditions.

Dr. WM. H. WELCH of Baltimore said that this work of Dr. Councilman was of great value. He has had opportunity to study these specimens and he agrees with him as to the origin. They have emigrated from the blood cells and from the lymph vessels. It is interesting as evidence that the lymphoid cells can emigrate as well as the polynuclear cells. He spoke of this last year in connection with Dr. Gilchrist's paper, and reported

two effects of chemotactic stimuli quite distinct from each other. We have three sorts of cell accumulations: plasma cells, polynuclear formations and lymphoid cells. It is a great advance in technique that we are able to differentiate these different cells.

Dr. TYSON said this was an exceedingly interesting study and showed the results of careful investigation.

Dr. COUNCILMAN said in conclusion, that some of the cases recorded were due to bacteria. These plasma cells have something to do with inflammation, and may possibly have some connection with the healing of wounds.

Dr. R. H. FITZ of Boston, then read a paper on

A CASE OF MYXEDEMA AND ALBUMOSURIA; TREATMENT WITH THYROID EXTRACTS; DEATH.

He said: The case is reported for the purpose of calling especial attention to the occurrence in myxedema of a rare condition (albumosuria). It is, therefore, desirable in examining the urine in myxedema to bear the above fact in mind, since albuminuria is relatively frequent and albumose might easily be mistaken for albumin unless the customary test with heat and nitric acid be duly controlled. The communication has an additional interest in showing that, despite temporary improvement under the use of thyroid extract, this remedy is not infallible in myxedema. He gave the history of the cases and spoke of the difference between albumose and albumin, and then tested a specimen in the presence of the association. The addition of nitric acid caused the precipitation of albumose, which heat dissipated, and the application of cold caused it to return. He showed several illustrations.

Dr. V. C. VAUGHAN said that these are rare cases. The presence of a small amount of albumose is very common; some say that it is always normally present in small amounts. So far as he knows this is probably true, but the large amounts as noted are quite rare.

Dr. FITZ said, in conclusion, that his paper contained references to these illustrations of small amounts and he had mentioned the work of Bence Jones. There have been seven cases recorded in Germany and Holland. He thinks that often these cases are mistaken for albuminuria, and they are really more common than is supposed.

SECOND DAY.

Surgeon-General GEORGE M. STERNBERG, U. S. A., read a a paper entitled

BACILLUS ICTEROIDES (SANARELLI) AND BACILLI X (STERNBERG),

in which he referred to his first work; then the second paper on the subject, and in it he replies to Sanarelli's article in the *Annales de l'Institut Pasteur* and *Centralblatt für Bakteriologie*. The paper copies in part his work and has done him great injustice. He regrets that it is necessary to correct wrong statements made by Dr. Sanarelli. He quoted what Sanarelli says he said and then stated what he really did say. He thinks there is not one micro-organism which can be indisputably said to be the specific organism but he also thinks that one of them may be. His work is not taken up anew but is a continuance of what he began some time ago. His bacillus x was found in the contents of the intestines in some cases, but Sanarelli did not find any there at all. It is very bad teaching to say that the organism can not be found in the contents of the intestines, for if it were not there, there would be no necessity for disinfecting the clothing, etc. The alvine discharges of the sick are very dangerous. Sternberg did not make any clinical notes because he had not the time, but he had great experience while Sanarelli had no experience in the disease. Sternberg had had the yellow fever in 1875, and he had seen a great many cases and always made an autopsy and collected material for bacteriologic examination, and while in Havana he personally made forty-three autopsies in four months, and he always made his autopsies from two to five hours after death. This was against the law in Havana, but the authorities connived at it and assisted him greatly. He obtained the cultures from Dr. Roux, in Paris, of Sanarelli's icteroid bacillus, and there was a difference between them. The organism of Sternberg bacillus was motile in Havana, but here it was not, although the flagella could be seen stained. He passed the culture through guinea-pigs and found that the bacilli became motile again. If neither organism is the specific organism of yellow fever, then one is just as good as the other. Sanarelli experimented on man, but Sternberg has not done that yet.

Dr. A. C. ABBOTT of Philadelphia, asked if Dr. Sternberg had had a parallel experience with the colon bacillus and others of that kind for comparison's sake. He feels, personally, that the two organisms are identical. He questions its virulence. The colon bacillus is sometimes virulent and sometimes not.

Dr. V. C. VAUGHAN of Ann Arbor, said that Dr. Novy had begun work on Sanarelli's germ a year ago and there is no proof that Sanarelli's germ is the cause of yellow fever. His experiments on man are simply ridiculous. He did not know what was the matter with the man he used in the hospital, and when he says the case showed marked effects, we do not know what he means. We might get marked effects from other germs. He does not believe that yellow fever is caused by the organism, and thinks, as they do in the South, that yellow fever never originates in the North. Sanarelli's germ was not affected by freezing and thawing, and his observations on agglutination were made in a test-fube, and it is absurd to study agglutination in that way. The blood of his students in the university had caused agglutination and they were healthy men. Sanarelli's germ is very virulent and caused agglutination.

Dr. WM. OSLER of Baltimore, said that much stress had been laid on the work by Dr. Archinard in the recent epidemic that seemed most favorable to the Sanarelli bacillus. The experiments of Sanarelli on man are not ridiculous; that is not the proper word. Almost every dose of medicine is an experiment. We do not know, for instance, what effect iodid of potash will have in certain conditions. It is only an experiment. The experiments in medicine should be recognized.

Dr. STERNBERG said that we want comparative experiments with the colon bacillus. This disease may be a fecal disease. The typhoid bacillus may be an off-shoot of the colon bacillus. Yellow fever has a toxin and the tetanus bacillus is also hard to find. We are not ready to accept Archinard's work because it is so much better than Sanarelli claimed.

Dr. THEOBALD SMITH of Boston, then gave a résumé of "Comparative Studies of Bovine Tubercle Bacilli and of Human (sputum)." This was a résumé upon fever cultures of tubercle bacilli from human sputum and of five cultures from cattle. One culture each from the pig, and the horse and the cat were also included in the series. Differential characters relating to the morphology of these different bacilli, their biology and pathogenic power as tested upon guinea-pigs, rabbits, pigeons, mice, cattle, was discussed. The bovine bacilli are sharply distinguishable from the human bacilli by their greatly augmented pathogenic power. The paper closed with a discussion of the probable value of the differential characters in definitely tracing the sources of human disease occasionally referred to the lower animals, especially cattle, and of the necessity of a closer comparative study of tubercle bacilli from different forms of human tuberculosis.

Dr. ABBOTT said that Dr. Smith had given much attention to this subject, and there has appeared a similar piece of work by Rabinowitsch. He claimed that some butter contained the tubercle bacilli.

Dr. SMITH, in reply, said he had never found tubercle bacilli in butter, and that was outside of the work he had outlined.

Dr. OSLER said it was interesting to determine whether the bacillus causing the lesions of scrofula had the same differences as the other organisms and as the difference in animals, and the difference in inoculation in guinea-pigs, rabbits, etc. Fever is an important prognostic sign.

Dr. SMITH said that this was in his paper but he had passed it by as the paper was so long. He referred to the recent work of Euclaire. He had endeavored to help this work by selecting four cases of tuberculosis of different kinds and he inoculated guinea pigs in the abdomen and the inoculation proved fatal to all.

Dr. SIMON FLEXNER of Baltimore, then read a paper entitled "Pseudo-Tuberculosis Hominis Streptotricha." He first spoke of streptotrices in general, and then described a case, that of a colored male, aged 70 years, who presented the symptoms and physical signs of pulmonary and peritoneal tuberculosis. No sputum was obtained. The autopsy exhibited extensive consolidated foci in the lungs, which resembled, in gross appearances, areas of caseous pneumonia and nodules in the peritoneal cavity which were indistinguishable from true tubercles. The bacteriologic examination revealed no tubercle bacilli, but a micro-organism in the lungs and "tubercles" which belong to another genus, and for which the name of streptothrix pseudo-tuberculosa is proposed. This is an exceptional case but these organisms ought to be thought of and always looked for in doubtful cases.

Dr. S. J. MELTZER and T. S. CHEESMAN of New York, then read a paper entitled "An Experimental Study of the direct Inoculation of the Spleen with Micro-organisms, and a Contribution to our Knowledge of the Importance of the Lesion of a Body-tissue for the Settlement and Development of Bacteria within it." It was the result of a long series of experiments

in which organisms were inoculated and injected into the spleen, and after a few hours autopsies were made which showed that the organisms had disappeared from the spleen and were found in other organs of the body, while the culture in the splcen is usually sterile. Are these bacteria destroyed in the spleen or are they carried out? The tying of the portal vein did not prevent the spleen from being sterile. When certain parts of the spleen were ligated they were found to contain bacteria, and whcn the bactericidal power of the blood is exhausted the bacteria multiply very rapidly.

Dr. WELCH said that this demonstration was very welcome but hardly seemed conclusive evidence that bactericidal substances are less in the spleen than elsewhere. The ligation of the spleen caused the appearance of the bacilli. It is likely that the bacteria in the ligated areas is analogous to the bacteria found in cautcrized areas. They were there because the spleen was damaged.

Dr. A. JACOBI of New York, in referring to these statements, said that when these tissues are normal we do not find bacterial invasion. Diphtheria organisms will not grow in a healthy throat with the exception of the healthy tonsil. Tuberculosis will settle in the ends of the bones because there circulation is slower. The spleen changes in the course of the day. After meals it is larger and there are many organisms in it. A person has chronic malaria and is given a large dose of quinin, and then there comes on a severe chill because the quinin contracts the spleen and it is squeezed like a sponge, and the chill is the response. He has noticed the same thing in giving ergot in malaria.

Dr. MELTZER, in referring to Dr. Welch's statements, said hc agreed with him. He also replied to what Dr. Jacobi had said.

Dr. M. H. FUSSELL then read a paper on "Acute Leucemia," in which he describcd two cases of his own. Fifty-six cases had been collcctcd in all, and statistics showed that it was most common between the 10th and 30th year. Five cases were over 40 years old; thirty-thrce were males and twelve were females. He gave a most careful clinical history of these two cases and showed the specimcns under the microscope.

Dr. OSLER, in discussing these cases, said that the limit of sixty-thrce days for an acute case was rather narrow. There are cases which are called acute which run from three to four months. He has a patient now with enlarged glands, and has fever, and this is practically an acute case. Glandular enlargement often disappears under treatment with mercury.

Dr. E. G. JANEWAY of New York, said that out of seven cases that he had seen, one had acute glandular enlargement; one had subacute leucemia with enlarged tonsils.

Dr. F. C. SHATTUCK of Boston, asked if there were any autopsies held in the cases that Dr. Fussell had quoted and in his own cases. Dr. Shattuck also related a case of his own which was sent to him by another physician who said it was leucemia, but when he saw the case he thought it was one of kidney trouble. Dr. Fussell said that autopsies had not been made in all the cases. He said he had excluded many cases collected by Ebbstein which were doubtful, especially those cases in which no autopsies were performed.

(To be continued.)

Ohio State Medical Society.

Fifty-third annual meeting, held in Columbus May 4–8, 1898.

The Address of Welcome, delivered by Dr. E. J. WILSON of Columbus, was responded to by the President of the Society, Dr. WILLIAM H. HUMISTON of Cleveland.

The first paper read was on

PARTIAL CATARACT.

by Dr. C. F. CLARK of Columbus. He said: Even among young people some opacity of the lens is often present although undetected, and as age advances certain changes invariably take placc in its character, and in a large proportion of those who are never led to suspect it, a careful inspection will reveal the presence of incipient cataract. It is often only in its advanced stages that those who have cataract present themselves for treatment. The average age of the members of this Society is such that it is probable that an investigation would reveal the fact that a large number of those who make complaint of nothing more than a slight dimness of vision would find upon careful scrutiny that either the radiating striæ or the outer layers of the periphery of the crystalline lens were undergoing changes which would justify the diagnosis of partial or incipient cataract. It does not follow that all of those in whom such changes are found should look forward to the development of mature cataract or that of nccessity anything should be done for them, but it is a fact that in a certain proportion of these cases asthenopic symptoms do present themselves which require attention. These symptoms are more frequently observed when changes in the lens make their appearance before the period in which the accommodative power has been gradually reduced by the advance of presbyopia. If the rigidity of the lens which often accompanies opacity makes its appearance before the natural development of presbyopia has caused a cessation of the activity of the ciliary muscle, the action of that muscle in its efforts to relax the suspensory ligament and thus bring about accommodation being unavailing, leads to congestion and in many instances to pain and discomfort. In a large proportion of cases the development of opacity of the crystalline lens is due to degenerative changes in the choroid coat or the whole uveal tract. When true cataract develops there is usually, even in the early stages, a marked difference in the degree of transparency of the various portions of the lens. The nucleus which in the normal eye is more dense than the cortical layers, may become proportionately still more dense, thus accentuating the distinction between nucleus and cortex. The opacities of the outer layers of the lens may assume a great variety of forms in accordance with the portion of the cortex affected, and these varying conditions will be accompanied by corresponding variations in the symptoms. Surprising as it may seem, dimness of vision not infrequently coexists with well-defined incipient cataract. Dimness of vision, therefore, while usually present, may be absent, and it may result from so many other causes that its value as a symptom is comparatively slight in the early stages of the development of lenticular opacity. As long as the central portion of the lens remains clear the vision may be excellent. The diminution of vision usually approaches so insidiously that, unconsciously, the patient often adjusts his standard of acuity of vision to that of which his own eyes are capablc. When a patient is so situated that he can afford to await the maturity of a cataract it undoubtedly adds to our assurance of success and every chance in the patient's favor should be taken advantage of when dealing with so serious a matter as the restoration of vision, but in a number of cases on which the essayist had operated during the last few years, in which the circumstances made it necessary to remove immature cataracts, the results have been so admirable as to convince him that we have often unnecessarily delayed operation on account of incomplete opacity of thc lens. Since we have learned to adhere strictly to the principles of asepsis, the danger of an operation upon an immature or partial cataract has been materially reduced, and if the patient is so situated that years of waiting mean years of privation, and that pitiful relaxation of his hold upon the world and the reduced physical condition from the mental depression that so frequently accompanies blindness, we should undoubtedly operate even if the cataract is not mature.

Dr. F. O. MARSH of Cincinnati then read a paper on "Some Medical Aspects of Capital Punishment." After reviewing the usual modes of inflicting capital punishment he referred to the use of drugs for this purpose. The only poisonous drug of any prominence or importance which is known to be absolutely free from pain in its action, morphin, is slow in action, might be rejected by the stomach and might prove a failure even when given in a supposed fatal dose. Probably the best agent would be chloroform. The use of chloroform is extremely simple, devoid of all complicated and cumbersome paraphernalia and is the most inexpensive. Death by this means is essentially painless and perhaps would supervene in a half hour.

Other papers were: "Functional Heart Murmurs," by C. F. HOOVER of Cleveland; "Psychic Treatment of Diseases," by PHILIP ZENNER of Cincinnati.

In "Intestinal Obstruction, Operation and Recovery, with Report of Case," by SHERMAN LEACH of Mt. Sterling, the essayist believed that in such cases operation should be resorted to before fatal peritonitis develops. After due trial with the various remedies, calomel, oil, salines, aidcd by rectal enemata of various kinds, if the bowels are not opened and any symptoms of obstruction exist, prevent peritonitis by operating at once, without waiting for symptoms of peritonitis. The case reported was one in illustration.

NOTES ON SYPHILITIC LARYNGITIS, WITH CASES

was read by HOWARD STRAIGHT of Cleveland. He said: The four conditittions of the larynx most often requiring differentiation in a given case are lupus, carcinoma, syphilis and tuberculosis. Lupus of the larynx ordinarily attacks this organ secondary to cutaneous lupus. As a rule it attacks the epiglottis first. It is characterized by a slow but progressive destruction of tissue. If there is any question as to its being syphilis in a given case it can easily be settled by administering

increasing doses of iodid of potash. If the diagnosis lies between carcinoma and lupus, the microscope might have to decide the question. Carcinoma of the larynx is a rare disease. While carcinoma may attack any part of the larynx, it usually attacks the natricular bands first. The diagnosis by the aid of the microscope is as a rule easy. In certain cases the diagnosis ought not to be positively made until the patient has been subjected to increasing doses of iodid of potash. Tuberculosis of the larynx is a common disease. Anemia of the larynx, the pear-shaped condition of the arytenoids, the swelling of the interarytenoid space, the associated pulmonary tuberculosis, ordinarily make the diagnosis of the laryngeal condition easy. If any question exists in the mind of the laryngologist, the administration of increasing doses of iodid of potash will easily exclude specific disease. Syphilis of the larynx is a common disease. If mistaken for any one of the other diseases mentioned, and increasing doses of iodid of potash are not administered, the results may be deplorable. Such medication can in no event do great harm. If lupus or carcinoma, its administration for a short time is a matter of little consequence. In laryngeal tuberculosis anything tending to disturb the gastro-intestinal tract would be undesirable, and yet if any doubt as to the condition of the larynx exists the administration of the remedy is extremely valuable. Laryngeal tuberculosis and syphilis of the larynx may exist together. In such a case the increasing doses of iodid of potash ought certainly to be given. Theoretically the diagnosis of the conditions mentioned is easy; however, certain cases occur in which a positive diagnosis can not be made.

A paper on "Movable Kidney" was read by YEATMAN WARDLOW of Columbus.

"Monstrosities vs. Maternal Impressions," by GEORGE S. COURTRIGHT of Lithopolis, was a report of three monstrosities in three consecutive pregnancies. The first child was born after the mother had nursed the father while recovering from an accident. The other pregnancies followed in rapid succession. The Doctor gave it as his opinion that if the mother did not become pregnant again for four or five years, she might have a healthy, well-formed child. Almost five years after the birth of the last deformed child, the woman was delivered of a healthy, well-formed child, now a fine intelligent boy.

A paper on "Irrigation with Salt Solution and Other Fluids in Surgical Practice," was read by HUNTER ROBB of Cleveland.

On Wednesday evening there was a reception to members and visiting ladies, at the Great Southern Hotel.

SECOND DAY.

The Society was called to order at 9 A.M. The first paper was "A Summary of Certain Studies in the Morbid Anatomy of Epilepsy," by A. P. OHLMACHER of Gallipolis, and was a report of the results obtained from eighteen autopsies. The most prominent anomaly in these cases was the large thymus body, and it was this peculiarity which led to the study of the literature, in which at least two other morbid conditions were found with the same anatomic features as were presented by these cases, namely, laryngismus stridulus and sudden deaths in adults with no assignable reason. Taken in their entirety, the morbid conditions found in these cases, and which have always been found in thymic asthma and thymic sudden death, make a picture of what the German pathologists style the "lymphatic constitution." Aside from the hyperplastic thymus there is a general lymphatic hyperplasia and a narrowing of the arteries, and often evidence of rickets.

The next paper was on

URIC ACID

by Dr. D. N. KINSMAN of Columbus. He said that uric acid may be retained in the body either as uric acid or urates. It is not a poison, and when retained in the body its effects are mechanical. It may exist free in the blood serum or be precipitated about the joints as urate of soda, or in other organs, or after a more or less prolonged retention it may be discharged in lithia acid storms through the kidneys. Its retention in the body is marked by a diminution of the urine and increase of vascular tension. Its discharge is accompanied by increase of urine and decline of vascular tension. The amount of uric acid which may be present in the body depends upon the aliments which are ingested, and the integrity of digestion and excretion, exercise, etc. Heredity plays an important part in the production of the uric acid diathesis. All persons having a hereditary or an acquired uric acid diathesis are in a state of unstable equilibrium, and circumstances determine whether the outcome shall be lithemia, gout, migraine, fibrosis, or some other dystrophy. The relations of migraine, epilepsy and asthma have long been recognized. The clue which joined them has not been very clear. That indigestion and putrefying contents of the intestines have an incidental relation to epilepsy and migraine has long been recognized, and it has been the custom of the profession to advise light suppers of milk and bread, because it has been learned that such a regimen was influential in warding off nocturnal seizures. The essayist has inherited migraine, which has been hereditary in five generations, and with it other gouty manifestations in the enlarged metatarso-phalangeal articulation of the great toes, urinary calculi, and frequent uratic deposits in the urine. On a few occasions, swelling and extreme pain in the great toe joints have been suffered, as well as lithic acid storms. Respiratory distress in fast walking is a precursor of the headaches, which subsides after the attacks. As the attack declines the quantity of urine increases and often lets fall deposits of uric acid. After these storms, no amount of exposure, nor indiscretion in diet, loss of sleep or fatigue, which are very potent in causing the headaches at other times, cause it for some time thereafter, until uric acid has again accumulated. In addition to these symptoms, lithemia causes vertigo, slow pulse which often intermits, and vascular tension. The patient is irritable, moody, hypochondriac and hysteric. They have a great variety of digestive disturbances, disordered vision and flying pains in the limbs and about the joints. Imperfect digestion and dilation of the stomach are associated with large uratic deposits in the urine. Uric acid causes cutaneous eruptions, tonsillitis, pharyngitis, bronchitis, asthma or aggravates them. It retards the healing of wounds, builds stone in the bladder and infarctions in the kidneys. It causes a world of distress and then has gout to fall back upon. When the diagnosis is established, the treatment is obvious. Aside from the use of colchicum, there is nothing better than alkaline waters. Beyond this the food is the most important consideration. Meats, soups, glands which contain large amounts of uric acid, should be used sparingly or not at all. Carbohydrates and vegetable albuminoid substances, with no alcoholics, should constitute the diet. Exercises frequent and prolonged, as well as methodic, should be prescribed.

Other papers were: "Lumbar Punctures," by J. R. WENNER of Cleveland, which reviewed the literature on the subject and reported forty cases that occurred under the care of the essayist: "Removal of the Cecum for Malignant Disease," by J. C. OLIVER of Cincinnati.

HENROTIN'S METHOD IN PELVIC ABSCESS

was presented by J. C. REEVE, Jr., of Dayton. The plan is as follows: Steady the cervix by vulsellum forceps and incise the vaginal mucous membrane at the cervico-vaginal junction either just behind or just in front of the cervix, avoiding the sides of the cervix. The anterior or posterior fornix is selected according to its respective nearness to the collection to be reached. After cutting through the membrane, continue the dissection bluntly by means of the finger or of the closed blunt scissors, adhering to the middle line of the uterus as in hysterectomy. By keeping thus against the firm tissue of the uterus, one can not go astray and is on safe ground. After getting quite above the cervix it is then safe to go straight to the objective point, provided the dissection is done by the finger aided by counter pressure by the other hand through the abdominal walls. After the fluid is reached the channel may be dilated, or if this does not enlarge it sufficiently a vertical incision in the middle line can be added to it, reaching short of the rectum or bladder. The cavity can then be packed or drained. It is the custom of the essayist, especially when there is much odor, to place a two-way tube, made by stitching two large rubber tubes together. The smaller, carrying in the solution, reaches to the top of the cavity; the larger drains its lowest parts. Both reach outside the vagina and so permit a frequent irrigation (with mild antiseptics), with no disturbance to the patient or attendant and sometimes requiring not even a bed-pan. Several cases were reported.

In the "Incision less than one and a half inches in Appendicitis," by N. STONE SCOTT of Cleveland, he said that the only possible objection to the incision less than one and one-half inches is the delicacy of touch required and the substitution largely of touch for sight. Given the necessary tactile education, however, the advantages are the absence of liability to hernia, reduction of the period of convalescence and the cosmetic effect. Several illustrative cases were detailed.

THE OBSCURE CASES OF GALL-BLADDER DISEASE

was by EDWARD S. STEVENS of Lebanon.

In a large number of the obscure cases of gall-bladder disease there will always be more or less doubt as to whether the gall-bladder and ducts are diseased at all. With a reasonable degree of certainty as to the location of the disease, there will always be more or less doubt as to the character of the disease, for there are other forms of disease which produce gall-bladder

disturbance besides gallstones and the inflammatory affections. In such cases the symptoms not yielding to treatment and being essentially chronic, it is eminently proper to advise an exploratory operation for the purpose of making certain the diagnosis. This may be advised in the first place because in the hands of one who is skilled in this work the danger is almost *nil*. In the second place the propriety of such advice may not be questioned because the exploration is the first step to be taken in a radical gall-bladder operation, and most of the chronic gall-bladder diseases require local treatment rather than medicinal if a permanent cure is to be effected. Even though an incurable malignant disease be discovered upon opening the abdomen, it is a great satisfaction to know what condition is present. It has happened in many cases that relief followed the simple exploration, although the abdomen was closed with the knowledge that malignant disease of or near the gall-bladder was responsible for the symptoms for which relief was sought.

The special order of business at the evening session was the Address in Medicine by H. A. HARE of Philadelphia. The address was upon the treatment of typhoid fever, the use of opium in diabetes, the treatment of aneurysm, the treatment of pulmonary tuberculosis, burns, improvements in the methods of producing anesthesia and the importance of recognizing the vasomotor system as a factor in disease and in the production of disease.

THIRD DAY.

BILATERAL PARALYSIS OF THE POSTERIOR CRICO-ARYTENOID-MUSCLES OF THE LARYNX, WITH REPORT OF A CASE,

was presented by ALBERT RUFUS BAKER of Cleveland. The case reported was one in which a tracheotomy was made to relieve dyspnea due to paralysis of the posterior arytenocricoid muscle. The patient now wears a tracheotomy tube constantly, with a cork in it tied to a string. Whenever a suffocative attack comes on, he pulls out the cork and normal respiration is immediately restored, he then replaces the cork and soon goes on about his work as usual. A few weeks ago the patient secured a life insurance policy for $2,000 in an industrial life insurance company. During the first year after the operation the patient had some difficulty in securing a satisfactory tracheotomy tube; they would break and get out of repair, and it became necessary to have a new one at short intervals, and they were also hard to keep clean, and from their irritating properties would frequently cause excessive granulations to spring up around the tube. To overcome all this, the metal tube was replaced by a soft rubber one, which was much more satisfactory.

Dr. P. J. KLINE of Portsmouth, reported "A Case of Cirrhosis of the Liver." The patient did not present marked jaundice, and in many respects the case was anomalous. Thus there was no distinct caput Medusæ, although the vessels over the abdomen were inlarged. The essayist felt that he was justified in excluding syphilis and alcohol as etiologic factors in the case. Unfortunately no postmortem was secured.

Dr. HENRY W. BETTMANN of Cincinnati, read an interesting paper on "The Clinical Importance of the Position of the Stomach." In few cases do we find the stomach and other abdominal viscera in the position usually assigned to them by the text-books. But many cases of displaced stomach, as well as of other viscera in the abdominal cavity, show no symptoms of disease or inconvenience therefrom. In many cases in which unpleasant symptoms were traceable to such malposition, the essayist had found the patients were greatly relieved by wearing an abdominal supporter.

"Intracranial Complications of Aural Disease; Prognosis and Treatment," was presented by ANDREW TIMBERMAN of Columbus.

The essayist referred to the frequency of intracranial complications of aural disease, and presented specimens illustrating the operation he would do for chronic aural trouble. It is difficult to say when a case is past redemption by operation. The essayist had seen patients brought in a state of coma, with a very rapid pulse, temperature 105 degrees with stertorous breathing, the coma so deep that an anesthetic was not required for operation, and yet the patient recovered. A last chance is nearly always given by the people who are interested, and these patients should have the benefit of a late operation.

The last paper before the Section was a voluntary paper on "The Dyspeptic Stomach and How can we Secure a Speedy Cure," by Dr. ALBORS of Fulda.

Schulze's Swinging for Infants' Bronchiolitis.—Schilling has been successful in saving a few cases of bronchiolitis in very young infants with apparently grave prognosis, by swinging them according to the Schulze method.—*Münch. med. Woch.*, No. 11.

Medical and Chirurgical Faculty of the State of Maryland.

One Hundredth Annual Session, held at the Hall of the Faculty at Baltimore, April 26 to 29, 1898.

(*Concluded from page 1175.*)

Dr. HENRY M. THOMAS then read a paper on

FACIAL PARALYSIS; A STUDY OF EIGHTY ODD CASES.

He said there was peripheral facial paralysis or Bell's paralysis, and all of his cases were from the medical wards of the dispensary of the Johns Hopkins Hospital. He had 85 cases of which 49 were women and 36 men, the usual proportion. One woman had two attacks on the right side. Of his cases 43 were paralyzed on the right side, 33 on the left side and 2 on both sides. Of the ages, in 1 it was congenital, 5 were between 1 and 10 years, 17 between 11 and 20, 17 between 21 and 30, 21 between 31 and 40, 13 between 41 and 50, 7 between 51 and 60, and 4 over 60 years. In 47 of his cases no cause could be given. In 17 cases exposure was given as the cause, but in many cases the history was very indefinite. Injury was said to be the cause in 8 cases. Twenty-five were from surgical cause and 3 were accidental. One seemed to be caused by removal of an ear, another was from a foreign body in the middle ear, a third from an injury of the lower jaw and a fourth from the removal of a tumor from the front of the ear. Another case was caused by the injection into the jaw of an iodoform oil emulsion for an injury. He thinks that injury is not so common a cause of paralysis as the text-books would have us believe. Great stress is laid on the neuropathic tendency. One case was due to injury by forceps. The symptoms were not very marked, sometimes a slight pain; sometimes the sight is affected; sometimes the hearing.

Dr. JOHN C. BLOODGOOD spoke of a surgical operation in connection with some of those cases, and of the difficulties of avoiding the nerves in some operations.

Dr. THOMAS MCRAE then made a

REPORT ON 150 CASES OF CANCER OF THE STOMACH IN THE MEDICAL WARDS OF THE JOHNS HOPKINS HOSPITAL.

These were 150 cases of primary cancer, except three, which were secondary. Generally the diagnosis was made postmortem. He referred to the age of these cases; six were between 20 and 30 years, one 22, one 24, two 26, and two 28; seventeen were between 30 and 40 years; thirty-eight between 40 and 50; forty-nine between 50 and 60; thirty-six between 60 and 70, and four over 70 years. Of the latter (between 60 and 70), twelve were male and twenty-four female; 131 white and 19 colored. The proportion of the colored in the Johns Hopkins Hospital being seven white to one colored. In eleven cases there was a family history. Thirty-eight had tuberculosis involvement, but there seems to be no connection between the tuberculosis and the onset of the disease. As to habits, seventy-seven used alcohol, eight excessively, sixty-six moderately and three very slightly. Thirty-three complained of dyspepsia, seventeen had had attacks of acute gastritis, eleven had chronic stomach trouble; five came to the hospital complaining of trouble dating one or two years back. Ten had no complaint of stomach trouble at all. Others complained of pain and vomiting and showed the presence of the tumor. The method of onset was also marked. In thirty-nine cases the onset was rather sudden; twenty-six had notice of disease in three months, eight between three and six months, and eight over six months. He then gave statistics of the time and place and manner of diagnosis.

Dr. JULIUS FRIEDENWALD then read a paper on "Latent Cancer of the Stomach." There are two varieties of latent cancer: 1. Those cases in which the gastric symptoms are absent, or so masked by other general symptoms the gastric disease is not suspected. 2. Those cases in which there are no symptoms. The pathologic conditions leading to latency are the position of the growth at neither orifice and a surface not ulcerated. He reported an interesting case.

Dr. OSLER said that he had seen so many cases of cancer of the stomach since he had been in Baltimore that he was almost inclined to think it was a peculiarity of this region. Dr. McRae also discussed this paper.

Dr. JOHN C. HEMMETER'S paper entitled, "The Pathogenesis and Treatment of Gastric Hyperacidity," was then read by title.

Dr. R. TUNSTALL TAYLOR exhibited several children showing "The Necessity of Post-Operative Treatment of Congenital Clubfoot." He emphasized especially that after the child's clubfoot had been operated on the proper instrument should be used and the child looked after until the muscles and other parts should regain their normal condition. Many persons

operate and expect results at once. He also showed several very ingenious instruments for holding the muscles in place.

THIRD DAY—MORNING SESSION.

Dr. HARRY FRIEDENWALD exhibited cases of "Excision of the Ossicles for Chronic Purulent Otitis Media, with Demonstration of Patient." The serious nature of these cases has been recognized, and the rule now is to give the flow of pus every opportunity to escape. The cavity of the middle ear being very small and irregular, containing small bones and bands and membranes, is difficult to drain. In these cases the walls of the middle ear or the attic became carious, and the patient, 16 years of age, came to this condition as a result of diphtheria. He had pain in the ear and, on examination, a large polypus was found reaching beyond the outer opening and the auditory canal. This was removed and afterward the ossicles were removed, on account of caries, and the polypus was curetted. After this the case went on to recovery and the patient is doing well except that he is very slightly deaf.

Dr. THOMAS H. EMORY of Taylor, Md., then reported "A Case of Suppurative Appendicitis; Operation Followed by Fecal Fistula." A colored man, 24 years old, upon whom he operated for appendicitis under most unfavorable circumstances and with the most unhygienic surroundings. The case went on to recovery, there being only a small fistula remaining. The interesting features of this case were: 1. Absence of chills at any time; 2, a moderate range of temperature and the character of the pulse; 3, the symptoms, which two or three days before the operation seemed to be subsiding; 4, at the time of the operation the abscess was apparently ready to break, the walls being extremely pliable in places; 5, the absence of any tumor or fluctuation.

Dr. JOHN D. BLAKE congratulated Dr. Emory on his success in the operation, and spoke of the difficulty surrounding it and also of the necessity of relieving such cases by operative means as early as possible.

Dr. J. W. CHAMBERS then gave a

REPORT OF A CASE OF STAB WOUND IN THE ABDOMEN; EXHIBITION OF THE PATIENT.

The patient was a man who on January 28 had been stabbed with a case or table knife, at the penitentiary, by one of the convicts. There were two abdominal wounds, one to the left of the median line and extending through the abdominal muscles and the omentum, cutting the transverse colon for three inches. There was also a transverse incision through the small intestines. After these injuries the man walked a hundred yards, the intestines protruding, and one hour later was brought to the hospital, and twenty minutes after that was operated on. The intestines were washed, put back and sewed up by Lembert's interrupted sutures, the other wound was treated as an open wound and was more in the region of the liver. There was prompt recovery. The fact that the intestines protruded probably kept the peritoneal cavity free from any contamination. It is interesting to show how much injury can be done to a man in this way without bad results, and then it is also well to note how important a rapid operation is, for within an hour after the injury this case was operated on. He is now apparently well and able to attend to his work, and did not suffer very much from the shock.

Dr. JOHN MORRIS, who is on the Lunacy Board of Maryland, spoke of the man who did the stabbing. He said that in many of these cases who were confined in institutions where there was no work, there came a wave of insanity over them once or twice a year. This man was detained in an insane asylum, and seemed so much better that he was brought to the penitentiary where he stabbed this man, one of the keepers.

Dr. JOHN C. BLOODGOOD then read a paper on "The Transplantation of the Rectus Muscle in Operations for the Cure of Certain Cases of Hernia." The important point to be recognized at the operation is that the conjoined tendon is either obliterated, very narrow or very attenuated; that the lower angle of the inguinal canal has lost its support and therefore something must be substituted for it. He divides all his cases into two large groups: Those cases in which the conjoined tendon is wide and firm and those in which it is practically completely obliterated. Impressed by the large proportion of recurrences in the few cases in which the conjoined tendon has been obliterated, Dr. Bloodgood has devised, and in eight cases performed, a plastic operation in the rectus muscle, bringing this down and so suturing it as to form a support. The procedure is a very simple one. The method of operation is about the same as that followed by Halsted. On inserting the deep sutures, the sheath of the rectus is divided in the direction of the muscle bundles from its insertion through the symphysis pubis, upward for a distance of 5 cm. After the division of the sheath, the outer border of the muscle bulges out, but may be held back by sutures. The deep silver wire sutures are then inserted as Halsted described. During the last few months the operation has been performed several times in the Johns Hopkins Hospital.

Dr. SAMUEL T. EARLE, Jr., then made some remarks on "Rectal Medication by Means of Collapsible Tubes." There has always been a great difficulty in applying ointments and suppositories in diseases of the rectum. Allingham had devised hard rubber tubes, which were well enough in chronic cases, but rather expensive to use for short use in acute cases. A well-known firm had devised compressible, collapsible tubes, such as painters use, with a long nozzle, and he has found that these tubes, being made of definite size, could be filled with ointments according to the prescription desired, and applied with great certainty and exactness. He used them exclusively. Dr. Earle also gave an "Exhibition of Electric Light for Rectal Work," which was very much on the same order of the electric light for throat work, a combination of the bulb and tongue-depressor. The whole instrument, together with the storage-battery, costs $10, and is portable and easily handled. One charge will last ten hours, so that the physicians using it for examination through the day need not have it charged very often, and those living at a distance from the city could have the cells sent to them as they were exhausted.

Dr. HUGH H. YOUNG read a paper on

A BACTERIOLOGIC STUDY OF CYSTITIS AND URINARY INFECTIONS; A PRELIMINARY REPORT.

He said this work had been begun about two years ago at the Johns Hopkins Hospital, and was extremely interesting though very hard to carry out. The object was to see, in cases of cystitis, what organisms could be found in the bladder, and his method of making examination was by suprapubic puncture of the bladder, to get the cultures. This was done with every antiseptic caution. The bladder is always easy to be reached above the pubes even when nearly empty, by compressing the abdominal walls. He spoke of the bladder walls in posterior urethritis. It is strange that the bladder is not affected by specific urethritis, but this is rarely the case. It is only when there is a wound of the bladder walls that infection takes place. In eighteen cases of acute cystitis which he had had, the staphylococcus pyogenes albus was obtained in eight cases, and in several it was after the use of instruments. In one case, a young man, 18 years old, had specific urethritis and was treated in the proper way at the hospital, and apparently cured. He was sent home to continue his treatment and, through some faulty technique, returned with cystitis. On examining the contents of the bladder, as above stated, he found the same organism as in the other case. This continued for two weeks but the man recovered. In another case, a German, 50 years old, who was rather fond of beer, one night drank an unusually large quantity and the next day showed symptoms of cystitis with some hematuria. Here the staphylococcus pyogenes albus was again found. The man had never had urethritis and no instrument had been used on him. In five of these cases there was nothing found. Melchor held that the bacillus coli communis was the most common cause of inflammation in the bladder, but this is not the cause of acute cystitis. Some organisms seem to produce a mild attack and some a severe attack of cystitis, and in long continued cases the colon bacillus seems to drive all the others away. These conditions have not been explained. He had also found cultures of gonococcus in gonorrheal rheumatiom, and Dr. Thayer in one case had even found organisms in the blood.

Dr. WM. B. CANFIELD said that the work which Dr. Young had described was most elaborate and he thought that the physicians ought to be very grateful to him for bringing it out so clearly. In the case of the German above mentioned, he thought it rather strange that the organisms should be found simply from the beer and from no external cause. He also thought that five sterile cases in so few was a very large proportion.

Dr. YOUNG replied that these organisms may find their way to the body through the blood, and these are paralleled in other internal cases. He was also surprised that five cases were sterile, but he had done his work with great care and was satisfied that he was correct.

Dr. HIRAM WOODS then read a paper entitled "A Case of Congenital Purulent Ophthalmia with Sloughed Cornea." This case was brought to him by another physician and the sloughed cornea was evidently the result of ophthalmia of the new-born. He had followed, as he always did, Credé's method, and in all cases this method should be employed.

THIRD DAY—EVENING SESSION.

Dr. WILLIAM T. COUNCILMAN, Shattuck Professor of Path-

ologic Anatomy at Harvard University Medical School, delivered the Annual Address on

EPIDEMIC CEREBRO SPINAL MENINGITIS.

He said it was only within recent years that we have been able to distinguish, in epidemic cerebro-spinal meningitis, a definite disease produced by a definite etiologic factor. An organism which may be distinguished by certain characteristics of its own has been found in the inflammatory exudation in certain cases of meningitis. This organism may be grown in suitable cultures, and the pure culture, when inoculated into susceptible animals, produces the disease, and this disease follows a regular recognized course. There was a great deal of confusion at first by mistaking this disease and its organism for other diseases and other organisms. What is needed now is a series of sufficient number of cases in which the meninges have been examined during life so that the different types of the diseases may be more sharply defined. The first description of what is now known as this disease was made by Vieusseaux in 1805. An epidemic of cerebro-spinal meningitis occurred in Medfield, Mass., in 1806, later other epidemics occurred in various parts of this country. This disease affects principally the young. It may be carried by infected clothing and in various ways. It is commonly called brain fever. There is little in the literature on immunity from this disease. The organism which we now recognize as the specific cause of this disease was first described by Weichselbaum in 1887, and was confirmed later by Jäger, in 1895. It is a micrococcus of about the same size as the ordinary pathogenic micrococci and appears in diplococcus form as two hemispheres separated by an unstained interval. It stains by any of the ordinary stains for bacteria and is decolorized by the Gram method. He then described at some length its manner of growth on various media and its effect on animals.

In the postmortem examinations made it is usually found, and its situation varies according to the stage of the disease. Besides the meninges of the brain and the coverings of the spinal cord, the organisms was found in no other places in the body. The spleen was often enlarged. There were described three forms of the disease, the acute, the chronic and the intermittent. Pneumonia is often a complication but it must not be supposed as it was once thought that the pneumococcus is a cause of meningitis. The surest way of making a certain diagnosis is by lumbar puncture and this should always be carried out when possible. The method is easy and experience has shown that it is devoid of danger.

FOURTH DAY—MORNING SESSION.

Dr. FRANK D. SANGER read a paper "On the Importance of the Early Recognition of Enlargements of the Pharyngeal Tonsil," in which he dwelt especially on this trouble in young children and spoke of the symptoms and bad effects if allowed to continue.

Dr. EDWARD M. SCHAEFRER spoke of the utter ignorance of the laity on such things and how they should be instructed on the dangers of allowing a child to go unoperated on when it gave every evidence of a large growth of adenoids filling the posterior pharynx.

Dr. WILLIS OSLER said that the profession was also to blame and he thought that the profession at large needed education on this subject just as much as the laity. He sees every year eight or ten cases of serious trouble resulting from negligence on the part of the physician who should have insisted on the parents having the child submit to an operation at the hands of a specialist. It is a very easy matter. A child that breathes with open mouth and snores in its sleep should be at once put into the hands of a specialist and it is not every specialist in nose and throat who can treat such cases properly.

Dr. H. O. REIK then made some remarks on "A Further Study of the Use of Formaldehyde in Sterilizing Instruments," and exhibited the small oven devised by himself and Dr. Watson and showed the ease and thoroughness with which instruments could be sterilized. He had taken knives and wiped them across virulent structures and put them in this oven, where the gas thoroughly sterilized them in ten minutes. A five grain tablet burned in the lamp will sterilize the knife in ten minutes and when the instruments are wrapped in a towel they are sterilized by a thirty-grain tablet in twenty minutes.

Dr. WILLIAM R. STOKES of the City Health Department, and Dr. Arthur Wegefarth, then demonstrated "Free Leucocytic Granules in the Blood and their Reaction to Various Stains."

The following officers were then elected for the ensuing year, which will mark the completion of the one hundredth continuous year of the existence of the Faculty: President, Samuel C. Chew; vice-presidents, Drs. Mary Sherwood and J. McP. Scott; secretaries, Drs. J. Williams Lord, Robert T. Wilson, W. Guy Townsend and H. O. Reik; treasurer, T. A. Ashby.

Ninth International Congress of Hygiene and Demography.

This Congress convened at Madrid, April 10, with all the European governments well represented, except Russia and Denmark, many delegates from Mexico and South America and some from the United States. The 900 Spaniards raised the total number inscribed to 1600, which included six Turks, three Chinese and ten Japanese. The fear of war troubles kept so many away, however, that only 700 were present at the opening, according to the *Münch. Med. Woch.* The government and individuals were "considerate and hospitable and made the Congress a brilliant social event, remarkable under the circumstances," while the presence of many noted hygienists insured its scientific value, although the ten sections and six languages rendered it somewhat difficult to follow all the proceedings. The most important communication was from Nocard of Paris, who announced that he has succeeded in isolating

THE GERM OF CATTLE PLEURO-PNEUMONIA.

It is scarcely visible, even magnified 1600 diameters, and its exact shape, etc., are still undetermined, but biologic and pathologic phenomena prove unquestionably the presence of the culture-making specific germ in the barely visible turbidness of the liquid culture-media. Spronck of Utrecht, stated that he has reduced the percentage of post-sero-therapeutic accidents from 15 to 4 per cent. of the cases treated, by heating the serum in a water-bath to 50 degrees C. for half an hour, which seems to destroy toxic matters in the serum without affecting its antitoxic properties. He also stated that he had obtained a toxin twenty times more powerful than usual by using yeast in his culture medium. One kilogram of ordinary yeast is boiled with five liters of water and then set aside, and after the addition of an alkali, sugar and peptone, is sterilized and filtered. The toxin attains its maximum power on the sixth day. This yeast solution is harmless in hypodermic injections. Martin has shown that the serum varies with the peptone, and Llorente urged the Congress to establish an international standard for serum, and a committee was appointed to investigate the subject. Krause thinks the serum varies with the horse used and that certain persons are more susceptible to post-sero-therapeutic accidents than others. Calmette reviewed the

PRESENT STATUS OF IMMUNIZING AGAINST SNAKE VENOM,

observing that the anti-venom serum is by far the most powerfully active of any serum yet produced. The venom of the poisonous reptiles of the different countries in the world is all extremely similar, and an animal immunized against a very active venom, such as that of the naja or bothrops, is thereby rendered immune to all other venoms less active than the one with which he has been vaccinated. The serum of horses vaccinated against large doses of very active venoms possesses a preventive and curative power to such an extent that its injection confers upon other animals an absolute insensibility to any kind of venom. The amount of curative serum required to save a venom-intoxicated animal is inversely proportionate to its weight and directly proportionate to the quantity of the venom. The antitoxic action of bile, cholesterin, antitetanus and antirabic sera recently reported, is nothing specific, but merely the transient effect of cellular stimulation. He concluded by describing some recent tests, which showed that the anti-venom serum still manifests its curative power even if the nervous system be intoxicated with another strong toxin, such as strychnin. Ermenghen called attention to the fact that even the spores of the bac. botulinus are killed by exposure to a temperature of 85 degrees C., and that the bacillus will not grow in a medium containing more than 8 per cent. sodium chlorid.

DIPHTHERIA IN MAN AND IN FOWLS

was compared by Terré, who considered them closely analogous, as is shown by the fact, among others, that anti-diphtheria serum cures both. Isolation is evidently the prophylactic measure required. Loeffler objected to these conclusions, as he considers that diphtheria in pigeons differs from diphtheria in fowls, and that the specific toxin of a certain diphtheria bacillus requires an equally specific antitoxin. Professor Chantemesse reported the favorable results on man of his

TYPHOID ANTITOXIC SERUM,

and convincing experimental results. Typhoid antitoxin must neutralize both the microbe and the toxin it secretes, and he has succeeded in accomplishing this since his discovery of the

soluble typhoid toxin which is rapidly produced in certain media and vanishes later with equal rapidity under the influence of the oxygen of the air. The *Presse Méd.* of April 13 contains his communication *in extenso*. He notes the peculiar fact that acidifying a fatal dose of toxin with tartaric acid will deprive it of almost all its toxic power, but that this returns, although not quite to its full extent, if the former alkaline reaction is restored by adding the necessary amount of sodium. Loeffler announced that he had succeeded in rendering animals immune to "aphthous fever," foot and mouth disease, by inoculating them with the active substances contained in the blood of other animals inoculated with the serous fluid from the blisters of animals affected with the disease. This preventive effect is enough to protect a herd against an epidemic of the disease, although the vaccination is only temporary and the actual germ of the affection has not yet been discovered, probably on account of its infinitesimal proportions. Borrel's communication in regard to

CEREBRAL TETANUS AND ITS TREATMENT

is a plausible explanation of the failures in tetanus antitoxin treatment to date. By injecting the tetanus toxin directly into the cortex he produced a special kind of tetanus, quite different from the usual manifestations and varying with the cellular group injected. He proclaims also the important fact that if the antitoxin is injected directly into the cerebral substance a very small amount will save the animal more than fourteen hours after the tetanus has appeared, at a period when even enormous doses injected subcutaneously are without effect. In regard to immunity, this cerebral tetanus demonstrates that it is never the nerve-cell that is rendered immune; in all cases immunity, either natural or acquired, depends upon the arrest of the toxins before they have invaded the sensory cells. Immunity, therefore, is not a question of the nerve-cells becoming accustomed or insensible to the toxin. Behring observed in reference to tuberculosis toxin that he has found birds much better subjects for this kind of research than mammals. He also mentioned the complete cures obtained in cattle with tuberculin treatment, and the satisfactory results if 90 per cent. are cured, even if a few are undoubtedly killed by the treatment. But of course this argument can not be applied to man, as if serum treatment jeopardizes even a single human life it is impracticable. He also urged the importance of an international standard and control over toxins of this kind.

Next congress convenes at Paris in 1900.

Chicago Medical Society.

A regular meeting was held May 3, with President Henrotin in the Chair.

Dr. RICHARD DEWEY read a paper entitled

REMARKS ON THE RELATION BETWEEN MENTAL DISORDERS AND SURGICAL OPERATIONS,

in which he reported forty-four cases of insanity occurring after surgical operations.

In the discussion, Dr. FRANK BILLINGS mentioned the case of a man that came under his observation in 1881. The patient ran a pitchfork into his foot, shortly after which tetanus developed. The sciatic nerve was first stretched and following it the anterior crural, without any good results. Following these operations insanity developed.

Dr. DANIEL R. BROWER said that when iodoform was first used he saw several cases of insanity following iodoform dressings. He believes that the mental derangement was produced by the toxic effect of the iodoform. In introducing new dressings into surgical work their possible effects on the nervous system should be carefully considered by surgeons.

Dr. CHRISTIAN FENGER mentioned a case of insanity following operation for the removal of carcinoma of the lower lip. He thought the disfigurement following the operation was what caused the patient to become mentally depressed.

Dr. A. H. FERGUSON had seen mental disturbances following operations as well as insanity. He spoke of the relationship between septic intoxication and mental disturbances following operative interference. The first case of mania he saw in consultation followed a perineorrhaphy in which there was a great deal of puerperal sepsis.

Dr. A. J. OCHSNER mentioned a case of acute septic peritonitis which he saw eight years ago following a ruptured pyosalpinx or appendiceal abscess. Before the operation the patient was sound mentally, but when she came out from under the influence of the anesthetic she was insane, had to be transferred to an insane asylum, but at the end of two years her mental condition was greatly improved. He cited other cases.

Dr. HAROLD N. MOYER said surgeons had neglected the nervous conditions of their patients, being quite content if operations were successful.

Dr. ARCHIBALD CHURCH had come professionally in contact with two thousand or more cases of insanity, and yet he was unable to recall a single case in which the operation *per se* could be attributed as the inciting cause of the insanity.

Dr. M. L. HARRIS summed up the causes of insanity following operations, as drug intoxications; septic intoxications; auto-intoxications, from disturbances of nutrition and defective elimination following operative interference; withdrawal of accustomed stimulants, such as alcohol and morphin, and the anesthetic.

Dr. ARTHUR D. BEVAN had seen a number of cases of traumatic insanity following injuries received in railroad accidents.

PRACTICAL NOTES.

Drainage Tubes are used by Delagenière, made of nickel perforated throughout, with a wide rim to prevent its escaping into the wound. A cotton wick inside absorbs the fluid like the wick of a lamp, and ensures perfect drainage.—*Sem. Méd.*, April 6.

Sodium Saccharinate is claimed to be one of the best intestinal antiseptics known to date, without secondary effects. One gram once or twice a day will notably diminish the number of bacteria in the intestines, especially the bac. coli. Take in wafers or in Apenta water.

Cure of Paralysis of the Palate by Electricity.—Six applications of static electricity to the region of the sternomastoid and trapezium stimulated the spinal nerve to such an extent that it cured the existing paralysis of the left half of the soft palate; patient a tabetic.—*Sem. Méd.*, April 20.

Substitution of Trephining for Lumbar Puncture.—Moty relieved a threatening case of acute meningitis by trephining the right parietal region and opening the dura mater, inserting a horsehair loop and suturing the skin. The pain was relieved at once and all the symptoms gradually improved.—*Sem. Méd.* April 13.

Eosinophilous Cells in Tuberculous Sputa are evidence that the organism is rallying its forces to repel the invasion of the infection and that it is still resistant. As the infection progresses and bacilli commence to appear, the eosinophilous cells are no longer found.—*Münch. Med. Woch.*, April 12.

Substitution of Salt Solution for Antiseptics in the Treatment of Venereal Buboes.—Waelsch announces that buboes injected simply with salt solution heal more rapidly and completely than if mercurial or other antiseptics are injected, which retard the healing process by the irritation they produce.—*Sem. Méd.*, April 6.

A Handy Diabetograph has been devised by Coulhon, which is merely a graduated tube tapering to a point at one end, provided with a faucet. The tube is filled to 0 with urine, which is then cautiously dropped into the boiling Fehling solution, by quarter drops, and the figure at the which the urine then stops indicates the amount of glucose to the liter.—*Bull. de l'Acad. de Méd.*, March 29.

Catgut and Silk Rendered Perfectly Antiseptic by Dipping in Formalin Gelatin.—The gelatin dissolves in the tissues and the formalin thus liberated acts as a powerful antiseptic. Catgut thus treated is less rapidly absorbed. Tests with animals and over a hundred patients confirm the thoroughness of the antisepsis thus secured.—Thomalla: *Münch. Med. Woch.*, April 19.

Temperature of the Eye.—Galezowski's thermometer for the eye fits closely over the ball with the graduated tube bent at right angles. He thinks that the information thus derived in regard to the temperature of the eye will be found useful in certain internal diseases of the eyes, such as chorioiditis, chorioideal hemorrhage, glaucoma, etc.—*Wien. klin. Rundschau*, April 3.

The Improved Locai Anesthesia suggested by Oberst (*vide* JOURNAL, page 736) has been applied to operations on the penis with perfect success. Arendt mentions that his patient kept on smoking his cigar while a para-urethral fistula was being thermo-cauterized. He has also operated on phimosis, without assistance after five minutes' local anesthesia.—*Cbl. f. Chir.*, April 16.

Prognathism Cured with Removal of Condyles.—Jaboulay describes a distressing case of progressive prognathism in which mastication and articulation had become impossible, entirely cured by the removal of one condyle, the esthetic results perfect with the exception that the jaw twists slightly to one side, the patient not wishing to allow the removal of the other condyle which would have completed the intervention.—*Presse Méd.*, April 9.

Treatment of Epilepsy by Resection of the Superior Cervical Ganglia of the Sympathetic.—Chipault calls attention to the benignity of these operations, of which there are now seventy-one on record without a single operative incident or accident. The success obtained is very encouraging, although old, inveterate cases are less liable to be favorably affected. The *Bulletin de l'Acad. de Méd.* contains his two latest observations, both successes, one a child of 2½, the other a woman of 33 years.

Orthopedics of the Brain is the term applied by Berillon to the application of hypnotism and suggestion in the treatment of morbid impulses and habits and defective psychic development. He states that in his experiences with several thousand children he has found that eight out of every ten children between 8 and 15 years of age are susceptible to hypnotic influence, adding that susceptibility increases with mental capacity. Taptas also reports nasal troubles caused by vasomotor disturbances in the nasal muscles, cured by suggestion.—*Münch. Med. Woch.*, April 19.

The Success of Injections of Phenic Acid in Tetanus is confirmed again from Rome, where Professor Baccelli's treatment has been applied in thirty cases with one death. The *Gazzetta degli Osp. e delle Clin.* of March 13 compares the statistics on record, omitting all cases of tetanus in the newly born, and finds that with the Baccelli method the mortality is 1 to 30, with Tizzoni's serum 8 to 40, with Behring's serum No. 1, 4 to 11, and with Behring's serum No. 2 it is 2 to 9. The phenic acid is injected in a 2 to 3 per cent. solution, in doses of three-quarters of a centigram, as much as 35 centigrams being injected during the twenty-four hours, in some cases without inconvenience.

The Connection between Otitis Media and Articular Rheumatism is emphasized in a recent communication by E. Bloch, to the *Münch. Med. Woch.*, who says that instead of consulting the barometer and weather-vanes, we must set to work, after administering the usual sodium salicylate or other remedies, to locate the local infective process from which proceeds the intoxication producing the disease. It may be found in the tonsils, in a boil, eczema, lacerations in the cervix, etc., but in fourteen out of fifteen cases he has traced it to otitis media. Extermination of the foci, healing all solutions of continuity, this is the only rational prophylaxis against recurrence, and a strict examination is the physician's duty now in the new light of the infective character of the affection.

Therapeutics of Children's Paralysis.—Transplantation of the tendons in a case of spastic cerebral paraplegia. A. Eulenburg reports a success beyond all expectations in a case of Little's disease in which he performed the operation suggested by Nicoladoni sixteen years ago, and only recently taken up and applied to paralytic deformities of the foot by Vulpius and others. The Achilles tendon was cut and part inserted in a slit in the tendons of the peroneus longus and brevis. Each foot was operated separately; patient a girl of 4 years. He calls it a grand "physiologic operation, as it restores function and nutrition to rigid parts, by centripetal stimulation causing an intercentral liberating process in that region of the cerebral cortex which controls the antagonistic-tonic innervation."—*Deu. Med. Woch.*, April 7.

Lead Nitrate for Ingrowing Nail.—A strip of cotton should be worked in between the nail and the flesh, left large enough to cover the entire nail. A piece of cotton is then twisted into a long roll and placed on the other side of the nail groove over the sound skin. The space between is filled with lead nitrate heaped up, and the larger piece of cotton folded over it, with more cotton outside held in place with a moist bandage. This dressing is renewed every day and in two or three the exuberance will be found reduced until the edge of the nail can be seen and cotton inserted between it and the flesh beneath, when the nitrate can be discontinued.—*Sem. Méd.*, March 30.

For Intravenous Injections of Mercury the cyanid is preferred: 1 c.c. of 1 gram cyanid to 100 grams distilled water, usually introduced at the bend of the elbow after a rubber tube has been tied around the member above, the ends held with a clamp. The needle inserted in the vein is inclined toward the root of the member and pushed in another centimeter. It is then unscrewed from the syringe to note, by the flow of blood, whether it is really in the vein. The syringe is then replaced, the rubber tube removed and the injection proceeds. The patient feels nothing but the first prick. Druault states that neither thrombosis nor embolism have ever been observed and that the intravenous method is no more dangerous than the subcutaneous for the same solutions.—*Presse Méd.*, April 9.

Altitude Cure for Anemia.—Professor R. Lepine concludes a comprehensive study of this subject with the conclusions that mountain air like sea air promotes the formation of hemoglobin by improving the nutrition, but besides this, by some still inexplicable mechanism, it in itself determines a rapid formation of red corpuscles. This hyperglobulia is not permanent in healthy persons, as the number of corpuscles returns to normal in a few weeks after they return to the lowlands. Other things being equal, it seems to be more lasting in anemics than in healthy persons, but even if it is temporary, the stimulation of the hematopoietic organs can not fail to benefit the patient. It is a crisis which may interrupt or at least retard the course of the chronic disease.—*Sem. Méd.*, March 10.

Necessity of Early Antitoxin Treatment of Diphtheria.—P. Hilbert reports the results of much research and experimentation at Königsberg in regard to the dangers of mixed and secondary infections in diphtheria, in the *Deu. Med. Woch.* of April 14. He finds that the streptococcus and the diphtheria bacillus enhance each other's virulence, that cultures flourish particularly well associated and that diphtheria antitoxin has no effect after septicemia has developed. The streptococcus has been found by Reiche in the internal organs of 45.2 per cent. of the diphtheria necropsies and by Dahmer in the blood and spleen in 47 per cent. Hence the necessity of commencing antitoxin treatment at the first indications of diphtheria infection, before the streptococcus has had time to get in its work and increase the virulence of the diphtheria bacillus and be reciprocally affected. The antitoxin changes the diphtheritic lesions into an ordinary diphtheroid angina; the opportunity for the streptococcus to develop increased virulence is lost, and the danger of complications notably reduced. "Theory and practice harmonize so perfectly in antitoxin treatment, that the time is approaching when a death from diphtheria will be among the rarities." We note in the same issue some statistics showing that the average number of deaths from diphtheria per one hundred thousand inhabitants in the German cities from 188 to 1895 was 106, while since 1895, the average is 44. Also that there were only 274 deaths from diphtheria at Paris in 189 while in 1886 there were 1524, in 1890, 1639, and in 1893, 126

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SATURDAY, MAY 21, 1898.

THE INFLUENCE OF LOCALITY ON DISEASE.

It has only been within a few years that the medical profession in general has come to appreciate the value of the study of natural surroundings in relation to their bearing upon disease. Not long ago hygiene in its true scope was an unheard of study even in the best of medical schools and it has only been very recently that an examination of the medical student upon this part of medical science has been insisted upon by the best faculties in the United States. In England, on the contrary, much more attention has been given to this subject and the government, in a paternal fashion, exercises a certain amount of oversight over hygienic matters which in this country are, unfortunately, too often ignored.

The graduate in medicine of many years ago looks upon hygiene as simply a study of the purity of the air, the purity of water, the principles of isolation and the other general prophylactic measures for the prevention of disease. All of these are without doubt of the greatest importance to the practicing physician, yet there are deeper and wider themes for study in connection with medical geography than many of us appreciate. It is odd that so little attention has been given to medical geography, although the difficulties and cost of competent investigation into the relation of geographic situation to disease have, of course, been effective obstructive agents. It is true that certain localities possessing peculiar health-giving properties have been studied, but these spots on the earth's surface are like oases in the desert of general ignorance concerning the relation of geography to disease. In this connection an article recently published by MASON in the *British Medical Journal* of March 12, 1898, is of very considerable interest. He finds, in regard to malignant disease, that cases suffering from such lesions tend to group themselves chiefly about low-lying land in the neighborhood of sluggish streams and where the soil is poorly drained, and he even goes so far as to state that the nearer the stream, the greater the frequency of malignant disease, and he cites specific instances in different parts of England where the percentage mortality from malignant disease is very high as compared to that in the neighboring district where the land is better drained. Or to speak more directly, the percentage of mortality in the upland districts is only one-seventh of that in one of the low-lying districts, and he also quotes NOEL as stating that in "cancer regions" one of two conditions prevail, either they are closely populated, or, if the houses be spread about at some distance from one another, they are connected by a sluggish stream.

Dr. MASON goes so far as to suggest that the malignant disease is due to a microparasite, which he thinks is a protozoon, which gains its entrance into the body in much the same manner as does malaria from exhalations from water or from sodden soil.

These studies of MASON are of particular interest in view of those of Mr. ARTHUR HAVILAND, published in a book entitled, "The Geographical Distribution of Diseases in Great Britain," in which he shows that geographic position governs the mortality of diseases to an extraordinary degree. Thus, in relation to malignant disease he finds that the highest mortality in England is in those areas which have a clay formation and the lowest in those areas characterized by the presence of the older rocks, that the "cancer fields" of England and Wales are chiefly to be found in the shallow, low-lying valleys traversed by full and occasionally overflowing rivers, and that the limestone areas have the very lowest mortality.

In regard to heart disease, HAVILAND finds that those parts of England and Wales which are most exposed to the force of the sea winds are characterized by almost continuous groups of low mortality, and wherever the axis of the valley is identical with that of the prevailing winds a low mortality is observed. On the other hand, when the axes of the valleys are at such an angle to the prevailing wind as to prevent an overflow of air, the mortality from heart disease is very high and the interesting additional information is given that in Devon, England, such areas are incapable of a wheat yield above twenty-one bushels per acre, whereas the average for England and Wales is about twenty-nine bushels.

In view of the fact that many cases of heart disease arise from rheumatic attacks and that cold and damp are supposed to be particularly favorable to the development of rheumatism, these statements in regard to the geographic influences which bear upon

heart diseases are of considerable interest, but it is particularly in regard to the prevalence of cancer that such studies possess novelty to many medical readers. It is to be regretted that with the generous appropriations which have been made by the United States Government for various studies in connection with the public health this matter of the influence of geologic formation upon the development of disease has not as yet been more carefully studied.

THE "AURA" OF EPILEPSY.

The "aura" of epilepsy is so notable a symptom that it is a little remarkable that it has not been more often the special subject of medical writing. It sometimes practically replaces the attack; or perhaps one ought rather to say, the aborted attack does not progress farther than the aura. It is a transitory condition of sensation or sometimes of feeling or intellection or even of motor disturbance that often varies only slightly from the more continued pre-epileptic states in point of duration, and this alone ought to suffice to suggest a greater importance than is commonly attributed to it, on other grounds than merely as an indication of the cortical initial excitation or the peripheral irritation that gives rise to the attack. In some cases it may be itself so annoying and prominent that, when as occasionally happens, the motor symptoms are aborted it is considered as a serious ailment by the patient or his physicians. A homeopathic doctor some years ago wrote a little book on "A New Form of Nervous Disease", which from his description was apparently nothing else than one of these aborted epilepsies in which the epigastric aura ascended to the head and the possible momentary disturbance of consciousness was described as an explosion within the cranium. Such phenomena are common enough to have come under the notice of almost any observant person who has had an extensive experience with epileptics and are by themselves hardly considered as noteworthy enough to call for special mention. It is strongly suggested by some of the phenomena of migraine that it may be properly considered as an aborted epilepsy, the sensory aura blending with the post-epileptic discomfort to form the migrainous attack. Indeed we can not restrict the aura to simply fleeting or momentary conditions, and the attack of migraine itself, however long it may last, may be altogether analogous and parallel to the other types of sensory aura. In a recent paper on this subject Dr. L. PIERCE CLARK of the Sonyea epileptic settlement, makes no special limitations of time for the continuance of the phenomena of the aura; in his view it would seem that any mental or emotional state as well as any set of sensory or motor symptoms, lasting it may be, for hours, and followed finally by an epileptic attack, is to be considered as an aura.

There is, however, a certain practical convenience in distinguishing between these continued pre-epileptic conditions and the aura in a more limited sense, and as it is commonly recognized. Otherwise we are liable to confuse with it all the conditions that are usually known as pre- and post-epileptic, the *petit mal* attacks and the epileptic equivalent, and there are good clinical reasons for not desiring this to be done. It is better to confine the term "aura" to the sensory and occasionally the motor symptoms immediately preceding the attack either by a few seconds or at most a few moments, and thus restricted the phenomenon is such as to still be worthy of careful study and investigation. The current medical opinion that by it we can at least assume the cortical region in which the morbid process takes its rise, though this be, as CLARK suggests, only the detonating fulminate that starts the explosion, is enough in itself to indicate this importance. In cases of traumatic epilepsy the aura suggests itself, therefore, as to some extent an aid to physiologic localization, and in cases not traumatic we may possibly have in this symptom some indication for rational surgical or other treatment. Before it can be thus utilized, however, more knowledge must be obtained as to the symptoms, and we need more careful and prolonged observations covering a large series of cases. Such studies are not always practicable or easily made, for several reasons. The symptom, except when it involves the motor organs, is a subjective one, as Dr. CLARK points out, and all the fallacies of human testimony have to be reckoned with in estimating the patients' statements. Only close and long-continued observation and repeated examinations, taking into account every possible factor of error and self-deception, and the mental capacity of the subject, his reliability and suggestibility have all to be considered. Again it is only by a large series of such observations that we will ever be in a position to make deductions and there are comparatively few who are likely to be in a position to observe epileptics so extensively as to warrant generalizations. The co-operation of many observers is desirable and these ought to have such special training as will make their observed facts reliable and really valuable for the purpose. Still another possible difficulty is the mixed and sometimes variable nature of the aura itself, which may involve several cortical centers, and is by no means always constant in the same individual. It does not always follow that with traumatisms of the brain causing epilepsy, the aura corresponds with the part directly injured, or with the motor symptoms of the attack itself. All these facts complicate the study, but they do not by any means impair its value, and it is highly desirable that it should be thoroughly followed out. Difficulties in such investigations are suggestive rather than discouraging and often are the direct cause of widening the scope and of leading to new discoveries.

Besides the aura there is another well known fact

that is related in a manner to it, and that deserves observation and study. In a very large proportion of epileptics, either with or without an aura, the convulsion begins in definite motor regions, in an arm or leg or in the muscles of the face. A close observation of the facts of the attack itself in as large a number of patients as is possible is also a desideratum if we are to learn all that is within our possibilities of this disease or syndrome of cerebral disorder. Hitherto for the reasons given, this has not been done to any great extent, and it is to such establishments as those that have been recently opened in several States of our Union for the care of epileptics, that we must look for the elucidation of this and other important questions that have been before the medical profession, or will yet arise, in regard to the interesting phenomena of epilepsy.

MEDICAL ORGANIZATION FOR WAR SERVICE.

Recruiting is in progress to fill up the ranks of the regular army to its war footing of over 60,000 men, and as we write, about one-half of the number of volunteers called out by the President have been mustered into service. Brigadier-generals and major-generals with officers for staff duties have been been appointed and the regiments will soon be aggregated into brigades, divisions and army corps. Military officers are well satisfied with the appointments, for as a rule they have been made from the list of trained soldiers; and army medical officers also have reason to be satisfied, as five appointments to the position of chief surgeon with the rank of lieutenant-colonel have been given to majors of the medical corps. The work immediately before these chief surgeons is the organization for field service of the medical and hospital force of the army corps to which they may be assigned. Instructions for the guidance of these officers have no doubt been considered by Surgeon-General STERNBERG, but so far nothing of the kind has been made public. So long as a regiment constitutes a separate command the regulations applying to posts or military stations suffice for its medical administration; but a broader working scheme is required when regiments become the units of a larger force.

Additions to the personnel of medical and hospital force are appearing daily in the camps. For the troops of the regular army the law has provided a medical staff and a hospital corps, the strength of the one fixed by law, of the other discretionary with the Secretary of War, except as regards the number of hospital stewards, which is restricted to one hundred. A bill has, however, been introduced into Congress to remove this restriction. For the troops of the volunteer force the act approved April 22, 1898, "to provide for temporarily increasing the military establishment in time of war," authorizes the muster into service of a chief surgeon for each corps, division and brigade, and a surgeon and two assistants for each regiment, but no mention is made of a hospital corps. Nevertheless, in the act approved April 26, 1898, the main object of which was to increase the regular army to meet conditions of war, there is a proviso authorizing one hospital steward for each battalion, *i. e.*, three to each regiment of volunteer troops. Existing law is thus seen to provide medical officers and hospital corps men for the regular army, and medical officers and hospital stewards for the volunteer army; but no specific provision has been made for the muster in of private soldiers for the hospital corps of the latter. In some of the States hospital corps men of the National Guard have volunteered and been mustered in as privates of the line. These men look forward to transfer hereafter into the hospital service; but at present the only legally defined way into this service is by enlistment into the hospital corps of the regular army. It may be taken for granted, however, that in one way or another a sufficiency of men will be enlisted for hospital duty by the time the regiments have been organized into divisions and army corps.[1]

In the organization of the medical staff and hospital force for war service full account must be taken of the experience gained by army medical officers in the many sanguinary engagements of the civil war. That experience demonstrated the incompetency of a regimental medical service and the excellence of a medical organization based on the division as a unit. The regimental medical officers and the regimental hospital are efficient in the summer encampments and ordinary State police duties of the National Guard, just as the post-surgeon and its assistants in the post hospital suffice for the army garrison in times of peace. But in war the medical strength of an army must not be tied up in regimental bonds. It should be a well organized and well disciplined force which, like the reserve of the fighting men, may be brought in its full strength to that part of the line where its services are most required.

The medical force of an army corps should be organized by divisions so that any regiment in the division may have the benefit in times of stress of the medical services and supplies provided for all the regiments. The division consists of three brigades of three regiments each, aggregating 10,000 men. The hospital should consist of thirty to forty hospital tents, with light cots or litters, mattresses and blankets for at least two hundred patients; medical and surgical supplies and kitchen outfits for the campaign; subsistence stores for men and forage for horses and mules for so many days, and the personal baggage of officers and men all packed, when in column of march, in twelve to fifteen six-mule army wagons—and the packing of these wagons should be such that there should be no need to unpack the whole unless the whole medical strength of the division is to be called into action.

[1] Since the above was written arrangements have been made for the transfer (voluntary) of enlisted men of the volunteer army to the hospital corps.

The ambulance company should consist of two hundred privates, with the regular proportion of stewards and acting stewards as non-commissioned officers aggregated in three sections each under a lieutenant, and the whole commanded by a captain. This company should have a train of forty to fifty ambulance wagons. The best officers of the division should be assigned to duty with the hospital, one as surgeon in charge, one as executive officer and recorder, one as subsistance officer, the captain of the ambulance company, acting as quartermaster, and one as attending surgeon for each brigade section of the hospital; but these sections should have no claim to be regarded as brigade hospitals, they being merely wards of the division hospital, although so organized as to be susceptible of being detached at any time with a section of the ambulance company for independent service. Hospital stewards and acting stewards are assigned to special duties under these officers, with privates for pioneer work, cooking, nursing, etc. As thus organized the division hospital carries the sick during the day's march and provides for them in camp, medical officers remaining on duty with their regiments having merely to meet emergencies and care for slight cases which require neither transportation nor hospital treatment. This organization must be prepared for battle-field conditions by standing orders assigning three surgeons as chief operators with three assistants to each of them. Medical officers not thus specially assigned for battle service give first aid at the advanced stations. An organization of this kind can not be broken in for service in a day or two, even supposing that there is no delay in providing all the articles of the equipment. Time is required for every officer and man to become familiar with his special duties under the new conditions. There is in fact much to be done in the way of organization and drill before the medical service of an army such as is now being formed can be ready for efficient service; but as we have earnest men and experienced officers we may rest assured that the Army Medical Department will not be found wanting.

MEDICO-MILITARY STATISTICS.

In September, 1894, an International Commission of Military Medical Officers met at Budapest to consider the best method of tabulating the statistics to be published for comparative purposes by each of the countries participating in the convention. Besides Dr. JOHN S. BILLINGS, who represented the United States, there were present representatives of Britain, France, Germany, Austria-Hungary, Belgium, Denmark and Italy. A series of ten tables was agreed upon, copies of which were submitted to the various military medical departments for adoption, if approved. On suggestions made by the Surgeon-General of the United States Army the ten tables were reduced to eight. The Commission at a subsequent meeting recommended that the statistical data for the calendar year 1895 be the first to be officially published on the approved forms. The United States acted promptly on the recommendation of the Commission, for as all the data needful for the construction of international tables were already on file in the office of the Surgeon-General of the Army the statistics of 1894 were published in the "Annual Report" for the year ended June 30, 1895. Regularly since then the international tables have formed part of Surgeon-General STERNBERG'S "Annual Reports"; but not until the present time, so far as we are aware, has any of the European medico-military departments issued its statistics on the forms approved by the Commission. In a supplement to the Army Medical Department Report for the year 1896, just published, the data relating to the health of the British army are submitted in a series of seven tables. These correspond with the forms published by the United States authorities; but there are some important omissions, as the prevalence of sickness at the larger garrisons and the prevalence of important diseases by branches of the military service and by months. A comparison of the sickness among our troops and those of Britain, as shown by these tables, is given in another part of this issue of the JOURNAL.

CLUMSY FORGERY.

We were astonished some time since to see in the journal called *Printers' Ink*, in the number of April 27, the name of this JOURNAL printed in a list of publications that had accepted an advertisement of a concoction which we had positively refused to advertise. The following letter is self-explanatory:

"APRIL 30, 1898.

"Editor *Printers' Ink*, No. 10 Spruce St., New York, N. Y.

"*Dear Sir:*—In your issue of April 27, in an article referring to medical journals, you mention the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and also publish a letter purporting to have been sent by us, to the effect that ——— advertisement would be accepted by our pages. There is an error in regard to this matter, as we did not answer the letter of inquiry from the Rowell Agency, owing to the fact that on a previous date we had declined the advertisement of ——— and had given our reasons therefor. Probably you have the name of this publication confounded with that of another, as the rates quoted do not conform with ours at all. If the letter you have on hand is signed as having come from this office, we would like very much to see the original copy. Please publish a correction of this in your nexe issue, and oblige."

Receiving no reply to this communication, we waited until May 7, when the following letter was sent registered:

"Editor *Printers' Ink*, New York, N. Y.

"*Dear Sir:*—A careful perusal of your issue of May 4 fails to indicate any notice being made of my communication sent you on April 30, relative to the injustice done the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in your issue of April 27, regarding this JOURNAL offering to accept an advertisement of ———. Neither have we received a reply to our letter. While we fully believe that you had no intention of doing us an injury in printing a letter as having come from this office, when in

reality we had nothing to do with it, yet we are unable to understand why you remain silent in this manner. We herewith enclose a stamped envelope and respectfully request an early reply."

On May 11 we received the following reply and an enclosure from The Geo. P. Rowell Advertising Co., of which we publish a fac-simile.

"NEW YORK, May 9, 1898.

"*Editor of the* JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION: We have your registered letter of May 7, addressed to *Printers' Ink*. The reply to our letter of inquiry, concerning the advertising of ———, is enclosed herewith.

"Very respectfully,

[Enclosure.] "THE GEO. P. ROWELL ADVERTISING CO."

GEO P ROWELL PRES'T — FRED O. RINGER SEC'Y AND TREAS — S F NEWTON SUP'T

THE GEO. P. ROWELL ADVERTISING CO. 10 SPRUCE ST. NEW YORK INCORPORATED 1888 ESTABLISHED 1865

NEWSPAPER AND MAGAZINE ADVERTISING

ADVERTISEMENTS PREPARED AND ESTIMATES FURNISHED

Cable Address "Tenspruce," Telephone Call "Cortlandt 220."

RECEIVED APR 4 1898 THE GEO P ROWELL ADVERTISING COMPANY

New York, Mar. 31, ——— 1898

Publisher of Journal of the Am. Medical Ass'n.,

Chicago, Ill.

Advertisement acceptable
cost $30 a month $250 a year.
Must strike out first four lines of last paragraph.

Dear Sir:--

The Ripans Chemical Co. is considering the advisability of advertising in your paper. Kindly advise us upon the following points:-

FIRST: Will you insert the enclosed advertisement as written? —— Yes

SECOND: If it is not acceptable in its present form, what changes do you require? —— None

THIRD: What is your price for one insertion in space of copy, or in space of a full page? —$30,00 -see rate card enclosed,

FOURTH: What is your price for inserting the same one year, every issue, copy to be changed at will, but always subject to your approval? —$250,00

Please state whether your figures are subject to the usual agent's commission.—yes 30% discount

Very respectfully,

The Geo. P. Rowell Advertising Co.

P. S. What is the size of a page? How many columns to a page? 5I/2 X9-I/2in.

An answer on this sheet would serve every purpose.

The following letter was sent:

"Your favor of the 9th inst. enclosing a letter from which the editor of *Printers' Ink* published an extract as having been sent from this office, is at hand. In reply we will state that the letter you forwarded to us never came to this office, furthermore the rate, discount and size of paper do not correspond with that of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. The letter states 'See rate card enclosed,' and we now have to ask that you kindly forward that enclosure so that we may be able to trace the sender. In the meantime, in justice to us, you should have *Printers' Ink* publish a correction of this matter. Herewith we enclose a stamped envelope for reply."

It will be noticed that this blank is not signed by anybody. Furthermore the figures inserted in handwriting are not in the handwriting of any person of this office, and those inserted by typewriter are by a green copying ribbon, whereas blue is the color used by the machines of this office. Besides it is noticed that this Company have not returned any rate card. The rate card of the ASSOCIATION is published with the JOURNAL'S name and address in plain print and it would have been perfectly easy if they had such a card to have sent it. We are forced to conclude that the whole matter is a "clumsy forgery," and we beg our contemporaries who have been so radical in criticising the JOURNAL to make the necessary correction.

Since writing the above, we have received the following letter from The Geo. P. Rowell Advertising Co.:

"NEW YORK, May 14, 1898.

"*Editor of the* JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:—Your letter of April 11, is at hand, in which you ask

us to have published in *Printers' Ink* a correction in a certain matter, about which there has been correspondence between us. We think, if you will be good enough to prepare and send us the matter you think should appear in *Printers' Ink*, we shall have no difficulty about the insertion. If there has been any harm done we regret it exceedingly, and will do all we can to set the matter right. We are, your obedient servants,

"THE GEO. P. ROWELL ADVERTISING CO."

KENTUCKY STATE MEDICAL SOCIETY.

The forty-third annual session of this society was held in Maysville, May 11, 12 and 13, and on account of the location of the town the attendance was not up to the usual standard. The work done however was interesting and instructive.

The President in his annual address made reference to the waning interest and attendance which had been manifest in the State meetings for several years, and suggested the cause as being due to the large number of county, local and district societies, which are attended in preference to the larger body. As a remedy he suggested a modification of the constitution, making a membership in the State society dependent on membership in the county society, the latter naming delegates, in proportion to their membership, to the State society and to the AMERICAN MEDICAL ASSOCIATION. Delegates to the latter from the county societies are recommended to the State society and their selection confirmed by that body. A member of the Nominating Committee for the ensuing year is also named by each county society. This is a radical change in the present arrangement for election of officers, it now being that each congressional district elects its representative, the President appointing a Chairman.

As an instance of the success of this plan, the President referred to the Indiana State Society which now has a membership of 1500.

A committee consisting of Dr. H. E. TULEY, J. N. MCCORMACK, and JOHN. A. LEWIS was appointed to consider the matter, and returned a modification of the constitution as suggested.

Dr. H. E. TULEY of Louisville offered resolutions condemning the CAFFREY Bill on public health, and endorsing the bill prepared by the AMERICAN MEDICAL ASSOCIATION, and urging the senators and representatives in Congress to work against the CAFFREY Bill and for the AMERICAN MEDICAL ASSOCIATION Bill. He also offered the following:

It has been brought to the attention of the Kentucky State Medical Society, at Maysville, Ky., in meeting assembled this 11th day of May, 1898, that there is a bill now pending before the United States Congress relative to the suppression of vivisection in all its forms, be it

Resolved, That we, the Kentucky State Medical Society, fully realizing and deeply appreciating the great achievements in the domain of medicine and surgery which may be directly attributable to a practice of legitimate vivisection in the past, and feeling that its suppression as called for by the said pending bill would be a most serious blow to research in the future, do most heartily condemn the passing of such a bill; and be it further

Resolved, That a copy of these resolutions be spread upon the records of the society and that a copy be sent to each representative of the United States Congress from this State, and also to the senators from Kentucky, and an autograph letter from the Secretary of this Society urging them to use their influence to defeat the passing of this bill.

The President for the ensuing year is Dr. DAVID BARROW of Lexington, Louisville being selected as the next place of meeting.

THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.

The fifty-fourth annual meeting of the American Medico-Psychological Association which occurred last week at St. Louis, was a success in all respects. The character of the papers read was high and the critics of American psychiatry would have found little in the proceedings to justify their strictures. The annual address by a distinguished neurologist, Dr. ESKRIDGE of Denver, on "The Mutual Relations of the Alienist and Neurologist in the Study of Psychiatry," offered a picture of the future institution for the insane, which if not immediately realizable, will certainly afford a sufficiently elevated ideal for the aim of the present workers in the field. The presidential address also of Dr. BUCKE on the need of more attention to gynecologic surgery in the insane was a thoroughly progressive one, though all may not fully share his opinions. The hospital idea of the asylum was well to the fore in the papers and the discussions, some of which were of very decided interest.

The local arrangements were almost perfect and greatly contributed to the success of the meeting. While there were not any very extensive social diversions beyond a drive around the city, visiting the various points of interest, this was felt by all to be no disadvantage, as the scientific interest in the meetings kept up to the very end. The session was a creditable one to its members as a scientific body, and to the committee of arrangements, who left nothing undone that could contribute to its success.

THE JOURNAL SPECIAL TRAIN TO DENVER.

The JOURNAL SPECIAL TRAIN will leave the Union Depot, Adams and Canal Streets, Chicago, Saturday, June 4, at 11 P.M., via the Chicago, Burlington & Quincy Railroad, arriving in Denver Monday morning 7 A.M., in time for the meeting of the American Academy of Medicine, the American Medical Editors' Association and other medical organizations holding sessions on Monday.

Pay no attention to statements other than those announced in the JOURNAL. The reason for arranging for the stop-over on the return trip was owing to the fact that the Exposition at Omaha will be in much better condition then than now. Passengers from the East taking the JOURNAL SPECIAL at Chicago may have their stop-over arranged without extra cost.

The "Special" will run through. Tickets will be

good for thirty days. The rate will be one fare and $2 for the round trip, the most favorable rate yet granted the ASSOCIATION.

CORRESPONDENCE.

Beware of Temptations!

INDIANAPOLIS, May 13, 1898.

To the Editor:—From the enclosed letter you can readily see what temptations await us at the Denver meeting:

Editorial Rooms of *The Denver Republican.*
WILLIS S. THOMPSON, City Editor.
DENVER, COLO., May 10, 1898.

Dear Sir:—Will you please send us, by the earliest mail convenient, a good photograph of yourself? We wish to secure it as far in advance of the June Convention as possible, and we will guarantee its return in good condition.

Yours very truly,
WILLIS S. THOMPSON, City Editor.

P. S. Kindly write full name and address on back of photo.

If our fellow members yield to this pernicious way of advertising themselves in the newspapers our ASSOCIATION must eventually become a society of advertising idiots. We have no excuse whatever for this. Quacks have no other way to keep themselves before the public.

Please sound a friendly note of warning through our JOURNAL, and prevent, if possible, our weaker brethren from lending themselves to the practice of vain, miserable fools.

J. L. THOMPSON.

The Stamp Tax and Proprietary Preparations.

BOROUGH OF BROOKLYN, NEW YORK CITY, May 2, 1898.

To the Editor:—. . . Despite the constantly increasing cost of barley, wheat, oats, cod-liver oil, quinin and other commodities, which enter largely into the composition of the maltine preparations, we have decided to bear the tax of four cents per bottle which is to be imposed upon our output, ourselves.

Although this will entail a heavy burden upon us we deem it the duty of every patriotic citizen to contribute cheerfully and without quibbling, such a share of the enormous cost of prosecuting the war as our government may find it necessary to exact.

Yours faithfully,
THE MALTINE COMPANY.

ASSOCIATION NEWS.

The Denver Meeting.

Medical Librarians.—There will be an important meeting of medical librarians and those interested in medical libraries, at the Brown Palace Hotel, Denver, on Monday, June 6, a 4 P.M. HENRY SEWALL, Chairman of Local Committee on Medical Libraries.

Executive or Business Committee.—The first meeting of the Executive Committee of the AMERICAN MEDICAL ASSOCIATION will be held in the club room of the Brown Palace Hotel, Denver, Colo., Monday afternoon, June 6, at 5 o'clock. Subsequent meetings of the committee will be held at the same time and place each afternoon during the meeting of the ASSOCIATION, unless otherwise ordered by the committee. It is essential for the successful conduct of the ASSOCIATION that all the members attend the meetings of the committee. L. DUNCAN BULKLEY, M.D., Secretary.

Railroad Rates.—The Western Passenger Association, Chicago, formally announces the following rates for the Denver Meeting of THE AMERICAN MEDICAL ASSOCIATION, June 7–10, 1898:

Rate.—One regular first-class normal tariff (not temporarily) fare, plus $2.00, for the round trip from Association territory to Denver, Colorado Springs and Pueblo, Colo., and return.

Dates of Sale.—Tickets to be sold from Eastern Committee territory, June 2, 4 and 5, and from Trans-Missouri territory, June 5 and 6, 1898.

Limits.—On going trip tickets to be good for continuous passage commencing on date of sale up to first Colorado common point en route; stop-over to be allowed on going trip at intermediate Colorado common points, but to arrive at destination not later than June 7, 1898. The return to be continuous passage beginning on date of execution by joint agent, with the provision that the return passage shall not commence earlier than June 12, nor later than July 6, 1898. Tickets may be executed for return at destination or either of the other Colorado common points en route. Purchaser to commence his continuous return passage return journey from point of execution.

Diverse Routes.—For this occasion tickets may read west of the Missouri River, going one route and returning another via any regularly authorized route via which regular short line one way rates are properly applicable.

Announcement.—The following arrangements have been made for the Denver meeting of the AMERICAN MEDICAL ASSOCIATION:

Section Dinners will be given June 7, at 7:30 P.M., and social entertainments will be given on other evenings during the week.

Ladies' headquarters will be at Unity Church, where they will be received by the wives of physicians of Denver. Arrangements have been effected for their entertainment during their visit, and committees will escort the visiting ladies to the various points of interest in Denver.

On Friday June 10, a complimentary excursion to Idaho Springs and around the loop will be given by the Colorado State Medical Society. At Idaho Springs, the ASSOCIATION will be entertained by the citizens.

On Saturday, a complimentary trip will be made to Colorado Springs under the auspices of the Committee of Arrangements. At Colorado Springs the ASSOCIATION will be entertained by the local physicians and citizens. Visits will be made to all points of interest in the vicinity. Arrangements will be made for trips to Pike's Peak and the celebrated mining camp of Cripple Creek at low rates of fare.

At a date to be determined, special trains for Glenwood Springs will leave Colorado Springs via The Denver and Rio Grande Railroad and the Colorado Midland Railroad. Tickets $5.00, good going via one railroad and returning the other, and for ten days from date of issue.

The trip to Glenwood is one of the most attractive in Colorado, giving excursionists a view of some of the finest scenery in the Rocky Mountains, including Pike's Peak, Ute Pass, the Valley of the Arkansas, Hagerman Pass, Canons of the Roaring Fork and Frying Pan, Canons of the Grand and Eagle Rivers, Tennessee Pass and the Royal Gorge of the Arkansas and passing through the cities of Pueblo, Leadville, Canon City and Florence.

Special Hotel rates will be given by the Hotel Colorado and other Hotels of Glenwood Springs. The springs, baths and swimming pool will be free to the ASSOCIATION.

Special cars will be hauled on the Colorado Springs train and the Glenwood Springs Special, only when handed to the railroads with their full capacity.

Section Dinners.—The following Section Dinners will be given at the Denver meeting of the AMERICAN MEDICAL ASSOCIATION on Tuesday, June 7, at 7:30 P.M.:

Practice of Medicine, Metropole Hotel.
Surgery and Anatomy; Obstetrics and Diseases of Women; Ophthalmology, Brown Palace Hotel.
Laryngology, L'Imperiale Hotel.
Materia Medica, Pharmacy and Therapeutics; Cutaneous Medicine and Surgery, Windsor Hotel.

Diseases of Children, The Albany Hotel.
Neurology and Medical Jurisprudence, University Club.
Stomatology, St. James Hotel.

In order that satisfactory arrangements may be made for dinners, it is essential that all members who expect to be present notify the Chairman of Committee on Section Dinners as soon as possible and not later than June 4.

E. C. RIVERS, Chairman,
16th and Stout Sts. Denver Colo.

Hotels.—The following is a list of the principal hotels of Denver with the rates agreed upon for the meeting:

The Brown Palaee Hotel, 17th Street and Broadway. Take 17th Street (red) car to Hotel. European plan, $1.50 per day and upward.

The Windsor Hotel, 18th and Larimer Streets. Take 17th Street car to Larimer Street. American plan, $2.00 per day; room with bath, $2.50 per day.

The Albany, 17th and Stout Streets. Take 17th Street (red) car to Hotel. American plan, $2.00 to $3.50 per day.

The Markham Hotel, 17th and Lawrence Streets. Take 17th Street car to Hotel. European plan, $1.00 per day and upward.

All reservations at the Albany and Markham must be for the full term of the Meeting, and be paid for whether occupied or not unless canceled ten days in advance. They reserve the right to place persons occupying a room alone in a single room.

The New St. James Hotel, Curtis near 16th Street. Take 17th Street (blue) car to Hotel. American plan, $2.00 to $3.50 per day.

L'Imperiale, 14th Street and Court Place. Take Colfax Avenue car to Court Place. American plan, $2.00 to $3.00 per day.

Metropole Hotel, Broadway near 17th Street. Take 17th Street (red) car to Broadway. European plan, $1.00 to $2.00 per day. $1.00 rooms, $1.50 if occupied by two persons. No reservations made.

The Oxford Hotel, 17th and Wazee Streets. Two blocks above depot. European plan, $1.00 to $3.00 per day. An extra charge for two persons in one room.

The Ameriean House, 16th and Blake Streets. Take 16th Street car to Blake Street. American plan, $2.00 per day.

The above hotels make no extra charge for reservations or for persons occupying a room alone except as stated.

The Hotel Broadway, Cheyenne Street and Broadway. Take Colfax Avenue car to Cheyenne Street. American plan, $1.25 to $1.50 per day.

The Vallejo, 1420 Logan Avenue. Take Colfax Avenue car to Logan Avenue. American plan, $2.00 per day and upward.

The Devonshire, 14th and Logan Avenues. Take Colfax Avenue car to Logan Avenue. American plan, $1.50 per day and upward.

The Albert, 17th and Welton Streets. Take 17th Street (red) car to hotel. European plan, $1.00 to $1.50 per day.

The Aldine, 1013 Seventeenth Avenue. Take 17th Street (red) car to hotel. American plan, $1.25 per day.

The Riehelieu, 1727 Tremont Street. Take 17th Street (red) car to Tremont Street. European plan, $0.50 to $1.00 per day.

The Earl, 1430 Tremont Street. Take Colfax Avenue car to Tremont Street. American plan, $1.50 to $2.00 per day.

Glenarm Hotel, Glenarm and 15th Streets. Take Colfax Avenue car to hotel. European plan, $1.00 per day and upward.

The Bonaventure, 18th and Glenarm Streets. Take 17th Street (red) car to Glenarm Street. European plan, $0.50 to $1.50 per day.

The Drexel, 17th and Glenarm Streets. Take 17th Street (red) car to hotel. European plan, .75 to $1.50 per day.

These hotels make small extra charges for two persons occupying same room. No charge for reservation.

Applications for rooms should be made to the hotels direct. For special information apply to ROBERT LEVY, M.D., Chairman Sub-Committee on Hotels, California Building, Denver, Colo. J. W. GRAHAM, M.D., Chairman.
W. A. JAYNE, M.D., Secretary.

Section on State Medicine.—Additional papers:

Cold and Respiratory Diseases, by Charles H. Shepard, Brooklyn, N. Y.

The Milk Supply of Cities, is the Public Entitled to Receive Better Service, by Henry O. Marcy, Boston, Mass.

The Water-supply of Cities, by C. F. Ulrich, Wheeling, W. Va.

Artificial Respiration in Relation to State Medicine, by E. D. McDaniel, Mobile, Ala.

The Action of Alcohol on the Body Cells, by Elisha Chenery, Boston, Mass.

Some Observations Concerning the Care of the Insane, by W. S. Parker, Asylum Station, Mass.

Rights of the Public in Dealing with the Department Classes, by Alfred W. Wilmarth, Chippewa Falls, Wis.

Suggestions as to the Limitation and Treatment of Juvenile Criminals, by D. R. Brower, Chicago, Ill.

The Influence of Certain Alcoholic Beverages upon the Secernment and Nutritive Value of Human Milk, by Heinrich Stern, New York City.

Smallpox in Alabama, by W. H. Sanders, Mobile, Ala.

The Turkish Bath in Children's Diseases, by Chas. H. Shepard, Brooklyn, N. Y.

Cremation of Garbage and Refuse; A Five Years' Test of its Cost, by Thos. F. Harrington, Lowell, Mass.

The Present Status of Antistreptococci Therapy as Related to Mixed Throat Lesions and Scarlatina, by Rosa Engleman, Chicago, Ill.

How to Limit the Overproduction of Defectives and Criminals, by J. H. McCassey, Dayton, Ohio.

The Advantage of a State Law Requiring Burial Permits, by L. Adelsberger, Waterloo, Ill.

Section on Laryngology and Otology.—Additional papers:

Perichondritis of the Larynx, by Geo. L. Richards, Fall River, Mass.

Surgical Interference in Occlusion of the Naso-pharynx, with Report of a Case of Congenital Occlusion, by D. B. Kyle, Philadelphia, Pa.

Rheumatic Sore Throat, by Burt D. La Force, Ottumwa, Iowa.

Edema of the Larynx Resulting from Administration of Potassium Iodid and Removal of Ossicles for the Radical Cure of Otitis Media Suppurativa, by Edward L. Bernstein, Baltimore, Md.

The Influence of Nasal Occlusion over Cerebration, by D. A. Kuyk, Richmond, Va.

A Report of Five Cases of Falsetto Voice in the Male, by G. Hudson Makuen, Philadelphia, Pa.

Deformities of the Nasal Septum; a Classification with a View to Treatment, by W. E. Casselberry, Chicago, Ill.

The Use of Formaldehyde in Tubercular Laryngitis, by T. J. Gallaher, Denver, Colo.

Effects of the Climate of Colorado upon the Mucous Membrane of the Nose, by G. Melville Black, Denver, Colo.

Prognosis of Laryngeal Tuberculosis, by Robert Levy, Denver, Colo.

Clinical Memoranda, a Group of Unusual Cases, by Samuel D. Risley, Philadelphia, Pa.

A Statistical Study of the Foramen of Rivinus and Scars of the Flaccid Membrane, by James M. Brown, Philadelphia, Pa.

Study of Empyema of the Accessory Cavities of the Nose, by L. J. Hammond, Philadelphia, Pa.

The Position and Significance of Drumhead Perforations, by Barton H. Potts and B. Alex. Randall, Philadelphia, Pa.

Affections of the Ear, Illustrated by Steriopticon, by B. Alex. Randall, Philadelphia, Pa.

Treatment of Purulent Otitis Media, with Report of Cases, by W. W. Buletts, Pueblo, Colo.

SOCIETY NEWS.

Texas Medical Association.—At the recent Association meeting resolutions were adopted in opposition to the District of Columbia Vivisection Bill.

New Hampshire Medical Society.—The 107th anniversary of the Society will be held May 26 and 27, 1898, at Concord. Moses C. Lathrop, Dover, president; Granville P. Conn, Concord, secretary.

Indian Territory Medical Association—The semi-annual meeting of the Association will convene at Wagoner, June 1, 10 A.M., for a two days' session, E. N. Allen, South McAlester, president; LeRoy Long, Caddo, secretary.

American Gynecological Society.—The Society will hold its twenty-third annual session at Boston, Mass., May 24 to 26, Paul F. Mundé, President; J. Riddle Goff, 22 East Thirty-fifth Street, New Yoro, secretary.

West Tennessee Medical and Surgical Association.—The seventh annual meeting of the Association was held at Jackson, May 19 and 20, R. B. Maury, Memphis, president; I. A. McSwain, Paris, secretary.

Kansas State Medical Society.—As previously announced (*vide* JOURNAL, p. 804) the Kansas State Medical Society met in Topeka May 4, 5 and 6. The committee, composed of five members from each of the three State societies, regular, eclectic and homeopathic, decided to hold another union meeting on the first Wednesday in May, 1899. Each committee is empowered by the society it represents to select a representative to read a paper at the 1899 union meeting. The object of these union sessions is the furtherance of medical legislation. The election of officers for the regular Society resulted as follows: President, J. A. Lane, Leavenworth; first vice-president, Melvin Collins, Oxford; second vice-president, S. B. Fairchild; corresponding secretary, J. W. Porter, Litchfield; recording secretary, W. E. McVey, Topeka; treasurer, L. Reynolds, Horton; librarian, S. G. Stewart, Topeka; member of judicial council, M. P. Sexton, Bonner Springs; chairman medical section, G. A. Boyle, Louisburg; chairman surgery section W. C. Bower, Lebanon; chairman gynecologic section, W. H. Smithers, Moline; chairman section on ophthalmology, H. L. Alkire, Topeka.

Wyoming State Medical Association.—Pursuant to a regularly issued call, physicians from various parts of the State met in the parlor of the Union Pacific Hotel, Rawlins, Wyo., May 13 for the purpose of organizing a State medical society. The meeting was called to order and the call read by Dr. E. Stuver, when an organization was effected by electing Dr. J. C. Hammond of Hanna, temporary president and Dr. E. Stuver, temporary secretary. The meeting then proceeded to the consideration of a constitution and by-laws, which, after a free discussion, was adopted, subject to alterations and amendments at the next regular meeting, which will be held in Rock Springs Nov. 1, 1898. The following officers were then elected to serve until the next annual meeting: R. Harvey Reed, president; Jacob W. Hawk, first vice-president; J. C. Hammond, second vice-president; W. C. C. Freeman, third vice-president; E. Stuver, secretary and editor; H. M. Bennett, treasurer. Drs. R. Harvey Reed, E. Stuver and J. C. Hammond were elected delegates to the AMERICAN MEDICAL ASSOCIATION. After the appointments of the committees the society adjourned.

Alabama State Medical Association.—At the recent meeting of the Alabama State Medical Association, a proposition to have a Jerome Cochran lecture delivered by some eminent physician, at the annual meetings in memory of this physician, was adopted. The following recommendations were also adopted. That the next Legislature be asked to adopt a law requiring compulsory vaccination and that the State Health Officer be called in in doubt; that a law be adopted giving the State quarantine laws precedence over the county laws; that the State Board of Health have charge of the matter of controlling the movement of trains, etc., in the event of epidemics; that the location of the proposed monument to Jerome Cochran be changed from Selma to Montgomery. The following officers were elected: President, H. A. Moody of Bailey Springs; orator, G. C. Chapman of Mobile; senior vice-president, S. G. Gay of Selma; junior vice-president, S. H. Lowry of Huntsville; secretary, G. R. Waller of Montgomery; treasurer, H. G. Perry of Greenville. Mobile was chosen as the next place of meeting.

National Confederation of State Medical Examining and Licensing Boards.—The eighth annual meeting of this Confederation will be held in the Brown Palace Hotel at Denver, on Monday, June 6, at 10 o'clock A.M. The following program has been arranged:

Address of Welcome, by William P. Munn, Health Commissioner of Denver. Response by Vice-president William Bailey.

Report of the Committee on Minimum Standards of Requirement; N. R. Coleman, Chairman, Columbus, Ohio. Discussion and action thereon.

Report of Secretary and Treasurer.

Annual Address by the President: Uniformity the Key to Reciprocity.

The results of the Medical Law of New Jerscy, E. L. B. Godfrey, Camden.

The Results of the Medical Law of Massachusetts, by E. B. Harvey, Boston.

The Results of the Medical Law of Kentucky, by Joseph M. Mathews, Louisville.

The Tennessee Method, by T. J. Happel, Trenton.

Under What Conditions is the State of Virginia Likely to Reciprocate as to Standards with Other States, by R. S. Martin, Stuart.

Some of the Practical Reasons why Latin and Greek should not be included in the Standard of Preliminary Education Required of Medical Students, by Henry Beates, Jr., Philadelphia. Discussion thereon, by J. A. Egan, Springfield, Ill.

On the Preparation of Questions, by Edward Cranch, Erie, Pa.

Papers by Charles K. Cole, Helena, Mont., and A. Walter Suiter, Herkimer, N. Y.

The object of the Confederation is to consider questions pertaining to State control in medicine and to compare methods in vogue in the several States, the collection and dissemination of information relating to medical education and to consider propositions that have for their purpose advancement of the standards in the United States. A cordial invitation is extended to all members and ex-members of State Medical Examining Boards, and to physicians, sanitarians and educators who are friendly to the objects named, to attend the meeting and participate in its proceedings.

A. WALTER SUITER, Secretary. WILLIAM WARREN POTTER, President.

Florida State Medical Association.—At a recent meeting the Florida State Medical Association endorsed the resolutions adopted at the quarantine conventions held at Mobile and Atlanta, memorializing Congress to take appropriate action for the protection of the United States against the incursion of yellow fever from foreign sources and particularly from Cuba, and adopted the following resolutions, ordering that the action be certified to the Florida senators and congressmen in Washington, urging immediate action:

"*Resolved*, That it is the sense of this convention:

"1. That Congress be requested to provide for a Department of Public Health as soon as practicable:

"2. That it is the sense of this convention that Congress should enact laws to provide for an efficient maritime quarantine, to be uniform and impartial in its application to the different commercial ports of this country, so as to give no one or more of them undue commercial advantage over the others, and to be enforced by the several State and municipal quarantine or health boards if they will undertake so to do; leaving also to the States the power to prescribe and enforce additional safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.

"3. That Congress should aid the several States in establishing and maintaining uniform, reasonable, and efficient quarantine laws for affecting, but not regulating interstate commerce, leaving to each State adequate power to protect as it shall deem best the lives and health of its people.

"4. That Congress should leave exclusively to the States the regulation of their purely internal commerce and the provision of such quarantine and sanitary laws and regulations as they may deem advisable to that end.

"5. That in the framing of quarantine laws and regulations, and in their enforcement, Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible, and especially by way of an advisory council."

In connection with the same subject, Dr. Frank H. Caldwell of Sanford, offered the following resolutions, which were adopted unanimously:

"*Resolved*, That this Association extend its congratulations to their fellow-citizens of the State of Florida upon the escape of the State from an epidemic of yellow fever during the past season, when the dread disease prevailed so extensively in our neighboring States of Alabama and Louisiana.

"*Resolved*, further, That in the opinion of this Association, our freedom from the invasion of this disease was due to the active work of our State Board of Health and particularly to the untiring zeal of our efficient State Health Officer.

"*Resolved*, That in our opinion any relaxation of restrictions during the coming season will materially increase the danger of importation of the disease into the State. We, therefore, urge the State Board of Health to insist on the United States Government recognizing this danger and request the Governor of the State of Florida to uphold the State Board of Health in enforcing regulations which they may deem proper to make for our protection."

The election of officers resulted as follows: President, R. P. Izlar of Waycross; first vice-president, T. S. Anderson of Branford: second vice-president, W. L. Hughlett of Cocoa.

PUBLIC HEALTH.

An Abominable Italian Industry.—It has just been brought to the attention of the authorities in Naples that the ragmen have been in the habit of purchasing the wadding or charpie used for dressing in the hospitals, and after washing it, selling it to upholsterers for padding sofas; the railroad cars have also been using this discarded material. A vigilance service has been established to prevent such sales, and this wadding or dressing is now destroyed in the sanitary furnace at Pasconcello.—*Medical News.*

Health in Chicago.—The report of the Department of Health for April gives 2133 deaths for the month, a rate of 1.32 per 1000. The rate for the corresponding month in 1897 was 1.06. Of these 2133 deaths, 505 were persons under 1 year old and 266 between 1 and 5 years. The principal causes were: Pneumonia 359; nervous diseases 276; consumption 222; bronchitis 131; acute intestinal diseases 119; heart diseases 116; typhoid fever 94; cancer 60, and diphtheria and membranous croup 30 cases. There were 135 examinations of suspected diphtheria made, of which 60 were found to be true diphtheria, 69 false diphtheria, while 6 examinations were unsatisfactory, *i. e.*, no growth, etc.

Health in Michigan.—The report of the State Board of Health for April gives the diseases most prevalent during the month as, rheumatism, influenza, neuralgia, bronchitis, pneumonia, inflammation of the kidney, pulmonary consumption and diarrhea. Compared with the March report (*vide* JOURNAL, p. 998), measles and remittent fever increased in area of prevalence. Compared with the average for twelve years, for April, intermittent fever, consumption, scarlet fever, whooping-cough, remittent fever, erysipelas and diarrhea were less prevalent. Consumption was reported at 147 places, measles at 117, scarlet fever 50, diphtheria 43, typhoid fever 37, whooping-cough 19, and smallpox at one place.

The New York Board of Health Provides Against Emergencies.—The Health Department of New York city realizing that conditions may arise during the coming summer requiring the employment of a large number of experts who have had experience in its work, has asked that all persons who have been employed in the department during the past twenty years send their names and addresses to the Secretary at the office, Center and Elm streets. The names thus sent in will be placed on a roll, to be known as the "Reserve Sanitary Corps." It is not stated whether this corps will receive any recompense, if called upon; and it is not stated how the order of selection will be arranged. Is it possible that an evasion of civil service regulations is being foreshadowed?

Decision Favorable to a Contagious Disease Hospital.—In a suit to prevent the maintenance of a smallpox hospital on the ground that it is a nuisance to the neighboring residents of the small Yorkshire town in which it is situated, Justice Romer sitting as an equity judge, lately heard considerable interesting medical testimony in regard to the manner in which smallpox may be conveyed from the patients in such an institution. The complainant's witnesses were generally of the opinion that the disease could be transmitted through the air to some extent, outside the precincts of the hospital. One witness, however, the government health officer at Hastings, limited the likelihood of outsiders being reached by smallpox to such persons as came within 600 feet. This theory of aerial convection, as it is called, was rejected by the medical men testifying in defense of the Yorkshire hospital, who expressed great confidence that wherever all the facts of a case of smallpox could be ascertained it would appear that the malady was due either to direct or mediate contagion, that is, contact with the patient himself or with a person who had seen the patient. Justice Romer refused to adjudge the hospital to be a nuisance, but did not expressly determine whether the theory of aerial convection is or is not correct.

The Prevention of Smallpox.—Apropos of the history of smallpox in Paris since 1870, there has just appeared a comparison of the conditions which obtain in Berlin and Paris. Vaccination is not compulsory in France, and since 1870 more than 20,000 people have died in Paris from smallpox. There have been two or three noteworthy epidemics, the epidemic of 1871 and 1872 being especially severe and fatal. Berlin has had no epidemic since the one that occurred among the French prisoners in 1871. Vaccination is compulsory in Prussia, and school and military regulations are so framed that care is taken to provide for revaccination later in life, as well as the original vaccination in early childhood. Paris' lowest death-rate from smallpox for any year since 1870 was in 1895, when only seventeen deaths were reported. Of this state of affairs the health authorities were very proud, and not without reason, since the inability to require vaccination makes it extremely difficult to guard against the spread of the disease when once it has invaded a district. The next year, 1896, a few scattered cases of smallpox occurred in Berlin and two deaths were reported. The excitement over this was very great and a whole series of investigations were undertaken to discover, if possible, where the blame lay.—*Medical News.*

Health of Large Cities in 1897.—The European edition of the *New York Herald* contains the following table of mortality in a certain number of towns in all parts of the world during the year 1897. The Hague 14.8, Brighton 15.0, Cardiff 15.1, Amsterdam 15.2, Stuttgart 16.1, Charlottenburg 16.1, Portsmouth 16.2, Christiana 16.2, Bremen 16.3, Frankfort-on-the-Main 16.3, San Francisco 17.1, Stockholm 17.2, Hamburg 17.2, Berlin 17.4, Copenhagen 18.8, Brooklyn 17.8, London 18.1, Paris 18.6, Philadelphia 18.7, Lyons 18.8, Venice 19.1, Leipzig 19.6, New York 19.7, Dresden 20.4, Cologne 21.2, Vienna 21.3, Birmingham 21.5, St. Petersburg 21.8, Glasgow 21.9, Nuremburg 22.5, Halle 22.7, Manchester 23.0, Baltimore 23.0, Aix-la-Chapelle 23.1, Salford 23.8, Liverpool 24.3, Munich 24.5, Breslau 25.0, Stettin 25.3, Belfast 25.7, Trieste 25.8, Dantzig 26.2, Havre 27.5, Rouen 28.4, Moscow 28.6, Dublin 28.9, Madrid 29.8, Cracow 32.3, Bucharest 32.8. It will be seen that Berlin, Paris and London hold a high position. The mortality in Berlin is usually considerably larger, and last year was an exceptionally healthy one in the German capital. In very many of the large cities the rate of mortality in 1897 was much smaller than in previous years. The improvements in sanitary arts are beginning to bear fruit and even better results are expected by those who, under the name of sanitarians, are devoting their lives to the combat with communicable disease.

A Wall Disease Due to Micro-organisms.—Dr. Vallin, before the Ninth International Hygienic Congress, considered the subject of the presence of saltpeter in the walls of domiciles. From this condition, he claims, there results a disease of the walls due to the presence of micro-organisms. As the walls could not suffer without causing serious inconvenience to the persons whom they were destined to shelter, it was the duty of sanitary reformers to seek to cure the walls and thus save the inhabitants. The disease was caused by the penetration

into the body of the walls of the bacilli of nitrification, and consequently the houses became cold, damp and unwholesome. This condition was likely to occur in damp localities and in presence of nitrogenous organic matter. From the sanitary point of view this disease of the walls could and should be prevented or cured as we prevent or cure virulent diseases among men and animals. Consequently, Dr. Vallin proceeded to speak of the walls of a house just as if they were human beings and went systematically through the various symptoms of their diseases. Dealing first with the prophylaxis of wall diseases, he pointed out that the primary step to be taken was to thoroughly drain the ground round the walls and isolate them from the surrounding earth, if possible by a trench and by the use of cement, asphalt, or coal-tar. Thus the access of water-bearing nitrifying bacteria that are aerobic would be prevented. It was also very necessary to mix the mortar used with antiseptic solutions such as dissolved sulphate of copper, etc. Where these precautions had not been taken and the disease had broken out, then the treatment indicated was as follows: First, to scrape off and wash away all superficial traces of saltpeter, etc.; then the walls should be inoculated with active cultures of the anti-nitrifying bacilli which impoverish farm manure by decomposing the nitrates and by throwing off in the atmosphere a great part of the nitrogen which they contain; these walls should then be covered over with impermeable paint so as to retard the process of nitrification of the aerobic germs and, on the other hand, to stimulate the growth of the anaerobic and anti-nitrifying germs which remove the oxygen from the nitrates and from ammonia when they can not supply themselves with oxygen from the atmosphere.

A Pennsylvania State Hospital for Consumptives Proposed.—Dr. Benjamin Lee reports in *Public Health*, March, that progress has been made in regard to the proposed mountain sanatorium for the tuberculous. Several points along the line of the Lehigh Valley Railroad have been visited by Dr. Lee and his coadjutors and White Haven has been found to possess special advantages for such an institution. The point selected is about 1225 feet above the level of the sea, and 150 feet above the Lehigh River. Green Mountain rises gently from the Borough of White Haven until at an elevation of 100 feet above the town it forms a plateau, a few hundred feet in width, stretching westward indefinitely. It is on this plateau that it is proposed to locate the sanatorium. The prevailing winds of this locality are northwest, and the sanatorium would be protected from them by Green Mountain, which rises rather abruptly from the plateau some 400 feet, and passes westward continuously with the plateau. It thus affords admirable shelter from the wind. The sun exposure is all that could be desired. The outlook is to the south and the plateau is bathed continuously with sunshine from daylight to dark. The view is out over a wide stretch of wilderness, east, west and south. From the top of Green Mountain there is a charming prospect toward every point of the compass. The soil is porous, and rains, however slight, are speedily carried down the declivity, or so thoroughly removed by percolation as to prevent the rendering of the atmosphere humid, as it would be under other circumstances. With the exception of a clearing on the plateau, which is occupied as a farm, the mountain side is wooded. It is the natural home of the pine, though the extensive lumbering operations which brought White Haven into being, have long since brought about an almost entire disappearance of this beneficent tree, whose varied products, by some strange chemistry of nature, have ever been found to be so healing in affections of the respiratory tract. For purity of atmosphere the locality is up to a high standard, and is pronounced practically free from miasmic and malarial influences. This tract of several hundred acres can be had free of cost, if the funds for building and organizing the plant can be obtained. A donation, by the State legislature or by private contributors, of $30,000 will launch the enterprise. The legislature of 1898 has recently declined to make the appropriation this year, but the movement will not be allowed to rest there.

BOOK NOTICES.

Medical and Surgical Report of the Boston City Hospital.—Ninth Series. Edited by CHARLES F. FOLSOM, M.D., W. T. COUNCILMAN, M.D., and HERBERT L. BURRELL, M.D., Boston, published by the Trustees, 1898. Pp. 276.

The contents of this volume are the following:

1. A Clinical Study of Eight Hundred Cases of Diphtheria at the South Department of the Boston City Hospital, by John H. McCollom, M.D.

2. Heart Complications in Diphtheria, by Cleon Melville Hibbard, A.M., M.D.

3. Acute Degeneration of the Nervous System in Diphtheria, by John Jenks Thomas, A.M., M.D.

4. The General Infections and Complications of Diphtheria and Scarlet Fever, a bacteriologic Study of 157 cases, by Richard Mills Pearce, M.D.

5. Seventy-one Cases of Cerebro-spinal Meningitis, by Francis H. Williams, M.D.

6. Hydatid Cyst of the Liver, by A. L. Mason, M.D., and H. L. Burrell, M.D.

7. Surgical Abstract, by Herbert L. Burrell, M.D., and John T. Bottomley, M.D.

8. The Clinical and Pathologic Report of a Case of Fracture of the Spine in the Cervical Region, by J. W. Courtney, M.D.

9. Treatment of Prolongation Forward of the Nasal Septum into the Nostril, by John W. Farlow, M.D.

10. A Case of Vesico-Utero-Vaginal Fistula Treated by Colpocleisis, by Charles M. Green, M.D.

11. The Local Anesthetics used in the Eye, by Walter B. Lancaster, M.D.

12. Formaldehyde as a practical disinfectant and as an aid in the practice of surgery, by Charles Harrington, M.D., and Richard Mills Pearce, M.D.

13. Endocarditis from Gonorrhea, by George G. Sears, M.D.

14. Hematoporphyrinuria with the Report of a Case, by Dr. J. B. Ogden.

15. A Study of Thirty-seven Fatal Cases of Cirrhosis of the Liver, by John Lovett Morse, M.D.

16. A Case of Malignant Pustule, by Abner Post, M.D.

17. A Case of Late Congenital Syphilis, by Abner Post, M.D.

18. Two Cases of Amebic Enteritis, by Lawrence Watson Strong, M.D.

19. A Report of a Case of Appendicitis showing the Relation of the Colon Bacillus and the Streptococcus Pyogenes as Etiologic Factors, by Joseph J. Curry, M.D.

20. The New Surgical Services by Herbert L. Burrell, M.D.

21. The Pathologic Laboratory of the Boston City Hospital, by F. B. Mallory, M.D.

Report of the Health Department of the City and County of San Francisco. Paper. Pp. 463. San Francisco. 1897.

This report is for the fiscal year ending June 30, 1897, and, in addition to the many full-page tables, contains a map of the city showing localities of deaths from diphtheria, total number sixty-six, during the fiscal year. The reports are largely tabular in form. An appendix contains, a list of master plumbers, markets, laundries, bakeries; reports on samples of food collected; chemic analysis; inspectors' record of milk cases; arrests and disposition of cases, and a report on sanitary condition of dairies and number of cows.

Proceedings of the North Dakota Medical Society, for 1897. Paper, pp. 80. Grand Forks, N. D., 1898.

This volume comprises the transactions of the tenth annual meeting of the State Medical Society of North Dakota, held at Grand Forks, May 26 and 27, 1897, the by-laws, constitution, and list of members. The following papers are included: "Voluntary Commitment of the Insane;" "An Interesting Case of

Heart Disease;" "Equal Parts of Chloroform and Ether as an Anesthetic;" "Demonstration of a New Cystoscope for Examination of the Bladder;" "Treatment of Severe Forms of Corneal Ulceration;" "A Method of Treatment for Acute Appendicitis where Pus or Severe Infection is Present; with Report of Cases;" "Résumé of Thirty-six Operations for Appendicitis:" "General Remarks on Typhoid Fever;" "Hemiatrophia Facialis with a Case;" "Ventro-Fixation of the Uterus."

Twenty-first Annual Report of the Board of Health of the State of New Jersey and Report of the Bureau of Vital Statistics. 1897. Paper. Pp. 389. Trenton, N. J. 1898.

This volume contains reports covering the usual matters found in health reports; a list of members of the State Board of Health; list of coroners; "The Public Health Law of New Jersey," by W. M. Lanning; "River Polution," by E. J. Marsh; circular and laws, "The New Jerscy Sanitary Association," and numerous tables of vital statistics.

NECROLOGY.

THOMAS D. DUNN, M.D., West Chester, Pa., died May 6 as a result of an operation necessitated by a recent accident. He was a graduate of Pennsylvania University, 1881, a member of the Philadelphia Pathological Socicty, Pennsylvania State Medical Society, and, in fact, founder of the Chester County Hospital. He was 44 years of age.

NORMAN GAY, M.D., Columbus, Ohio, died at his home May 6, aged 78 years. During the Civil War, as a surgeon on Grant's staff, he rendered service at Shiloh and Corinth and afterward in the hospitals at Nashville and Atlanta. Dr. Gay was a member of the AMERICAN MEDICAL ASSOCIATION, and one of the charter members of the Ohio State Medical Society.

C. H. EVANS, M.D., Canton, Ohio, died May 12. He was a graduate of Jefferson, 1884, a member of the AMERICAN MEDICAL ASSOCIATION, Ohio State Medical Society, American Microscopical Society and other societies, and author of a monograph on "The Microscope in Diagnosis and Prognosis."

A. L. BROWNE, M.D., Cornwall-on-Hudson, N. Y., May 3, aged 36 years.——Henry Doutteil, M.D., New Brittain, Conn., May 3, aged 50 years.——Harold Eagleson, M.D., Meadville, Pa., aged 27 years.——D. McL. Graham, M.D., Wallace, N. C., May 5.——B. M. McCauley, M.D., West Salem, Ohio, May 3, aged 50 years.——John Seay, M.D., Nashville, Tenn., May 9, aged 73 years.——Albert Toon, M.D., Louisville, Ky., May 9, aged 58 years.——Jerome J. Tuthill, M.D., Chicago, May 12, aged 34 years.

DEATHS IN THE PROFESSION ABROAD.—Prof. S. Stricker, one of the medical celebrities of Vienna, a pioneer and author in general and experimental pathology. His death followed a month after the celebration of his twenty-fifth professional jubilee, as also occurred with Prof. E. Schwimmer, the dermatologist of Buda-Pesth, whose death is announced in his 62d year.——P. L. Utinguassu, professor of physiology and anatomy, Rio de Janeiro.——Lazaro Ortega, M.D., Mexico.——Prof. G. Dragendorf, Rostock, author of numerous works on pharmacy, legal chemistry and toxicology.——D. A. Appia, M.D., Geneva, aged 80 years, one of the promoters of the Geneva Conference.——Jules Worms, M.D., Paris, aged 68 years, noted for his contributions to epidemiology and medical statistics.

MISCELLANY.

Election of Professor.—Dr. G. P. Head has been elected Professor of Laryngology and Rhinology at the Chicago Post-Graduate Medical School.

Honesty in Advertisements was attempted by a bill before the New York State legislature which failed of becoming a law. Although not so announced, the measure was intended as a blow against patent medicines, which as usual were abandoned to their fate. Trade requirements were too powerful.

Practice in New Hampshire.—The third examination for licenses to practice medicine in the State of New Hampshire will be held at the State House, Concord, on Tuesday and Wednesday, June 21-22, 1898, beginning at 8 o'clock A.M. All unlicensed physicians who were not in practice in this State on and before March 16, 1897, must pass the examinations in order to receive a license to legally practice their profession. Application blanks should be procured at once, as these papers must be filled out and in the hands of the Regent by June 15. All information regarding the coming examinations will be cheerfully given by the Department of Public Instruction, State Library, Concord. FRED GOWING, Regent.

Importance of Sugar as a Food.—Chauveau recently demonstrated before the Paris Académie des Sciences that the general assumption in regard to the amount of calories produced by sugar is erroneous. Instead of the theoretic assertion that three grams of sugar are equivalent to the nine calories produced by the consumption of one gram of fat, only 0.756 grams of sugar are required to produce this same amount of calorics. He urged the repeal of duties which tend to restrict the use of sugar, contending that the people should be encouraged to use it more freely.

Effect of Section of the Spinal Cord on the Bactericidal Power of the Blood.—A series of experiments on dogs, at Catania, demonstrate that cutting the spinal cord destroys the bactericidal power of the serum, which then favors the development of colonies of the anthrax and coli bacilli instead of decimating them as in the normal condition. It was also found that the lesion materially reduced the alkalinity of the blood and the amount of albuminoids contained in it. The animals also lost their normal resistance to these infections and succumbed rapidly to inoculations. It is still a query whether these phenomena arc due to the trophic disturbanccs or the hypothermia which follow the injury to the spinal cord.—*Gazzetta degli Osp. e delle Clin.*, April 17.

Lymphadenoma and Leukemia.—Hallopeau concludes from a rare case he has been observing, that primary leukemia may occasion eruptions simulating mycosis, accompanied by intense pruritus and multiple adenopathy without appreciable alterations of the integument. The subcutaneous tissue may become indurated, thickened and hypertrophied, although the surface remains smooth and the natural contours are retained in spite of the cnormous amplification, in his case symmetric, and on the face, producing a most remarkable appearance.—*Ann. de Derm. et de Syph.*, March.

The Tolerance of the Tissues for Wires is strikingly exemplified in a case described by Lucas-Championnière, in which the triceps and tendons had been ruptured and were so contracted that immediate union was impossible. A double silver wire was passed through the muscle above the capitellum and another through the capitellum itself, thus fastening the solid bone to the solid part of the muscle. The arm was placed in a splint and when the dressing was changed the fourth day, the arm was mobilized. The patient was entirely cured in a month and radiographs taken seven months later showed the complete regeneration of the muscle.—*Bull. de l'Acad. de Méd.*, March 29.

Restoration of the Urethra in Hypospadia.—Nové-Josserand reports the success of a new operation. He supplied a new skin-lined urethra by taking on Ollier autoplastic flap from the thigh and rolling it around a piece of a 21 bougie only a trifle longer than the penis, skin side in, tied to the bougie at each end, the edges caught together with a couple of stitches, the whole somewhat resembling an umbrella in its cover. A tun-

nel was first made through the tissues of the penis, commencing at its juncture with the scrotum, and the skin flap was then introduced into this tunnel, the end emerging at the point of a normal urethral orifice. The skin flap soon grew in; the bougie support was removed the tenth day; soft catheters were cautiously inserted the fifteenth day; results perfect; permanent to date, six months.—*Rev. de Chir.*, April 10.

Ants and the Plague.—A Bombay correspondent of *The Times of India*, describes an observation made by him regarding a nest of ordinary red ants, which infests the storerooms in India. The house in which the ants had their nest was infected with plague virus as shown by the number of rats and bandicoots which were daily found dead. One day it was noticed that the ants were moving and taking all their belongings to a new home about nineteen feet from the old nest. Further observation revealed that many hundreds of the insects were dead and dying, that the dead had been carried away by their companions about a foot distant from the new home until a little reddish heap was formed, and that much of the stores of rice had been cast away as if unfit for food. Two days later, the mortality still continuing, a further move was made, the dead ants and the discarded rice being left behind. This performance was repeated several times until an accident destroyed the nest and prevented further observations.

The Frequency and Importance of Vascular Thrombosis in General Pathogenesis is emphasized by Venneman, who states that thromboses are found in the finer blood and lymph vessels wherever there has been an infection. They are not necessarily accompanied by sclerosis nor acute inflammation, nor by especially sluggish circulation. The endothelium alone shows signs of exaggerated vital, pathologic, activity; thinner walls, swollen and divided nuclei. The thrombosis is therefore due to the circulating fluid. It is not caused by microbes directly. He considers the giant cells of tubercles nothing but thrombosed vessels with a crown of exaggerated proliferated epithelial nuclei. Ecchymoses and sarcomas, etc., also contain many thromboses. His principal research was made with ophthalmologic specimens. He concludes with the hope that an effective medication may soon be found to oppose this thrombotic tendency.—*Sem. Méd.*, March 30.

Inference From Removal of Ovaries.—In some cases injuries are sustained which are of such a nature as will, in themselves, warrant an inference that they will permanently affect the injured person's health, or lessen his or her capacity to labor. But the United States circuit court of appeals declares, in Western Union Telegraph Company vs. Morris, that it can not say that the injuries inflicted by a surgical operation, which consisted in removing ovaries and Fallopian tubes, were of such a character that a jury was at liberty to infer therefrom that the health of the person upon whom the operation had been performed would be permanently affected, or that her capacity to labor would be thereby impaired. It is just as reasonable to suppose, in the absence of any evidence on the subject, continues the court, that she sustained no loss in either of these respects. On the other hand, the court holds that it was not reversible error to leave the jury to determine whether a telegraph company's failure to properly transmit a message summoning a physician was not the proximate cause of the plaintiff's being subsequently compelled to undergo such a surgical operation, when the physician testified that if he had reached the patient at the time he would have, but for the mistake, he believed that he could have rendered the subsequent surgical operation unnecessary.

Brain Abscess in Infants.—In the *Archives of Pediatrics* for February and March, Holt reports five cases of abscess of the brain in infants and a summary of twenty-seven collected cases in infants and very young children. He concludes that: 1. The affection is rare under five years of age. 2. Otitis and trauma-tism are the principal causes. 3. It most often follows neglected cases, though rare in acute otitis, and is usually secondary to disease of the petrous bone. 4. In cases in infancy without evident cause, the ears are probably the source of infection. 5. Abscess rarely develops after injury to the head without fracture of the skull, and cerebral symptoms arise within two weeks after the injury in nearly all traumatic cases. 6. Only general symptoms are present in a large proportion of the cases. 7. Unless they are constant, focal symptoms may be misleading, and even when constant may depend on meningitis or other associated lesions. The motor symptoms alone can be relied on. 8. Rapid progress, fever, and history of injury generally diagnostic from tumor, while lumbar puncture assists in slower cases with little or no fever. 9. Where there are only terminal symptoms, the diagnosis from meningitis is impossible. In the more protracted cases the distinctive points are the slower and more irregular course and generally a lower temperature. 10. Operation should not be urged unless definite localizing symptoms, the principal one hemiplegia, are present.

Asphyxia Neonatorum.—Fry (*Am. Jour. of Obstetrics*, April) considers Schultze's form of artificial respiration most efficient, but one that on account of its roughness should not be tried too long. He has had good results with hypodermatic injections of 15 minims of whisky, in some instances the asphyxia being in the more severe state. In the severer form persistent vigorous efforts toward artificial respiration act injuriously on the heart, therefore in infants born in this condition, he leaves the infant undisturbed in its placental attachment so long as any pulsation of the cord is apparent. It should be suspended by the heels for the purpose of clearing the throat and upper air-passages of mucus, and assisting by gravitation to overcome cerebral anemia. From this point the indications are: Application of external heat, best done by immersion in water at 100 degrees F., and stimulation of the respiratory center, the circulation, the muscular system and the abolished reflexes. He recommends strychnia, hypodermically, to fulfil these indications. He administers $\frac{1}{200}$ gr. and carries on accessory treatment after its administration, artificial respiration being carried on while the child is in the hot bath, Sylvester's or Derr's method being best in these circumstances.

Gleanings.—Several cases of acute rheumatic polyarthritis very favorably affected by intravenous injection of corrosive sublimate. *Cbl. f. Therap.*, 1898, 1.—Benefits of thyroid treatment for obesity extolled by Affanassieff; entire absence of trouble or disturbances. *Klin. therap. Wo.*, v, 6.—Incontinence of urine first symptom noted in a case of ovarian cyst. *Jour. de M. de P.*, April 3.—From a study of 100 cases of paralysis agitans, v. Krafft-Ebing is inclined to ascribe the etiology to psychic or mechanic trauma affecting persons undergoing biologic involution, usually during the fifties, superadded to a tendency to perivascular sclerosis. *Wien. kl. Woch.*, xi, 1.—Splenalgia noted in nine-tenths of the cases of chlorosis, also frequent osteomyalgia. Goloubov in *Sem. Méd.*, March 30.—Case of vulvitis gangrenosa (noma gen.) with diphtheria bacilli, cured with antitoxin. *Deu. Med. Wo.*, April 14.—Five cases in four generations in one family in which acute circumscribed edema developed, about 20 years of age, with intermittent vomiting, colic and other symptoms of an angioneurosis. *Wien. kl. Wo.*, 14.—Bismuth intoxication reported following injection of 35 grams of a 10 per cent. airol emulsion into an abscess in the psoas. *Cbl. f. Chir.*, April 23.—Dos Santos states in the January *Gaceta Med. de Bahia* that a case of beri-beri contracted by contagion has never been known in the Brazilian navy.—Pure pneumococcus found in arthritis in the wrist complicating pneumonia. *Sem. Méd.*, April 6.

Total Extirpation of the Bladder.—First performed on man in 1887, this operation has only been successful in three cases to date, all women, reported by Pawlik, Kossinski and Trendel-

enburg. The latter inserted the mouth of the healthy ureter in the sigmoid flexure. The *Rev. de Chir.*, April 10, contains the report of the first success obtained on a man, communicated by Tuffier and Dujarier, date October, 1887. The bladder was the seat of an alveolar epithelioma involving the entire wall. The patient, 40 years, was much emaciated from the extreme pain he had suffered, but otherwise in good condition. Ether. Trendelenburg position. After a ⊥ incision on the median line of the symphysis, extending to the inguinal region, the bladder was shelled out like the uterus in a vaginal hysterectomy without opening into the peritoneum. The orifice of the urethra was thermo-cauterized, the ureters catheterized and a button-hole made in each side of the rectum, through which the catheterized ureters were inserted, bringing the ends of the long catheters and of the threads that fastened them in the ureters out through the anus and fastening them. Iodoformed gauze was applied first then aseptic gauze and the wound closed except a large subpubic opening left; aseptic cotton dressings. The urine passed off duly by the catheter; there was no vomiting; slight fever a day or two later with pulse 130; restored to normal with intravenous injection of 1800 grams of physiologic solution, repeated 1500 grams next day. Fifth day threads removed; seventh day catheter removed and hypogastric wound drained with tube siphon. A little urine and fecal matter drained out the first day, but after this recovery proceeded uneventfully except for a slight transient edema of right leg. Urine was normal in quantity and the patient now attends to his usual occupations, wearing his reservoir and siphons without inconvenience.

Object of All Questions to Experts.—The object of all questions to experts, the supreme court of appeals of West Virginia says, in the late case of State vs. Musgrave, should be to obtain their opinion as to matters of skill or science which are in controversy, and at the same time to exclude their opinions as to the effect of the evidence in establishing controverted facts. Although an expert may have heard all the testimony in the case, he can not, continues the court, be asked to give his opinion, based merely upon his having heard such testimony in the case, whenever there is a conflict therein, unless the same is hypothetically propounded to him. An expert can not be asked to give his opinion on doubtful facts in the case on trial, which remain to be found by the jury, but a similar case may be hypothetically put to him, based upon the evidence in such case. Where the inquiry relates to a subject which does not require peculiar habits of study in order to enable a man to understand it, the opinion of skilled or scientific witnesses is not admissible.

Electric Localization of the Motor Cortical Zone.—The *Archives Clin. de Bordeaux*, vi, 11 and 12, contain a study by L. Lamacq of fifty observations of faradic stimulation of the cortex in man, by such observers as Keen, Allen, Starr, Bechterew and others, over half of them unpublished. He notes that the first movement in response to stimulation has the most significance; the reaction becomes more complex as the effect of the stimulation spreads. The localization is so precise that the slightest change in the position of the electrode affects the response. Precisely localized motor reaction denotes higher functional activity. No simple movement can be obtained in animals nor in the motor zone, for the face and lower members; the reaction is always a co-ordinated movement. He observes that it would be interesting if tests could be made on acrobats and others who have trained their feet to serve them like hands. The inexcitable points seem to be quite numerous, and are located between the excitable centers. The motor zone and the various fissures may vary slightly in different individuals, and morbid conditions may affect the reaction. The extreme utility of faradization as a means of investigation, its importance to surgery and its established harmlessness, should lead to its more general adoption. In comparing his average diagrams with Ferrier's we notice that the motor zone is confined more strictly to the anterior central convolution. The thumb and eyelid centers alone impinge constantly on the posterior central convolution.

Modern Discoveries merely an Evolution of the Medical Sciences not a Revolution.—The profession is too modest to claim before the lay public all the credit that justly belongs to it, and that should be more widely appreciated. The discoveries of late years have merely confirmed with scientific reasons the methods of procedure adopted as the results of observation and experience long years before phagocytosis and antitoxins were dreamed of. The public is apt to think that the new discoveries have revolutionized everything, while in fact the reverse is the case; they merely explain the why and wherefore of the old methods. A striking instance is shown in the mortality from puerperal fever at the great Charité at Berlin during the century. From 1801 to 1813, it averaged 2.06 per cent. of all maternity cases. The physicians in charge at that early day insisted on cleanliness, refrained from vaginal palpation and used sodium hypochlorite freely, and from 1814 to 1852 the mortality fell to 1.1 per cent. Since Lister's day it has averaged 0.29 to 0.5 per cent. The frightful increase between 1852 and 1874 was due to the increased facilities for the study of anatomy and the students going directly from the dissecting-room to the maternity wards. In those years the mortality averaged one-sixth, while one-third of all the maternity cases contracted the disease. Another instance is the discussion of the value of revulsive measures to which the *Paris Acad. de Méd.* has devoted over half a dozen recent sessions. Huchard claims that the blister has passed away with the seton and other minor dubious therapeutic measures, but the majority are cordially in favor of it still and refer to numberless instances in which, applied with judgment, it has rendered invaluable assistance. One member quoted the Italians, who have shown that the local stimulation is carried all through the lymph and blood circulation. Another mentioned a patient of his who had been relieved each time with a blister, with no injurious after-effects, and had applied it nearly three hundred times.

Studies from a British Blue Book.—Cleveland Moffett, in an analysis of a British-Blue-Book statistics of deaths in England during 1890, 1891 and 1892 draws many interesting conclusions. He finds that in a comparative mortality table that the dispensers of alcohol, who head the list, die of its effects from three to ten times faster than the average of occupied males, three times faster for the brewer and ten times faster for the London hotel servant. On the other hand, the mortality from alcoholism among agricultural laborers, railway men, iron and tin and coal miners, clergymen, fishermen and others is far below the average, only one-third or one-fourth of it, while in the case of soap manufacturers, lead workers, copper miners and carpet manufacturers, no deaths whatever are recorded from alcoholism. The mortality among publicans in London, according to Moffett is nearly double that of all occupied males for the former class, inasmuch as they die nearly 10 times as fast from alcoholism, 5½ from gout, 3½ from diabetes, 3¾ from liver diseases and more than twice as fast from phthisis, rheumatic fever and suicide. Our statistician especially points out also the glossing over of the real causes of death due to alcoholism by a simple statement of a mere pathologic condition. He cites cirrhosis of the liver as a particular instance to the point and suicide as another. In the British Empire as well as in the United States we may add that the sentiment of survivors may have more to do with the pardonable falsification than scientific accuracy. Society in the main contents itself with the penalty of crimes only against itself. Further, the analyst before mentioned betrays a certain animosity toward musicians since in their sad addiction to intemperance they die

more than twice as fast as ordinary men from alcoholism, a little below that average from phthisis and very much more rapidly from liver and nervous diseases and suicide. To the heightened death rate of commercial travelers he gives a passing allusion, despite the mitigation of time spent in the open air. By a between-the-lines reading of the interesting report and a grouping of figures given we may conclude without much effort that our length of days depends upon a variety of environments which we may ourselves control. Our chief regret is that space can not be afforded for discussion of the suicide rates as governed perhaps solely by monotonous employments and the deficiency of occasional excursions outside the groove. Humanity besides a given loyalty to its stomach does not well brook a complete subserviency to the practical without a chance of some desirable prize.

Foreign Bodies in the Vagina.—The causative relation of a forgotten pessary to fetid leucorrhea is sufficiently well known. M. Monod of Bordeaux relates some curious experiences he has made on the existence of various foreign bodies giving rise to the same symptoms. In one case he removed from a young woman a sponge which she alleged to have inserted some time previously, in order to suppress an abundant discharge. The sponge was already in a state of putrefaction, and came away in pieces. A rather elderly woman came to the hospital to be treated for fetid discharge. When the finger was passed up it perceived an ovoid foreign body, which when extracted, proved to be a rosebud, in a good state of preservation. The patient pretended to know nothing about it. Last spring he had occasion to examine a woman, aged sixty, of rather limited intelligence, for a double inguinal hernia. For a year before she suffered from vaginal discharge which was so fetid that she had to isolate herself from society. Suspecting the existence of a neoplasm, he chloroformed the patient in order to make a proper examination, and to operate if necessary. When he introduced the hand into the vagina he felt a hard mass which seemed to be independent of the surrounding tissues. Passing a long forceps in he seized the body, and when he drew it he found it was a large cork. Renewing his explorations he successfully removed a thimble, a rag, a needle case, and finally a boot lace. The uterus was perfectly healthy.—*Medical Press and Circular.*

Rapid and Cheap Production of Liquified Gas.—A recent discovery has been reported in the *Medical News* that promises to have no small future practical interest to those lines of medical, surgical and pathological work requiring the application of cold. Professor Peckham of the Adelphi College of Brooklyn, has made the first public demonstration of the new discovery of Mr. T. C. Tripler of Manhattan, comprising the liquefaction of air. For many years chemists have been searching for the absolute zero. Scientists have been on this hunt with as much eagerness as explorers have been searching for the north pole. The announcement had been made that at 273 degrees C. below zero, 460 degrees F., all heat would cease. About 330 degrees in liquid oxygen had been reached. The first scientists to liquify oxygen did so at a cost of $2500 a quart. Mr. Tripler has recently discovered a method to produce it at a nominal cost with a forty-horse-power engine. He could make from two to three gallons every hour of a liquid air, which can in this form be drawn out in pipes and can be handled as easily as water. As soon as it comes out it begins to boil violently until the air about it is frozen and cooled, then it ceases to boil. Those present witnessed the novel sight of a mercury hammer. The professor took a handful of fluid mercury and placed it in a kind of mold. This was placed in a pot of liquid air and before it became hard a rod of iron was inserted in the mercury. In a moment the professor drew out what appeared to be a hammer with a silver head. The mercury had become frozen so hard that a nail could be driven with it. Several other curious experiments were made. Professor Peckham is reported as saying that this discovery bids fair to stand, among the innovations of recent years, second only in importance to that of the Röntgen ray.

Comparison of the United States and British Army Medical Statistics.—In the following comparative statements the figures relating to the Army of the United States are placed in brackets. The first table of the British compilation on the forms agreed upon by the International Statistical Conference shows the number of recruits who were medically examined, with the ratios per thousand accepted, rejected, etc. To fill the ranks of the British army during the year 1896 54,574 [14,659] candidates for enlistment were examined, and of every 1000 of these 576.52 [590.35] were accepted for service. The chief causes of rejection were: Imperfect vision 40.81 [49.87]; varicose veins and hemorrhoids 30.56 [51.65], and under height 28.79 [5.46]. The second and third tables show the strength of the European troops in the various colonies and commands, with the numbers admitted to sick report, died, invalided, constantly non effective, etc. The average strength of the army was 203,145 [23,487), and of every 1000 of these 942.7 [728.24] were admitted to the hospital for treatment; 8.14 [3.66] died; 24.99 [0] were sent home as invalids, and 16.26 [10.15] were discharged for disability. The constant non-efficiency was equal to 60.71 [33.97] per 1000 of strength and the average sick time to each soldier amounted to 22.22 [12.40] days. The highest admission rate was reported from China, 1856.5 [Dept. Platte, 871.96], the lowest from Bermuda, 470.8 [Dept. Dakota, 502.19]; the highest death rate was from India, 15.29 [Dept. Texas, 6.59]; the lowest from Canada, 3.34 [Dept. Columbia, 0.71]; the largest rate of men sent home as invalids was from China, 61.22, the smallest from Gibraltar, 6.48; the highest rate of discharge was from China, 31.29 [Dept. Dakota, 12.29], the lowest from Bermuda, 0.72 [Dept. California, 7.15]; India gave the highest rate of non-efficiency, 93.85 [Dept. Missouri, 37.23]; Bermuda the lowest, 26.86 [Dept. Columbia, 28.78]. The fourth table deals with the various arms or branches of the service and the variations of their rates by months. The infantry had the highest rates: Admissions to hospital per 1000 of strength, 1094.2; deaths, 9.45; constant sickness, 70.80; but in the United States both the artillery and cavalry had higher rates than the infantry troops. The movement of sick by months seems to have little value in a consolidation of commands which includes stations so different in their climatologic factors as the United Kingdom and India, South Africa and Canada. In the fifth and sixth table are given the numbers remaining at the close of 1895, the admission during 1896 and the total treated for certain specific diseases, with the rate per 1000 for each item. The prominent figures in the rates of constant sickness are the following: Bronchitis acuta, 1.09 [0.84]; febris intermittens, 3.52 [1.01]; gonorrhea, 9.15 [3.22]; rheumatismus articulorum, 2.10 [1.22]; syphilis, 14.22 [1.29]; typhus abdominalis, 1.67 [0.88], and morbi cutis, 2.91 [1.83]. Showing in favor of the United States troops is very marked. The seventh table gives deaths from disease, suicide, accident and injury according to age and years of service.

The Outlook in Regard to the Nerve-Cell.—"Cell Therapeutics." The morphologic changes noted in the chromatophilous elements of the nerve-cells of motor nerves in the course of infections and intoxications (*vide* JOURNAL, xxix, page 696), have been found to bear no relation to the functional activity of the nerve-cell. It is, therefore, evident that the fundamental substance of the cell, the part not affected by Nissl's stain, the "between substance," is the essential seat of functional activity. As the morphologic alterations or chromatolysis have been noted with either strychnin or tetanus, we conclude that they are caused by the chemic action of certain groups of atoms in both the toxin and the nerve-cell, between which a

chemic affinity evidently exists. Whether it is a mere coincidence or a matter of essential importance that a hyper-excitability of the nerve-cell accompanies these chemic, morphologic alterations, is still a problem. Ehrlich considers the groups of atoms stored in the cells which "bind" the toxin, identical with the antitoxins (the important results that have already proceeded from this new conception were mentioned recently in the JOURNAL, page 449). Whenever the equilibrium of affinities has been established, the cell starts on a process of restitution. If the intoxication was intense and rapid, as in tetanus, the affinity equilibrium is soon established and restitution commenced proportionately early. If it is slow, as in tuberculosis, the binding of the toxin becomes a slow process and restitution is consequently deferred. The problem now before us is to determine the morphologic expressions of the *functional* activity of the nerve-cell. Another line in which much may be accomplished, is in the study of the reaction of the nerve-cell to peripheral injuries, also the relations between the cell and functionally active groups of muscles, etc. Pharmacologic research in regard to the alterations produced by intoxications should not be confined to a single toxin, but applied to combined, complex intoxications, and to various regions of the central nervous system. It may be possible by histology to determine the affinities and antagonisms between certain chemic substances (morphin and atropin, for instance), and the limits of dangerous doses. These studies may possibly restrict to certain regions and groups of neurons the affinities for various groups of poisons, and we may even progress before long from our present standpoint of the "pathology of the nerve-cell" to cellular therapeutics.—Goldscheider and Flatau in the *Deu. Med. Woch.* of March 17.

Philadelphia.

METHOD TO PREVENT HOSPITAL ABUSE.—For some time past the physicians of this city have been urgently trying to regulate and restrict those who flagrantly abuse the charity of hospitals. Among others who have taken a prominent part in this movement are Drs. John Ashhurst, Edward Jackson, Horace G. Evans and George I. Harlan. A meeting was recently called, at the College of Physicians, to consider means to check the evil. Judge William N. Ashman of the Orphans' Court, presided; Dr. Edward Jackson stated the purpose of the meeting and gave an account of like movements in New York, Boston, and other cities. Dr. J. W. Walk and others cited instances of the evil. Judge Ashman stated that the worst effect of the abuse lay in the demoralization of the public conscience, giving use to habits of pauperization, and suggested as a remedy that patients should be made to make a statement of their means and resources. He thought a new statute would be required to make falsehoods legally punishable. At the close of the meeting the following committee was appointed to keep up the work: Drs. John Ashhurst, John B. Roberts, S. D. Risley and Professor Charles Frese.

MEDICO-CHIRURGICAL COLLEGE WINS ITS SUIT.—According to a decision recently made by Judge Gordon of Philadelphia, certain exceptions made by the Philadelphia Dental College against the Medico-Chirurgical College were over-ruled and the latter can now amend its charter and confer degrees in both dental surgery and pharmacy. The opinion cites: The original act of incorporation empowers the college among other things to establish a department of instruction in surgery (including dental surgery) and pharmacy. The supplementary act of 1867 confers upon the college all the rights, immunities and privileges as to lecturing, granting diplomas and conferring degrees in medicine, possessed by the officers and professors of the University of Pennsylvania at the present time. Further, "why would not this grant of power include degrees in dental surgery and pharmacy? Are not dental surgery and pharmacy branches of medicine? The students in dental surgery are instructed, we are informed, in anatomy, physiology, chemistry, therapeutics, materia medica, pathology, etc. Indeed the latter and better tendency is to closely ally both pharmacy and dental surgery to the parent science of medicine and to have the students in all three of these sciences matriculate with the same institution. The growth in the dignity and efficiency of dental surgery is largely due to the fact that the practitioners of this art today unlike their representatives in the past are educated carefully on allied medical studies." "The powers asked for in the amendment now before the court, we therefore think, are already included in the chartered rights of the college, but to make it plainer, the amendment (to charter) asked for is proper and should be allowed. The petition is therefore allowed and a degree will be made accordingly."

GRADUATING CLASS OF JEFFERSON.—According to a resolution recently passed by the members of the graduating class, their services were offered to the government.

DAIRY SUSPECTED OF SPREADING DIPHTHERIA.—The milk furnished by the dairy of Patrick Brady in a suburb of this city was recently suspected of spreading diphtheria to his patrons and chief medical inspector Taylor has been investigating the conditions on the dairy farm. Nuisances were found and until these are abated the farm will be under a strict quarantine. The milk is now undergoing bacteriologic investigation at the Health Bureau.

PHILADELPHIA MORTALITY STATISTICS.—For the week ending Saturday May 7 there were 445 deaths, twenty-five less than the previous week and twenty-nine more than for the same period of last year. Of the total number of deaths there were from diphtheria 22, scarlet fever 7, typhoid fever 7.

Detroit.

AT THE REGULAR MEETING of the Detroit Medical and Library Association, April 25, Dr. J. M. Mathews of Louisville, Ky., read a paper entitled "Extirpation of the Rectum," after which he held a clinic. He believes in the specialty of rectal diseases, and that the rectum is a field in which specialism can be carried out. He deplored the fact that the charlatan is preying on the afflicted and non-afflicted while the medical profession is standing by and looking on. He also wished to take issue with those who reported good results from the so-called American operation on the rectum. On extirpation of the rectum he made the points that only in a few cases should the operation be practiced: 1, those of carcinoma were complicated with hemorrhage that could not be controlled by any other means excepting extirpating the mass; 2, when the infiltration did not involve the surrounding glands; 3, where the pain could not be controlled by opium. He took exception to "Kraske's" method of resection of the rectum, upon which he said that the operation was a lengthy one, that the removal of a part of the sacrum was not necessary, and lastly, that the patient would not live long enough to make the operation an object to the operator or patient. The particular point that he wished to make in his paper was that all cases of stricture could be *forcibly* dilated, and of the great number he had so operated upon, relief had come to the patient from pain and difficult defecation. Drs. Jenks and Wyman discussed the paper. In the clinic the first patient shown was one that Dr H. O. Walker had operated on last September, by forcible dilatation. Dr. Mathews examined this patient and commented upon it, saying that the majority of strictures of the rectum were specific, and that if upon examining a patient you find a large mass well up the rectum and it is not cancer then in 99 per cent. of cases it is syphilitic. The second patient, the Doctor examined and forcibly dilated, after which he curetted, saving all particles removed for microscopic examination. After he had cleansed the field of operation he inserted a rubber tube around which an iodoform gauze bandage had been wound. Attached to the tube was a string which allowed the dresser to keep track of the tube. The Doctor objected to the sponge umbrella of Allingham, because whe

used, internal hemorrhage took place, the first signs seen being those of fainting, etc., while with the rubber tubing it can be easily seen when starting. He said the tube was also effective as a means of keeping the parts clean. He says that every disease of the rectum could be diagnosed with the finger, except internal hemorrhoids, and that syphilis, cancer and tuberculosis, on this order, are the most frequent diseases of the rectum. He also said that all fissures in adult men can be cured by dilatation and massage, and gave a history of two cases of young people with carcinoma of the rectum, a boy of 16 and a girl of 17 years. Where there is syphilitic infiltration of fibrous tissue there is no cure for the patient. A tuberculous rectum is more resisting than a cancerous rectum. He has found fissures in children. Dilatation by the mother's fingers anointed with vaselin, once daily for a few days, brought speedy relief and cure. In closing his clinic he said he wished to place himself on record in inoperable cases of the rectum, especially wherever resection was impossible and the pain was great, as feeding his patient opium until the patient had relief, even at the risk of making an opium-eater of his patient.

Dr. E. K. Bacon read a paper on "Anatomy and Physiology of the Visceral Sympathetic and its Bearings on Pelvic, Abdominal and Mental Troubles," April 21, before the Wayne County Medical Society.

Cincinnati.

Dr. David DeBeck, at the last meeting of the medical staff, was elected to the position of ophthalmologist to St. Mary's Hospital. The service here is larger and more varied than that of any other hospital in this vicinity.

Dr. John Miller, late resident physician to the Good Samaritan Hospital, in company with Dr. Daniel Heyn, will complete his studies abroad, at the hospitals in Freiburg, Berlin and Vienna.

Hospital Internes.—The recent examination for internes to the Cincinnati Hospital, resulted in the choosing of four from the Miami and four from the Ohio Colleges; from the Ohio, Drs. John W. McKee, Samuel Iglauer, W. A. Smith, and John S. Morrison; from the Miami, Drs. Beeson, Boggess, Dean and Hines.

The commencement exercises of the Miami Medical College were held Tuesday afternoon, May 3, at Odd Fellows Hall. The valedictory address was made by Dr. Dan Millikan of Hamilton. Twelve men were graduated. A banquet was tendered to the graduating class and alumni by the faculty, the same evening, at the Burnet House. The regular paper of the evening at the Academy of Medicine was by Dr. James Rowe on "Icterus Neonatorum," and gave an epitome of the known theories of this peculiar disease. Was discussed by Drs. Ashburn, Gillespie and Mitchell. This was followed by a timely and interesting article on "Granular Conjunctivitis," by Dr. Francis Dowling. The prevalence of this disease in the armies of ancient and modern history was touched upon, and the consequences arising therefrom on account of neglect of treatment. The treatment recommended was with jequirity and especially forced expression under anesthesia. Discussion was by Dr. DeBeck. Dr. Ricketts reported a case of a woman from whose vagina he had removed a pessary which had been inserted nineteen years before for retroverted uterus. He had made an attempt to pass a catheter on the woman, which had signally failed. The foreign body was easily found on examination and as easily removed. The woman was also afflicted with peritonitis and a section made. She died within twenty-four hours. The pessary was exhibited. The attendance at the Academy was small, due to the fact that a large number of the regular attendants were at the banquet of the ex internes of the Cincinnati Hospital.

Academy of Medicine.—The paper of the evening, May 9, was read by Dr. Philip Zenner, on "Neurasthenia." Among many causes, the essayist looked upon heredity as one of the most important. Among acquired causes, the worry attending business affairs, the sequelæ of infectious diseases, especially influenza, he regarded as peculiar factors. He thought that grip was especially common as a forerunner of neurasthenia occurring among physicians. Whether the hard work and worry of physicians during an epidemic of grip, or the disease itself was the causal factor, he did not know, but thought both. He did not wish to say much as regards symptomatology, preferring to proceed at once to the more important matter of treatment. He did not pin his faith very strongly to drugs, though approving of tonics to improve general nutrition. He thought that the first desideratum was rest. In mild cases partial rest would be sufficient; lying down for an hour after each meal; getting up a little late in the morning; discontinuing work at an earlier hour than usual. The higher the grade of the disease, the more rest required, so that in the very severe cases the rest treatment of Weir Mitchell was an essential element in the cure. Suggestion is often needed to remove the abnormal ideas with which the patient is possessed. The patient should never be laughed at, as this often does great harm, lessening the patient's confidence in his physician and in the curability of his malady. Homicidal tendencies, which are often confided to the physician, may sometimes be entirely dispelled by stating that there are no such instances on record in his particular disease. Exercise should only be advised in the mild cases and never be pushed to the slightest degree of fatigue. Change of climate, especially mountain trips, change of occupation, sea voyages, etc., are often the only treatment required. Discussion. Dr. Ravogli, who called attention to the prevalence of neurasthenia among those afflicted with a posterior urethritis, either with or without a stricture of large caliber. Whether it is due to the worry of the local disease or from the poisons absorbed from the urethra itself, he was not prepared to say, but thought both agents were at work. The speaker also urged that in syphilis neurasthenia was by no means uncommon, especially among those who had been saturated with drugs. Indeed he considered the super-saturation in many cases as the causal factor. In his experience the neurasthenic condition had often disappeared with a cutting off of the anti-syphilitic remedies and the substitution of a simple tonic. Dr. H. M. Brown reported three cases of what he believed to be neurasthenia, in which all attempted suicide and two were successful. He regarded the disease as allied to insanity. Also discussed by Drs. Langdon, Kiely, Molony, and the essayist. At a recent meeting of the academy, considerable discussion occurred as to the stand taken by the local telephone company. Slot machines have been placed in all drug stores possessing phones, and with the following exceptions all using them are required to deposit a dime in the slot: The druggist is permitted to call up local drug houses, drug stores and physicians; physicians are allowed to call up their offices. Several amusing (to the non-sufferers) and exasperating experiences were related. One physician called up his office and received word that one of his clients, also a phone subscriber, wished to speak to him immediately. He was compelled to deposit his little dime. Another was called to see a serious case and desired immediate consultation with a surgeon. Not wishing to leave his patient, he gave a list of six surgeons to her husband and told him to get the first available. The man called up the six, one after another, but was unable to get any of them. Nevertheless it cost him sixty cents. A committee was appointed to confer with the powers that be to attempt to obtain more privileges for physicians and their clients.

About two weeks ago a young adult colored male was admitted to the receiving ward of the Cincinnati Hospital with smallpox. The eruption was well out. He gave a clear history, having been until a few days previous at the points in Kentucky where the disease is now prevailing. The diagnosis was confirmed by Dr. Ravogli. Examination of the blood showed clear hyaline elongated vibrating bodies, of the shape of a spirillum or bacillus, over one-half the diameter of a red corpuscle within the substance of the red corpuscles. A considerable number of the red cells contained these bodies. The case was immediately isolated and passed through a typical course to convalescence. No other cases have developed in the city.

At the annual meeting of the Ohio State Medical Society, May 4-8, at Columbus, the following Cincinnati physicians read papers: "Some Medical Aspects of Capital Punishment," Dr. F. O. Marsh; "Psychic Treatment of Disease," Dr. Philip Zenner; "Removal of the Cecum for Malignant Disease," Dr. J. C. Oliver; "Surgery of the Pneumatic Sinuses of the Skull," Dr. Robert Sattler; "Ectopic Gestation, What Cases to Operate Upon," Dr. J. Ambrose Johnston; "The Clinical Importance of the Position of the Stomach," Dr. H. W. Bettman; "Two Interesting Breast Cases," Dr. Albert Freiberg. Several others were down for papers, but were not present. Dr. J. A. Thompson of this city was re-elected secretary of the society for the ensuing year.

Societies.

The following meetings are noted:

California.—Southern California Medical Society, Santa Barbara, May 4.

Georgia.—Floyd County Medical Society, Rome, May 4.

Illinois.—Chicago Medical Society, May 11; Chicago Pathological Society, May 9; McLean County Medical Society, Bloomington, May 5; Vermilion County Medical Society, Danville, May 10; Warren County Medical Association, Monmouth, May 6.

Indiana.—Tippecanoe County Medical Society, Lafayette, May 2; Vigo County Medical Society, Terre Haute, May 5; White River District Medical Society, Washington, May 10.

Iowa.—Boone Valley Medical Society, Eagle Grove, May 3; Polk County Medical Society, Des Moines, May 3; Wapello County Medical Society, Ottumwa, May 13.

Kansas.—Montgomery County Medical Society, Caney, April 29.

Maine.—Academy of Medicine and Science, Lewiston, May 9.

Maryland.—Baltimore County Medical Association, Baltimore, May 4.

Massachusetts.—Connecticut River Medical Association, Bellows Falls, May 3; Suffolk District Medical Society, Boston, April 30.

Michigan.—Barry and Eaton Medical Society, Nashville, May 5.

Minnesota.—Minnesota Valley Medical Association, Mankato, May 10.

Missouri.—Central District Medical Society, Sedalia, May 5; Jasper County Medical Society, Joplin, May 3; St. Louis Medical Society of Missouri, May 14; Southeast Missouri Medical Association, Cape Girardeau, May 3.

New Jersey.—Camden Medico-Surgical Society, Camden, May 2; District Medical Society of Camden, May 10.

New York.—Albany County Medical Society, Albany, May 10; Cayuga County Medical Society, Auburn, May 12; Erie County Medical Society, Buffalo, May 11; Madison County Medical Society, Oneida, May 10; Medical Society of Newburg Bay, Newburg, May 10; Medical Society of Saratoga Springs, April 29; Onondago County Medical Society, Syracuse, May 10; Orange County Medical Society, Goshen, May 3; Steuben County Medical Society, Hornellsville, May 10; Union Medical Society, Troy, April 28.

Ohio.—Cuyahoga County Medical Society, May 12; Lucas County Medical Society, Toledo, May 6; Miami Valley Medical Society, Loveland, May 3; Ohio State Pediatric Society, Columbus, May 3.

Pennsylvania.—Bucks County Medical Society, Doylestown, May 4; Lycoming County Medical Society, Williamsport, May 3; Perry County Medical Society, Buncannon, May 5; Schuylkill County Medical Society, Pottsville, May 3; Susquehanna Medical Society, May 3; Washington County Medical Society, Washington, May 11; Westmoreland Medical Association, Mt. Pleasant, May 3; York County Medical Society, York City, May 5.

South Carolina.—Association of Colored Physicians, Orangeburg, April 27.

Tennessee.—Marshall County Medical Society, Lewisburg, April 28.

CHANGE OF ADDRESS.

Anderson, J. A., from 318 Winchester Av. to 8042 Edwards Av., Chicago.
Black, J. F, from Cleveland, Ohio, to Springfield, Mass.
Burns, E. J., from Galvestou to Giddings, Texas.
Colle, J. A, from Chicago, Ill., to Williams Bay, Wis.
Cook, C. D., from 133 Pacific St. to 162 Remsen St., Brooklyn, N. Y.
Carsou, C. J., from Chicago to Mortimer, Ill.
Downey, W. S., from 4803 Union Av. to 925 W. 56th St., Chicago.
Doane, P. P. S., from 1723 Belmont Av. to 385 N. State St., Chicago.
Davis, H. I., from 2962 Wabash Av. to 3120 Indiana Ave., Chicago.
Dryden, Mary V., from 489 Ogdeu Av. to 1926 Wabash Av., Chicago.
De France, C. C., from 328 E. 5th St. to 415 Des Moines St., Des Moines.
Emmons, J. W., from Sparta to Oregon, Wis.
Fehr, H., from Chicago to 301 9th St., Milwaukee, Wis.
Goodhue, W. J., from 393 Ogden Av. to 267 Honore St., Chicago.
Gallen, G. E., from Chicago, Ill., to Calumet, Mich.
Hisom, H. M. T., from 756 Jackson Boul. to 718½ Adams St., Chicago.
Hogue, R. R., from Chicago, Ill., to Sparta, Wis.
Hindman, A. O., from Pittsburg, to Crosscreek Village, Pa.
Jordan, A., from Richmond, Va., to Gaines Mill, Va.
Jones, E. A., from Lonisville, Ky., to Baltic, S. Dak.
Jones, H. G. from Chicago, Ill., to 2d Reg. O. V. I. Hospital Corps, Columbus, Ohio.
Kirkland, B. F., from Chicago, Ill., to Mt. Auburn, Iowa.
Kohler, A. E., from Chicago, Ill., to Muncie, Ind.
Miller, R. E., from 291 31st to 5858 State St. Chicago.
Martin, Wm., from 324 Blue Island Av. to 422 W. 12th St., Chicago.
McManes, M., from Chicago, Ill., to Celina, Ohio.
Mitchell, G. D., from 1840 N. Clark St. to 7033 Parnell Av., Chicago.
Mathewson, E. H., from Battle Creek, Mich., to Keene, Texas.
Nash, G. W., from 804 Illinois to 712 South Illinois St., Indianapolis.
Nagel, J. S., from 240 Honore to 558 W. 79th St., Chicago.
Nichols, C. L., from Chicago, Ill., to 1923 Wirt St., Omaha, Neb.
Oren, S. A., from Laporte City, Iowa, to Lanark, Ill.
Proctor, C. M., from White Sulphur Springs, Mont., to Shenandoah, Ia.
Quincy, M. A., from Memphis to Ashland, Neb.
Rietz, P. C., from Chicago, Ill., to Manitowoc, Wis.
Reid, W. J., from 244 Alfred to 914 18th St., Detroit, Mich.
Robb, R., from Keokuk to Littleton, Iowa.
Redman, L. H., Alpha to Scipio, Ind.
Rich, F. D., from Terre Haute, Ind., to 330 Erie St., Toledo, Ohio.
Shoemaker, S. A., from Indianapolis to Reiffsburg, Ind.
Smith, H. S., from 592 6th St. to 1184 Vinewood Av., Detroit, Mich.
Tomlinson, J. P, from Atlanta, Ga., to Lake Butler, Fla.
Tenney, J. T., from Chicago, Ill., to Wabasha, Minn.
Williams, E. C, from Chicago, to Bloomington, Ill.
Yaw, S. B., from New York, N. Y, to Avalon, Ga.
Zimmerman, W., from Milwaukee to Menasha, Wis.

LETTERS RECEIVED.

Atkinson, Wm. B., Philadelphia, Pa.; Augear, J. J. M., Chicago; Adkinson, L. G., New Orleans, La.

Barton, Miss Harriet C., New Orleans, La.; Bulkley, L. Dunan, New York; Davis, J. C, Rochester, N. Y.

Cannaday Chas. G., Roanoke, Va.; Chapman, W. S., Gulch, Colo.; Canadian Journal of Medicine and Surgery, Toronto, Canada; Crothers, T. D., Hartford, Conn.; Cullen, G. I, Cincinnati, Ohio.

Edmonds, O. R., Tina, Mo.; Elliott, H. G. (2), New York; Eidman, M. St. Louis Mo.

Fessenden Mfg. Co., Pittsburg, Pa.; Frank, G. D., Elizabethtown, Ky.

Gildea, P. F., Colorado Springs, Colo.; Gibson, Robert, Watford, Ont.; Gould, Geo. M., Philadelphia, Pa.; Gillette, Wm. J., Toledo, Ohio; Gifford, H., Omaha, Neb.; Griffith, J. P. Crozier, Philadelphia, Pa.; Graham, J. W. (2), Denver, Colo.

Hodges, Fred J., Anderson, Ind.; Harry, G. W., Spartanbury, S. C.

Inland Priuter Co., Chicago.

James, R. L., Blue Island, Ill.; Johns Mfg. Co., H. W., New York.

Ketcham, C. L., Cincinnati, Ohio; Kiernan, Jas. G., Chicago; Kline W. T., Minneapolis, Minn.

La Fave, Abe, Manitowish, Wis.; Lucast, T., Milwaukee, Wis.; Loeb, H. W., St Louis, Mo.; Macdowell, W. F., New York; McDonald, Arthur, Washington, D. C.; McGillicuddy, T. J., New York; McSwain, I. A., Parls, Tenn.; McClelland, C. B., Champaign, Ill.; Mudd, H. H., St. Louis, Mo.; Merrick, M. B., Passaic, N. J.; McDougall, Chas. S., Hixon, Ohio; Musser, J. H., Philadelphia, Pa.

Newell & Heldman, Chicago.

Patrick, H. T., Chicago; Patton, E. E., New Kensington, Pa.; Pegram, E. C., Duncan, Miss.

Reynolds, Dudley S., Lousisville, Ky.; Reynolds, Arthur R., Chicago; Reed, R. Harvey, Rock Springs, Wyo.; The Geo. P. Rowell Adv. Co., New York; Remelin, R. H., Cincinnati, Ohio; Rosenthal, Edwin (3), Philadelphia, Pa.

Solly, S. Edwin, Colorado Sprlugs, Colo.; Smith, Chas. F., Des Moines, Iowa; Stearns, T. & Co., Detroit, Mich.; Smith, E. B., Detroit, Mich.; Schoff, C. H., Media, Pa.; Shields, W. J., New Wilmington, Pa.; Shoemaker, Jno, B. (2), Philadelphia, Pa.; Smart, C. A., Washington, D. C.; Stuver, E., Rawlins, Wyo.; Stallman & Fulton (2), New York.

Talbot, Eugene S., Chicago.

Upham, J. H. J., Columbus, Ohio.

Vance, A. J. (2), Harrison, Ark.

Waxham, F. E., Denver, Colo.; White, Jr., D. S., Atlantic City, N. J.; Wheeler, Chas. Le Roy, Scranton, Pa.; Walker-Gordon Laboratory Co., Chicago; Washburn, W. H., Milwaukee, Wis.; Wood, T. F., Angola, Ind.; West, S. L., Philadelphia, Pa.; Woolsey, Geo. (2), New York.

Yates Blinu, Buffalo, N. Y.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from May 7 to May 13, 1898.

Acting Asst. Surgeons Llewellyn P. Williamson, Francis Metcalfe and Randolph M. Myers, U. S. A., will proceed from Washington, D. C., to New York City and report in person to Major George H. Torney, Surgeon, in charge of Hospital Ship, for duty.

Acting Asst. Surgeons Edwin W. Patterson and Edgar A. Vander Veer, U. S. A., will proceed from Washington, D. C., to Atlauta, Ga., and report in person for duty, to Major Blair D. Taylor, in charge of the General Hospital, Fort McPherson, Ga.

Acting Asst. Surgeon F. A. E. Disney, U. S. A., will proceed from Washington, D. C., to Ft. Jefferson, Fla., and report to the commanding officer of that post for duty.

Acting Asst. Surgeon Wilfrid Turnbull, U. S. A., will proceed from Washington, D. C., to Key West, Fla., and report in person for duty to the commanding officer, Company E, Battalion of Engineers, at that place.

Acting Asst. Surgeon G. M. De La Torre, U. S. A., is assigned to duty with the 10th Infantry, Tampa, Fla.

Acting Asst. Surgeon, W. P. Lawrence, U. S. A., is assigned to duty with Light Battery B, 4th Artillery, Port Tampa, Fla.

Acting Asst. Surgeon Edward T. Gibson, U. S. Army, now at Minneapolis, Minn., will proceed without delay to Fort Yates, N. D., and report to the commanding officer of that post for duty.

A contract having been make with Dr. Carroll E. Edson of Denver, Colo., for duty as Acting Asst. Surgeon at Ft. Logan, Colo., he will proceed to that post and report to the commanding officer for duty.

Capt. William C. Borden, Asst. Surgeon, is relieved from duty with the 3d Infantry in camp near Mobile, Ala., and will report in person to Major William R. Hall, Surgeon, for duty at the General Hospital, Key West, Fla.

Acting Asst. Surgeon H. P. Jackson, U. S. A., will proceed from Charleston, S. C., to Key West, Fla., and report in person to Major William R. Hall, Surgeon, in charge of General Hospital, at that place for duty.

Acting Asst. Surgeon Charles K. Cutter, U. S. A., now on duty at Boston, Mass., is assigned to duty as assistant to the atteuding surgeon and examiner of recruits in that city.

Major Edward T. Comegys, Surgeon, is relieved from duty at Ft. Sill, O. T., and will report in person to Major General John R. Brooke, U. S. A., commanding provisional corps, Camp George H. Thomas, Chickamauga National Park, Georgia, for assignment to duty as acting medical purveyor for the supply of troops stationed at that point.

Acting Asst. Surgeon Frederick S. Dewey, U. S. A., will proceed from Oklahoma City, O. T., to Ft. Sill, O. T., and report in person to the commanding officer at that post for duty.

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ADDRESS.

THE PHYSICIAN IN PRACTICE.

Annual address to the graduating class.

BY LEO M. CRAFTS, B.L., M.D.

DEAN AND PROFESSOR OF NERVOUS DISEASES IN THE MEDICAL DEPARTMENT OF HAMLINE UNIVERSITY (MINNEAPOLIS COLLEGE OF PHYSICIANS AND SURGEONS).

MINNEAPOLIS, MINN.

Gentlemen of the graduating class:—You stand at the gateway of futurity. What it may hold for you depends upon yourselves and the use you make and have made of your opportunities. In the vista of life there stand out a few bright spots; here and there an isolated eminence rises above the common level. There are events in life that mark epochs for the individual. Such is this occasion for each of you. Tonight, at the same moment, closes and opens a chapter. This is an hour fraught with deepest significance. You have arrived at this moment, so long anticipated, only by years of diligent study, by long hours in the lecture room, the laboratory and the clinic, and by much burning of the midnight oil. Only by unremitting pursuit of a determined purpose and a definite choice, have you reached the cherished goal. Choice determines destiny, upon the underlying purposes of our lives depend our choices.

In the elevation of our ideals must ever rest the character of our achievement. Prompted by what diverse motives and with what ends in view, you entered upon the study of medicine *you* only know. It is trusted that realizing its grave responsibilities, recognizing its unequaled opportunities for helpfulness and appreciating its necessities for self-sacrifice beyond that of any other calling, you have entered upon it solely from the standpoint of unselfish service. For, "the physician's first duty is to his patient; his second only, to himself, and the physician who reverses it is a quack." No other profession demands so much of preparation, and compels so rigorous and extended a course of training as does the study of medicine, and rightly so. That this is true you are fully aware. Your sensations are very much like those of the small boy who has partaken of too much Christmas plum pudding. You feel stuffed to every room of your being with the fundamentals of the science and art of healing, gathered from every department of the limitless field of medical lore. Every intracranial fossa is crowded. Every convolution and gray cell is teeming with yet unassorted and unassimulated knowledge. Full as you have drunken you have scarcely tasted the swelling stream of learning. All it has been possible to give you has been simply a beginning. The door of knowledge has only been opened. You have been led but a few halting steps on the rugged and endless path along which you must henceforth climb alone. To what pinnacle you aspire, what impress will you leave upon the dawning century? Remember that "the demand for something better than that which now exists never ceases." Fields for discovery and research lie fallow before you, and there is a place in the temple of fame for him who will.

"In that fair niche by countless billows laved,
Trace the deep lines by Sydenham engraved,
On yon broad front, that breasts the changing swell,
Mark where the ponderous sledge of Hunter fell;
By that square buttress mark where Louis stands
The stone yet warm from his uplifted hands."

It may not be given to any of you to find a place in that charmed circle of immortals whose work stands as the stepping stones by which medical science has mounted to its present exalted place. The world has never known the names of many of the truest heroes and noblest martyrs who have humbly, in obscure byways of life, followed the daily round of their engrossing duties, unheeding as unheeded by the outer world, "doing what they could do well, without a thought of fame." What powers you may possess no one knows. If you have the capacity for work, for ceaseless and untiring effort, there is nothing to which you may not aspire. Many of the men whose names lend greatest luster to the profession achieved their place in the face of the most untoward circumstance, by sheer force of merit. The same way is open to you.

If in your brief course of training, severe and thorough as it has been, you have learned to love study; if you have acquired a true thirst for knowledge and the search for truth for its own sake, and beyond that for the great uses to which you may devote it in the interest of suffering and afflicted humanity, your instruction has fulfilled its highest mission and your future is assured. It is not the simple knowledge that you have actually gained that is of chief value to you, but the habit of application, the power of selection and analysis, the mental training. Much as you know there is still much for you to learn. Things that can not be taught in any school make up the determining balance for each learner in the school of life; a knowledge of one's self and his limitations, the maturing of judgment and self control, the appreciation of how limited and how circumscribed is all our knowledge, even at its widest and its best. To recognize how little we know is the surest symptom of improvement, for while

"Knowledge is proud that he has learned so much,
Wisdom is humble that he knows no more."

Incompetence is a more fatal fault in medicine than anywhere else. There is no place here for weak hearts or feeble, untrained intellects. All the liberal professions are much overstocked. The number of graduates in medicine annually greatly exceeds the demand. Too many good clerks and mechanics are yearly turned into poor doctors. Hardly one practitioner in forty attains to anything of eminence or success. There is place only for men of the first

ability and the highest training, men who are ready to battle against all odds, capable of ceaseless application and the devotion of a lifetime.

The standard of requirement in medical education has made rapid strides in this country in the recent past. But a few years since, only two brief sessions of five months were required for graduation; while every reputable school at present demands four full years of study. The greatest defect now is the low standard of preliminary training requisite for entrance on medical study. Many men of far too little general education enter all our medical schools, either to be stranded by the way or to be graduated utterly unfit to practice, a menace to the public and a disgrace to the profession. Until this is remedied dangerous men will still be turned loose to practice on unsuspecting victims. And it will not be remedied till institutions of medical learning are placed on a plane above self-seeking motives and the need of students' fees for maintenance. It is a most gratifying indication that every advance in grade made by a medical school has been followed by increased attendance, and always by men of higher attainments. Harvard and Johns Hopkins have taken the highest stand, having recently declared a college degree necessary for entrance. Hasten the day when the Medical Department of Hamline University shall follow this illustrious example. The proportion of college bred men in the various schools of the country varies from 3 to 43 per cent. To the credit of this class be it said that one-half of your number hold previous degrees.

In the minds of many, a diploma is a passport to social position and professional success. But you will find it no touchstone of entrance to the inner courts of preferment. You must stand or fall on your own merit. You are going out to face not an inviting but a frowning world. The universe has not been waiting your coming. You must make your own place in it. Do not expect success too soon. There is long and tedious waiting before you, and it is well, although in it there are both dangers and advantages. Many, becoming discouraged and disheartened by the long delay, lose ambition, give up the unequal struggle and drift into the first opening that offers a livelihood. But if you are made of the right stuff and stick where you start, with worthy determination, employing the waiting time in earnest study, and unassuming diligent effort, the reward will surely come, but only when you have demonstrated your intention not to succumb. One young physician, starving in Liverpool, had not a single patient in three years, and another, locating on a leading London street, received one call in seven years. Do not expect recognition from rival fellow practitioners until your rising reputation compels it. You will not find all brotherly love and harmony in the profession. You will meet opposition where you least expect it. You will receive merciless criticism and slurs where you might anticipate favor. The discreditable bickerings that disgrace the profession are born of petty jealousies and are utterly beneath its dignity. Always be ready to give full credit to merit, even in your rival. You will never suffer by it. If you can not speak well of him, say nothing. You can not build yourself up by pulling another down, and you only damage your own when you assail another's reputation. Yet do not hope to avoid creating enmities, but so far as possible, and consistent with self respect, avoid creating needless opposition. Many a young physician prejudices and handicaps his whole future by injudicious and obnoxious aggressiveness, born of immoderate egotism. Quiet attention to your own affairs will build surely and broadly for ultimate success. In all your conduct, both toward your fellow practitioners and the public, may you be imbued with a standard of medical ethics irreproachable from the most elevated professional standpoint, resisting with uncompromising opposition the growing tendency to its disregard which threatens to degrade the noblest of callings to a commercial basis and a huckstering trade, and so to remove the sharp line of demarcation between the reputable physician and the unprincipled charlatan.

Your ultimate success will depend upon many other things as well as upon your training and ability. Personality counts for very much in winning your way. a pleasing presence is a most fortunate possession There are doctors whose daily visit to the sick room is a better tonic than any medicine, and it is said of an eminent Boston physician that his smile was worth $5000 a year to him. While we can not remodel the endowments with which nature has favored us, we still can do much in the cultivation of pleasing manners. It is as easy to be affable as to be curt. It costs no more to be a gentleman than a boor. Your habits of life will be of the utmost importance both to yourselves and to your patients, and most important of all is the habit of temperance. In no other walk in life can a man afford so little to indulge in dissipation, and yet every community has its wrecks of brilliant and able practitioners who have swamped all in the glass. A mind befogged, reeling and dizzy with alcohol is in no fit condition to think clearly, to act with prompt decision and certainty in those great emergencies which come to every physician, when human life is in the balance and to err is fatal. "Intemperance in a physician," says Dr. Holmes, "partakes of the guilt of homicide." Self control is an absolute essential. The greater the emergency, the calmer and clearer must be your thought; ready to act on the moment, yet always with full deliberation. Never be in a hurry, it unsettles your nervous equilibrium and vitiates your judgment. Remember the story of the young doctor who received his first call while in the midst of a shave. Scrubbing the lather from his half shaven face, he started on his mission, burst into the sick-room in breathless haste with the anxious inquiry, "How long have you been sick?" "Twenty years," calmly replied the invalid—amply time to have completed his toilet.

Always respond to calls promptly and without unnecessary delay. Moments seem hours to anxious friends, and evident neglect is not easily forgotten. Be prompt in all your appointments. An hour's wait in anxious anticipation, beyond the time of your expected visit reacts unfavorably both for yourself and your patient. Be considerate and kindly in all your surroundings. Be sympathetic, genuinely, truly deeply sympathetic. A physician without sympathy is a misnomer, and is never the truest success. You must be versatile, resourceful, self-reliant, "ready to show a new front as often as the situation shows a new peril." Attention to the insignificant details will prove of more importance in your success and your results than the master strokes of medication. The little things that concern the ease and comfort of the patient outweigh your more pretentious treatment. Be very careful in your selection of remedies,

study each case to its last symptom. Keep all its possible contingencies constantly in mind, that you may be ready to meet promptly any change, and not be taken unaware by a flank movement of the enemy. There is no occasion for dealing in mysterious and meaningless terms. A frank, clear statement is due the patient or his friends. Yet beware how you take away hope. Your opinions must be given with caution and with tact. If you can not command the entire confidence of the patient withdraw from the case at once, for you can accomplish little without it. Always be open to conviction, but do not hope to avoid mistakes for they are inevitable. You can never conscientiously keep a patient for a moment when you know he can get better help elsewhere and when you do, you become a pirate and a brigand; the robber on the highway is less guilty. In all your advice and counsel, especially surgical, put yourself in the subject's place and recommend for him only what you would have for yourself, your sister or your mother. There can be nothing but condemnation for that too common spirit that operates only for the zeal of operating or the added pecuniary returns, a stain from which surgery, both special and general, is not altogether free. You are to perform, or to recommend, surgical or other procedure, only when the welfare of the patient demands it.

The conduct of the medical life is filled with advantages and opportunities of growth shared by no vocation to the same degree. It will develop your judgment, broaden your sympathies, make you more charitable in your estimate of motives; and while it shows you at times, human nature at its worst and its lowest, and many things will cross your path that will tend to shake all your faith in humanity, you will, on the other hand be let into the secret chamber of heroic suffering, and have glimpses of nobility and grandeur of character that will flood and tinge all life with its beauty and before which we bow in reverent homage. It will make you shrewd and discerning. No one can look through the hearts of men and read their lives in their faces as can the experienced physician. No one knows human nature so well. In no other walk in life are there such privileges for helpfulness, to speak a word of comfort in time of trouble and loss, to pour balm into aching hearts, to lead up to aspiration when all is despair. "There are times when the physician has power for good or evil exceeding that of any other man, when the mind of the patient is filled with forebodings, when the past is dark and the future without hope, he is more ready to listen and be influenced than at any other time." The secrets of the inmost life, sacredly guarded from the world, are revealed and laid freely before you. Those confidences must be held as absolutely inviolable. You are to enter your patient's house only to do him good and in all your conduct to avoid the very appearance of evil. It is a matter of wonder that comparatively so few men of high ideals of life and true Christian spirit are attracted to the study of medicine, and the catalogue requirement of high moral character in the candidate for a degree is worth no more than the paper it is printed on. The medical profession should be open to, and entered upon, only by men of the highest character, the most gifted nature and the noblest soul.

To attain any measure of success you must have the confidence of the community. To gain and hold this you must merit it. Govern your conduct by dignity, honor and becoming modesty. Your waiting time, through which all must pass, may be spent to better advantage in reading and study than in exchanging stories with the loafers at the corner grocery. You must be constantly investigating and advancing. The universal tendency is to stagnate and rust. Set no limit to your ambition. No possibility is beyond you. Never rest content with any vantage gained. Press steadily, untiringly on.

"Still achieving, still pursuing,
Learn to labor and to wait."

The life of the physician is peculiarly trying and his duties most exacting. He has no moment that he can call his own, night or day. Everything must give place to the call of duty. The strain, the exposure and fatigue are extreme. Endurance is taxed to the utmost. Utterly forgetful of self, he is beautifully and ruggedly drawn by MacLaren in the character of Weelum MacLure of Drumtochty who "did his best for every man, woman and child, year in, year out, in the snow and in the heat, in the dark and in the light, without rest and without holiday." Often the greatest sacrifice is a thankless task and goes without reward. For although there is nothing a man will not do to regain lost health, there is no obligation he is so slow to discharge as his physician's just due. The returns of medical practice are disproportionately small. The true physician, generous, charitable, benevolent, gives little thought to his fees and has educated the public to do the same. His chief concern is for the welfare of his patient, and he is too forgetful of himself. The financially successful practitioner, in a large way, is usually only a self-calculating business man, concerned first for his fees, and secondly, if at all, for his patient. He is rarely a sympathetic, great-hearted, broad and genuine physician.

Your responsibilities and obligations do not end with your purely medical work. You come in closest touch with the great heart of the world. You will know its trials, its shortcomings and its virtues most intimately. The family physician occupies a position entirely unique and shared by no one else. You may be the greatest possible power in society for moral conservation. You are in a position to act and speak with influence as no one else can. You can warn, and guard and encourage with the voice of counsel and authority. So, helping and helpful, devoting yourselves to the good of humanity, family adviser and friend, living beyond your time in lives elevated and made better by your walk among them, shall the evening of life be serene, though hastened by exposure and stress and devotion to its duties, risks and dangers, receive the same loving homage that was the part of that gnarled old hero of Glen Urtach.

Canon Liddon has thus beautifully, and we trust truly eulogized medicine: "The profession of medicine is from its nature, I had almost dared to say from the necessity of the case, a teacher of benevolence. Often we have witnessed the transformation, one of the most beautiful and striking to be seen in life, by which the medical student becomes the medical practitioner. We have known a medical student reckless, selfish, or worse and presently behold him a medical practitioner, more unselfish and devoted than any other member of society. What is this something, akin to ministerial ordination, which has brought such an inspiration of tenderness and sympathy. The answer apparently is, he approaches human suffering from a different point of view. As a student he looked upon it as something to be observed, discussed, analyzed, anyhow lectured

upon, anyhow examined in. As a practitioner he is absorbed by the idea that it is something to be relieved. This new point of view, so profoundly Christian, will take possession of a man's whole moral nature and give it a totally new direction. Thus the medical practitioner is at once the master and teacher of the purest benevolence. This is true of those great lights of the profession whose names are household words. But it is even more true of many practitioners of whom the public takes no note, and pre-eminently so of the obscure country doctor, upon whom the sun of publicity rarely or never sheds its ray. His life is passed in the homes of the very poor, and in acts of the kindliest and most self-sacrificing service. For him the loss of rest and the loss of health is too often nothing less than the law of his work, and as he pursues his career, so glorious yet so humble, his left hand rarely knows what his right hand doeth. And yet such men as these maintain the state of the world. They pour oil or wine, as can or do few or none others, into the gaping wounds of our social system."

And now we are come to our parting. You will go out to find and make your own place and to carve your own destiny. It has been my pleasant and grateful privilege to address to you, on behalf of the faculty, this brief word of counsel, caution and advice. In their name I now welcome you to the ranks of the medical profession. In their name I extend to you the right hand of fellowship. In their name I bid you Godspeed in your chosen calling; not unmindful of the solemn responsibility we assume in thus standing sponsor for your knowledge, your skill and your conduct. You are the children of an honored university. You have a double obligation to discharge, that which you owe to yourselves and that which is due your *alma mater*. For upon you must rest the mantle of her reputation. See that you keep it pure, unsullied and unspotted. May you go out into your life work only to augment the luster of her fame as you build your own.

"The distant murmur which you hear will soon grow louder, and you will find yourselves swept into the whirlwind of the world's tumultuous conflict. Go forward in hope and serene courage. Disease is calling you from his bed of anguish. Death is looking for you to smooth his pillow. Posterity is expecting you, impatient to be laid in his cradle."

You have crossed in safety the shoals of the harbor bar of examination, though at times your keel may have grated ominously on the bottom, and you float at last in the still harbor of anticipation. You must now weigh anchor and stand out on the swelling main of life, spreading sail to the quickening breeze. Headwinds met and buffeting storms outridden, may the favoring winds of Providence make sure and complete the voyage that shall at last bring anchor securely in the harbor that is beyond the vale.

"We live in deeds, not years; in thoughts, not breaths;
In feelings, not in figures on a dial.
We should count time by heart-throbs when they beat
For God, for man, for duty. He most lives
Who thinks most—feels the noblest—acts the best."

Rectal Injections of Arsenic are highly recommended by Professor Renaut, in tuberculosis, diabetes and Basedow's disease for their tonic and soothing effect. They can be continued for weeks or months with occasional interruptions without disturbance of any kind. He orders 5 c.c. of a solution of arsenious acid containing one-third of a centigram to each 5 c.c. three times a day.—*Nouv. Remèdes*, April 24.

ORIGINAL ARTICLES.

EXPERIMENTAL WORK ON THE PENETRABILITY OF VAPORIZED MEDICAMENTS INTO THE AIR PASSAGES.

Read at the meeting of the Mississippi Valley Medical Association in Louisville, Ky., Oct. 8, 1897

BY HOMER M. THOMAS, A.M., M.D.

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CHICAGO, ILL.

Hippocrates was the first to devise a simple apparatus for the purpose of inhalation. In the seventeenth century Bennett recommended inhalation for consumption. Infusions of aromatic herbs (halitas) or even balsamic vapors (suffitus) were used. The discovery of oxygen revived new trials in this line. It was finally abandoned as air contained but little oxygen, and it was thought the atmosphere would have a more beneficial effect. Some hydrogen, nitrogen and even carbonic acid were used by Beddoes. Well remembered is the recommendation to physicians of that time, and even to the present, to inhale the air of stables containing cattle. About 1820 chlorin and iodin were tried with favorable effect; also turpentine vapors in chronic bronchitis. Muriate of ammonia vapors, the steam of escaping sulphur springs, the salty air in salt mines and the smoke of datura stramonium furnish further examples. A decided step forward was made by the improvement of the technique in vapor productions, especially the possibility to break up the fluids mechanically in finest globules after having dissolved the medicaments. In 1858 Sales-Girons introduced the first transportable apparatus for the vaporization of medicaments to the Academy of Science in Paris. The new method soon found enthusiastic adherents as well as bitter foes. The chief query was, how deep does the fluid enter the lungs? By experiments on animals and on men, by chemic examination of sputa, by the laryngoscope, by inhalation of stained fluids it was proven with absolute certainty by the friends of this method that it was possible for medicamentous fluids to enter the finest bronchi and alveoli. The penetration into the alveoli of the corpuscular elements, coal dust etc., by inhalation was further proven. Peroxid of iron was found as a pigment in the lungs of miners by Zenker.

The various anatomic examinations of diseases introduced from inhalations due to industrial pursuits, as anthracosis and calcicosis (Zenker), and researches of Leon, Hirt, Steubner, G. Merkel, E. Wagner and Arnold leave no doubt of the penetrability of lung tissue by fluids or corpuscles, by inhalation. The possibility for a local therapy of the lungs seemed evident and all available medicaments were tried, but critical observations and experiments soon limited the possibility of this method. Dr. Adolph Schmid (Reichenhalt) says, inhalation therapy can not be regarded as a curative means; it has to play the more modest rôle as a supporting means to the other methods of treatment. It is likely to influence diseases of the respiratory passages by modifying various symptoms. Within these limits it must be considered as a method to be employed with good reason and difficult to do without. J. Schreiber, in 1888, by painstaking experiments gave a fair explanation of the influence inhalation had on diseases of the lungs. He con-

ends that finely pulverized particles may enter into diseased lungs through the bronchi and even into the alveoli: that in order to produce the application to lungs in this way we must have a combination of pressure and aspiration effect. The pressure effect at the entrance of the respiratory passages must be felt equally at all portions of the lungs. In practice it has been assumed that aspiration is equal in both healthy and diseased portions of the lung; it is not remembered that there must be a difference. If the lungs have lost elasticity so that new air no longer enters, it follows that substances mixed with air will not enter. The diseased processes which so lessen the elasticity are not sufficiently considered. It has been found that in healthy animals exposed to air loaded with coal dust, the larger and smaller bronchi were reached in fifteen minutes; that in animals with diseases of the lungs, as bronchitis and miliary tuberculosis, substances mixed with atmospheric air enter in even greater quantities than in healthy animals. But the distribution of substances is very uneven; for while coal dust can be seen in clumps in healthy lungs nothing whatever appears in diseased foci. This general law applies not only for infiltrations and scars (that is, where there can be no air), but also for processes accompanied by ulcerated foci and cavities.

In an abscess wall coal dust was not demonstrable, yet it was equally distributed in the healthy lung. In a number of rabbits two drops of oil of turpentine was, by a parenchymatous injection, introduced into the right lung; an inflammatory process was established, attended with a fibrinous exudate; the rabbits were all exposed to coal-dust atmosphere with the result that in the injected lung no coal dust entered, while in the healthy lung it did. There was doubtless an anatomic process which made it impossible to respire coal dust in the one lung, but with easy facility in the other. It was found, however, when the injections were made into both lungs that the coal dust entered both. The result of these experiments demonstrates the fallacy of the assumption that the aspiration strength of the lung is identical for air and for bodies mixed with air. They show also that corpuscular bodies in the air do enter into diseased lungs and even under certain circumstances more abundantly than in healthy lungs. This phenomenon may be explained from the fact that the aspiration strength of the diseased foci is decreased; in healthy foci increased, hence less resistence in healthy than diseased lung. If the anatomic process is only unilateral then inhalation is negative; if bilateral aspiration strength is even, and bodies mixed with air enter.

Do vapors act locally? The pathologic processes in which vapors are used are associated with alterations in the respiratory mechanism and vital capacity of the lungs. Portions of the parenchyma of a lung, bordering on a cavity; where there is an abscess or gangrene is also altered, therefore not only the main focus but also the surrounding parenchyma, for a greater or less distance, takes less or no part; and so the respiratory filling of diseased regions of the lungs, may be incomplete in both degree and duration. The act of inspiration begins later and ends quicker. In those portions of the lungs where there is a slight hindrance to ventilation of diseased foci, as mucus or swelling, it would be sufficient to prevent all ventilation of the diseased foci; and these conditions would have greater effect upon the vaporized medicaments than the air itself. Hoffmann says this form of treatment should be used in diffused catarrhs.

One difficulty which has appeared to lie in the way of the thorough application of drugs to affected air passages has been in the unsatisfactory action and imperfect construction of the various atomizing inhalers furnished the profession. These instruments have either been too delicate in construction to permit the use of sufficient pressure to make possible a deep penetration of the vaporized medicament into the air passages, or became so easily clogged up as to create great annoyance in their use.

The instrument I present is the result of my effort to overcome the objections mentioned. It consists of a heavy glass bottle, ten inches in length and twelve inches in circumference at its widest portion, narrowing at the top to a circumference of three and one-half inches. The bottle part is of very heavy glass and is tested to withstand a pressure of one hundred pounds to the square inch. The atomized vapor is produced through a tube of German silver heavily nickel-plated, which is nine inches in length. Three inches from



Figure 1.

the lower end are two tubes, the ends of which approximate to within one-eighth of an inch of each other. The opening of the inner tube is one-third of that of the outer tube, which is one-half inch in circumference. When in use the motive power, which is compressed air, varying in pressure from five to fifteen pounds to the square inch, enters the main tube and two-thirds of it is ejected at the mouth of the inner tube, the remaining one-third passing down into the medicinal menstruum, from which it assists in forcing a solid column of the medicament to the mouth of the outer tube. The whole mass is then projected in an atomized form against the inner side of the bottle near the top, whence it falls in rivulets to the bottom of the bottle, the residue escaping from the top through an outlet opening, in the form of a fine smoke-like vapor. A screw cap, within which is a screw-thread three-quarters of an inch in length, securely anchors the top to the bottle. I have found this instrument to be strong, durable, easily cleaned, perfectly antiseptic and meeting the requirements of this special form of medication.

I now report my series of experiments:

Experiment 1.—A kitten was placed in a plain box, twenty-one inches long, eleven wide and twelve high, with dovetail seams. A one-half inch hole two inches from the bottom was made for the entrance of vapor and a similar hole at the top for vapor exit. The vapor used consisted of 5 per cent. pure iodin

in a two-ounce solution of lavolin. Compressed air, nine pounds to the square inch, produced the vapor in the inhaler. Vapor was introduced continuously for twenty minutes. The kitten was then removed and immediately killed by an injection of sixty minims of a 3 per cent. solution of prussic acid, per rectum. The respiratory tract was dissected out and the starch test for the presence of iodin was applied to the air passages. Iodin was found present in the mucus from the mouth, on the tongue, in the pharynx and larynx; a typical iodin reaction was obtained the entire length of the trachea to just below the bifurcation to the bronchial tubes; a slight iodin reaction was found in the upper part of the larger bronchi.

Experiment 2.—Animal used, a kitten. A 10 per cent. solution of the trichlorid of iron in lavolin was vaporized in the box for twenty minutes. The kitten was then killed by a 3 per cent. solution of prussic acid, introduced per rectum. A solution of ammonia sulphocyanid was then used to determine the presence of iron salts. Result: A marked reaction in the mouth, tongue, pharynx and larynx. No test visible on the epiglottis, trachea, bronchi or air cells.

Experiment 3.—Animal used, a ten-pound dog. A 7.5 per cent. solution of pure iodin in blandine was introduced into the box for twenty minutes. During this time the dog was much excited and made strenuous efforts to escape, as a consequence his respiratory efforts were greatly accelerated. At the end of twenty minutes the dog was killed with a 3 per cent. solution of prussic acid, per rectum and the starch solution used upon the air passages to determine the existence of iodin. Result: There was a hyper-secretion of mucus, which tested with starch showed the existence of iodin on the tongue, pharynx, larynx, trachea, larger bronchial tubes down to the medium sized. A microscopic examination of the mucus was found to contain iodin. There was also found iodin extending as far down as the openings of the smaller bronchial tubes. This experiment positively demonstrated that the starch test solution was colored by iodin to the mouths of the smaller bronchial tubes. There was no evidence of iodin in the pulmonary alveoli.

In the succeeding experiments a box of the following dimensions was used: Twenty-seven and three-fourths inches long, eighteen and three-fourths high and twelve wide, inside measurement. Capacity of box equals 6243¾ cubic inches. A one-fourth inch opening was made in the middle of the top of the box for the entrance of vapor, and a half inch opening two inches from the bottom for vapor exit.

Experiment 4.—Animal used, a guinea pig; medicaments used, a 20 per cent. solution of iodin in lavolin; time, one hour. It is necessary to use the saturated solution because the iodin combines with the oil. A thirty-drop solution of prussic acid, per rectum, was used to kill the pig. A teased specimen from the lungs was made and iodin found to the openings of the minute bronchial tubes. The objection to the teasing method is that no positive air vesicle can be gotten into the microscopic field. For although epithelial cells covered with iodin may be found, yet it is possible they may have come from the epithelium of minute bronchioles. This experiment positively demonstrated the existence of iodin in the second subdivision of the bronchial tubes.

Experiment 5.—Animal used, guinea pig; time, two hours; mixture used, a 10 per cent. solution silver nitrate in glycerin and water. Pig was killed with prussic acid, per rectum. Result: Grossly the lungs had a silver metallic lusture. Microscopic sections revealed metallic pigmentations. Paraffin sections showed pigment very beautifully surrounding air vesicles.

Experiment 6.—Animal used, a guinea pig, taken from city hall, where air is contaminated with sewer gas and carbon; killed by prussic acid, per rectnm, without exposure to any vapor. My purpose was to make a microscopic test of the appearance of the lungs of a guinea pig which had and which had not been subjected to a vaporized medicament. Result: I was surprised to observe that the appearance in the lungs of the vaporized and unvaporized pigs were almost identically the same. Alveolar pigmentation was present in both lungs and appeared much the same.

Query: Do not all guinea pigs have their alveoli pigmented? Being unable to satisfactorily clear up this vital point in vapor experimentation I decided to secure a guinea pig from a source where the air was pure. Accordingly Mr. E. R. Gibbs of Norwalk, Ohio, was communicated with and killed a pig from his farm with chloroform, immediately dissected out the lungs and expressed them to me. A microscopic examination of the air vesicles showed that they were entirely free from pigment. Hence it was concluded that a guinea pig's pulmonary alveoli are, when respiring pure air, free from pigmentations.

Experiment 7.—Animal used, a guinea pig, secured from a point well supplied with pure air, medicaments used lavolin, holding iodin in suspension. The per cent. of iodin was not constant nor great, time of inhalation two and one-half hours, death produced by prussic acid per rectum. The lungs were removed while the heart was beating; were thrown into plain water; placed on a freezing microtome and frozen before the heart stopped beating. Sections were removed from the blade of the freezing microtome to a 2 per cent. formalin, others to 1 per cent. osmic acid. The formalin specimens after five minutes were mounted in water and examined. Result: The smaller bronchial tubes and air vesicles were filled with large, flat epithelial cells; many of these were loaded with fat; some of the fat was in small granules, some in globules about one-third as large as a cell. The other sections remained in osmic acid twenty-four hours, when they were washed with water and stained with saffranin and mounted in Canada balsam. The osmic acid specimens showed the fat stained black; the fat is slearly within the cell.

I attribute the comparative failure, in some of the earlier experiments, to demonstrate vaporized medicaments in the alveoli to be due largely to the irritating substances that were used, namely, iodin, iron salts and nitrate of silver. The animals after a few minutes' exposure to the vapor had a hypersecretion of mucus which appeared in the nostrils and the mouth; when this had formed, the air entering the respiratory passages was obliged to bubble through a large amount of mucus. No doubt the material in the vaporized air was largely taken out in passing through the fluid. The success of the experiments seem to depend largely upon the persistency of the vapor; also in avoiding too irritating a vapor. The vavor as produced by my inhaler, is certainly very persistent. When the animal is taken out of the box closed some fifteen or twenty minutes and then again opened it will be found to be still filled with vapor.

Experiment 8.—Subject male, age 40, Pole, place Cook County Hospital, disease secondary anemia and septicemia following suppurating tonsillitis, vapor used lavolin slightly flavored with oil of gaultheria, time of inhalation twenty minutes. The respiratory movements were very complete with unusually deep forced inspiration and almost normal expiration. All of the accessory respiratory muscles were brought into play during the period of inhalation. Previous to the vaporization the lungs of the patient were examined and found normal.

Soon after death a postmortem was made. A small section was cut from the lower lobe of the left lung and placed upon a freezing microtome. When ready, sections were made and placed under a high objective. They revealed oil globules in the alveoli. Another section of the lung from the lower left lobe was put in osmic acid the following morning and allowed to remain seventy-two hours. Sections were then made by a freezing microtome. They show well stained oil globules within the alveoli. This I believe to be the first time a demonstration of a vaporized medicament penetrating into the pulmonary alveoli of a human lung has been made.

Reasoning upon the demonstration of oil globules in the pulmonary alveoli of the healthy lung, is it possible for any globules to reach localized diseased areas? I think it generally admitted that vaporized medicaments have an established therapeutic value in diffused catarrhs of the respiratory passages as far down as the larger bronchial tubes. The present extent to which vapors are used in the treatment of diseases of respiratory passages is sufficient evidence that they

are of considerable local benefit in the treatment of affections of these passages down to the smaller bronchial tubes. I have repeatedly seen good results in

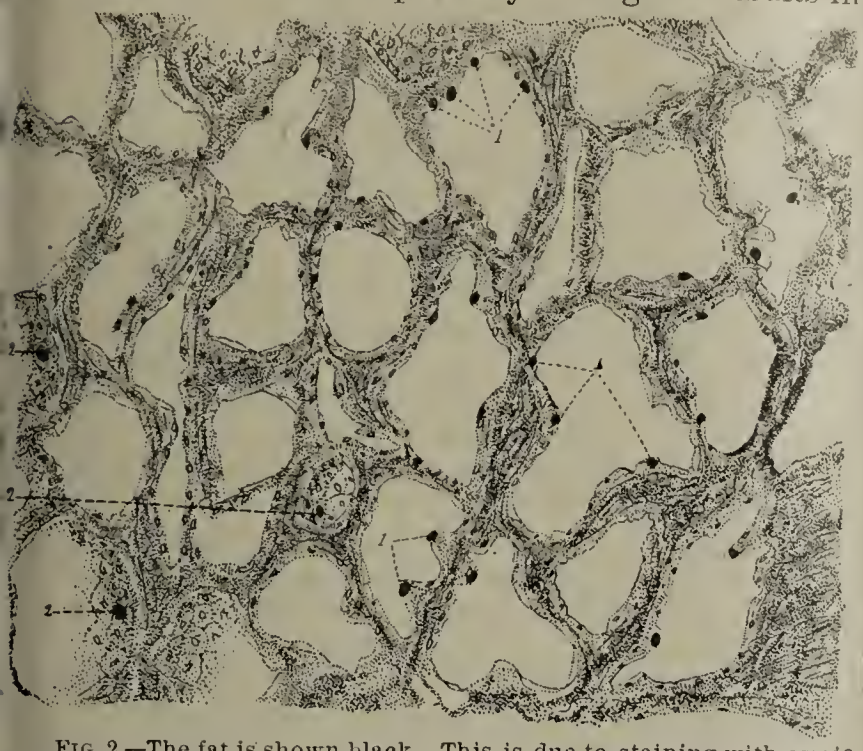


FIG. 2.—The fat is shown black. This is due to staining with osmic acid. 1. Large cells containing the oil. 2. Alveolar walls so cut as to show roof or floor composed of epithelial plates.

treatment of localized inflammations of the bronchial tract by inhalation as far as the second division of the bronchi. I have obtained results in that way that I

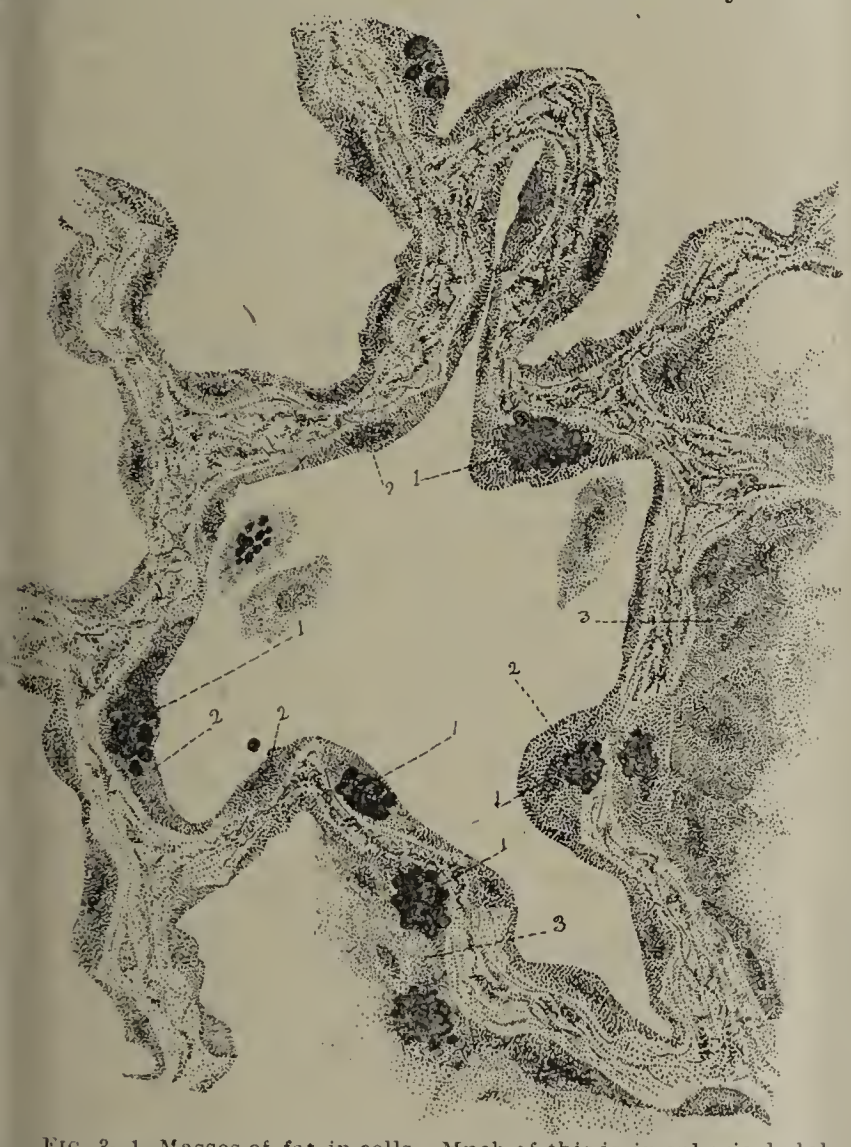


FIG. 3—1. Masses of fat in cells. Much of this is in spherical globules. 2. Epithelial cells of alveolar wall. 3. Sections of alveolar wall so made as to give appearance of more than one layer of lining cells.

have repeatedly failed to secure with internal medication. It is surprising how the respiratory ability can be increased by a little instruction and effort.

In treating cavities of the lungs that are accessible to the air current there is certainly a field for this kind of medication. There is no reason why a phthisical cavity accessible to the air current can not be antisepticized in this way. There is no reason why an alveolar cavity should not be disinfected with vapor as readily as a bronchiectasic cavity. If this can be done considerable relief can be afforded patients. Where there have been pathologic changes in the lung tissues it appears to be another question. It would seem as if we strike a limitation which is an interference with natural respiratory processes on which the success of inhalation depends. In such a condition it would seem as if the bulk of the inhalant would be diverted to those portions of the lung which are compensating for the diseased areas. In inspiratory tuberculosis, up to the time we have necrosis of lung tissues, there is a portion of the lung which we desire to reach by inhalation, apparently effectually blocked by catarrhal products both within and without the alveoli. In tuberculosis due to infection from the lymph or blood cells we have a focus upon which it is deposited extra-alveolar, and which is usually surrounded by more or less connective tissue growth, which theoretically would seem to offer a serious barrier to the passage of any vaporized medicament through the alveolus, even supposing, through osmotic action or any other process, such a passage was possible. Theoretically, it would seem that there exists mechanical limitations to the effect of any such treatment in tubercular diseases. However, it is time to stop theorizing and see what can be demonstrated. It is probably true that inspired solid particles do not reach beyond the area of ciliated epithelium, but in the form of vapor here produced there is an intimate mixture of the molecules which largely favors passage beyond this area. Diffusion is a molecular rather than a gross current. The residual air in lungs is changed every seven inspirations. Hence in healthy lungs there appears no pathologic objection to the penetrability of vaporized medicaments into the pulmonary alveoli.

In animal experimentations the co-operation is wholly unintelligent and involuntary, while the use of vaporized medicaments among most patients is attended with a considerable degree of intelligence and voluntary assistance. The field alone of treating catarrhs of the lung, localized bronchitis, accessible cavities and the good that will accrue from the increased expansion of the lung induced by such treatment, is of itself ample ground to encourage us in persisting in this line of medication.

An interesting point to ascertain would be what per cent. of the vaporized medicaments used are retained within the pulmonary alveoli. Pascal demonstrated that by ordinary methods of inhalation about one-fifth of the vapor is retained. Hence in the past this line of treatment has not been of very much practical benefit on account of the small amount of vapor which has been contained within the bronchial tubes and perhaps within the alveoli. I believe this apparatus is capable of causing the retention of a large proportion of the vaporized medicament. By placing patients under the influence for a considerable length of time, we certainly do a great deal of good in the local treatment of catarrhal disorders of the respiratory passages.

703 Marshall Field Building.

Time for Administering Medicines.—Alkalins, before meals; acids, between meals; irritating toxic substances, immediately after meals. Phosphates and malt extracts should be taken with the meals and sublimate, tannin and alcohol only when the stomach is completely at rest.—*Tribuna Méd.*, February 28.

EXPERT MEDICAL WITNESSES; WHAT IS THE CAUSE OF THE SEEMING DISREPUTE IN WHICH THEIR TESTIMONY IS HELD IN CERTAIN RECENT CASES IN THE COURTS?

OBSERVATIONS FROM THE STANDPOINT OF THE COUNTRY DOCTOR.

BY J. HOWELL WAY, M.D.

EXAMINER IN ANATOMY, NORTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS.

WAYNESVILLE, N. C.

The criticisms by the daily press of the country on the expert testimony in recent noted cases in the courts where medical gentlemen eminent in our profession, occupying positions of great responsibility to the profession as teachers and consultants, and to the public in that from the position accorded them by the profession they become men whose works weigh much with the laity, have evoked considerable attention from the writing part of the profession. These articles I have read with the greatest interest, feeling that out of the discussion would be evolved valuable suggestions.

For quite a number of years past the idea of an "expert commission" to be created by law, and to which all questions of a medical nature arising in the courts would be referred for examination and solution, has been periodically sprung on a suffering profession. Recently it is noted that the same suggestion has been going the rounds of the medical press and is seemingly the more favored solution of this *questio vexata*. For a republican form of government it is more than probable that there are already too many men in "commission" to do this or that particular thing which the people could do for themselves in their own time and their own way, and perhaps equally well. Yet this idea of a commission, advisory to the court, seems to be the favored solution, the main remedy offered on various hands for the abatement of what is claimed as the source of great danger to the future character and influence of the profession. It is difficult to see how the proposed scheme could, if it were practicable to carry it into effect, prevent the troubles of which the doctors complain in regard to the operations of the present system. Take for illustration, the Carlyle Harris case in New York a few years since, or the more recent Luetgert case in Chicago; in each we have some of the most prominent medical gentlemen in their respective cities, going on the witness stand and flatly contradicting each other about scientific questions.

Now, if as is generally understood science knows no variation, if it consists of certain fixed laws, these gentlemen must have known what part of their testimony was scientific facts and what part was opinion, conjecture or possibility. Would medical men be more inclined to agree with one another before a commission than in the glare of the public's gaze in the open courts? Doubted. But it is assumed that the idea of a commission would involve the submission of medical points involved in medico-legal questions arising in the courts to men of special and profound knowledge only. Just how this would make the matter better, except for the favored few who constituted the commission, can not at present be shown. The very prominent experts are those who are constantly getting into the newspapers with the odium of the courthouse "wranglings of the doctors" and resultant criticisms attached to them, and through them to the profession for which they are assumed to stand. It is my opinion that in the smaller cities of the country and the rural districts where there are fewer or no "professors" of medicine, that the matter of expert testimony is developed in the courts with far less friction between the opposing sides and with a corresponding degree of credit to the doctors. In the past twelve years it has occasionally fallen to the lot of the writer to appear in the courts in the capacity of an expert medical witness, and he here records his court experiences as among the pleasures of his professional life. But certain rules have always been scrupulously followed. First, the witness has never received a fee from either side prior to his appearance in the court-room. His cases have been carefully studied beforehand, and after conferring with the other medical men who were to appear in the case, and adjusting any great differences which might on first view have seemed to have existed between them, he has gone on the witness stand and told in the simplest language possible what he knew of the case, strictly avoiding all professional technicalities. When my opinion is asked as to a question which is unsettled in the minds of the profession I invariably, after a word of explanation, confess my ignorance. And right here, I believe, lies the trouble with so many of the modern metropolitan medical experts, they try to know too much, there is too vast an amount of professorial, professional or personal dignity at stake for the expert to say candidly "I don't know," and the clever attorneys fully appreciating this fact play on the doctor's weakness, and when the proper time arrives the expert's testimony and his foibles are shrewdly dissected before the jury. I have no criticisms to make of the attorneys. They can legitimately prey on any man who opens the way. My observation is, that as a rule medical men are themselves responsible for the ridicule their evidence is occasionally subjected to in the court room. On every hand the fact is appreciated that marked advances have been made along all the lines of human activity in the past two or three decades, and in none has there been a greater degree of activity displayed or greater results produced than in the field of scientific medicine. Far be it from the intention of the writer to cast one iota of obloquy upon the good work of our honored profession in detracting from the splendid record of progress in recent years, but the practical fact remains that every new idea has not, as some of our brothers would have us believe, been an improvement on the old or an advance to the front. While the general tendency of our professional life in scientific work has been distinctly and emphatically forward and upward, yet to borrow the figure of another in our evolution, "some of the branches of the tree of progress grow upward and to the light, some grow downward soon finding their terminal buds, some wither and die, yet it takes all to make the tree." So as honest men we must admit that while substantial advance is made every day, we are even now absolutely in the dark as regards the correct solution of countless scientific problems in medicine.

A distinguished savant makes an experiment today which he hopes will lead to something; the next day the details of the experiment are heralded the earth over as a most wonderful demonstration of established facts. The day following the same scientist, or hundreds of co-workers in the fields of science, repeats the experiment and finds that a certain element of error

not calculated for in the original experiment, renders null and void the assumed conclusions of the first day. The general public are not informed of this, however. Later they find out the facts and then their respect for scientific expounders and their science is proportionately lessened. Witness tuberculin! Call to mind the excited throngs, both of students and afflicted, who flocked to Berlin during the few months following the announcement of Koch's discovery. To bring it nearer home, look at the history of vaginal injections during and after labor. Only a few years since it was gravely announced by those high in authority in the medical world, that no woman should be permitted to bring forth offspring without her genitals being rubbed, scrubbed, scraped and injected with strong solutions of toxic drugs a certain number of times (the details of the process almost suggested Hahnemann's directions in his "Organon" for preparing a "potency"), then a pad of the famed spices of the Orient was to be placed at the vaginal entrance to frighten timorous microbes away. Such was the dictum that with "professorial" sanction went out over the country; notwithstanding this, there were intellectual "giants in those days" who dared to reason a little for themselves and questioning, said, is not this a violent perversion of nature's methods? And while perhaps the many of the profession were for the time swayed by the injection idea (largely because it was "new" and "the latest") there was a very large portion who rejected it as an illogical treatment. On my desk lies an ably written article recently published, from the pen of an acknowledged authority on obstetric science, inveighing against the practice of using vaginal injections in labor and criticising the monthly nurse for her disposition to use the douche whether so advised by the attending physician or not. Yet this article does not give a hint as to where the aforementioned nurse was indoctrinated with the supreme necessity of vaginal injections in labor.

The idea of the writer is to direct attention to what he believes to be one of the chief causes of the threatened disrepute into which it is gravely asserted expert medical testimony is in danger of falling, and incidentally to note that the general, every-day practitioner of medicine can not afford to endorse such ideas as tend to produce the belief that relief is to be found in putting "in commission" certain gentlemen who will attend to the elucidation of medico-legal questions for the profession and the courts. The severest wrangling over medical cases in the courts comes when gentlemen of the class, from which it is proposed that the commission be created, appear in the courts on opposing sides.

To get at the cause of the trouble is our first duty, then to remove it if possible. One of the dangers which an expert, and the more reputation he has to sustain the greater the danger is likely to encounter, is that of knowing too much. If medical men were as ready to admit in the court-room their real ignorance of many things, as they are in the privacy of the consultation room there would be far less wrangling of the experts, with the result that much more respect would be entertained for their evidence. Doctors are sometimes, rather than make a frank confession of ignorance, tempted to build up on one known fact in medicine, coupled with half a dozen conjectures a theory which they may believe, but do not and can not know. This theory is then elaborated and given to the court as an exposition of the teachings of medical science. This is all wrong, but we do not need to invoke the aid of legislation to set such things right, but rather the exercise of common sense. It is a family affair and should be settled by those most interested. In every case where medical witnesses are summoned, if these medical experts will get together and calmly and critically review the evidence of each man, throwing out what is only conjecture or rests on insufficient scientific foundation, leaving to be given out what is generally accepted by the profession as known facts; then later, when on the witness stand, with an eye more to trueness to professional honor than to being the plaintiff's or defendant's "doctor," tell what he knows and resist the allurement of keen-witted counsel to extract information which he does not know, that man will retire from the stand conscious of having maintained his self-respect. He will also merit and receive the respect of the court. A proper appreciation of this plan ought to make it possible to put it into operation with the masses of the profession who have regard for their professional honor. Apply the method herein suggested to the practice of medical jurisprudence in the courts and it is not likely that self-respecting medical men will, after carefully studying a case together, go into the courtroom and exhibit the spectacle presented in the recent Luetgert case, where given a small fragment of the upper extremity of a femur, one gentleman swore positively it was in his opinion the femur of a human female, the other with equal positivity asserted it to be the femur of a hog. On the day following the astute attorney produced in court bones known to have been derived from a chimpanzee, which bones were identified by the experts as human. Imagine the humiliating position of these gentlemen; amusing to the spectators and disgusting to every plain, common-sense doctor who followed the testimony. Both medical men should have testified that the bit of bone was the upper end of the thigh-bone of a mammalian, and mentioned some of the more common animals from which the bone might have come. They should have positively stated that with the very short fragment exhibited, it was impossible to say it was or was not a human bone (after days of wrangling this is really what their conjoint testimony amounted to). This course would have saved their credit and that of the profession in general, which is always affected more or less by the actions of its members. It is true this would have been indefinite, but (as the sequel proved) it would have been the truth, and when told in a simple dignified professional way would have enabled the doctors to have retired from the stand with more honor than attached to the experts whose perhaps too ample *ego* led them to know too much. These gentlemen were acknowledged expert comparative anatomists. The blunder as to the chimpanzee bones, the positive divergence of opinion as to the source of the piece of femur exhibited to them, presuming as we do that the experts told what they believed to be the truth, proves conclusively that comparative anatomy is not as yet sufficiently an exact science to enable one, from only a small part of a bone (unless it should be a part possessing some very special or pronounced processes or foramina, etc., rendering its character unmistakable) to positively identify it as coming from the body of a certain animal. Now to candidly admit this fact need bring no discredit to our profession or to the individual doctor so testifying. We are not expected to know everything in the courthouse, whatever may be the

demands made on us in the sick room. A clear recognition of this fact of the part of the professional man, coupled with a sincere regard for stating, when on the witness stand, only what are known to be established facts, and a disposition not to allow the erudite attorneys to lead him to become a partisan, will I think, contribute very greatly to advance the esteem in which expert medical testimony is held by the courts and the general public. These remarks are intended to apply more particularly to the general masses of the profession, the practical men who help nature save and prolong the lives of their fellow-creatures. Can not these gentlemen, so clamorous for special legislation, see that the very fact of their more or less valuable services being had by either side in any case, carries with it the death-warrant of the call for professional experts in the courts of justice. The American people are of a very practical type, and a few more exhibitions of medical experts *à la* Luetgert style will make the masses feel that these experts are all frauds. But long after this *genus* shall have for remembrance only a "trace of mould" in the sociologic layers of the past, there will still be more or less frequent calls from the courts of the land for some plain, practical observations on medical questions coming before them, from the plain every-day common-sense doctors who have opinions only about things of which they know (and are not embarrassed at not knowing all things), and not based on what might, could, would, should, or did not happen.

SOME SUGGESTIONS CONCERNING THE EXAMINATION AND COMMITMENT OF THE INSANE.

Read before the Medical and Surgical Association of Maryland, Feb. 25, 1898.

BY GEORGE J. PRESTON, M.D.

Professor of Nervous Diseases, College of Physicians and Surgeons, Baltimore; Consultng Neurologist to Bay View Asylum, City Hospital, Hebrew Hospital, Church Home, etc.

BALTIMORE, MD.

The commitment of an individual to an asylum is an act of serious import, and often of far-reaching consequences, and it should be attended with more care and thought than is often awarded it. There are two considerations always to be borne in mind, the first of great importance, namely, the consequences to the patient, and second, a much less important point, but nevertheless one that must be considered, the consequences to the committing physician.

In regard to the first point, there is often rather too much haste in sending patients to an asylum. I have not infrequently been called to sign a commitment for a patient in whom the mental condition was simply one of depression from over-work or over-worry, which was relieved by a trip away from home. More often still have I been asked to commit a patient with hysteria. Another class that I am frequently asked to send to asylum is the class that may be called in a general way "eccentrics," persons who can not be classed as paranoiacs, but who do very illogical and foolish things. Finally, there are neurasthenics, hypochondriacs, mild dements from organic brain disease, and persons who congenitally are, while not exactly feeble-minded, below par mentally. To be added to the number already mentioned are cases of distinct mental disease, concerning whom the question arises whether they are better off at home or in an asylum. Thus it is evident that the duty of the physician is not to find out whether there is sufficient mental disturbance to warrant commitment to an asylum, but to decide the very difficult question whether the patient should or should not be sent away from home.

It is not intended, in this brief paper, to discuss the question of home versus asylum treatment, but merely to point out the method of conducting the examination. It is, in general, best to approach the patient in the capacity of a physician and not resort, as is often done, to some mild deception. The patient need not be told that an examination is being made to determine the question of sanity, but it is always easy to explain the physician's visit on the ground that the patient's friends or relatives wished something done to relieve the "nervousness." A little tact will always succeed in the mild cases, and in the violent there is no need of deception. One often sees patients thrown into a most suspicious attitude toward physicians after having been deceived.

A general physical examination should always be made of the organs of circulation, respiration, digestion, etc. Then the state of the nervous system should be inquired into, the state of the reflexes, the pupil, sensation, the existence or not of muscular atrophy, the presence or absence of paralysis and the like. It is extremely difficult to formulate, in words, the mental condition. After a careful examination one should be able to say in regard to the general intelligence whether it is good or not. The patient's social status, education and environment must be taken into account. Various current topics should be touched upon, and the condition of the memory, both for early and recent events, noted. If the patient is irrational the nature of the conversation should be observed. The general demeanor of the patient should be noticed as to whether there is present exaltation, excitement complacency, anger, fear, depression, suspicion, dread and the like. I am in the habit, for purposes of convenience, of classifying the mental state according to the various phases of alcoholic intoxication. For example, a patient will exhibit the mental state of an individual in the early stages, the furious stage, the emotional stage, etc., of alcoholic intoxication. It is to be regretted that we have no arbitrary standard by which to represent the mental condition. This examination has a twofold object: First, it is important to know the patient's general condition, so as to be able to judge how far disease of organs, other than the brain, may be responsible for the supposed mental symptoms. Then this routine examination offers an excuse for obtaining the patient's history and for asking any questions designed to test the mental condition or to elicit evidence as to the existence of hallucinations or delusions.

Some patients are eager to deluge any listener with their delusions, while others are very unwilling to speak of them. It is useful to obtain as clear a history as possible from relatives or friends regarding the patient's conduct or false beliefs. At the same time it is to be borne in mind that the relatives are apt to be very biased witnesses, sometimes refusing to admit evidence of marked mental disease or attempting to explain away certain incontestable symptoms, at other times laying undue stress upon hysteric or other functional manifestations. The history thus obtained indicates the presence or absence of delusions.

A great deal of tact is necessary in bringing out delusions, for insane individuals are often dimly aware

of the fact that certain of their beliefs are regarded with suspicion by their friends and associates. When questioned bluntly concerning certain delusions which are supposed to exist, it is not uncommon for the patient to refuse to talk upon the subject. Again, I have known patients who, having been warned by legal advisers not to speak upon the topics about which they had delusions, were able for a considerable time to obey this injunction. It is nearly always possible, however, by patient and wary questioning, to get the insane individual headed toward his delusions if any exist. This is much easier to accomplish if one knows beforehand what the nature of the delusion is. The examination of a suspected case of insanity should never be hurried. In many cases one may recognize the existence of insanity at a glance, but in others many and repeated examinations are necessary either to bring out the delusions or to demonstrate the patient's sanity.

One is often asked on the witness stand if the time alleged to have been devoted to the examination of a suspected case of insanity was sufficient. Such a question must be answered in a very general way. If certain incontestable evidences of unsound mind have been educed then the examination, however brief, was sufficient to establish the question of insanity. If, on the other hand, the examination was negative, it is necessary to show that the patient was examined carefully upon all the subjects on which he was suspected of having entertained delusions. A single examination, with negative results, should rarely ever be relied upon. When a question has been raised, as to the mental condition of an individual, sanity is often far more difficult to establish than insanity. As was remarked before, patients are often unwilling to speak freely of their delusions. There is at present under my care a lady who was under observation in a private room in a hospital for more than a month before she gave any conclusive evidence of the existence of delusions. She simply seemed greatly depressed but would never give any reason for her depression. Although I had seen her nearly every day for a month I could never bring out any semblance of a delusion until one day she told me that all the people who passed the hospital shook their heads at her and showed great joy at the fact that she had been deprived of her liberty.

One should be cautious in accepting statements made by the patient as evidence of the existence of an insane delusion unless the facts of the case are well known. This is particularly true in regard to alleged ill treatment by relatives and questions involving property. Sometimes so-called delusions are simply exaggerated statements of existing conditions. Not infrequently I have been obliged to agree with the supposed lunatic in regard to the treatment received at the hands of relatives. This brief reference to some of the salient points to be noted in the examination of a case of supposed mental disease will suffice to show the care with which such examinations should be conducted. It is only by the exercise of this caution that mistakes can be avoided. By mistakes is not meant simply the commitment of sane persons to an asylum; this is sometimes, though in my opinion very rarely done, but the commitment of persons to an asylum who could have been treated as well at home.

Unfortunately, in this country there remains a great deal of the old feeling regarding the insane and asylums. A person who has once been committed to an asylum bears an ineffaceable stigma. Then too, in the mind of the laity such undue significance attaches to the hereditary influence of an isolated case of insanity that the fact that a member of a family has at some time been committed to an asylum constitutes almost a blot upon the escutcheon. These considerations attest the grave responsibility resting upon the physician in committing a patient to an asylum and demand a more thorough examination of the patient and his environment than is sometimes employed.

The consequences to the physician in wrongly committing patients to asylums rarely rise to the point of criminality. Such instances could be mentioned but, to the credit of the profession be it said, they are extremely rare. On the other hand, it happens very often that physicians are culpable in not making a more thorough examination of supposed cases of insanity. Most of these mistakes are known only by the asylum superintendent, although not infrequently they are recognized by the patient's friends afterward. The place where this careless and superficial work is frequently shown up is in the court room. Anyone who has had much court experience in cases of insanity must have seen a great many instances where lawyers have shown most conclusively, that the examination of the case of supposed insanity has been made in the most careless manner. Often the statements of relatives, more or less known to the physician, are taken to prove the existence of mental disease. Then it is most common to find that the physician has made no general examination of the patient and is unable to state whether or not any evidences of organic disease exist.

Great discredit has of late been cast upon expert medical testimony in regard to insanity. While in some instances the so-called expert is criminally corrupt or simply incompetent, in many and perhaps the greater number of cases, his examination has been entirely inadequate. It would be well if our medical journals would take more interest in the expert testimony given in the courts and analyze the more important cases. In this manner the profession would be placed in a position to pass judgment upon the medical testimony and the medical expert.

THE PETERSON HOSPITAL AT THE CRAIG COLONY FOR EPILEPTICS.

BY WILLIAM P. SPRATLING, M.D.
MEDICAL SUPERINTENDENT CRAIG COLONY.
SONYEA, N. Y.

The Peterson Hospital at the "Craig Colony for Epileptics" was designed for the care and treatment of acute medical and surgical cases only, and its capacity is from twenty to twenty-four beds. Located as it is in a colony of this kind, it is more than a hospital only, as will be pointed out.

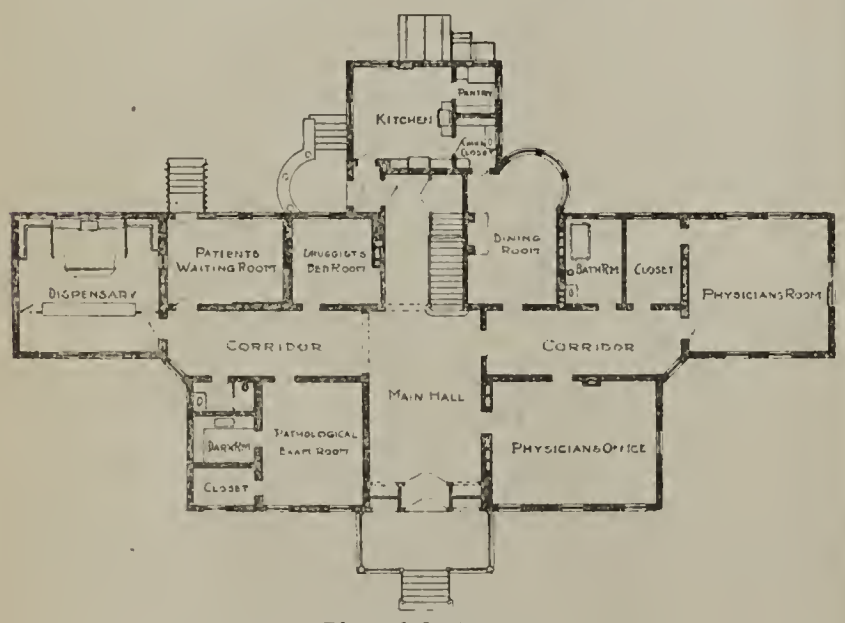
The style of architecture is not ornate, simplicity and solidity being the chief features aimed at. It is two stories high, with an ample basement that is light, well underdrained, and in which are located the heating and hot water supplying appliances for the building, besides containing ample storage room for miscellaneous supplies. It is constructed of a superior quality of red pressed brick, with blue stone foundation walls to the water table, and trimmings of the same stone throughout. It measures from front to rear 66 feet; from side to side 120 feet; and its lines

are so run that sunlight enters all of the rooms at some hour of the day.

The main entrance faces north and on passing into the building by this door the main hallway, 18 by 26 feet, with a projecting hallway half as large as this and running from it to the rear, is entered. The main hallway will serve the additional purpose of a public reception room.

To the right is a spacious well lighted apartment, to be occupied by the assistant medical staff as an office. Immediately in the rear of this office, and including the intervening hallway, are the living quarters for the resident medical officer.

To the left of the main entrance is the physical examination room, and opening off this a large dark room fitted with all facilities for ophthalmic work and for photographic microscopy. The physical examination room will serve the same purposes afforded by the out-door departments of a metropolitan public hospital. Examinations of all kinds may be made here and all minor injuries receive prompt attention. Adjoining this room is a small apartment in which out-door patients may be isolated and cared for, should they have a seizure while in the building.



Plan of first story.

At the end of the corridor on the left is the drug room, and communicating with this, by means of a raised window, is the waiting room for persons who may come for drug supplies. All the medicine for the entire colony will be dispensed from the drug room. After a tour of inspection over the colony, the physicians will return to the drug room and enter in the prescription book all medicine and druggist's supplies to be used in their respective departments, so that this room will become the central supply station for a population that may reach 1500 or 1800. Adjoining the waiting room is the druggist's sleeping apartment, easy of access to duty or call, day and night. The kitchen is immediately in the rear and connected with the dining room above by a dumb waiter.

The second floor is given up to patients' use, and the problem to be met was to effectually separate the two sexes in a building of this size, and without sacrifice of space.

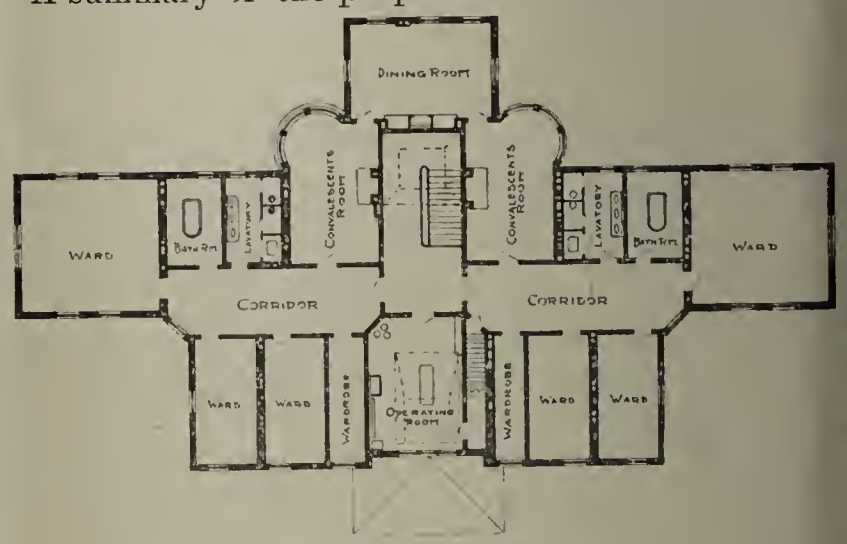
Ascending the main stairway, a landing is made in a hallway above, twelve feet wide. Opening off from the right of this is the male department, and from the left the female, both entrances being protected by locked doors. At the end of the hallway is the operating room, a well lighted, antiseptically constructed and conveniently arranged room in all respects. It is equally accessible from the male and female wards. The male and female departments, as will be noted by glancing at the second floor plan, are exact counterparts.

Lying to the north of the hallway leading to the main ward are two wards, 9 by 19 feet, in which one or two beds may be placed, as desired. A well lighted clothes room adjoins the operating room on either side. The main wards are 19 by 20 feet, are perfectly lighted and have effective ventilation. The toilet fixtures and bath are placed in separate rooms, permitting the free use of the bath at all times.

The convalescent rooms are cheerful, abundantly lighted, provided with open fires, and are in easy proximity to the dining room beyond. The doors leading from the convalescent rooms, on either side, to the dining room, will be kept locked, thus providing two sets of locked doors between the sexes. Safety is further assured by the fact that all patients in this building will be confined to bed except during convalescence, after which they will go out into the colony at large.

The operating room is fitted with the most approved and modern operating furniture, and is provided with an abundance of hot and cold spring water that is as pure as can be supplied by nature.

A summary of the purposes it is intended to serve



Plan of second story.

is: 1, For the treatment of acute medical and surgical cases, requiring hospital facilities; 2, as an accident or out-door station for the relief of dispensary cases; 3, as a central hospital and medical supply station for a community with an ultimate public population of from 1500 to 1800.

Dr. Frederick Peterson of New York City, who first agitated the subject of public care for epileptics in America, was honored by the Board of Managers of the Colony when this hospital was given his name.

SPECIAL SANITARY INSTRUCTIONS FOR THE GUIDANCE OF TROOPS SERVING IN TROPICAL COUNTRIES.

BY R. S. WOODSON, M.D.
CAPT. MEDICAL DEPT. U. S. ARMY.

Having served in the extreme south during my entire service as a medical officer, viz.: Atlanta, Ga.; Pensacola, Fla.; Laredo, Texas; New Orleans, La.; Savannah, Ga.; and Tampa, Fla., and having made a special study of tropical disease, including yellow fever, it is incumbent upon the writer to publish the following special report of the existing conditions

and the sanitary precautions to be taken in tropical climates for the instruction of troops to be sent therein.

The existing conditions of international complications lead us to believe that the Island of Cuba is our objective point and while I have never been a resident of the island, yet I have taken advantage of the opportunities offered to obtain all information possible from a number of prominent physicians, refugees from Havana.

The adverse sanitary conditions peculiar to Cuba are: 1, numerous infected foci of yellow fever; 2, numerous areas of infection from plasmodia malariæ; 3, the plague of insects; 4, the intense solar heat; 5, the intense humidity with great precipitation of dew; 6, smallpox in larger cities; 7, impure water; 8, the danger of sleeping on the ground.

1. Yellow fever is most certainly the greatest danger that confronts us. The mortality of this affection among troops from northern climates possessing absolutely no immunity will be exceedingly great should the disease gain access to their midst. Yellow fever being a disease which attacks essentially the liver and kidneys, will prove particularly fatal to those whose habits of life have reduced the vital resistance of these organs. Especially is this axiom applicable to soldiers with cirrhotic livers and kidneys from alcoholic excesses, and those with lithemia from over-indulgence in highly nitrogenous foods. The term lithemia is intended to define that condition of men ordinarily spoken of as "full habit."

So firmly convinced am I of the predisposing influences of alcoholic indulgences toward this disease that I would strike all such beverages from the dietary of the soldier, and even from the supplies of the medical department. In this connection I wish it distinctly understood that I am not discussing this question from a moral standpoint, and to those who insist that habitual drunkards require their accustomed stimulant I would reply that such men should be left behind, or if carried should be sent up daily hypodermic injection of strychnin or digitalin.

The latter condition, lithemia, brings us to the object of foods. I would insist, in this connection, that our soldiers are overfed with nitrogenous foodstuffs, hence the plethoric condition that is often mistaken for health. Many of the men of this command are closely bordering upon obesity, and such men will prove an easy mark for the ravages of a tropical climate. It is probable, however, that in this campaign we shall "live upon sixpence a day and earn [illegible]" thus surmounting this difficulty.

I am not an extremist when I insist that the army of occupation should be held in strict quarantine during the whole of its campaign in Cuba, except when military necessities render its observance impossible, and further that the requirement of such quarantine should be most rigidly enforced when approaching a known focus of infection.

The Cuban physicians insist that fruit should not be eaten, especially the mango, they being a fruitful source of yellow fever. They are mistaken, however, in this, and the fruit is free from such infection unless it has passed through an infected focus after gathering. It is recommended, however, that fruit when it has been gathered and kept for ripening in infected foci as well as fruit that is unripe or that has begun to decay, be strictly avoided, but the arbitrary dictum that all fruit be avoided is unwarranted.

The writer does not believe that yellow fever is solely a water- or a food-borne disease, but that the infection is carried by small bits of fabric, technically termed fomites, emanating from the person and environments of those sick with the disease, and that the disease gains access to the human system by inhalation.

The principal foci of infection are the cities and towns of Havana and Matanzas provinces, the cities Sagua la Grande, Cienfuegos and Placetas, in Santa Clara, and the city Puerto Principe, in the province of same name.

The provinces Pinar del Rio, Santiago de Cuba, and the Island of Pines are free from infection and comparatively healthy. The trochas which have been inhabited by the Spanish army as well as all military hospitals and old camp sites should be strictly avoided, especially the Jucaro-Moron trocha, extending across the western portion of Puerto Principe. The entire seacoast of the provinces Havana, Matanzas, Santa Clara and Puerto Principe should be avoided as much as possible, the hilly interior being comparatively healthy. The line of safety from sea of course depending upon the topography of the country, but I am informed that it can be conservatively stated at ten or twelve miles upon the average.

Should the disease yellow fever unfortunately attack us, instant isolation of the sick and detention of the suspects in camps of detention and decimation of the command instituted. I use the term decimation in its technical sense. A nice question is involved as to what would be the unit of infection, whether the company, regiment, brigade, division or corps. From my observation I should designate the regiment as the unit and therefore should insist that the infected regiment be immediately isolated from the rest of the command, and as an added precaution all communications between brigades and divisions should be suspended and army corps should be separated until all danger of a further spread of the disease shall cease and only those members of the medical and hospital corps who possess an immunity against the disease should be allowed access to those afflicted. The necessity for rigid camp sanitation I shall not discuss, as among large bodies of men it is required under all circumstances.

2. I have been informed that malarial fevers are rife in many localities in Cuba, but especially that portion of Matanzas and Santa Clara bordering upon the Rio Gonzalo. All low-lying districts with the concomitants of bad drainage, decaying vegetation, intense heat and great humidity should be considered as malarial localities. Although we have never discovered the habitat of the plasmodium malariæ external to the human body, we yet believe it to have a telluric origin under the above-mentioned favorable conditions. While it is preferable to avoid such localities the exigencies of military operations will frequently necessitate more or less lengthy sojourns therein.

The writer is firmly convinced that malarial fever is both a water- and an air-borne disease. We can exclude the former by boiling all drinking water, which precaution is earnestly advocated. The latter method of infection is more difficult of control. Then again the mosquito is considered by many scientists, and especially by the Cubans, as the vehicle of infection. They also believe that these insects are the carriers of yellow fever infection. While these theo-

ries may be *sub judice*, yet they must be considered.

Then there are certain conditions of a soldier's life which. though not provocative of disease, nevertheless lower his vital resistance and render him an easy mark. I allude to sleeping on the ground, lack of personal cleanliness, exhaustion consequent upon excessive clothing, weight of personal equipment and exposure to intense heat. It may be justly claimed that a soldier's life necessitates these evils, and the writer gracefully retires whenever the military necessities of a campaign, however insanitary, become imperative, but there are a few of these evils that might be corrected without a corresponding detriment to military efficiency.

3. I have been assured that the mosquito will prove very troublesome. I would recommend that each soldier be issued a triangular piece of mosquito netting to fit over the fronts of their shelter tents. Such a net would occupy small compass and be of little weight.

4. The question of tropical heat combined with intense humidity and lack of acclimation will prove of serious moment to our troops, most of whom are from northern climates and unaccustomed to intense heat. Several cases of sun stroke have occurred among the troops since their arrival at this point. The evil effects of the intense heat can be avoided by shunning exposure to the mid-day sun, abstemious habits as regards food and alcohol, reducing the weight of the soldiers clothing and equipments, and personal cleanliness.

The writer prefers a brown union duck, composed of a mixture of cotton and linen, to be worn with the present leggings and campaign hat, as affording a cool, comfortable and serviceable uniform. I would recommend light weight socks, linen drawers and a light, short armed undershirt, composed of material known to the trade as balbriggan, to be worn under the blue shirt now issued. The present shoe is heavy, shapeless and devoid of all elasticity.

The most important point to be considered in this connection is the knapsack, which from its weight and constrictions of its straps will prove a great hardship in a tropical country. I see, also, that the overcoat has been brought along. I would most earnestly recommend that all knapsacks and overcoats be left behind, and that ponchos be issued in place of the latter. In place of the knapsack the blanket roll is strongly urged, consisting of half shelter tent, blanket, poncho, tent poles, change of underclothing, two pairs of socks, two towels and necessary toilet articles. I would recommend that no extra shoes be carried, and that all other clothing not mentioned be left behind.

5. In regard to the great humidity and dew precipitation, the shelter tent and blanket is probably the only protection that can be offered from a military standpoint.

6. I have been informed that smallpox exists in all the larger cities. The entire command should be immunized against this disease by vaccination.

7. In regard to drinking water, I would strongly recommend that all water for that purpose be previously boiled and subsequently protected. The small suction filter tube used by the Cubans, is not recommended for the reason that it would soon become contaminated and prove a source of infection to sterile water.

8. The Cubans are particularly emphatic as regards the use of the hammock to prevent contact with the ground. I have given this question a great deal of thought, and while hammocks would unquestionably be of great benefit to the troops, they are not recommended for the following reasons: 1, it would be necessary to carry large heavy upright posts and guy-ropes upon which to swing the hammocks, and the writer is opposed to any addition to the personal equipment of the soldier in hot climates; 2, the hammock could not be swung in the shelter tent, and as the rainy season will have about commenced upon our arrival, this would prove an insurmountable objection. As a substitute I would recommend that each man be issued a poncho to be used upon the floor of the shelter tent, two placed together being sufficient to cover the entire area. This, with a blanket placed over it, will prove as efficient a guard against the dampness and gaseous emanations of the soil as is possible from a military standpoint. Further, the poncho would be extremely useful during the rainy season for the purpose for which it was originally intended.

Many fevers of fatigue and cases of insolation will develop on the march unless every effort is made toward the conservation of the soldier's energy. His personal equipment and weight of clothing should be reduced to a minimum, always considering the requirements of military necessities.

Great attention should be paid to personal cleanliness, because the skin is the great organ for the elimination of heat through the agency of the sweat glands. Such elimination should be encouraged on the march, but care should be taken in the hours of rest against sudden chillings of the surface with consequent determinations to internal viscera. The writer would caution against the excessive drinking of water while on the march, for the reason that while water is enormously beneficial to the system, such drinking during periods of great activity increases largely the volume of blood and limits the powers of a soldier's endurance.

The writer has avoided all points of military hygiene not particularly applicable to tropical climates. All other questions relating to the health of the troops may be left to the superior wisdom and experience of older members of the medical corps.

PROBABLE INFLUENCE OF THE MODERN SMALL ARM PROJECTILE ON MILITARY SURGERY.

Read at the Meeting of the Physicians' Club, May 2, 1898.

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CHICAGO, ILL.

The modern small arm is destined to be the chief factor in modifying military surgical practice. It is as yet untried upon a sufficiently large scale in actual warfare to determine its practical merits. Certain things, however, have been fairly well established and multitudinous and varied views have been expressed as to its utility. As the small arm was designed as a superior instrument for the infliction of physical injury, its merits and demerits are perhaps of more interest to military surgery than to any other branch of the service.

The first point for consideration is the question

the relative danger experienced by non-combatants of the present day, and by the surgeon more particularly, as compared with the past. Until the invention of the modern rapid-fire, extremely long range rifle, it was comparatively easy for the hospital department to put itself in a position which was not only safe, but sufficiently near the firing line to be of the best possible service to the wounded. How much this has changed is likely to be demonstrated in the near future; that it has been changed is unquestionably true.

The modern gun throws its projectile so far that even though the combatants should be actuated by a desire to avoid injuring non-combatants, it is almost impossible to do so, from the fact that if the hospital department be sufficiently near to render prompt aid to the injured, it must be many yards within the maximum deadly range of the guns. If you will consider the comparative ranges of the Springfield rifle and a modern high power arm such as the Lee-Mitford, the rifling of which has been adopted in most of the modern small arms, the point will be at once made plain. Some of the modern rifles, of which the Lee-Mitford is an example, are sighted up to 3500 yards; its minimum point blank range is 300 yards. It is not necessary to alter the sights for any range within 1000 yards. The Springfield rifle, with which most of our volunteer troops will fight the Spaniards, is sighted up to 1000 yards. Its point blank range is 200 yards. From 200 to 1000 yards the sights must be adjusted at the various ranges, which adjustment is the cause of much poor shooting on the part of the soldiers. As I have noticed very frequently in skirmish firing at the rifle butts, many men begin firing at the range of 600 or 700 yards, adjust the sights for that distance, and in the excitement of running and firing forget to adjust the sights properly. The consequence is, that at Springfield, Ill., a farmer who resides behind a high hill surmounting the rifle butts, raises more lead upon his farm during the month of July each year than he does cabbages, and is busily occupied in getting out injunctions against us.

The muzzle velocity of the new weapon, when charged with cordite instead of the compressed powder used in the British army, is nearly 2300 feet per second as against 1600 with black powder. The average deviation in the 45 caliber Springfield ball at 1000 yards is nearly 22 inches, which is almost twice as great as the deviation of the modern small-calibered bullet.

There is very little difference in the modern small arms adopted by different countries. The Lebel rifle used in the French army, the Krag-Jorgenson and Lee used in the United States, the Austrian Maennicher, the Lee-Mitford used by the British and the Mauser rifle with which the Spaniards are armed differ very little in caliber, and their range is essentially the same.

Proportion of wounded.—In a recent article by Captain William E. Dougherty of the regular army, the following statement appears: "When the potential forces that are now available for warfare, are directed on the battlefield of the future with intelligence and skill the devastation that will be wrought upon the area covered by the conflict and its environment will surpass anything of the kind known in former wars. Conditions and necessities now unknown and inconceivable will press upon the victor and the vanquished alike. The number of wounded will exceed enormously that of any war heretofore, and the non-combatant auxiliaries, hitherto safe in any shelter behind the close formations, will be compelled to contribute their quota to the mortality and casualty list or abandon their sphere of action."

There will undoubtedly be, as Captain Dougherty says, an increase in the number of wounded, incidental to the immensely increased range of the modern projectile. This should be discounted, however, because of several factors which, so far as I have seen, army officers have failed to take into consideration. First, while the carrying power of the small arm and the penetrating power of the projectile have greatly increased, the keenness of vision of the soldier and his average potential skill in marksmanship has not increased in like proportion. The chances of striking the object aimed at lessen very rapidly with an increase of distance, and it is my opinion that injuries inflicted at much over a thousand yards will be largely a matter of haphazard, and incidental to the carrying power of the weapon from which the projectile is fired alone, rather than to accuracy of aim.

Another point is that it is much easier for the parties fired at to conceal and protect themselves against the enemy's fire at such long ranges; and with the modern magazine gun, close ranges, excepting in great emergencies, are likely to be avoided until the exact value of the magazine gun has been established. Apropos of the magazine gun as bearing upon wounds, it has been suggested that the average soldier will waste more lead than he is worth in using the magazine gun, because of the excitement incidental to action. There is much of truth in this.

I am speaking solely of small arms and not of the small calibered machine gun. When once the desired range and line has been established for that, accuracy of aim is likely to be maintained. Then, too, the machine gun is not effective at long ranges, and is chiefly used in case of assault, where masses of troops are rapidly advancing within the line of fire.

It is safe to assume that the volunteer troops, at least, will be in no wise superior to trained militia. I have already called attention to the amount of waste of ammunition incidental to target practice, where the men are not exposed to danger, unless they happen to shoot each other by accident. I have also noted during battle exercises dozens of men firing their pieces without taking aim. If in battle exercises, or on the rifle range, men are so excited as to throw ammunition away, what must their conduct be when the soldier is enjoying the sensation of being fired at as well as firing? In a general way, very rapid firing from the modern small arm is likely to be very inaccurate; the only thing that is likely to redeem the aim of the soldier is the close approach of a large body of men, and the opportunity of wholly or partially concealing himself behind some sort of breastwork.

Character of wounds.—As bearing upon the effectiveness of modern small arms, and particularly of magazine guns, the following is pertinent: It has been claimed that the bayonet and saber, as implements of war, have had their day. According to modern theorists infatuated with the view that the modern small arm is irresistible, bayonet, saber and sword wounds are things of the past. The bayonet is henceforth to be used in digging up trenches and as a cooking utensil, the sword and saber as badges of office. The fallacy of this is well shown by the fact that considerable bodies of Spaniards have been routed, and large

numbers of them killed, in hand to hand conflict with the insurgents, the Spaniards being armed with the best of modern small arms, and the insurgents relying mainly upon their two-foot knives, or machetes. The conditions prevailing in such combats have provided plenty of sword and bayonet wounds. Even the machine gun has not obviated the possibility of such wounds, as shown in one of the recent campaigns against African savages by the British. If I remember correctly, in one engagement one or more Maxim guns narrowly escaped capture by the savages.

The nature of gunshot wounds has greatly changed. That there will be more immediate fatalities upon the field of action, has been universally conceded. The proportion of dead as compared with the wounded will necessarily be greater than heretofore. Whether this is consistent with the alleged superiority of the modern small-calibered projectile is open to argument. A disabled man is not only practically dead, as far as his own usefulness is concerned, but he is worth a couple of dead men to the enemy, because of the expense, labor and embarrassment necessitated by his care.

The Springfield rifle, caliber 45, despite its inferior carrying and penetrative powers, inflicts a wound, even though a vital point be not struck, which, as a rule, immediately suggests to the soldier the advisability of getting out of action. The smashing, stunning, tearing effect of the ball is such that unless the wound be very trivial indeed there are few individuals who are not put *hors de combat* at once. It is perfectly possible, on the other hand, for a soldier to be shot with a small-calibered projectile through and through the body, or to receive a wound which completely traverses a limb, without being compelled to cease firing. Pluck counts for comparatively little when one receives a ball from a Springfield rifle. It may count for a great deal in case of wounds from small-calibered projectiles. The truth of this proposition was amply shown in a battle between the English and the Matabeles. A savage received five severe perforating wounds, and, if I am not in error, did not fall until the troops and savages became engaged in a hand to hand conflict.

The wound from the modern projectile, granting that a vital part is not struck, will, other things being equal, heal very rapidly. The usefulness of the soldier as a fighting unit will be very speedily restored. He will not require as much care, nor will his care be as expensive as if he were wounded with the old pattern of ball. This is very advantageous to the wounded man, but a decided disadvantage to the enemy. The deduction is obvious.

The reasons for the rapid convalescence of the wounded are: 1, the small caliber of the projectile; 2, the cleanness of the wound; 3, its punctured rather than lacerated quality; 4, the infrequency and small size of foreign bodies carried into the wound; 5, the probability of foreign bodies being carried entirely through the wound by the ball; 6, the through and through penetration of the ball itself; 7, the lessened liability to sepsis incidental to the small size of the projectile, its smoothness of surface, and the relatively small quantity of foreign material carried into the wound; 8, the infrequent and comparatively slight importance of bone and joint injuries incidental to the small size and rapid flight of the ball; 9, the relative infrequency of injuries of the large nerves and blood vessels, incidental to the small caliber of the projectile.

I do not wish to be understood as underrating the explosive property of the modern projectile. By the term "explosive," as used in this connection, I refer to the sudden expansion of the tissues incidental to the sudden wedging of the foreign body through them. This is well illustrated in the bursting effect of the modern small-calibered projectile upon the skull, as was exemplified by a case occurring at Fort Sheridan not long ago, in which á sentry fired upon a fleeing prisoner at close range. In that case the skull was shattered extensively. I will state, however, that the deductions drawn from that case were somewhat erroneous, in so far as they bear upon the average effect in actual warfare. Wounds received at close range will be comparatively few: most of the wounds inflicted will be at ranges greater than 300 or 400 yards, and less than 1100 or 1200, what may be termed the middle range, not of the small arm itself, but of the average marksman.

The effect of the small-calibered projectile varies greatly with the distance. Many explanations have been offered, some reasonable and some otherwise. An explanation, which I have not thus far seen suggested, is that the flight of the long small-calibered projectile may be compared to the spinning of an ordinary top. The top, at the beginning, has a very rapid rotary and somewhat undulating motion. After it has spun for a short time it settles down to steady work. As it begins to lose impetus it again begins to wabble. In a manner somewhat similar, the long, narrow-calibered projectile, as it leaves the barrel of the rifle, has its maximum of rotary motion upon its long axis, and probably also with this spinning motion there is a slight degree of rotary motion around the point of the projectile as a center. After having traversed a distance of perhaps 300 yards the missile settles down to steady flight. As it begins to lose impetus at long range, it, like the top, begins to wabble somewhat. Obviously, if this hypothesis be true, the explosive effect of the ball would be greatest at comparatively short ranges and its tearing effect greatest at extremely long ranges, while in the middle range its power of clean penetration would be most evident. As most of the wounds will be inflicted at the middle range, clean, punctured wounds will probably be the rule.

Effect of the material of which the projectile is composed.—The nickel jacketed, German silver coated, or steel cased bullet, other things being equal, will inflict a cleaner wound than would a lead ball of a similar size; the difference in smoothness and hardness accounts for this. When the ball enters and remains in any part of the body there will probably be a vast difference between the new projectile and the old. Lead does not easily become corroded, and readily becomes encysted in the tissues. The same is not true of the modern projectile, which will, in all probability, become corroded by the juices of the tissues, and give rise to complications incidental not only to the foreign body, but to its plus properties of chemic irritation.

I have by no means endeavored to cover all the various points which might be raised with reference to the relation of modern small arms to military surgery, but I believe I have called attention to the principal lines along which new surgical experiences are likely to be gained in the near future upon the field of battle.

Professor Hebler demonstrated that a small-cali-

bered, rapidly-twisted projectile gives the best results, so far as range and penetration are concerned. The reduction of the caliber has decreased the weight of ammunition fully 50 per cent., the velocity being increased something more than 30 per cent. by the change in caliber alone. The substitution of the new explosive, cordite, for the old-fashioned powder has still further increased the range, velocity and penetrating power of the small arms projectile. The soldier is able to carry twice as much ammunition as formerly.

It is also true, as someone has said, that "we have reached an equation in the proportions of the mass in the rifle and in the projectile, in caliber rifling and twist, in the density of the bullet and in the power of the explosives."

It remains to be seen, however, whether the modern small arm is as dangerous in actual warfare as the old patterns. It also remains to be shown precisely what effects will be produced by the new projectile upon the living human body, in actual practice. Shooting at cadavers, bags of sand, and steel armor plates proves but little as regards the power of the modern projectile when brought to bear upon living armed enemies, with intelligence, caution, cowardice, keenness of vision, and opportunities for concealment as important factors in the problem of war.

GELSEMIUM.

BY H. P. NOTTAGE, M.D.

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PROVIDENCE, R. I.

My attention was called to this drug in a practical way during the winter of 1889-90 when the great epidemic of influenza was with us. I found it so useful then that I have employed it since daily, both in general and in special practice, with quite uniform and satisfactory results. It is such a reliable drug and covers so many indications, having a rather wide range of action, that it seems to me that our northern physicians, especially should be more familiar with its properties and uses.

In the South where it is indigenous, it is well known and widely used. It is especially adapted to fevers of the intermittent and remittent type, when we do not care to use quinin. Now that malaria is creeping up the Connecticut Valley, and spreading over our southern New England States, we shall find this drug exceedingly useful in influenza and all forms of catarrhal fevers, and especially in neuralgia, when there is a tendency to recurrence or exacerbation on any particular day, or time of day. Let any physician stop giving quinin for every cold and try a reliable green root preparation of gelsemium, and I feel quite sure that it will quickly find its permanent place in his medicine case. The dose is small. It is not expensive, and it is certain in its action. The indications for its employment are so clear that it is best adapted for use as a single remedy. In this way we can study its action and watch the results carefully. This leads in time to a more perfect acquaintance with the drug, and we soon come to regard it as an "instrument of precision," so uniform is its action. For example, I may mention the pulse as an indication and compare it with two other drugs. Aconite acts best when the pulse is small, quick and hard; veratrum viride, when it is large, full and very strong and quick; gelsemium when it is large, full, quick but easily obliterated by pressure. We find this pulse usually in fevers that tend to a stupid, comatose condition. The other two forms of pulse action are usually found in sthenic fevers with great arterial and cerebral excitement, as in pneumonia.

The drug began to be scientifically studied about 1869, but was in use long before that time. It is related that a Mississippi planter who had an obstinate bilious fever, ordered his servant to dig up a certain root from the garden and make a tea of it. He did so and the planter drank the tea and was seized with great muscular prostration, but without stupor. When this left him the fever was gone. He afterward employed it successfully in those forms of fever that occur in malarious communities.

THE PLANT; PREPARATIONS.

Gelsemium sempervirens, Gray, "Man. of Bot.;" *Gelsem. lucideum; Lisanthus semp.*; *Gelsemnium Nitidum*, Michaux; *Bignonia Sempervirens*, Willd. (?) "Sp. Plant," III, 291.—"The yellow or Carolina jessamine is one of the most beautiful of the climbing plants of our Southern States, ascending lofty trees and forming festoons from one three to another, and in its flowering season in the early spring, scenting the atmosphere with its delicious odor. The stem is twining, smooth and shining; the leaves perennial, opposite, shortly petiolate, lanceolate, entire, dark green above and paler beneath. The flowers are in axillary clusters, large, of a deep yellow color and fragrant, with a very small fine leaved calyx, and a funnel-shaped corolla, having a spreading, fine-lobed, nearly equal border. The fruit is a flat, compressed capsule divisible into two parts, two celled and furnished with flat seeds, which adhere to the margins of the valves. The plant grows in rich moist soils along the sea-coast from Virginias to the south of Florida. The flowers are said to be poisonous." (U. S. Disp.)

This is an indiginous American plant and has been used mostly in the south and west. In France the root, fluid extract and tincture are used and also an alkaloid gelsemin. The root contains oxalate of lime, starch, gallic acid, a volatile oil, coloring matter, but especially, 1, a resinous substance; 2, gelsemin; 3, gelseminic acid.

The gelsemin obtained by Wormsley is amorphous, has a bitter taste, melting at about 100 degrees C; dissolves with difficulty in water, somewhat more readily in alcohol, and readier in chloroform and ether. Its salts are not crystallizable. Gelseminic acid is identical with esculin, a glucosid found in the horse-chestnut of India (*æsc. hipp.*) As chloro-hydrate of gelsemin we have the active principle in crystals. In commerce we find: 1, amorphous gelsemin, an impure resinoid, least active; 2, pure gelsemin, crystallizable as chloro-hydrate, very active. The first form usually appears as a black liquid and is identical in toxic power with the American fluid extract. The second is a whitish-yellow crystallin powder, easily soluble in alcohol and glycerin; soluable with difficulty in chloroform and insoluble in ether. Water at 15 degrees C. dissolves one part of the alkaloid in forty parts of the liquid.

Physiologic and toxic action.—A large dose produces general prostration and paralysis of all the voluntary muscles, while the mind remains clear. The involuntary movements are unaffected. In this stage

dimness of sight is nearly always present to some degree, together with drooping of the eyelids, with much difficulty in opening them. A slight degree of stupor or sleepiness is present, or what seems to be a sluggish mental condition. Next follows partial paralysis of all the involuntary muscles, first the sphincters, then the respiratory and then the heart. During this stage the functions of the brain are not always abolished, but can be aroused by electricity and physical agitation of the body. In other cases a profound stupor is present. In some exceptional cases, when a very large dose is taken, the brain seems suddenly congested and a sort of apoplexy occurs. When death has seemed imminent recovery has occurred under the use of stimulants and galvanism. The nearest analogues to this drug are aconite, veratrum viride, conium and physostigmia.

The first or primary effects of gelsemium are similar to the secondary effects of belladonna. Its sphere of action seems to be the motor side of the spinal cord, the brain and mucous membranes. The sensory nerves are not so profoundly affected as by aconite. Compared with strychnin, gelsemium causes primarily passive congestion of the brain; strychnin active. Like conium and physostigmia it paralyzes nerves of motion, while strychnin and belladonna excites both sets of nerves. Gelsemium produces death by general paralysis and a kind of passive apoplexy, while strychnin causes a tetanic, actively congested state of the cerebro-spinal centers. This may be said to be the primary action of these drugs. Strychnin and belladonna cause by their secondary action, general paralysis similar to the primary effect of gelsemium and physostigmin.

THERAPEUTICS—DOSAGE.

Disorders of the circulation, headaches.—I have found it useful in the headaches which occur at the menopause, together with "flushings;" the head and body hot. Sometimes the flushings are followed by profuse perspiration. Gelsemium controls these symptoms very well in 2 or 3 drop doses every three hours.

Insomnia.—While the drug is by no means a direct hypnotic, yet it will relieve those patients who are plethoric, and whose faces indicate cerebral excitement following mental and physical exertion.

Sunstroke.—When there is active cerebral congestion gelsemium is indicated. *Meningitis*, in children especially.

Uterine engorgement and vesical irritation.—It seems to quiet the circulation in the pelvic viscera.

Spasmodic dysmenorrhea.—Exceedingly useful. One dose of 5 to 10 drops will often give more relief than opium, and leaves no after-effects.

Rigid os uteri.—Ten drops of the tincture every half hour until relaxation.

Dysuria and spasmodic retention.—After one or two doses the catheter can be dispensed with.

Muscular spasms.—Useful in all forms wherever occurring.

Vaginismus.—In cases of a purely nervous character.

Gonorrhea.—In the first stages when there is the usual local excitement, doses of 5 drops every three hours favors micturition and favorably influences the disease. When the discharge becomes thick the other usual remedies must be used.

Mucous membranes.—It is especially adapted to acute inflammations of mucous membranes. It does not act on the parenchyma of organs, but may be useful in the congestive stage because of its action on the cerebro-spinal nerve centers that govern circulation. Before pathologic changes have occurred its influence is powerful for good. We find it especially adapted to the first stages of colds and local congestion of the lungs and bronchi. For ordinary colds quinin can not be compared with gelsemium, while for influenza it is a most satisfactory remedy to control the fever and the aches and pains. For the prostration give strychnin, also preferably in the form of the arseniate. During the great epidemics of 1890 and 1891, I treated many cases of this disease without quinin and only an occasional dose of an antipyretic, and the mortality was light. I remember but five cases in the two years that died from the disease or its complications. If I saw the patient within the first day or two I immediately gave 5 drops of the tincture of gelsemium and then mixed from 10 to 20 drops in 118 c.c. of water and ordered a teaspoonful to be given every half hour until the pains were relieved. This occurred in the majority of cases in about two hours. The next morning the patient was nearly free from pain. On the third day they wanted to get out of bed. I almost always gave .0007 grams of arseniate of strychnin every two hours, and my patients recovered in good condition. When called to cases that had been sick a week or more I still found the drug useful, but never failed to give the strychnin and stimulating food. No alcoholic stimulant of any kind was used, as it did not seem to be required. There is a certain variety of cold for which gelsemium is as near specific as any drug can be. The patient feels cold chills running up the back. A clear watery fluid runs from his nose. Now give the gelsemium and the next morning the cold is gone.

Acute catarrhal enteritis.—Astringents are too irritating for an acutely inflamed mucous membrane. Gelsemium was used extensively during the late war for acute diarrhea, and it has served me well. For this class of cases I used bismuth until I came to know the virtues of gelsemium.

Nervous system.—In discussing remedies the question of dosage is usually lightly passed over. Although I shall leave for the last the various methods of handling the remedy that I have found most useful I desire here to contrast the dosage that I have found effective in two conditions: vertigo and chorea.

Vertigo.—This is only a symptom; but when I have not succeeded in locating the cause in the stomach or liver gelsemium has had good effects in exceedingly small doses. Let me illustrate: Mr. T. came to me in January complaining of dizziness, so severe that he had not been able to work all the fall and winter. He tried the usual treatment of good physicians. I found that he had chronic nephritis with $\frac{1}{4}$ per cent. albumin and hyaline casts in the urine. I gave him at first 2 drop doses of the tincture every two hours. This rapidly made him worse and he had to lie down. I ordered it discontinued and asked him to report when his condition should be the same as before taking the medicine. In three or four days he came and said he was about as dizzy as he had formerly been all winter. I then diluted the tincture with alcohol so that every drop of the dilution contained 1/100 drop of the tincture. He took 2 drops of this every two hours. In a week he was at work, free from dizziness. He worked about six months and had another attack, not so severe as the first. The same treatment relieved him. Several months after that he had another slight

attack which was quickly relieved. He has been under observation two years and is still at work. In another case where I could find no cause for the vertigo it was promptly relieved by similar doses. I have used it in aural vertigo with some success.

Chorea.—When bromid, arsenic and the usual remedies fail try gelsemium in 2 to 5 drop doses four times a day. This dose will give satisfactory results for ordinary cases, but must be varied for severe ones, or when the patient is frail and weak. A case cited from "Webster's Dynamical Therapeutics" will illustrate. "The patient, a bright boy, aged 11, has been the victim of chorea for over a year. He was under the treatment of a physician of world wide reputation for six months. He improved under his treatment, was brought home and within a week was as ill as ever. He was unable to stand alone or feed himself. This case was given, June 3, 2 drops of the tincture four times a day. July 5 he was dismissed cured, having taken in all about 4 c.c. of gelsemium. The child has been under observation for a year and there has not been the slightest return of the disease."

Pain.—Gelsemium is curative for pain that is neuralgic in character, such as ticdouloureux, intercostal neuralgia and sciatica. It is not so useful as other drugs in pure neuralgia but if there is arterial excitement, local congestion, or malaria, it acts very satisfactorily. Jurasz (Heidelberg) treated with the tincture (5 to 20 drops several times a days) five cases, of which three were facial neuralgia, one sciatic and one brachial. The last case had continued a year and a half, the other cases from several days to a few weeks. In every case the cure was prompt. Dr. Pelz had good success in trigeminal neuralgia, especially dental. He followed the indications laid down by Spencer Thompson, who gives 20 to 25 drops of the tincture and repeats this dose if after one and a half hours the pain has not ceased. This dose I am inclined to think would be rather large for the green root tinctures.

The gelsemin in the Chanteand granules is the amorphous variety and hence the doses can be repeated frequently without fear of any sudden toxic effects that might follow one large dose in a susceptible patient.

Infantile convulsions.—A better remedy could hardly be found. As a preventive when the child's face is congested and it is nervous it acts well. By combining it with passiflora I think that a more lasting effect is produced.

Action on the eye.—The ocular phenomena resemble those which conium produces. Ptosis is more marked than loss of accommodation, and diplopia is far more frequent. This seems to depend on loss of power of the sixth nerve, which dominates the rectus externus, and which is especially affected by this drug. Tweedy found that the alkaloid, dropped into the eye, caused at first only ciliary congestion with slight contraction of the pupils. Then dilatation ensued, whereupon the hyperemia disappeared. I have found it useful in controlling the pain and inflammation of both iritis and keratitis.

Case 1.—J. K. H. had a severe attack of iritis. He said that even when he buried his head in the pillow he could see light, which was exceedingly painful. He groped his way to a vial of gelsemium, that I had given him, and poured out about ten drops and took it in one dose. In a few minutes he began to experience relief, and in a half an hour was able to go to his physician's office about three miles from his residence.

Case 2.—Mrs. H. had for about two months an acutely inflamed eye. I found an ulcer on the corneal margin. I prescribed both eserin and gelsemium and she obtained great relief from pain in a few hours. The eserin may have assisted but I think that the relief from pain was largely due to gelsemium.

Retinitis albuminurica.—I have found gelsemium useful when coming on during pregnancy.

Serous choroiditis.—It has been reported to be very useful in amaurosis, when the pupils are dilated, the accommodation is disturbed and the lids feel heavy.

Southern physicians report it valuable in cases of intense periodical congestion, from masked ague.

While gelsemium would appear to be indicated as a mydriatic because of the short duration of the paralysis (about two hours), yet because there is a tendency to vomiting it is not so useful as the other agents more commonly used.

Otalgia.—I have found it useful for earache in children, without even the assistance of any local application.

Nose and throat.—Gelsemium arrests glandular secretion and catarrhal inflammation; spasm of the glottis; spasmodic croup and spasmodic asthma.

DOSAGE.

I shall attempt to indicate the methods of using the remedy that have been successful in my hands.

The drug has a different range of action according to the size of the dose, and this is what makes it such a polychrest among remedies, and yet because of a certain limited range of action it is not a cure-all. Any drug that controls arterial circulation through the nervous system and does not greatly affect the heart, and which also changes secretion and affects muscular action will necessarily meet many indications. Gelsemium does all this, and because of its certain action and adaptability for quick dispensing it should be more widely studied.

The preparations that give the best results are the green root tinctures made by reliable firms. The granules of Chanteand are convenient but I have not had any experience with them.

Lethal dose.—The lethal dose of the crystallized alkaloid is from 30 to 60 milligrams; and of the amorphous, 300 to 600 milligrams; the dosimetric granules are of the amorphous variety. I do not think that the alkaloid contains all the virtues of gelsemium, judging from reports.

Small dose.—I have used from 1/100 to 1/50 of a drop of the tincture, only in cases of vertigo. I am aware that others prescribe it for a variety of symptoms, but I have observed that the physicians who are most successful with the remedy and who are satisfied with its action, in the conditions already discussed, use the medium and larger dose.

Medium dose.—A medium dose is from 1/10 of a drop to 5 drops, and acts well in the following conditions, but it should be repeated from a half hour to an hour or two; in hot flushings, enteritis and chorea given in medium to large doses; insomnia, meningitis (also large dose); uterine and vesical irritation and pain, given in medium dose, preceded sometimes by one large dose; gonorrhea, la grippe, infantile convulsions and irritability during teething, iritis, keratitis, retinitis albuminurica, serous choroiditis.

Large dose.—A large dose may be said to be 10 drops or more. It should be given with the same care as veratrum viride. It is used in sunstroke, meningitis (sometimes), rigid os uteri, muscular spasm, spasmodic dysmenorrhea, pain, iritis and keratitis if severe, and otalgia.

FORMALDEHYDE DISINFECTION.

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Although formaldehyde was first obtained by von Hoffman in 1866, who made it by passing the vapor of wood alcohol over finely divided platinum, yet its practical use as a disinfectant was not applied until quite recently. Aronson[1] published the results of some work in 1892, showing that formaldehyde gas would destroy pathogenic bacteria, even when these organisms were exposed superficially in large rooms. Under such circumstances he found that when such bacteria as the staphylococcus pyogenes aureus, the streptococcus, the bacillus pyocyaneus, the typhoid bacillus, the diphtheria bacillus, the anthrax bacillus and the tubercle bacillus were exposed to the action of the gas in sufficient concentration, these germs were destroyed. Sterilized pieces of silk thread, gauze, linen and wool were soaked in bouillon cultures of these organisms and then placed in various portions of the room. Cultures from these materials which had been exposed to the gas remained sterile and inoculation experiments proved negative.

Kinyoun's[2] exhaustive experiments also show that the generation of formaldehyde under pressure will destroy bacteria even when covered by such materials as blankets and sheets. He killed such organisms as the typhoid, the anthrax and the diphtheria bacillus, even when covered by ten layers of blankets or thirty-six layers of new cotton sheeting. He thinks that such materials as curtains, carpets and bed coverings can be disinfected by means of this gas, but that the interior of books, mattresses and pillows are not generally reached by the means usually employed. His methods will be mentioned under a general consideration of that subject.

The studies of Harrington[3] are also of interest. He found that culture plates exposed to the air of a large room for twenty-five minutes contained from forty to seventy colonies of non-pathogenic dust organisms and from twenty to forty colonies of the usual micrococci found in the pus, particularly the staphylococcus aureus and albus. After the room had been disinfected by formaldehyde the plates which were exposed to the atmosphere remained practically sterile. Cultures taken from the dust of the room before disinfection, gave abundant growths, but after exposure to the gas the dust was found to be sterile, showing that this agent destroyed the organisms present, both in the air and in the dust of the floor. The above investigator also concludes from his experiments that formaldehyde is a good surface disinfectant of such bacteria as the staphylococcus aureus, the typhoid and the anthrax bacillus.

McShane and Stokes also found formaldehyde to be a serviceable disinfectant. Cultures of the staphylococus aureus and the typhoid, the diphtheria and the anthrax bacillus were constantly destroyed when superficially exposed. The organisms, when covered by from four to eight layers of blankets, or even when placed in the middle of a straw mattress, were killed when subjected, by means of the Trillat apparatus, to 1 liter per 1000 cubic feet. Trillat[4] was also able to destroy such organisms as the tubercle, the diphtheria, the typhoid and the anthrax bacillus by means of his apparatus.

Experimental report.—A series of investigations was made by Health Commissioner McShane and the writer at the Health Department of Baltimore in order to determine the utility and effectiveness of formaldehyde gas and the power it possesses of destroying bacteria under conditions usually found in ordinary households. The object in view was the determination of its value in the surface sterilization of rooms as well as its power to destroy bacteria in the deeper portions of such absorbent articles as mattresses, blankets and other household articles.

In all of the experiments we endeavored to place the cultures in such positions as would best represent the conditions in a room in which a communicable disease had existed. We selected the organisms of diphtheria and typhoid fever as fairly representative of the usual diseases with which one might deal, while the staphylococcus pyogenes aureus was used on account of its universal distribution throughout nature. The anthrax bacillus was also chosen because of its powers of resistance to the usual agents of destruction. The first series of experiments was performed with the Schering formalin disinfector. This apparatus practically consists of an alcohol lamp which burns under a reservoir containing a number of solid pastils of polymerized formalin or tri-oxymethylene. The heat of the flame causes the pastils to vaporize and formaldehyde gas is given off.

Following out the work of Aronson, we used 75 1-gram pastils for a room of 1248 cubic feet. This was said to be enough for a thorough surface disinfection, being about one gram for every fifteen cubic feet of space.

The following materials containing bacteria were exposed in the rooms: No. 1, the staphylococcus pyogenes aureus dried on linen and then placed in a Petri dish; No. 2, diphtheria bacillus dried on linen and attached to the wall about three feet from the floor; No. 3, staphylococcus pyogenes aureus dried on linen and attached to the wall three feet from the floor; No. 4, typhoid bacillus dried on linen and attached to the wall midway between the floor and the ceiling; No. 5, anthrax bacillus dried on linen and attached to the ceiling; No. 6, two specimens of the anthrax bacillus dried on linen and attached to the wall four feet from the flour; No. 7, anthrax dried on linen and attached near the floor. All of these specimens were prepared from twenty-four hour cultures of the above mentioned organisms.

As soom as the room was opened the materials were removed and portions were at once placed upon slanted glycerin-agar tubes by means of sterile forceps. All these remained sterile, showing that the gas caused a thorough surface disinfection of the room.

A series of experiments was also performed at the same time, in order to study the penetrative properties of this gas, when generated by the apparatus just described, and for this purpose bacteria were exposed under the following conditions: No. 1, bouillon culture of the anthrax bacillus, one millimeter deep, in a covered Petri dish, wrapped in five layers of plain cotton; No. 2, linen with dried culture of the staphylococcus pyogenes aureus in eight layers of towels; No. 3, moist culture of the staphylococcus pyogenes aureus on linen, in eight layers of towels; No. 4, anthrax bacillus dried on linen, in a Petri dish wrapped in one layer of cotton; No. 5, moist linen containing the diphtheria bacillus, in four layers of plain cotton. Each layer of the cotton was about one centimeter thick.

Cultures from all these materials gave luxuriant growths, showing that the gas was not able to act by penetrating the meshes of plain cotton or towels. Control of cultures also grew from the above organisms dried on the linen slips which were not exposed to the atmosphere of formaldehyde gas.

These results about accord with those obtained by Aronson, who found that this apparatus would practically destroy such bacteria as the staphylococcus pyogenes aureus, the streptococcus, the bacillus pyocyaneus, typhoid and diphtheria bacilli, and the tubercle bacillus when superficially exposed. When bacteria were placed in the compressed pockets of a coat, or in the middle of a pillow, no destruction of the organisms took place, and he considers steam a better disinfecting agent for such thick material. We are convinced by personal trial that this apparatus will cause satisfactory surface disinfection in ordinary dwelling rooms, when one gram per fifteen cubic feet is vaporized.

We next turned our attention to a formaldehyde generator which might destroy bacteria in the depths of such bulky structures as mattresses and blankets. For this purpose we chose the Trillat autoclave. The same room was used, and in the first series of tests gas was evolved at a pressure of two atmospheres for one hour, and about one liter was evaporated.

The following substances containing bacteria were exposed in the room for twenty-four hours:

No. 1, diphtheria bacillus dried on linen and attached to the wall; No. 2, typhoid bacillus, same conditions; No. 3, staphylococcus pyogenes aureus, same conditions; No. 4, anthrax bacillus, same conditions. These were all dried in a vacuum and then exposed at varying heights from the floor to the ceiling. No. 5, staphylococcus pyogenes aureus dried on linen and then covered with eight layers of blankets; No. 6, anthrax bacillus dried on linen and then covered with eight layers of blankets; No. 7, the aureus on linen, in a sealed envelope, in the middle of a straw mattress; Nos. 9, 10 and 11, typhoid, diphtheria and anthrax bacilli in mattress, just as No. 7.

Cultures from all of those substances with the exception of No. 6 remained sterile, but this organism survived the disinfection and gave a well marked growth. Control cultures made from the above mentioned organisms dried on linen and not exposed to the gas, showed well marked growths after twenty-four hours.

A second series of experiments was also performed in the same room with the Trillat autoclave, the gas being generated for an hour and a half at the pressure of two atmospheres and one and a half liters of formochlorol being evaporated.

The following test organisms were exposed for twenty-four hours: No. 1, a moist cloth saturated with a bouillon suspension of the staphylococcus pyogenes aureus kept moist in a Petri dish; Nos. 2 and 3, typhoid and anthrax bacilli, exposed under similar conditions to that of No. 1.

A number of bacteria were placed in the middle of a straw mattress. Openings were made in the ticking in order to introduce the specimens. The mattress was then reversed so that the openings were closed by contact with the floor. This caused the formaldehyde to penetrate the ticking as well as the inside straw.

The following objects were placed in the middle of the mattress: No. 4, aureus on moist linen, in a covered Petri dish; No. 5, three specimens of the aureus dried on linen and placed in a sealed envelope; Nos. 6 and 7, typhoid and anthrax bacilli, exposed under conditions similar to No. 5, three specimens of each; No. 8, typhoid bacillus dried on cloth and placed in a closed Petri dish. Bacteria were also placed between a varying number of layers of a blanket. No. 9, two specimens of the anthrax bacillus dried on linen, in sealed envelopes, under one layer of a blanket; No. 10, same as No. 9, under four layers of a blanket (above and below); No. 11, staphylococcus pyogenes aureus dried on linen, in a sealed envelope, under eight layers of blanket (above and below). Several specimens were also placed in the pockets of a coat. No. 12, typhoid bacillus dried on cloth and placed in an envelope, in an outside pocket of a coat, pocket then closed; No. 13, aureus, same as No. 12; Nos. 14, 15 and 16 were the aureus, the typhoid and the anthrax bacillus dried on linen, and attached to the wall midway between the floor and ceiling; Nos. 17, 18 and 19, aureus, typhoid and anthrax bacillus dried on linen, in a sealed envelope and attached to the wall.

Cultures from all of the objects above mentioned, with the exception of No. 3, remained sterile. Control cultures from linen not exposed to the gas grew luxuriantly. The results, therefore, show that not only could complete surface disinfection be easily obtained, but that germs in mattresses, envelopes and blankets could also be destroyed both in moist and dry conditions. Although we believe that the hangings and ordinary paraphernalia of a room can be disinfected by this methed, we think that steam should be used for such bulky things as mattresses, etc.

The next series of experiments was performed with the apparatus called the Sanitary Construction Company's regenerator. About one liter of formalin was generated in thirty minutes, the gas entering the same room through the keyhole. The room was closed for twenty-four hours, and cultures were then made from the following substances which had been exposed to the gas. The results follow: Anthrax dry, on wall, two cultures, no growth; typhoid, dry, on linen, on wall, no growth; diphtheria, on linen, on wall, no growth; staphylococcus pyogenes aureus on linen, on wall, no growth; typhoid in pocket, on linen, in envelope, one no growth, one growth; aureus in pocket, on linen, in envelope, growth.

The following cultures were placed in the middle of a straw mattress: Anthrax moist, on linen, growth; anthrax dry, on linen, three cultures, no growth; diphtheria dry, on linen, in envelope, two growths, one sterile; typhoid in envelope, dry, on linen, one no growth, one growth; aureus dry, on linen, in envelope, two growths.

Between folds of a blanket: One layer of a blanket, diphtheria on linen, in envelope, two no growth; two layers of a blanket, diphtheria on linen, in envelope, one no growth; four layers of a blanket, anthrax and diphtheria on linen, in envelope, anthrax no growth, diphtheria growth; eight layers, anthrax no growth, diphtheria, typhoid and aureus showed a growth; moist typhoid, on cloth, in dish, under four layers, growth; moist aureus, on cloth, in dish, in mattress, growth; moist diphtheria, on cloth, in dish, under two layers of a blanket, growth; moist anthrax, on cloth, in dish, in the room, growth. All controls on cloth grew. Some experiments were also per-

formed in order to determine whether a cloth, which had been exposed to an atmosphere of the gas, would absorb enough formaldehyde to prevent the growth of bacteria when the cloth was first smeared on the tube of slanted agar. Upon opening the room, pieces of cloth were taken at once and rubbed over culture tubes. These were at once inoculated with cultures of the germs just mentioned, and the tubes thus treated showed well marked growths in twenty-four hours, showing that no appreciable amount of gas was retained by the linen.

Although this method seems to cause satisfactory surface disinfection, yet we believe that such bulky materials as pillows and mattresses should be steamed.

Methods of manufacture.—The gas is usually generated for disinfecting purpores by means of two different systems. The first system consists in the vaporization of solid pastils of polymerized formaldehyde, or paraform. These, when heated, are entirely converted into the gas, and they are generally used in the Schering lamp, which simply consists of a large metal receiver, under which is placed an alcohol lamp. Each pastil contains one gram of solidified formaldehyde, or paraform, and the complete surface disinfection of the room will depend upon the amount of gas which is generated, or in other words upon the number of pastils used. Aronson found that two grams (about thirty grains) for each cubic meter (thirty-five cubic feet) was necessary for complete surface destruction of bacteria. These results were confirmed by Harrington, McShane and Stokes, and while both Harrington and Aronson found that smaller amounts of paraform would not cause thorough surface disinfection.

In the second system, the gas is evolved by means of heat from a 40 per cent. solution, called formalin. This is generally placed in a strong metal boiler, together with an equal quantity of a 5 per cent. solution of calcium chlorid. The chlorid of calcium prevents the water present from being given off with the formaldehyde gas as steam, thus avoiding polymerization, or the deposit of dry powdered tri-oxymethylene. This powder is not very germicidal and is therefore not desirable as a deposit. This boiler is then heated by means of a kerosene lamp, and the gas can be introduced into a room through the keyhole, by means of the wire tube leading from the cavity of the boiler. The pressure generally used may vary from forty-five to seventy-five pounds, according to the apparatus used.

The apparatus devised by Dr. Kinyoun for the United States Marine Hospital Service will evolve about 1450 liters of the gas from one liter of the formalin. The Trillat apparatus is somewhat similar in construction and should produce about the same amount of gas from the liquid formalin. Kinyoun found that when the gas was introduced into a room in quantities equaling from 1 to 2 per cent. of the total capacity of the apartment, that a thorough surface disinfection took place. Bacteria wrapt loosely in various materials were also destroyed, but when tightly wrapped in many layers of coverings, the bacteria were not killed.

In order to cause a surface disinfection by means of such autoclaves as those described above, about 2/5 of a liter should be used for every 1000 cubic feet of air space in the room. It is better to use too much than too little, and a safe rule to work upon might be the use of 500 cubic centimeters, or 1/2 a liter for every 1000 cubic feet of space.

In the Kinyoun apparatus the pressure is raised to ninety pounds and the gas is then allowed to escape into the room until the pressure is reduced to five pounds. It is then heated again to the same degree of pressure; and the gas is again allowed to escape from the boiler into the room. Two heatings usually suffice to liberate all the gas. In the Trillat autoclave the gas is freed from one liter in one and one-half hours, or from three liters in generally only two hours. The pressure is kept at three atmospheres, or forty-five pounds, and when it falls below two atmospheres and the temperature rises above 135 degrees C. the operation should cease.

The generator of the Sanitary Construction Company allows the formalin to enter a red hot copper coil, and this intense heat liberates the gas, which is conducted into the room through the keyhole of the door. About one liter of formalin can be evolved in thirty minutes. Harrington's experiments showed a surface disinfection with this lamp, when 500 c.c. or one-half liter was used for every 1000 cubic feet.

Over 225 samples of wool, cotton, leather, hair, fur and silk were exposed to solutions and saturated atmospheres of the gas without changing these materials, and Kinyoun also observed that the colors remained practically the same. Copper, brass, nickel, zinc and gilt were not affected, but iron is attacked and should be protected by paint or varnish if exposed to the gas. The fumes of the gas are best neutralized by exposure to ammonia fumes.

It might be well to add that although formalin is destructive to bacteria in solutions of 1/2000, yet the amount of formaldehyde gas which is given off from the watery solution is not able to destroy bacteria in rooms or even smaller spaces. This was proven by Reik[5] and Watson, who caused the evaporation of formaldehyde from large quantities of formalin in a box containing one cubic foot of air space. The germs exposed were not destroyed in any practical length of time.

It must be confessed that some apparent discrepancies can be found when one compares the work of different observers, but these are often caused by the different conditions under which individual investigators have worked. There is still a wide field open for many practical investigations, and further work upon formaldehyde will doubtless give us many more explicit and needful directions. The practitioner can always determine whether a room has been properly disinfected by simply moistening a piece of sterile linen with a culture of bacillus prodigiosus and placing it in a sterile, open test tube. If exposure to the gas destroys the germ a culture from the linen will not give the characteristic red growth of the organism. In order to obtain satisfactory results every crack and opening of the doors and windows should be carefully closed with wet cotton or adhesive plaster, and not the slightest chance should be given for the formaldehyde to escape. Otherwise the attempts at disinfection will be useless.

The prevention of the spread of communicable diseases.—Although most of the authorities seem to believe that formaldehyde is not able to entirely penetrate very bulky or compact structures, yet they all agree that its action as a surface disinfectant is very satisfactory, and this is just what is needed in order to render other usual precautions of any avail. The mattresses and pillows can be steamed, but the room itself, the hangings, and even the articles of

clothing, if hung up and not packed tightly together, can be rendered non-infectious or free from pathogenic bacteria.

One of the most valuable applications of the formaldehyde method is its use in disinfecting rooms which have previously been used by consumptives. The dust from such rooms has been known to kill guinea pigs, and clinical experience has also shown that infected rooms, especially in large institutions, have often been the real cause of many successive cases of pulmonary tuberculosis. It is believed that environment and not heredity is at the root of many of these cases, and the spread of this disease can be greatly limited by the use of this method.

Although we do not know what causes scarlet fever, yet reasoning from analogy we can conclude that the use of formaldehyde will destroy the infectious materials which have been left in the rooms of patients suffering from the various exanthematous fevers. Diphtheria is generally spread by the direct transference of the diphtheria bacillus from one mouth to another, often through an intermediate infected object. Since Wright,[6] however, has demonstrated the presence of virulent diphtheria bacilli in cultures taken from the dust of the shoes of nurses in diphtheria wards, a thorough disinfection of the rooms which have contained such cases should always be practiced.

The attempts to disinfect such bulky structures as mattresses and pillows by formaldehyde have not been very successful and these can be better treated by means of the Doty[7] steam vacuum chamber. Sprague[8] has performed some experiments, however, which show that clothing can probably be entirely disinfected by means of formaldehyde. He used the Kinyoun-Francis apparatus, which consists of an iron cylinder with a capacity of 1090 liters. This is connected with a vacuum apparatus and a formaldehyde generator. After first causing a vacuum, the gas is introduced in quantities varying from 5 to 20 per cent. of the total air space. The destruction of many bacteria, placed in mattresses, pillows and even between the leaves of books, convinced the experimenter that articles of clothing and bedding could be properly disinfected if simply placed upon the racks which the iron disinfecting chamber contains.

In conclusion, I believe that the votaries of preventive medicine are at last to be congratulated in possessing a substance whose sulphurous-like fumes will destroy pathogenic bacteria.

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ERYTHOXYLON COCA AS A HEART TONIC.

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After the 1871, San Francisco, meeting of the AMERICAN MEDICAL ASSOCIATION, I went to the Yosemite Valley and ascended the Cap of Liberty, 7,500 feet above sea level. I remember the ascent, which was so steep that I had to pull myself up by the bushes! The diminished atmospheric pressure was such that I could not climb more than forty feet at a time. My pulse ran so high that I could not count it. My heart beat so violently that I felt it would stop if I did not pause, and my whole body was bathed in sweat. As my heart was somewhat enlarged and so weak that its usual beats were forty per minute, I suppose I ran an imminent risk of losing my life, but as a result I had herpes zoster. This California mountain experience helps me to understand how climbers have vertigo on the summit of the Andes—about the overwork and fatigue of couriers traversing mountains difficult to travel—how such persons have been toned up and refreshed before, during and afterward by the coca tonics, and how Dr. Beverly Robinson could say that coca is a heart tonic.

But for coca the South American miner would weaken at his severe labor. "Negroes can not work in the Peru mines. They all die. Only the natives can endure, and even then it is necessary to relieve them often and that they should chew coca." (Lanquerue.) "When the Indian has a good supply of coca he undertakes, without the slightest fear, the most difficult and the longest voyages." "At the seige of La Paz, in Bolivia, 1781, most soldiers famished, and, put on forced marches, died, save those who used coca leaves." Dr. Liebermann, Surgeon in Chief of the French Army, says that he has found coca very successful in long tedious campaigns. Dr. Scaglia speaks of the great benefit from coca where the muscles have lost their tone and vigor.

The heart is a muscular engine indispensible to life. Severe muscular exertion taxes the heart to supply force. It is an autonomic organ. As the heart is covered with nerve ganglia and connections, it may be said to cardiate as the brains cerebrate.

Heart failure is a term lately become fashionable in death reports. Whether the term is correctly used or not, physicians should carefully study all agents that strengthen the heart. Strictly "heart failure" means failure from lack of nerve force. Cut the sympathetic nerve and the heart would fail, the nerve section having been the prime cause, but the heart has intrinsic powers from its own nerves. When a medical student I removed the heart of a snapper turtle and twelve hours after it had not ceased to beat. Its dynamis must have come from the cardiac plexuses.

Heart failure certainly does not mean a cause of death where a foreign body, as a knife or bullet, has made the heart fail; nor where fatty degeneration, atheromatous or calcareous deposits, valvular lesions, atrophy, hypertrophy, endo- or pericarditis, etc., exist, though these complicating neurasthenia of the heart, will help on its failure. It is time that the idea that heart diseases are beyond cure was abandoned. They are as amenable to treatment as scarlet fever.

Coca, direct action.—Mantegazza says the coca stimulates the heart. He increased his pulse from 65 to 124 by a dose of 55 to 74 c.c. Gazeau and Moreno corroborate this. Dr. Beverly Robinson says, "among well known cardiac tonics and stimulants for obtaining temporary good effects, at least, I know of no drug quite equal to coca." The writer has found coca to give tone and relief to a weakened heart almost immediately.

Coca, indirect action.—Back the heart with a good stomach and you strengthen it. If you disbelieve this, starve until you are faint and then eat a good beefsteak, which is the best food heart strengthener. According to Boerhaave, coca is a food. He states

"that the saliva charged with all the bitter and mucilaginous principles of coca, carries to the stomach, in addition to vital strength, a true nutritive, which is digested and converted into an abundant chyle and is then converted into the material necessary to sustain the human body," that is, it sustains the heart as beef does. Weddell says that an Indian who chewed coca leaves and worked hard all day without food or drink, at night ate as if famished, devouring in one meal food enough to last him two days. In this case coca gave an increased power of digestion and hence more sustenance for vitality. These things being so, coca should be more used in heart failure from direct weakness, and in many cases might well replace the conventional digitalis, which advances the treatment of heart diseases no more than it was forty years ago.

According to Dr. Laffont, the action of coca's active principle on the sympathetic nervous system causes, 1, an augmentation of the functional activity of all the muscles of organic life; 2, excites functional action of the cerebral and spinal nerve centers, increasing intellectual and muscular activity: 3, causes an action on the protoplasm of the extremities of the sensory nerves, whereby they cease to transmit impressions. One and 2 include the heart and further evidence the action of coca to be a heart tonic.

Intestinal and stomachic gases are deemed, in America, a prolific cause of functional disturbances of the heart. When relief is not afforded by the removal of gases in excess and long continuance, death from heart failure may occur. The idea is that the cardiac nerve centers are paralyzed and overwhelmed, and fail from absorption of the noxious gases. Water, drank hot, causes contractions of the muscular fibers of the alimentary canal, even when more or less paralyzed, relaxed or distended and thus allows the gases from the fermenting food to accumulate more and more. In the intestines the peristalsis is downward, but in the stomach it is upward and opens the shortest outlet for the imprisoned gastric gases. Ptizans, so much used, are chiefly hot water. Hot water is a remarkable agent of relief from gaseous cardiac paresis. The dynamogenic action of the active principles of coca on the smooth-fibered muscles added to that of hot water as a vehicle, must be of great advantage in the partial paralysis of the involuntary muscular fibers of the heart.

People will eat fermenting food because it tastes good. Count Rumford and the French believe that all food which is palatable is nutritious. They allow the gustatory to overule the chemic, histologic, physiologic and pathologic food tests. The heart suffers because most popular palatable foods ferment into gases, which, in excess, are poisonous and probably cause more deaths from "heart failure" not traceable to organic lesions, than any other one predisposition. Sugar is a great gas-maker in the alimentary canal. For this reason, in cases of flatus, the fluid extracts of coca and the coca leaves are preferable, especially in cases of enfeebled digestion, as these preparations exclude the grape and cane sugar fermentations.

Anemia.—Coca is well borne in anemias. It must be a benefit to a heart weakened by the deficiency of blood. Coca does this by promoting the appetite and digestion and by thus making more blood. Good blood-making food must not be omitted. The action of coca has been compared to that of strychnia, one of the very best of heart tonics but dangerous. Of two remedies it is better to use the safer.

Coca in angina pectoris, which is caused by the obliteration, partially, of the coronary arteries, the first that arise from the aorta and supply arterial blood to the heart itself. This obliteration is due to an atheromatous, cystalline or gravelly deposit in the muscular coats of the coronary arteries. These deposits appear as small, white, tough, shining cuboids or diamond shaped bodies made up of cholesterin or other crystalline matters that should have been eliminated from the body by the urine, feces or sweat. Probably they would have been eliminated had the system possessed water enough to keep them in solution. These arterial deposits mechanically cut off, more or less, the blood supply and thus the cardiac tissues are not properly nourished.

Again, these obstructions produce fatty degeneration of the heart muscles by retarding and impeding the circulation, which is one great cause of fatty ills (English idea).

I believe in the autonomy of the heart—that it knows when its rights are invaded and that the spasms, colic or neuralgia of the heart sometimes arise from its efforts to keep life going on a too small capital of dynamis or vital force, just as intestinal or stomachic colic comes from food too hard to digest.

The heart has no rest save between its beats. Partially cut off its blood, which is its life, and you weaken it. The weakened muscles are necessarily overworked. All overworked muscles are liable to cramp. Hence the cramp or spasm we call "angina pectoris." The most sensible way to relieve it, is to use the remedies known to strengthen the muscular fibers of the heart and stop eating the food which produces the abnormal crystalline deposits in the arteries. Also use water enough to keep the systemic salts in solution. Coca deserves more attention, as it has been favorably employed from time immemorial with less bad results than tobacco or alcohol by people of reported astonishing longevity, and this favorable employment demonstrated by the physical changes in the body, in its use by the same person from youth to old age. Digitalis has not a less hurtful history than coca.

It is a mistake to regard heart diseases, angina pectoris among them, as incurable. Nature will cure almost any diseased organ or tissues if she has the means furnished by proper food, time, judicious medication, wise expenditure of nerve forces and by the causes (mainly bad feeding) being removed. At the Berlin X International Medical Congress, the writer presented his views of the curability of this class of diseases. The more remedies we can add to the list of heart tonics the better.

120 Broadway.

AN INDIVIDUAL DRINKING CUP.

BY D. LICHTY, M.D.

ROCKFORD, ILL.

Since the universally acknowledged advantages of the solitary or individual drinking cup are so readily recognized the adoption of a cup whose introduction into common and general use would not impose a burden or hardship on the user is an object much to be desired and if obtained to be promptly commended.

It is to be admitted that the agitation on hygienic lines has been most successfully conducted through the medium of the church communion cup, and that the success attending its introduction at this most sacred function has quite generally been satisfactory to those participating and most able to judge. That

an innovation of this kind has many difficulties to encounter and overcome is to be expected, as it invades the precincts of the holiest of ecclesiastic ordinances, besides it introduces a new element of expense that the feebler village and rural congregations are illy able to bear.

The solid silver, silver-plated-gold-lined, aluminum or glass cups in sets of forty or sixty, with accompanying tankards for filling, and trays for carrying, would aggregate an expense almost absolutely forbidding their introduction and use into the outlying missions and stations, where usually more than in many other places such solitary or individual cup would be called for.

The perfectly aseptic use and custody of such sets, too, would require a surveillance difficult to procure in many such remote city as well as country districts, should the necessary funds have been secured for their purchase and introduction. But more essential and far more imperative from a sanitary point of view is the demand for the use of an individual cup for the pupils of the public schools and in the mixed migratory army that throngs along our iron highways. To meet the requirements of these numerous and varied conditions, embodying economy and care, it was suggested to my mind some months since that an individual drinking cup could be made from paper, wood-pulp or fiber so cheaply that the passing of the chalice to another or its second use would not be required. Investigation however revealed the fact that knowing ones would not embark in its manufacture unless the protection of a patent restricted its general manufacture by others, but the fact remains that hygienically such cups would meet requirements in many ways, that no public, chained, iron, or polished silver communion cup would fill. Its suggestion here is to bring it before the tribunal of the profession, and probably the trade, for discussion, approval, adoption or rejection.

The very common use of paper-made packages for containing and carrying of nearly every article of diet from the grocer's counter to the consumer's table, the free use of the wooden picnic or outing plate, the paper napkin, all used but once and thrown away, the manufactured wooden toothpick that passing through many fingers and processes finally finds its way into the teeth interspaces of myriads of mouths daily, all suggest that there could also be constructed from a similar material an individual cup, which should be manufactured under as strict antiseptic precautions and placed on the market as absolutely free from contamination as are our surgical gauzes and cottons, and like them, used but once and discarded. Thus the poorest church communicant in the remotest districts, every traveler and every scholar in public schools or private academy might be the privileged owner and user of an individual drinking cup, though not born with the traditional "silver spoon in his mouth." Such a cup could be spun from pulp or stamped from paper, of varying plain or fancy designs; it could even be made to collapse laterally, to be carried in the vest pocket of the railway or cycle tourist. Probably the size and shape most practicable and familiar would be that of one similar to our one ounce medicine glasses. These could be packed in a limited area, closely "nested" for shipment by mail or express at slight additional expense, wrapped in waxed paper, from whence they should be removed only when to be used. For communion service they could be arrayed in cancellated or perforated trays made of light wood or wire, and if the cups were made of white paper and filled with the crimson sacramental fluid would make an esthetic as well as sanitary array, at once inviting commendation, the cups, when used, gathered up and consigned to the fire. The cost would scarcely exceed, or equal, the paper plate or napkin and would prove the easy entering wedge to a much-needed, well-recognized and desirable sanitary reform, soon leading on and up, where possible, to more costly and elaborate outfits. To the public school pupil and the traveler they would soon find their way and win their own commendation.

MECHANICAL FEATURES IN OBLIQUE FRACTURES.

Presented at the Fourth Annual Meeting of the American Academy of Railway Surgeons, at Chicago, Ill., Oct. 6-8, 1897.

BY JOHN E. OWENS, M.D.

CHIEF SURGEON CHICAGO AND NORTHWESTERN AND ILLINOIS CENTRAL RAILROADS.

CHICAGO, ILL.

The mechanical features of fractures in general and oblique fractures in particular are apparent from almost every standpoint. The derivation of the word implies the mechanical nature of the injury.

The oblique fracture is always the result of some local strain or injury, varying from a slight to a strong muscular effort or of severe external violence. Whether the local cause be from external violences or muscular action, it is mechanical in nature and that, too, whether the bone gives away at the part struck by direct violence or at its weakest part by compression between two opposing forces, as in fracture by indirect violence. Oblique fractures are prone to cause laceration of the skin by their sharp extremities, rendering the fracture compound. This occurs much more frequently than in the case of transverse fractures. A variety of complications may result mechanically from the sharp ends of the broken bones in oblique fractures, such as an injury to some internal viscus, as in case of oblique fracture of the rib or pelvis; a laceration or contusion of blood vessels or nerves, causing hemorrhage, aneurysm or thrombus of the former and paralysis or irritation of the latter. The mechanical effect of more or less violent contact of the ends of the bones in oblique fractures on nerve tissue is to cause bruising with usually temporary loss of power or permanent loss of power in cases of complete division, unless the divided ends be united or engrafted into the continuity of a contiguous nerve. Some neighboring joint may likewise be perforated by the sharp extremities of the broken bone.

The variety of fracture in question is most common in the extremities. They vary in obliquity, and are often only a degree removed from the transverse. The oblique fracture is dangerous, and the greater the obliquity the greater the probability of laceration of the soft parts, including the skin, owing to the more or less pointed shape of the broken ends. There is also greater difficulty in maintaining such fractured surfaces in apposition and in decidedly oblique fractures, in the prevention of shortening.

A prominent element in the displacement of an oblique fracture is muscular contraction arising from the mechanical damage done to the muscles by means of the sharp ends of the broken bones, and these very emphatically claim our attention in reduction. In cases where the oblique fracture causes an injury of an internal viscus by mechanically piercing or rupturing it, the danger depends more upon the injury to

the internal organ than to the fracture itself, as in fractures of the ischium, pubes or ribs. If the main artery of the limb is extensively torn, a diffused traumatic aneurysm must be the result, and gangrene of the limb will in all probability ensue, and amputation will be the only recourse. In other cases the artery may be only partially torn across, or it may be punctured by a spicule of bone. Traumatic aneurysm, diffused or circumscribed, may form. The internal jugular vein has been injured by the ends of the broken bone in oblique fractures of the clavicle.

For mechanical reasons, in oblique fracture the deformity growing out of the displacement and separation of the fragments is more pronounced. Not only should rough or injudicious handling be avoided, owing to the danger such handling may cause to the soft parts, but great circumspection is required to prevent mechanical damage to the tissues by the sharp ends of the broken bone during the transportation of the patient, during the administration of anesthetics, and also from the violent efforts of the patient himself during delirium.

Finally, in oblique fractures the mechanical effect of the broken bones upon the muscles in the production of spasm, is greater than in cases of transverse fractures.

DISCUSSION.

Dr. W. J. GALBRAITH of Omaha.—The Doctor did not give as full consideration as many of our cases demand in regard to the muscular tissue, that in many instances become entangled or interposed between the ends of the bones in all varities of fractures, preventing perfect apposition and resulting in serious complications in the way of prolonged irritation, non-union and possibly other more serious conditions. As regards the treatment, each case has to be treated according to the conditions.

THE PATHOLOGY AND DIAGNOSIS OF OBLIQUE FRACTURES.

Presented in the Fourth Annual Meeting of the American Academy of Railway Surgeons at Chicago, Ill., Oct. 6-8, 1897.

BY W. J. MAYO, M.D.

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ROCHESTER, MINN.

Frank Hamilton on "Fractures and Dislocations" has been an authority for many years. A monument to his memory, a tribute to the genius of American surgery by a master mind! That it should have stood for more than a decade for all that was known about fractures and that at a time when operative surgery was making its marvelous advance, fractures seemed to have been the one subject upon which the last word had been said, was due to several causes: The older surgeons were anatomists and clinicians, their surgery that of traumatisms and tumors. These things they knew well and could tell well; for instance that most readable and instructive little book of Cheever ("Lectures on Surgery"), published several years since, the chapters on fractures being absolutely brilliant. The surgery of the last ten years has been that of expediency rather than necessity and in this rapid advance traumatic surgery has been to a certain extent neglected. The contributions of Allis and Roberts of Philadelphia and McBurney and Stimson of New York, the latter being the author of a special treatise which rivals that of Hamilton, have been most noteworthy exceptions to this general statement.

Aseptic and antiseptic methods have done much for compound, but, until recently, very little for closed fractures.

At this time we are in the midst of a most splendid advance in the diagnosis of fractures, due to the impetus given by the X-ray, and to the wider scope of the diagnostic incision which modern wound treatment has made possible.

The obliquity of a fracture is often the most important feature and its diagnosis and management may prove to be the turning point as to the ultimate usefulness of the limb. As railroad surgeons, we are vitally interested in this aspect of fractures, as the oblique fracture is characteristic of adult middle life and constitutes the bulk of such injuries both in the traveling public and employes, for obvious reasons. The frequency of deformity after this variety of fracture, interfering with the utility of the member at a time of greatest usefulness, is a source of great pecuniary loss to the company, and in private practice, too frequently, of a malpractice suit against the surgeon. The green stick and transverse fracture of childhood and the senile or pipestem fracture of age are far easier of adjustment.

Mudd concisely says that "an oblique fracture is one in which the the line of fracture is at an angle of not less than 10 nor more than 70 degrees to the axis of the bone; it is an intermediate between a transverse and a longitudinal fracture. The surfaces are at such an angle that even if well adjusted there is a disposition to overlapping, and any force tending to shorten the bone, whether it be pressure or muscular contraction, produces displacement with consequent shortening. The fractured surfaces are disposed to slip, one upon the other until there is overlapping." This form of injury is most often due to indirect force and the resulting shortening depends upon obliquity and displacement. Such shortening constitutes the greatest disaster in the femur, three-quarters of an inch or more causes a limp, pelvic droop and compensatory spinal curves. In the upper extremity there is less liability of functional or cosmetic after-results, provided a joint be not involved.

There are some points in the pathology which are of the greatest importance. The formation of callus is not only from the bone and periosteum but also from the soft parts; the lower maxilla, clavicle and ribs having but a small amount of tissue in close proximity have less callus, and the callus formed is most abundant upon the side of the bone where the soft coverings are most plentiful. Macewen in his work upon bone growth shows that true bone originates from any or all parts of the bone, medullary canal and periosteum. Defective or too abundant callus may, of itself, cause displacement and consequent union with deformity, or from excessive damage to any one element of bone formation the same conditions may exist.

In paralytics and those suffering from certain constitutional maladies such errors in repair are most apt to appear. In rheumatic individuals the disturbances in the soft parts and neighboring joints may be the starting point of a chronic rheumatoid-arthritis, especially at the hip, and Tillman calls attention to the peculiarities of the resulting deformity for which the surgeon is wholly blameless. The influence of chronic inflammation of bone, especially near the epiphyseal line, upon bone growth is noted by Senn. I have seen the tibia elongated an inch by a central abscess in the growing bone. Professor Humphries and Corydon L. Ford have made extensive investigations as to asymmetry of bone length in otherwise normal individuals and the frequency of such abnormalities

should put us upon our guard in the measurement of broken limbs, while the possibility of error due to former injuries should be constantly in mind.

Oblique fractures not infrequently become entangled with the soft parts and union is prevented by the interposition between the fragments of such material. Muscular action constantly tends to displacement of the fractured ends and causes shortening and this is especially marked in the femur. This bone also requires much time for solid union. Cheever says that he has known a fractured shaft of the femur at six or eight weeks, with one-half inch shortening, by injudicious use to gradually slip by, from pressure upon the callus, and give an ultimate shortening of two inches or more. I have seen a similar instance. In children, union is more rapid than in adults, but caution should be used after fracture of this bone in allowing its use.

Dawbarn, in discussing the care of fractures, well says that until the eighth or tenth day union is so incomplete as to render it possible to change the position of the bone ends readily and that until this time efforts should constantly be made, if necessary, to complete the diagnosis or to overcome any existing deformity. Rebreaking of a fractured bone which has united with deformity is followed by slow repair and sufficient time should elapse before putting weight upon the limb to allow strong union and prevent recurrence of the malposition.

Time forbids the discussion of the pathology of fractures or reference to such complications as fat embolism, non-union, ankylosis, etc.

The classic signs of fracture are too well known to require discussion and less difficulty would be experienced if we saw the injury at once, but usually several hours or even days have elapsed before the examination is made and an exact diagnosis may be impossible on account of swelling and, as a rule, an anesthetic should be administered. Crepitus is usually present, but may be absent on account of either impaction or the interposition of soft parts.

Preternatural mobility and loss of function may not be prominent features if only one bone be broken either in the forearm or the leg. Shortening requires careful measurements and, as suggested by Ashhurst, we should use several points of measurement for comparison. A possible asymmetry of the limb should be eliminated. Pain and swelling are not peculiar to fractures more than to other injuries and do more to confuse than to help in the diagnosis. Bipolar pressure would cause more pain in a fracture than a contusion, as pointed out in the *Railway Surgeon* for July, 1897.

Before taking up the new methods of diagnosis by incision and the X-ray, I wish to call attention to the great value of a procedure, credited by Dawbarn to Gerster, in *The New York Polyclinic* for July, 1897, as an aid to the diagnosis of fractures about the elbow joint after swelling has taken place. An anesthetic is administered and a Martin's rubber bandage is slowly applied from the fingers to the shoulder; at the expiration of fifteen minutes, during which time swelling is pressed out, the upper turns are tightened to prevent blood from entering the arm, while the lower turns are completely removed to a point above the joint. By manipulation of the now greatly reduced elbow an exact diagnosis is arrived at and treatment instituted. The swelling soon returns upon the removal of the bandage, but the purpose has been accomplished. I have had occasion to try this method within a short time and it proved useful.

The so-called "gunstock deformity" or loss of carrying power, so often seen after the common oblique fracture of the lower end of the humerus complicating the elbow joint, has received attention from Allis of Philadelphia and Powers of Denver, and as a result of their labors the diagnosis and treatment of this class of injuries have been greatly improved. Credit should also be given to Roberts for his efforts in behalf of fractures of the lower end of the radius, and to Royal Whitman for his practical observations upon the diagnosis of fractures of the neck of the femur in children ("Annals of Surgery," June, 1897).

Exploratory incision for purpose of exact diagnosis and as an aid in treatment has been practiced occasionally for some years. There is now a marked tendency to resort to this method in many cases of obscure bone traumatism at an early date. McBurney, in an able article on fractures of the humerus complicated with dislocations at the shoulder joint, advocates incision and has invented a traction hook to aid replacement. G. W. Spencer, in the *American Journal of Medical Sciences* for April, 1897, gives a résumé of cases of fracture of the clavicle, exactly diagnosed and treated by incision, and Allis speaks for the open management of certain fractures, in the "Annals of Surgery" for June, 1897. At the October, 1896, meeting of the Philadelphia Academy of Surgery, in a discussion of this subject participated in by Deaver, Roberts, Hearn and others, the consensus of opinion was in favor of incision in the diagnosis and treatment of obscure fractures.

Just when should incision be performed? There is no doubt that an immediate incision, before swelling has taken place, renders the aseptic after-management easier to secure. If there is much skin injury with tendency to the formation of blebs and great swelling of the soft parts, incision is fraught with danger of sepsis, and a delay of a few days to obtain a sound skin site for incision is a safe plan, particularly as union of bone does not take place before eight or ten days. In a considerable personal experience I have found the intermediate period a bad time for incision.

The Roentgen ray, as an aid to the diagnosis of fractures, is one of the marvels of the day, and the ability by this means to accurately map out the fracture without removal of the dressings has revolutionized the diagnosis. So common is its use that almost every issue of our medical periodicals contains skiagraphs of bone traumatisms. It is a matter of regret that only in the larger hospitals or cities can it be utilized and unfortunately its revelations at a late date are apt to prejudice a jury in the possible malpractice suit. In the very excellent skiagraphic work of Dr. J. G. Cross of this city I have noticed that the ultimate result is often good even when the bones are not accurately in place.

Leonard Freeman in the "Annals of Surgery" for April, 1897, says in this connection, "it must often be true that when we imagine we have placed the fragments of broken bone in perfect apposition they may not be so after all and yet the result be good, nature being capable of smoothing off many inequalities."

Until we can better estimate nature's capacity for repair the skiagraph may cause much needless anxiety, and still more unfortunately for our piece of mind, show us errors in position which the condition of the soft parts will not allow us to safely correct, or the

process of repair may in the occasional case develop rather than prevent deformity. The X-ray may be made to exaggerate the existing deformity or displacement, from carelessness or purposely, and in suits for damage no skiagraphs should be accepted unless made by a disinterested operator.

In an editorial in the issue for Sept. 4, 1897, of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, X-ray injuries are thoroughly discussed and the conclusion drawn that it is rare for serious skin lesions or other ill effects to happen in the hands of careful men, and the rapid improvement of apparatus and technique will soon reduce such misfortunes to a minimum.

DISCUSSION.

Dr. THOMAS B. LACEY of Council Bluffs, Iowa.—I think we ought to give the matter of the skiagraph of a fracture more consideration than we have heretofore. It seems to be an accepted fact that a skiagraph can be easily made to either distort or exaggerate any shadow of a foreign body or of the displaced fragments in a fracture. I have some misgivings as to the use of a skiagraph in cases of oblique fractures for this reason. There are a great many people who think that a surgeon, in treating a mangled limb, must make it as good if not better than it was originally, or else he has not done right. On this basis we are too often apt to be mulcted in cases of malpractice suits, when any competent surgeon who examines the case, after understanding the circumstances, knows that the best that was possible was done for the patient. Personally I dread the oncoming of the skiagraph in these cases, unless the future shall develop greater accuracy.

Dr. J. P. LORD of Omaha—While I believe that different skiagraphs of the same case will show very differently, yet I do not know that we can set them down as being inaccurate. I think it does show us that the conditions are exaggerated, and that the X-ray will teach us that there is a possibility for a great deal of deviation of bone fragments, although it must be admitted that it gives us a better idea than we ever had before of the extensive separation of the fragments, and this is the point that I wish to make, that we should collect a number of skiagraphs, as we soon will be able to do if we make comparatively general use of the instrument, which we all should do, and with the cheapening of the apparatus it will be within the means of those who practice to any considerable degree, and then we will have something to fortify us against any pictures which might prejudice a jury. We might use skiagraphs to show that a certain condition was common, and even though there is not a great deal of deformity, a great deal of callus and deviation of the fragments, yet comparatively good results followed treatment, and that this need not necessarily influence the result unfavorably. If the skiagraph influences the result unfavorably it is only what is to be expected, and the good results that are gained, perhaps in an individual case under dispute, are as favorable as could be expected under the circumstances. I believe that we are unnecessarily alarmed about the damage the X-ray may do us, and when we consider the strong advantages it has for us we will make the proper use of this sort of evidence. We may use it as a boomerang to counteract the influence which possibly may be used against us. We should consider this and use the X-ray with that end in view.

Dr. FRED. J. HODGES of Anderson, Ind.—Since the discussion has tended toward the consideration of the skiagraphic phase of the subject it is important to know that existing fractures do not always show and that there are undoubted cases on record in which the radiograph seems to show a fracture when it does not exist. These are two points of extreme importance. It is also important to know that a slight deviation in the angle of the bone to the plate will make a difference and a distortion of the resulting skiagraph. It has occurred to me that the only logical and legal way of bringing this matter before a jury would be to bring the apparatus into court and show the condition of the case with either the fluoroscope direct or with the screen. Not long ago I examined a radius, in which there was no doubt, from ordinary physical examination, as to the existence of a fracture, and yet it took half an hour with the fluoroscope to find it, and authenticated radiographs of that case, taken in half a dozen different positions, would have failed to show the fracture, so that a great deal of refinement in operating these pictures is necessary, as well as a great deal of certainty in the identification of them, and a description of the relative positions from which they were taken, is going to be necessary in courts of law before the whole truth is brought out about these cases. It is a well-known fact that impacted fractures do not show by the X-ray process, and it is also well known that in perfectly united fractures the new bone is not opaque to these rays, so that in perfect union there is still the appearance of non-union. Those are matters which particularly affect oblique fractures.

Dr. W. L. SMITH of Streator—In regard to the X-ray I will say that it depends very much on the distance of the tube from the fracture what picture you get; also how fine you may cut the lines with the tube. I believe that if you have a funnel made of lead and allow the tube to sit on the top, then you can define very clearly the parts that are shown underneath. It does not take any longer with a funnel made of lead, which the X-ray will not penetrate at all, and you have nothing on the outside showing. So if you have a funnel about six inches high and eight inches around, it will show very clearly what you desire to see. I believe the surgeon is the only man to place the limb so as to show what he wants to see. If a bullet is on top of a bone it will not show; if it is in the bone it will not show; if it is on the side it will show and in my case I found the bullet behind the head of the tibia. If you will try a funnel made of lead, I believe you will fine the foreign body every time.

TREATMENT OF OBLIQUE FRACTURES.

Read before the Fourth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 6-8, 1897.

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To discuss the treatment of oblique fractures and not consider "retentive apparatus" and mechanical means, such as are usually employed, necessarily limits what may be said, and I will premise my remarks with the statement that these thoughts may not always incline strictly to the narrow limits of my subject. Certain general principles applicable in the treatment of all forms of fractures are so well understood that it is not considered necessary to discuss them here at length, while certain other ideas not usually discussed at length in the text-books, may receive fuller consideration. Agnew, in his article on "Injuries and Diseases of the Osseous System," says concerning the treatment of fractures, "there is but one indication in the treatment of fractures, and that is to secure the union of the broken bone with the least possible deformity, and this single thought is to animate the surgeon during the entire management of the case." This statement by so great an authority, while unquestionably true, does not seem to contain all the truth, nor indeed did the author seem to so regard the matter, for in another portion of his article, while speaking of fractures he makes use of the following language: "So many complications attend or follow these injuries, such as inflammation, abscesses, ulcers, hemorrhage, tetanus, delirium tremens, necrosis, gangrene, etc., that it is folly to regard this part of professional work as the mere mechanical one. On the contrary, it demands on the part of the surgeon not only the highest degree of anatomical skill and tact, but also a thorough knowledge of the principles of general medicine." These potent utterances of Professor Agnew, made years ago, are, in the main, just as portentous today, when we have so many specialities in medicine and when the fallacy of trying to entirely divorce the surgeon from the physician is receiving such general sanction. It is obviously unwise and incorrect to assume that the former requires only a knowledge of anatomy and a certain manual dexterity, coupled with a genius for mechanics, to the exclusion of that all important equipment, a comprehensive knowledge of the general principles of medicine. Natural bone-setters and osteopaths may

be to the manner born, but the skilful surgeon is of slow, sometimes painfully slow growth.

In the treatment of the particular class of injuries under consideration, as elsewhere throughout the broad field of bone surgery, a factor of prime importance is a careful diagnosis, including a positive knowledge of every detail of the damage done, not only locally to the bony structure and to the soft tissues, but the general state of the patient must be carefully noted with reference to constitutional impressions, especially the state of the circulatory digestive and nervous systems. The excellent rule, now so generally in vogue in railway practice, of obtaining as early as possible a full and correct history of the manner in which the accident occurs, as well as the salient points in the personal and family history of the patient, is frequently of vast importance in reaching correct conclusions as to the diagnosis, treatment and prognosis. Inebriates, syphilitics, drug habitués, diabetics, dyspeptics and those suffering from active or latent tuberculosis, or malignant disease in any form, whether inherited or acquired, demand special attention, and the failure to recognize any cachexia in the management of fracture cases, may result in utter failure and the consequent discomfiture of both patient and surgeon. Conditions of mal-nutrition due to disease of trophic centers which tend to retard or prevent bony union must be appreciated, and efforts directed to overcome such tendencies; and, *per contra*, if a diathesis calculated to provoke an over production of callous be detected, treatment calculated to correct such tendencies should be promptly instituted.

The subjoined case would seem to have a bearing upon the mooted question as to the influence of syphilitic disease in the repair of bones. X. a colored man, about 40 years old, in a fall, received an oblique fracture, about the middle of the upper third of the femur. My colleague, Dr. Baldwin, reduced the fracture and applied a long splint from axilla to heel. At the end of four weeks, it was discovered that union had not taken place. About this time the case came into my hands, when, with the assistance of Drs. Baldwin, Treacy and Bullard, I cut down, freshened the ends of the fragments, wired them with stout silver wire passed through drill holes, placed the limb on a double incline plane, and at the end of five weeks was chagrined to discover non-union. The leg was amputated and subsequently I learned what had been heretofore denied, that the patient was a syphilitic. I have always believed that had the specific factor been known in time a different result might have ensued.

Much can be accomplished in bringing about a proper equilibrium of the needed elements in the repair of bone, by careful attention to dietary measures, as well as the judicious use of proper remedies, and such other agencies as will promote the best general health. Massage, hydrotherapy, electricity, exercise and sunlight, while perhaps not much vaunted by teachers and writers, may each have a proper application in the treatment of fractures, and the careful practitioner will avail himself of these collateral aids whenever the indications are presented. Active and passive motion of involved and contiguous joints should be practiced at the proper time, and if neglected may lead to troublesome complications, or at least delay in the final recovery.

The ambulatory treatment of fractures has been much discussed during the past few years, and has received the sanction of many distinguished surgeons, both in this country and abroad. Briefly speaking, its chief merit consists in maintaining for the patient, an approximation to the ordinary level of health during the process of repair, by allowing him to take exercise in the open air from the time the permanent dressing is applied. The value of this method of treating fractures is beyond cavil, while the objection which may always preclude its becoming universally popular, lies in the fact that only the few will ever master the technique sufficiently to ensure satisfactory results in the more serious cases occurring in the lower extremities, such as intra-capsular fractures of the thigh, fractures of the pelvis, oblique fractures of the femur, etc. It is, however, entirely practicable, in a large majority of cases of fracture occurring in the shafts of the long bones, whether oblique or otherwise, to give the patients the benefit of easy exercise in the open air by placing them, after the retentive dressing is applied, upon wheel carriages constructed for the purpose. It has been my good fortune during the last four years to witness the decided benefits arising from the adoption of this plan. It is my uniform practice, in all cases where there is not a positive contraindication, to keep patients out of bed most of the time during their waking period, as soon as the permanent dressing has been applied. A matter of great importance is the length of time patients should be confined to bed, or restricted by whatever device is adopted for the retention in place of the broken bone. No positive rules can be given as to when splints should be removed. Repair will progress more rapidly in one case than in another, even where the character of the injury, the surrounding conditions and the plan of treatment adopted are entirely similar, the difference probably being accounted for by a dyscrasia of one or the other. Close observation, with occasional examination of the fracture (without however, needless or meddlesome interference) can alone serve as a safe guide in all cases. Perhaps commonest mistake in this connection is in not removing dressings soon enough, but, on the other hand, the mistake of too much interference or too early removal of retentive dressings, is fraught with infinitely greater danger, either from non-union, ligamentous union, over production of callus, or in compound fractures, septic infection. Ordinarily, from three to six weeks suffices for fairly firm union.

The occurrence of emboli, either venous or fatty, as a sequence in fractures, while rare, is no longer a matter of doubt and while a condition fraught with such grave results would seem deserving of more than passing notice, it is true that little can be accomplished in the way of prophylaxis, or indeed in giving relief should the thrombus reach the pulmonary circulation and find lodgement. Such a distressing occurrence usually results in death and frequently within a few minutes of the appearance of the first symptoms.

Oblique fractures may occur in any of the bones and constitute a majority of all the cases coming under the observation of the active surgeon. They are more frequent than other forms, because of the structural arrangement of the fibers of bone, these fibers being of varying length and strength, with a converging crescentic shaped arrangement which makes the force of the blow travel in other than a direct line, whether this force be applied in a direction transverse, longitudinal or oblique. This par-

ticular class of injuries does not materially differ from other forms of fracture, either in the manner in which they are inflicted or necessarily in their manner of treatment.

For reasons which were perhaps good a few decades since, but which can not be so regarded from the standpoint of modern knowledge and methods of procedure, oblique fractures, whether simple or compound, were considered as necessarily almost impossible of cure without deformity, and today many of the text-books assert without qualification that an oblique fracture in the upper half of the femur will, of necessity, result in a shortening of the leg of at least half an inch. It seems deplorable that with all the remarkable advancement surgery has made in recent years, the methods in the treatment of fractures for the most part remain practically stationary. The nomenclature and classification which carries the old dread of compound fractures and the corresponding unconcern about simple fractures has, until quite recently, been left undisturbed.

In the matter of retentive apparatus the greatest ingenuity has been exerted, and certainly with remarkable results. But the question arises, is it not possible that much of this effort has been expended while looking at the subject from a wrong standpoint? In other words, is it not possible that too much stress has been laid upon methods calculated to forcibly overcome muscular action and incomplete replacement of the fragments? In view of our present aids in reaching an exact diagnosis, there would seem to be no reason why in most cases of fracture the broken ends of the bone should not be exactly coapted, and if this is accomplished, there is certainly very little force required to retain them in position until nature has accomplished its work in reuniting them, which result will ensue, ordinarily, without interruption or further complication, providing no constitutional or pathologic antagonism should interfere. Even in cases of compound comminuted fractures with considerable injury to the soft tissues, with the aid of anesthesia, the X-rays and surgically clean methods, why should not each spiculum and fragment be replaced, the torn periosteum carefully attended to, the wound left in an aseptic condition and a satisfactory issue anticipated?

It has been suggested, and I believe the time is approaching when the suggestion will be generally adopted, that in simple fractures where a deformity can not be entirely overcome by complete and exact reduction of the broken bone, not only should an anesthetic always be given, but in a strictly aseptic operation the fracture for the time should be converted into a compound fracture, the necessary fragments removed, any intervening soft tissues disentangled, the ends of bone exactly approximated, if necessary using the saw, forceps or chisel, the wound sealed up and the external dressing applied. We may examine specimens of fractures in any pathologic collection and will find that many of them show evidence that they were not properly set. This will be particularly true of oblique fractures in the shafts of the long bones where the overlapping ends are encircled with enormous quantities of new osseous tissue, the result of nature's effort at repair, though good apposition was not originally secured and maintained.

Is there anyone who, if he should suffer a serious fracture of whatever character and involving a doubtful prognosis, would not prefer to be anesthetized, and if necessary, leaving to the judgment of the surgeon in attendance to decide, have a clean operation made in order to insure a result which would not handicap him for the balance of his life?

Is there any good reason why a patient suffering from the effects of a severe fracture should be pulled and hauled, with extension and counter extension, and not have the benefits of anesthesia combined, if necessary, with a skilful operation at the hands of a qualified surgeon?

The suggestion made by Senn of wrapping the replaced fragments with chromicized catgut, or in less oblique or transverse fractures, the use of the bone ferrule, is entirely practicable and may be employed even in the most difficult cases, providing satisfactory reduction is accomplished. Nailing, the use of ivory pegs, wiring with steel or silver wire, or suturing with animal ligatures such as strong gut, snell or kangaroo tendon, are orthodox procedures, possessing tested merits, as are also stimulations by rubbing the onds of the fragments together, the use of drills for the same purpose and transfixion.

The use of prepared bone chips in cases where there is great comminution with loss of bony tissue, has not proven satisfactory, excepting in isolated cases. As a rule reproduction of bone is best accomplished through the medium of fragments which still retain some periosteal connection and which have been carefully replaced and retained *in situ*.

I believe that the present generation will see the X-rays and the fluorescent screen in practical every-day use to such an extent that the surgeon will with the aid of these adjuncts, together with the use of progressive aseptic and antiseptic methods, obviate many of the terrors formerly attaching to the practice of bone surgery.

DISCUSSION.

Dr. W. W. GRANT of Denver—The subject of treatment of oblique fractures is a large one and in my remarks I shall refer to certain fractures dealt with by Dr. Mayo and Dr. Cole. I have read the statements made in reference to Dr. Whitman of New York which were published in the *Annals of Surgery*. I see nothing positive to indicate fracture in the cases there reported. The only thing shown was a change in the angle of the neck of the femur; there was no overlapping or other deformity in connection with the cases which were there illustrated. Three or four years ago, in an article which appeared in the *New York Medical Journal*, Dr. Whitman did not call them fractures, but simply a change of angle due to some form of inflammation, particularly known as interstitial osteitis. He states in later articles that he never saw one of them in the case of children. The earliest was three or four weeks after the accident in children and young men. In those cases there is a great difference whether there was a single fracture or not.

In reference to the ambulatory treatment, there are some cases, undoubtedly, in which it would be very useful, but it depends upon each individual as to whether or not it should be applied. In an old debilitated subject, long confinement is bad and interferes with union of bone. If the fracture is transverse treat the case with a fixed dressing. I dislike very much heavy, cumbersome plaster-of-paris dressing, especially when you can make a perfect splint with such nice material as silicated potash, light, and which will hold the parts together just as well. In some of the cases of transverse fracture, ambulatory treatment at any age might be applied; in very oblique fractures I doubt the advisability of the ambulatory treatment unless we are prepared to find more shortening than we desire. In fractures of the upper third of the femur and neck, placing the limb upon an inclined plane is a better position; we will have less shortening and it is more comfortable for the patient. It relaxes the rotator and flexor muscles, therefore it is desirable. In fractures below that, ordinary extension, Buck's extension, is what we desire. Notwithstanding the researches of Dr. Abbé and others, a very unsatisfactory state of affairs exists in reference to certain fractures of the arm, I allude to fractures of the humerus near the articulation. Dr. Bull's

collation is excellent and was made while he was surgeon in one of the New York hospitals, and yet it throws no additonal light upon the subject. Dr. Allis maintained that a fracture could be treated with the arm in the extended position. Dr. Bull's flexed position was the one used in the hospitals in New York. In every position where the fracture is low down and slightly oblique we will have overriding of the fragments and some trouble with the arm. I know of no ordinary method in use that will meet all of these cases. It certainly appears if we flex the arm that we produce tension on the triceps, which will pass into the olecranon and pull upward against the lower fragment. If we extend it we have the brachialis and biceps under tension, and therefore I see no great advantage in either extreme position. And with all positions, to maintain the fragments in perfect position will affect the fossa of the olecranon and coronoid process, and it is desirable to have some form of extension in connection with the treatment of such fractures.

In a case that has recently come under my care I have taken three or four pictures with the X-ray to see the position the bone was in, and I defy anyone in examining the arm with the eye and hand to show a particle of malposition; the result is a good one. The X-ray showed the upper fragment overlapping the lower, which was caused in not being able to flex the arm perfectly. The fracture involved part of the fossa of the olecranon and the coronoid process. How to meet those indications and the action of those muscles is a question the future must determine.

I will not say more in reference to fractures of the neck of the femur, except that ligamentous union is still the rule. This will be so, unless we can deviate from the rule, to frequently advise the patient to get up and about. It is absolutely necessary to obtain bony union to confine the patient strictly to bed; the parts should be fixed and the fragments not allowed to move on each other; ligamentous union will be the result. I do not believe we should make a practice of cutting down to determine whether fractures exist or not. If we did this we would have more malpractice suits than from any other procedure. To secure bony union, to fasten the ends together, is a risk the patient should take and not the surgeon. There is no fixed rule of treatment in reference to these fractures. It is safe for the surgeon to maintain that ligamentous union will be the result, and we should remember that a mere change of angle in the neck of the femur is not in itself an evidence of fracture.

Dr. W. L. Buechner of Youngstown, Ohio—The most successful treatment for fractures of the lower part of the humerus that I have seen was in Volkmann's clinic in 1886, introduced by his assistant. A splint was gotten up for that purpose, made so that the surgeon could change the angle to any position desired. This treatment has been adopted recently by some of our surgeons in Denver. I have never seen as good results from any other treatment. Massage and passive motion can be made immediately without changing the angle of the limb. I have since treated fifteen or twenty cases by this method and have had no bad results. About two years ago a man was thrown from a horse and fractured the lower part of the humerus. He was treated in this way and now has a perfect arm. A few days afterward a little boy sustained a fracture at the elbow, was similarly treated, and has a perfect arm. I never saw fractures of this kind treated by any other without having more or less ankylosis.

Dr. Arthur D. Bevan of Chicago—I have about three hundred skeletons which have been prepared from my dissecting room and I have carefully studied the fractures in these skeletons. One surprising thing is their frequency. Fractures of the ribs occurred in about 20 per cent. Fractures of the long bones are quite common. The cadavers from which the skeletons were obtained are largely from poor-house and hospital material and would probably represent a very much larger percentage of fractures than would occur in a general community. One thing that will impress you if you examine these skeletons is the fact that in fractures of the long bones hardly a single case occurs in which the bone has been so well adapted that one-half of the diameter of the fragment comes in contact with the other half. Almost all of them do not impinge upon each other, there is a great tendency to overlapping. A great many of the fragments are in a position so that there is no absolute contact between the ends of the fracture. This is important because many fractures must have been fairly well handled. You can demonstrate this in the dissecting room by making fractures experimentally upon a limb fairly well covered with soft tissue in the thigh or in any place in which the bone is not subcutaneous, as, for instance, in the radius at its upper half, in the femur, in the fibula in its upper half. In a fairly well covered leg palpation will not outline even the course it forms.

Another point which presents itself in this work, which I have done experimentally in the dissecting room, is this, the degree of the reduction of a fracture depends upon the muscular contraction. You will find almost as much difficulty in reducing a fracture of the cadaver properly as you will on the living subject, certainly as much as on the living subject under an anesthetic. The difficulty is largely due to the irregular spicula of bone. You have, for instance, a fracture of the tibia. It is not absolutely transverse; it has not a clean, plain surface. If you break the bones apart you will have ragged projections of bone; this bone is hard; the ends of the bones jam against each other and small spicula will prevent reduction of the fragments, a point which we should carefully remember.

Another point which prevents reduction to an absolutely normal position is comminution of the fragments. Experimentally I have made fifty Pott's fractures in the dissecting room, but I now refer to Colles' fracture (about fifty of these), which can be readily made on the cadaver by placing the elbow in a certain position on the table and simply over-extending the arm. A Colles' fracture of any type can be made in this way without any extension. If you carry the force further by putting the weight of the body on the Colles' fracture you can produce any extent of deformity that you desire. In these Colles' fractures the amount of deformity depends almost entirely upon the extent of comminution and the difficulty of restoring the bones to an absolutely normal condition depends upon the fact that a certain portion of the radius has been pulverized. The lower end of the radius presents a thin shell of compact tissue containing cancellated tissue in a Colles' fracture. In many of these experiments I would break up the lower end of the radius into fine pieces, that is, pulverize half an inch of it, some of the fragments being the size of a grain of wheat. In this way we absolutely shortened the radius about half an inch. You will never be able to place the bone in exactly the position it occupied before the injury.

Another point which I have been able to follow clinically and in a few cases of postmortem examinations, is with reference to the difficulty of reducing fractures accurately, and one which we sometimes overlook. I refer to the occurrence of blood clot between the fragments, as the simplest example. Take a fracture of the patella. It occurs with great effusion of blood sometimes in the knee joint, and as long as this effusion exists it is impossible to bring the fragments together. But this same factor plays a very important part in the variety of fractures I have been able to show in some railway injuries. If you place a blood clot between the ends of a broken tibia, you may imagine you can take the bones and restore them to their position without any regard to the blood clot, thinking that it would be readily forced into the tissues. But the blood clot is held in position, is bound down by the soft parts, by the periosteum, in such a position that it very often acts as an immovable substance that you can not remove from the ends of the fragments. On this account, in many cases of fracture, reduction should not be attempted until after absorption of the blood clot, except as a preliminary step. The same thing is observed in fracture of the elbow joint. If the fractured joint is filled with effusion and blood clots you can not reduce the fracture until they are absorbed, and the proper time to reduce the fracture and to put on a dressing is after this has taken place.

I have learned much from my examination of fractures experimentally on cadavers, and have been impressed with this fact, that very few of us ever make postmortem examinations in cases of fractures and become familiar with the conditions as they actually exist. I think much valuable knowledge can be obtained by the experimental study of the pathology of fractures, which I think we have very largely neglected.

Dr. W. J. Mayo of Rochester, Minn.—I will ask the Doctor whether he has any knowledge of cases of non-union in syphilitic subjects, in whom specific treatment has proved curative? The most marked pathologic effect of syphilis is upon the blood vessels, exerted largely upon the intima of the arteries, and while I can find no cases in which this has been a direct cause, from its nature it well might be. Also, will the Doctor state just when he applies a fixed dressing for ambulatory treatment, whether early, as advised by Van Arsdale, getting them about at once, or not?

I have not had the courage to do this, for although it has proved a success in the hands of the German school, at the present time, it would be difficult to justify its use in this country, should the result not be good.

Dr. Grant speaks of Whitman's cases of fracture of the neck of the femur in children as being probably due to a bone disease and not a fracture at all. He evidently believes that Whitman has confused his cases with that trouble which is known as "adolescent bending" of the neck of the femur, seen

at times in childhood. Inasmuch as a number of such cases have been reported in the German literature, and as I have seen a well marked example, I would take issue with Dr. Grant. Whitman's cases invariably followed an injury, which is not necessarily the case in the latter disease. In the adolescent bending the direction of the bend has always been the same. In Whitman's cases this was not true of the deformity. In the adolescent bending it may be double, and in the fractures reported all were single, and lastly, in children, union with true bone might occur, while in the same class of injuries in adults ligamentous union would be expected.

In regard to the work of Allis and Powers, which Dr. Grant does not think of any great value, I would also differ. Allis showed that, treated in the straight position, gunstock deformity was less liable to develop. Dr. Powers was connected with Chamber Street Hospital, New York. Here his opportunities were great. He called attention to the value of the Allis method, but began to gradually angle the arm at the end of a week, an important innovation. Cheever well said that if the fragments of bone in the elbow were at least pushed back out of the joint they would be less liable to prove a mechanical obstacle to flexion. Moore of Rochester, N. Y., for years advocated the frequent variation of the angle to prevent stiffness, which the doctor says is practiced in Germany.

Dr. W. J. GALBRAITH of Omaha.—I believe that fractures of the internal condyle and of the head of the radius are the most serious conditions that confront the surgeon, in the line of fractures. The condition I have described is invariably followed by a greater or less degree of deformity.

Dr. C. B. KIBLER of Corry, Pa.—I assisted Dr. Moore in making two examinations in cases of Colles fracture, one in a lady who died a day or two after the injury was received. She had a double Colles fracture of each arm. The fact was brought out and credit has been largely given to Dr. Moore since then, that in all cases of Colles fractures we have a dislocation of the styloid process of the ulna in addition. It is this dislocation that gives us so much trouble.

Ambulatory treatment of fractures of the lower extremities is no doubt proper and a permanent dressing can be applied shortly after the inflammatory condition has subsided. This holds good not only in fractures of the leg, but in the middle third of the thigh. I have been doing this for some time and have no cause to regret it.

Dr. J. P. LORD of Omaha—I do not believe in an oblique fracture involving perhaps the lower third, or the middle of the tibia, complicated with one or more fractures, possibly of the fibula, it would be proper to put a patient upon his feet before some primary union had taken place, at least. I do not believe in very muscular subjects in an oblique fracture of the clavicle, that the patient should be permitted to be off his back for a few days.

Regarding the open treatment of oblique fractures and the immediate retention of the fragments with chromicized catgut, with wire, with sutures, nails or ferrules, while it may be ideal so far as the adjustment of the fragments is concerned, yet I believe those things have quite a limited application. While it might be a temptation for us to treat fractures in this way, with a view to a perfect mechanical effect, which we might obtain, yet there are possibilities for error, which are going to give the profession trouble if this method is followed out universally. Cases in hospital practice where they are under observation, may be treated in this way, but it would be impracticable for a general practitioner to treat them, in many instances. While it may be entirely practicable to treat an intelligent man anywhere, on his feet with an oblique fracture, yet it might not be so with some harum scarum fellow. Many of the patients whom we treat are like children; give them an inch and they take an ell, so that we can not treat such cases by the ambulatory method with safety. There is no particular advantage in doing this. It certainly requires a high degree of mechanical skill, a great deal of time for which we may never get adequate compensation, and it establishes a precedent. If one man has had a fracture treated this way, is able to move around on his feet, another person will want to have the same treatment, and so I doubt the wisdom of this plan of treatment in a very large proportion of cases.

Dr. HOWARD J. WILLIAMS of Macon, Ga.—One thing we must remember in the open method of treating simple fractures is adding disfigurement of the operation in the reduction of the fracture. For instance, I had the case of a man with oblique fracture of the jaw. It was almost impossible to reduce the fracture with a splint. He had lost one molar and the bicuspids, but the incisors were sound. I tried to reduce the fracture, and then told him that it was impossible to do so and I would have to cut down and wire the jaw. He very seriously objected, saying that he did not want his face disfigured. If I had gone ahead, not regarding his wish, and performed the operation and left a scar on the outside the damages would have been greater. He would have claimed that he was disfigured, and that there was pain in the scar. For that reason we should reserve these operations for those cases in which it is absolutely impossible to do otherwise, and operate particularly around the shoulder joint, where in such cases McBurney uses his operation for reducing the head when it is complicated with a dislocation of the fractured head.

I want to ask a question. Does syphilis *per se* interfere with union of bone unless there is gumma or syphilitic disease of the bone? I do not think it does. I believe we can get union of bone in a syphilitic case if there is no disease of the bone itself. If there is gumma we will have non-union in some cases. I have treated fractures in men whom I knew had syphilis and got good union, that is, as good union as we usually get. As to shortening, the question comes up in regard to the regeneration of bone. I believe it is a histologic fact that there is softening of the bone. All tissue contracts. It is unnecessary for us to have shortening; if contraction of the soft tissues takes place the bones come nearer together and we will have some shortening.

Dr. MILTON JAY of Chicago—There are two points that occur to me. One is the speed with which railway surgeons are likely to try to adjust fractures. I am satisfied that in nine-tenths of the cases of comminuted fractures we attempt to bring the fragments into apposition too early, particularly where the comminution involves the joint. It is simply impossible to have that kind of fracture without more or less effusion. In addition, we may have blood clot. If we attempt to force by fixation those fragments together we will create more trouble than by allowing days to intervene before the application of a permanent dressing. I have seen illustrations of this in the past year. I remember of having a fracture involving the elbow joint, in a boy 10 years old, from falling. The humerus was split, condyles separated and the internal condyle broken off. The arm was put into an ordinary dressing and in two or three days there was swelling, ecchymosis and it was getting black. It looked as though the boy would lose the arm. By taking off the dressing, placing the arm in an easy position and applying antiseptic lotions for a few days the swelling subsided and the bones were found coming together. At the end of two weeks the swelling had all disappeared; I drew the fragments together, circulation had become established, I put on a fixed dressing and the boy has a good arm. The point I wish to make is that in compound or comminuted fractures or in fractures that involve any of the joints, I do not believe it is good surgery to place the fragments in position at once. I would wait until inflammation has disappeared and absorption taken place before attempting to bring the fragments together. The other point I wish to refer to in the treatment of fractures is this: We must pay some attention to the medical treatment of the patient. The constitution of the patient must be looked after. In syphilitics the bones may or may not unite. I have no doubt there are cases on record of syphilis where the bones have united, and there are some where they have not and will not unite. A short time ago I saw a case of fracture of the femur, about four inches below the trochanter. The fragments were adjusted and the limb put up in ordinary splints. Six weeks after the bones fell apart, and even at the end of eight months there was still no union of bone. When I was called to see the patient I found that she had syphilis. I put her upon iodid of potash, commencing with the saturated solution, twenty drops, and kept increasing it until she was taking forty drops a day. She was under this treatment eight weeks, after which I reopened, brought the fragments together and secured union of the bone. I have had three cases of this kind within the last few years and failed to get union when I knew the fragments were placed in apposition. With the constitutional treatment for syphilis the bones do unite.

Dr. J. B. MCGAUGHEY of Winona, Minn.—There is one method of uniting fractures which I have not heard mentioned either in the paper or in the discussion, namely, of uniting the bones by silver wire or screws. What little experience I have had with this method has been exceedingly satisfactory. The wound is kept in a thoroughly aseptic condition, and after a certain time the plates and screws are removed and the wound allowed to heal. I believe this method has been extensively practiced in the Johns Hopkins Hospital.

Dr. FRED. J. HODGES of Anderson, Ind.—A friend of mine who does an extensive hospital practice makes use of plaster primarily in these cases, and he puts on a pretty snug dressing immediately after the case come under his care unless there is considerable injury to the soft parts, and he gets excellent results as regards deformity and shortening. His experience

during the last ten years in the treatment of over six hundred fractures, by means of plaster in this way, has been satisfactory and his results equal those obtained by any other method. It is said, and justly so, that each man has his own method, and that method with which he is the most familiar is the one that will give the best results. But certainly the method of securing entire reduction of the deformity and the application of plaster dressings in this man's hands give practically ideal results.

Dr. L. E. LEMEN of Denver. The main point in the treatment of all fractures is to restore the limb to as near the condition as possible that it was in before the fracture occurred. It matters not what measures you adopt if you obtain good results.

Dr. W. L. BUECHNER of Youngstown, Ohio—I would like to hear an expression of opinion from the members of the Academy as to their experience with ununited fractures since we have adopted the antiseptic and aseptic treatment. Professor Volkmann told me that in his large clinic he had more ununited fractures since this was adopted than before, and he was the first man to follow the teachings of Lister on the Continent of Europe, and he ascribes the cause of it to the fact that there is not as much lymph thrown out to unite bone.

Dr. CHARLES K. COLE of Helena, Mont.—Answering the question propounded by Dr. Mayo and Dr. Williams as to the certainty of syphilis interfering with the repair of bone, I think this is about all that can be said in view of our present knowledge, that while syphilis may not *per se* interfere with the union of bone, syphilis or any other condition which interferes with the proper nutrition of the body, or any depraved condition of the system will interfere with the union of bone. To that extent we are warranted in stating that syphilis is a factor in the management of these cases, and we would not be warranted after having recognized syphilis in a given case, in not putting the patient upon the proper antisyphilitic treatment.

Dr. BEVAN spoke of that part of my paper dealing with the solid condition of the ends of the fragments and the rôle it played in the reduction. If we can separate the fragments of an oblique fracture in the shaft of the long bones sufficiently to replace those fragments, the very fact of the unyielding condition of the ends will retain the fragments in place, and I believe that the prime object in the treatment of fractures is to overcome muscular action. I believe it is possible in most cases of fracture of any kind in any bone with proper manipulation, and being deliberate about it, waiting if necessary until swelling has subsided and absorption has taken place, to put the fragments where they belong and a simple device will retain them in position. While I am aware that it is taking an extreme view, I believe the time will come when we will not consider that fractures in the middle or upper third of the femur must necessarily result in shortening.

Dr. McGaughey spoke of a method which was not mentioned in the paper, as did also Drs. Smith and Hodges. But I will say that any device which will keep the fragments in place will answer the purpose, and any scheme which will bring about satisfactory results should be used no matter what it may be.

With reference to Dr. Lord's remarks on the ambulatory treatment, I think the Doctor, in part at least, misunderstood what I intended to say in the paper, because I did not intend to convey the idea that the ambulatory treatment of fractures was an approved method in all cases, or indeed in any instances so far as the general practitioner is concerned. The paper distinctly says that the ambulatory treatment of fractures can not become popular, because only a few master the technique sufficiently to insure satisfactory results in the more difficult cases. I discriminated between the ambulatory treatment of fractures as promulgated a few years ago, and the method of treating a fracture of the tibia without fracture of the fibula, or with fracture of the fibula, in many instances where the dressing can be applied and the patient at once placed upon a carriage or put upon crutches and allowed to walk the wards of the hospital, or to go out and obtain fresh air during the repair of of the bone.

Dr. W. L. SMITH of Streator, Ill.—How many of you have had cases of pneumonia following fracture of the tibia, the patient remaining in bed two or three weeks?

Dr. W. J. GALBRAITH of Omaha—I wish to take issue with some of Dr. Coles' remarks in this particular, the imperative results that he looks for in fractures in securing and maintaining apposition. I do not feel that I would be safe in facing a jury when so eminent a surgeon as Dr. Cole has taken the stand and said that it is easy to secure and maintain apposition, and that we should receive and expect favorable results in all cases. I will ask him as a favor to modify such a statement and explain to us the mechanical and pathologic complications that we meet in fractures and their results.

Dr. COLE—I think Dr. Galbraith misunderstood my remarks. I did not say that we will find in all cases the results will be satisfactory, and that in all cases the fragments could be maintained in position. I qualified what I said about that, and distinctly stated that I realize a prognostication of the statement was rather an extreme view, and one which could not at present be accepted as a fact, and could not dominate us in our work in this connection.

SOCIETY PROCEEDINGS.

Kentucky State Medical Society.

Forty-third Annual Meeting of the State Medical Society, held May 11, 12 and 13, at Maysville, Ky.

The president, Dr. J. M. MATHEWS in the chair.

The address of welcome was delivered by Hon. C. D. NEWELL and was responded to be Dr. JOHN A. LEWIS of Georgetown.

The paper by Dr. ARCH. DIXON of Henderson, on "Pathology of Osteomyelitis," was read by title.

Dr. JAMES B. BULLITT of Louisville read a paper entitled

DIAGNOSIS AND TREATMENT OF OSTEOMYELITIS.

It was defined as an inflammation of medulla of bone, bone itself and its covering. The primary seat may be in the periosteum, chemic irritants and micro-organisms being causes. No specific organism exists, the staphylococcus pyogenes aureus being the most frequent of the pus-producing organisms causing it. It is essentially a disease of childhood, the bones at this time being richly endowed with blood vessels. In adults a local injury generally precedes, at the site of the disease, the modifying of the circulation causing deposition of infection agents. It affects the femur most frequently; males more often than females; primary and secondary disease. Rapid thrombosis, coagulation necrosis, rapid sequestration, are the essential pathologic processes. The course may be very rapid, causing death very soon, from septicemia or pyemia as a rule. A mild degree of osteomyelitis may occur with resolution. A feeling of great exhaustion, with pain, are usual symptoms; also chills and fever and symptoms of typhoid fever. Pain becomes localized and muscular spasm is present, and edema in twenty-four to forty-eight hours should be considered pathognomonic. Purulent synovitis occurs in neighboring joints. Scarlatinal eruption frequently develops. The fulminating form may be complicated by fat embolism from the medulla. Acute rheumatism is frequently mistaken for osteomyelitis; typhoid fever is also suspected from the typhoid state in which these cases fall. The treatment is essentially surgical. Open the medullary canal and remove all infected parts.

Dr. JOHN M. FOSTER of Richmond said his experience was limited to some dozen cases, but one seen early enough for radical treatment to save the limb. He related one case in which osteomyelitis had followed a fall of about ten feet, developing in the ankle. It was not recognized at first and when seen there were two large sacs of pus on the under part of the leg. They were opened, but he found amputation necessary on account of extensive involvement. Amputation was made at the middle third of the thigh, and medullary tissue found in the femur, but a drainage tube in the medullary canal, after curetting, gave a good result. This case was mentioned to show how destructive the disease is, having extended from the ankle to middle of thigh in a short time. The treatment is surgical and should be prompt and thorough. The diagnosis is often difficult.

Dr. W. L. RODMAN of Louisville wished to emphasize that it is frequently not possible to differentiate between ostitis, periostitis and osteomyelitis, they merge so one into another. Those cases of an explosive character are frequently difficult of diagnosis. The age of the patient is often an assistance. Medical treatment avails nothing; prompt and judicious surgery is the only thing. Trephine the medullary canal and drain, upon the same principle as in other cavities of the body. If this done is promptly we will see fewer cases in the chronic state. He would not agree that the femur was most frequently involved, his experience being that it was in the tibia and humerus.

Dr. B. MERRILL RICKETTS of Cincinnati believed that operative procedures were not resorted to often enough. Frequent exploration should be made, two or three trephines in the bone to find out cause of symptoms. He uses the irrigating curette, also Wyeth's method, curetting out the canal, leaving the bone and draining with tube, which is drawn out and cut off from one-fourth to one-half inch each day.

Dr. JAMES B. BULLITT, in closing, stated that the amputa-

tion referred to in the paper, was that done for the condition at the close of the process, leaving a maimed limb. His statement that the femur was more frequently involved was not from individual experience, but was Tillman's, whose practice was where more observations were made than by any other observer.

A paper by Dr. D. S. REYNOLDS of Louisville, entitled "Mental Responsibility," was read by title.

THE RATIONAL THERAPEUTICS OF SOME OF THE ANIMAL EXTRACTS

was read by Dr. ALEXANDER BATE of Louisville.

The modern group of animal extracts mentioned were pepsin, pancreatin, ox gall, beef, blood, bone marrow, spermin, nuclein, thyroid, suprarenal, thymus, orchitic, brain, renal, splenic, ovarian, uterine, cardiac and lymphatic extracts. Two classes of extracts were mentioned, those made from structures that are secreting organs, and the non-striated muscle. The use of these extracts can not be limited to isopathy, but when administered upon isopathic principles, as the thyroid in myxedema, etc., they must be continued, just as food must be repeated to relieve recurring hunger. In all cases reported cured the subsequent history of the case has shown that the withdrawal of the medicament has been followed by a recurrence of the disorder, but again controlled by a re-administration.

Dr. R. C. MCCHORD of Lebanon read a paper on

THE UTILITY OF THE BLOOD CLOT IN THE TREATMENT OF WOUNDS.

He detailed his experience with Schede's method and considers it a valuable agent, especially in damages to fingers from machinery, with exposed bone to the extent of one-fourth inch, which could be covered with a blood clot.

SYPHILIS; WHENCE DID IT ORIGINATE AND WHERE IS IT NOW?

was by Dr. HENRY PLUMMER of Harrodsburg. He said: No author on syphilis tells us from whence it originated. Genesis and the Psalmist tells us of sins visited upon children, which from the description must have been syphilis. As to "whence did it come?" he was incompetent to answer. "Where is it now? might be answered, everywhere, from the communion cup to the infant, and in all walks of life." He quoted statistics showing the extent of prostitution in all parts of the world and said that if there were no syphilis there would be no tuberculosis, rachitis, leprosy, lupus, or natural abortions, they all belong to the same family. He ventured the statement that it was his opinion that syphilis was never cured.

Dr. A. G. BLINCOE of Bardstown read a paper entitled "A Contribution to the Study of Eye Strain as a Cause of Nervous Diseases," and a paper by Dr. JAMES M. ANDERS of Philadelphia, entitled "Ether Pneumonia," was read Dr. W. L. RODMAN in the absence of the author.

FIRST DAY—EVENING SESSION.

After a short address of welcome by Dr. JOHN M. BROWNING, the annual address was delivered by the president, Dr. JOS. M. MATHEWS of Louisville. In his address he paid a feeling tribute to the memory of a former president of the Society, Dr. Jno. Q. A. Stewart, recently deceased. He then took up, seriatim, the following subjects:

1. *State Board of Health.*—He said that when addressing a recent meeting of the New York State Medical Society he had stated that there were no "quacks" in the State of Kentucky, and the remark had provoked great applause, and he further stated that Kentucky was the only State in the Union which has accomplished so much. Attention was called to the fact that the enforcement of the law against quackery now rests with the courts and not with the board as so many seem to think. Any person who knows of a case of violation of the Practice Act should only swear out a warrant and appear before a jury and state the facts, the board being always willing to assist such prosecution. Due credit was given to the Secretary of the Board, Dr. J. N. McCormack, for obtaining the much-needed legislation during the last session of the legislature regarding the "osteopaths," but also to the profession at large.

2. *The relation of the people to the profession.*—He hoped that the day would not be far off when the people could learn to discriminate between the pretender who strews pamphlets at the door and the hard-working and competent physician; to know the difference between jealousy and contempt and not ascribe to the family physician an envy when he is in truth trying to protect them from a fraud; and the minister of the gospel to withhold his pen from endorsing that which would ruin the health and destroy the life of trusting parishoners.

3. *The Rush Monument Fund.*—Attention was called to the resolution passed at the 1884 meeting of the AMERICAN MEDICAL ASSOCIATION, when it was resolved to undertake to erect a statue to Dr. Benjamin Rush in the city of Washington by the members of the profession in the United States. Mention was made of the splendid result of the call made for subscriptions received at the Philadelphia meeting of the AMERICAN MEDICAL ASSOCIATION, and the pledge made by him as the President of the State Society of Kentucky that "Kentucky would do its duty." He urged upon the members the necessity of getting to work and appointed a committee for the purpose of getting a subscription together.

4. THE AMERICAN MEDICAL ASSOCIATION.—A splendid tribute was paid to this society, "the peer of any medical organization in the world." He urged every one that possibly could make the sacrifice of time to attend the meeting in Denver and congratulated the profession of the State of Colorado for their most excellent preparations.

6. JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—He stated that the JOURNAL was equal to any in the world, under the management of its present editor, it having increased its subscription list to more than ten thousand. He urged it upon the members to subscribe for it though not members of the ASSOCIATION.

SECOND DAY—MORNING SESSION.

Concerning the resignation of Dr. W. L. Rodman as a member of the Society, owing to his removal from the city, upon motion of Dr. Steele Bailey, by a rising vote, Dr. Rodman was elected an honorary member.

The question of Transactions and ways and means was, upon vote of the Society, referred to the Publication Committee.

The suggestion of the President looking to a reorganization of the Society was referred to the following committee: H. E. Tuley, J. N. McCormack, J. A. Lewis.

The following committee was appointed to canvass for the Rush Monument Fund: J. H. Litcher, Jno. G. Cecil, H. K. Adamson.

A paper on

PATHOLOGY AND DIAGNOSIS OF DIPHTHERIA

was read by Dr. C. W. AITKEN of Flemingsburg. He said: The true diphtheria bacillus is capable of being grown through several generations, which is not true of non-pathogenic bacteria which resemble it in the mouth. The tendency for it to penetrate tissues is caused by the temperature in this region, which favors its multiplication. Nasal, pharyngeal and faucial mucous membranes are the most usual site. A passive hyperemia is first of macroscopic appearance, rapidly followed by the grayish-white membrane. Diagnosis, differential, which is of practical bedside use, is important. Every child's throat should be examined when he needs any medical attention, as they so infrequently complain of the throat. The nose should be included in this examination, no matter how intractable the child. There are no pathognomonic bedside means of diagnosis, but many helps are present. Diffuse redness of pharynx and high temperature tells of scarlatina, but it is more difficult in follicular tonsillitis: in the latter sudden onset, high temperature during first twenty-four hours, absence of asthenia, pulse rapid and full, absence of glandular swellings, reaching maximum in twenty-four to thirty-six hours, no albumin unless high temperature, membrane superficial and easily wiped off with no bleeding, does not reform, and appears first day, nearly always bilateral. Microscopy is a great help, but both macroscopic and microscopic findings should be taken into consideration. In the method of microscopic technique the 1/12 oil-immersion lens was recommended, Löffler's culture medium and stain giving the best results. Animal inoculation is a final confirmatory test.

Dr. S. G. DABNEY read a paper on

TREATMENT OF DIPHTHERIA.

Prophylaxis, treatment of nasal and pharyngeal diphtheria and laryngeal were considered. The prophylaxis consisted in carrying out Holt's suggestion of quarantine for ten days in suspicious cases and three weeks in true cases. Antiseptic sprays and gargles, with removals of adenoids and enlarged tonsils were prophylactic, and public funerals should be prohibited. Antitoxin as a prophylaxis has shown, in more than fifteen thousand, that only seventy-nine had the disease in three days after exposure, and to these an insufficient dosage had been given. The period of immunity is three weeks. In public institutions antitoxin for prophylaxis should be used, and be used in all very suspicious cases; the earlier the use the better the result. In laryngral cases the use, even if late, is of great efficiency when assisted by intubation. Any practitioner who has read the American Pediatric Society's report and fails to use antitoxin should not be allowed to care for diphtheria. Statistics were quoted showing the result of antitoxin both in hospital and private practice and its use urged most emphatically. A concentrated dose is recommended,

600 units in mild case of child 2 years old; in severe, 1000 units. Laryngeal cases should be considered severe. The effect on the membrane is noticed in twenty-four hours. Hypodermic injection should be used, in thigh, back or abdomen. In rare cases pain in the joints or eruption may be caused, but nephritis is certainly diminished by the use of antitoxin. Stimulation is next in importance, whisky and strychnia of most value, giving one ounce of the former in twenty-four hours to a child 4 years old, beginning when indicated by pulse and depression. Muriated tincture of iron should be given in streptococcus infection. Local treatment should be cleanliness rather than antiseptics, using no force. Peroxid of hydrogen was not recommended. Practice in intubation upon larynx of dog was recommended to those unfamiliar with technique.

Dr. G. G. THORNTON of Gravel Switch read a paper on "Membranous Croup and Intubation, with Report of Cases." He took the position that membranous croup and diphtheria were two distinct diseases, from his experience in seeing cases which had had no exposure and others who were exposed and not stricken with the disease. Antitoxin is not to be considered in membranous croup as it is only specific in diphtheria. Tracheotomy and intubation are only to be considered, the latter in preference to tracheotomy.

Dr. J. A. STUCKY of Lexington stated that diphtheria was practically a stranger in Lexington, and he believed there were no more than fifty cases in Lexington in the last ten years. He believed there was a difference between diphtheria and membranous croup; the former a blood poison, a treacherous disease, contagious and infectious, leaves sequelæ, while in pseudo-diphtheria or membranous croup, the opposite is the condition. An early diagnosis is necessary; cleanliness and sun are both valuable as a prophylactic. He doubts the efficacy of treating the throats of other members of the family exposed, and should leave the filter of the nose undisturbed. There is some benefit from the use of protonuclein.

Dr. THOS. J. SHOEMAKER of Morganfield stated that diphtheria was rare in his neighborhood, he having seen but a few cases in thirty-three years practice. It is a filth and constitutional disease.

Dr. J. H. LETCHER of Henderson emphasized the importance of making an early diagnosis, and we are on the safe side if we suppose it is diphtheria; if recognized early enough we get to work early. His opinion was that more cases occur than are diagnosed, as he alone has operated on twenty-six cases of laryngeal diphtheria in his county since 1886, and he was sure that more cases occurred.

Dr. F. L. LAPSLEY of Paris believed that diagnosis by means of microscopic examination was difficult, as the pseudo-bacillus resembled the true bacillus. He considered ice applications to the throat a valuable remedy, soothing and allaying lymphatic engorgement. Examine cases early. It is criminal to fail to use antitoxin in all cases.

Dr. AIKEN, in reply, stated that only by animal inoculation could the differential diagnosis be made between the true and false bacilli. Croup and diphtheria are the same disease. The physical structure of the larynx and pharynx is not the same; in the larynx they die from obstruction, in the pharynx from sepsis. It is a local disease from the beginning. He does not believe in the use of steam as this heat and moisture aids in the growth of the bacillus.

Dr. DABNEY stated that his personal experience showed the efficacy of steam in aiding separation of the membrane. Those cases in which swelling of the neck occurs are cases of streptococcic infection. Diphtheria is certainly more common in cities; there should not be any question of diagnosis when a laryngeal case occurs after a follicular or membranous condition in the throat. The absence of albumin and failure of occurrence of post-diphtheritic paralysis is not against the diagnosis of diphtheria. Antitoxin has certainly caused us to see less of these cases of complication than formerly.

A paper entitled "The Influence of Age, Race and Sex in Surgical Diseases," was read by Dr. W. L. RODMAN of Louisville.

Dr. T. C. EVANS of Louisville read a paper entitled

DEFLECTIONS OF THE NASAL SEPTUM.

Among the deformities mentioned, due to this trouble, were deformity of the nose, distortion of the face, contraction of the alveolar arch and dental irregularities. The complications and sequelæ are mouth-breathing, disturbance of speech, chronic deafness, hay-fever, frontal headache, hypersecretion of the nasal cavity, defective drainage, diseases of the accessory sinuses, pharyngitis and laryngitis, asthma. The operation described is practically that of Dr. J. Morris Asch. A general anesthetic is recommended and, as the hemorrhage is usually profuse, precautions should be taken as to the position of the head. The instruments necessary are Asch's septal scissors, Adams' septal forceps, two vulcanite tubes and a probe-pointed septal knife. Digital exploration of the stenosed side is first done, and if adhesions are present they are dissected up. The first incision is made through the septum in the line of the greatest convexity and parallel with the floor of the nose, and a second incision at right angles to the first, and intersecting it near its center. These incisions are extended to the limit of the cartilaginous septum, which divides the septum into four imperfect, irregular and unequal triangles. An Adams forcep is now introduced, one blade in either nostril, the triangular fragments caught separately and twisted on its base to loosen its articulation and destroy its resiliency. The thoroughness with which this is done will insure the result. After irrigation of the nasal cavities the tubes are introduced; hemorrhage ceases at once. Irrigation should be done every few hours at first, then every two days. After the first week the patient can do this himself. The results of this operation are most excellent.

Dr. J. A. STUCKY of Lexington has not been very enthusiastic over the Asch operation for some time. In the majority of cases it is safer to use a beak and bayonet-pointed knife than scissors which injure the inferior turbinated oftener when there is marked stenoses. The second incision must be made by the knife in any case. The Asch tube has too large external openings and too small internal openings. When under an anesthetic, with much bleeding, you can push the Asch tube through the wrong place into the middle meatus, and may fracture a turbinated bone. He uses a longer and narrower tube. Cocain should be used very cautiously, never alone, but combine 1 per cent. resorcin and the toxic effects are lessened.

Dr. S. G. DABNEY of Louisville was skeptic as to epilepsy caused by nasal deflections, and said that the Asch operation is better in older patients, first making incision before the anesthetic is given, the use of Adams' forceps requiring general anesthesia at later time. The nasal septum is very tolerant of work on it. The bistuory makes much more accurate incisions. The Asch tube is open to many criticisms. Side openings are not necessary. Never use cocain spray. He applies on a swab of cotton directly over the part.

Dr. EVANS, in closing, stated that he rarely used cocain in spray, except when first cleansing tube after operation. The scissors is a valuable instrument for making the first incision, enlarging with a knife.

AN OBSTETRIC OUTFIT.

Dr. HENRY E. TULEY of Louisville exhibited an obstetric outfit, which he had designed, looking to the comfort of the patient, her safety and the convenience of accoucheur and nurse. He called attention to the fact that other outfits which had been suggested formerly were either too expensive or not selected with the needs of the patient or physician especially considered. The following articles are enclosed in a hermetically sealed box, after thorough sterilization, and instructions are printed on it that it is not to be opened except by the nurse or physician: half dozen lochial pads (designed after those used at the Sloane Maternity Hospital); obstetrical bed; five yards of plain sterilized gauze; half pound of absorbent cotton; two dozen safety pins, two sizes; fountain syringe; nail brush; nail file; antiseptic soap; antiseptic tablets (bichlorid); tube of white vaselin; plain vaselin; one ounce of Squibb's chloroform; six ounces of saturated solution of boric acid; sterilized tape for cord; cord dressing (made of balsam Peru, m. xx, ol. ricini 0.5 ounce, which causes the cord to separate more quickly, is easier to handle, and minimizes the chance for infection); Crede eye solution; pipette and fl. ext. ergot.

Dr. FRANK L. LAPSLEY of Paris—There are useful articles in the outfit, but the country practitioner can not get this as a rule. In his outfit he carries also chloroform and ergotole, to be used hypodermically. Never use silk cord. Does not change dressing at all.

Dr. F. F. BRYAN of Georgetown read a paper on "Extra-uterine Pregnancy."

Dr. L. C. WADSWORTH of Newport read a paper on

THE MIDWIFE AND MIDWIFERY.

He stated that while nature does in many cases, the majority, care for cases of labor, interference is often indicated and the intelligent interference or assistance makes midwifery a science. The midwife attends the labor for a small fee, and returns for nine days, washing the patient and doing all the household work. In this State midwives are specially exempt from the State laws governing the practice of midwifery. The ordinance governing midwifery in Newport was read—a very comprehensive one.

Dr. Edwin Ricketts of Cincinnati, had recently seen a family in which there were six cases of delivery and six cases of sepsis. He wished to go on record as believing the midwife should go. They are the cause of more puerperal peritonitis than any other being, and the physician covers her mistakes. They cause many troubles, one of the severest a complete procidentia.

Dr. J. H. Letcher of Henderson, emphasized the importance of early diagnosis by the practitioner and proper surgical relief. He reported a case of full term abnormal pregnancy with a living child, which is now four years old. The mother died on the fourth day.

Prof. Reamy of Cincinnati, had had one such case of abdominal pregnancy. The midwife should not be charged with every case of sepsis, procidentia and other complications. Abroad the midwifes are recognized and encouraged by the profession. Restriction should be placed on these women until they are prepared thoroughly. If they are trained in aseptic principles, in anatomy and physiology of parts, they should be allowed to practice in proper quarters.

Dr. Jas. Bullitt of Louisville, believed Dr. Reamy's view the proper one. The midwives we have here should go, but the good midwives should be welcomed. Many women prefer to be served by women if they are capable. Midwives should be educated to recognize abnormalities and to care for normal cases.

Dr. George E. Davis of Lawrenceburg, read a paper entitled "The Physiology of the Liver and the Rôle it Plays in Digestion and Nutrition."

Dr. B. W. Smock of Louisville, read a paper entitled

VACCINATION.

He made a plea for more general vaccination and revaccination. Investigation showing that a larger number of children are going every year unvaccinated, as well as adults. This must be caused by no epidemic having been brought to general notice. Vaccination should be done in infancy, at puberty and mature age. Immunity of doctors and nurses in smallpox hospitals is the best evidence of its efficacy. No such thing as constitutional insusceptibility to vaccination exists; it is simply a confession on the part of the vaccinator that he has not found why he has not succeeded.

Dr. C. C. Lewis of Stamping Ground—When does vaccination run out? is a question frequently asked every doctor. He can not see why there is a necessity for more than one vaccination during life.

Dr. Meredith of Bergin, said that as to the question of immunity for life, on his own person it has taken twice; at least every seven years should be the rule.

Dr. J. N. McCormack of Bowling Green, believed if Dr. Lewis had seen more epidemics of smallpox he would be cured of his idea of life immunity. Statistics show that the percentage of varioloid depends largely on the number of scars of vaccination. He has often had the second vaccination take. If cases exposed are vaccinated before the pustular stage of the first case and removed they will not contract smallpox as a rule. Vaccinization in contra-distinction to vaccination, the saturation of system with vaccin virus is recommended especially for physicians. Vaccination is very frequently improperly done. There should be thorough regard had for asepsis and antisepsis if need be, and if this be done much unnecessary soreness of the arm and inflammatory reaction would be done away with.

Dr. Isaac A. Sherley of Winchester, read a paper entitled

A CASE OF HEMATOMA OF THE VULVA FOLLOWING NORMAL LABOR; OPERATION; RECOVERY.

He said: Hematoma occurs but once in 1600 deliveries, according to one author and in 14,000 according to another. Varicose veins, a large head, great expulsive pains and efforts, are given by most as causes. If occurring during labor immediate interference may be necessary. The case reported was a primipara, 19 years of age, the labor a dry one four hours long. Twenty minutes after delivery he found a slight prolapsus of uterus and a tumor of the left labium. Two days later pulse 130, temperature 104 degrees; gangrenous odor from pent-up lochia. The clot was turned out the cavity, packed and thorough drainage obtained without hemorrhage.

Dr. J. B. Bullitt of Louisville, related a similar case, the tumor being the size of a goose egg. The incision was made and drainage done with recovery. These cases should be relieved by operation, that much blood being unable to be absorbed.

Third Day—Morning Session.

The Nominating Committee made the following report: President, David Barrow of Lexington; first vice-president, H. K. Adamson of Maysville; second vice president, Jas. B. Bullitt of Louisville; treasurer, C. W. Aitken of Flemingsburg; secretary, Steele Bailey of Stanford; librarian, B. W. Smock of Louisville; Chairman Committee of Arrangements, Jno. G. Cecil of Louisville.

Board of Censors: B. L. Coleman of Lexington; L. L. Robertson of Middlesboro; J. H. Shoemaker of Morganfield; T. B. Greenly of Meadow Lawn; W. S. Simmons of Smiths Grove; N. H. McNew of Carlisle.

Chicago Academy of Medicine.

Regular Meeting, March 18, 1898.

James G. Kiernan, M.D., in the Chair.

SYLLABUS OF ACADEMY DISCUSSION ON TUBERCULOSIS.

1. Dr. C. Fisch, Orrotherapy.
2. Dr. H. M. Thomas, Tuberculosis of Throat.
3. Dr. E. S. Talbot, Oral Cavity in Tuberculosis.
4. Dr. Halstead, Abdominal Tuberculosis.
5. Dr. Paddock, Effect of Pregnancy on Tuberculosis.
6. Dr. Babcock, Remarks on Tuberculosis.
7. Dr. Wood, Tuberculosis of Ocular Structures.
8. Dr. Brower, Tubercular Meningitis.
9. Dr. Alexander, Mental Phases of Tuberculosis.
10. Dr. Ferguson, Tuberculosis of Breasts.
11. Dr. Ridlon, Tuberculosis of Joints.
12. Dr. Engelmann, Pediatric Aspect of Tuberculosis.
13. Dr. Waugh, Climatology in Treatment of Pulmonary Tuberculosis.
14. Dr. Baum, Tuberculosis of Skin and Genito-Urinary Organs.

The subject for discussion was

TUBERCULOSIS,

which was considered from various specialistic standpoints.

Dr. C. Fisch of St. Louis, Mo., spoke (by invitation) on

ORROTHERAPY.

He said: In our hitherto essentially empiric conceptions of serum therapy, the last two or three months have wrought a decided change; a galaxy of investigations published by Ehrlich Wasserman and Behring have shown a path which certainly will lead to a complete theoretic grasping and understanding of the problem. Already our horizon has widened and many barriers have been removed; the mystic element so long surrounding this form of isopathic therapy fades away. On the other hand a number of clumsily mechanical and materialistic explanations have received their death-blow.

What is antitoxin, what are antibodies? Ehrlich's answer is plain and plausible; what is more, it has found experimental affirmation in an irrefutable way. When I kill a guinea-pig with a fatal dose of tetanus toxin, I find at the postmortem experimentation considerable quantities of toxin in all of the organs of the animal except in the central nervous system. When, on the other hand, I kill a healthy guinea-pig, its brain and its spinal cord made up in a fine emulsion and injected into other animals, will protect them against, and even cure them from, tetanus poisoning. None of the other organs will do that.

Every animal body, says Ehrlich, contains certain complexes of cells which have a maximal affinity to certain bacterial, or other toxins (the cells of the central nervous system, for instance, to the tetanus toxin). Of each protoplasmic unity of these cells, definite side or lateral groups are integral part which combine with the toxin molecules; this binding of the toxins by the lateral molecular groups is what we call the poisoning of the cells, leading, if all of the specific groups are involved, finally, to the cells' death. If only some of them are "anchored," as Ehrlich puts it, the cell loses, for the time being, its functional activity, until regeneration or new formation of the side groups has taken place.

Now, it is a biologic law that every regeneration implies a certain overproduction; a surplus of specific side groups is therefore produced which are by and by detached and discharged into the blood plasma. They form or are the antitoxin, and it will be easily seen that the whole process need only to be repeated often and intensely enough, to insure the presence of large quantities of antitoxins in the blood. They protect the organism by binding the toxin before it can reach the antitoxin-producing cells, that is, those cells which are susceptible to its action. By transferring them from one organism to the other their action, too, is transferred.

How is this ingenious theory borne out by our observations on the course of tuberculous infection and its isopathic treatment? There is absolutely not the slightest doubt that this infection goes along with a slow insidious intoxication of the

tissue cells, caused by the toxins of Koch's bacillus and directly, as well as indirectly, leading to necrosis and destruction. It does not matter which one of the several toxic bodies that we are able to isolate from tubercle cultures is the most active and deleterious; in human, as well as animal tuberculosis, we have always to deal with their combined action, and the question, therefore, simply is, can tuberculosis (in animal experiments) be cured by active and passive immunization, and what changes do eventually go along with this process in the animal organism?

Behring reports that it is a comparatively easy thing to cure tuberculous cows by treating them with very active tuberculous toxins. You all know that Koch cured guinea-pigs and that the same has been done by Kitasato, Spengler, Babes and others.

I want to say a few words about two sets of guinea-pigs that I have had under observation now for nine months in my laboratory, and one of which was inoculated with tuberculosis ten months ago. This latter set, consisting of four animals, was cured from its tuberculosis by injections of increasing doses of a tubercle toxin, the preparation of which I have described elsewhere. After six months' continuous treatment the blood serum of these animals attained the property of, in small doses, preventing the tuberculin reaction in diseased guinea-pigs, and to protect healthy animals against fatal doses. The other set (three animals) was not inoculated, but simply treated with the toxin in the same way; their blood, too, protects other pigs, the dose necessary being a little larger. Behring's results with his cows point to the same facts. What does this teach? In the first place, that the serum has acquired antitoxic properties; in the second place, that such a change is brought about easier in infected animals than in healthy ones. The cure of the infected animals is evidently due to the antitoxin which was produced in the course of the treatment; it counteracted or neutralized the toxins in a measure as they were produced by the bacilli, thus "depriving them of their greatest terror," and allowing the organism to succeed in the elimination of the innocuous bacilli themselves.

The production of antitoxin by means of toxin injections in healthy animals appears to us in an altogether new light. We now know that it is ridiculous and nonsensical to look around for animals that are immune against tuberculosis in order to find fit subjects for the injections. An animal absolutely immune against one disease can in no way produce a specific antitoxin, since its immunity would involve the absolute absence of the specific protoplasmic side groups, it can not be poisoned with the toxin in question and can therefore not produce superfluous antitoxic groups. The fact that horses are very fit for the production of tubercle antitoxin is not at all due to their immunity against tuberculosis, but to the circumstance that in them the disease usually takes a very slow and chronic course. Best results in them are obtained when in the beginning of treatment moderately virulent living bacilli are injected so as to set up an artificial infection. The antitoxic potency of their blood can reach a high degree.

As to the site of origin of the antitoxic bodies in tuberculosis, we are as yet absolutely groping in the dark. I hear that Behring and his disciples are busy investigating in this direction, but it may be surmised that the result will not be so plain and unmistakable as was the case with the tetanus antitoxin. It may be that certain lymphatic elements, which are distributed all over the body, will bid fair to play this part.

There can be no doubt that in self-limited diseases like, for instance, lobar pneumonia, the crisis sets in as soon as the amount of antitoxins eliminated from the blood is sufficiently large to neutralize any fresh amount of toxin produced by the pneumococci. The reason why such a self-limitation does not occur always and, indeed, in most infectious cases is missing altogether, is to be looked for in the assumption that in these cases the cell intoxication is so severe that cell death ensues, and regeneration of antibodies is prevented. This, as well as another reason, obtains for tuberculosis; mostly either the intoxicated cells die immediately, or the intoxication is so slow that although a slight over-production of antitoxin takes place, no discharge into the circulation occurs. Thus it is that only in the diseased tissues do we find a slight surplus of antitoxin, as shown by the reactive susceptibility for tuberculin.

Contradictory as it seems at first glance, it will be understood now how Ehrlich's hypothesis enables us to explain the cure of a disease by introduction of a surplus amount of toxin in addition to the amount continuously produced by the microorganisms, causing a slow and insidious disease like tuberculosis. It is clear that this latter amount is not sufficient in quantity to stimulate a copious antitoxin production; the toxin irritation is too slight, it needs the exacerbation by the poison artificially introduced to bring about a larger antitoxic elimination. In this way active immunity against tuberculosis is obtained.

From these desultory remarks, one point will have become evident, that is, that active immunization can not be achieved without, to a certain degree, endangering life. That it can be achieved is proved satisfactorily; that in other cases passive antitoxin-protection and cure will be preferable are just as certain; the prospects that for both ways reliable means and procedures will be found, are very bright just now.

These thoughts I can not better express than with the following words of Behring: "There is always some danger connected in conforming in practice to the claims of isopathic therapy. This danger becomes particularly great in cases where there exists an abnormally high irritability, finding its expression especially in a high body temperature. I trust that particularly those patients with febrile tuberculosis will be benefited most, after we have got possession of a tuberculosis antitoxin sufficiently strong for practical purposes; an antitoxin which conveys to the blood poison-binding substances, without the interference of a previous isopathic tissue-irritation."

TUBERCULOSIS OF THE THROAT.

Dr. Homer M. Thomas.—Among the many diseases which involve the larynx that of tuberculosis is the most frequent. It may be mistaken for carcinoma, syphilis, or general catarrhal inflammation. There usually is associated a tuberculosis of the lungs or other organs. This may have pre-existed and the larynx be the last organ to become involved.

Pathology.—Pathologically, the disease is due to the tubercle bacilli. Under a laryngoscopic inspection we observe in a general way, anemia, congestion, tumefaction, erosion and ulceration, with their attendant pathologic changes. Acute tuberculosis of the larynx occurs as a part of acute tuberculous sore throat. It is a condition of acute miliary tuberculosis of the larynx, pharynx, in which the process of ulceration is very rapid and a fatal termination ensues within a short time. Secondary tuberculosis of the larynx may occur from the ejection of sputa from the lower air passages. In most cases infiltration takes place through the lymph channels. Congestion of the mucous membrane usually marks the first stage of the acute form, while anemia of the mucous membrane is characteristic of the chronic and more frequent type. Acute tuberculosis of the larynx usually sets in after the pulmonary lesions have begun to soften. Acute catarrhal laryngitis, lasting two or three weeks, is succeeded by chronic laryngitis. The characteristic feature resulting from these two forms later on is succeeded by isolated or multiple superficial erosions on the laryngeal surface of the epiglottis and contiguous portions of the laryngeal mucous membrane. Then localized tumefactions in the epiglottis and the arytenoidal extremities of the arytenoido-epiglottic folds. Microscopic inspection of these tumefactions when in an advanced stage, will usually reveal marked infiltration of small lymphoid cells in mucosa and submucosa, nearly down to the glandular layer, and often masses of tubercle nodules, or groups of miliary tubercle, many of which are undergoing caseation.

When the epithelium over these tumefactions becomes loosened, hemorrhagic tuberculous ulcers are seen. The ulcerations continue to deepen and may extend to the limits of cell infiltration and thus reach the perichondrium where they stop, as this structure seems able to resist direct tuberculization. Local suppurative centers of inflammation often exist near ulcerative processes, and when they reach the perichondrium it becomes involved and the cartilage is exposed. The cartilage may undergo necrosis and caries and become destroyed. Secondary tuberculosis of the larynx seldom gives a history of causation from atmospheric exposure. Its onset is insidious and there is marked local anemia of the laryngeal mucous membrane. In some cases the most marked evidences are principally in the vocal bands. The posterior surfaces may become so swollen as to partially occlude the caliber of the larynx to such an extent as to require tracheotomy to prevent suffocation. Perichondritis and chondritis occur in the later stages of long chronic cases. This inflammation may involve one or both surfaces and ultimately lead to structural disintegration.

Etiology.—A constitutional tendency to catarrhal inflammation of the mucous membrane of the air passages is probably the chief cause of tuberculosis of the larynx. Inherited susceptibility appears to have a more marked influence than acquired sources of the disease. No age is exempt. The period between 20 and 30 years is the most frequent. Men more frequently are affected than women. It is not frequent in advanced life. Exposure to inclement weather when insufficiently clothed, and a lowered vital resistance, are a common cause in inducing laryngeal tuberculosis.

Symptomatology.—Dysphonia, cough, dyspnea, pain, sensation as of a foreign body in the throat, are usually present.

Probably the first subjective symptom is dysphonia. The impairment of the voice will be proportionate to the character and location of the tubercular infection. When nervous or due to defective nutrition, the larynx will have an anemic appearance, sometimes due to mechanical causes, as pressure on the nerve supply of hypertrophied laryngeal, tracheal or bronchial glands, or too close approximation of the vocal bands. Dysphonia may progress to complete aphonia, due to thickening of the vocal bands, ventricular bands, or aryteno epiglottic folds posteriorly; morbid growths between the bands or ulceration. With a subsidence of these conditions the voice will be improved, although the constitutional state may be active and the patient be worse. When tubercular ulceration is on the posterior wall of the larynx, pain in swallowing is intense. With ulceration in the pharyngo-epiglottic fold, we may have pain extending to the pharynx and ears. Dyspnea, as a result of laryngeal lesions, only occurs when the constitutional condition is far advanced. Cough is generally present in all cases of laryngeal tuberculosis. At first it is dry, hacking, laryngeal, and may be due to endo-laryngeal irritations. Expectoration is slight, except when the pulmonary involvement is advanced.

Diagnosis.—A primary laryngeal tuberculosis must be made by positive exclusion of tuberculosis in the lungs or other organs. Secondarily, it may manifest itself in the tongue, uvula, palate or pharynx. Acute pain in deglutition is strong presumptive evidence of tuberculosis, markedly increased in the advanced stage. Involvement of the uvula is indicated by its change into a semi-translucent club-shaped structure, quite different from that due to edema. Quite a proportion of cases of tuberculosis begin in a subacute catarrh of the mucous membrane. In its inception this catarrh is not diagnostic. When associated with it, is a lowered vital resistance, hereditary tendencies, resistance to therapeutic measures, and the catarrhal condition gradually assuming a chronic form, we have strong evidence that it depends upon constitutional rather than local causes. As before stated, the diagnosis is chiefly upon the pathognomonic pallor, pyriform tumefactions of the posterior parts of the aryteno-epiglottic fold, circumscribed tumefactions in the meso-arytenoid fold, the horseshoe epiglottis, multiple erosions, ulcerations and other minor changes.

Prognosis.—The prognosis is unfavorable. In exceptional cases there is recovery; the majority die. Acute tubercular infection of the larynx is usually fatal in from six weeks to six months. In the reported cases of cure there is always a suspicion of inaccurate diagnosis, since the disease bears a close resemblance to acute latent and tertiary syphilis. The chronic varieties of laryngeal tuberculosis are usually associated with slow developing pulmonary tuberculosis, which has its inception in localized pneumonias. In these cases the larynx is secondarily involved after the lungs are much softened. By degrees the structures constituting the borders and anterior portion of the larynx lose their distinctive outline and become tumid, and circumscribed tumefactions arise at different portions, supplied by lymphoid cells. Improvement of the voice is not necessarily an indication for hope of diminished or controlled constitutional invasion, unless verified by laryngoscopic evidences of cure. It is rare to have tubercular ulcers heal. The exception to this statement arises when, as a result of topic applications, cicatrization occurs. For a time healthy granulations may form on the base of an ulcer, but usually fresh tuberculous infiltration causes the newly formed tissue to break down. There is a marked discrepancy in statistics as to the proportion of patients with pulmonary tuberculosis which have tuberculosis of the larynx. The character of one's practice, whether hospital or private, has much to do with this. A fair estimate would be about 10 to 15 per cent.

Treatment.—Constitutional and local measures are indicated. As the question of constitutional measures will be exhaustively considered in the subject of tuberculosis as a whole, I will confine my remarks to the local measures indicated for control of the laryngeal condition. Treatment of the local lesions varies with their character, position, extent, accessibility to topical application, and influence on deglutition and respiration. Circumscribed thickenings with a non-broken surface may be treated with creasoted iodin in glycerin or menthol in solution with olive-oil. An ulcerated larynx can be relieved with an insufflation of iodoform in solution with sulphuric ether. Laryngeal secretions should be removed by direct application of alkalin sprays. When tuberculous ulcerations are on the surface, lactic acid well rubbed in, with a 20 to 40 per cent. strength is valuable. When the resultant eschar falls, repeat the process until cicatrization is established. Where the mucous membrane is not broken, lactic acid is negative. Twenty per cent. solutions of menthol injected into the larynx, in combination with olive oil, is efficacious. Cough, due to ulceration, may be mitigated by insufflations of morphin, in one sixteenth to one-half grain strength. Submucou injections, 3 per cent., hydrocholate cocain for pain; orthofor is a valuable analgesic. Painful deglutition can sometimes l relieved by having the patient lie on his stomach, with hea and arms over the bed, the feet being higher than the bod In this position, water and nourishment can be siphone through a tube reaching from a receptacle held below th mouth. Much temporary relief can be afforded by the inhal tion of vaporized antiseptic oils, which, being carried direct to the abraded surfaces, are deposited well over them, ar through absorption and mechanical protection greatly alla many of the distressing symptoms attendant upon laryngea tuberculosis.

THE ORAL CAVITY IN ITS RELATION TO TUBERCULOSIS.

Dr. EUGENE S. TALBOT—Very little can be said in regard tuberculosis in relation to the jaws and teeth. Tuberculos does act directly upon the teeth in reducing vitality, and thu causing decay to take place more rapidly. The treatment such cases, however, is not very successful from the fact th the patient's vitality is so very much reduced, and death us ally ensues very soon after rapid decay, and all that can l done is to relieve pain and make the patient as comfortable a possible so far as exposed pulps are concerned.

There is an interesting feature in regard to the indirect effe of tuberculosis upon the jaws and teeth. Children who a born of tuberculous parents almost invariably have an arre of development of the jaws and frequently, I may say almo invariably, certain of the teeth do not develop. When arre of the jaws takes place, we have irregularities of the teet Nature tries to harmonize the development of the teeth wi the arrested jaw by doing away with the wisdom teeth and th lateral incisors, thus giving more room for the teeth to con into place. To give you some idea of the difference in the si of the jaws of children born of tuberculous parents, and tho of normal parents, I can only say that the jaws of healtl children should measure two inches to two and one-four inches in diameter. In children who are born of tuberculo parents the jaws are frequently one inch in diameter, showi a difference of an inch to an inch and a quarter in the later diameter. These measurements are very important to th patient as well as to the dentist, because mechanical applianc have to be made in order to correct these irregularities. such children I have found 45 per cent. of the third mola and 14 per cent. of the lateral incisors wanting.

ABDOMINAL TUBERCULOSIS.

Dr. A. E. HALSTEAD—Abdominal surgery during the last t years has so greatly enlarged our knowledge of tubercular pe itonitis that we no longer regard it as a rare pathologic conc tion, but one which we frequently encounter and seldom re ognize before the abdomen is opened.

The way of entrance of the tubercle bacillus into the pe toneal cavity is often hard to determine. In some cases pos mortem examination shows the peritoneum to be the on organ involved, from which we must consider that the infecti is occasionally carried through the blood. In many cases th infection can be traced to a tubercular ulcer of the intesti where the bacilli either pass directly through the intestin wall or first involve the mesenteric glands, from which infe tion subsequently spreads to the peritoneum. In these cas the primary intestinal lesion may be very minute and mig easily escape notice on postmortem examination. In childr infection of the mesenteric glands with the tubercle bacill frequently follows attacks of acute enteritis.

Burdon-Sanderson, Sturgis and Carr (cited by Abbé, *Me News*, 1896), in order to determine the origin of tuberculos in children, reviewed the findings in several hundred autopsie and concluded that about one-third died of some form of tube culosis. Out of 120 autopsies, in two-thirds the thorac glands were shown to be the point of entrance, while the me enterics were primarily affected in one sixth. In 107 postmo tems, where death had resulted from peritoneal tuberculos Phillips (*Centr. f. Klin. Chir.*, 1890) found the intestine to the seat of tuberculous disease in eighty, or 74 per cent. of the cases. In forty-four cases infection of the peritoneum w directly the result of disease of the mesenteric or retrope toneal glands.

The female genital organs, especially the tubes, are fr quently the starting point of the disease. That infection m reach the abdominal cavity through the tubes even in childr is shown by the case of Vierordt where, in a girl of six and or half years, tubercular peritonitis was preceded by a purule vaginal discharge in which tubercle bacilli had been demo strated. The relative frequency of infection from the tubes still a subject of dispute. The proportion given by vario writers differs greatly. Taking all available statistics, t

ases in which the tubes are involved comprise about 25 to 30 er cent. of the females affected. It must be remembered, owever, that the disease of the tubes is secondary to peri oneal tuberculosis in some cases instead of being the starting oint.

From a clinical standpoint tubercular peritonitis may be onsidered under two heads:

1. Those cases of tubercular ascites in which the exudation f serous or sero-sanguineous fluid is the predominant feature. he exudation is preceded or accompanied by the eruption of iliary nodules, involving more or less of the peritoneal rface.

2. Those cases in which tumor formation is the distinctive ature. The diagnosis in the first class of cases can only be ade when we exclude all other possible causes of ascites. here are however some points relative to the occurrence of bercular ascites which should receive careful consideration.

The history, frequently of some antecedent tubercular sion, especially of the intestine or genital organs.

The age of the patient, tubercular peritonitis occurring most equently between the ages of 20 and 40 years. However, it ay occur at any age, being relatively common in children, here it is often associated with intestinal disease.

Sex.—It is undoubtedly more prevalent in the female. oenig collected 131 cases, of which 120 were females and even males. In the cases of Osler, Boulland, Häne and aurange taken together, there were sixty males and 131 males.

Temperature.—Osler calls attention to the fact that the mperature in this form of peritoneal tuberculosis is fre- ently subnormal, varying from 95.5 to 97 degrees. At times e temperature is normal, or it may be slightly above normal, though this is not the rule.

Pigmentation, especially of the face, is occasionally noted in bercular peritonitis. This may occur when the adrenals are t affected, as in a case reported by Osler.

Onset of the disease.—This may vary between those in which e onset is exceedingly acute, resembling suppurative perito- tis, or acute intestinal obstruction, and those in which the ocess is extremely latent, where a gradually increasing exu- tion is for a long time the only symptom. In many cases the cognition of the disease is accidental, there being no distinc- e symptoms to point to its true nature.

Emaciation, loss of appetite and diarrhea are symptoms ich vary with the acuteness of the disease, being more pro- unced where the onset is rapid and the exudation great.

The relative frequency of the ascitic form of tubercular peri itis is shown by the cases observed by Biat (cited by Osler). the eighty one cases analyzed by him, in thirteen there was tensive ascites. A moderate amount of fluid, however, is en observed in all forms of the disease.

Tumor formations, the result of tubercular peritonitis, hough quite common, present great difficulty in the way of gnosis. These tumors may originate in four different ways.

1. Tumors composed of rolls of omentum, which are the result an extremely chronic inflammatory process which chiefly ects the omentum. These tumors are ridge-like in form, ng transversely across the upper part of the abdomen. They seldom associated with any considerable amount of exu- e.

The diagnosis of this condition is frequently difficult and at es it has been mistaken for carcinoma. The history of the ient, especially if there should be a predisposition to tuber osis, or the presence of other tubercular lesions, the most quent of which is tubercular pleurisy, should guide us in king our diagnosis. The presence of an area giving a reso- nt percussion note just above the mass is of value in differ- iating these tumors from tumors of the liver, for which they often mistaken.

. Abdominal tumors produced by sacculated exudations are most common form, as well as the ones that present the atest difficulty in diagnosis. The fluid found in these cavi- may be either serofibrinous or purulent, representing dif- nt stages of the same disease. Again, the tumor may be ular in outline when it is entirely fluid, or irregular and nod- r when composed in part of cakes of lymph or omentum. se tumors may be found anywhere, but usually occupy the ldle zone of the abdomen, where they have many times been arded as tumors of the ovary, either cystic or solid. There o way of positively distinguishing between the sacculated sions of tubercular peritonitis and cystic tumors of the omen. We should consider carefully the history particu- y of tubercular disease in the family or of old tubercular ons. Abdominal pain and irregularity of the bowels are e common than in ovarian disease. The onset is usually lual and the general health remains fair for some time. In some cases we have an early loss of appetite, emaciation and diarrhea associated with an irregular temperature. The physical signs are exceptionally deceptive. In typical cases they are identical with cystic ovarian disease. In cases where the exudate is small, the outline is not nearly so distinct as in ovarian tumors, while the form and position may change at any time, owing to the alterations in position of the intestinal coils that go to form the walls of the tumor. Irregularities in the periphery of the tumor, due to tubercular nodules and cheesy masses, are of great value in determining the nature of these tumors. The condition of other organs should receive particularly close attention, especially the pleura, lungs and genital organs.

3. Tumors formed from matting together of coils of intestine may simulate either solid or cystic abdominal growths. They may be adherent or freely movable and may occupy any part of the abdominal cavity. Mistakes in diagnosis in these cases, although they occasionally occur, are not nearly so common as in sacculated exudations. In making a diagnosis we have the history, the rapid emaciation, irregularity of the bowels and an irregular temperature. The physical examination of the abdomen shows irregular areas of tympany and dulness, with more or less nodular, irregular tumors. At times, there is free abdominal fluid.

4. Enlarged mesenteric or retroperitoneal glands may closely simulate other solid abdominal tumors. This condition is much less common than the other tumors of tubercular origin. They may vary in size from that of a walnut to masses larger than a child's head. Frequently they can easily be palpated, but occasionally the presence of free abdominal fluid or of excessive tympanites may prevent their recognition. The nodular character and number of these tumors together with the presence of fluid free in the abdominal cavity and the history are usually sufficient to make a diagnosis. Irregular tympanitic areas and persistent diarrhea with rapid emaciation are frequently associated with this form of the disease.

In former years it was generally held that no case of abdominal tuberculosis ever recovered. At present we know that this is far from being true. Many cases undoubtedly recover either spontaneously or under medical treatment.

Foullard collected eighty-two cases from the older literature of which twenty recovered. Some of these patients were in good health from ten to seventeen years after recovery was apparent. The diagnosis in these cases was, however, based upon clinical evidence alone, and not supported by any bacteriologic examination. We are justified, therefore, in assuming that a part of these at least were not cases of tubercular peritonitis.

At the present time, knowing that such good results may be expected after laparotomy, nearly all of the profession are agreed that all of these cases should be subjected to operative treatment. The method of procedure adopted by most surgeons in the ascitic form of the disease is to simply open the abdomen by immediate incision, evacuate the fluid and drain. Some irrigate the abdominal cavity with a mild antiseptic solution, while others apply antiseptics, in a concentrated form, directly to the diseased surface. Rendu employs a solution of camphor naphthol which he brushes over the affected surface. This solution is claimed by M. Perrier to be distinctly antagonistic to the tubercle bacilli. Direct medication applied to the miliary tubercles of iodoform, either dry or in the form of an emulsion, has been employed by many surgeons. It is questionable whether these methods of direct medication add any to the chances of a cure after laparotomy. Statistics show that most of the cases cured have been of the acute miliary variety with ascites, and that the treatment followed was simply incision and drainage.

The method of evacuating the fluid through a canula and subsequent filling of the abdominal cavity with sterilized air, as recommended by von Mosetig, has given a few cures.

In the chronic fibrous or the ulcerated forms the chances of a cure are not as good as in the acute miliary form with ascites. An attempt should always be made in these cases to remove as much of the caseating mass as possible. This should be followed by the free use of iodoform and drainage.

The percentage of cures after celiotomy for tuberculosis varies from 25 to 70 per cent. in the cases reported by various surgeons up to the present time. Kuemmel collected thirty cases, beginning with the first operated on by Spencer Wells in 1862. Of these there were twenty-five cures of from nine months to twenty-five years duration. Koenig collected 131 cases, of whom 75 per cent. were greatly benefited and 25 per cent. permanently cured. Aldibert reviewed 308 cases. Of these, 2.5 per cent. died as the immediate result of the operation, and 215, or 69.8 per cent. were cured. The largest number of operated cases (358) has been collected by Roersch. Of

these, 250 or 70 per cent. were permanently cured by laparotomy.

The way in which healing takes place in tubercular peritonitis has been studied both from postmortem examination of partially healed tubercular lesions and from cases on which a second operation has been performed.

In 1895 Jordan studied fifteen cases on four of which postmortem examination was made some time after the abdomen had been opened. In eleven the tissue examined had been secured at a second operation. He concluded that healing took place as a result of an active tissue proliferation by which the essential elements of the tubercle were compressed and destroyed. Pichini, Bumm and Osler found connective tissue displacing the cellular elements of the tubercle, beginning first in the periphery, and later extending to the center of the nodule. Riva found connective tissue substituted for the tubercle, but maintained that the proliferation began in the center and not in the periphery of the nodule. He also asserts that the formation of connective tissue was preceded by a degeneration of the central cells of the tubercle.

In two cases which had been subjected to a second laparotomy, Mazzoni found the tubercles surrounded by a zone of inflammatory exudate which was the result of an increased vascularization of the parts that followed the operation. In the center of the tubercle vacuolation and degeneration of the epithelioid cells were observed. In other parts, where the healing process was more advanced, connective tissue had taken the place of these central cells.

Gatti (*Arch. f. klin. Chir.*, 1896), after an extended series of experiments on animals, concludes that the tubercular lesions found in the peritoneum healed not by proliferation of connective tissue, the result of an active inflammatory reaction, but as the result of hydropic degeneration which first affects the protoplasm and then the nuclei of the epithelioid cells. These cells subsequently are absorbed along with which the bacilli and round cells gradually disappear, leaving only the pre existing connective tissue stroma with its vessels.

The reason for the cure of tubercular peritonitis after laparotomy and the way in which retrograde degeneration and absorption of the essential elements of the tubercle are brought about is yet a subject of dispute. Various theories have been advanced, prominent among which may be mentioned the following: 1. The action of the anesthetic; 2. Psychic influence; 3. Operation trauma; 4. Removal of the ascitic fluid, depriving the tubercle bacilli of their nourishing medium; 5. Increasing the absorption possibilities of the peritoneum; 6. Removal of ascitic fluid containing ptomains; 7. Inflammatory reaction following entrance of air; 8. Diminution of the vitality of tubercle bacilli by aseptic inflammatory reaction which follows opening the abdomen.

Gatti considers that as a result of simple laparotomy there follows a serous exudation in the peritoneal cavity which exerts an unfavorable influence on tubercle bacilli destroying them completely or so affecting their vitality that they subsequently die and are absorbed.

(To be continued.)

American Medico-Psychological Association.

Fifty-fourth Annual Session held at the Southern Hotel, at St. Louis, Mo., May 10–13, 1898.

First Day—Morning Session.

The Association was called to order at 10 A.M., Dr. R. M. BUCKE, the President in the chair; Dr. C. B. BURR, Secretary.

Dr. C. R. WOODSON, Chairman of the Committee of Arrangements, announced the unavoidable absence of Governor Stephens, whose regrets were read, and introduced the Hon. HENRY ZIEGENHEIN, Mayor of St. Louis, who in a few humorous and well received remarks welcomed the Association to St. Louis, to the hospitalities of its institutions, and promised them the protection of the Mayor.

Dr. MAX. C. STARKLOFF, Health Commissioner, welcomed the Association on behalf of the Department of Health, and Dr. C. H. HUGHES on behalf of the medical profession.

President BUCKE replied briefly to the address of welcome, after which a recess was taken.

The following were appointed as the Nominating Committee: C. P. Bancroft, T. J. W. Burgess and P. L. Murphy.

The address of the President which followed, had for its subject

SURGERY IN THE INSANE IN CANADA.

The Doctor apologized for introducing a subject that he had already treated two years before, but his experience had greatly widened within that time and his views expanded. He referred to the experience of Drs. Hall and Burgess and of Dr. Holmes, who had twenty-four recoveries from puerperal insanity by the relief of surgical disorders. Many of the best men in the profession are coming to the opinion that there is a closer relation between genital disturbances and insanity than has been heretofore suspected. Dr. Kellogg, alone, amongst systematic writers on insanity, recognizes this fact. The point which he wished to emphasize was that there exists in insane women a vast amount of unrecognized pelvic disease that ought to be relieved, and that this belief is becoming general in the medical profession, to our discredit. Some three years ago there was initiated in the London asylum, a work of this kind under disadvantages from lack of government aid, and to further the work he issued a circular to the physicians in his asylum district, asking if in their opinion, the work should be continued and receive government aid. Out of 300 addressed, he had 250 replies and of these, 205 thoroughly approved and answered in the affirmative. If such a wide-spread belief exists, we should not reject it as unfounded, without good reason. There may be differences in this respect in asylums, but this should be claimed only upon proof. It is the duty of asylum physicians to make sure of the facts and this is of the utmost importance. In the London asylum they had operated so far on 109 women for 309 diseased conditions, with a total of 195 operations. In no case did they trust to their own diagnosis but always had the co-operation of skilled specialists. The results were thirty-nine mental recoveries, thirty-five improved and thirty-five unimproved. In nearly all, the physical condition was markedly bettered; there were only three deaths. In thirty-two non-gynecologic cases the physical results of operation were always good but in none was there decided mental improvement. As regards the conditions, the relief of which appeared to be most often followed by mental betterment, the morbid states of the ovaries, the cervix and the endometrium, in the order named seemed of the most importance. The theory of internal secretion was suggested as partly accounting for the apparent ovarian influence, a perverted secretion from a diseased organ acting on the brain. The address concluded with the expression of the opinion that when the eyes of the profession are generally opened as to these facts, an important step would be made in the prophylaxis of mental diseases in women.

First Day—Afternoon Session.

The first paper was by Dr. C. H. HUGHES on "Insanity Defined on the Basis of Disease." He discussed the definition of insanity as indicating the clearness of the conception by different authorities at various periods, showing that there had been a gradual progress toward a clearer and truer notion of the state, while with the latest advances in nerve physiology and anatomy, we now stand on more certain ground and the relations of the cortical to the mental disorders are clearly established.

Dr. E. C. RUNGE read a paper on

THE SCIENTIFIC BORDER LINE BETWEEN SANITY AND INSANITY.

He stated that we are safe in assuming that certain cortical centers are essential for psychic functions and excluding teratologic conditions we may admit the disorder of these as what we call insanity. He objected to the exclusion of artificial or voluntary toxic mental derangements, and said the distinction between delirium of acute disease and insanity is purely arbitrary. Collections of data as to the influence of heredity in delirium are highly desirable in this connection. The paper was a criticism of the common practice of limiting insanity to more or less lasting afebrile mental disorders and excluding such conditions as delirium, acute intoxications etc. The distinction of psychoses into symptomatic and essential is also indefensible. His conclusions were:

1. Insanity is a symptom of any pathologic process involving the psychic centers of the brain, hence the border line between sanity and insanity lies at the point where brain disease parts way from brain health, by brain meaning the psychic centers.

2. The words insanity and insane should apply to any condition manifesting psychic deviations from normal psychic functions. If objectionable we should not hesitate to eradicate these terms and find others less obvious. The disappearance from our scientific vernacular of these words would be hailed with general satisfaction, as they carry with them an atmosphere of medieval superstition and prejudice.

3. Such views as propounded in the foregoing would assist in dispelling the worst misconceptions of insanity and th

insane. No opportunity for their systematic propagation should be missed. After insanity is once for all accepted as a symptom of actual disease of the brain, a disease like any other, amenable to treatment, we who are fighting for the rational and humanitarian methods, will meet with fewer obstacles in our effort to obtain what we need for the successful achievement of our aims.

In discussion of these papers, Dr. HURD said that the distinction between insanity and delirium is an artificial one, yet has a practical value. It has been shown that the same functional changes occur in the brain as in other organs. It is best, however, to go slowly before generalizing and have more facts. The future was hopeful. The papers were also discussed by Drs. Tomlinson, Russell, Eskridge and Dewey, and Drs. Runge and Hughes closed the discussion.

Dr. H. M. BANNISTER read a paper on "The Hospital Medical Library." After stating the need of this in the care of the insane, he gave details of what he considered essential in a hospital reference library and estimated roughly the expense of procuring and maintaining such.

Dr. BRUSH described the card subject catalogue in use in the Sheppard Asylum.

FIRST DAY—EVENING SESSION.

Dr. A. M. EDWARDS read a paper by Dr. D. R. BROWER, entitled "The Judicious Training of Neurotic Children an Aid to the Prophylaxis of Insanity." It said that for the last four years nervous diseases have stood at the head of the mortality lists in Chicago. He agreed with Regis in the estimate of heredity. By successful management of pregnancy, insanity of the offspring may sometimes be nipped in the bud. After birth, prophylaxis must include removal from unfavorable surroundings, country life best; education not forced; physical training, etc.; during childhood and adolescence, the same principles, abstinence from stimulants, sexual hygiene, etc.; later, when occupation is chosen it should be for these cases more of an automatic character and out of doors, not taxing the mind.

Dr. H. A. TOMLINSON read a paper on "The Etiology and Pathology of Diseases of the Lungs among the Insane." Its proper title, he stated, should be "the natural history of tuberculosis in the insane." He gave an account of experience with tuberculosis in the Rochester State Hospital (Minn.). At first comparatively free from the disease, they had had within a very few years fifty deaths from this cause, on thirty-four of which autopsies were made. The predominant type was a degenerate connective tissue type, occurring mainly in old chronic cases who were free from the disease on admission. The original defectives were the greatest sufferers and, next to these, the senile cases. The phthisis often exists long before tubercle bacilli can be found and another peculiarity is the absence of hemoptysis. The degenerative changes in fifty tuberculosis cases were practically the same as those in the insane. Besides this connective tissue type there was, in a few instances, an acute catarrhal form, which was not usually fatal.

Dr. H. M. HURD considered this subject the most important one likely to be brought before the session. He referred to Dr. J. W. Babcock's researches on infected buildings, and had requested him to investigate further and asked the co-operation of the Association. He was not quite clear as to what Dr. Tomlinson meant by degenerations. He thought the cocci in the abscesses not important and believed that in demented cases we often had a sort of aspiration pneumonia. Proper surroundings, diet, exercise, etc., are important, tuberculosis is the termination of neglected insanity.

Dr. LYMAN had found, in the Mendota herd, thirty-eight out of seventy cows tuberculous, but there had been no spread of phthisis and their deaths from this cause were very few. He believed infected buildings more dangerous than infected herds.

Dr. HILL of Maryland reported finding the walls of a general hospital thoroughly infected with tubercle bacilli. He believed that in formaldehyde we had an efficient agent with which to combat this infection and held that a rigid onslaught on the germs and constant and careful observation were the only means of combatting phthisis in asylums.

Dr. TOMLINSON, in closing the discussion, said he had not meant to cover in his paper all the points raised, but to point to some of the peculiarities of tuberculosis in the insane, the fibrosis, etc., and to ask for the reason; in another type there was a rapid epithelial degeneration and he wished to call attention to these two groups. Speaking of infection, he mentioned the difficulties in managing with this class of patients. The staphylococci were important as causing suppuration and the tubercular symptoms; with no overcrowding there would be little or no tuberculosis; with it tuberculosis would appear.

(To be continued.)

Association of American Physicians.

Thirteenth Annual Meeting, held in Washington, D. C., May 3, 4 and 5, 1898.

(Concluded from page 1230.)

Dr. WM. OSLER of Baltimore, then related two cases of

PARALYSIS OF THE LEFT RECURRENT LARYNGEAL NERVE IN MITRAL STENOSIS.

He thought these cases were interesting because they brought out some clinical points to which reference has not yet been made in the literature, so far as he knows. One case was that of a young woman with signs of cardiac failure, edema, and she had complete recurrent paralysis. There was nothing to indicate any pressure in the thorax; there was no tumor. He saw this case several times when the heart was quiet. He made the diagnosis of paralysis of the left recurrent laryngeal nerve, and left the question of the cause of the other trouble out. Later on the patient went abroad, and he gave her a letter to Dr. Nothnagel of Vienna, who also thought there was local pressure but could not find it. The patient lived until last summer from 1891 when he saw her, and had several recurrences. In 1892 he had another case, a young woman, the daughter of a physician. She had had scarlet fever. She died a year later. There was no autopsy in either of these cases. A few months ago in the *Wiener klinische Monatschrift* a case was described in which he believed the conditions were due to pressure of the distended left auricle on the recurrent laryngeal nerve. It was first thought to be aneurysm, but the autopsy showed the left auricle to be enlarged. Dr. Herrick told him he had had a case in which the nerve was compressed by the pushing aside of the left bronchus and other tissues and the left auricle pressed on the nerve and there was also adherent pericarditis. This was an interesting point and would help to clear up doubtful diagnosis in such cases where the nerve is compressed.

Dr. E. G. JANEWAY of New York then read a paper entitled,

TWO ATTACKS OF TEMPORARY HEMIPLEGIA OCCURRING IN THE SAME INDIVIDUAL AND THE RESULT OF THE USE OF PEROXID OF HYDROGEN IN A SACCULATED EMPYEMA (PLEURAL).

The patient was a man 41 years old, right-handed. He had pleurisy on the left side. A year and a half later it was necessary to take out one of his ribs on account of a sinus there. This was irrigated with peroxid of hydrogen. Some time after this while using this material he became unconscious. His right arm and leg and one of his feet were paralyzed but he recovered in twenty-five minutes, well in every other way but very much frightened. In three days after this, under similar circumstances, he had another attack. He lost power in his neck this time and his head drooped over. It lasted twenty-five minutes. The sinus closed. Physical signs were few and not easily found. His respiration was somewhat freer on that side. Large râles were found to follow coughing; in examining this case, he used the stethoscope, the phonendoscope and his ear, and found that when the lesion was deep in the lung, as in this case, the ear was better than any instrument. The second case he had was a man 21 years old, who had pleurisy on the left side. He had to be operated on, a rib removed, and a fistula remained. At the end of four months the sac was washed out with water and tincture of iodin, and some time after that, while washing out this cavity, he was unable to speak, but retained consciousness. It did not last very long. There were two other attacks. He also quoted a case from French literature. Lavage in several cases caused the same kind of paralysis, and in a very short time recovery followed. There was no aphasia. In fatal cases no embolism was found. There was collapse but the paralysis was only temporary. This is much like pleuritic epilepsy. In one case which he quoted there was aphasia. There may be temporary embolism from pressure of the sac on liberation of the oxygen. The air or gases in the sac may have caused this. He referred to the case of Dr. Lewin, which was called air embolism, in which the air entered the bladder thence into the kidney and then into the circulation. This case was rather unusual and hard to explain.

Dr. MELTZER then said that this might be similar to attacks after washing out the stomach. Pressure on the nerves produced these attacks and it is more felt in the beginning of the washing.

Dr. HENRY HUN of Albany, related a case to show that all cases are not due to air embolism. In this case there was caries of the spine, and peroxid of hydrogen was injected to wash out the sac, but did not escape. Paralysis lasted three hours. It may have gotten into the spinal canal.

Dr. JANEWAY said, in conclusion, that the interesting feature in his cases was that the pleurisy was on the left side and the paralysis on the right and that the cases were right-handed. When we infer that the lesion must have been on the other side, we must consider this a cerebral accident, and that perhaps something has been transmitted to the brain causing this. Almost all these cases are accidental and happen after the sac becomes small, the reflex theory hardly holds.

URIC ACID DIATHESIS AN IMPORTANT FACTOR IN PATHOLOGY

was then taken up by Dr. V. C. VAUGHAN of Ann Arbor, Mich. He spoke on the physiologic chemistry. He said that uric acid was eliminated when the spleen nuclein is broken up. It was formerly thought to be the product of imperfect oxidation. The formation of uric acid is the measure of nuclein metabolism. He asks what the chemic constituents of the nuclein cells are. No two cells of nuclein have definite composition. Some light has been thrown on this subject by the study of lymphocytes, and nucleinic acid is the most important constituent of nuclein and this contains much phosphorus. He quoted further from the work by Lilienfel, and went very thoroughly into the chemistry of nucleinic acid. Nuclein disintegration is necessary for the production of nucleinic acid. The nucleus is the important part of the cells and that which makes life potentially continuous. Some cells only exist for the formation of other cells. Thus, the nucleus having formed, the red blood corpuscles disappears. The leucocytes are the quantitative or varying source of uric acid in the body. There may be hypo-leucocytosis with an increase or an elimination of the alloxuria, but there is no increase of the uric acid. It is not claimed that the xanthin base is broken up and yields uric acid.

Dr. WM. H. DRAPER of New York, then spoke of the uric acid diathesis from a clinical standpoint. He reviewed the older ideas on the subject of uric acid diathesis, and spoke first of gout, and referred to Garrod's work. He said that uric acid may be in the blood when there is no gout, and there may be gout with no apparent presence of uric acid in the blood. Inflammatory rheumatism is now considered a specific disease, perhaps of bacterial origin. The joint structures are especially vulnerable. Men seem to have gout and women rheumatism. The disease is hereditary. Uric acid does not seem to be the cause of gout. Rheumatism is hereditary, but the tendency to it may be aroused by errors in food and diet. Gout is especially liable to affect persons who have a tendency to it; also diseases such as tonsillitis, pharyngitis, urticaria are also a complication and may be brought on after eating strawberries, apples, taking wine, beer, etc. Pruritus is another symptom often observed in cases of weakened constitution. Skin diseases often occur in diabetes. The salicylates probably have a paralyzing effect on the metabolism. Clinical observation is alone necessary to solve this problem, but the clinical observer of the present day must be better prepared than the practitioner of twenty-five years ago. The instruction in chemistry is better now in the schools than it used to be. If there were fewer drug stores and better laboratories for helping physicians in making diagnosis the advantages of treatment would be much better.

THIRD DAY.

Dr. A. H. SMITH of New York, in an article entitled

THE ANTITOXIN TREATMENT OF PNEUMONIA,

summarized all the work on this subject that so far has been published, and summed up the results obtained by different authors. The difficulties of securing an antitoxin for this disease were touched upon, and the most that could be said for the work at present was that it possibly offers some encouragement.

Dr. WILLIAM H. WELCH said that it was difficult to find even a toxin in pneumonia, and at present there is absolutely no scientific basis for a pneumonia antitoxin.

Dr. V. C. VAUGHAN said that he had done a good deal on this subject, and that up to the present time immunity experiments had been of limited value and offered no promise of therapeutic use.

Dr. C. G. STOCKTON referred to the relation of leukocytosis to the crisis of lobar pneumonia.

Dr. W. S. THAYER contributed his experience to show that there was a marked difference in the way in which leukocytosis behaved with regard to the pneumonia crisis. He believed that the fall in leukocytosis depended more upon the rapidity with which the lung consolidation cleared up than upon any change in temperature.

A CASE OF CHRONIC INFECTIVE ENDOCARDITIS WITH STREPTOCOCCI FOUND IN THE BLOOD BEFORE DEATH. TREATED WITH ANTISTREPTOCOCCUS SERUM AND EXPERIMENTS ON THE EFFECTS OF INJECTIONS OF SERUM AND OF ANTITOXINS UPON THE KIDNEYS.

Dr. W. H. THOMSON of New York, related the case of a patient, aged 36 years, who was affected for seven months with periodic attacks of an intermittent fever ushered in by pronounced rigors. On other occasions he would suffer from periodic neuralgias in the forehead and left hypochondrium without rise in temperature. No late cardiac lesion could be determined, because of a loud murmur due to congenital malformation of the right heart. There were no lesions which would point to infective endocarditis, but an examination of the blood from the median vein showed numerous streptococci. The antistreptococcus serum treatment was used without benefit. Death followed with symptoms of acute nephritis.

Dr. J. E. GRAHAM reported two cases of septicemia, in which the antistreptococcus serum treatment was followed by recovery.

Dr. W. S. THAYER referred to the similarity of the temperature curve in this affection to that of quotidian fever, but believed that the differentiation could always be made by the more exact periodicity of paroxysms in the malarial chart, by the larger count of red blood corpuscles in septicemia and by the action of quinin, which is an absolute specific for malaria.

STUDIES OF ANTITOXINS FOR TUBERCULOSIS.

Drs. E. L. TRUDEAU and E. R. BALDWIN of Saranac Lake, detailed their attempts to produce an antitoxic and curative serum for tuberculosis; also their tests on animals of the efficacy of serums already produced by others. The first part of the paper describes the authors' methods and attempts at producing an antitoxic serum in various animals, sheep, fowls, asses and rabbits, as well as the tests used to study experimentally any curative properties supposed to have been developed in such serums. The second part of the paper sets forth the tests on animals of the antitoxic power of the serums obtained by the authors, and of some other serums already on the market, or furnished to them for experiments. Their work covered more than four years, and observations were made on 4 sheep, 3 asses, 12 fowls, 18 rabbits and 450 guinea-pigs. Their results show that in one or two of the serums tested a slight degree of antitoxic power might be present, but in all others the tests were negative. They were unable to obtain any germicidal or curative influence from any of their serums. In the opinion of the writers, the outlook for an efficient tuberculosis antitoxin is by no means a hopeless one, in view of the recent contributions by Ehrlich, Wassermann and Behring to our knowledge of the mechanism of immunity and antitoxin production in the body.

Dr. H. C. ERNST of Boston, read a paper on

THE EFFECTS OF FREEZING ON DIPHTHERIA ANTITOXIN.

He found that after freezing diphtheria antitoxin for from two to three days it separated into several layers of different density, and on testing the immunizing power of these different layers it was determined that the upper layers had lost nearly all of their antitoxic properties, while the lower layers had greatly gained in power. The freezing seems to have the power of precipitating the antitoxic element.

In reply to a question by Dr. Vaughan, Dr. Ernst stated that it could not be determined with absolute accuracy whether there had been any loss of antitoxic property in the total amount of serum in the tube, but there seemed to be no such loss.

The following officers were elected to serve for the ensuing year: President, G. Baumgarten; vice-president, E. G. Janeway; recorder, I. Minis Hays; secretary, Henry Hun; treasurer, W. W. Johnston; councillor, J. C. Wilson; representative on executive committee of Congress of American Physicians and Surgeons, William Osler; alternative representative, C. F. Folsom.

Action of Atropin and Pilocarpin on Peristalsis.—Traversa being struck by the fact that injections of atropin caused constipation rather than increased emission of feces in horses, has investigated the action of this drug and also of pilocarpin. It was found that pilocarpin accelerated and strengthened peristalsis while atropin lessened and finally abolished the movements of the intestine. In each case the result is obtained through paralysis or stimulation of the ganglia and nerve endings in the intestine. From this it follows that belladonna is not likely to be of value in constipation from atony of the bowel muscle, but in lead colic where it is not improbable that the intestinal ganglia are irritated, belladonna may prove a useful remedy, and indeed in all cases when painful intestinal spasm, due to irritability of the intestinal ganglia, is present, the drug in question may be used with advantage.—*British Medical Jour.*

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SATURDAY, MAY 28, 1898.

THE ACCLIMATIZATION OF THE WHITE RACE IN THE TROPICS.

It has become almost a matter of universal belief that the tropical regions are unfit for the permanent abode of the white race; that Europeans or Americans transplanted to such regions sooner or later succumb to the effects of the climate, or if they survive they and their descendants deteriorate physically, mentally and morally. Only in exceptional localities where the climate is modified by elevation is it generally held that the white race can prosper and retain the qualities that have given it the prominence above all the other races of the earth. Good people taking the teleologic point of view have argued that as the greater portion of the continents lies north of the tropics, it was not intended that mankind should flourish in the central latitudes, forgetting for the time that all early Biblical history is laid in at least subtropical regions. There or in still more equatorial regions man undoubtedly originated and he is, in a manner, an exotic in the colder portions of the earth. Even the upholders of the most literal interpretation of the Mosaic record could hardly plant the garden of Eden in a wintry climate or one even subject to occasional rigors. Man in a state of nature is a tropical animal unfitted for the harsher temperature of our so-called temperate latitudes, and the Eskimo or other dweller of still more boreal regions draws out a hard and unnatural existence under conditions for which his acquired fitness is at best only a partial one. Life is really harder the farther we retreat from the tropical or warm temperate climates, though the stimulant and selective effect of the struggle for existence has undoubtedly improved the race and led to the contrivance of thousands of artificial luxuries to make life tolerable and enjoyable for those that can obtain them. Upon the very poor, however, the hardships of our climate bear down as severely as if they were not mitigated to those better off, and the aggregate of human misery is increased.

Now that the available temperate regions of the earth are nearly occupied and civilized nations are reaching out in all directions to appropriate every unoccupied territory, the question of the adaptability of the tropics as a dwelling for our race comes prominently to the front. If it can be shown that the warmer regions are not inhospitable and deadly to the whites, that they are even not unfitted for white labor, an important fact has been gained bearing on the welfare of our race.

There are some grounds at the present time for believing that this may be true, and that the popularly accepted views of the past and which still prevail are incorrect. The *British Medical Journal* of April 30 contains an interesting abstract of a recent discussion in the Royal Geographical Society bearing upon this point. Dr. SAMBON read before the Society a paper taking the ground that the possibility of the white race becoming acclimated in the tropics can not be questioned, now that our ideas of sanitation, and the cause of disease have so materially widened within the past few years. The so-called special tropical disorders, anemia, liver abscess and sunstroke, are all, he held, including even the last-named, microbic diseases, and not due to the heat or other essential element of the climate. All are forms of deterioration due to definite microbic infection and are, or undoubtedly soon will be, thoroughly met by properly adapted sanitary measures. Deterioration of the race, he claimed, is only a symptom of failure due to slowly progressive disease, and it is far less serious in the warm climates of the earth than in the crowded urban populations of our great centers of civilization. Infant mortality is less in the worst tropical regions than in some European countries; farm labor is carried on without detriment or distress by white men in India, South Africa, tropical Australia and Central America. Any racial immunity that could be said to exist anywhere was really an acquired one, and there is no reason to suppose that, with our present and rapidly increasing knowledge of disease and its causes, the individual should not also learn how to be immune.

There is no doubt that climate has in time an effect upon individuals and upon races, but it is hard to prove that it is necessarily a deleterious one, as has been so commonly assumed in the case of the white race in torrid regions. The supposed facts upon which this notion is based are coming to be found not essentially true, and it is not improbable that all the so-called tropical diseases will be found in time to be

avoidable ones, even under the conditions of active life and labor in the warmer parts of the world. The fact that in the discussion of Dr. SAMBON'S paper, Dr. MANSON, who is not to be considered inexperienced with tropical disorders, announced that he had completely changed the views which he had formerly held on this point and now believes that, accepting the germ theory of disease, there is no reason to consider the tropics as essentially unhealthy for Europeans, has a certain value as giving the weight of his authority on this side of the question. Yellow fever we have long known to be an avoidable disease with proper sanitation, and the experience of many parts of our own country has shown us that the ordinary forms of malaria are eradicable by cultivation and settlement. On the other hand a retrograding civilization and human neglect have made pestilent morasses of formerly populous and healthy regions. While man is to some extent subject to disease by climate, in his civilized condition he modifies nature to meet his wants and it is easy to believe that with his increasing knowledge of sanitation he may overcome the natural disadvantages that work against him in tropical lands. There are too few of these that can be said to be at present altogether occupied by an unmixed white race, the experiment is therefore yet to be tried, but there is little doubt of the result.

One great trouble with the acclimatization of white men in hot countries has been their personal habits and lack of attention to ordinary hygienic precautions. The use of alcohol and other forms of dissipation have also contributed to their failure in many cases where the climate has been credited with the result. No one can say that the original missionary stock has deteriorated in the Hawaian Islands or that its descendants are not at the present time creditable representatives of the Anglo-Saxon race. India, where it has been said the English race does not propagate itself, has nevertheless given us some of the most brilliant minds of our century; THACKERAY and RUDYARD KIPLING being familiar examples, and others might be mentioned. That man does not necessarily degenerate intellectually is also proven by the Hindoo stock; that is certainly acute enough, though deficient in other respects. How much these defects are due to the climate as opposed to centuries of despotism, superstition and other deteriorating influences can not be readily estimated—there are too many elements in the problem for its offhand solution.

It is said that life in hot countries saps the energies and thus produces degeneracy. That this is a fact to some extent may be accounted for by the ease of obtaining a livelihood and it is not necessary to call in the influence of climate in other ways. Sir CHARLES DILKE considered the banana the curse of the tropics; a man who does not have to work will not always be energetic, and if a square rod or two of land supports him there is many a one who will ask for no more. But that this would be the effect on an energetic white race, accustomed to civilization and its demands is another question, and one that is disputed by the facts. The problem of healthfulness once solved, the rest will answer for itself and the opening of the richest regions of the earth to European settlement is probably only a question of time and of sanitation.

TWISTING OF THE UTERUS BY TUMORS.

Tumors which grow from the pelvis into the abdominal cavity and thus get more room, such as tumors of the ovary provided with a long pedicle, not infrequently present torsion of the pedicle that give rise to very acute symptoms. Pedunculated myomata of the uterus may also present torsions of the pedicle, followed by necrosis of the tumor.

B. S. SCHULTZE[1] calls attention to the fact that these torsions of the pedicle of tumors connected with the uterus or its appendages are not always sharply enough distinguished from twists of the axis of the uterus. The term torsion of the uterus was first applied by KLOB to describe a changed position in the whole uterus, which is brought about by parametritic cicatrices, which dislocate the entire uterus as well as the cervix. Thus gynecologists speak of dextro-torsion and sinistro-torsion of the uterus.

The twisting of the uterus around its long axis, which may be due to the presence of tumors in the uterus or its immediate vicinity, gives rise to entirely different conditions, because in the last case the cervix remains stationary. The twisting occurs at the junction of the body with the cervix.

SCHULTZE found twenty-six cases of this twisting of the axis of the uterus reported in the literature. To these SCHULTZE adds six new cases of his own. Of the total of thirty-two cases, fifteen concerned myoma of the uterus, seventeen tumors of the ovary. In the cases of myoma of the uterus the twisting in one case was less than 180 degrees, in eight cases about 180 degrees, and in two cases the twisting amounted to four times 180 degrees. In the ovarian cases the twisting generally amounted to about 180 degrees.

The puerperal state favors twisting of the uterus in cases complicated by ovarian tumors. In these cases it seems to concern a continuation of the twisting of the pedicle of the tumor into the body of the uterus, as the tumor rises into the abdominal cavity, in which there is abundant room after childbirth; the room is sufficiently ample to allow the tumor to twist its pedicle. This is especially liable to happen when, as is not infrequently the case, one side of the ovarian cyst is heavier than the other, and when the cyst pedicle is rather long. The movements of the patient may assist in twisting the pedicle, especially

[1] Ueber Axendrehung des Uterus durch Geschwülste, Arch. Geburtshülfe und Gynaekologie, XXXVIII, 1, 1898.

when she takes pains to voluntarily so place the tumor that as little discomfort as possible is produced. Twisting of the uterus is favored in the puerperal state also, on account of the soft consistency of the uterine tissues. SWITALSKI [2] describes a case illustrating these conditions, resulting in acute circulatory and nutritive disturbances in the tumor and in the corresponding part of the uterus. In other cases of this kind the last pregnancy occurred too long previously to have any etiologic connection with the twisting of the axis of the uterus. SCHULTZE also describes a case in which twisting of a myomatous uterus after pregnancy occurred. In many cases the size of the tumor is such that the abdominal walls become flabby and atrophic. In some cases ascites may coexist, and under such conditions a spontaneous axis-twisting of the uterus may occur.

The symptoms of axis-twisting of the uterus are naturally difficult to separate from the symptoms of the tumor. As is well known, twisting of the pedicle of an ovarian tumor may give rise to passive congestion, hemorrhage and necrosis of the tumor, in consequence of which peritonitis and other disturbances may occur. Ovarian tumors with short, untwisted pedicles, which are adherent in the pelvis, may cause serious symptoms of pressure upon the adjacent organs, and when there is simultaneous twisting of the axis of the uterus, it may be difficult to decide whether the symptoms are due to compression of the tumor or depend upon twisting of the uterus. Operation would decide such questions and remove the factors that give rise to symptoms.

It seems that the disturbances of the urinary bladder are not infrequently attributable largely to the twisting of the uterus. These symptoms may be both subjective as well as objective; there may, for instance, be more or less hematuria. Any participation of the urinary bladder in the twisting has not been observed, although GOFFE [3] describes a twisting of the bladder toward the right and upward.

When a tumor springing from the pelvis without producing any particular symptoms during a rather long period of growth suddenly gives rise to acute symptoms then suspicion that a twisting of the pedicle has occurred arises. The severe acute or subacute symptoms which may be caused by the twisting of the pedicle of an ovarian tumor or of a pedunculated uterine myoma, or of the twisting of the axis of the uterus, such as ascites, peritonitis, septic infection, resemble each other so much in the various cases that, without previous accurate knowledge of the tumor, it may be impossible to make a correct diagnosis of the fundamental condition, because the differential signs between uterine myoma and ovarian cyst may be obliterated on account of disintegration in the interior of the myoma or on account of acute peritonitis. The less acute the symptoms the more important, from a diagnostic standpoint, become the vesical disturbances, especially when the examination can exclude cystitis and compression of the bladder by tumor. In the case already referred to reported by SWITALSKI, a positive diagnosis of twisting of the axis of the uterus was made because the left border of the uterus was found by examination to point directly backward, and in addition there were present the acute symptoms of twisting of the pedicle of an ovarian tumor. Any spiral twisting of the cervix has not yet been made out in such case during vaginal examination, even in narcosis. Perhaps future diagnostic value may be gotten from palpation of the ovaries. In one of SCHULTZE'S cases the finger in the rectum could demonstrate very plainly the fundus of the retroflexed uterus, but no ovary could be felt, and there was no pedicle to be demonstrated going from the cornu of the uterus to the tumor. At the operation the tumor was found to be a myoma of the uterus with a short pedicle which had twisted the uterus 180 degrees, and had brought the ovaries so far out of reach that they could be palpated from the rectum. When the tumor was removed the uterus and the ovaries assumed their normal position. The circumstance, therefore, that one or both ovaries can not be found in the space where they, according to the position of the uterus, should be expected to lie, may point to twisting of the axis of the uterus, especially in cases whose symptoms point in that direction. The palpation of the tubes and of the ovarian ligaments to the ovaries will help in further clearing up the conditions, but there will be many cases in which the presence of the tumor may interfere with the results ordinarily obtained by palpation.

[2] Schultze, Loc. cit.
[3] American Journal of Obstetrics, 1895.

SPLENIC ENLARGEMENTS.

In latter day practice making a physical examination of a patient is not looked upon by a careful physician as complete, especially in hospital work, without an attempt to palpate the spleen; and this procedure is becoming more and more common in view of the light often thrown upon a case by the detection of some abnormality in the splenic region. Such abnormality must of necessity be in the nature of an enlargement, for a spleen of normal size is not palpable below the free margin of the ribs. In the discussion, then, of diseases of this organ, we must deal first with enlargements; then we must decide whether these are enlargements of the spleen or of more or less contiguous structures; and, if of the spleen, are they tumors (in the strict technical sense of the term), or is the enlargement due to increase in the splenic pulp. Before a satisfactory conclusion can be reached, a strict inquiry into pathologic, previous and present histories must be made and there should be a thorough examination of the blood and urine.

The normal organ is generally regarded as situated between the ninth and eleventh ribs, just posterior to the mid-axillary line. If there is universal enlargement of any degree, the dulness would be anterior to this line and the lower limit of the spleen would be below the costal border. It may then be taken as a fairly safe rule that any spleen is enlarged that can be felt below the free margin of the ribs. Given an enlargement in the splenic area, how are we to tell that it is the spleen? It must not be forgotten that an enlarged spleen, greatly enlarged, may reach as far forward as the median line and downward below the level of the umbilicus. The spleen moves with the movements of the diaphragm. If the examining hand be placed transversely across the abdomen, pressing the latter just below the enlargement, and the patient be asked to take a long breath, the edge of the mass, if it be the spleen, can be felt to "ride over" the hand with a decided shock. The examination can be greatly facilitated by having the patient flex his left leg, the physician manipulate from the patient's right, and with his left hand in the lower axillary region make strong pressure downward toward his right hand, which should be the one placed transversely across the abdomen. Another point of some value is the "flatness," if one may so express it, of the ordinary splenic enlargement. Usually a sharp edge is felt. Lastly, the normal splenic notch is as a rule very much in evidence in the pathologic condition.

The organ which first comes to mind, an enlargement of which might be confused with a similar condition as regards the spleen, is the left kidney. A renal enlargement of such a size as to occupy the position of the spleen (in addition to its own and the intervening space), would in almost every case be due to malignant disease (also hydronephrosis). A diagnosis would then rest upon the rapid growth, irregularity of the tumor, cachexia, age (sarcoma of the kidney usually occurs in young children), secondary deposits, examination of the urine and the absence of the special physical signs mentioned under splenic enlargement. We would next have to consider tumors of the pancreas, for new growths are the only lesions that would cause marked enlargement of this organ. Of the new growths carcinoma is the only one deserving of serious consideration: here the central situation, rapid growth, nodular character, and other signs of malignancy, the glycosuria and fatty stools not infrequently present, would be of material aid in the diagnosis. Tumors of the colon would have to be situated at the turn and be of great size to cause a suspicion that we were dealing with a splenic tumor. Such a tumor as it increased in size would be likely to bring about enteroptosis, the amount of intestinal prolapse being commensurate with the weight of the new mass, unless tight adhesions should have been formed to the contiguous structures, when there would be no displacement whatever. It would likely move with the diaphragmatic movements, unless powerful adhesions were formed. One group of symptoms of importance would be, pronounced intestinal disorder, pain, tenesmus, hemorrhage, diarrhea alternating with constipation or even with intestinal obstruction. These tumors are also usually of a malignant character. Solid tumors developing from the bony framework, usually chondromata, would not cause much difficulty in diagnosis, nor would tumors of the abdominal walls. Other enlargements, such as floating kidney, hydronephrosis, tumors of the female organs of generation, localized peritoneal accumulations, enlarged retroperitoneal glands, may offer interesting puzzles for diagnosis, but the instances already mentioned are the most common.

Having satisfied ourselves that the enlargement is the spleen, we have next to discover the underlying cause. The size and consistency is of considerable value in determining this, especially the former. A spleen but slightly enlarged, one just palpable below the border of the ribs, is a most common condition and occurs with probably greatest frequency in the acute infectious diseases, especially typhoid, pneumonia, acute tuberculosis; in such cases the consistency is soft and the normal splenic shape well retained.

The disease of most interest to us as clinicians, as regards the splenic tumor present in the affection, the so-called "ague cake," is undoubtedly malaria. Why it is that one patient will have a spleen barely palpable while another of apparently equal physical condition, and with a coincident infection, will have an enlargement so great as to be dignified by the term "ague cake," still remains one of the malarial mysteries. Certain it is that this "ague cake," once formed never entirely disappears, though some lessening in size may occur from the cicatricial contraction of the newly formed connective tissue. Thus, years after a malarial infection, we may discover a splenic tumor the patient may have totally forgotten his malaria attack. The present diagnosis would then be a matter of some difficulty, for as can readily be seen, a history of chills and fever would be of paramount importance. The blood may have been free of any malarial stigmata for years. Of some value in a case of this sort is an enlargement of the liver, though never to a great size; even here, however, that same cicatricial contraction of newly formed connective tissue may have caused the liver to assume the proportions of a cirrhosis; indeed the existence of the hepatic malarial cirrhosis is admitted by most authorities on the subject. Gastric and intestinal disturbances are common in this condition, while a point of great importance if present, which it rarely is, is the brownish pigmentation of the skin, not more pronounced, as it is in Addison's disease, in any particular locations. When a spleen enlarges in an ordinary attack of quartan or tertian malaria, the tumor becomes readily manifest in less than a week, and the paroxysms of chill, fever and sweat, occurring at regular intervals

together with the presence of the plasmodium in the blood, will quickly determine the causal factor in the enlargement.

The splenic tumor of leukemia offers even less difficulty; it is also often combined with enlargement of the liver. The splenic shape is retained, as is the normal notch. As regards size, in the spleno-myelogenous variety of the disease, it frequently extends as far forward as the middle line of the body, and downward below the level of the umbilicus. The surface is extremely hard and as a rule smooth. It might also be said that its surface possesses a pancake flatness. In the lymphatic form of leukemia the enlargement never becomes very great. The general symptoms, weakness, malaise, dyspnea, edema, pallor, hemorrhages (retina, nose, rectum, kidney) combined with the hematologic examination, anemia, leucocytosis varying from one to five hundred thousand, myelocytes (as high as 30 per cent. in the spleno-myelogenous form), lymphocytosis (as high as 90 per cent. in the lymphatic variety) would readily determine the diagnosis. Hodgkin's disease would not as a rule be difficult to distinguish, from its clinical resemblance to leukemia, but negative character of the blood. In this disease, too, while the spleen is never excessively enlarged, in fully one-half the cases the enlargement is nodular, due to lymphoid growth, so that the disease might more properly be reckoned under tumors of the spleen. Lymphoid growths in other organs, and especially the common glandular tumors, would also be of great aid here.

Amyloid disease affecting the spleen would result in a hard, firm, smooth, greatly enlarged organ, also a similar condition of the liver; the history would be that of long-continued suppuration, not infrequently an old tuberculosis which has become infected with pus germs, or syphilis. The presence of casts in the urine, answering to the amyloid reaction, would be a strong factor in the diagnosis. In children the spleen becomes more readily palpable from slight pathologic causes than in adults; thus it becomes enlarged in all the anemias, in congenital syphilis, and especially in rickets. The shape is retained. Tumors of the spleen are infrequent and with the exception of the lymphoid growths of Hodgkin's disease, need hardly be taken into consideration. The most important are gumma, tuberculosis, carcinoma, sarcoma, hydatids. After all is done and said, when one thinks of the great variety of splenic enlargements, and the greater number of other conditions for which it might be mistaken, he may well look upon the etiologic factor of tumor in this region as one of the most difficult problems in clinical medicine.

THE JOURNAL AND ITS FRIENDS.

When *Printer's Ink* was victimized by some forger who used the good name of the JOURNAL on a blank, how the Pharisees shouted to see the alleged slip from the plain, straight orders on which advertisements are admitted! The ghoulish "I told you so," and the mother Caudle-like lectures which have been read to the JOURNAL would be amusing if they were not plain and manifest examples of ill will, spite and jealousy. One medical journalist alone had the good sense to write a letter here asking the JOURNAL if the statement published in *Printer's Ink* was correct. That gentleman was promptly informed that the circular had not been received in this office, and that, long before, the article in question was refused admission to the advertising columns of the JOURNAL. Had the other journals been true friends, they too, would have written to this office for information, before falling upon us tooth and nail. Let us see now how promptly they can disclaim the wrong they have done us. As we have printed a fac-simile of the document on which the patent medicine people put us in their list, perhaps they can point out the person who filled up the blank by recognizing the hand-writing.

THE JOURNAL SPECIAL TRAIN TO DENVER.

The JOURNAL SPECIAL TRAIN will leave the Union Depot, Adams and Canal Streets, Chicago, Saturday, June 4, at 11 P.M., via the Chicago, Burlington & Quincy Railroad, arriving in Denver Monday morning 7 A.M., in time for the meeting of the American Academy of Medicine, the American Medical Editors' Association and other medical organizations holding sessions on Monday.

Pay no attention to statements other than those announced in the JOURNAL. The reason for arranging for the stop-over on the return trip was owing to the fact that the Exposition at Omaha will be in much better condition then than now. Passengers from the East taking the JOURNAL SPECIAL at Chicago may have their stop-over arranged without extra cost.

The "Special" will run through. Tickets will be good for thirty days. The rate will be one fare and $2 for the round trip, the most favorable rate yet granted the ASSOCIATION.

There is but one JOURNAL SPECIAL train, and that is managed solely in the ASSOCIATION interests. Personal and not ASSOCIATION interests have promoted most of the other "specials." Stand by the regular JOURNAL train, Chicago to Denver via the *Burlington* route.

CORRESPONDENCE.

Testimonial Corrected.

LOS ANGELES, CAL., May 18, 1898.

To the Editor:—In a forty page booklet entitled, "The Present Status of Diphtheria Antitoxin Serum," issued in large editions by H. K. Mulford & Co., of Philadelphia and Chicago, on page 31 appears a testimonial in which is a wilful change of name of the firm mentioned, which alleged testimonial reads as follows:

"California State Board of Health. The antitoxin used in

California is made in this country, and after considerable investigation and trials of the German and French preparations, we are giving our preference to the American production. . . The antitoxin now used by the Board is that of H. K. Mulford Company,[1] Philadelphia, Pa. The American product is put up in better form for transportation and handling, which is of itself an important item. The concentrated 'Extra Potent' (500 units to each c.c.) is the best.—J. H. Davisson, Los Angeles, Secretary California State Board of Health, in Report on Diphtheria Antitoxin."

Permit me to say that I was never secretary of the California State Board of Health, and in the only report which I made upon antitoxin while a member of the said Board, I did not have occasion to mention the product of the above named firm. I enclose said report (which was published in Transactions of California State Board, and is a part of the official records of the State), which tells entirely a different story. As a member of the AMERICAN MEDICAL ASSOCIATION since 1877, I dislike to be placed in a false light before my confrères to satisfy mercenary ends of any over-zealous firm. I am very truly,

J. H. DAVISSON, M.D.,
Ex-Pres. California State Board of Health.

ASSOCIATION NEWS.

Rates for the Denver Meeting.—The Committee on Transportation announce that the final decision of the New England roads and those of the Trunk Lines territory in the matter of rates for the Denver meeting, is for one full fare plus one-third full fare returning on the certificate plan. Tickets will be sold three days before the meeting, Sunday excepted, and the certificates must be presented at Denver properly filled out, not later than three days after the close of the meeting, when the return ticket will be sold for one-third the cost of the regular fare. Tickets sold in the New England and Trunk Lines territory must be used for continuous passage, both going and returning over the same lines, no diverse route returning having been granted. The Central Traffic has granted one fare for the round trip plus $4 for diverse route privilege. The Western Association has granted a one fare rate plus $2 for diverse route privilege. Under this rating the cost of an individual trip will be, from New York to Denver and return, transportation, $64.75, Pullman $22.00, meals $15.00 (estimated), making the total round trip $101.75. From Philadelphia to Denver and return, transportation, $62.45; Washington and Baltimore, $60.45; Harrisburg, $60.10. Pullman fare, round trip from Washington and Baltimore, $22.00; Harrisburg, $20.00. The Pennsylvania Railroad has offered to members living in the Trunk Line territory to run a special train for fifty or more persons, furnishing a combined baggage and smoking car, dining-car, sleeping-cars and observation-car, to be run through from Jersey City to Denver and return, provide transportation for the round trip, Pullman berth for each passenger, all meals in the dining car, both going and returning, the trip to be made without stop-over en route for the following: Round trip from New York, $95; Philadelphia, $93; Washington, $91; Baltimore, $91; Harrisburg, $91, with proportionate rates for other stations. The route of the special train going and returning is to be via Pittsburg, St. Louis and the Missouri Pacific Railroad to Denver. The special train returning will, if desired, run over the Union Pacific Railroad from Denver to Omaha, arriving at about 7 A.M., and leaving at 9 P.M., thereby giving fourteen hours at Omaha. For this privilege an additional charge of $4 will be made. The special train must leave New York June 4 at 2 P.M., arriving at Denver June 7, 6 A.M. Those desiring to travel by the special train should communicate with their local Pennsylvania agent, or with George W. Boyd, General Passenger Agent, Philadelphia, who will arrange for tickets and Pullman space. The special train will not be run unless a total of at least fifty passengers are secured from the Trunk Lines territory and the New England States.

H. L. E. JOHNSON,
Chairman Committee Transportation.

[1] The product used is that of anothe firm as shown by the report.—ED.

Greater New York Special to Denver.—At the last meeting of the New York County Medical Association, a committee on transportation was appointed to arrange for a Greater New York special train to the Denver meeting of the AMERICAN MEDICAL ASSOCIATION. All physicians and their friends of New York and vicinity going to the meeting are specially invited to join the regular ASSOCIATION special train party. They will find it to their advantage both socially and financially. Those who have attended the National meetings at a great distance can attest the value of going in good company and in large numbers. They point out as of incalculable value the preliminary introductions, the personal contact, the social intercourse, the interchange of sentiment, opinion and experience, and finally, the opportune appreciation of the personality of the interested. Thus prepared, en route, one enters more fully into a keen appreciation of the entire work and enjoyment during the period of the meeting. With these advantages before him, who would go alone? The most satisfactory arrangements are being made and special information will be forwarded to all who communicate with the chairman or any member of the committee.

J. J. E. MAHER, Chairman, 34 West Twenty-fifth St.; A. Ernest Gallant, 60 West Fifty-sixth St.; F. H. Wiggin, 55 West Thirty-sixth St.; Louis Fischer, 187 Second Ave.; W. R. L. Dalton, 477 West One Hundred and Forty-fifth St.

Announcement.—The following arrangements have been made for the Denver meeting of the AMERICAN MEDICAL ASSOCIATION:

Section Dinners will be given June 7, at 7:30 P.M., and social entertainments will be given on other evenings during the week.

Ladies' headquarters will be at Unity Church, where they will be received by the wives of physicians of Denver. Arrangements have been effected for their entertainment during their visit, and committees will escort the visiting ladies to the various points of interest in Denver.

On Friday June 10, a complimentary excursion to Idaho Springs and around the loop will be given by the Colorado State Medical Society. At Idaho Springs, the ASSOCIATION will be entertained by the citizens.

On Saturday, a complimentary trip will be made to Colorado Springs under the auspices of the Committee of Arrangements. At Colorado Springs the ASSOCIATION will be entertained by the local physicians and citizens. Visits will be made to all points of interest in the vicinity. Arrangements will be made for trips to Pike's Peak and the celebrated mining camp of Cripple Creek at low rates of fare.

At a date to be determined, special trains for Glenwood Springs will leave Colorado Springs via The Denver and Rio Grande Railroad and the Colorado Midland Railroad. Tickets $5.00, good going via one railroad and returning the other, and for ten days from date of issue.

The trip to Glenwood is one of the most attractive in Colorado, giving excursionists a view of some of the finest scenery in the Rocky Mountains, including Pike's Peak, Ute Pass, the Valley of the Arkansas, Hagerman Pass, Canons of the Roaring Fork and Frying Pan, Canons of the Grand and Eagle Rivers, Tennessee Pass and the Royal Gorge of the Arkansas and passing through the cities of Pueblo, Leadville, Canon City and Florence.

Special Hotel rates will be given by the Hotel Colorado and other Hotels of Glenwood Springs. The springs, baths and swimming pool will be free to the ASSOCIATION.

Special cars will be hauled on the Colorado Springs train and the Glenwood Springs Special, only when handed to the railroads with their full capacity.

Medical Librarians.—The following have been appointed a local committee on Medical libraries in connection with the meeting of the AMERICAN MEDICAL ASSOCIATION in Denver: Henry Sewall, W. P. Munn and C. D. Spivak. It is believed that this occasion will offer favorable opportunity for the perfection of the organization of the Association of Medical Libraries, which has already been projected. A conference of those interested in Medical Libraries will be held at the Brown Palace Hotel, Denver, at 4 P.M., Monday, June 6.

The Rush Monument Fund.—The representative members of the State and Territorial medical societies, acting as members of the Rush Monument Committee, in their several localities, are reminded that at the approaching meeting at Denver, Colo., reports will be expected from each of them as to the amounts contributed by their respective societies, in fulfilment of the pledges made at the annual meeting in Philadelphia a year ago. At this date, the secretary-treasurer, *pro tempore*, has not had transmitted to him one-sixth of one per centum of the sums so enthusiastically promised.

ALBERT L. GIHON, M. D., Chairman R. M. C.
GEORGE H. ROHÉ, M. D., Secretary-treasurer R. M. C.

Executive or Business Committee.—The first meeting of the Executive Committee of the AMERICAN MEDICAL ASSOCIATION will be held in the club room of the Brown Palace Hotel, Denver, Colo., Monday afternoon, June 6, at 5 o'clock. Subsequent meetings of the committee will be held at the same time and place each afternoon during the meeting of the ASSOCIATION, unless otherwise ordered by the committee. It is essential for the successful conduct of the ASSOCIATION that all the members attend the meetings of the committee. L. DUNCAN BULKLEY, M.D., Secretary.

Railroad Rates.—The Western Passenger Association, Chicago, formally announces the following rates for the Denver Meeting of THE AMERICAN MEDICAL ASSOCIATION, June 7–10, 1898:

Rate.—One regular first-class normal tariff (not temporarily) fare, plus $2.00, for the round trip from Association territory to Denver, Colorado Springs and Pueblo, Colo., and return.

Dates of Sale.—Tickets to be sold from Eastern Committee territory, June 2, 4 and 5, and from Trans-Missouri territory, June 5 and 6, 1898.

Limits.—On going trip tickets to be good for continuous passage commencing on date of sale up to first Colorado common point en route; stop-over to be allowed on going trip at intermediate Colorado common points, but to arrive at destination not later than June 7, 1898. The return to be continuous passage beginning on date of execution by joint agent, with the provision that the return passage shall not commence earlier than June 12, nor later than July 6, 1898. Tickets may be executed for return at destination or either of the other Colorado common points en route. Purchaser to commence its continuous return passage return journey from point of execution.

Diverse Routes.—For this occasion tickets may read west of the Missouri River, going one route and returning another via any regularly authorized route via which regular short line one way rates are properly applicable.

Section Dinners.—The following Section Dinners will be given in the Denver meeting of the AMERICAN MEDICAL ASSOCIATION Tuesday, June 7, at 7:30 P.M.:

Practice of Medicine, Metropole Hotel.
Surgery and Anatomy; Obstetrics and Diseases of Women; Ophthalmology, Brown Palace Hotel.
Laryngology, L'Imperiale Hotel.
Materia Medica, Pharmacy and Therapeutics; Cutaneous Medicine and Surgery, Windsor Hotel.
Diseases of Children, The Albany Hotel.
Neurology and Medical Jurisprudence, University Club.
Stomatology, St. James Hotel.

In order that satisfactory arrangements may be made for dinners, it is essential that all members who expect to be present notify the Chairman of Committee on Section Dinners as soon as possible and not later than June 4.

E. C. RIVERS, Chairman,
16th and Stout Sts, Denver Colo.

Hotels.—The following is a list of the principal hotels of Denver with the rates agreed upon for the meeting:

The Brown Palace Hotel, 17th Street and Broadway. Take 17th Street (red) car to Hotel. European plan, $1.50 per day and upward.

The Windsor Hotel, 18th and Larimer Streets. Take 17th Street car to Larimer Street. American plan, $2.00 per day; room with bath, $2.50 per day.

The Albany, 17th and Stout Streets. Take 17th Street (red) car to Hotel. American plan, $2.00 to $3.50 per day.

The Markham Hotel, 17th and Lawrence Streets. Take 17th Street car to Hotel. European plan, $1.00 per day and upward.

All reservations at the Albany and Markham must be for the full term of the Meeting, and be paid for whether occupied or not unless canceled ten days in advance. They reserve the right to place persons occupying a room alone in a single room.

The New St. James Hotel, Curtis near 16th Street. Take 17th Street (blue) car to Hotel. American plan, $2.00 to $3.50 per day.

L'Imperiale, 14th Street and Court Place. Take Colfax Avenue car to Court Place. American plan, $2.00 to $3.00 per day.

Metropole Hotel, Broadway near 17th Street. Take 17th Street (red) car to Broadway. European plan, $1.00 to $2.00 per day. $1.00 rooms, $1.50 if occupied by two persons. No reservations made.

The Oxford Hotel, 17th and Wazee Streets. Two blocks above depot. European plan, $1.00 to $3.00 per day. An extra charge for two persons in one room.

The American House, 16th and Blake Streets. Take 16th Street car to Blake Street. American plan, $2.00 per day.

The above hotels make no extra charge for reservations or for persons occupying a room alone except as stated.

The Hotel Broadway, Cheyenne Street and Broadway. Take Colfax Avenue car to Cheyenne Street. American plan, $1.25 to $1.50 per day.

The Vallejo, 1420 Logan Avenue. Take Colfax Avenue car to Logan Avenue. American plan, $2.00 per day and upward.

The Devonshire, 14th and Logan Avenues. Take Colfax Avenue car to Logan Avenue. American plan, $1.50 per day and upward.

The Albert, 17th and Welton Streets. Take 17th Street (red) car to hotel. European plan, $1.00 to $1.50 per day.

The Aldine, 1013 Seventeenth Avenue. Take 17th Street (red) car to hotel. American plan, $1.25 per day.

The Richelieu, 1727 Tremont Street. Take 17th Street (red) car to Tremont Street. European plan, $0.50 to $1.00 per day.

The Earl, 1430 Tremont Street. Take Colfax Avenue car to Tremont Street. American plan, $1.50 to $2.00 per day.

Glenarm Hotel, Glenarm and 15th Streets. Take Colfax Avenue car to hotel. European plan, $1.00 per day and upward.

The Bonaventure, 18th and Glenarm Streets. Take 17th Street (red) car to Glenarm Street. European plan, $0.50 to $1.50 per day.

The Drexel, 17th and Glenarm Streets. Take 17th Street (red) car to hotel. European plan, .75 to $1.50 per day.

These hotels make small extra charges for two persons occupying same room. No charge for reservation.

Applications for rooms should be made to the hotels direct. For special information apply to ROBERT LEVY, M.D., Chairman Sub-Committee on Hotels, California Building, Denver, Colo.

J. W. GRAHAM, M.D., Chairman.
W. A. JAYNE, M.D., Secretary.

SOCIETY NEWS.

Æsculapian Society.—The program of the semi-annual meeting of the Æsculapian Society of the Wabash Valley, to be held in Robinson, Ill., May 26, has been received.

Illinois State Medical Society.—The sessions closed May 19 and Cairo was chosen as next place of meeting. The officers chosen are as follows: President, T. J. Pitner, Jacksonville; first

vice-president, H. N. Moyer, Chicago; second vice-president, J. T. McAnally, Carbondale; treasurer, George N. Kreider, Springfield.

Iowa State Medical Society.—Cedar Rapids was chosen as the place of the next meeting, 1899, and the following officers were elected at the recent meeting of the society: President, H. B. Young of Burlington; vice-presidents, J. T. Priestley of Des Moines, D. C. Brockman of Ottumwa; treasurer, G. R. Skinner of Cedar Rapids; secretary, J. W. Cokenower of Des Moines; new trustees, Calvin Snook of Fairfield, W. D. Middleton of Davenport.

Arkansas State Medical Association.—At the recent meeting of this association, held at Eureka Springs, the following officers were elected: President, J. W. Hayes, Eureka Springs; secretary, Frank Vinsonhaler, Little Rock; treasurer, Dr. Thompson, Pine Bluff; chairman section on practice of medicine, Dr. Bargile, Bentonville; section on surgery, Dr. Shinault, Helena; section on obstetrics, J. B. Bolton, Eureka Springs. The next meeting will be held at Little Rock.

Indiana State Medical Society.—The forty-ninth annual meeting of this society was held at Lafayette, Ind., May 4 to 6. The first session was occupied with a report of the Indiana State Pediatric Society, which is an auxiliary to the general society, on "What Are the Effects of Disease Upon the Developing Mind of Children?" It was discussed as follows: "Diseases of the Nervous System," P. G. Barcus of Crawfordsville; "Diseases of the Respiratory and Circulatory Organs," Don Kennedy of Homer; "Diseases of the Digestive Organs," Louis Burckhardt of Indianapolis; "Diseases of the Excretory Organs," A. W. Brayton of Indianapolis; "Infectious and Hereditary Diseases," John A. Lambert of Indianapolis; "Conditions Dependent on Defective Hygiene," W. J. Purkhiser of Salem. One of the features of the convention was the exhibit made in Carlyle hall by the manufacturers of surgical instruments and medical appliances of every description. The next meeting will be held in Indianapolis, June 6 and 7, when the fiftieth anniversary will be celebrated. J. C. Smith of Rushville was elected president, and T. C. Heath of Indianopolis, secretary.

Minnesota State Society.—Section on the Practice of Medicine. Chairman, Charles Lyman Greene, St. Paul. The program includes the following:

"Bicycle Therapeutics," by C. H. Hunter, Minneapolis.
"Diabetes Mellitus," by J. G. Cross, Rochester.
"Adenoids in their Relation to General Disease," by Albert C. Heath, St. Paul.
"Points in the Differential Diagnosis of Ascites," by Arthur R. Edwards, Chicago.
"The Treatment of Pneumonia by Cold," by H. Wernicke Gentles, Chicago.
"Two Cases of Appendicitis Treated by Calomel and High Injections," by P. A. Walling, Park Rapids.
"Appendicitis from the Standpoint of the General Practitioner," by Theo. L. Hatch, Owatonna.
"Lead Poisoning from an Unusual Source," by Franklin A. Dodge, LaSeur.
"Subcutaneous Emphysema occurring During the act of Vomiting," by A. W. Dunning, St. Paul.
"Induced Abortion; Sepsis, Anurea lasting Eleven Days, Death," by Andrew Henderson, St. Paul.
"Presentation of Case of Valvular Heart Disease of Unusual Interest," by T. A. Conley, Cannon Falls.
a. "Landry's Paralysis, Complete Respiratory Paralysis—Life Maintained for Forty-two days by Artificial Respiration"; *b.* "Spleno-medullary Leukemia"; *c.* "Pernicious Anemia," by Charles Lyman Greene, St. Paul.
"Leukemia," by Hugh F. McGaughy, Winona.
"Treatment of Tuberculosis," by C. A. Haas, St. Paul.
"Presentation of Case of Myxedema," by Walter Ramsey, St. Paul.
"A Staggering Coincidence," by F. W. Epley, New Richmond.
"Treatment of Pneumonia by Pilocarpin," by E. J. Davis, Mankato.
"Widal's Test in Diagnosis of Typhoid Fever," by Louis B. Wilson, Minneapolis.
"Diazo-reaction in Diagnosis of Typhoid Fever," by J. P. Barber, Minneapolis.

PUBLIC HEALTH.

An International Congress for the protection of abandoned children is to be held at Antwerp in June, which includes in its scope the protection of child beggars, vagabonds and liberated prisoners.

Bicycles belonging to physicians have the right of way in the streets of Augsburg. The bicycle carries a red cross shield, so that the rider's profession is known to all, and much good has already resulted from the custom, it is stated, in securing prompter assistance in accident emergencies.

To Detect Adulteration of Coarse Flours with Saw-dust moisten with an alcoholic solution of phloroglucin acidified with phosphoric acid. Warm a little and the particles of wood will become a bright carmine, while the fragments of the cellulose of the grain and the starch are not affected by the stain.—*Presse Méd.*, April 13.

Pure Albumin as Cheap Food for the Masses.—Professor Finkler appeals to hygienists in general to test and help introduce the new tasteless, inexpensive preparation of pure albumin, which, added to vegetable soups, meat extracts, or any dish, enhances its nutritive properties and in the most concentrated, easily digestible form furnishes a valuable food at less than half the expense of meat. It is obtained from almost all kinds of vegetable and animal substances, in the form of a dry powder, which keeps indefinitely and accomplishes all that an albumin can in building up strength and tissue, as he has thoroughly demonstrated. He calls it Tropon; further details in the *Deut. Med. Woch.*, of April 28.

Prophylaxis of Tuberculosis.—The committee appointed by the Paris Académie de Médecine for the study of this subject, has been made permanent "to encourage and co-ordinate efforts of protection against the invasion of the tubercle bacillus." The committee insist upon: 1, Pocket or apartment cuspidors containing a little 5 per cent. phenicated solution, colored, or at least a little water; 2, the substitution of wiping with a damp cloth for sweeping; 3, having milk boiled before drinking, whatever source it comes from. They recommend temporary retirement from the army at the first indications of tuberculosis, and permanent dismissal as soon as the bacilli are found in the sputa. Also the isolation of tuberculous patients in separate wards or pavilions until special sanatoria can be erected; antisepsis throughout; remodeling the floors and suppressing of sweeping; improving the attendant service by higher salaries, more careful recruiting and provisions for pensions. Also the creation of a corps of sanitary nurses. In regard to meat from tuberculous animals, confiscation and total destruction are only necessary in the rare cases of generalized and hectic tuberculosis. Animals found by the tuberculin test to be slightly tuberculous and therefore still harmless, should be sold at once to the slaughter house before the disease progresses or infects others.

Serum Therapeutics and Prophylaxis of Yellow Fever.—Sanarelli reports very encouraging results with his serum in an epidemic at S. Carlos do Pinhal. Twenty-two patients were treated with it, with six deaths; a mortality of 27 per cent., instead of the average 45, and this merely the first tests of the serum, determining doses, concentrations, etc., step by step, and administering it to several patients evidently beyond all help before being seen. In one case abrupt convalescence followed a single injection the second day. He considers the serum bactericidal rather than antitoxic in its effects, and obtained most striking results with intravenous injections of large doses. In

three of the fatal cases the bacillus icteroides was isolated from the blood during the agonic period, by using the serum reaction method. He finds the horse best adapted to the production of the serum. He is especially encouraged by the results at the prison where yellow fever attacked a prisoner and two guards, all early fatal cases, but prompt prophylactic injections arrested the disease at once and no further case occurred. He adds: "the instantaneous suppression of this focus of infection was obtained in spite of the most unfavorable conditions and the lack of active serum, the horse serum being all exhausted and nothing left but the much weaker beef serum. The persons who received the injections were also either mostly unacclimated strangers or in wretched physiologic conditions owing to the depressing and extremely unhygienic surroundings, and thus exceptionally predisposed to the disease." His report is published in full in *O Brazil Médico* of April 1 and 8. He vouches strongly for the absolutely harmlessness of the prophylactic injections from experience on himself as well as on others. His facilities were limited. as he only had a few animals at his disposal.

NECROLOGY.

Edward H. Dorland, M.D., Chicago, President of the Lakeside Hospital, died at his home May 14, aged 56 years. He was a graduate of the Miami Medical School, Cincinnati.

Thaddeus Pomeroy Seeley, M.D., Chicago, died of pneumonia at his residence, May 16, aged 67 years. Dr. Seeley was surgeon of the Sixteenth Michigan Volunteers during the Civil War, was with McClellan in his Virginia campaign and for some time a prisoner at Libby. He was graduated in medicine from the University of Michigan in 1856.

John M. Galt, M.D., Baltimore, Md., May 13, aged 87 years, one of the early graduates of the Maryland University School of Medicine.——James J. McAvoy, M.D., Waterbury, Conn., May 11.——A. B. McGinnis, M.D., Guyandotte, W. Va., May 11, aged 79 years.——William T. Walker, M.D., Lynchburg, Va., May 13.——John Sloan, M.D., New Albany, Ind., April 13, aged 80 years.

Deaths Abroad.—Dr. Humbert Mollière, Pnysician to the Lyons Hospitals, and author of numerous monographs on the history of medicine and the medical antiquities of Lyons, aged 83 years.——Jacob Schütz of Prague, author of several monographs, aged 82 years.——Dr. Eduardo Periera Pimenta, Professor of Surgery in the Eschola Medico-Cirurgica, of Oporto, aged 60 years.——Dr. Georg Dragendorff, formerly Professor of Pharmacy and Toxicology in the University of Dorpat, and author of works on medicinal plants, poisons, etc., aged 62 years.——Dr. C. Barzilai, some time Professor in the University of Padua, and physician to the military hospital at Venice.——G. Guelpa, who introduced hydrotherapy into Italy, aged 81 years.——Dr. Lopez Alonso, Professor in the Medical Faculty of the University of Salamanca, and a well-known writer, aged 44 years.——Dr. Zancarol, physician to the Greek Hospital, Alexandria.

Isaac N. Quimby, M. D., (*vide* Journal, p. 1191). The following resolutions were recently passed by the American Association for the Study and Cure of Inebriety:

Whereas, Almighty God in his inscrutable providence and wisdom has removed from our midst our friend and colaborer, Dr. Isaac N. Quimby; therefore,

Resolved, That while we bow with humble submission to this dispensation of the Divine Will, we mourn in common with the family and friends of the deceased the irreparable loss that all have sustained.

Resolved, That in the death of our friend and associate, there has passed from our number and the sphere of active duty, one, who in his life by his professional attainments and the honest straight-forward and fearless adherence to the principles he professed, exemplified the highest type of Christian manhood.

Resolved, That in the death of Dr. Quimby the community in which he dwelt and the State at large have lost a good and upright citizen; the medical profession, one who advanced it by his high attainments and by his long practical and useful life; and his family and friends and this Association, one who, from a social, moral and intellectual stand-point, was their stay and support.

Resolved, That these resolutions be engrossed and sent to the family and friends of the deceased and that a copy be sent to the Journal and also published in the Journal of this Association on behalf of the American Association for the Study and Cure of Inebriety.

(Signed) L. O. Mason, President.
T. D. Crothers, Secretary. } Com.
C. H. Shepard.

BOOK NOTICES.

Epidemic Cerebro-spinal Meningitis, and Its Relations to Other Forms of Meningitis. A report of the State Board of Health of Massachusetts, by Dr. W. T. Councilman, Dr. F. B. Mallory and Dr. J. H. Wright. Boston: Wright & Potter Printing Company, State Printers, 1898.

This report was an investigation undertaken with a view of clearing up certain obscure points in general etiology and pathology of the disease, and is based on the epidemic which prevailed in Massachusetts in 1897.

The preceding literature has been well studied and this report may be considered in itself a complete monograph on etiology and pathology. As to diagnosis the authors say: "The surest method of diagnosis, and one which should always be carried out when possible, is by lumbar puncture. The method is easy, and experience has shown it to be devoid of danger. If properly carried out in the early stages of disease, which is the time when there is more difficulty in diagnosis, it is almost conclusive. It certainly deserves to be ranked as a method of diagnosis with the examination of the sputum. If the patient has meningitis, a more or less cloudy fluid will be withdrawn; if it is the epidemic form, diplococci will be found in it either on microscopic examination or in cultures. It is of the greatest importance in the study of the epidemics that this method of diagnosis should be carried out, especially in the sporadic cases. In some of the chronic cases, if seen late, there may be a question of diagnosis between meningitis and typhoid fever." . . . . . .

"The essential seat of the disease is in the meninges of the brain and cord. How the organism gains access to the meninges is not actually known. It is possible that the nose forms the portal of entry, the organism passing from the nose to the meninges by means of the lymphatics connecting this with the subdural spaces. In a number of cases organs identical with it on microscopic examination have been found in the nose, together with the evidences of slight acute inflammation." . .

"The lesions in the meninges are confined to the pia-arachnoid, in which an acute purulent inflammation is produced. From the meninges the process extends into the brain substance. Lesions are found not only in the cortex but in the depth of the tissue and in the ventricles. These lesions consist in part of purulent infiltration of the tissue both around the vessels and elsewhere, together with proliferative changes in the neuroglia and the degenerative changes in the ganglion cells and nerve fibers. The cord is always affected, and to a greater extent than in any of the other forms of meningitis. The organisms are found in considerable number in the most acute cases. In the more chronic cases they may be missed."

The fluid should be obtained in the early stage as, if the spinal puncture be made late in the disease, the result may be negative.

The Diseases of the Stomach. By William W. Van Valzah, A.M., M.D., and J. Douglas Nisbet, A.B., M.D. Philadelphia: W. B. Saunders. 1898. Pp. 674. Price $3.50.

This book is intended primarily as a guide for the student

and practicing physician. There is no preface and the introductory is brief.

The authors have endeavored to make this a simple, clear, practicable, complete and useful book of information, and have not burdened it with history nor bibliography.

The aim seems to have been to have a discussion of the essentials of the subject without superfluity. The book is divided into six sections, in which the first is the introductory and classifications; the second the treatment and diagnosis, and diagnostic methods; the third is devoted to general medication. These three sections constitute the general or first part of the book.

The fourth section treats of the dynamic diseases of the stomach. The fifth section treats of the anatomic diseases of the stomach. The sixth section treats of the vicious circles of the stomach, that is, the stomach in the causation of diseases of other organs.

The arrangement is admirable and the teaching sound, and the publisher has done his work well. The work might be improved by adding more illustrations, but the most hypercritical would find but little fault with the text.

Essays on Bacteriology and the Relation to the Progress of Medicine. By THEODORE POTTER, A.M., M.D. Indianapolis: *Indiana Medical Journal* Publishing Company. Pp. 161. 1898.

This publication has its origin in a series of papers upon the progress of bacteriology, presented by request of the Indiana State Medical Society, between the years 1890 and 1897.

It is very pleasantly written and constitutes a valuable addition to the literature of the period in which the truths of bacteriology are forcing themselves upon the attention of the rank and file of the medical profession. They are argumentative, interesting and logical.

PRACTICAL NOTES.

Diphtheria Serum in Scarlet Fever.—Hutinel reports a death, and Monteux arthralgia and delirium after an injection of the serum in a child whose throat contained the Loeffler bacillus, strepto- and staphylococcus during the initial stage of scarlet fever.—*Presse Méd.*, April 23.

Indications for Operating Goiter (Kocher).—Thyroidectomy is indicated for: 1, malignant tumors in the thyroid gland; 2, acute and chronic thyroiditis; 3, parenchymatous goiter (general hypertrophy); 4, policystic goiters; 5, goiters with multiple nuclei. It is counter-indicated by absence of normal tissue on the opposite side. Strumectomy or intraglandular enucleation is indicated for: 1, unilocular cystic goiters; 2, isolated nuclei located in normal tissue if they allow rapid removal without much hemorrhage; otherwise, thyroidectomy; 3, large nuclei in immovable goiters. These indications do not apply to exophthalmic goiter, which Kocher has treated with good results by ligating the three thyroid arteries and later the fourth. Double section of the sympathetic is still *sub judice*.—*Rev. de Chir.*, April 10.

Maternal Thyroid Treatment of Goiter in the Newly Born.—At a recent meeting of the Paris Academy of Medicine, Dr. Mossé read an account of a woman, aged 29 years, who was the subject of a goiter accompanied with feeble-mindedness, but without symptoms of myxedema. Her general health was good. Her child, who was three months old and breast fed, had a large bilobed goiter, was very puny and sickly but had no signs of myxedema. The mother was put upon thyroid treatment, and took daily a quantity of thyroid extract corresponding to 1.5 grams of thyroid gland. At the expiration of one and a half months the mother's goiter had diminished in size, but a still more marked result was obvious in the child, whose general health was excellent. After the lapse of a slightly shorter period of treatment the goiter in the infant had completely disappeared and it was making good progress, while the goiter in the mother continued to decrease. This is the first recorded case of the influence of thyroid treatment being transmitted from mother to child in the milk.

Captol; a New Antiseborrheic.—Eichhoff in the *Deutsche Med Woch.*, recommends captol, a condensation product of tannin and chloral, in seborrhea capitis and its complications, such as itching, scale formation and thinning of the hair. Captol has more rapid and definite effects than a mixture of the two drugs from which it is made, and is entirely harmless and unirritating. It forms a dark brown, hygroscopic powder which dissolves with difficulty in cold water, but more easily in a mixture of warm water and alcohol, is not affected by acids, but is decomposed by alkalies and turns dark. Eichhoff employs it in a 1 to 2 per cent. alcoholic solution, and asserts that in every case in which he has employed it his results have been wonderfully good. In eight to fourteen days the scales have disappeared from the scalp, the hypersecretion of the sebaceous glands has ceased, and the falling out of the hair has stopped. He employs the preparation called "spiritus captoli compositus," which has the following formula:

Captol,		
Chloral hydrate,		
Acid. tartaric	āā	1.0 gm.
Ol. recini		0.5
Spirit. vin. (65 per cent.)		100.0
Essent. flor. æth		9.5

Velander's Pillow-Slip Method of Mercurial Inunction.—Dr. R. Hogner describes this new procedure of the Stockholm professor, Dr. E. Velander, for the application of mercurial ointment. He considers it to be practical, effective, convenient, and clean. Velander was convinced some years ago that the mercury in an ointment is absorbed after being vaporized. He has, therefore, given up spreading the ointment upon the skin, and spreads it instead upon the inside of a small pillow-case, which is hung upon succeeding days alternately on the back and on the chest. It is kept in position by ribbons over the shoulders and around the waist. The pillow-case is made of cheap cotton cloth, and one of the external faces is smeared with the ointment. It is then inverted so as to bring the ointment on its inner surface, and is placed in position so that the layer of cloth upon which the ointment is spread is in direct contact with the body, while its unsmeared side protects the clothing. Every night fresh ointment is spread over the old without removing this, and at the end of ten days the pillow-case is thrown away and a new one is prepared. Baths should be taken twice a week, and the skin of the chest and back washed every night. The quantity of ointment used daily is 6 grams (90 grains). The effect of the treatment is very rapid, as more mercury can in this manner be absorbed with fewer unpleasant effects, such as stomatitis, etc., than when it is otherwise administered.—*Boston Medical and Surgical Journal*, March 31.

Surgical Treatment of Profuse Hemorrhage in Ulceration of the Stomach.—Dieulafoy has made to the Paris Academy an important communication on the above subject. One of his patients was seized with a very profuse hemorrhage and lost, in the course of thirty hours, between four and five liters of blood. A gastric ulcer was suspected, but at the postmortem examination there was found not the ordinary circular ulcer but a general ulcerated condition, though of a very superior nature. Another patient, aged 22 years, was also suddenly seized with hematemesis and promptly admitted to the hospital, where Cazin performed laparotomy. Upon opening the stomach he found not an ordinary gastric ulcer but a superficially ulcerated patch the size of a penny. He pulled up the ulcerated mucous membrane into a fold, ligatured it, and the patient recovered perfectly. Altogether, Dieulafoy is aware of seven cases of this kind of ulceration. It is well known that besides

the simple ulcer described by Cruveilhier there may exist in the stomach a condition of very superficial loss of the substance of its walls, which is the initial phase of an ulcer and which may be followed by the gravest consequences. There is often no suspicion of anything being amiss until the occurrence of a sudden and profuse hemorrhage. Any patient who vomits half a liter of blood at one time, especially if the hemorrhage returns within twenty-four hours, will surely die if not operated upon without a moment's delay. If the surgeon does not find an ordinary ulcer he will find a superficially ulcerated patch and should by all means attempt to ligature this bleeding region. —*London Lancet.*

MISCELLANY.

Rush Monument Fund.—At the recent meeting of the Illinois State Medical Society, Galesburg, it was voted to contribute $2000 toward the Rush Monument Fund.

Netley Army Hospital, England.—Queen Victoria shows her great interest in the wounded soldiers of her forces by providing ample supplies of artificial limbs and the best description of invalid couches at this hospital.

State Board of Examinations.—The State of Montana should be added to the list published in the JOURNAL of March 26, p. 742, as requiring all medical graduates to stand an examination before being permitted to practice in the State.

The Roentgen Rays and the Blind.—Out of 204 young blind persons, nine (all with peripheral lesions and a vague conception of light) were able to perceive the rays from a powerful Crookes' tube enveloped in a black cloth. Two felt the rays as pain.—*Jour. d'Hygiène*, April 14.

A Close Connection Between Epilepsy and the Magnetism of the Earth has been observed by Sokolow during two years study of twenty-six epileptics, the maximum of the magnetic currents corresponding to the minimum of the attacks.—*St. Petersburg Med. Woch.*, April 23.

Ozone on Tap.—We can now have the air in our houses to suit all hygienic requirements, sterilize our drinking water, our food, etc., with an ample regulated supply of ozone, generated by a new ozonator which has rendered ozone a marketable commodity.—*Rev. Méd.*, April 27.

The Protective Action of the Organs Against Strychnin is shown by an interesting series of experiments by H. Roger, described in the *Presse Méd.* of April 24. The liver stands at the head in this respect, but other organs, the lungs, the intestinal epithelium, etc., neutralize the poison to a remarkable extent. This antitoxic action of the lungs is to be further investigated.

The Chicago Eye, Ear, Nose and Throat College, 67 Wabash Ave., at the end of its first year found its quarters too small to accommodate its students, and the board of directors secured the rooms adjoining, on the north, thereby increasing the floor space about three times. Double the present number can hereafter be accommodated. In its new quarters the college will be well equipped.

Trauma and Sarcoma.—In the *Annals of Surgery* for March Coley writes on "The Influence of Injury Upon the Development of Sarcoma." In 170 cases of sarcoma he reports 27 per cent. giving a history of trauma. He believes that the clinical evidence points very strongly toward a specific infection as a cause for sarcoma, the analogy between sarcoma and diseases of infectious origin being most striking, *e. g.*, the analogy, long observed, between sarcoma and tuberculosis.

"Condense, and Again I Say Unto You, Condense."—Virchow's *Archiv* enters upon its 151st volume with an urgent appeal to contributors to curtail the length of their communications, thus rendering them proportionately more valuable in every respect. The vast quantity of MS. in our waiting list emphasizes the fact that Germany is not the only country where this wholesome rule is forgotten.

The Klondiker as a Risk.—In the *Medical Examiner* for March Abbott considers this subject. He believes that smallpox, typhoid fever, consumption, acute lung diseases, scurvy and violence may be counted on as being unusually destructive, sooner or later, to the Klondiker, while the favorable side is the average age of the adventurer, 20 to 45 years, a healthy period of life. He concludes that no insurance company can afford to take risks among Klondikers, nor allow its insured to make long sojourns in the Yukon country.

Acute Leucemia in Childhood.—In *Archives of Pediatrics* for May, Morse reports a case of acute leucemia in childhood, and concludes from his own and the seven other cases he was able to find reported, that there is no evident general etiologic cause, the disease sometimes beginning with typic leucemic manifestations and at others with general indefinite constitutional symptoms which, in the course of days or weeks, develop into the characteristic picture of leucemia. The course in children is not different from that in adults, and in both it is generally of the lymphatic type. In children acute leucemia is always fatal.

In Contemplated Nephrectomy, Edebohls (*Annals of Surgery*, April) advocates "incision down upon, delivery and examination of the fellow of the kidney to be removed, previous to completing an otherwise indicated nephrectomy." He claims priority in this and has carried it out in several cases. While the presence of a second kidney is determinable by other aids, *e. g.*, examination of the urine, palpation of the kidney, cystoscopy, catheterization of the ureters, skiagraphy, the fluoroscope, he believes exploratory incision to be the only method giving completely satisfactory information regarding the exact condition of the other kidney, and that should be the rule in every contemplated nephrectomy where the surgeon is not absolutely certain of the presence and condition of the other kidney.

Dancing Girls Physicians in the Philippines.—According to the *Crónica de Ciencias Med. de Filipinas*, there are a number of native young women on the island who practice the healing art at Deweyville. When one is summoned to a patient she appears with a crown, large fan and a small cane and inquires the seat of the pain. This she touches with the cane and proceeds to fan away the bad spirit causing the disease. She then orders a pig to be killed and the attendants rub the patient vigorously with the blood while she dances, making contortions and grimaces to frighten away the bad spirit. The meat of the pig is cooked and eaten by the crowd, the "physician" receiving the lion's share, and the same process is repeated day after day until the patient dies or his provisions are exhausted. The natives of the Island of Luzon treat diseases accompanied with pain by burning a series of holes around the seat of the pain with a burning stick from the *Ophelia chirata L.* They sometimes make a hundred applications on a child with convulsions.—*Journal d'Hygiène*, April 28.

Intraperitoneal Operations.—Brothers (*Medical Record*, April 30) gives some reflections on fifty intraperitoneal operations. Of the fifty, six cases were lost, three being moribund on reaching the operating table. He believes it one's duty to resort to the knife even when there is the least glimmer of hope for the patient, but that the surgeon has no right to remove the uterus because it is the seat of a chronic catarrh, even though obliged to remove both tubes and ovaries. There may be more justification for removing the uterus at the same time, on the plea of better drainage per vaginam, in cases of bilateral purulent infiltration of the adnexa, but even here he believes, with care, the pus sacs can be removed from above

without molesting the uterus and with no greater risk to life than when exsection of uterus and adnexa is done from below. He finds that a small percentage of extra-uterine pregnancies terminates in spontaneous recovery. When the diagnosis of early ectopic gestation is made, with symptoms pointing to impending rupture, the choice is between immediate laparotomy or intelligent delay with unremitting supervision. Where the latter can not be assured, operation should be done at once. He protests against ventral fixation in cases of uncomplicated mobile retroflexed uteri.

Resection of the Cervical Sympathetic.—Jonnesco has gradually extended this operation until it now includes the total and bilateral resection of the entire cervical sympathetic chain with all its vaso-constricting fibers for the encephalic vessels, which puts an end to the encephalic anemia. He has operated on thirty-five epileptics and reports the first fifteen as, five cured for a year and a half; four from nine months to a year; four much improved and two with negative results. The same operation applied to exophthalmic goiter, three cases, has given three successes (one nine months, the others five to one and a half months). Two cases operated on twenty months ago by extirpation of the two first ganglia and the intermediate cord have been perfectly cured to date. Six very severe cases of glaucoma were operated on by resection of the cervical ganglion. Three were remarkably benefited; previous double iridectomy had been ineffectual. Combemale also reports another case of exophthalmic goiter relieved by sympathicotomy. The exorbitism subsided immediately and the cardiac beat fell from 200 to 100 by the end of the week, with disappearance of the pain. The goiter was not affected as the operation probably only influences the toxic secretion of the thyroid, not the normal colloid secretion.—*Presse Méd.*, April 20.

Dressing for Fractured Clavicle.—Henson recently presented before the Richmond Academy of Medicine an improved method of treating fracture of the clavicle. He says that the strip, in the Sayre method, which passes from the sound shoulder underneath the opposite elbow and back again, does its work well when first applied, but is almost certain to slip and in warm weather very quickly; is apt to roll up on the shoulder and become cord-like, and is altogether very uncomfortable. In place of this strip he has, out of denim, unbleached jeans or other very stout cloth, a shoulder-cap fashioned for the sound shoulder. On this he has two extensions or tails, one opposite the other. This must be made to fit the whole shoulder and the upper part of the chest just below the axilla snugly, and so an armhole is necessary, which also serves to prevent slipping. There should be almost twice as much of the cap upon the shoulder as below the axilla. The posterior extension is directed across the back along a line drawn from the shoulder supporting the cap obliquely toward the opposite elbow, should reach a little beyond the median line and may be pointed. The anterior tail has the same course across the front of the chest, reaching as far as the opposite nipple; its end should be from one and one-half to two and one-half inches in width, according to the size of the patient, and upon its under surface a pocket is made, reaching from near its tip upward and outward quite to the top of the shoulder and just wide enough to accommodate the patient's hand. With tension made upon both extensions at the same time, in the line of their direction, the cap should bear equal pressure upon the shoulder and chest. To each extension he attaches a buckle. Another strip of the same kind of cloth is taken, narrow, oblong, sufficiently wide to accommodate the elbow, and long enough to reach from the middle of the arm to the middle of the forearm, when extended, and to each end of this a tape is attached. As to application, first the horizontal adhesive strip is applied, just as in the Sayre method, then the shoulder-cap is fitted upon the sound shoulder. Then into the pocket of the front extension, introduce the hand of the injured limb, after carrying the forearm up across the front of the chest. Buttons may be used in place of the buckles.—*Richmond Journal of Practice*, April.

Spanish Army Losses in Cuba.—Between March 1, 1895, and March 1, 1897, Spain sent to Cuba 10 generals, 615 field and 6222 subaltern officers and 180,435 soldiers. To these must be added the 12,000 officers and men forming the regular Cuban establishment at the outbreak of the insurrection, making a total of nearly 200,000. Of these, 1 general, 7 field and 53 subaltern officers and 1314 men were killed in battle, 1 general, 6 field officers and 55 subaltern officers and 704 men died of wounds, while 463 officers and 8164 men were wounded and presumably recovered. The losses caused by the enemy are then small, being but little more than 5 per cent. of the total present for duty. The case is altered, however, in the matter of disease; 318 officers and 13,000 men died of yellow fever, while 127 officers and about 40,000 men succumbed to other maladies. A writer in the *Revue Scientifique* of October 16, 1897, gives the following rates of loss per thousand: Killed or died of wounds, 10.7; died of yellow fever, 66.0; died of other diseases, 201.3; sent home (sick and wounded), 143.0; as all the sick and wounded, however, have not been sent back to Spain, the number of these left behind must be taken into account in estimating the total losses of the Spaniards. While this number can not be accurately determined, yet there is reason for believing that it can not fall short of 20,000. Accepting this estimate, we have a total rate of loss of 521 per thousand for the two years considered; or, of the 200,000 constituting the regular Spanish forces in Cuba, but 96,000 in round numbers were left to bear arms on March 1, 1897. These numbers have more than academic interest for us just at present, for if we may assume the foregoing ratio of loss to hold good from March 1, 1897, to March 1, 1898, then after adding the reinforcements sent out during the year ended March 25, 1898, there can not be in Cuba today more than 100,000 regular Spanish troops able to bear arms. It is probable the number is somewhat less than this, but the assumption of 100,000 gives us a small factor of safety in estimating the number of men we shall need in order to overcome Spanish resistance on land in the island. It must be recollected that the foregoing figures are only approximately correct, as there is ground for the belief that the Spanish medical returns have purposely misstated the losses of the Spanish army in Cuba. But for that very reason we may feel tolerably sure that the results here given are not in excess of the truth. The above statistics are given in *Harper's Weekly*, May 7, as having been obtained in part from confidential sources.

Removal of Entire Stomach.—In the *Boston Medical and Surgical Journal*, May 5, Brigham of San Francisco, reports in detail, a "Case of Removal of the Entire Stomach for Carcinoma; Successful Esophago-duodenostomy; Recovery." The operation was performed on a woman, aged 66 years, who had complained for the past year. She had, however, been able to digest her food until Christmas time, when she vomited any solid food taken. The operation was done February 28, lasted two hours and a quarter and with a loss of blood of but two ounces. He says: "In the treatment of this case no attempt has been made to predigest the nourishment which was given to the patient. The precaution was taken, however, to supply easily digested food; and when meat was allowed it was cut in very small pieces. The food was taken slowly, whether liquid or solid. It is no hardship for the patient to live on simple food, for she has done so all her life; and especially, as age has advanced, she has been obliged to eat food that required the least chewing. The food was given of medium temperature; water was taken as it came from the pipe, and wine as it stood in the room; iced cream, of which the patient was particularly fond, was taken slowly so that it dissolved in

the mouth before it was swallowed. At first everything was too salt; as the patient got well, she wished salt on both eggs and oysters. The amount of flatus in the bowels was enough to cause pain only a few times in the early part of her illness. The urine has been normal throughout. Never since the operation has any undigested food been seen in the movements from the bowels, and for the most part these have been wholly or partly formed. The patient has vomited but a few times since the operation; twice after etherizations, twice after some laxative had been given, once after the button left its place, and twice after coughing; not more than six ounces at any one time, generally much less. On three or four occasions a mouthful of food would be regurgitated, an oyster, some shreds of meat or a few teaspoonfuls of coffee. As a usual thing the food was well retained and well digested. Milk, which would sustain most patients under such circumstances, was not liked and an important food was thus unavailable. The patient's skin is in a natural condition without any dryness; this may be due to the thorough washing which the entire body has had daily since the operation. The symptom which gave the most anxiety after the operation was the restlessness, which was unusually marked. This was without doubt the result of the surgical shock, which was caused by the removal of so important an organ as the stomach, and the interfering with its vessels and nerves. The season of the year in California, with mild sunny days, and the careful and constant nursing, are among the factors which made the operation a success. The age of the patient counted for something also; the effects of the change of life had long passed by, and there had been for many years an even condition of good health. . . She has a fine color; complains of nothing so far as the functions of her body go; eats whatever she wishes; has no pain whatever; is of a very cheerful disposition. She is out of doors most of the day from 10 till 5 o'clock, taking occasional walks around the hospital grounds; her temperature and pulse are normal; she sleeps without an opiate. Although she has food every three hours, she feels hungry at times, and feels that she could eat twice as much as is given to her. She is gaining in weight; and her general condition at the present time, April 14, seven weeks after the operation, is satisfactory in every respect."

Army Recruiting Statistics.—The general recruiting service of the Army for the month of April shows the following:

City Stations.	White.		Colored.		Aggregate Accepted.	Total number rejected.
	Foot.	Mounted.	Foot.	Mounted.		
Albany, N.Y.	74	2	. .	. .	76	244
Baltimore, Md.	50	18	1	7	76	392
Boston, Mass.	84	11	. .	. .	95	608
Brooklyn, N.Y.	27	4	. .	. .	31	253
Charlotte, N.C.	22	5	. .	. .	27	24
Chicago, Ill.	38	16	. .	2	56	1,863
Cincinnati, Ohio	40	9	. .	4	53	459
Cleveland, Ohio	52	5	. .	2	59	179
Des Moines, Iowa (*a*)	1	7	. .	. .	8	26
Evansville, Ind.	14	2	. .	. .	16	93
Indianapolis, Ind.	104	8	10	. .	122	586
Jersey City, N.J.	54	3	. .	. .	57	137
Louisville, Ky.	66	10	. .	. .	76	407
Milwaukee, Wis.	25	7	. .	. .	32	301
Nashville, Tenn.	19	. . .	1	3	23	231
New York City.	163	23	1	1	188	1,871
Philadelphia, Pa.	81	7	. .	. .	88	1,756
Pittsburg, Pa.	19	2	. .	. .	21	108
Portland, Oregon	12	2	. .	. .	14	64
Richmond, Va.	10	1	. .	2	13	61
St. Louis, Mo.	104	13	1	. .	118	604
Seattle, Wash.	6	7	. .	. .	13	78
*Dallas, Texas	20	3	. .	. .	23	408
Totals	1,085	165	14	21	1,285	10,753

* Special Recruiting Officers enlisted for the general service.
(*a*) Opened April 21, 1898.

Duties of Army Medical Officers in the Field.—Surgeon-General Sternberg under date of May 18, 1898, has issued a circular of instructions concerning the duties of medical officers with the army in the field. It reads as follows: For the information of Chief Surgeons in organizing the Medical Department and Hospital Corps of their commands, the following relating to the duties of medical officers in the field, is published:

Duties of Chief Surgeons of Corps.—The Chief Surgeon of a Corps is held responsible for the proper and effective management of the medical service of the command. He should keep a register of the medical officers and hospital corps, making assignments and issuing orders and instructions with the approval of and "By order" of the Major-General Commanding. He should make himself acquainted with the sanitary conditions affecting the troops, the efficiency of the field hospitals and of the ambulance companies, and should call for weekly reports of sick and wounded and of the personnel and means of transportation of the Hospital Corps. All reports and papers not requiring special action should be checked off and receive the stamp of his office before transmittal. Such papers include personal reports of medical officers, monthly reports of sick and wounded, of the hospital corps and of the hospital fund, and sanitary reports from chief surgeons of brigades and divisions —with the lists of wounded called for after an engagement. A copy of the action taken on all papers referred to him or forwarded by him should be made in an endorsement book. Such papers include those relating to resignation, leave of absence or discharge on account of disability; requisitions for medical and hospital and hospital corps supplies, and all recommendations or complaints referring to the medical service or affecting the health and well-being of the troops. Copies of orders and letters should be made and placed on file, and all circulars or orders from the Surgeon-General or the Chief Surgeon of the Army should be published without delay to chief surgeons of divisions. Prior to a movement the Chief Surgeon should verify by personal inspection the condition of the hospitals and of the hospital corps companies and their trains, and should make all the arrangements needful for the probable exigencies of the campaign. He should see that the assignments by chief surgeons of divisions to positions on the operating staff of the field hospitals include the best surgical skill of each division. On the march he should accompany the staff, and acquaint himself with the topography of the country; and when an engagement is imminent he should indicate to chief surgeons of divisions the localities best suited for the establishment of the field hospitals. He should inspect these from time to time and exercise general supervision over the first aid and ambulance stations and the movement of the wounded to the hospitals. He should also supervise the movement of sick and wounded to the base or general hospitals, providing transportation and detailing medical officers and attendants for their care. When absent on such duties he should leave a competent medical officer with the staff to represent him and to inform him of important changes in the military conditions. The Commanding General should be kept informed of the work of the Medical Department, and should always be consulted in matters of importance.

Duties of Chief Surgeons of Divisions.—The Chief Surgeon of a Division supervises the medical and hospital corps service of the division, promulgating orders and transmitting official reports and papers with the stamp of his office if routine in character, or with his views endorsed thereon if the subject appears to call for this action. He should have frequent personal communication with the Chief Surgeon of the Corps, and should endeavor to carry out the views of the latter on behalf of the troops. His usual position is with the staff, but he should make frequent visits to the division hospital and the ambulance company to oversee their work. He should detail one medical officer in rotation as officer of the day who, on the march, should keep him informed of any noteworthy occurrence, and who in camp should visit each regiment of the division to report on its hygienic and sanitary conditions. Before an engagement he should see that the field hospital is properly established and that the operating surgeons and their assistants are at their proper stations. During and after the engagemeut he should supervise the movement of the wounded from the ambulance stations to the hospital.

Duties of Chief Surgeons of Brigades.—The Chief Surgeon of a Brigade is the adviser of the Brigade Commander in all medical and sanitary questions concerning the command. He should call for a weekly (or daily as may be required) report of sick and wounded from regimental surgeons and of the detailed members of the hospital corps on duty with them. He should forward the formal reports of these surgeons, and promulgate orders from brigade and higher authorities. He should keep careful watch over the health of the brigade, reporting in writing from time to time as may be required, and consulting in emergencies with the Chief Surgeon of the Division. During and after an engagement he should supervise the work at the first aid stations and the removal of the wounded to the ambulance stations, unless on account of his superior ability he has been assigned to duty at the operating tables, in which case a competent officer should be detailed to represent him temporarily on the staff of the brigade.

Duties of Regimental Surgeons.—The regimental Surgeon is, in sanitary matters, the adviser of the Regimental Commander. On the march and in camp he should examine the sick with a view to their proper treatment and disposition. He is responsible for any unexpendable medical and hospital property issued for the use of the regiment. His supplies of medicines, etc., should be renewed by requisition on the surgeon in charge of the hospital. Members of the hospital corps on duty with the division are detailed to duty with him. Daily, after sick call, he should send a morning report of sick and wounded and of the hospital corps to the Regimental Commander, with a duplicate to the Chief Surgeon of the Brigade. He should keep, as a register of sick and wounded, a retained copy of the monthly report forwarded through the offices of chief surgeons to the Surgeon-General—cases treated in the division field hospital should be borne on this report as so treated. He should forward monthly, or when his official station has been changed, a personal report on a memorandum slip. After every engagement a list of wounded of the command should be forwarded. If the regimental surgeon is, by order of the chief surgeon, placed on temporary special duty, the senior medical officer with the command will perform the duties of the regimental surgeon. During an engagement he should serve at the first aid stations.

Duties of Surgeons in Charge of Division Hospitals.—The Surgeon in Charge of a Division Hospital is responsible for the care of the sick and wounded on the march and in camp, and for the comfort and general welfare of the wounded when brought to the hospital by the ambulance service. He should direct the unpacking of the wagons for the establishment of so much of the hospital as may be necessary, and the subsequent repacking when the march is to be resumed. He should superintend the admission, return to duty or transfer to base hospitals, of his patients. As commanding officer of the hospital corps detachment, he should keep the accounts of the enlisted men on duty at the hospital. He should make timely requisition for medicines, medical and hospital stores, supplies and property, for the care, expenditure and use of which he is held responsible. He should supply regimental and other medical officers of the division with such articles as may be required and are available for the treatment of the sick. He should send a daily report of sick and wounded and of the hospital corps to the Chief Surgeon, and transmit to the Surgeon General similar reports for the month, with a statement of the hospital fund. After an engagement he should forward lists of wounded, and on sending patients to base hospitals he should furnish transfer lists to the senior surgeon accompanying. Medical officers may be assigned to assist him in the management of the hospital. One of these should act as executive officer aiding the Surgeon in Charge in the work of supervision, and having special charge of the records. Another should superintend the cooking and diet of the hospital, drawing rations from the Subsistence Department, issuing for use and keeping the accounts of the hospital fund. He should also have special charge of the hospital stores, and of such articles of property as are connected with the cooking and serving of food. Others should be assigned as attending surgeons to care for the sick on the march and in camp, and during an engagement to look after the management of the wards, and to make notes of operative procedures, deaths and of the progress of cases for subsequent report to the Surgeon in Charge and entry on the records of the hospital.

Duties of Medical Officers in Command of Ambulance Companies.—The Medical Officer in Command of the Ambulance Company is charged with the care of the pay, clothing and subsistence of his men, and is held responsible for the care of the ambulances and other wagons, tents, horses, mules, forage, etc. His subaltern officers assist him in the discharge of these duties. During and after an engagement he is responsible for the safe and speedy transportation of the wounded o litters and in ambulance wagons from the field to the hospita by way of the first aid and ambulance stations, which latter h should organize.

Medical Officers of the Volunteer Army should make them selves familiar with the provisions and requirements of th Manual for the Medical Department, the paragraphs of Arm Regulations relating to the Medical Department, the Dri Regulations for the Hospital Corps, and the chapters in Part of the Handbook for the Hospital Corps, by Deputy Surgeon General Charles Smart.

Neutralization Under the Geneva Treaty.—General Miles, com manding the Army, issued May 17, 1898, an order from head quarters, Adjutant-General's office, Washington, D. C., pro mulgating those articles of the Geneva treaty which will trea upon the service of civilian attaches of the medical departmen in the event of an invasion of Cuba, and prescribing regulation for the delivery of the red-cross brassard to such persons:

ARTICLE I. Ambulances and military hospitals shall be ac knowledged to be neuter, and, as such, shall be protected an respected by belligerents so long as any sick or wounded ma be therein.

Such neutrality shall cease if the ambulances or hospital should be held by a military force.

ART. II. Persons employed in hospitals and ambulances comprising the staff for superintendence, medical service ad ministration, transport of wounded, as well as chaplains, sha participate in the benefit of neutrality, whilst so employed and so long as there remain any wounded to bring in or t succor.

ART. III. The persons designated in the preceding articl may, even after occupation by the enemy, continue to fulfi their duties in the hospital or ambulance which they serve, c may withdraw in order to rejoin the corps to which they belong

Under such circumstances, when these persons shall ceas from their functions, they shall be delivered by the occupyin army to the outposts of the enemy.

ART. IV. As the equipment of military hospitals remain subject to the laws of war, persons attached to such hospital can not, in withdrawing, carry away any articles but such a are their private property.

Under the same circumstances an ambulance shall, on th contrary, retain its equipment.

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ART. VI. Wounded or sick soldiers shall be entertained an taken care of, to whatever nation they may belong.

Commanders in chief shall have the power to deliver imme diately to to the outposts of the enemy soldiers who have bee wounded in an engagement, when circumstances permit this t be done, and with the consent of both parties.

Those who are recognized, after their wounds are healed, a incapable of serving, shall be sent back to their country.

The others may also be sent back, on condition of not agai bearing arms during the continuance of the war.

Evacuations, together with the persons under whose direc tions they take place, shall be protected by an absolut neutrality.

ART. VII. A distinctive and uniform flag shall be adopte for hospitals, ambulances and evacuations. It must, on ever occasion, be accompanied by the national flag. An arm-badg (brassard) shall also be allowed for individuals neutralized but the delivery thereof shall be left to military authority.

The flag and the arm-badge shall bear a red cross on a whit ground.

Additional Articles.

ARTICLE I. The persons designated in Article II of the Con vention shall, after the occupation by the enemy, continue t fulfill their duties, according to their wants, to the sick an wounded in the ambulance or the hospital which they serve When they request to withdraw, the commander of the occu pying troops shall fix the time of departure, which he shal only be allowed to delay for a short time in case of militar necessity.

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ART. III. Under the conditions provided for in Articles and IV of the Convention, the name "ambulance" applies t field hospitals and other temporary establishments, whic follow the troops on the field of battle to receive the sick an wounded.

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ART. V. In addition to Article VI of the Convention, it i stipulated that, with the reservation of officers whose detentio might be important to the fate of arms and within the limit

xed by the second paragraph of that article, the wounded allen into the hands of the enemy shall be sent back to heir country, after they are cured, or sooner, if possible, on ondition, nevertheless, of not again bearing arms during the ontinuance of war.

REGULATIONS.

1. All persons connected with the Medical Department of he Army in the field, or referred to in Article II of the Treaty, hall wear habitually during the war, on the left sleeve of the oat, midway between the shoulder and elbow, a brassard or rm-badge, consisting of a red cross on a white ground.

2. All hospitals, ambulances, and field stations of the Med-:al Department will habitually display the Red Cross flag :compañied by the National flag.

3. Permits, in duplicate, for civilians to be present with the rmy, in the service of the Medical Department, may be given y authority of a Division Commander; one copy of the per-it will be retained by the person neutralized, and its dupli-ate should be forwarded promptly to the Chief Surgeon of the rmy.

4. Persons neutralized under this authority will report iemselves at once to the Chief Surgeon of Division for istructions.

5. The wearing of the arm brassard by any person not offi-ally neutralized, is prohibited.

Hospitals.

THE WILL of the late William Whitewright, New York, contains bequest of $50,000 for the Presbyterian Hospital, for the aintenance of free beds, to be known as the "Whitewright eds," in memory of the father of the testator.——By the will the late Mrs. Annie S. Patton of New York, the Manhattan ye and Ear Hospital will receive $50,000.——Mercy Hospital, ittsburg, Pa., celebrated her golden jubilee May 11.——The rmal opening of St. Margaret's Memorial Hospital, Pittsburg, a., erected through the munificence of the late John H. Shoen-rger, who left $850,000 for this project, took place May 10. —The following bequest was recently made known by the ath of Theodore Wernway of Philadelphia, "I give and be-ieath to Medico-Chirurgical College of the city of Philadel-ia the sum of $5000, free from the collateral inheritance tax, r the endowment of a free bed to be named after my deceased ter, Sarah Elizabeth Wernway."

Colleges.

THE FOURTH ANNUAL COMMENCEMENT of the New York Med-al College and Hospital for Women was held May 3 with four aduates.——The Medical Department of Niagara University, ffalo, N. Y., graduated a class of ten May 11.——Thirty grees of Doctor of Medicine were conferred by the Detroit llege of Medicine, May 12.——The Jefferson Medical College, iladelphia, at the seventy-third annual commencement, ay 13, graduated a class of fifty.——The graduating class of e Medical Department of the University of Denver numbered elve.——The Medical Department of the University of xas, Galveston, held its seventh annual commencement May ——By the will of the late Dr. Elizabeth H. Bates of Port ester, N. Y., the University of Michigan comes into posses-n of an estate valued at $125,000. The bequest goes to ablish a chair of the diseases of women and children to be own as the Bates professorship in the Medical Department.

Societies.

The following recent meetings are noted:

Illinois.—Galva Medical Society, Galva, May 5.

Indiana.—Adams County Medical Society, Decatur, May 6; komo Academy of Medicine, May 16; Whitley County dical Association, South Whitley, May 12.

Massachusetts.—Barnstable District Medical Society, Hyan-, May 12; Franklin District Medical Society, Greenfield, y 10; Hampshire Medical Society, Northampton, May 12; rcester District of Massachusetts Medical Society, Worces-, May 11.

Missouri.—Medical Society of City Hospital Alumni, St. uis, May 19.

New York.—Binghampton Academy of Medicine, May 17; erican Laryngological Association, Brooklyn, May 16-18; taraugus County Medical Society, Salamanca, May 10; dical Society of the County of St. Lawrence, De Kalb ction, May 17; Oswego County Medical Society, Mexico, y 10; Rensselaer County Medical Society, Troy, May 10; chester County Medical Society, White Plains, May 17.

Ohio.—Clark County Medical Society, Springfield, May 12.

Pennsylvania.—County Medical Society, Scranton, May 10; Lebanon County Medical Society, Lebanon, May 10; Venango County Medical Society, Franklin, May 17.

Virginia.—Richmond Academy of Medicine, May 11.

West Virginia.—State Medical Association, Martinsburg, May 18-20.

Philadelphia.

PRECAUTIONS TO BE TAKEN AGAINST SMALLPOX.—Recently, warning notices were sent out by the State Board of Health of Pennsylvania to all the local boards, cautioning them against the possible introduction of smallpox into the State on account of its prevalence in the South. The origin was doubtless in Cuba, thence conveyed to Florida in January of last year, there being thirteen cases reported at that time and twelve cases in January, 1898, in one county alone. In March of the present year there was quite an epidemic in Mobile and also in Hoynesville, where 400 cases occurred, and in the entire State 1161 cases. Tennessee also suffered and in January there were 152 cases in that State. Georgia had 374 cases, South Carolina 33 during January and February, and for the same time North Carolina had 9 cases. In February and March at Middleborough, Ky., there were 176 cases. Two cases occurred in Virginia and 5 in West Virginia during February, while in Ohio there were 7 cases. Taking into consideration the importance of Philadelphia from a commercial point of view, where the disease might be propagated, the Board of Health therefore, as a preventive measure, advocates vaccination on the wholesale plan.

NEW BUILDING FOR JEFFERSON MEDICAL COLLEGE. — The historic building which has stood for many years at the corner of Tenth and Walnut Streets is to be pulled down, and a more substantial and adequate building erected. The building is to be five stories high, with a frontage on Tenth Street of 118 and on Walnut Street 107 feet. The first floor is devoted to rooms for trustees, dean, clerks, library, laboratory and a large amphitheater. The second floor will be occupied by a museum, room for experimental therapeutics and a pharmaceutic laboratory. On the third floor there will be a laboratory and rooms for chemicals, and the fourth floor will be devoted to obstetrics, bandaging and demonstration of pathology. The fifth floor will be taken up by an amphitheater accommodating 520 students, a dissecting room and an incinerating room. The college will be equipped with all the recent appliances, heated by steam and lighted by electricity.

KLEBS-LÖFFLER BACILLUS IN MILK.—A few weeks ago it was reported in the JOURNAL that an epidemic of diphtheria in Philadelphia was supposed to have been conveyed through the medium of milk. In the report of Medical Inspector Taylor, recently made to the Board of Health, it was stated that for the week just passed there had been 86 cases with 22 deaths. The majority of the cases had come from the region supplied by a certain dairyman. For the same period there were: Typhoid fever, 60 cases and 9 deaths; scarlet fever, 61 cases and 7 deaths. This report shows that typhoid fever has slightly increased since the report of last week.

PHILADELPHIA MUST HAVE PURE MILK.—Some cities in Pennsylvania, including Philadelphia, recently had a thorough examination made of the milk distributed to customers. Some of the samples were obtained from the depot on the arrival of the train, others at the milk wagons and some from residences after distribution. On the whole, however, it proved to come up to the required standard. Several arrests have, however, followed, and from fines imposed there has been collected $1094. This work has been accomplished by the dairy and food department of the State service.

FIRST AID TO THE INJURED.—Dr. Gerhard of Philadelphia is giving a series of lectures to certain members of the Red Cross Society who contemplate going into the army. The lectures so far have been devoted to fractures, which he is teaching them to treat "while the doctor is coming." Splints must be applied quickly, and under awkward circumstances anything should be converted into a splint, shingles, canes, swords, scabbards, guns, all answering this purpose. Again, they must be padded, and if no other means is at hand old clothing, grass or moss would do, being bound to the limb with green vines, suspenders or strips of clothing.

COMMENCEMENT AT JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.—The seventy-fourth annual commencement of the Jefferson Medical College occurred on May 14 and fifty students received their degree. This is a smaller class than for

many years on account of the fact that the curriculum of four years has been adopted, in conformity with the standard of the best colleges of today. William Potter, president of the board of trustees, made a talk in which he praised the patriotism in offering the services of the entire class to the Government.

DR. SCHWENK OF PHILADELPHIA HONORED.—The Board of City Trusts recently appointed the above named gentleman on the staff of the Will's Eye Hospital, a vacancy occurring on the resignation of Dr. Edward Jackson. Dr. Schwenk is well liked by his professional brethren and is a member of many medical societies of the State.

MUST NOT POLLUTE THE WATER.—At a recent meeting of the city council an ordinance was proposed relative to the protection of the water-supply against Spanish trickery. It would be almost impossible for harm to come from this source on account of the number of reservoirs in the city and the large body of water, Schuylkill River, which supplies the city.

CHANGE OF ADDRESS.

Atkinson, W. H., from 707 12th N. W. to 805 12th N. W., Washington, D. C.
Allaben, J. E., from 330 W. State St. to 202 Masonic Temple, Rockford, Ill.
Billig, A., from Chicago to Pullman, Ill.
Crook, L. F., from Cresson to Hico, Texas.
Chamberlin, L. H., from Detroit to Grand Rapids, Mich.
Canright, O. S., from Palmyra to East Troy, Wis.
Cone, D. E., from Fall River, Mass., to 103 Murray St., Binghamton, N. Y.
Cattrell, D., from 279 E. Indiana to 264 E. Ohio St., Chicago, Ill.
Dyson, E. B., from Cleveland to Burton, Ohio.
Daveuport, N. S., from 446 W. Congress St. to 207 Warren Ave., Chicago, Ill.
Edwards, F. H., from 330 W. State St. to 202 Masonic Temple, Rockford, Ill.
Evans, O. H., from Thurmau to Limestone and Clifton Sts., Springfield, Ohio.
Faber, C. A., from 41-42 Murrell Bldg to 24-25 Burchard Block, Milwaukee, Wis.
Gasson, I. H., from Omaha, Neb., to Missouri Valley, Iowa.
Graeser, H. B., from Des Moines to Lone Tree, Iowa.
Green, E. M., from Norman, O. T., to Danville, Ky.
Hubbell, W. B., from Cleveland to Elyria, Ohio.
Holman, C. J. Johnson, from Chicago, Ill., to Renville, Minn.
Hollcnbeck, F. D., from 205 N. State St. to 321 E. Chicago Ave., Chicago, Ill.
Hayden, C., from 1828 California to 2827 High St., Denver, Colo.
Hofman, Karl., from 1236 W. 15th St. to 910 Schiller Bldg, Chicago, Ill.
Jones, W. D., from Rising City to Devil's Lake, N. Dak.
Kirkbride, M. F., from Philadelphia, Pa., to Spring Lake Beach, N. J.
Kadlnfowski, S. L., from 312 Forest Ave. to 343 26th St., Detroit, Mich.
Luster, J. C., from Rolla to St. James, Mo.
Larned, E. R., from 320 Fifth to 202 First Ave., Joliet, Ill.
Marsee, J. W., from 106 to 206½ E. New York St., Indianapolis, Ind.
Mattison, J. B., from 188 Prospect Pl. to 174 St. Mark's Ave., Brooklyn, N. Y.
McArdle, from 821 to 1120 16th St., Washington, D. C.
Noble, C. P., from 2134 Hancock to 1637 W. Broad St., Philadelphia, Pa.
Niles, J. W., from 390 N. Clark St. to 420 La Salle Ave., Chicago, Ill.
Pantzer, H, O., from 194 to 316 E. Michigan St., Indianapolis, Ind.
Roop, J. W., from Petersburg to Portland, Ark.
Runkel, W. W., from Cambria to Johnson's Creek, Wis.
Spink, M., from 124 to 218 N. Ala, Indianapolis, Ind.
Singrey, F. T., from Darlington to Democracy, Ohio.
Stevens, F. W., from Chicago to Bloomington, Ill.
Stover, E. E., from Lucas to Box 263, Essex, Iowa.
Smith, G., from Taylorville to Bonrbon, Ill.
Schmidt, O., from Chicago, Ill., to Fond du Lac, Wis.
Stamm, A. A., from Mohnsville to Mohn's Store, Pa.
Waters, G. M., from 1272 N. High to 1396 Neil Ave., Columbus, Ohio.
Woods, E. A., from 324 to 318 15th St., Minneapolis, Minn.
Wilson, J. A., from Columbus to Sidney, Ohio.
Walker, F. E., from Ladora, Ill., to Bigelow, Minn.

LETTERS RECEIVED.

Ackey, L. J., Croton-ou-Hudson, N. Y.; American Therapeutic Co., New York, N. Y.
Blodgett, F. J., New York, N. Y.; Blake, J, A., Brooklyn, N. Y.; Branch, C. H., Grand Isle, Vt.; Branson, L. H., Iowa City, Iowa; Brayton, A. W., Indianapolis, Ind.; Bernstein Mfg. Co., Philadelphia, Pa.; Byan, W. C., Croton, Iowa; Brown, Mark A., Cincinnati, Ohio; Barber, L. A., Mars, Pa.; Bell, F. E., Chicago, Ill.
Cokenower, J. W., Des Moines, Iowa; Carl Aller's Establissement, Copenhagen, Denmark; Collier, L. B., Merrill, Wis.; Chapple, H., Billings, Mont.; Crothers, T. D., Hartford, Conn,; Connor, Leartus, Detroit, Mich.
Dougherty, P., Chicago, Ill.; Dunn, R. J., Chicago, Ill.; D'Ancona, A. A., San Francisco, Cal.; Detwiler, A. K., Omaha, Neb.; Dickson, Orr A., Cortland, Ohio; Dios Chemical Co., St. Louis, Mo.
Edwards, J. W., Toughkenemon, Pa.
French, E. H., Hickory, Ohio; Fitzgerald, Miss Ella, Minneapolis, Minn.
Graham, J. W., Denver, Colo., (3); Graham, C. W., Milwaukee, Wis.; Greene, Chas. Lyman, St. Paul, Minn.; Goldstein, M. A., St. Louis, Mo., (2); Gifford, H., Omaha, Neb.; Gihon, A., New York, N. Y.; Gibson, Robert, Watford, Ontario; Garford Mfg. Co., Elyria, Ohio; Gardner, R. W., New York, N. Y.
Himmel, A. L., Adv. Agency, New York, N. Y.; Hawkins, Thomas H., Denver, Colo.; Hallock, G. W., Chicago, Ill., (2); Hurty, J. N., Indianapolis, Ind.; Hektoen, L., Chicago, Ill.: Harvey Co., The G. F., Saratoga Springs, N. Y.
Jayne, W. A., Denver, Colo., (4); Jones, P. M., San Francisco, Cal.; Johnsou, Gco, W., Chicago, Ill.
Kilgore, A. W., Fort Collins, Colo.
Malsbary, Geo. E., Cincinnati, Ohio; Macdonald, A., Washington, D. C.; Malt-Diastase Co., New York, N. Y.; McSwain, J. A., Paris, Tenn. McKee, H. M., Buffalo, N. Y.; McGillicuddy, T. J., New York, N. Y. Mathews, J. M., New York, N. Y.; Merrill, J. O., Chicago, Ill.; Mills Harry B., Philadelphia, Pa., (2); Milbury, Frank S., Brooklyn, N. Y.
Oman, E. S., Columbus, Ohio.
Peirce, C. N., Philadelphia, Pa., (2); Parmele, C. R., New York, N. Y. Rathmell, J. R., Chattanooga, Tenn.; Ryan, L. R., Galesburg, Ill.; Reynolds, Arthur R., Chicago, Ill.; Reed, R. Harvey, Rock Springs, Wyo. Rochelle, W. F., Jackson, Tenn.; Rosenthal, Edwin, Philadelphia Pa. Roseberry, Benj., Florence, Colo.; Root, P. S., Monroe, Mich.; Randall B. Alex., Philadelphia, Pa.
Sutton, E. M., Peoria, Ill.; Schenck, W. E., Cincinnati, Ohio; Smart Col. Chas., Washington, D. C; Savage, G. C., Nashville, Tenn.; Scofield A. H., Ryan, Iowa; Spencer, Henry, Jersey City, N. J.; Stringer, S., Brooksville, Fla.; Standard Cold Electric Lamp Co., Washington, D. C.; Smith Cline & French Co., Philadelphia, Pa.: Still, D. V., Johnstown, N. Y. Smith, E. B., Detroit, Mich.; Schering & Glatz, New York, N. Y.; Steele H. L, Marianna, Ark.; Scott, J. W., Venice, Ill.
Tinkham Cycle Co., The, New York, N. Y.
Wingate, U. O. B., Milwaukee, Wis., (2); Walling, P. A., Park Rapids Miun.; Ward, Nathan G., Philadelphia, Pa.; Whelpley, H. M., St. Louis Mo.; Whitmore, B. G., New York, N. Y. (3); Whitford, Wm., Maysville Ky.; Woods, Matthew, Philadelphia, Pa.; Wilson, A. J., Chicago, Ill. Wilson, A. M., Kansas City, Mo.; Wilson, Louis N., Worcester, Mass.
Zapffe, Fred. C., Chicago, Ill.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving iu the Medical Department, U. S. Army, from May 14 to 20, 1898.

Acting Asst. Surgeon H. P. Jackson, U. S. A., will proceed from Charleston, S. C., to Key West, Fla., and report in person to Major William R. Hall, Surgeon, in charge of general hospital at that place, for duty.

Acting Asst. Surgeon Charles K. Cutter, U. S. A., now on duty at Boston, Mass., is assigned to duty as assistant to the attending surgeon and examiner of recruits in that city.

Acting Asst. Surgeon Maynard G. Burgess, U. S. A., will proceed from Washington, D. C., to Mobile, Ala., and report iu person to the commanding General of the troops at that place for duty.

Acting Asst. Surgeon David Baker, U. S. A., will proceed from Waltonville, Ill., to Ft. Thomas, Ky., aud report for duty in the general hospital at that place.

Acting Asst. Surgeon George H. Richardson, U. S. A., will proceed from Washington, D. C., to San Francisco, Cal., and report in person to the commanding General of the expedition to the Philippine Islands for duty.

Acting Asst. Surgeon Arthur Jordan, U. S. A., will proceed from Richmond, Va., to Mobile, Ala., and report for duty with troops in the field at that place.

Acting Asst. Surgeon Frederick J. Combe, U. S. A., will proceed from Brownsville, Texas, to Tampa, Fla., and report for duty with troops in the field at that place.

Acting Asst. Surgeon Clarence J. Manly, U. S. A., will proceed from Washington, D. C., to Ft. Thomas, Ky., and report for duty iu the general hospital at that place.

Acting Asst. Surgeon Ira A, Shimer, U. S. A., will proceed from Washingtou, D. C., to Et. Myer, Va., and report for duty in the general hospital at that place.

Actiug Asst. Surgeon George H. Penrose, U. S. A., will proceed from Salt Lake City, Utah, to Ft. Douglas, Utah, and report to the commanding officer for duty at that post.

Acting Asst. Surgeon Amos W. Barber, U. S. A., will proceed from Cheenne, Wyo., to Ft. D. A. Russell, Wyo., and report to the commanding officer for dnty at that post.

Actiug Asst. Surgeon Douglas F. Duval, U. S. A., will proceed from Washington, D. C., to West Point, N. Y., and report for duty at the U. Military Academy.

Acting Asst. Surgeon S. Melville Waterhouse, U. S. A., will proceed from Washiugton, D. C., to Ft. Hamilton, N. Y., and report for duty at that statiou.

Major William B. Davis, Surgeon, is assigned to duty iu charge of the general hospital at Ft. Myer, Va., in addition to his duties as surgeon at that post.

Major Robert H. White, Surgeon, is relieved from duty at the Presidio of San Francisco, Cal., and will report in person to the commanding General of the expedition to the Philippine Islands for duty as chief surgeon.

Major Edward B. Moseley, Surgeon, is relieved from duty at Benicia Bks., Cal., and ordered to Presidio of San Francisco, Cal., relieving Major Robert H. White, Surgeou.

Capt. George E. Bushnell, Asst. Surgeon, is relieved from duty as attending surgeon and examiner of recruits at Boston, Mass., and will report in person to the Surgeon-General of the Army, for duty in his office.

The following named medical officers, in addition to their present duties, are assigned to duty in charge of the general hospitals at the plaees opposite their respective names: Lieut.-Col. William H. Gardner, Deputy Surgeon-General, Ft. Thomas, Ky.; Major Blair D. Taylor, Surgeon, Ft. McPherson, Ga.

Major William H. Corbusier, Surgeon, is relieved from duty at Angel Island, Cal., and assigned to duty as acting medical purveyor of the expedition to the Philippine Islands.

Capt. Charles B. Ewing, Asst. Surgeon, will proceed at once to New Orleans, La., and report to the commanding officer Fifth Cavalry for duty.

The following named medical officers are detailed to represeut the Medical Department of the Army at the annual meeting of the American Medical Association to be held in the city of Denver, Colo., June 7 to 10, 1898: Lieut.-Col. Alfred A. Woodhull, Deputy Surgeon-General; Major Curtis E. Munn, Surgeon.

Acting Asst. Surgeon José M. Pelgado, U. S. A., will proceed from Washington, D. C., to Tampa, Fla., and report for duty with the U. S. troops at that place.

A contract having been made with Dr. A. D. McArthur of Littleton, Col., for duty as Acting Asst. Surgeon at Ft. Logan, Colo., he will proceed to that post and report to the commanding officer for duty, to relieve Acting Asst. Surgeon Carroll E. Edson, whose contract is about to terminate.

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ADDRESS.

HE ETIOLOGY, PATHOLOGY AND DIAGNOSIS OF INTESTINAL TUBERCULOSIS.

Address in Surgery, delivered at the Meeting of the Ohio State Medical Society, May 5, 1898.

BY N. SENN, M.D., PH.D., LL.D.

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Renewed interest has been awakened in the subject intestinal tuberculosis since recent experience in odern aggressive surgery has taught the profession at some of the cases in which the disease occurs as primary affection are amenable to successful surgi- intervention. Intestinal tuberculosis appears under many different pathologic forms and presents such rious clinical aspects, that it becomes necessary to quire carefully into its etiology and pathology, in ler to enable the surgeon to exercise the necessary e in the selection of cases for operative treatment. e field of abdominal surgery is rapidly increasing extent and usefulness, and one of its most recent uisitions is the successful treatment of certain ms of intestinal tuberculosis.

t is my intention on this occasion to discuss as efly as possible the etiology, pathology, symptoms diagnosis of this affection of the intestinal canal, h special reference to the indications which dictate warrant surgical interference.

requency of intestinal tuberculosis.—Intestinal erculosis is a very common complication of pul- ıary and miliary tuberculosis. It is not often met ı as a primary affection. In one thousand tuber- ır subjects examined postmortem in the Patholog- Institute at Munich between the years 1886 and), only one case of primary intestinal tuberculosis noted, while in 566 cases secondary intestinal rculosis was seen.

ıat the disease occasionally occurs as a primary tion can no longer be doubted; the results of an mous clinical experience and thousands of necrop- furnish a substantial verification of this fact. e can, however, be but little doubt that in many of tuberculosis of the intestine in which the cal features point only to this organ as the sole of disease, careful search would reveal old, per- latent tubercular foci in some other part of the . The prudent surgeon selects for his operative only the cases in which he has reason to believe, the clinical history and the signs and symptoms nted, that the disease is limited and confined y if not entirely to the intestinal canal.

berculosis of the stomach.—As primary intestinal culosis is for the most part a feeding disease, it eresting to know whether or not the stomach is he seat of tubercular infection. For good reasons ve for a long time assigned to the gastric juice a destructive, or at least an inhibitory effect on pathogenic bacteria, but the results of experimentation and clinical observations seem to combine in proving that the virulence of the bacillus of tuberculosis is little if any impaired on its way through the stomach. It is natural to assume that in cases in which the physiologic activity of the glandular appendages of the stomach is lessened, the antiseptic properties of the gastric secretions would be correspondingly diminished. The correctness of this statement is borne out by the experience of many reliable clinicians and by the results of experimentation on the lower animals. Blumer (*Albany Medical Annals*, March, 1898) reports a case of tuberculosis of the stomach in which he found postmortem an old caseous area at the apex of the right lung which had softened at the lower part, general miliary tuberculosis, tuberculous ulcers of the stomach and ileum, tuberculosis of the kidneys and of the aorta. The stomach lesion consisted of three or four small, shallow, circular ulcerations, and near them, numerous miliary tubercles. Blumer has studied the literature of the subject and finds but thirty cases on record, in all of which the gastric lesion was secondary to tuberculosis elsewhere. He divides the reported cases into miliary tuberculosis, and single and multiple ulcerations. Four were cases of pure miliary tuberculosis of the stomach wall; about eight were single and the remainder multiple ulcers.

Tuberculosis of the stomach usually occurs only in connection with similar affections of other organs, especially the intestinal and lymphatic glands. The ulcers are pale and have thickened edematous edges. The inflammatory product presents the usual evidences of the nature of the disease—giant cells, bacilli and perhaps cheesy material. The disease in this locality presents no characteristic symptoms. Perforation and hemorrhage may occur under the same circumstances as in intestinal tuberculosis. The ulcer presents a sharp contrast to its dark-colored surroundings. In a few cases the serous coat over the floor of the ulcer is studded with miliary tubercles. In Litten's case the tuberculosis of the digestive tract was limited to the stomach. Similar cases have been described by Talamon-Balzer, Gilles and Eppinger. Musser ("Tubercular Ulcer of the Stomach," Philadelphia Hospital Reports, Vol. i, p. 117) found a tubercular ulcer of the stomach one and one-half by three and one-half inches on postmortem examination of a patient who had died of pulmonary tuberculosis. Tubercle bacilli were found in the cheesy material. Most of the cases of tubercular ulcer of the stomach have been observed in children. The disease presents no characteristic symptoms. Musser claims that death in these cases often results from hemorrhage.

Tuberculosis of the stomach is a very rare affection, as is shown by the researches of Letorey (Thèse de Paris, 1895), who was able to find an account of only

twenty-one cases. This rarity is explained, to a certain extent, by the well known action of the gastric juice on the bacillus tuberculosis, which either dies or loses its virulence in an acid medium. Absence or diminution of hydrochloric acid would therefore favor the development of tubercular lesions, as would also other affections which impaired the digestive functions of the stomach. Letorey believes that the bacillus reaches the stomach more frequently by the way of the circulation than by entrance with infected food. The disease is more frequently demonstrated in the autopsy room than at the bedside. The usual site of the ulceration is near the pylorus and on the larger curvature. In only six cases out of the twenty-one was more than one tubercular ulcer noted, so that the lesion may be said to be generally single, the ulcer round or oval, with ragged and bleeding edges and a grayish-yellow floor. The ulcer occasionally reaches a diameter of from three to five centimeters. The prognosis in these cases is grave, since the patient usually dies from the effects of the primary pulmonary affection or tuberculosis of other organs, the gastric complication perhaps hastening the fatal termination. The occasional occurrence of tubercular gastritis is the best possible proof that the bacillus of tuberculosis may pass through the stomach, subjected to the action of the gastric juice, and still retain sufficient virulence on its entrance into the intestinal canal to exercise its specific pathogenic action upon the tissues prepared for its reception and multiplication by hereditary or acquired predisposing causes.

Etiology.—Primary tuberculosis of the intestinal canal is the result of infection from without by the ingestion of food contaminated with the essential cause of the disease, the bacillus of tuberculosis, usually in the form of tubercular milk and meat. The secondary form is caused by auto-infection by the entrance of tubercular sputa into the intestinal canal. The lymph follicles and Peyer's patches furnish the most favorable anatomic conditions for the localization and growth of the tubercle bacillus. Klebs believes that the introduction into the intestinal canal by the swallowing of sputa in phthisical patients is a frequent cause of intestinal tuberculosis. He discovered two tubercular ulcers in the stomach of a patient who had died of pulmonary tuberculosis. The supposition that intestinal tuberculosis is often caused by the ingestion of tubercular food or sputa is supported by the experiments of Malin, Parrot and Bonley, who found that animals fed with the expectorations of consumptives died of tuberculosis; while Chauveau, Bollinger and others succeeded in producing intestinal tuberculosis by feeding animals susceptible to the disease with fragments of tubercular lungs or with raw tubercular meat. The experiments of Gerlach, Zürn and Klebs demonstrated the dangers attending the use of milk from tubercular cows. In these experiments it was noted that the disease commenced in the form of an intestinal catarrh, and that the extension of the tubercular infection began through the mesenteric-glands before the development of diffuse miliary tuberculosis. W. Zinn ("Ein Fall von Fütterungstuberculose bei einem erwachsenen Menschen, mit Ausgang in Miliartuberculose," *Münch. Med. Wochenschrift*, 1895, No. 37) observed a man 29 years of age who in the course of nine weeks died of acute miliary tuberculosis. The autopsy showed that the miliary tuberculosis had its origin in a mass of caseous tubercular mesenteric glands. No other old tubercular deposit could be found. In the intestine, at a point corresponding t the diseased glands, was found the scar which followe the healing of a tubercular ulcer. The ulcer was evi dently the primary lesion which led to tubercula lymphadenitis, and finally death followed from rein fection of the body from the tubercular glands, lon after the intestinal ulcer had healed. General infec tion in this case took place through the thoracic duc Wyss ("Zur Kasuistik der primären Darmtuberku lose im Kindesalter," *Correspondenzblatt f. Schweiz erärzte*, 1893, No. 22) found in seventy-one postmo tems on children three instances of undoubted primar intestinal tuberculosis. In one case, a girl 5¾ yea old who had died of diphtheria, a solitary tubercul ulcer was found in the ileum with extensive tuberc losis of the mesenteric glands. No trace of tube culosis could be detected in any other organ. Upo inquiry it was ascertained that the child had been fe on milk almost exclusively for some time before sh contracted diphtheria. In the other two cases th disease could be traced to the same cause.

Intestinal tuberculosis is found most frequently children and young adults, although no age is entire exempt. In the language of Virchow: "the predisp sition to tuberculosis, the hereditary vulnerabili resides in the tissues, and that the younger and mo incompletely developed these are, the more readi will the vulnerability manifest itself in the presen of exciting causes." This may explain the speci frequency of intestinal tuberculosis in children and subjects affected by antecedent inflammatory affe tions of the intestinal mucous membrane.

Baumers ("Recherches sur la maladie propre a enfants") first called attention to intestinal tuberculo in children, which has been known as tabes S., phthi mesaraica, febris mesaraica, febris xanthus infantu and intestinal scrofula. Intestinal tuberculosis children results in early and extensive infection of t mesenteric glands, from which reinfection usua terminates life by miliary tuberculosis. Seconda tuberculosis appears to be more frequent in adu than in children. In children intestinal tuberculo is not within 30 to 40 per cent., in the adult in 60 70 per cent. The local predisposing lesion, althou important in determining localization, is not essent as the tubercle bacilli can penetrate the intact muc membrane.

In six of Czerny's cases subjected to operative int ference the patients were between 25 and 50 years of a the average age being 39. In four of the cases tul culosis was hereditary, in two cases the disease lowed typhoid fever, and in one it was preceded by acute attack of parametritis. In three of the cases intestinal disease was complicated by pulmonary tul culosis, and in one by diffuse miliary tuberculosis. one case the infection occurred by the rupture c tubercular adnexal abscess into the intestine, anc another the intestinal tuberculosis was complicated actinomycosis.

Clinical experience has shown that intestinal tul culosis pursues a more benign and chronic cours the adult than in children, and consequently the mary form of intestinal tuberculosis amenable to cessful surgical treatment is met with most freque in young adults and persons of advanced age, sel in the case of infants and young children.

Infection from the blood is undoubtedly of q common occurrence in primary and secondary in tinal tuberculosis. The most favorable cases for

essful surgical intervention are those in which a ocalized predisposing lesion furnishes an infection trium for the entrance of tubercle bacilli into the issues. These are the cases in which characteristic olitary or multiple tubercular ulcers develop which anifest an intrinsic tendency to heal, and in which n operation finally becomes a necessity after symp-oms of obstruction indicate the existence of a cica-icial stenosis.

Pathology.—Intestinal tuberculosis presents itself linically and pathologically in the form of a chronic atarrhal or ulcerative enteritis. The inflammation hich follows the tubercular infection is characterized y a series of pathologic processes common to all ibercular affections, influenced and modified, how-ver, by the structure and function of the tissues in-olved. The primary seats of infection are the gland-lar appendages of the mucous membrane, the lymph ollicles and Peyer's agminated glands. The mode of ifection resembles typhoid fever in many respects. he lower portion of the ileum and the ileo-cecal gion are the most frequently infected, although any ortion of the intestinal canal may be involved pri-arily or by extension. Of six cases of intestinal iberculosis reported by Schiller ("Ueber die Darm perationen an der Heidelberger Chirurgischen Klinik is den letzten vier Jahren." Dissertation, 1896), hich were operated upon by Czerny during a period four years, the disease involved the ileo-cecal region our times, and the descending colon twice. In all ises of cecal tuberculosis operated upon by Czerny, ie ulceration was limited on one side by the ileo-cal valve; the mucous membrane of the cecum was xtensively ulcerated, presenting elevations and depres-ons and polypoid excrescences between the ulcers; ie cecal wall was much thickened and indurated. he lumen of the cecum was usually found contracted, ie stenosis being the direct cause of the intestinal bstruction. In one case the mechanical impediment as found to be a sharp flexion at the insertion of the eum into the cecum. In one case the contracted men of the cecum was divided by a band of cicatri-al tissue. The bowel below the obstruction was, as always the case, nearly empty, reduced in size and emic, while on the proximal side reverse conditions isted, which facilitated circular suturing after excis-n. In acute cases, such as are observed in children, id which seldom come to the notice of the surgeon, e disease is usually diffuse and often implicates a rge section of the intestinal canal above the ileo-cal valve. Tuberculosis is apt to attack a portion the intestinal canal subjected to mechanical irrita-on, as is the case in hernia.

A number of cases of tuberculosis of hernia have en reported. Bruns ("Beiträge zur Klin. Chirurgie," ix, p. 206) adds one new case to those previously iblished. In these thirteen cases the hernial sac was acked ten times, and in seven it was alone the seat disease. This, together with other conclusions, bstantiate the belief, that "tuberculosis of hernia" y occur as a primary disease; generally, however, is associated with peritoneal tuberculosis.

It appears from the present literature on the sub-t that tuberculosis in the ileo-cecal region and the on is usually a disease of adults, although there a few cases on record in which the intestinal al at and below the ileo-cecal region was affected in ildren not more than 10 years of age.

Reclus (*Le Bulletin Médicale*, June 25, 1893) has called attention to the rapidly increasing number of cecal tuberculosis cases which have been operated upon. The cases of Bouilly, Terrier, Hartmann, Reynier, Broca, Roux, Salzer, Billroth and Hochenegg, the anatomical researches of Duguet, Spillmann, Hérard, Cornil and Hanot, and the more recent descriptions of Pilliet and of Le Bayou have thrown some light upon this hitherto but little recognized affection. This affection may manifest itself as a localized tuberculosis without infiltration and as a purely local disease. This suffices to place this intestinal lesion among the surgical tuberculoses. From the moment it is a limited focus and this focus is accessible, in such favorable circumstances intervention is legitimate. The greatest number of cases of cecal tuberculosis so far reported have been over 25 years of age.

It seems that two distinct anatomo-pathologic forms may be described, associated with different symptoms; the one a fibrous and the other an ulcerating variety; moreover, these may be combined, or there may be noticed many intermediate stages between the varieties. The majority of cases thus far reported have been characterized by an abundant tissue proliferation, which imparted to the swelling much of the aspects of carcinoma. The inflammatory mass is almost always found freely imbedded in plastic adhesions, and it is difficult if not impossible to outline the anatomic landmarks of the parts involved. Ordinarily the lesions are most marked around the ileo-cecal valve. The appendix is generally affected and constitutes a portion of the inflammatory mass.

The second or ulcerated form may present thickening of the peritoneum and adhesions around the intestinal loops, but these have not the remarkable hypertrophy of the other form; on the contrary the ulcerative process predominates, the mucosa has often completely disappeared, especially at the site of the ileo-cecal valve. Ulceration often leads to abscess and fistula formations. The fistulous openings are often multiple.

Cornil believes that in such cases the primary infection takes place in the appendix vermiformis, more especially when it is the seat of a fecal concretion or foreign body.

The tubercular infection may take place in the upper portion of the intestinal canal. Claude ("Ulcérations tuberculeuses du duodénum," *Bulletin de la Société anatomique de Paris*, No. 8, 1896) made a postmortem on a man 33 years of age who had died of pulmonary tuberculosis. He found tubercular ulcers in the upper portion of the duodenum; four other ulcers were found in the ileum. He attributed the intestinal disease to infection from the blood. During life this patient never showed any symptoms referrable to the intestinal canal. The tubercular nature of the intestinal affection was established by histologic and bacteriologic examinations.

The entire length of the intestinal canal is seldom affected by tuberculosis, and in the exceptional instances when this is the case the disease pursues a rapidly fatal course. It has already been stated that intestinal tuberculosis always begins in the lymph follicles or Peyer's patches. The tubercular process is at first submucous, and reaches the surface only after degeneration and ulceration have taken place. The glands become swollen, can be felt under the epithelial lining as small hard nodules, which present a grayish color before caseation sets in. With the onset of caseation the swelling increases in size and

assumes a yellowish color. As soon as the overlying epithelial lining is destroyed softening of the inflammatory product and ulceration set in. The primary ulcer is small and round with yellowish margins. At the time the crater-like defect takes place the mass is not larger than a hemp-seed. Such small ulcers may heal, but more frequently progressive extension takes place in the direction of the blood vessels. In Peyer's patches the appearance of sieve-like defects can be seen during the early stages of the disease, which Rokitansky described as primitive tubercular ulcerations. They constitute the preparing stage or secondary tubercular ulcers. Even in superficial ulcers tubercles can constantly be found between the muscular fibers. By confluence and progressive infection the surface defects increase in size. Not infrequently remnants of intact mucous membrane remain between the different points of ulceration. The shape of the ulcer is variously modified by the confluence of several ulcers. The most extensive ulcers are found in the cecum, colon and terminal portion of the ileum.

The intrinsic tendency of intestinal tubercular ulcers is to increase in size in the direction of the blood vessels; that is, transversely to the long axis of the bowel, a pathologic feature which was first pointed out by Rokitansky (Lehrbuch der path. Gewebelehre," 1871, p. 327). The tubercular infection follows the lymph sheath of the blood vessels. Through the lymphatics the infection extends to the serosa, upon the surface of which miliary tubercles are often found over an area corresponding in extent to the base of the ulcer. The mesenteric glands are infected through the same channels. In children the mesenteric glands are often affected without an antecedent intestinal lesion. In such cases the tubercle bacilli penetrate through the mucous membrane and enter the lymphatic system without producing a demonstrable surface lesion, or infection takes place by the way of the general circulation. Infection through the mucous membrane undoubtedly is often determined by catarrhal enteritis, which damages the epithelial lining and prepares the way for invasion from the intestinal canal.

Extension of the ulcer in the muscular coat takes place by progressive extension of the ulcerating process and by diffusion of the infection through the lymph channels (Figs. 1 and 2). As soon as the serous coat is reached secondary plastic peritonitis is almost the constant result. Usually the peritonitis is limited to the affected portion of the bowel, between which and the adjacent viscera firm adhesions are formed. In exceptional cases the peritonitis becomes profuse without perforation. More frequently, however, the diffuse tubercular peritonitis is caused by the rupture of a peri-intestinal tubercular abscess. Perforation of a tubercular ulcer is often prevented by early and firm adhesions. In one of the cases reported by Rindfleisch the intestine was found perforated at five different points without causing diffuse peritonitis, owing to the existence of firm adhesions. Perforative peritonitis is so rare in intestinal tuberculosis that Leube saw only two cases during his service in the clinic at Erlangen. Leudet reports six cases that occurred in his practice, which were due to tubercular affection of the appendix. Eisenhardt ("Ueber die Häufigkeit und Vorkommen der Darmtuberculose," Dissertation, Munich, 1891) found perforation in 28 out of 566 cases of intestinal tuberculosis examined postmortem. Extension of the disease to other parts and organs frequently takes place through the lymphatic system.

Tubercular lymphadenitis is a frequent and, in

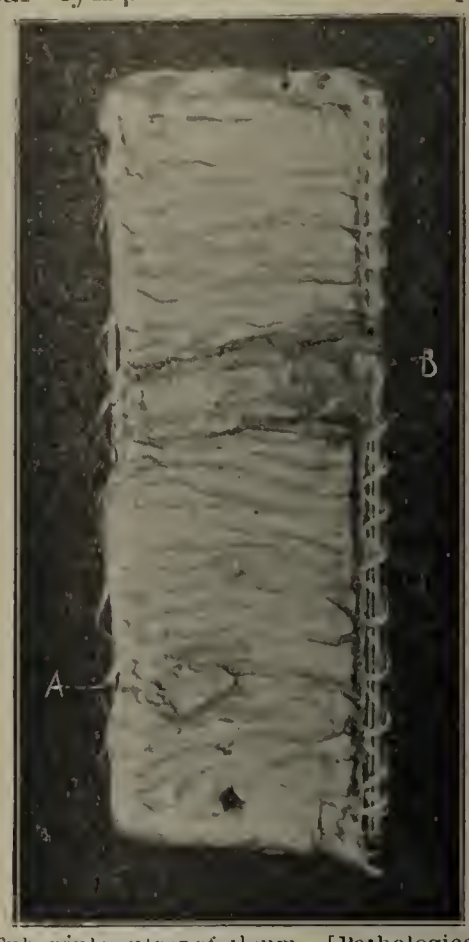


Figure 1.—Tubercular ulcer of ileum. [Pathological Museum Rush Medical College.] a, round tubercular ulcer of ileum; b, narrow circular annular tubercular ulcer of ileum.

long-standing cases, a constant concomitant pathologic condition, as was first pointed out by Schüppel and Rindfleisch. The observations occurring during operations made for intestinal tuberculosis and the

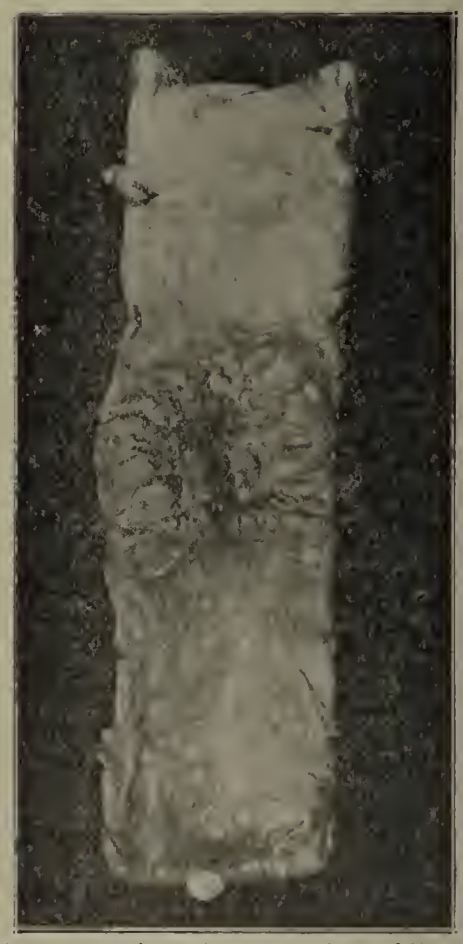


Figure 2.—Diffuse annular tubercular ulcer of ileum. [Pathological Museum Rush Medical College.]

results of postmortem examinations combine to show that retrograde metamorphosis of the inflammatory product of the tubercular glands takes place very slowly. The writer has seen repeatedly tubercular

mesenteric glands as large as a hazel-nut which had not undergone any decided cheesy degeneration. Coagulation and caseous degeneration, however, occur in the course of time, but liquefaction and abscess formation in and around tubercular mesenteric glands are of rare occurrence. Infiltration and thickening of the intestinal wall occur most frequently and reach the maximum height in cases in which the tuberculosis is located in the ileo-cecal region or colon. In these localities the disease is most frequently primary, a fact which would explain its chronicity and comparatively benign nature. When the tubercular process affects this part of the intestinal canal the resultant swelling is often of larger size and has frequently been mistaken for malignant disease. In such instances the intestinal wall has been found several centimeters in thickness.

In acute cases of intestinal tuberculosis the ulcers manifest little or no tendency to repair. In chronic cases attempts at healing or complete healing is the rule. Eisenhardt (*op. cit.*) in examining the postmortem records of 566 cases of intestinal tuberculosis, found that healing was completed in only 10, while in 25 instances the ulcers were only partly healed.

Attempts at cicatrization are frequently seen, but very often while healing is going on in one part of the ulcer progressive infection and destruction are witnessed in another portion. The healing of a tubercular ulcer of large size requires an enormous quantity of new material, which is composed largely of new connective tissue. The scar tissue always evinces a tendency to contraction, which leads to stenosis and flexion. If the ulcer is circular, healing is attended by contraction of the lumen of the bowel, which finally leads to intestinal obstruction. If only one side of the circumference of the bowel is ulcerated, healing will result in contraction and flexion. The healing of several tubercular ulcers gives rise to the development of multiple strictures, which have been found by several surgeons in operations for intestinal obstructions. Progressive cicatricial contraction may eventually result in almost complete obliteration of the lumen of the bowel. In one of Scheuer's cases the stricture at the time the intestinal resection was performed for obstruction was so narrow that it admitted only a probe three millimeters in size. The healing of intestinal tubercular ulcers is seldom followed by complete recovery, as all such patients are liable later to intestinal obstructions and reinfection from the tubercular mesenteric and retroperitoneal glands.

Symptoms.—Intestinal tuberculosis may run its entire course from beginning to end without any symptoms which would point to the intestinal canal as the principal seat of the disease. Tubercular ulcers of the intestines are often found at autopsies without the slightest evidence of their existence during life. That an isolated tubercular ulcer of the intestine may exist without causing symptoms before perforation occurs, is shown by a case reported by Baumgarten ("Ueber latente Tuberculose," Volkmann's *Klinische Vorträge*, No. 218). A young soldier, in almost perfect health, died suddenly of perforative peritonitis. The postmortem revealed, as the cause of the peritonitis, a solitary perforated ulcer, the size of a penny, in the lower portion of the ileum. Microscopic examination of the tissues demonstrated the tubercular nature of the ulcer. No evidence of tuberculosis was found in any other organ of the body.

In other cases the symptoms are misleading. Thus Leonhardi-Aster (Ueber einen unter dem Bilde perniciöser Anæmie verlaufenden Fall von Darmtuberculose." *Deutsche Zeitsch. f. prakt. Med.*, 1878, Nos. 8 and 9) recorded a case of intestinal tuberculosis which presented all the clinical features of pernicious anemia, the intestinal symptoms being masked by the progressive anemia for which no cause could be assigned until the necropsy revealed the characteristic pathologic lesions of intestinal tuberculosis. In cases of diffuse acute intestinal tuberculosis the most important and prominent symptoms point to the existence of an intestinal catarrh. Profuse diarrhea is seldom absent, the stools being copious and liquid. Colicky pains referred to the umbilicus, slight tenderness on deep pressure, progressive emaciation and more or less rise in temperature, especially toward evening and during the night are symptoms well calculated to arouse suspicion in regard to the probable tubercular nature of the intestinal disease. Enlarged mesenteric glands can often be palpated through the thin and relaxed abdominal wall. In some cases enlarged mesenteric and retroperitoneal glands can be detected by vaginal or rectal examination. The severity of the diarrhea is attributable more to the existence of the complicating intestinal catarrh and increased peristalsis than to the ulcers themselves. Pulmonary tuberculosis, as well as tuberculosis of any other important organ, often overshadows and masks the intestinal complication. In all cases of pulmonary tuberculosis attended by diarrhea, which does not yield to the ordinary treatment, we have reason to assume the existence of intestinal tuberculosis. In primary intestinal tuberculosis the early symptoms set in insidiously, the disease is usually mistaken for an ordinary intestinal catarrh and is regarded as such until the negative results obtained from the treatment induces the physician to make a more thorough investigation of the case. The suspicions of the tubercular nature of the intestinal disease are materially strengthened if it can be ascertained that the patient has made unsterilized milk a staple article of diet.

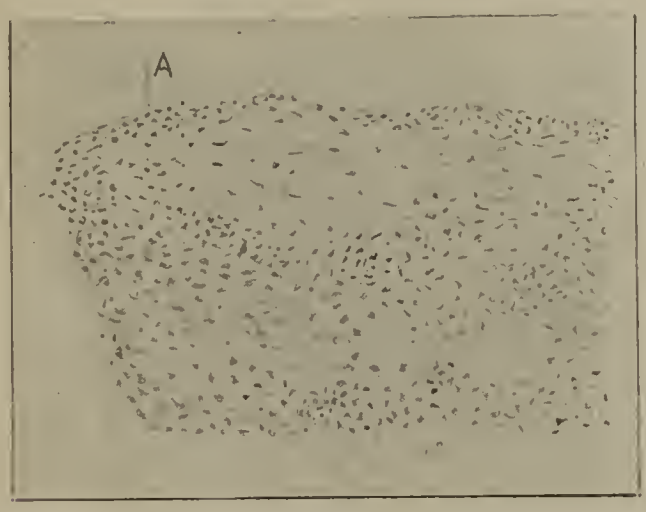
The frequent presence of traces of blood in the stools is decidedly suspicious. If the ulcers are located in the small intestine the blood is intimately mixed with the stools; if in the large intestine the extravasated blood often forms a coating for the otherwise well formed fecal masses. Pus in the stools is found, as a rule, only when the tubercular process involves the lower portion of the large intestine. In the small intestine the pus that forms on the surface of the ulcers is speedily washed away with the intestinal discharges and, on the other hand, pus formation is checked by the peptic action of the intestinal juice, which acts as an efficient antiseptic. Bamberger has called attention to the character of the stools in intestinal tuberculosis, which according to this authority frequently contain transparent particles of mucus resembling frog spawn or boiled sago grains. These masses of mucus are probably formed in and are discharged from the lymph follicles of the intestinal mucous membrane, the structures primarily affected by the tubercular process.

Virchow places less diagnostic importance on the presence of this pathologic product, which he believes has often been mistaken for partially digested starch.

The partial or complete healing of a tubercular ulcer of considerable size is usually announced clinically by the appearance of a complexus of symptoms which

indicates the existence of chronic intestinal obstruction, caused by the cicatricial stenosis which so constantly attends and follows the healing of a tubercular ulcer. Intermittent colicky pains in the umbilical region, diarrhea alternated with constipation, and perhaps occasional attacks of vomiting, are the most prominent clinical manifestations in such cases. Chronic intestinal obstruction from this, as well as other causes, often terminates in an acute attack. In rare cases, the chronic obstruction presents few or no symptoms until symptoms of acute obstruction set in, when operation or autopsy reveal the presence of an old cicatricial stenosis, which was never suspected before the abdomen was opened.

The formation of a chronic abscess in the ileo-cecal region, or any part of the abdominal wall, in connection with intestinal symptoms of long standing, always suggests the probable existence of a tubercular intestinal ulcer. The writer has always observed these in the ileo-cecal region, over the ascending colon, and in one case in the umbilical region. These are the cases in which, prior to the perforation of the ulcer, adhesion takes place, excluding the peritoneal cavity, followed by the formation of a mural tubercular abscess. In more than one case the tubercular nature of the abscess and its intestinal origin were predicted before the abscess was opened. A fecal fistula is sure to follow the opening of such an abscess. The granulations



Peritoneal tubercle showing bacilli. A, visceral peritoneum. Eye piece 4, obj. 1/12.

lining the abscess cavity may for a time prevent the escape of intestinal contents, but in the course of a few days or weeks the granulations give way and the fecal fistula appears. If the disease is attended by plastic peritonitis to any considerable extent the inflammatory exudate may often be distinctly outlined by palpation.

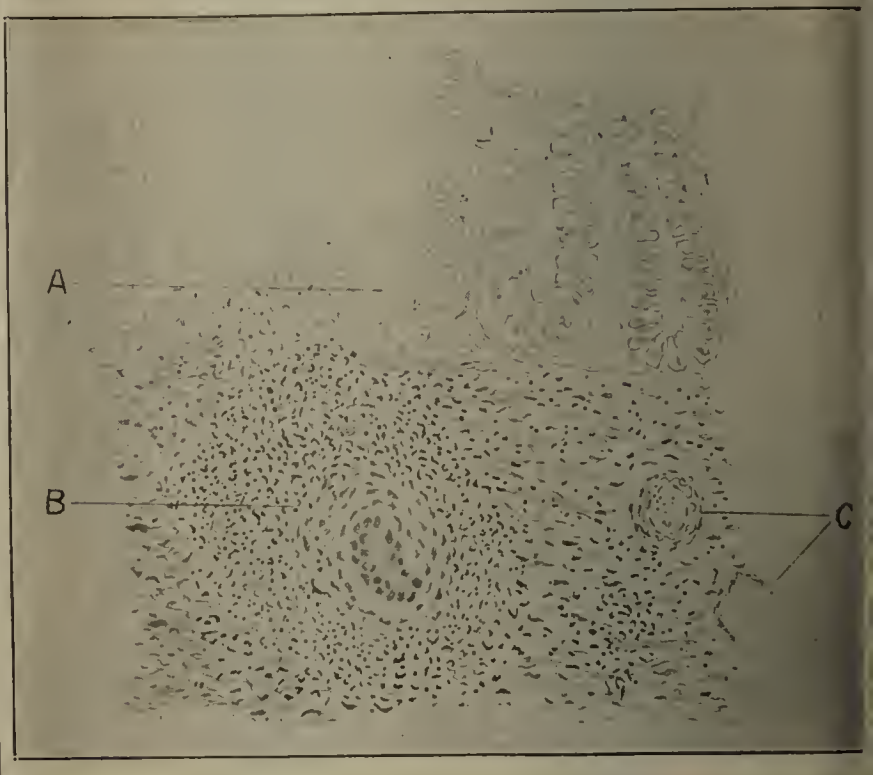
Voehts calls attention to a condition of diagnostic value, often met with in such cases, in the form of indurated plates in the peritoneum of almost cartilaginous hardness.

Such areas of induration are not only found in the ileo-cecal region, along the course of the colon according to the seat of the disease, but also in Douglas' fossa. In the pelvis these indurations may grow to actual exudates of considerable size, which in women might be mistaken for diseased adherent ovaries or tubercular Fallopian tubes.

In four out of six cases operated upon by Czerny a diagnosis of probable intestinal tuberculosis was made before the operation was performed. The diagnosis was based largely upon the clinical history which indicated the existence of a cicatricial stenosis in the ileo-cecal region and the presence of a swelling, which on percussion yielded a dull tympanitic resonance, and which was movable and only slightly tender on pressure, and the periodic abdominal pains caused by exaggerated intestinal peristalsis, as described by Czerny, König and Benoit.

The anatomic location of the stricture is indicated by clinical phenomena which deserve a careful study and analysis. Stenosis of the duodenum above the entrance of the bile duct, gives rise to the same symptoms as stenosis of the pylorus, but below this point it is attended by symptoms which not only simulate the latter affection, but also obstruct the entrance of bile into the intestinal canal.

The most important condition which characterizes duodenal stenosis below the bile duct, is the constant presence of bile in the chyme and repeated ejections of the fluid by vomiting. On the other hand, of three clinical observations Boas ("Ueber die Stenose des Duodenum," *Deutsche med. Wochenschrift*, 1891, No. 28), shows that fluid taken from the stomach



Tubercular intestine. A, necrotic mucosa; B, tubercle in submucosa; C, vessels. High power.

contains not only bile but also pancreatic juice. The contents of the stomach possessed all of the chemic properties of duodenal chyme.

Duodenal differs from pyloric obstruction also by the absence of a corresponding dilatation of the stomach, by the absence of the products of fermentation of the stomach contents and by the absence of sarcinæ and yeast cells. No distinction can be made between obstruction in the lower portion of the duodenum and the upper part of the jejunum. Vomiting of large quantities of bile indicate duodenal obstruction, while the ejected material assumes more and more the character of feces, the lower the location of the obstruction. In eight out of twelve cases of duodenal obstruction, collected by Gerhardi and Hagenbach, the disease was due to carcinoma, cysts or hemorrhage of the pancreas. The search for the pancreatic juice in the stomach contents is important. The number of well authenticated cases of tuberculosis of the duodenum have been placed on record, and there is no reason to doubt that in isolated cases the ulceration might heal with the usual remote conditions following cicatricial stenosis and intestinal

obstruction. If the cicatricial stenosis involves the ileo-cecal region, or any part of the colon, the usual symptoms indicative of intestinal obstruction in these portions of the intestinal tract, will develop. Diarrhea is the most constant symptom in such cases. In far advanced cases extensive tympanites, fecal vomiting and complete interruption of the fecal circulation at the point of obstruction complete the clinical picture of intestinal obstruction.

Diagnosis.—The diagnosis of secondary tuberculosis of the intestines presents few difficulties if the primary disease is well marked, and affects an organ readily accessible to examination. Pulmonary phthisis generally precedes and attends secondary intestinal tuberculosis. In women, tuberculosis of the internal genital organs occasionally constitutes the primary affection, and extension takes place to the intestinal canal, either through the lymphatic channels or, as in one of Czerny's cases, by rupture of a tubercular abscess into the intestinal canal. In cases of primary intestinal tuberculosis, an early correct diagnosis is seldom made. There are other ulcerative affections of the intestines which in many respects resemble



Tubercular intestine. Low power. Cross section of ulcer. A, necrotic mucosa; B, tubercles in submucosa; C, invasion of muscular layers; D, peritoneal tubercle with giant cells.

intestinal tuberculosis. Councilman ("Johns Hopkins Hospital Reports," March, 1892) reports a case of extensive and deep ulceration of the lower portion of the ileum complicated by stricture of the rectum, which terminated in death from perforation and gangrenous periproctitis, and in which typhoid fever and tuberculosis could be safely excluded as causes. At the postmortem, ulceration of the ileum was found, with invasion of the tissues by colon bacilli. Some of the ulcers presented the appearance of an acute process, others were of a chronic nature. Numerous bacteria, both short rods and micrococci, were found in the superficial necrosed tissue, in some places extending into the cellular infiltration in the submucosa. These microbes did not seem to stand in any direct etiologic connection with the pathologic changes. The writer recently had under his observation for several months a case of chronic diarrhea, which had resisted all remedial measures. The patient was a man about 30 years of age, very anemic and greatly emaciated. No hereditary tendency to tuberculosis, and no cause could be ascertained, which might have produced the chronic intestinal catarrh. Examination of the lungs and other important organs failed to locate a tubercular focus. The mesenteric glands could not be felt on palpation and rectal examination. The stools were frequent and liquid. The pain slight and referred to the umbilical and hypogastric regions.

Intestinal tuberculosis was suspected. Carbonate of guaiacol and salicylate of bismuth were administered internally and the colon was washed out daily with a copious enema of warm salt solution. On many different occasions the stools were examined for tubercle bacilli, but none could be found. Myriads of colon bacilli and micrococci were invariably found. The absence of tubercle bacilli in the stools and the marked improvement which followed the treatment, leave but little doubt that this was a case of intestinal ulceration, caused by infection with the colon bacillus.

Bacteriologic examination of the feces in suspected cases of intestinal tuberculosis should never be neglected, as it often furnishes positive proof of the tubercular nature of the disease. Tubercle bacilli, when present in the feces, in which they may be demonstrated by the same methods as in sputum, are indicative of intestinal tuberculosis, providing that they are observed upon repeated examination, and that clinical symptoms are present which point to the intestines as the seat of disease, as otherwise they may be referable to swallowed sputa.

The best way to find the bacillus is to dilute the feces with distilled water and to prepare and strain the deposit after centrifugation. Sawyer (*Medical News*, May 23, 1896) urges the importance, in cases of suspected intestinal tuberculosis, of examining the mucus collected from the rectum, just above the sphincter ani, for bacilli. When found, particularly on the surface of fissured stools, these clusters of bacilli are of diagnostic value, and may be relied on to indicate tubercular processes in the intestinal tract. He has thus found them in several cases when they could not be found in the sputum, or when sputum could not be obtained.

If the tubercular enteritis has progressed to the formation of cicatricial strictures, the differential diagnosis between intestinal obstruction from this cause and other inflammatory affections which result

in ulceration and cicatricial stenosis, is always difficult and sometimes impossible. In such cases a probable diagnosis must rest on a careful study of the clinical history and search for tubercular foci in other organs.

Congenital stricture.—Congenital stenosis of the intestinal canal may appear as a single or multiple congenital defect, may affect any portion of the intestinal canal and may cause no symptoms until long after birth Intestinal stricture occurring in infants, children and young adults, without any history of the existence of an antecedent ulcerative lesion, is quite frequently of a congenital origin.

Traumatic stricture.—If in cases of intestinal obstruction from a stricture the clinical history shows that the patient has been for some time in the past, the subject of an injury to the abdomen it should be borne in mind that the stricture may be the direct result of the trauma. Such strictures are occasionally caused by a blow on the abdomen. Mygiud reports such a case. Intestinal resection was performed six months after the accident for symptoms of obstruction, and the patient recovered.

Traumatic strictures may result from laceration of the mucosa or from plastic peritonitis. In the former variety the lesion of the mucous membrane would be likely to simulate more closely tubercular enteritis than the peritonitis form. In both instances, however, the catarrhal enteritis complicating the chronic obstruction would present some clinical features in common with tubercular enteritis.

Stricture following strangulated hernia.—It has been known for a number of years that intestinal stricture occasionally develops after the reduction of a hernia by taxis or operation. The stricture in such cases is caused by a circular necrosis of the mucous membrane, resulting from the pressure by the strangulation. The elimination of the necrosed tissue is followed by ulceration, and the healing of the circular ulcer finally leads to cicatricial contraction and intestinal stenosis. Garré first described intestinal stricture as one of the remote results of a strangulated hernia. ("Ueber eine eigenartige Form von Darmstenose nach Brucheinklemmung." *Beiträge zur klin. Chirurgie*, B. ix.) He made the observation that in some cases of strangulated hernia the mucous membrane of the bowel at the point of constriction becomes necrotic and is cast off as a slough. The circular defect heals by granulation, and the resulting scar leads to circular constriction.

In his first case the symptoms of obstruction necessitated a laparotomy, which was performed nine weeks after the herniotomy. The patient was 27 years old, and the subject of a preperitoneal inguinal hernia. Intestinal resection to the extent of forty-one centimeters was made, and the continuity of the bowel restored by circular enterorrhaphy. The patient recovered. Examination of the specimen removed showed that the ulcerated surface had not entirely healed. At one point the ulceration extended as far as the peritoneum.

Ravult ("Rétrécissement cicatriciel de l'intestin au niveau des 2 points de l'étranglement d'une ancienne hernie," *Bull. de la Soc. anat. de Paris*, 5, Série iv) reports a case of double cicatricial stricture of the small intestine which caused death from acute intestinal obstruction. Several years before the last illness the patient was operated upon successfully for strangulated hernia. The acute attack of intestinal obstruction resulted fatally in a few days. The necropsy revealed two strictures eight centimeters apart; the segment of bowel between them was distended by gas. Above the stricture on the proximal side the bowel was greatly distended and vascular, while the intestine below the second stricture was contracted, empty and pale. The strictures were undoubtedly the result of sloughing, ulceration and scar formation, consecutive pathologic conditions caused by harmful circular constriction by the neck of the hernial sac.

The time of the appearance of symptoms of obstruction in this form of intestinal stenosis varies from a few days to a year or more. Pitt records a case of femoral hernia in which symptoms of obstruction appeared five days after the reduction of the strangulated hernia, while in Garré's case the symptoms of obstruction did not set in until nine weeks after the relief of the strangulation by taxis.

The possibility of the existence of a cicatricial stricture due to such a cause must be remembered in cases of intestinal obstruction in which the clinical history refers to strangulated hernia relieved either by taxis or operation.

Stricture following healing of typhoid ulcer.—The healing of typhoid ulcers is very rarely followed by cicatricial stenosis. Treves made a very careful search for stricture of the intestine caused by typhoid ulcer and was able to find only one well authenticated case. Typhoid ulcers, as a rule, heal rapidly and much of the tissue destroyed is reproduced by the reparative process, leaving only a minimum quantity of connective tissue, while the healing of a tubercular ulcer is attended by the formation of an abundance of connective tissue, which subsequently undergoes progressive cicatricial contraction. The locations for the stricture are the same in typhoid and tubercular ulcers.

Syphilitic stricture.—Among the multiform visceral lesions caused by tertiary syphilis are to be noted intestinal strictures. According to Rieder ("Annual of Universal Medical Sciences," Vol. 1, D. 31) the lesions causing the obstruction are most frequently met with in the upper part of the small intestine. Syphilitic stricture is not caused by ulceration but by the production of new connective tissue in the submucosa and later in the other coats. The symptoms attending syphilitic intestinal stricture indicate the existence of a mechanical obstruction without the existence of a previous ulceration, as is the case in tubercular stricture.

Ovarian tumor.—The differential diagnosis between a tubercular stricture and intestinal obstruction caused by certain anatomico-pathologic forms of ovarian tumor is attended by many difficulties. In one of Czerny's cases of ileo-cecal tuberculosis, the swelling was mistaken for an ovarian tumor by the attending physician. Veit has shown that in women the differential dignosis between tuberculosis of the ileo-cecal portion of the intestinal tract and ovarian tumor which has extended to the meso-cecum and meso-colon is always extremely difficult and often impossible.

Malignant stricture.—The two causes which give rise to intestinal obstructions most likely to be mistaken for each other, are cicatricial stenosis following tubercular ulcer and malignant stricture. The ileo-cecal region is the favorite locality for both of these affections. In intestinal obstruction due to either of these causes the clinical history is characterized by a

complexus of symptoms pointing to chronic obstruction, and in either case involvement of the mesenteric and retroperitoneal lymphatic glands is sure to occur sooner or later. Tubercular strictures are found most frequently in persons below middle age, while carcinoma is more likely to occur in persons of advanced age. The reverse may, however, be the case, as intestinal tuberculosis may attack the aged and intestinal carcinoma may occur in young adults. The detection of a tubercular focus in another organ, and the discovery of tuberclé bacilli in the stools will furnish evidences of the tubercular nature of the obstructive lesion and will exclude the probability of the existence of malignant disease.

ORIGINAL ARTICLES.

PATHOLOGY OF TUBERCULOUS GLANDS OF THE NECK; THEIR EARLY AND COMPLETE REMOVAL.

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That form of adenitis so frequent during adolescence and middle age, wherein tubercle bacilli invade the lymphatic glands of the neck, is one of the most important pathologic conditions which come to the observation of the surgeon. The infection of tuberculosis, and its local development in the lymphatic glands of the neck, naturally presents the strongest grounds for fearing the dissemination of the infection to other and more important structures in the body. These enlarged glands may retain their hyperplasia a varying length of time, but during this time the toxins generated on the spot are absorbed to the detriment and weakening of various structures in the body. The subsequent acute infection, due to streptococci, invades the tuberculous gland, transforming it into an acute abscess, which sometimes brings a spontaneous termination of the tuberculous development. This lymph-adenitis may be limited to some of the superficial or may exist in the deeper lymphatic glands of the neck. The glands grow to the size of a walnut, a group of which would produce a tumor of varying dimensions, but sufficient, by size and compression of surrounding structures, to give through mechanical, aside from its pathologic effects, excessive trouble to the patient.

The superficial as well as the deep lymphatic glands are affected; of the superficial set the most frequently affected are the sub-maxillary lymphatic glands that are situated in the digastric triangle, beneath the body of the lower jaw, also the vertical set of superficial glands of the neck, four to six in number, known as a superficial cervical chain, which are situated chiefly in the posterior triangle of the neck, along the course of the external jugular vein, between the platysma and the deep fascia. The small superficial glands in front of the neck between the hyoid bone and the sternum, and posteriorly from the trapezius muscle are also affected. Among the deeper lymphatic glands of the neck invaded by tuberculosis, we find both the upper and lower set involved. The upper set extends along the course of the internal jugular vein from the base of the skull to the level of the thyroid cartilage. When these are involved adhesions join these glands to the surrounding structures, and considerable risk is involved in their separation from the deep jugular vein. The lower deep cervical glands follow the course of the internal jugular vein, from the thyroid cartilage to near the clavicle. These receive the lymphatics from the lower portion of the neck, and also from the esophagus and superficial cervical glands. Both the upper and lower set receive the efferent vessels from the lingual, internal maxillary and post pharyngeal glands, being deep lymphatic glands of the head; these receive their lymphatics from the tongue, mouth and nose. We here have direct anatomic reason for tracing these infections of the lymphatic glands of the neck, to the invasion of the lymphatic system by tubercle bacilli through the nose and mouth.

Granted the initial infection, it is easy to understand the resulting hyperplasia. The bacilli are found in the lymph channels between the acini of the glands and, developing there, they generate a toxin, which by its irritation causes a proliferation of the endothelial cells. There is likewise a proliferation of fibrous tissue in the stroma, but not commensurate with the growth of epithelial cells. This process generally starts about the center of the gland, and during the first stage presents a hyaline appearance; subsequently as the infected cells die away, these undergo caseation, or fatty degeneration. It is at this stage that the secondary infection of the streptococci may take place and result in the suppuration of the glands. If we analyze this process, we find a great analogy with the tuberculous process in the lungs, where a cheesy tubercle may occupy one or many trabeculæ, and subsequently suppurate under the infection of the germs of the atmosphere, producing an abscess cavity. Such an abscess about the neck often leads to further infection, and certainly lowers the vitality of the patient, predisposing him to other infections of deeper structures. Our modern views of infection of any kind points to the necessity of destroying foci of infection, and leads us to the conclusion that the tuberculous glands should be removed at as early a date as possible, provided they have not shown a tendency to subside under the ordinary treatment.

That a tuberculous process should be removed we have no doubt, and the manner of its destruction or removal is what we now propose to discuss.

Two great methods are in vogue to-day; one consists in exciting violent inflammation within the gland whereby the tuberculous process may be checked. This consists in the injection of an emulsion of iodoform in glycerin, or a solution of iodoform and ether. There is no doubt that in certain cases of inflammation of the superficial glands of the neck this treatment will conquer the disease, but cases are rare, and cure at best can never be gauged from the first. The inflammatory reaction may be very severe, and on subsiding may leave a further tuberculous condition. Again, the application of this treatment to the deeper lymphatic glands is fraught with danger from the possibility of injuring the deep jugular vein, the carotid artery, and other structures. At best, even if the process of tuberculosis stopped, a fibrous mass would be the result, retaining in a measure the appearance of a fibrous growth, and not constituting at any time a perfect cure. We do not mean to condemn the treatment, but do believe that it is not a direct means of fulfilling the indications in the case.

We have always advocated the complete dissection and removal of these tuberculous glands, believing that the sooner such foci of disease are removed the better. The patient can convalesce and regain health under the influence of general tonic and hygienic treatment.

In every case which presents itself we try to locate the anatomic relation of the glands to the surrounding tissue, and direct our efforts accordingly toward dissecting out all of the infected glands. It would be useless to describe the care with which dissection should be made in view of the liability to wound the jugular vein; suffice it to say that throughout this delicate work great care should always be taken to see the work as it progresses. Adhesions are such, at times, that it is impossible to distinguish the outlines of the gland from the surrounding tissue, which might have gathered within itself some important deep structure. Of material help for the safe dissection of these growths is the use of curved scissors, which, by keeping their concavity upon the growth, gives us the greatest safeguard against cutting outside of the growth. Should, unfortunately, the jugular vein be wounded, it is our practice to clamp it, and to allow the clamp to remain *in situ* twenty-four hours. In every instance we packed the wound with iodoform gauze until granulations covered the wound. Patients always stand the operation well and seem to improve in general health rapidly.

The main contra-indication to the operation is the presence of tubercular disease in the lungs. I believe it not good practice to remove tuberculous glands of the neck under these circumstances, for it seems that after the operation the lung trouble takes on redoubled activity in its development. It would seem that the removal of one would concentrate the whole development of the trouble in the remaining focus. With this exception we advise the complete eradication of tuberculous glands. Having followed this practice for many years and having observed in various hospitals, and in private work, over 200 cases, submitted to operation, we believe that this treatment is most in accord with the modern development of bacteriology and surgery.

It is not easy to make a differential diagnosis of tuberculous adenitis from the various growths that invade this locality. For a long time tuberculous lymph-adenitis was known as scrofula. To Koch belongs the credit of establishing these growths as a mere form of tuberculosis.

The conditions likely to be mistaken for tuberculous adenitis would be, malignant lymphoma, known as Hodgkin's disease. In this condition there is a general enlargement of the glands around the neck, and possibly in other portions of the body also, for it is a local manifestation of a pseudo-leukemia. The patient is extremely pale and other structures may be involved. Tuberculous adenitis should be differentiated from a lympho-sarcoma, and secondary metastatic lymphoma, both of which are malignant and can be recognized as such from the rapidity of their development and invasion of surrounding tissues. Syphilis also manifests itself in the glands of the neck, but the process is slow and would involve a greater number of glands of both sides at the same time. Tuberculous glands on the contrary are likely to be limited in number, although they sometimes appear on both sides of the neck simultaneously. The growth is rather slow. At first the gland seems movable, but as it develops it appears more and more fixed. It is not necessarily accompanied by great pallor, nor does it cause much pain. In fact, in the history of many cases, these tumors retain a certain size for months without showing any change, and without appearing to give the patient much trouble, except in the gradual weakening effect which they bring on to the general system.

The prognosis in uncomplicated cases of tuberculous adenitis is favorable. Patients improve rapidly in general health and maintain this improvement. In but a small proportion of cases do we see a new development of tuberculosis in the glands of the neck after the operation.

As far as deformity incident to the operation is concerned, should the surgeon exercise an ordinary amount of care the result will not be ungainly. We can often apply a subcutaneous suture which will bring the surface epithelium in absolute apposition, and leave but a very small trace of the operation. When this is compared with the ugly and distorted scars which result from only having allowed these glands to suppurate, there is no doubt that, considering the cosmetic result, the advantage lies altogether in the clean excision of the gland, with an accurate approximation of the lips of the wound. As a rule the wound can be maintained in an aseptic condition, and no pain is experienced at any time after the operation—an element which should commend itself to all those afflicted with this condition. I have no hesitation in advising the operation under all circumstances to young or old, believing it to be the safest way to remove this tendency to further tubercular infection, supplementing this procedure by the ordinary hygienic and tonic measures.

DISPOSAL OF THE STUMP IN APPENDICITIS OPERATIONS.

Read at the Tenth Annual Meeting of the Southern Surgical and Gynecological Association held in St. Louis, Nov. 10-13, 1897.

BY WILLIAM D. HAGGARD, JR., M.D.

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No achievement so fittingly typifies the triumphs of the last decade as does the mastery of the most important surgical lesion in the abdomen—inflammation of the vermiform appendix. In 1886-7 Fitz Sands and Weir made the epoch-making contributions to the diseases of the right iliac fossa that lifted them from the doubt of misconceived pathology and placed them in the pale of surgical resource. In 1889, McBurney completed the last link in the chain of its natural history by recognizing the necessity for prompt surgical interference and advocating its more general practice. Since then every shade of opinion in the spectrum of logic has been entertained. No subject has ever so engrossed the energy of surgeons whose individual experiences have been so keenly scrutinized, and yet whose results have been so positive and convincing. This subject can not be trite on account of its great seriousness. The contributions to its literature make a niche in surgical history replete with continuous endeavor and adorned with unprecedented success. I preface the consideration of one practical phase of the subject by the recapitulation of some facts which

;onstitute our beliefs. Appendicitis is pre-eminently
ı surgical lesion. The moment the diagnosis is made,
t should become the object of the closest surveillance.
:n its diagnosis, surgical opinion as to its accuracy,
)y one who is familiar with its manifestations, is para-
nount. It was said of the lamented Agnew that in
ıis intimate knowledge of anatomy, the integument
o him was transparent. In diseases of the appendix
ts possibilities are so erratic that the most expert may
.ot be able to accurately estimate its extent, but
iagnosticians trained in its observation may recog-
ize its presence with precision and certify its dangers.
believe in the teaching of Morris, that an infected
ppendix should be isolated surgically as an infecti-
us disease is isolated hygienically. An infected
ppendix will extend to other tissues—infectious dis-
ases will extend to other individuals. That many
ases of appendicitis will recover without operation
ill not be controverted, but it is a task of the utmost
iscrimination and the gravest responsibility to
:tempt to designate such cases. One can never say
ith assurance which case may get well and which
ıse may rapidly get worse and demand operation so
nperatively that they would die without it. This is
ıe type of cases that if delayed die with it.

Mayo Robson says: "Immediate operation as soon
; the diagnosis is made, as originally advocated by
:cBurney, is better than individualizing or operating
hen it seems necessary." When it seems necessary,
synonymous with wide-spread infection. Willy
eyer asserts that "in 100 cases treated by immediate
)eration as soon as a probable diagnosis is made,
ore cases will be saved than out of an equal number
cases operated when it seems necessary."

An attempt at refinement in the operative indica-
)ns may be thus summarized: Acute onset, with
pid pulse and considerable localized tenderness
quires immediate operation; where a more gradual
mmencement, pulse under 100, and the early
pearance of tumor, may more safely wait for the
:rmation of competent adhesions and subsequent
nple evacuation of abscess. Progressive increase
pulse rate, temperature and tenderness, makes
:ly operative intervention imperative, while a grad-
l subsidence of these signs postpones such measures.
Distended abdomen, vomiting and rapid pulse sig-
lizes extension or general peritonitis. While these
;es require the most desperate surgery, Robson has
'ed five out of six cases of general peritonitis, and
ny American surgeons have rescued cases where
s ran out on both sides of the table. In chronic
ıpsing or recurring appendicitis the indications
most postive. It is almost the universal consensus
t after one attack (Meyer) or more than one well-
rked attack (McBurney) operation should be done,
ınticipate another. While an individual may have
, two or four mild attacks, any of these or the
:t may be so serious as to jeopardize life and make
operation so imperative and under such critical
ditions that it will do little else than accentuate
danger of delay and the necessity for operation in
interval after one frank attack.

n the pioneer days of appendicitis work, when the
ration was only undertaken in the presence of sup-
ation, the appendix was entirely gone or was not
ght for. Indeed the question of prolonged search
removal of the appendix in abscess cases is one of
few remaining moot questions in its treatment
has to be answered by the individual convictions
ıe operator.

Since surgeons have assumed the responsibility of doing operations for appendicitis that are surgically safe and less dangerous than an ordinary attack left to itself or treated medically, it behooves them to perfect every detail in the operative technique to the end that they do not mix danger with beneficence. The principal step in this operation that makes it distinctive is the disposal of the stump after amputation of the appendix.

In the early deliberate operations for the removal of the appendix surgeons were content to ligate it as they would an artery. The protruding mucous membrane of the stump was cauterized with carbolic acid, the Paquelin cautery or a bichlorid tablet. Unlike the ligation of an artery, instead of the sterile fluid that organizes behind the constriction, the fluids or contents of the appendix are constantly saturated with numerous species of virulent micro-organisms that find an admirable pabulum in the compressed area under the ligature. This method was supposed to have its analogy in the ligation of the pedicle of an ovarian tumor, but we know now that it is wholly different from tying an aseptic stump for hemostasis. It likewise finds no analogy in the ligation, for ablation of the appendages, which have no connection with the intestines, can not be inverted and are usually sterile or are capable of being made so. Moreover, Morris has compared ligation of the appendix to ligation of the end of the colon after lateral anastomosis. They are structurally similar, and what would be unsafe in one would be unsound in the other. Approximation of the serous coats in both is the logical procedure. Subsequent perforation after simple ligation occurred sufficiently often to cause abandonment of that method. The custom of inverting the stump into the caput coli superceded the original crude device of dropping the pedicle. This has also many modifications and is the accepted way of disposing of the stump. It was characterized by Price, early in the history of its adoption, as "the good way." It is practiced in varying completeness from simple invagination into the cecum, to the elaborate technique of Van Hook, which consists in amputating the appendix between a temporary ligature around the base of the appendix and artery forceps, distally. The stump is cauterized with carbolic acid and a row of Lembert sutures is passed from side to side, the temporary ligature of appendix being removed before the sutures which invaginate the appendix are tied.

Dawbarn introduced the neat and efficient purse-string suture. It encircles the base of the appendix within a radius of a quarter of an inch, passing through the serous and muscular coat of the cecum. The appendix is cut away about a half an inch from its junction, stretched with small forceps, which push it into the intestine and are withdrawn as the suture is tightened around the vanishing stump. The acme of refinement in appendix surgery was reached when the method of section through the peritoneal coat, excision of mucous membrane, and suture of opposing serous and muscular coats came into vogue. This method may or may not be combined with invagination. Personal modifications of this plan have given the brilliant results of Murphy and Morris, and in the hands of the expert, leaves nothing to be desired.

The cautery method minimizes the danger of infection from the stump, and is the one which McBurney commonly employs. The appendix, after its detach-

ment from its mesentery, is amputated a quarter of an inch from its base. The edge is held up with forceps, a probe passed through the opening of the stump of the colon, to test its permeability, and a fine Paquelin cautery point inserted into the lumen of the stump. The ligature is then applied around this cauterized area, the ragged edge trimmed and freshly cauterized.

The proverbial untrustworthiness of a thermo-cautery has ever been the *bête noire* of the practical surgeon, and any method which includes its employment is not congenial.

Some of the failures from inversion of the stump, which caused consecutive perforation, fecal fistula, and sometimes death, in operations of otherwise favorable import, were due to a stricture-dam between the ligature and proximal opening of the appendix. This condition manifestly duplicates the essential condition for a continuance of all the possibilities for evil of the original attack. The operation was imperfect—a mere resection of the disease, leaving the actual and active causal factor uncanceled. These facts have led McBurney to test the patency of the lumen of the stump with a fine probe after amputation and before ligature and closure. When leaving a stump this should invariably be done.

The ideal of all surgery is completeness. and applied to the surgery of the appendix would suggest total excision of the entire organ. This ideal method has been approached by McBurney in his recommendation to "cut away the appendix very close to the colon, and that portion of the wall of the colon which includes the orifice should be depressed with a probe and the edges of the furrow thus made sutured with a double row of fine catgut or silk."

In spontaneous amputation of the appendix by necrosis near its base, I have seen this method practised with success. The efficiency of peritoneal suture of gunshot or stab wounds of the intestines no doubt suggested to many surgeons a similar closure of the orifice in the cecum left after complete excision of the appendix. It has remained for Deaver to practice this method, as a routine, in suitable cases, and in its more general adoption I believe will consist the last step in the evolution of the treatment of the stump. The technique, as employed by Deaver is as follows: After freeing the appendix from adhesions and mesappendix, the cecum is stripped of its contents and grasped between the fingers and thumb of the left hand; the appendix being held up with forceps by an assistant, is cut off flush with colon. The rent at the site of its former junction is united by continuous Lembert sutures, just as in a gunshot or stab wound of intestines, while the cecum is still held securely with the left hand. They may be disposed in two layers, the first uniting the edges of the wound, the second approximating the peritoneal covering of the cecum over it.

This method aside from its completeness, is particularly useful when the appendix is densely adherent throughout its length. A temporary ligature to the distal side allows of division at its base, and disposal of the proximal end at once. Subsequent detachment of the organ itself from base to apex can be accomplished with great facility. This method is not applicable to all cases. When the cecum is tied down by adhesions, it is impossible to bring it into the incision, which is the essential requisite in preventing the escape of any of its contents, and necessary to the careful suturing of the cut end. Where the appendix has its origin behind the cecum, the carrying out of this technique would expose the patient to the danger of infection. Total excision of the appendix and closure of the hole in the head of the colon, does away with the following dangers: 1, subsequent perforation of the stump under the ligature from infection in its own cavity; 2, abscess of the wall of the cecum from invagination of an infected stump; 3, continuance of the infectious process from a stricture dam in the stump between distal ligature and proximal opening of appendix into cecum; 4, imperfect invagination with incomplete drainage of the stump, on account of cecal wall being thickened and stiffened with inflammatory exudate; 5, infection in base of appendix, not apparent macroscopically.

I have employed this method in five cases in the last few months, with entire satisfaction.

Case 1.—Mr. A. S., salesman, was stricken with acute pain Saturday morning, Feb. 15, 1897. Sunday noon pulse was 120, temperature 100, with rigidity of right abdominal wall and great tenderness. Operation within the hour disclosed partial sloughing of the appendix at the base. It was encased in a layer of lymph that could be stripped off like an umbrella case. The remaining attachment to colon was severed, and the edge trimmed and united by two rows of Lembert sutures, gauze drainage, recovery.

Case 2.—Joe L., aged 9, woke with pain in right iliac fossa, vomiting, diarrhea. Household remedies for colic were given. Next afternoon he was seen by Dr. T. P. Crutcher. Temperature and slight tenderness continued. Third day noticed pain in right iliac region, on attempting to run out to see a passing fire engine. Fifth day he was brought to my office, pulse 120, temperature 102, pain at McBurney's point marked, limped and inclined to right side on walking. Morning of operation on sixth day, temperature was 99, pulse 88; pressure in opposite flank occasioned pain in appendical region. McBurney's criss-cross incision was made. Appendix was ulcerated through in center and enclosed in small pocket of sero-pus. Gauze protective pads were applied. Appendix was amputated between ligatures below perforation, mesappendix ligated with silk, stump excised; cecum was closed with Lembert sutures; Morris gauze in gutta-percha drainage wick was placed at lower angle. Incision was closed in layers with chromicized catgut. Recovery was unnoteworthy, save for tardy closing of drainage sinus. Silk ligature was discharged through small persisting sinus seven weeks after operation; rapid healing ensued.

Case 3.—J. D., physician, age 42, had first attack twelve years ago, four attacks since; the last one two months before operation. Three or four days before the operation he had another attack, which reached its acme just prior to operation. Temperature ranged between 102 and 103, pulse 115 to 120. He has had noticeable tenderness since the first attack, greatly aggravated in the last attack. I assisted Prof. Paul F. Eve in the operation.

Through long incision, a large mass was found in the iliac fossa, which enclosed an abscess cavity ruptured during manipulation. Adhesions were separated, and appendix as large as a little finger was isolated. It was amputated at junction with colon, and resulting rent closed, gauze drainage, through and through suture, uneventful recovery.

Case 4.—Mrs. R., age 22, had tenderness in appendix region discovered in pelvic examination, during treatment for movable retroversion. I advised rest and composure. She was seized with nausea on the way home, and sat down on the pavement and vomited. Two hours afterward tenderness was more marked, nausea continuing; pulse 68, temperature 99 3. Mercurials were given, followed by salines next morning, at which time pulse was 66 and temperature 100. In consultation Dr. McCampbell related a mild attack in February, 1897, Operation was performed twenty-six hours after onset of symptoms, July, 1897, McBurney incision. Appendix was thickened, stiffened, inflamed and adherent at tip. It was amputated at base; Lembert closure of cecal opening; layer approximation of incision. Highest pulse was 76, never required purgative; union without redness. She sat up on eleventh day; discharged within two weeks.

Case 5.—J. R. P., age 28, traveling man, had a mild attack, February, 1897; was not confined to bed; could not ride in a buggy without painful jarring of "sore spot" in right iliac region; has had numerous slight attacks since. Oct. 23, 1897,

after a hunt, he had a chill, followed by fever, and attended with old pain in right side; third night prevented sleep. The fourth night temperature reached 102, following the chill in the afternoon, pulse 90, history of daily chills and fever. The appendix could be easily palpated, and was not very tender.

Malaria, with chronic appendicitis was diagnosed; 0.97 gram of quinin six hours before expected chill had no effect. On the fifth night, after chill in the afternoon, temperature rose to 103, pulse 102. Appendix was well-marked, slightly more tender. Operation delayed twelve hours for the arrival of his physician, Dr. Curtis of McKenzie, Tenn. Operation Oct. 30, 1897. Two inch criss cross incision was made. Appendix was found thickened, and apex much enlarged. Amputation-exsec tion, method used with Lembert suture, layer closure and no drainage. He had a chill the first day, followed by a temperature of 103; quinin has prevented chills since, but the afternoon temperature ranges between 100 and 101, pulse from 80 to 90. Skin sutures were removed on seventh day, perfect union, no tenderness.

The following case, occurring since the paper was read, is reported as an illustration of posterior implantation of appendix, and the impracticability of carrying out the technique devised by Deaver in such cases.

Case 6.—E. G. A., student, age 18 years; in perfect health. Was attacked with pain in right iliac fossa, preceded by slight chill on the evening of Dec. 1, 1897. He was in bed next day and up the next, but had a chill and some uneasiness the third day that confined him to bed. Same night he had a very severe attack of pain, with high temperature, tenderness of the appendix region and increased pulse. Mercurials and salines were administered and hot compresses applied until the morning of December 8. After a night of considerable and continuous pain, his temperature rose to 102, pulse 126. I saw him at noon when there was very great tenderness, which was more acute near the iliac spine and in the lumbar region than at McBurney's point. Urinary suppurative conditions were excluded clinically. Temperature 102.6, pulse 128. Immediate operation advised, but was delayed until night, when he was moved to the Infirmary at 10 P.M. Before operation, temperature was 103.2, pulse 134. Free oblique incision was made. Anticipating the presence of pus, a coffer dam of gauze was carefully and completely arranged to wall off the intestines entirely. The head of the colon was found lying over a large mass, which was deliberately opened, as the danger of peritoneal contamination had been adequately provided against. A quantity of dark, thick ill smelling fluid exuded, which was instantly mopped away as it appeared. Free irrigation was made with normal salt solution. The appendix was then found under and glued to the posterior wall of the cecum. It was dissected away with ligature and scissors. A perforation was found about an inch from the cecum. The point of attachment to the colon could not be drawn into the wound for complete excision and suture, and hence was simply ligated. Peroxid irrigation of sac was followed by normal salt solution; gauze drainage was introduced; silk worm gut closure was made. Temperature dropped three degrees, and the pulse twenty-eight beats by morning. The gauze was pulled out a trifle to facilitate drainage which was not very profuse. At the end of twenty-four hours the temperature had risen again to 102.8 and the pulse from 112 to 134. All the gauze drainage was removed and the cavity irrigated with normal salt solution through a glass catheter and gravity tube. The temperature steadily went down to 100 by the morning of the second day, and the pulse to 110. The bowels moved well on the third day, and the temperature went to normal and the pulse to 90. The drainage wick was removed, and the walled-in space irrigated daily and drainage replaced.

On the fifth day fecal matter was detected in the dressings, a chill followed, temperature rose to 101, pulse to 130. It was believed that the cavity was effectually walled off, but the small drainage opening was not deemed sufficient for safety and the entire wound was opened and irrigated and packed twice daily afterward. The temperature remained between 100 and 101 until the eighth day, when it touched normal. Pulse meanwhile ranged between 114 and 138. The temperature continued to rise irregularly with an exacerbation to 102.2 on the eleventh day and vacillated from 1 to 2 degrees until the fecal discharge ceased on the twenty-eighth day, when it subsided to normal permanently. A small sinus persists at the end of the eleventh week.

Let us have a Department of Public Health.

SOME UNUSUAL CASES OF APPENDICITIS.

A paper read before the Columbus Academy of Medicine, Oct. 18, 1897.

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After a surgeon has attended several hundred cases of appendicitis; after he has found the appendix on the left side of the abdomen, running up to the gall-bladder in front and to the kidney behind the colon, and even, as in a specimen in the museum of the Ohio Medical University, nicely curled up under the left collar bone; and after he has seen it discharging the abscess, resulting from its perforation, into the bowel, the bladder, the vagina, the groin, the scrotum, the lumbar region, and even perforating the diaphragm and discharging through the lung, he begins to feel a great deal of respect for this otherwise insignificant organ, and perhaps thinks that he knows a great deal about appendicitis. Nevertheless, even with such an experience, he will be constantly meeting with cases that will surprise him, and which will continue to still further convince him that the appendix, whether functionating physiologically, if it ever does so functionate, or inflamed and forming the nidus of all imaginable pathogenic microbes, or the harmless subject of debate in a medical society, is governed by no ordinary laws.

Within the last few months the writer has seen several cases of appendicitis, out of quite a number requiring operation, that presented such peculiar features as to justify their report.

Case 1.—Feb. 12, 1897, I was consulted by Mrs. H. C. Patient was aged 28 years, though looking much older, married eleven years, mother of four children, the youngest 2 years of age. Family history was negative, except that her father and mother both had some slight stomach trouble. One maternal aunt is supposed to have died of cancer of the stomach, or ulceration, at 60 years of age. Patient has had stomach trouble for at least eight years. Pain comes on immediately after eating, and continues until time for the next meal. In fact, the distress is almost continuous. Has no vomiting, no belching. Is troubled with some accumulation of gas in the bowels. Even a glass of malted milk taken at meal time will cause pain until the next meal. The pain is about the same day and night. Diet seems to produce little or no effect. Is usually constipated. Did not try to nurse her last child, owing to her ill health. Has received no benefit from any medicine which she has taken, although she has taken large amounts and in great variety. Has suffered more during the last two years, during which time she says she has lost about fifty pounds in weight.

On careful palpation I can detect a little tenderness at McBurney's point, and close questioning elicits the fact that at the very beginning of her stomach trouble she had an attack of pain and soreness low down on the right side. She was at that time unable to straighten up or move her leg without pain. On cross-questioning she is very positive that this localized trouble preceded the disturbance in her stomach. By palpation the thickened appendix can be quite distinctly mapped out. The patient was operated on February 20. Under an anesthetic the appendix was very easily outlined. On opening the abdomen the appendix was found very long, the distal extremity clubbed and thickened, with quite numerous adhesions, but none of them particularly dense. The appendix was removed in the usual way, and convalescence was entirely uneventful. Since her return home the patient has enjoyed excellent health. I have heard from her several times and her recovery has been complete.

There is no doubt that many cases of chronic indigestion are due to chronic catarrhal appendicitis, with or without adhesions. The above is quite typical, probably, of this class of cases. It would doubtless be wise to regard no examination of a dyspeptic patient as complete until the condition of the appendix has been carefully inquired into.

Case 2.—July 7, 1897, Mrs. P. K., aged 60, was seen. She

was the mother of eleven children, the youngest aged 14 years, and had always enjoyed excellent health. From her physician I learned that he had been called to see her on the evening of the preceding day. She had been sick for about ten days. Being constipated she had taken. June 27, a dose of salts. This was followed in a couple of hours by several loose movements of the bowels, accompanied by considerable pain. This pain was referred to no particular region, but was general. Later in the evening she vomited, and during the night sent for her family physician. A diagnosis of acute indigestion was made and an anodyne administered. She rested comfortably until toward morning, when the pains grew worse, being now referred to the epigastrium. She vomited several times and thought she had fever. On Tuesday, in addition to the opiate, she was given some digestive ferment and again seemed better. She rested well during the following night, though she still had some pain, but got out of bed the following morning and was able to be around until the following Sunday, when she again had an attack of vomiting. This persisted all day Monday, with some fever and more pain. Her condition continued about the same until Tuesday evening, when Dr. Cooperrider was sent for. He found her evidently seriously sick. Her legs were drawn up, countenance pinched, expression anxious, tongue dry and coated, bowels constipated, pulse 100, temperature 102. On examination of the abdomen he discovered a large, smooth, globular mass in the right iliac region. The neighborhood of the tumor seemed markedly tender, although she was at that time complaining of no special pain in this region. The muscles were rigid. Calomel and soda were prescribed to unload the bowels, and these had been freely opened when I saw her on the following day.

I found the abdomen distended, with the smooth, rounded tumor present as above indicated. The abdominal walls were quite thick, but the tumor could be pushed up to the liver, down into the pelvis, so that its lower border could be felt by the fingers in the vagina, and could be pushed beyond the median line to the left. The tumor was about the size of the two fists. First she assured us positively that she had had this tumor for several years and had supposed it was the result of having so many children.

With this history and examination, I made a presumptive diagnosis of an ovarian cyst with a long pedicle which had become twisted, with resulting peritonitis. The patient was sent to the hospital and operated upon the next morning. When under the anesthetic the outlines of the tumor could be more distinctly determined than before, and its mobility was marked. When pushed upward a band could be quite distinctly felt, seeming to come from the pelvis. It could be pushed across beyond the median line without difficulty. The diagnosis of ovarian cyst with twisted pedicle seemed to be strengthened by this examination. On opening the abdomen, however, the tumor was found to be made up of a mass of adherent intestines inclosing an appendiceal abscess. The meso-colon and mesentery were unsually long, which had permitted the wide excursions of the tumor. There were absolutely no parietal adhesions, but a general peritonitis was present. After carefully protecting the peritoneum by gauze sponges, the abscess was opened with the finger. As soon as the finger penetrated there was a hissing escape of gas, followed by a gush of foul pus. The cavity was carefully cleansed and an enterolith, about the size and shape of a date seed, removed; the cavity was sterilized with peroxid of hydrogen and corrosive sublimate solution. The appendix was then separated from its adhesions and removed in the usual way. The perforation was near the base of the appendix. Gauze was packed into the cavity and the abdomen thoroughly cleansed. Strips of gauze were used around the seat of operation, as well as to drain the abscess cavity. The patient stood the operation well, but the peritonitis, which had already developed, continued and death resulted in forty-eight hours.

I have stated this case to quite a number of my confrères, but not one of them has even hinted at a diagnosis of appendicitis. The possibility of appendicitis was discussed by Dr. Cooperrider and myself in arriving at a differential diagnosis, but was excluded owing to the mobility of the tumor and the history of its existence for several years. It is evident that the patient was mistaken as to the long-continuance of this tumor. It is probable that her increase in adipose had been mistaken by her for a tumor, and that she had not differentiated this from the tumor which we found.

Several surgeons have operated on cases supposed to be of appendicitis but have found ovarian cysts with twisted pedicle. I know of no operator, however, who has operated for ovarian cyst and found, as in this case, an appendiceal abscess. Yet with the history as given by the patient, I do not see how a correct diagnosis would have been possible.

Case 3.—July 12, 1897. Mrs. M. S., Mt. Vernon, Ohio, was seen in consultation with Drs. Russell and Larimore. The following history was obtained: Patient aged 40 years; mother of four children, no history of any preceding attack similar to this. Dr. Russell had known for several months that the patient had a lump in her right groin, which she told him was sometimes larger than at others. On Friday, patient was not feeling well and therefore took a large dose of salts. She had not been constipated, but felt that she needed a physic. She had four free movements of the bowels during the night, followed by colicky pains confined mostly to the region of the umbilicus. Dr. Russell saw her the next morning and prescribed a carminative mixture, which gave relief. Saturday night the pain became worse and diffused over the entire abdomen. For this he gave her a hypodermic injection of morphin. Sunday afternoon the abdomen became very tympanitic, temperature 101.5, pulse quite frequent and wiry. This condition continued until I saw her Monday noon. At this time her abdomen was enormously distended, her pulse weak, and general condition becoming rapidly desperate. The region of the appendix was not different from any other portion of the abdomen. The lump could be felt at the external ring of the right inguinal canal. This region was somewhat tender and there seemed to be a little impulse transmitted on coughing.

It was decided to make an exploration of this tumor in the inguinal canal. If a strangulated hernia should be found, this would be treated according to the indications; but if nothing were found there, then the abdomen should be opened to see what could be learned. The diagnosis of a general peritonitis was self-evident. The question was as to its causation.

Dr. Larimore proceeded to operate on the tumor in the groin. This proved to be a hydrocele of the round ligament and did not communicate with the peritoneal cavity.

Nothing having been found at this point to account for the peritonitis, I opened the abdomen. Owing to the doubt as to the cause of the peritonitis, the incision was made in the median line. On passing my fingers down toward the appendix they at once come in contact with free pus between the folds of the intestines. An incision was, therefore, made directly over the appendix, which was found gangrenous, and no attempt had apparently been made to hedge off the general peritoneal cavity by adhesions. The appendix was removed in the usual way and the abdomen cleansed as thoroughly as was possible in face of the enormous distension and the patient's desperate condition. Drainage was freely inserted, and the patient transferred to bed. Death occurred a few hours later.

Several years ago I opened an appendiceal abscess in operating on a large strangulated inguinal hernia in a very fleshy patient, but in that case the symptoms were entirely those of a local peritonitis in connection with the hernia. In this case the difficulty of diagnosis was thoroughly appreciated, and the course which was followed was adopted only after careful consideration, and is such as would probably be adopted by prudent surgeons invariably under similar circumstances.

Case 4.—July 19, A. F., aged 30, was seen. This attack had continued for about ten days, the patient having a temperature of from 100 to 102, with corresponding pulse, from the beginning. Purgatives had been given, which had acted, and morphin hypodermically as needed for pain. Patient presents a mass in the region of the appendix, though nearer the spine than usual. Abdomen is somewhat distended and quite tender. The mass is quite movable, so much so that the probable absence of adhesions was mentioned. Patient was operated on next day, at the Protestant Hospital. On making the usual incision I found no adhesions whatever in front, but a mass, evidently containing pus, between the folds of the mesentery and meso-colon. As the danger of soiling the peritoneum if the abscess were opened *in situ* was great, I placed several folds of gauze around the most prominent portion of the tumor and applied a bandage. There was a large escape of serum through the drainage thus secured, with prompt mitigation of inflammatory symptoms. July 24 the gauze packing was removed and the abscess opened. It was found to contain a small

amount of offensive pus, a gangrenous appendix, and an enterolith about as large as the end of my little finger. The cavity was thoroughly cleansed and disinfected, the appendix removed in the usual way, and the adhesions entirely separated. A gauze drain was passed down so as to cover the stump of the appendix, to guard against infection if there should be any leakage, and the abdomen closed. Patient made an uneventful convalesence. August 14, he was about ready to leave the Hospital when I found that he had had no movement of the bowels for two or three days, notwithstanding he had been taking purgatives. He had, indeed, had some trouble in securing a movement for the preceding ten days, but had secured an evacuation on every alternate day until the time mentioned. I prescribed vigorous cathartics, which were taken through August 15, but without securing any movement. There was a great deal of pain through the abdomen, and intestinal peristalsis was very vigorous. It becoming evident that the intestinal obstruction was complete, I reopened the abdomen in the median line, August 16. The incision showed two loops of small intestine stretched across the right half of the abdomen and quite firmly adherent to the right side. These two loops were adjacent to each other. Above them the small intestines were markedly distended, below, entirely empty. These adhesions were quite firm and were broken up only with considerable difficulty. Only these two points of adhesions could be found, and these were above the site of the original incision. The patient made a prompt recovery from this second operation, although at one time he had an attack of acute indigestion which caused some anxiety lest it should be indicative of other obstruction.

Considering the extensive adhesions which frequently exist, especially in cases in which an appendiceal abscess is simply opened and drained, it seems somewhat surprising that we do not oftener have obstruction following that operation, yet in an unusually large experience with appendicitis this is the first case in which I have had that complication. In this case the adhesions which produced the obstruction reformed after the operation. At the operation all the adhesions were carefully separated.

Case 5.—July 21, 1897, Dr. Murray had several attacks of acute appendicitis, and gave a history of four years of trouble with this organ. The pain he described as that of a "hot tack" and located it exactly at the McBurney point. Operation revealed an ordinary catarrhal appendix, with some adhesions. The operation was made as usual and convalescence was uninterrupted.

His description of the "hot tack" sensation was to the original, and I include his case on that account.

Case 6.—July 21, 1897, Wm. H., presents the usual swelling of an appendicitis. Has been sick for ten days, but called no physician until today. Patient has a temperature of 100 and pulse 120. Has been in about this condition for the past ten days. An examination reveals the presence of a general peritonitis, probably purulent in character. Patient was operated upon the next morning. The operation revealed a gangrenous appendix, with a large amount of free pus in the abdominal cavity. There were no adhesions, although large amounts of lymph were present between the loops of intestine. The pus was very offensive in character. The appendix was removed, the abdominal cavity cleaned out thoroughly, and gauze drain inserted in different directions through the abdomen. Patient was in bad condition when put on the table, the eyes being sunken and surrounded by dark rings, and everything indicating impending collapse. This collapse came on soon after the completion of the operation and he died a few hours later.

Case 7.—August 3, 1897, B. O., aged 8 years, was seen in consultation with Dr. Cooperrider. The patient had been sick for three days with the ordinary symptoms of acute suppurative appendicitis with septic peritonitis. Her general condition was bad, but she was operated upon at once. Operation revealed a gangrenous appendix with general purulent peritonitis. Thorough cleansing and drainage were resorted to, but without benefit, as the patient died a few hours later. Dr. C. had not been called into the case until the third day.

Case 8.—August 3, 1897, M. H. C., male, aged 75 years, was seen in consultation with Dr. Jenkins. He was taken with appendicitis eight weeks ago. So far as could be learned, this is a first attack. There is now present a large swelling, evidently containing pus, but not particularly painful. It has, however, within a few days given him more pain and is enlarged. At this time the presenting mass was as large as a child's head. Operation was made by the usual incision, and a cavity found containing pus. This cavity being cleaned out, I found a deeper cavity, apparently not connected with the first one. This I opened and also washed out. No attempt was made to find the appendix, as the patient was not in a condition to bear any extended operation, which was performed at night. Both cavities were packed with gauze. The general cavity of the peritoneum had not been opened. This patient made an uninterrupted recovery.

The case is of interest chiefly from the extreme age of the patient.

Case 9.—August 14, W. J. M., aged 34, fireman, was seen in consultation with Dr. G. M. Waters. Has always enjoyed good health until yesterday morning, when he was taken with some pain through the abdomen. This was supposed to be due to a little indigestion, but about midnight the pain became so severe that he went to the doctor's office, who gave him a hypodermic injection of morphin and remained with him for a couple of hours, when he became well enough to be taken home. He has been suffering all day. His temperature now (5 P.M.) is 102, pulse 120; has an anxious expression of countenance, suggestive of impending purulent peritonitis. The abdomen is tender throughout and somewhat distended. He is nauseated. He was operated upon at 8 P.M. The intestines were found covered with a light flocculent exudate, containing some pus and having a very offensive odor. The appendix was found without difficulty, having a perforation about a half inch from its tip. This perforation probably occurred at midnight, when the pain suddenly became so intense. Old adhesions partially bound the appendix down so that its removal was not easy. It was removed, however, in the usual way, the intestines carefully cleansed, the field of operation lightly packed with gauze and the incision closed, except at the point of drainage. Convalescence was absolutely uneventful.

This case, together with Cases 6 and 7, serve to confirm the fact established by the general experience of abdominal surgeons, that a general purulent peritonitis that has existed for three days or more, uniformly results fatally. In a recent monograph on this subject, Professor Abbe of New York places the maximum limit at two and a half days. I have operated on at least fifteen cases of general purulent peritonitis following appendicitis, and in none of them in which the operation was deferred until or beyond the third day have I succeeded in saving the patient. In the last case reported, and I have had numerous similar ones, a delay of twenty-four hours would have probably caused such a distribution of the infection as would have rendered operation futile. In Case 7, while it was evident that we were dealing with an extensive peritonitis, our hope was that owing to the fact that only three days had elapsed, the disease would be so localized that an operation would result successfully.

One peculiarity of Case 6 is that the patient should have lived so long, ten days, without giving evidence of being so sick as to lead his parents to send for a physician, and yet at the time of the operation the pus was distributed everywhere throughout the abdomen. The symptoms, however, had not been particularly alarming. Some years ago I saw a case in which, at the end of a week, but with an abdomen distended with pus, the temperature was below 100, and the pulse soft and 80 per minute. The patient was on the verge of collapse, and died a few hours after an operation for the removal of the pus and appendix. In another case, with a similarly extensive amount of disease, the patient had been up and around the house more or less every day and was not regarded as dangerously sick. She collapsed, however, suddenly, after a visit from her physician, and died within an an hour. The postmortem examination at which I was present, revealed the existence of a most extensive purulent peritonitis, due to perforated appendix.

Case 10.—Oct. 11, 1897, Mrs. L., aged 26, was seen in con-

sultation with Dr. Leach. Had been entirely well, as was supposed, until yesterday afternoon when she was out riding with her husband. While riding she was suddenly seized with an intense pain in the lower abdomen and pelvis. Became very much prostrated and fainted away. Was taken by her husband into a house by the wayside, and after remaining a couple of hours was able to be taken home. Had several attacks of fainting during the night. Has had constant pain through the abdomen, but several paroxysms of very severe pain. Has been given cathartics, but without effect. Has vomited several times. Enemas have also been given, but with no effect. Has a babe 9 months old. She menstruated once, a few weeks after the birth of this child, Then not until June 20. Since then she thinks she has been regular. Menstruated about a week ago, but since the cessation of the flow has noticed every day a little discharge of bloody mucus. Her temperature has been found at times normal, and at other times a little above 100. It is now 100.3. Vaginal examination shows the womb pushed forward behind the pubes. The sensation transmitted to the finger is that of fluid in Douglas's cul-de-sac. Cervix and os patulous. It is not known how long this condition has existed. Abdomen is somewhat tympanitic and excessively tender, uniformly so over the lower part. No special tenderness in the right iliac fossa. On auscultation can elicit no evidence whatever of peristalsis. On turning the patient on her side there seems to be dulness in the depending portion of the abdomen. This diminishes when the patient is turned on her back. Her appearance is that of decided collapse.

With the above history and the condition of the pelvic organs, a presumptive diagnosis of hematocele from a ruptured ectopic pregnancy was made, although from a lack of history of irregular menstruation a possibility was held of shock from a ruptured abscess or similar condition.

Operation was made as soon as possible. On making the usual incision free pus escaped as soon as the abdomen was opened. This pus welled up freely. The pelvis was found full of pus. Nothing wrong was found with tubes or ovaries. On passing the fingers to the region of the appendix, that organ was found two and a half inches long, club shaped and very much thickened and inflamed. Could find no perforation. The intestines in this region were more decidedly inflamed than elsewhere, and some lymph was present, but no adhesions whatever. After removing the appendix in the usual way, the intestines were withdrawn from the abdomen, being carefully protected by hot towels, and the entire abdomen most thoroughly flooded with hot water, the hand and arm being introduced so that all the viscera were thoroughly cleansed. The intestines and omentum were then replaced and gauze drains carefully inserted. The patient stood the operation well and when put to bed had a better pulse than at the beginning of the operation. The infection, however, had been so extensive that she never rallied, but died the next day.

The suddenness with which the symptoms appeared and the rapid collapse without perforation, render this case unique in my experience. The operation was made less than twenty-four hours from the beginning of her symptoms.

During the last twenty years I have seen a very large number of cases of appendicitis. A considerable portion of these have been subjected to operation. While I am satisfied that at least 80 per cent. will recover without operation, I am firmly convinced that if all cases were operated upon as soon as the diagnosis was made, the operation being made by competent operators and with suitable surroundings, the mortality from the disease would be very much diminished.

RUPTURE OF THE URINARY BLADDER, WITH REPORT OF A CASE OF EXTRA-PERITONEAL RUPTURE COMPLICATED WITH FRACTURE OF THE PELVIS.

Read before the Minnesota Academy of Medicine, March 1898.

BY ARCHIBALD MACLAREN, M.D.
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Rupture of the urinary bladder always had been and is still a very serious accident. Walter Rivington, Surgeon to the London Hospital, after a careful study of the literature up to 1885, finds the records of 322 cases, with 40 recoveries. In this list there are eight recorded recoveries after intra-peritoneal rupture, six of which Dr. Rivington rejects as unauthentic. James F. Mitchell of Baltimore, in the *Annals of Surgery*, February 1898, reports ninety cases of extra-peritoneal rupture of the bladder, complicated with fracture of the pelvis, with a mortality of 83 per cent.

There are several apparent reasons for the very great mortality following this accident; 1, because any injury, which is severe enough to produce extra-peritoneal rupture of the bladder, usually fractures the pelvis. This traumatism is often associated with extensive hemorrhage, and also with shock, which, of itself, has at times been enough to cause death in the first few hours after the accident; 2, in intra-peritoneal rupture of the bladder the abdominal cavity is immediately flooded with urine, which, if septic, at once produces an acute peritonitis, but even if the urine is sterile the patient soon becomes poisoned by urinary absorption, as is shown by Coats in the *British Medical Journal* of 1894. He speaks of the difficulty of making a diagnosis of intra-peritoneal rupture on account of the frequent absence of peritonitis. He quotes several cases, reporting one of his own, in which there was no peritonitis, nor any inflammatory changes in the bladder wound, even when studied microscopically several days after the intra-peritoneal rupture. It is not clear to my mind, why the same result is not produced experimentally, but such seems to be the fact, as shown by Weggner. He injected healthy urine, in large and repeated quantities, into the peritoneal cavity of rabbits, and reports that the urine was quickly absorbed without producing any ill effects. It is probably a matter of quantity, combined with the shock and traumatism, accompanying the accident of rupture, which makes intra-peritoneal extravasation so much more dangerous than experimental transfusion.

Ruptures of the urinary bladder are of three varieties, traumatic, pathologic and idiopathic. The majority of those in the first variety, occur in patients who have been crushed under a weight, between cars or run over by some heavy vehicle, injuring the lower abdomen while the bladder was distended with urine, these cases occurring from direct violence. Henry Morris speaks of cases of indirect rupture, where the patient was thrown upon the buttocks without fracturing the pelvis.

To the second or pathologic class, belong these cases where the rupture of the bladder wall is due to ulceration and sloughing from inflammation or from pressure. Rivington reports ten cases due to the pressure of a retro-displaced, pregnant uterus, which he had seen or found reported.

In the third or idiopathic variety, a few cases only are reported by Rivington, and in these no disease was found, only over-distention. The symptoms are: 1, the history of the accident, occuring in a patient who is usually intoxicated; the intoxication itself tending to produce an over distention of the bladder. Then there is loss of ability to pass water, perhaps passing only a few drops of blood, or at most, an ounce of bloody urine; 2, pain and abdominal distention with shock, in intra-peritoneal rupture, or extravasation of urine in extra-peritoneal rupture, with or without the symptoms of fracture of the pelvis.

The diagnosis is frequently very difficult in the arly stages, but it is in these very cases that there is he greatest chance for successful treatment. The liagnosis is made from the history, combined with the passage of a catheter. The catheter usually draws a ittle bloody urine. If a long metal catheter be used, t may be passed through the rent in the posterior all of the bladder, as this is the location of the tear n about 60 per cent. of cases, when it may be felt hrough the abdominal wall or through the rectum. When the catheter passes into the peritoneal cavity few ounces more of bloody urine may be drawn. bdomino-rectal, bi-manual palpation will always aid ery materially in diagnosis, especially in the extra-eritoneal ruptures which sometimes occur at the base.

W. J. Walsham of London, in the *Medical Journal* f 1895, suggests the injection of air into the rup-ured bladder. In the few cases in which this method as been tried it has produced such a profound col-pse, that, although useful, it has been abandoned. ridden and George Heaton propose a much safer ethod for diagnosis which is the injection of a nown quantity of boric acid solution just before the peration. If the distended bladder can not be felt bove the symphysis and the same quantity of fluid, at was injected does not return through the catheter, e diagnosis is certain. The only danger of this ecedure, in early cases, is that an incomplete rup-re might be made complete, and in late cases, adhe-ons between the intestines and the bladder might broken open.

With regard to treatment of this condition, we find at suture was first suggested by Benjamin Bell, in 79. This was first attempted by Mr. Millett of rtholomew Hospital, in 1876. This attempt was t successful. Sir Henry Thompson, as late as 1883, s "success can hardly be expected in suture of ra-peritoneal rupture."

The first successful case was operated upon in 1886, Sir William MacCormac, and George Heaton ieves that before this time all cases of intra-peri-eal rupture, treated by simple catheterization, h sometimes an attempt to wash out the perito-l cavity, or treated by median or lateral cystotomy h drainage, had all proven fatal. Bridden reported he New York Medical Association in 1895 three l cases, in which he had opened the peritoneal ity and sutured the rent. The first case was oper-l upon the fifth day, the second eight hours, and third thirteen hours after the injury. George ton of Birmingham, in the "Annals of Surgery," 896, reports fifteen cases of intra-peritoneal rup-successfully treated by suture up to that time, uding one of his own. Deaver, in the "Annals of gery," of 1896, reports one case of extra-perito-rupture of the bladder, with suprapubic drain-where the patient passed urine by the urethra he fifteenth day. J. W. White, in "Dennis' gery," in discussing extra-peritoneal rupture, that he "believes that suture of the bladder ld in these cases is of doubtful value." He ses a suprapubic opening for the extravasation, perineal drainage. When there is extravasation should be several free incisions three or four es long. White reports a case in which he ves that an extra-peritoneal rupture healed taneously with the formation of an abscess which pened in the groin some weeks later. Mitchell s the line of treatment laid down by White, combined with the constant use of hot water in the form of a bath. He reports two recoveries, including the one operated upon by Bloodgood, in which the patients were constantly in the hot bath for several days.

My own case was operated upon in June, 1894. The patient, Mr. C. W. R., was referred to me by Dr. A. B. Ancker of St. Paul, on the morning of June 28. The patient had been brought to the city hospital at midnight, having been crushed at 11 P. M., June 27, by the falling of a brick wall. He was recovering from the shock which immediately followed the injury. His head and face were bruised and there was a superficial cut in the perineum. The pelvis was fractured through the left pubic bone, the jagged edges of the break being distinctly felt through the skin, one and one-half inches to the left of the median line. After passing the catheter, three ounces of bloody urine were drawn. There was an extensive extravasation of urine over the left Poupart ligament, the penis and scrotum were both swollen and edematous. The patient was immediately etherized, and an incision four inches long was made over the most prominent point of extravasation; considerable bloody urine was found in the wound. The fracture of the pelvis was continuous with the cavity formed by the extravasation of urine. A perineal section was made and a drainage tube left in the wound.

The boy's temperature was 103 and pulse 150 very soon after the operation. A broad hip band was applied to lessen the movement of the fractured pelvis; both the suprapubic and perineal wounds were kept open for drainage three weeks, after which time they both closed and the bay passed urine through the urethra. August 1 a suppuration at the site of the suprapubic wound necessitated its being reopened and drained. The drainage, however, was imperfect, and the boy commenced to have an evening temperature of 101, which continued until September 15, when what appeared to be a large retro-peritoneal abscess, extending as high as the lower border of the left kidney, was opened in the lumbar region and thoroughly drained. It was not possible at that time to demonstrate any connection between this abscess and the bladder wound, but such a connection, no doubt, existed. The evening temperature immediately dropped to 99, and the patient soon entirely recovered. October 15 he came to my office, wearing a broad hip belt. He had gained twenty pounds in weight and was able to walk a little without crutches. The next year he was able to play base-ball very creditably, and also became a long-distance rider. I have seen him during the last year, and his recovery is apparently perfect in every way.

A REPORT OF TWO CASES OF GANGRENOUS PANCREATITIS WITH DISSEMINATED FAT NECROSIS.

Read before the Chicago Pathological Society, Feb. 14, 1898.

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While on the house staff of the Cook County Hospital two cases of gangrenous pancreatitis came under my observation. Although the knowledge of pancreatitis has greatly increased during the past few years instances of this interesting disease are still so infrequent that the following cases are deserving of report:

Case 1.—Susie L., age 47, white, married, Irish; was admitted to the service of Dr. J. B. Murphy June 7, 1897. Her father and one sister died of tuberculosis, the mother is still living and well. The patient is the mother of three children and has had two miscarriages. The last labor occurred twelve years ago and in all labors the puerperium was normal. The menses were always normal. She denied all syphilitic history. Her daughter informed us later that for the past nine years she had been drinking brandy to excess. The patient informed us that she had had "Bright's disease" for the past few years and had been in the "Sisters' Hospital" for the same. Otherwise her health had always been good. Her present illness began five days before entrance to the hospital. While going to market she was seized with severe cramps in the abdomen and "fell to the ground." She had to be carried home and was given morphin hypodermically repeatedly for the pain, which was severe enough to prevent sleep. At the onset she also had a chill and vomited several times. The bowels were constipated for the first five days. The sharp, piercing pains had recurred several times; they did not radiate in any particular direction and were located in the epigastric region.

Status præsens.—The patient is well nourished, the face flushed, the conjunctivæ subicteric; the pupils are equal and respond to light and accommodation. The nose and ears are negative; the pulse is rapid and weak (124); the chest is symmetric; the respirations are shallow and somewhat rapid (30); the lungs and heart are negative; the abdomen is distended, tympanic and very tender; in the right hypochondriac region there is an area of increased resistance. The tenderness, though general, is most marked in the epigastric region; no evidences of syphilis were found; an examination of the urine showed the following: acid, straw color, specific gravity 1012, slight amount of albumin, a few hyalin casts but no sugar. During the course of her illness several examinations for sugar were made but none was found.

The patient would not consent to an operation until three days after her admission to the hospital. After the usual preparations for laparotomy had been made the patient was anesthetized with ether. A vertical incision about three inches long was made in the right hypochondriac region directly over the indurated area. The parietal peritoneum was sutured to the skin. The intestinal coils wore found matted together by a fibrinous exudate. The omentum in this region was hyperemic, thickened and studded with small grayish areas; they were situated in the substance of the omentum and not raised above its surface; they varied in size from that of a pin head to that of a pea. The peritoneal cavity contained considerable clear, straw-yellow fluid. After walling off the peritoneal cavity with iodoform gauze a large gauze and rubber tube drain was inserted. A small piece of omentum was ligated off and excised for microscopic examination, which showed that the grayish areas were typic foci of fat necrosis, such as are seen almost without exception in cases of pancreatitis. The wound was dressed daily. After the operation the patient suffered less pain for a time. The dressings were always found saturated with a clear fluid. The borders of the necrotic tissue became rough and raised, and showed other signs of sloughing. The discharge soon contained shreds of fibrin and small masses of dirty-gray necrotic tissue. The pulse remained at 120 to 130, the temperature varied between 100 and 102 and the respirations between 32 and 36. On the ninth day after admission she had an attack of sharp, cutting pains running from the lower end of the sternum to the back, which attack lasted about half an hour. At this time the facial expression was anxious, the tongue had a heavy white coat, the conjunctivæ were still subicteric, the heart and lungs negative. The pain in the abdomen had stopped, though the dirty-gray discharge continued. The bowel movements were liquid, greenish-yellow and contained strings of mucus. Three weeks after the operation the patient was in about the same condition. The temperatures varied greatly between normal and 103. The pulse was weaker and more rapid (130 to 145); the respirations were rapid (40 to 48), but not costal in type such as are seen in acute peritonitis. After irrigating the wound for some time it would be noticed that considerable necrotic tissue still came from the upper angle. On exploration a large cavity was found below the right lobe of the liver which extended as far as the finger could reach toward the region of the head of the pancreas. Masses of loose necrotic tissue, which varied in size from a hazel to a hickory nut, could be taken from it with the forceps. The bowel movements and urination had become involuntary and the patient was very restless. She had lost about ten to fifteen pounds in weight. Death occurred twenty five days after the operation, with symptoms of a slow form of sepsis.

Autopsy, abstract.—Studding the omentum and to a lesser extent the parietal peritoneum, were numerous areas varying in size from those just visible to larger areas, 0.5 centimeter in diameter. Most of the areas, especially the larger ones, were surrounded by a narrow hyperemic zone. They were circular, white, well defined and not raised above the level of the surrounding tissue. Those in the parietal peritoneum were most numerous above the level of the umbilicus, but scattered foci were present here and there as low down as the brim of the true pelvis, on the serous coating of the psoas magnus and above the inguinal orifice. The intestinal coils were adherent to each other and to the omentum, but easily separated. A considerable quantity of bloody fluid was present in each side of the abdominal cavity.

The pericardial cavity contained a sanguinolent exudate; both pleural cavities contained a moderate amount of clear yellow fluid; the lungs contained a few small calcareous nodules in the apices; the heart weighed 275 grams and was flabby; endocardium, myocardium, valves and orifices showed no gross changes; there were no changes in the coronaries or intima of the ascending aorta; the spleen weighed 230 grams, large, soft and adherent to the under surface of the diaphragm; on section it showed a large white infarct the size of an English walnut; the kidneys were alike in appearance, external surfaces smooth, capsules readily removable, cortical markings fairly distinct and relations of pyramid to cortex normal; together they weighed 325 grams; the uterus was small and presented the changes commonly seen in chronic endometritis; the right Fallopian tube was dilated and contained a small quantity of purulent fluid; the liver weighed 1500 grams, was soft and light red in color; on section the lobular markings were distinct; the gall bladder contained a thin pale bile, scanty as to quantity; the common duct was patent.

The pancreas was represented by a mass of gray, granular necrotic tissue, which was easily torn in removal. The necrosis had more of a liquefactive character in the region about the head and right half of the organ. The left half was studded with numerous larger and smaller grayish districts, which at various points fused together to form still larger conglomerate grayish or grayish-yellow masses. The material composing these areas was distinctly cheesy and soft and appeared at times to be formed in part at least of retained and inspissated pancreatic secretion. In and around the pancreas considerable chocolate colored fluid, containing masses of necrotic tissue, were found. The stomach was adherent to the spleen. Behind it was found a cavity, well walled off, which contained a hemorrhagic, semi fluid material with masses of necrotic tissue in it. The intestines showed no important changes except those incident to the peritonitis. Examination of the cranial contents was not allowed.

Anatomic Diagnosis.—Gangrenous pancreatitis, with disseminated fat necrosis; localized suppurative peritonitis, with laparotomy fistula; diffuse fibrinous peritonitis; infarction of the spleen; hydrothorax; chronic apical tuberculosis; cloudy swelling of myocardium and kidneys. Microscopic examination of the areas of necrosis in the omentum and pancreas showed the usual changes found in such areas, viz., a central district of granular non staining tissue débris, surrounded by a more or less marked zone of densely accumulated leucocytes. There were no signs of tissue proliferation about any of the areas examined.

Case 2.—William F., age 43, white, widower, Irish; was admitted to the service of Dr. J. B. Herrick, Sept. 28, 189[illegible]. The family history is negative. The patient was a railroad man and drank daily fifteen to twenty glasses of whisky as well as considerable beer. His health has always been good with the exception of an occasional "bilious attack." He denies all venereal history. His present illness began one month ago after eating a few small apples and drinking several glasses of cold beer. A few hours later, while still in the saloon, he was seized with severe pains in the abdomen. He was given several doses of morphin hypodermically as well as hot drinks containing whisky. Following this he had no bowel movements for five days and vomited everything, even water, when taken by mouth. The vomitus was never fecal. The urine, he said, was scanty and of high color. At times he referred the pain to the epigastrium, but usually to the right and left iliac regions.

Status præsens.—The patient is a large muscular man weighing about 250 pounds: the skin is moist and warm; the tongue is covered with a heavy, dirty, white coat; his mental condition is good; the chest is symmetric in form, the respirations rapid and shallow (28 to 36); no adventitious signs are revealed on examination of lungs; the respiratory excursion is somewhat thoracic in type; the area of cardiac dulness is slightly increased in all directions, no adventitious sounds heard; the pulse is rapid and feeble; the abdomen is much distended and the walls thick; there was dulness in the flanks and an area of dulness in the right iliac region.

Though he did not usually complain of pain, his abdomen was diffusely tender, most marked in the iliac fossæ; numerous pigmented scars were found over the tibial region. While under observation in the medical ward his pulse varied between 116 and 120 and was very weak; the temperature was usually normal, but at times would rise to 100 and 101 degrees F.; respirations varied between 28 and 36. On several occasions he had attacks of severe prostration, characterized by the extremities becoming cold and cyanotic and his radial pulse growing almost imperceptible; at other times he would be restless and sleep but little. The vomiting was persistent; the only thing retained was whisky given in half-ounce quantities. Purgatives and repeated colonic flushings failed to bring away any fecal matter. Six days after admission to the medical ward, though in a precarious condition, an operation was considered advisable and the patient was transferred to the surgical service of Dr. T. A. Davis.

An exploratory operation was decided upon and a vertical incision about three and a half inches in length was made in the right iliac region, where an area of dulness was outlined. As soon as the peritoneal cavity was opened a gray turbid fluid containing shreds of necrotic tissue and fibrin escaped. The omentum was much reddened and studded with white areas, pin-head to pea size, which were not raised above the surface. The intestines and omentum were matted together by fibrinous adhesions, and walled-off numerous pockets containing the same turbid gray fluid above described were found. A large gauze drain was inserted and antiseptic dressings applied. The patient died soon after the operation. The diagnosis of pancreatitis was confirmed by the postmortem findings.

Autopsy.—The postmortem examination showed the following: A man, well nourished, neck thick, chest full, abdomen distended, rigor mortis well marked. In the right flank is a recent incision about four inches long, from which bloody fluid exudes. Slight adhesions exist between the abdominal wall and the omentum. The peritoneum is rough with fibrinous masses adherent to it. In the omental fat, and to a lesser extent the abdominal wall, are irregular grayish white patches varying from minute to larger coalesced areas. Those in the abdominal wall are found only near the peritoneum. The abdominal cavity contains a turbid grayish red fluid. The pleural cavities are empty. The pericardial cavity is empty and its surface smooth. The tongue, pharynx, trachea and esophagus show no changes. The thyroid is small. The lungs crepitate throughout and their lower lobes contain much frothy blood. The peribronchial glands are enlarged and markedly calcareous. The heart weighs 400 grams and on its anterior surface is an irregular white patch, at the lower border of which there is calcareous material. It contains fluid blood and a few large clots in the right side. The tricuspid orifice admits six fingers. The right auricle is large. The endocardium is normal with the exception of a few areas of thickening in the mitral valves. The mitral admits five finger tips. There are several aberrant chordæ tendineæ in the left ventricle. The heart muscle is smooth and flabby, reddish yellow in color, and has a boiled appearance. The coronary arteries are tortuous and show a few yellow areas of thickening.

The spleen weighs 220 grams. Its surface is covered with a fibrinous exudate. It is soft, the pulp is swollen and there is little connective tissue. The kidneys together weigh 380 grams. The capsule is not adherent. The kidney substance is soft, the cortex swollen and the cortical markings indistinct. The urethra, bladder, ureters and testicles are negative. The liver weighs 2100 grams, and is adherent to the diaphragm which is pushed up to the third rib on the right side and the fourth on the left. The liver substance cuts readily, the surface being rather granular, of a uniform red color, with small areas of a deeper red. The gall bladder is distended with thick, viscid, dark green bile. The mucous membrane is smooth and velvety.

A large cavity is found in the region of the pancreas. It contains fluid of a dirty yellowish gray color, mixed with shreds of disintegrated material. The fluid has escaped into the abdominal cavity through a rupture whose margins are necrotic, and of a bluish gray color. Stretching across the cavity are remnants of the pancreas, much softened. The entire pancreas is involved in the cavity and contents. The fat tissue around the pancreas contains numerous white areas like those found in the omentum. The coils of small intestine are slightly adherent to each other by fibrinous masses. Large clots of fibrin are found in the posterior part of the abdomen.

Bacteriologic examination.—There was found in the blood from the heart, and in the spleen, liver, kidney, and in the necrotic areas in the subperitoneal fat, a bacillus corresponding in the cultural and other characteristics of the bacillus coli communis.

Anatomic diagnosis.—Gangrene of the pancreas; disseminated fat necrosis of omentum and subperitoneal fat; diffuse sero-fibrinous peritonitis; acute degeneration of the kidneys; cirrhosis of the liver; dilatation of the heart and degeneration of the myocardium; sclerosis of the coronary arteries; calcareous and caseous areas in the peribronchial lymph glands.

A histologic examination of the areas of fat necrosis showed practically the same conditions as those of Case 1.

The literature of pancreatitis has been so recently summarized by Simon Flexner[1] that only a few salient points will be mentioned here. According to Fitz,[2] fat necrosis in the peritoneal cavity is infrequent in the suppurative and relatively frequent in the hemorrhagic and gangrenous forms of pancreatitis.

The first attempt to prove the relation between the pancreas and areas of fat necrosis was made by Langerhans.[3] From his studies he concluded that fat necrosis was due to a decomposition of the fat molecule and a combination of the fatty acid with calcium salts present in the blood, to form a calcium soap. By injecting fresh pancreas pulp into the peritoneal fat tissue of a rabbit he produced a local inflammation with areas of fat necrosis.

Experiments by Dettmer, Hildebrand, Korte and Williams show, as previously asserted by Senn: 1, That the secretion of the pancreas can enter the peritoneal cavity without causing inflammation; 2, in a certain number of cases the free sterile pancreas or its secretion causes areas of necrosis; 3, the element of infection plays an insignificant part.

Dettmer found that pure trypsin caused a serohemorrhagic exudate into the peritoneal cavity, but did not set up fat necrosis. Hence it was concluded that in all probability the fat-splitting ferment was the active agent.

Flexner experimented on cats and dogs, ligating the veins coming from the pancreas, or one-half of the pancreas itself. By both methods he caused fat necrosis. The conclusions of Flexner are: 1, In the peritoneal fat necrosis the fat-splitting ferment is demonstrable at certain stages of the pathologic process; 2, it is most abundant in the early period and may entirely disappear later; 3, though it can not be said positively that steapsin is the direct cause of the necrosis of tissue, such an assumption is rendered most probable by its constant occurrence in the diseased areas, its absence from healthy fat, and the nature of the pathologic changes; 4, the escape of the pancreatic secretion into the peri- and para-pancreatic tissues is the origin of the necrosis, and this escape is facilitated chiefly by lesions of the pancreas and by disturbances in its circulation. Fat necrosis occurring from other causes is not excluded. It is quite probable, Flexner thinks, that some are due to microbic agents.

Accidental findings in the postmortems show that mild cases of fat necrosis occur which do not cause death. Balser,[4] who first described fat necrosis, found it present in five out of twenty-five postmortem examinations. The areas were present in the intra-acinous tissue of the pancreas or the adjacent fat tissue. Since that time they have been found in many instances in which a gross disease of the pancreas was wanting. In such cases the areas were usually small. In Balser's cases the cause of death varied greatly, as is seen from the following enumeration: 1, Male, 52 years old, much emaciated, phthisis pulmonalis; 2, male, 42 years old, general anasarca, aortic regurgitation and stenosis; 3, male, 61 years old, carcinoma of stomach, peritoneum and omentum; 4, male, 48

years old, much emaciated, carcinoma of stomach; 5, male, 60 years old, emaciated, cirrhosis of liver.

The etiology of pancreatitis is not definitely known. Syphilis and an excessive use of alcohol are mentioned by most writers as the chief factors. Eichorst, Koenig, Senn, Strümpell, Loomis, Osler, Ziemssen and Eulenburg speak of pancreatitis as sometimes following acute tuberculosis, typhoid, pyemia, septicemia and parotitis. The chief symptoms mentioned by all are: Sudden onset, with violent colicky pains in the epigastrium, vomiting, early collapse, constipation or diarrhea, with frequently fat in the stools and sugar in the urine.

In the cases reported by the writer there was a history of the excessive use of alcoholics in one and of alcoholism and syphilis in the other. Both cases had a sudden onset with severe colicky pains, by one referred to the epigastrium, by the other principally in the iliac fossæ. The first case had diarrhea and later involuntary bowel movements. The second had obstinate constipation. Both vomited excessively.

The surgery of pancreatitis is not definite. Senn[5] speaks of making a lumbar incision for drainage after making an abdominal incision. Koenig, however, thinks a diagnosis is seldom made before the rupture of the pancreas into the free abdominal cavity has taken place. Eichorst claims a positive diagnosis is impossible.

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A CASE OF CONGENITAL MALFORMATION OF THE HEART.

BY ALFRED H. SCOFIELD, A.M., M.D,
RYAN, IOWA.

Mrs. B., was confined May 5, 1898, at 3 A.M. Ineffectual pains had persisted at intervals since 2 A.M., May 2, with partial escape of amniotic fluid at that time. It was not, however, till the evening of the 4th that the uterine contractions became regular and vigorous. The case was a brow presentation. The head was considerably deformed by pressure and a couple of minutes elapsed before respiration was established. The child's cries were weak and hoarse. It was remarked that the action of the heart was unusually vigorous. After an hour the child was left in apparently good condition.

At 5 A.M. the writer was summoned with the report that after a feeble attempt at nursing the child had died in the mother's arms while she was sleeping.

An autopsy made a few hours later showed the lungs only partially distended. The heart was normal in appearance, filled with fluid blood. There was a partial defect in the inter-ventricular septum consisting of an opening 5 mm. in diameter at the top of the septum and so situated that a probe introduced into the aorta, entered much more readily into the right ventricle than into the left. In other respects the heart was normal.

The conclusion was arrived at that incomplete aeration of the blood was the cause of death and that the exaggerated heart action was an effort at compensation.

CHRONIC SUPPURATIVE ETHMOIDITIS.

BY LEWIS S. SOMERS, M.D.
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Both acute and chronic inflammation of the ethmoid cells occur in a much larger proportion of cases than is generally supposed, and from the intimate relation of these sinuses with the cranial cavity and accessory nasal chambers irreparable damage may result in a comparatively short time from the onset of the affection. Either the anterior or posterior ethmoid cells may be the seat of a suppurating process, alone or in conjunction with the maxillary antrum, frontal sinus or sphenoidal cells and the morbid changes may be acute or chronic, the affection commencing as a simple congestion of the mucous lining and disappearing in a short time, or pus may form, with serious results to the bony tissue and adjacent parts. The posterior group of cells with which we are concerned in this paper are not affected as frequently as those situated anteriorly, and therefore have not been studied to the same extent as have diseases of the latter region.

Acute or chronic rhinitis is probably the chief etiologic factor in a considerable number of cases, the inflammation spreading from the nasal mucous membrane to the lining of the cells and from the intimate attachment of the mucous membrane to the bone, changes in the latter structure taking place quite early, while suppuration of the adjoining sinuses may communicate to the ethmoid region, this being seen especially in suppurating frontal sinusitis and occasionally from the sphenoid cells and antrum of Highmore. Retention of secretions from closure of the ethmoid opening into the nasal cavity, may result from simple hyperplasia of the middle turbinal or from a polyp obstructing the outlet, but in not a few cases these are effects of the ethmoid inflammation and not causes. Other factors, such as irritation resulting from the retention of a foreign body in the nasal chamber, may be prominent in the etiology and general affections, or dyscrasias may produce local changes in this region, among these syphilis especially in the tertiary form, being the most common, while tuberculosis has been credited as the cause in a small number of cases.

When the ethmoid cells adjacent to the frontal sinus are affected, the patient may complain of a dull pain at the root of the nose and a unilateral purulent discharge from the nasal cavity, and when suppuration is confined to the posterior cells these symptoms may also be present, but the case often requires careful study before the nature of the affection is fully comprehended. Usually the patient will complain only of the symptom-complex forming the clinical picture of the ordinary form of chronic hypertrophic naso-pharyngitis and the nature of the affection becomes apparent only after careful investigation of the nasal chambers, but in the acute cases definite symptoms are present, that readily allow of prompt recognition. In the chronic affection with which we are concerned there may be no subjective symptoms of sufficient importance to specially attract the attention of the patient, and the recognition of the suppurative ethmoiditis must be based on the objective signs alone.

The affection may be either unilateral or bilateral, the former being most frequent except in specific cases where the entire bony structures of the nose are

destroyed. Examination of the affected nasal cavity will reveal the presence of pus, bright yellow in color before the bone becomes necrosed and later becoming thick and caseous as the solid structures are involved. The turbinal bones are seen to be hypertrophied, the middle especially being much enlarged and occasionally it is cleft near the median line. Mucous polypi are frequently present and the septum may be ulcerated from pressure by the hypertrophied middle turbinate. Much information can be gained by cleansing the nasal chamber and observing the location from which the pus comes. If the cavity be well illuminated and the head of the patient placed forward and toward the unaffected side, we may see a thin stream of purulent matter escaping over the middle turbinate. Posterior rhinoscopy reveals the middle turbinal to be much enlarged and frequently covered with accumulated pus which the patient has found impossible to dislodge.

Anosmia is a variable symptom and may or may not be present, it being difficult to obtain an accurate statement as to the presence or absence of the olfactory function, for should the duration of the affection be over a considerable period of time, the disgusting odor from the necrosed bone will prevent the patient appreciating other odors. General symptoms are observed in a few cases, the temperature showing a slight elevation at various times and there may be occasional rigors, but little information as to the nature of the affection can be gained from the general symptoms; more frequently, however, we find the patient complaining of loss of appetite and morning nausea, the result of swallowing the purulent secretions which escape into the pharynx during sleep. The general health may be seriously affected in other cases from septic absorption, the symptoms of septicemia being marked, as seen in other conditions, while in rare instances no indications of suppuration are present at any time during the course of the affection, the ethmoid involvement only being discovered accidentally as the following case well illustrates, no acute symptoms or rapid onset of the disease being noticed by the patient.

F. A., age 23 years, hat-presser by occupation, was first seen May 25, 1897, complaining of bilateral nasal obstruction; accompanying this was the discharge at frequent intervals and from both nasal chambers of fetid, membranous masses, and at all times the odor emanating from the nasal cavities was noticeable to those around him although he could not perceive it. At irregular intervals there was slight epistaxis and a muco-purulent naso-pharyngeal discharge, especially marked in the morning upon arising. The nose besides being obstructed, felt dry. This condition had existed for three years in a minor degree, but the fetor and obstruction had increased to a considerable extent during the past few months. Previous history was negative, no evidence of syphilis and no similar nasal trouble having existed in any of the family and he always having been exceptionally robust and healthy.

The left middle turbinal was much hypertrophied and almost touched the septum, especially at its posterior two-thirds; it bled freely on being touched with a probe and, in part, the epithelium was macerated, while other portions were denuded of their mucous membrane. Filling up the entire posterior half of the left nasal chamber was a black mass, resembling false membrane; removal of portions of this revealed the presence of a bed of pus beneath, the odor, on the least disturbance of the membrane, being almost unbearable. When all the secretions and membrane had been removed, the middle turbinal bone was seen to be denuded of its mucous covering at various points. The presence of dead bone was ascertained with the probe, and from the various necrosed areas in the turbinal, pus, green and fetid in color, was seen to exude. The inferior turbinal was moderately hypertrophied and inflamed, with loss in part of the surface epithelium, and on the septum directly opposite the middle turbinal was an ulcer due to necrosis of the mucous membrane covering the vomer. The right nasal chamber presented practically the same appearance as seen on the left, except that the middle turbinal was fissured, the probe on entering the cleft grating against dead bone. The turbinal on this side was more enlarged than on the left and was attached to the septum by a bony synechia. This was complete above the lower border of the middle turbinal, with a space below through which the air passed, and corresponded to the inferior nasal fossa. The pathologic process was more marked on the right, the patient complaining the most of obstruction and the presence of the membrane on this side, and on the left the membrane is discharged in small pieces after violent efforts, while on the right it frequently comes away in a single cast of this portion of the naris. Granulations were present over the necrosed areas in both middle turbinals.

The pharynx was sclerotic. Post-rhinoscopic examination showed a patulous inferior nasal fossa on both sides. The middle turbinals were much diseased, but the appearance presented nothing more than could be learned from an anterior view. The case was seen for treatment every third day for two months when he considered himself well enough to discontinue treatment and I have not seen him since. General symptoms were not well marked, occasional headache only of the frontal and occipital regions being noticed, and while there was a loss of a few pounds in weight, he presented no marked constitutional evidences of the severe local affection. The treatment consisted in removing the pus and debris with an alkaline, antiseptic spray and then what remained was removed with a probe and dull curette,; this was followed by thorough spraying with a peroxid of hydrogen solution, which not only cleansed the parts but controlled the bleeding and nosophen in full strength was insufflated over all the diseased area. Previous to this the patient was informed that he could only obtain permanent relief through operative interference under a general anesthetic; this was refused, so the parts were anesthetised with a 4 per cent. solution of cocain and necrosed bone and debris removed as far as possible with a sharp nasal curette, the parts then being covered with nosophen as previously mentioned; this was repeated at intervals until the membrane practically ceased to form and the nasal condition was decidedly improved. At the end of two months' treatment there was absolutely no odor, the septal mucous membrane was normal, the middle turbinals on both sides were greatly reduced in size allowing free breathing space, the pus and membrane had entirely disappeared and there was no post-nasal discharge. Treatment consisted essentially in removing all diseased tissue, obtaining free drainage and maintaining asepsis as far as possible.

Frequently perfect casts of the posterior half of

the nasal cavity were removed by forcibly blowing the nose; one of these casts on macroscopic examination measured one and three-quarters inches in length, by three-quarters of an inch from above downward; it was one-eighth of an inch in thickness, a deep grayish-black in color, with here and there over the external surface patches of pus and blood. Through the center of the cast was a perforation extending from before backward, approximately measuring one-quarter of an inch in diameter and through this central cavity respiration to a limited extent was carried on. The cast was thick and resembled moist papier maché to the touch and had a most intense odor; when dried it became shriveled and brittle and tough like leather. Portions of the membrane were placed under the microscope and pus, red blood cells, amorphous debris, cholesterin crystals, small particles of necrosed bone, bacilli and cocci were found forming the mass. The larger portion of the cast was composed of amorphous material and pus cells, the red blood cells being but few in number, while cholesterin crystals were found in considerable amounts. No researches were made as to differentiating the micro-organisms, except that the staphylococcus and streptococcus were found to predominate.

The dangers incident to suppuration of the posterior ethmoid cells increase as treatment is delayed or not thoroughly carried out. Caries and necrosis of the walls with extension of the inflammation to the fronto-ethmoidal cells and involvement of the orbit has occurred, while the cranial cavity may become involved and fatal meningitis result. The progress of this form of ethmoid disease is slow, often extending over months, and in this case several years elapsed before it was recognised. Although the course may be much shortened by prompt and radical treatment, yet a certain degree of caution must be observed in operating on account of the unfavorable location of the posterior ethmoid region.

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HAY FEVER.

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CHICAGO, ILL.

My chief purpose in reviewing the subject of hay fever is to define more clearly, if possible, the philosophy of its treatment by internal medication in addition to the recognized surgical measures which should be adopted. The majority of patients have received only local nasal treatments, which have given variable success, no effort being made at internal medication. My experience in the past three seasons has convinced me that one of the most important factors in the pathology of the disease is the uric acid diathesis, or rather a condition of temporary uricacidemia. Uric acid, with other toxic matters which are retained with it in the blood, is certainly a violent irritant to the tender and irritable tissues in hay fever as well as in other diseased states; and when its importance is fully recognized it will be much easier to relieve the sufferer.

The nervous symptoms are reflex, from the local irritation of the sensitive area, reflex through the ganglionic and cerebro-spinal nerve connections. The ganglionic system presides over the functions of secretion and excretion, nutrition and circulation, as well as involuntary motion. These ganglia, composing the sympathetic system, also give warning through their intricate network of connecting nerve fibers, of abnormal conditions. The warning may be sent to the same organ in which the irregularity occurs, or to other organs. This will explain the production of various symptoms occurring in hay fever. The local irritation of Meckel's ganglion is reflected through its various branches, producing, in time, the symptoms of rose cold or hay fever—through the descending palatine branches, causing itching of the mouth, most often referred to the point where the nerve emerges from the posterior palatine foramen, as well as through the naso-palatine nerve at the anterior palatine foramen, behind the incisor teeth, through the internal nasal branches, causing engorgement of the erectile tissue with the profuse discharge of mucus through the upper posterior branches, the pharyngeal and a few through the Vidian nerve to the mouth of the Eustachian tube and pharynx, producing the itching of the ears and throat, through the branches to the ophthalmic ganglion, producing the intense eye symptoms observed in many cases, and through the branches of the cervical sympathetic ganglion producing hay asthma and dyspnea. In the milder cases the symptoms of dyspnea and asthma are often absent.

In the study of the etiology of this disease we find these two factors to be taken into consideration: first, irritation; and second, a sensitive area of membrane.

The sources from which come this intense irritation, producing the sensibility of the nasal mucous membrane, may be classed as external and internal. External irritants are dust, pollen of certain plants, most of which bloom during the latter part of August, septic germs and corrosive and irritating discharges and polypi. As internal irritants we have, as first in importance, toxic conditions of the blood, especially an excess of uric acid and the products of incomplete metabolism, or retained waste matters floating in the blood. This excess may be due to a too rapid supply of uric acid from a rich diet or faulty digestion, or to torpidity of the excretory organs, probably to both.

The heat of the summer with its relaxing effects and perspiration and consequent chilling of the surface, interfering with the proper action of both the skin and kidneys, the excessive amount of water drank and consequent delay of digestion, producing gastro-intestinal catarrh, all have a decided effect in loading the blood with impurities and lowering the resistance to the action of irritants. As a second source of internal irritation may be mentioned reflex action from the sexual apparatus, due to the correlated action of erectile tissues, as so ably presented by Dr. J. N. Mackenzie. The varying character of the disease in different cases is due to the fact that these different factors vary in their pathogenic importance; now the local nasal condition is the cause alone, now the rheumatic diathesis, now the reflex influences from tumors or other causes, and possibly a neurotic element in some cases, and finally a combination of some or all of these elements.

These internal irritants, or toxic elements of the blood, must be expelled if success is attained in the cure of every case. This may be done by an eliminative form of treatment including alkaline and stimulating diuretics; a 0.65 gram dose of salicylate of soda with each meal often gives complete relief. A vapor bath may be given two or three times weekly. Light woolen underclothing must be worn to protect the skin from too rapid evaporation and chilling of

the surface. Diet should be plain and not stimulating restricted to those articles which do not produce much uric acid, sugar and meats sparingly. In many of the milder cases this medical treatment is sufficient to give immediate relief, but in order to make the cure certain and permanent in all cases the second factor in the etiology, the sensitive mucous membrane, must receive attention.

When the symptoms appear to be confined to the eyes and anterior portion of the nose the source of the irritation will usually be found in the sensitive area of Sajous, which he has described as the region of the anterior extremity of the middle turbinated bodies or the middle turbinated bodies themselves. There will be found a hypertrophy of one or both of these bodies so that there is close contact with the septum or the upper portion of the lower body. This latter form of contact is often overlooked but may be discovered by passing a bent probe between the middle and lower bodies. Cocain may reduce the engorgement somewhat, and will enable the operator to locate the hypertrophy, which will usually be granular or corrugated in appearance. Or cocain may fail to reduce it and the body will remain large and red. When this condition is found no treatment will take the place of the snare, and sufficient tissue should be removed to give free surfaces, no contact and good drainage. There will usually be found accompanying this condition of the middle turbinated bodies a soft hypertrophic area on the septum, just anterior to the previously mentioned point of contact of the turbinated body. This should be cauterized deeply. This particular hypertrophy is often neglected and will continue to be a source of irritation if not reduced. It has been said that these hypertrophies of the septum should not be cauterized, but I have never failed to get good results from the procedure.

When the symptoms are severe and involve the throat and ears, and are accompanied with asthma, then probably the source of greatest irritation lies in what Dr. J. N. Mackenzie has described as the posterior ends of the lower turbinated bodies and the surface of the septum opposite. This is called "Mackenzie's sensitive area." The posterior end of the lower turbinated body is usually hypertrophied and may be called the sensitive hypertrophy. It may be seen in most cases by posterior rhinoscopy, having a granular or corrugated appearance, large and pale. The short-cut branches from Meckel's ganglion supply this area, and stimulation or irritation being reflected through any of the branches and connections will produce the symptoms of hay fever.

The most pronounced benefit will be given by treatment of these sensitive hypertrophies. Often the symptoms are immediately relieved when these areas are properly treated. The most appropriate treatment for this hypertrophy is also the snare, after complete anesthesia with cocain. The operation should occupy a few minutes, so that there will be but little hemorrhage. When the snare can not be used I cauterize in one of two ways, preferably by the galvano-cautery, using an electrode which I have had made with a loop to hook over the projecting hypertrophic tissue. Or, what has given me the very best results, is the use of chromic acid on the end of a bent probe, so as to reach over the surface of the posterior end of the body, which can not be done with a straight probe. Care must be taken not to touch the tissues near the Eustachian orifice. This treatment will be followed by considerable reaction with discharge, but when the healing process is complete the hypertrophy, as well as the irritability, will be reduced. Some of the most intractable cases of asthma are cured by removal or cauterization of these hypertrophies, removal of the polypi or other intra-nasal irregularities, which irritate this sensitive area. Also, some of the worst symptoms of chronic rhinitis are quickly relieved when treatment begins at this point. The chronic alternate congestion of the turbinals, as well as the profuse discharges, subside. The bodies are then left to their proper sympathetic influences, which regulate the secretion of fluid and other functions of the nasal mucous membrane.

It has been shown that when simple hypertrophy is the cause of nasal obstruction and the bodies are deeply cauterized their contraction is often so great that inspired air is not properly warmed and moistened, the throat becomes dry and the patient may be in a worse condition than before. In catarrhal areas not truly hypertrophic, deep and destructive cauterization for the purpose of button-holing the membrane to the bone, to prevent erection of the turbinated tissue, is wrong in theory, never necessary and does actual harm. Diagnosis must be made by aid of cocain, which reduces the engorgement and at the same time brings out clearly the flabby, corrugated, true hypertrophy, which alone must be treated.

In the treatment of these hypertrophies, all obstructions, such as polypi, deflections, ledges, spurs and anterior hypertrophies, should be removed in order to gain easy access to the post-nasal regions, and to make the nasal cavities conform to the ideal nose at least in point of drainage and ventilation. For the cure of hay fever the treatment of these most sensitive areas and other very radical departures from the normal should be completed before the beginning of the hay fever season, then, during the season, medical treatment and other measures rigidly carried out will insure success.

Internal medication is not needed in every case, as local treatment of the nasal irregularities is often sufficient, but when it is required it will assist greatly in the relief of the irritability of the nose and general symptoms. The great majority of cases of hay fever are certainly easily curable if tact and patience are employed with the treatment.

I have omitted the discussion of a neurotic condition peculiar to this disease for the reasons that when a frost occurs or when the patient is transported to a place where the atmosphere is free from all irritating qualities which cause the symptoms, all the phenomena of the disease cease almost immediately; also, when the blood is freed from impurities, uric acid and other waste matters, by the treatment above described, the symptoms are quite, if not entirely, controlled; also, that neurotic remedies have not the slightest perceptible effect on the progress of the disease.

Dr. J. O. Roe, in an article on "Hay Fever" (*New York Medical Journal*, Sept. 3, 1887), has ably described the proper treatment of the intra-nasal conditions, and closes his article with the following conclusion: "That by carefully correcting all abnormal conditions found in the nasal or other portions of the respiratory passages, and the use of such systemic medication as may be required to remove any associated or consequent general derangement, we need not fail to cure hay fever."

Dr. Roe, however, gave no outline for internal medication, or what particular conditions were to be remedied by it. He reported thirty-six cures out of a total of forty-four cases by local treatment. From the nature of the disease it will be admitted that a permanent cure must come from treatment and relief of the excessively sensitive nasal mucous membrane and that cure will be hastened and the patient made comfortable during the treatment by internal medication. I believe that every case is curable by the combined treatment.

I report a few cases, with what seemed to be the most appropriate treatment for each case:

Case 1.—Miss I. M., aged 22, has had hay fever for the past three years. Her treatment consisted of chromic acid cauterization of the posterior ends of the inferior turbinated bodies and trichlor-acetic acid applications to the anterior extremities of the middle turbinated bodies, done during the season, with complete cure.

Case 2.—Mrs. N. H. has had a most severe case of hay fever extending over a period of twenty years. The nasal mucous membrane was greatly hypertrophied and very sensitive. I removed and cauterized the hypertrophies until I could find no more to treat. She still had some hay fever irritation but was greatly improved. Doses of 0.65 gram of salicylate of soda with each meal completed the cure for last season.

Case 3.—Mr. H. W., aged 39, with a rheumatic diathesis, a year ago developed hay fever, but has had no recent treatment for abnormal nasal conditions. During the past season the symptoms of hay fever were kept under entire control by salicylate of soda and alkalin diuretics, but if they were discontinued for a few days the symptoms would return.

Failure to cure undoubtedly arises from placing our reliance in a single line of treatment, to the exclusion of other supplementary measures, or inefficient intra-nasal treatment. There are hardly two cases alike and each should be studied for the best method of relief.

92 State Street.

PHYSICAL DEFECTS IN PUPILS.

Read at the Annual Meeting of the Associated Minnesota School Boards, held at St. Paul, Dec. 30, 1897.

BY FRANK ALLPORT, M.D.

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CHICAGO, ILL.*

I will take up that phase of the subject which deals with the problem of how best to preserve the eyesight of school children, a theme which is pregnant with importance. The prosecution of this subject opens up a wide field, involving not only those elements or conditions, which primarily and particularly bear upon ocular hygiene, such as print, lighting, etc., but also bear upon those circumstances obtaining during the school life of the child, which can either directly or indirectly affect the preservation or degeneration of his eyesight. Such consideration will lead us into a discussion of architecture, buildings, location, window space, lighting (natural and artificial), seats, desks, walls, blackboards, maps, charts, paper, slates, printed matter, writing, etc.

The importance of this topic may be imagined, when we consider that James H. Blodgett, in 1890, estimated that over fourteen million children were in attendance in the different schools and colleges of the United States. When we consider that the average of children possessing defective eyes in our schools is estimated to be from 25 to 30 per cent. it will be seen that at least three and one-half million children attending school in the United States possess defective eyes. It will thus be seen that the magnitude and importance of the problem, as to how best to subserve the ocular interests of this great number of school children, is enormous.

The consideration of defective eyes as a consequence of school life, was first publicly noticed by A. G. Beer, who, in 1890, published a treatise on "Healthy and Weak Eyes." He was followed, in his investigations, by Ware, Szokalski, Shurmayer, Jaeger, Reuta, Reck, Alexander, Gaertner, Cohn, Risley, Randall, and others. I, myself, have superintended the examination of over 10,000 pupils, in the Minneapolis public schools, the past year, by the method which I proposed in 1895. The Minneapolis tests have shown an average of 32 per cent. of children possessing defective eyesight. In all, between two and three hundred thousand children have been examined, according to different methods, in the schools of the world, and the percentages arrived at in Minneapolis are about the same as those obtained in other examinations, although in some of the German universities, where bad print, studious habits and hereditary influences are prominent, from 50 to 75 per cent. of ocularly defective students are not infrequently observed. The objective point obtained by these researches is the inevitable truth that myopia or short sightedness, or an elongated, softened eyeball, is the principal pathologic condition of the eye, induced in children by study, and that the more imperfect the conditions under which the child studies, the more surely, steadily and rapidly will myopia develop.

The frequency of myopia in students has led some observers to believe it to be a natural evolution of tissue, incident and similar to the natural expansion and enlargement in other tissues of the body. These deductions are inaccurate and can not be substantiated. Such superficial observers evidently forget that the natural evolution to which they refer is practically a class evolution, and is found principally among students, or at least among those who attend school and use their eyes to a greater or less degree for the purpose of acquiring an education. Evolution of this kind does not exist to any great extent amongst those whose occupations are essentially separated from those of an educational nature. In other words, ocular examinatians among uneducated farmers, Indians and others, who practically never read or study, show the myopic eye to be conspiciously infrequent. People of such classes undergo evolution of tissue quite as much, and perhaps more so than the student, yet it is in the latter class that the elongated, softened, myopic eye plays such an important role. Myopia, therefore, while not confined to students, is especially frequent in them, and must inevitably be classed as a pathologic condition, and not a physiologic evolution, and is, unquestionably, principally caused by confinement and the more or less injudicious use of the visual organs. In other words, a myopic eye is a diseased eye, and should always be regarded and treated as such. The frequency of myopia has also led some observers to believe that a slightly myopic eye is the normal eye. This claim can not be substantiated, for a great number of observations have shown that the natural condition in infancy and early childhood is either emmetropia or hypermetropia.

Myopia is rarely seen before school life commences some observers even claiming its non-existence in very early childhood. Its frequency steadily increases during school life, from class to class, and from room to room, and hypermetropia diminishes in proportion

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to the advance of myopia. Some authorities believe that myopia is not hereditary, only the tendency to myopia, and that this inherited tendency is augmented by certain abnormal and inherited shapes of the skull, socket, etc. While the infrequency of actual inherited myopia must be admitted, the statement that it is an absolutely uninherited condition is too sweeping, and the observation of whole families of myopic parents and children, which come under notice, from time to time, must convince an unbiased observer that myopia is a condition possible of transmission from one generation to another. If school life, with all its incident evils is capable of producing myopia, then it must be equally true that a mitigation or a removal of these evils, must be capable of decreasing the number of myopic children. That this is true, is amply proven by statistics gathered in this country and in Europe, where the proper correction of myopia by glasses, the erecting of more properly and abundantly lighted schools, the improving of desks and seats, the changing of curriculums of study, etc., have unquestionably diminished the percentage of myopes in a given community. In investigating this subject we are, therefore, not chasing an interesting scientific fact, but we are endeavoring to arrive at some truthful deductions which will enable us to improve the ocular conditions of the coming generation.

The public schools of the United States are the crowning glory of this country. When we glance back at our own childhood days, and remember the hot, stuffy rooms, with their meager and poorly directed illumination, and the other unhealthy and unpleasant conditions and methods of obtaining a common school education, and then pass through some of the beautiful school buildings of our cities with their cheerful and pleasant surroundings, their teachers and general facilities, we can not but see that the public school system has improved and is improving steadily, and that educators are eager to accept suggestions that will still further improve this system and render it as near perfect as possible. While I am well aware that the curriculums of study at present in vogue in our public schools are much less severe than those which formerly obtained, I believe them still to be excessive, and that they must inevitably, frequently tax, not only the ocular, but the general health of students, especially those of weakly tendencies. I believe that a lengthening of the time required to secure a high school degree, by one year, would mitigate the severity of study all along the line, and enable scholars to emerge from their graduating exercises in better physical and mental condition, and would do the greatest good to the greatest number. I believe, besides this, that a more elastic curriculum is necessary to favor children having poor eyes, and poor health. The strictness of the grades should be modified, at least, and permission given for individual studies to be taken in quantities somewhat adaptable to the health of given individuals. Credit should be given for such studies, as they are finished, and the child allowed to graduate when all of the required studies have been completed. I am well aware, that this arrangement is not infrequently made in our public schools, but I think that such a course is not discouraged, and that children are made to feel a sense of mortification because they are falling below their grades or classes. I think many of the children should belong to *no* grade or class, but be allowed to acquire their education, study by study, in a manner consistent with the proper development of the health. I do not mean to advocate the abandonment of grades and classes. This would be most unwise and undesirable, but I do feel that children with impaired ocular or general health should be cheerfully and creditably, not only allowed, but *advised* to take only such numbers of studies as will be consistent with a proper physical development. Such a course would lengthen the period of school life in many instances, but it would improve the average health of scholars, and this is of greater importance. Children should not be required to take so many studies that they have to work up two or three at home in the evening. If they study the major portion of the day, a growing and developing child should not be required to give up that mental and physical relaxation incident to an evening spent pleasantly at home amid sports, games, music light literature, etc. I do not mean to say that children should do no studying at home of an evening. A little study is not only harmless, but beneficial, but some children are compelled to work up three or four studies at home, and this is excessive. Work of this kind resulting in close confinement, bad atmosphere, and perhaps poor illumination and utter disregard of hygienic study methods, results in a lack of that refreshing sleep necessary to the proper nervous, mental and physical development of the child. However much care is manifested in the schools concerning the proper use of the eyes, it is difficult to regulate such work at home. Therefore the amount of required eye-service at home should be limited. The teacher never knows how the scholar learns his lesson at home. He may study lying down by a poor light, or face a brilliantly lighted lamp or gas jet for hours, or indulge in other habits injurious to proper ocular health. Children will also use their eyes in devouring light and sensational literature, impressed upon the poorest paper, with the poorest type and the poorest ink; and while we may wish to stop this evil, we must be aware of our inefficiency in accomplishing our desires. If this be true, and children's eyes will be abused in a manner that is thoroughly beyond our control, we must make some allowance for it and not impose too much ocular service at home, incident to the acquiring of an education. Ocular strain in schools can be much mitigated by frequent change of occupation, which may not be always a recess, but may be something in the nature of exercise of various kinds, such as calisthenics, gymnastics, marching, etc. Much improvement has been made along these lines of late years, but there is further room for improvement. Such changes have become quite a feature in many German schools, where ocular degeneration has become recognized and steps for improvement inaugurated. Statistics from some schools have shown that since frequent breaks of various kinds in the school session have been made, the ocular condition of students have manifestly improved. The semi-annual term examination for the determination of class standing is often detrimental to the eyes and health of students. It is a semi-annual period of intense, concentrated and continuous study, which often leaves in its wake impaired eyes and health. Can not some means be devised whereby these periods of over study and anxiety may be abated, and the standing of students secured in other ways, such as class records, quizzes, reviews, etc?

The architecture and location of school buildings is of great importance. Suitable and healthy loca-

tions should be obtained as far as possible. In cities, the nature of the soil is not always possible to be taken into consideration, nor is it so important, as city buildings are usually thoroughly well drained and plumbed. In the country, however, a well drained location should be chosen, without a clay sub-soil, and remote from malarial and other injurious environments. In cities, narrow streets with high buildings should be avoided, as they shut out the light and proper ventilation. School buildings should be away from factories, markets, etc., to avoid their distracting noises, exhalations, dust, etc. Ample grounds should be secured, upon all sides of the building, not only for maintaining proper air, light, etc., but in order that children may have plenty of room for games, etc., which are so conducive to the proper physical development of the child. Large, well lighted and dry cellars should be had for recreation on stormy days, and, where it is impossible to obtain a large tract of ground for the school building, it has been suggested that a flat roof be built with high surrounding walls and a roof garden be laid out in which children may play. The question of sufficient light in school buildings is of vital importance. To obtain this, other buildings should be at a distance equal to twice their height from the school building. The illumination of a school room should be of a quantity and quality that will amply light every portion of the room on a dark day. To secure this, the window surface should not be less than one-fifth or one-sixth of the floor, and the direction from which the illumination comes is a matter that is not particularly essential, although a north light is the steadiest and most constant; but many observers and teachers dislike it on account of the lack of sunlight, which they claim to be detrimental to the health and spirits. Scholars compelled to study by poor illumination will be found to carry the printed page close to the eye, in order to increase the quantity of retinal illumination, or to take advantage of the law that the illumination diminishes according to the square of the distance. This forces the accommodation and convergence of the optical axes, and causes undue congestion of the eyeball and surrounding tissues, which increases intraocular pressure and softens the coats of the eye, thus permitting an elongation of the optical axis, and the production of myopia. Windows should be at the side of the room, preferably the left side, and at the back. The lower portion of the window should be about three feet from the floor and extend to the ceiling, in order to obtain as much window space as possible. The margins of the window ledges should be beveled, both inside and out, to avoid shadows, and should not be placed on both sides of the room, as it would result in a confusing and injurious cross-light. There should be as little wall space on the sides where the windows are placed as possible, and the windows should be hinged at the top, in order to obtain proper ventilation without direct draughts. Blackboards should not be placed between windows, as it taxes the eye exceedingly to endeavor to decipher marks made upon a blackboard thus situated. The ceilings of a school room should be high, in order to secure good light and ventilation. Artificial illumination should be of a good quality and sufficient in quantity. A profusion of incandescent lights with glazed globes, grouped at frequent intervals, is the best illumination that can be secured, as it is white in character, intense in quality, and does not heat or vitiate the atmosphere. In order to carry out the idea of a light school room, the walls should be painted in delicate shades of yellow, green, blue or light gray. The blackboards can be covered when not in use by light colored shades, of a similar color to that of the walls. The woodwork, desks, etc., should be all of light colored wood, in order to preserve as much illumination as possible. Window shades should be light colored, and should roll from both the top and bottom, with the possibility of their being long enough to roll up or down the full extent of the window surface.

The seats and desks is an item of great importance, and was first publicly mentioned by Henry Barnard in 1860 He pointed out the necessity of placing the seats close to the desks in order to avoid leaning forward. Seats and desks should be arranged in such a manner that the soles of the feet will rest securely upon the floor, and so that the erect posture is the most natural and the easiest for the scholar to assume In order to obtain this the seats should be as wide as the thigh is long, measured from the inner bend of the knee to the back. It should be level and slightly concaved to prevent slipping forward. The front edge of the seat should be placed from one to two and a half inches underneath the inner edge of the desk. The top of the desk should be inclined toward the pupil at an angle of about 10 degrees, and must be low enough to allow the forearm of the pupil to rest lightly upon it without raising the shoulder when in the act of writing, but sufficiently high to avoid the necessity for stooping in order to reach it. The lower part of the back and pelvis should be supported by a rest easily felt while sitting upright. It seems almost unnecessary to state that desks should be of different sizes to suit the pupils, and yet I have frequently looked into schoolrooms where but little attention was paid to this point. Some of the manufacturers construct desks in such a manner that by the adjustment of screws, etc., every desk in the room can be made of a proper size to any child who will be likely to be in that particular schoolroom. By using desks of this kind, the fitting of scholars to their desks will be an important procedure at the commencement of each school year. Of course, proper desks or seats will not solve the problem, some children have weak backs or are otherwise bodily affected and seem truly unable to sit in a schoolroom without half reclining upon desk, and it is questionable whether children of this kind should be required to attend school sessions steadily. Other children are lazy and slouchy in their habits, and this will call for frequent admonishment on the part of their teacher.

Blackboards should be kept clean and have unglazed surfaces, and the figures, lines, etc., that are marked upon them should be of a size and character that can be easily seen without straining the eyes of the pupils. Some authorities have recommended the use of white boards with black chalk instead of black boards with white chalk, as black figures on a white surface can unquestionably be seen easier and farther than white figures on a black surface. I think the majority of practical educators, however, believe that the white boards with black chalk are extremely objectionable, on account of the constant and distasteful soiling of the hands. If the blackboards are kept clean, the white crayon marks will be found to be sufficiently legible for all practical purposes.

Slates are justly becoming unpopular in schools whether they be black or white, on account of the

oul and unhealthy condition in which they become. f slates are used, however, the white slates are to be referred, as the black marks upon the white surface re much less trying to the eye than the faint gray narks of the pencil upon the old-fashioned slates. 'he best material with which to perform this kind f work is whited unglazed paper and black ink, with stub pen capable of making heavy strokes. Maps nd charts are important articles of school furniture nd easy to teach with, if the marks upon them are rge and legible. The groundwork upon which such aps are printed should be of a white or yellow color, characters printed upon dark shades, such as red r blue are not so easily distinguished. The study of eography as taught by hand atlases, with varied colors, nes, figures, printing, etc., is very trying, and is probly more injurious to the eye than any other study. reat care should, therefore, be taken in the printing geographic text-books and maps, and such books ould be chosen by school authorities as will be least jurious to the visual organs of the child.

The manufacture of text-books for schools is a subct of great importance. Books should be of a size at can be easily handled, and the paper used in the nstruction should be of good quality, non-translunt, reasonably thick and of white or cream color. he printing should be first-class in every particular. ne letters should be black, clear and of sufficient ze for easy reading. The lines should have good stances between them. Long lines should be avoided, extra accommodation is required to follow them, d if a page must be wide it is better to divide its ntents into columns.

A great deal of discussion has lately arisen as to nether the slanting handwriting heretofore taught our schools should be continued, or whether holars should be instructed as to the methods of quiring an erect handwriting. Fahrner, in 1897, id, "we allow our children to grow crooked in order at their handwriting may be nicely slanted." There n be no question but that vertical handwriting is s injurious to the eye than the slanted variety. In iting after the vertical method, the paper is directly front of the scholar, and therefore the page is seen ually well with both eyes, which will accordingly rk together. Besides this, the strokes are stronger d less hair lines will be seen than in the slanted riety. Besides, the vertical method of writing vors upright sitting, which is in itself a sufficient ason for its adoption.

The tendency to lean over while sitting at the desk very strong with some scholars, even though the hool authorities have provided them with proper sks and seats. To obviate this tendency, many ms of head rests or face rests have been suggested, l of them all Kallman's face rest is probably the st. These rests are fastened to the desk and assume ertical position with a loop at the extremity through ich the face emerges. When these rests are fastd into the desks it becomes impossible for the ld to lean over when reading, and many German ools have adopted Kallman's face rests with the ost satisfaction.

The method which I proposed in February, 1895, the detection of most ocular diseases in children, ether with measures for their relief, is doubtless iliar to all. I have from time to time modified original plan until I believe it to be now as nearly erfect as such a plan can be in our American pubschools.

The statistical papers and warning cards now in use in the Minneapolis schools are now used quite generally throughout the United States, and are giving satisfaction wherever tried. The results have been distinctly beneficial to the coming generation, and in Minneapolis the plan is in great favor with teachers, scholars, parents and the public at large, and has been productive of benefit to thousands of cases, especially since people are learning that the tests are for the development of most all ocular diseases and not merely for the fitting of glasses, and since they have also learned that an eye doctor and not an optician is the proper person to consult if a warning card is deemed a necessity.

Those aural diseases which will be most frequently observed by teachers are running or matterating ears and deafness. The former are usually produced from blood diseases, inherited or acquired, from catching cold or from catarrhal affections of the throat and nose. They can usually be detected by the teacher if the child complains of earache if care is taken to look into each ear, as far as possible, by a good light for the detection of matter or pus, or if either ear emits a foul odor. If any of these conditions obtain, the child should be advised to consult an aurist.

I would recommend that the following questions be added to the statistical blanks now in use in the Minneapolis schools:

1. Does the pupil frequently complain of earache in either ear?
2. Does matter (or pus) flow from either ear?
3. Does a foul odor proceed from either ear?

If an affirmative answer obtains from any of these questions the child should be sent to an ear doctor, as often questions not of diseased ears but life and death itself are at issue. The examination for odor will be most distasteful to some teachers, and under such circumstances it may be omitted.

A deaf child is an apparently stupid child and is deprived to a greater or less extent of an important sense which was intended as one of the means of obtaining a knowledge of the world. He is therefore unequally equipped for the battle of life and obtains an education disadvantageously, and is frequently called stupid, listless and unambitious, when in reality he is merely deaf. The time to relieve such conditions is in early life while physical tissues are pliable, and not in later years when relief is improbable and cure well nigh impossible.

Deafness may be due to the presence of a matterating (or purulent) ear with its destructive tissue changes, which causes will be developed under the set of questions just enumerated, or it may be due to catarrhal conditions or changes of the throat, nose or Eustachian tube. One of the most frequent causes of deafness in children is what is known as adenoid vegetations in the vault of the pharynx, or enlarged bunches of tissue growing from the upper portion of the throat and interfering with the proper inhalation and exhalation of air through the nostrils, and the proper aeration of the middle ear through the Eustachian tubes. The same unfortunate conditions exist frequently in children possessing abnormally large tonsils. Children of this kind are apt to become deaf and develop into what are known as "mouth breathers," because they habitually breathe through their mouth instead of their nostrils, giving them a peculiarly stupid and vacant appearance. The improper aeration of the air passages predisposes to lung

diseases, and the perpetual expansion of the mouth and the lack of nasal breathing produce a lateral contraction of the nose and vault of the mouth which, together with the contracted upper lip, gives to the countenance a characteristic appearance, which once seen is not easily forgotten. Almost inevitably a child with such a physiognomy is more or less deaf and has throat or nose obstructions, or both. Other catarrhal conditions may cause deafness and frequently do, but such events occur more frequently in adults. The deafness of children is usually dependent upon organized nose or throat obstructions. These conditions can be easily detected by an unprofessional observer by the appearance of the child and the asking of a few simple questions.

Before suggesting these questions let me say that while there are many tests for hearing, only two seem feasible for use in school examination, viz., the spoken voice and the tick of a good sized watch. To use the former the child's back should be turned to the teacher, and an assistant should plug up first one ear and then the other with a cloth over the finger. The teacher should then step away about twenty feet, and ask the child in a low but distinct voice, a direct question, requiring a direct answer. If, after one or two tests the child fails to hear the spoken words in either ear, he should be sent to an ear doctor. He should be further tested in the same way in both ears, by the tick of a good sized watch, which should be placed six or eight feet away, and gradually moved toward the child, on the side upon which he is being tested. The watch should be heard at least three feet away, and if it is not heard by both ears at that distance, the child should be sent to an ear doctor.

Having now shown you how hearing may be simply tested, let me suggest some pertinent questions, to be added to the statistical blanks previously recommended, which will develop the existence of the abnormal conditions, which I have endeavored to briefly describe:

1. Does the pupil fail to hear a low and distinct voice, at twenty feet, with each ear?
2. Does the pupil fail to hear the tick of a good sized watch at three feet, with each ear?
3. Can matter be seen flowing from either ear, or does a foul odor proceed from either ear?
4. Does the child fail to breathe freely from either nostril, when the other nostril is closed with the finger?
5. Is the child an habitual "mouth breather"?

If an affirmative answer is given to any of these questions the child should be sent to an ear doctor.

The results of intelligent treatment upon such diseases in children are exceedingly satisfactory, and if the young sufferers can be placed under proper care sufficiently early, an immense amount of good may be accomplished to the coming generation.

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THE BEST METHODS OF SURGICAL STERILIZATION.

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It is indeed very fortunate that the surgical bacteria are, comparatively speaking, so little resistant that surgical sterilization can be reduced to such a degree of simplicity that it may be carried out on short notice, not only in hospitals, but also under the open sky, not only in private practice, but also in offices, by reasonable means and in reasonable time. While surgical sterilization is open to improvement and does steadily improve, it is a source of some regret that the best methods of accomplishing surgical sterilization are still somewhat in dispute.

If I am justified in considering the various manuals on this topic, as standards for the teachings and practice of surgical sterilization in the respective countries, we have three principal schools before us: 1, the English school, which practically teaches the destruction of pyogenic, consequently non-spore-bearing bacteria only. (W. Watson Cheyne: "The Treatment of Wounds, Ulcers and Abscesses," Philadelphia, 1895); 2, the German school, which advocates the extermination of all surgical bacteria, spore-bearing or not, pyogenic or not. (C. Schimmelbusch: "Anleitung zur aseptischen Wundbehandlung," Berlin, 1893); 3, the French school, which in reality aims at the destruction of all kinds of bacteria, pathogenic or not, consequently not only at surgical but also at bacteriologic sterility. (Felix Terrier and M. Peraire: "Petit Manuel d'Antisepsie et d'Asepsie chirurgicales," Paris, 1893.)

The practical result of these three different views is, that the Englishman is perfectly content with chemical sterilization, while the German considers thermic sterilization the best method, as does the Frenchman.

If the Englishman is right he has the advantage of the simplest method of sterilization, as almost everything is prepared with the aid of a cold solution of carbolic acid; if the German is right, and he has at least the sympathy of the majority of surgeons, sterilizers for boiling water and for ordinary steam, which the Englishman has no use for, are indispensable; and if the Frenchman is right, surgical sterilization will never become popular outside of hospitals, as his sterilizers are both expensive and cumbersome, as they are constructed for high pressure.

Surgical sterilization means, naturally, destruction of surgical bacteria, and is a part only of asepsis, which means absence of all septic material, consequently not only of bacteria, but also of impurities of a chemotactic nature. In our surgical work we aim consequently not only at sterility but at cleanliness (atoxicity) as well. This fact is admitted by all schools, and mechanical sterilization is therefore recognized as a preliminary measure of the highest importance. Chemic and thermic sterilization can not satisfactorily cleans all our various articles; on the other hand, mechanica sterilization is not able to sterilize them perfectly although this last method removes the majority of the bacteria at the same time that it makes the article atoxic.

While it is of some importance to remove chemi impurities of all kinds, and all schools, therefore, in dulge in washing, scrubbing, scraping and shaving and while mechanical sterilization at the same tim means at least three-fourths sterility, we must insis upon complete destruction of our real enemies. Th question now is, is it enough to destroy the less resist ant pyogenic bacteria (English), or is it necessary t remove and kill all known surgical bacteria and thei spores (German), or finally, should we endeavor t obtain a real bacteriologic sterility (French)?

It must be admitted that failures in our surgic work, because of imperfect sterilization, are invariabl

due to sepsis, *i. e.*, to the action of pyogenic, not spore-bearing bacteria.

Only once or twice have we heard that the patient died from anthrax or tetanus. When did we hear that our patient succumbed to tubercular infection because of faulty sterilization? Of *vibrion septique* (malignant edema) the same may be said. It is always sepsis, and so far the Englishman is, in my opinion, practically right when he claims that surgical sterilization of these bacteria is enough. Could we only rest assured that chemic sterilization would accomplish this in a practical manner, there would be no need of thermic sterilizers requiring proper apparatus and heating plants.

But fascinating as chemic sterilization is, severe criticism may be entered against it. The stronghold of chemic sterilization is by no means surgical sterilization but antiseptic surgery, which forgives a good many minor surgical sins and shows clemency to gross mistakes. Antiseptic surgery cripples bacteria for some time without destroying them completely, thus giving nature time to organize the defense and prepare for the offensive. But it must be remembered that chemicals are disposed of in the organism sooner than bacteria, and as long as we do not possess a non-irritating chemical which will stick to the tissues until the process of repair is finished, antiseptic surgery can not replace surgical sterilization. When the Englishman claims to obtain just as good, indeed better results, with chemic sterilization than those who prefer thermic, and if there is any truth in such a proposition it must be due to antiseptic surgery and not to chemic sterilization. There is no objection to judicious antiseptic surgery as every operation of some length includes infection of some degree, and if everything has been properly sterilized mild antisepsis only is required, and the milder the antiseptic procedures are the better, as all chemicals are necessarily more or less cell-poisons, the more so the more concentrated they are. Good surgery can undoubtedly be done by poor surgeons with the aid of chemicals; good surgeons have use for them only to a limited extent.

Seen, therefore, in the light of antiseptics, chemicals are of great value; seen in the light of germicides, they have a very limited field in surgical sterilization. Nobody denies that certain chemicals are germicides in a proper concentration, but they have no immediate action. Watson Cheyne makes this statement: "we may take it as an axiom that any substance which is thoroughly soaked in a 1 to 20 carbolic acid watery solution for twenty-four, or say forty-eight hours is absolutely disinfected." This, if true, means nothing more nor less than that chemic sterilization is impracticable.

The bacteriologist has not as yet been able to settle the question of the germicidal action of any given solution on pure cultures of surgical bacteria and probably never will, as it is almost impossible to eliminate the chemical before the test thread, or whatever is employed, is transferred to the culture medium. The action of chemicals must be studied in the operating room, but if a certain chemical appears to work satisfactorily there, like carbolic acid in the English hospitals (Cheyne), the only conclusion we may draw is, that antiseptic surgery is justifiable, but not that chemicals are germicides.

Chemic sterilization is very slow under the best circumstances, injurious to our surgical materials, unpleasant to the surgeon and even dangerous to our patients. "The chemic method of disinfection is therefore a make-shift and is only to be employed for certain materials and in certain conditions" (Kocher). Every sensible surgeon will indorse the statement of the eminent Swiss surgeon, and employ heat in some form or other whenever it is possible, as thermic sterilization is our best means of disinfection, having the important advantage over chemic sterilization, that it is mathematical, leaving no difference of opinion between the surgeon and the bacteriologist, and no doubt as to its reliability.

Thermic sterilization may be more complicated and expensive than chemic, as proper apparatus and fire are necessary, but what little we spend in money we gain in time, as this kind of sterilization acts in as many minutes as the chemic does in days; and to know that we, in a given case, have fully complied with the strictest laws governing thorough sterilization is a great satisfaction. Those who prefer antisepsis to asepsis can not possibly have any objection to asepsis itself, as they can supplement it with antisepsis at their pleasure and very easily, and it is a wonder to me that the English school will not see the great advantage in such a combined method.

Boiling water is the first, last and best sterilizing agent in surgery. Steam ranges next to boiling water, while hot air is only effective when its temperature is raised to the neighborhood of 300 degrees F. and continued for hours. The only trouble of any importance with thermic sterilization is, that it can not be employed for all purposes; but wherever it is applicable heat should be used, and I believe it to be little short of carelessness to neglect this method when the circumstances otherwise permit of its employment. Sterilization, pure and simple, as it is effected by heat only, does not make good surgeons and is dangerous in the hands of poor ones, who can do better with antiseptic surgery. The mixed method, mechanical and thermic sterilization combined with judicious antisepsis, is recommendable to all surgeons, good as well as poor.

Having considered the different methods of surgical sterilization in general as to their real superiority, let us now take up some of the most prominent details with reference to the best methods to be pursued.

SKIN STERILIZATION.

English method.—This includes shaving, scraping, thorough washing with soap and a mixture of 1 to 20 carbolic acid lotion containing 1 part in 500 of corrosive sublimate in solution, saturation of the surface with turpentine and then again thorough washing with soap and the above mixture, employing a nail-brush; a five minutes performance.

German method.—This requires shaving, scraping, washing and brushing with soap and warmest possible water, then drying with sterile gauze, saturation with 80 per cent. alcohol and brushing with 1 to 2000 sublimate solution.

French method.—This is accomplished by shaving, scraping, washing and brushing with soap and sterile (filtered) water, saturation with ether and then brushing in a 1 to 2000 sublimate solution.

There is evidently not much difference in these three methods, and they appear to be equally elaborate in spite of Watson Cheyne's insinuation that "abroad disinfection of the skin is a very elaborate process." It is admitted that thermic sterilization can not apply to the skin; it is likewise admitted that the best

methods of disinfection of the skin are the mechanical removal of the impurities, but when Cheyne in admitting this writes, "and this can only be done by the application to it of suitable antiseptic substances," it is difficult to know what he means.

In cleansing the skin mechanically it is but common sense to use the warmest possible water. It is likewise but common sense to use sterile (and running water if procurable). As to turpentine, alcohol or ether, I believe it is the intention of the different schools that they shall add to the mechanical disinfection by their ability to dissolve impurities of various kinds, and they certainly do this, turpentine first, then ether and alcohol last, but it is supposed that they will exhibit an antiseptic property as well. In this respect also turpentine ranges above the others, alcohol coming last.

Whatever may be the case experience has shown that turpentine, ether and alcohol are very valuable agents in the disinfection of the skin, and I do not think it makes much difference which one is preferred. The modus operandi is, however, not very clear. As ether and alcohol act very unpleasantly on my own skin, I have of late taken up the English idea with turpentine, but the few seconds the skin can stand saturation with turpentine is so short that I can not possibly attribute any antiseptic influence to it. It cleanses the skin beautifully and leaves a coating of resin, to which I attach much importance, and mainly attribute its beneficial influence. For years I have been in the habit of impregnating the skin with sterilized lanolin as the finishing touch, in order to return to it in a sterile form what I have deprived it of in an infected one, and at the same time cover up the deeper-seated bacteria. Turpentine dissolves the fat, but in return it varnishes the skin and covers up the bacteria more perfectly than lanolin, and we can understand how water does not take effect on the skin treated with turpentine. I am inclined to believe that this varnishing constitutes the antiseptic properties of turpentine, and that something similar takes place when using ether or alcohol. Turpentine is cheap, convenient and always at hand in proper condition without any special preparation.

As for antiseptics in disinfection of the skin I leave them more and more behind. I prefer lysol to sublimate, carbolic acid and the rest, but I use it before the impregnation with turpentine, as it takes no effect when the skin is varnished. If antiseptics like carbolic acid are forced into the skin they will undoubtedly cripple the deeper bacteria, but if they are liberated during the operation and transferred to the wound, the antiseptic is, as above stated, soon disposed of and the bacteria may revive and thrive in the more or less injured tissues.

The skin can not naturally be properly sterilized through its entire thickness. The surface may be pretty well prepared by mechanical means, so that scrapings will not develop any cultures, but it is vain to try to sterilize the adnexa, and bacteria inhabiting these parts, however few and little virulent they may be, may be liberated during the operation either by perspiration or manipulation, not to mention that the skin of the operation-field exposes bacteria the moment the incision is made. For this last reason it is certainly proper to prepare the operation-field a day or two beforehand, and cover it with an antiseptic dressing in the hope that this prolonged saturation may actually destroy the vitality of the deeper bacteria. The knife ought to be cleansed anew after the skin has been cut through. Covering up of the skin bacteria is not a new idea. Recently it has been revived and thin, delicate rubber gloves have been recommended. I prefer the turpentine process, as I need all the sensitiveness in my fingers nature has given them.

The best method of surgical sterilization of the skin is this: after shaving the operation-field (not the operators' hands), brush the skin with a stiff, preferably sterile brush, in hottest possible, preferably sterile and running water for several minutes; cleanse the nails and repeat the scrubbing (the surgeon who believes in impregnating the skin with one of the ordinary antiseptics, lysol, sublimate, carbolic acid, permanganate of potash, etc., should use it before varnishing with turpentine); dry the skin with sterile gauze, impregnate it with turpentine and remove the oil with sterile warm water or a mild antiseptic solution (antiseptic surgery). The whole procedure ought to consume about ten minutes.

STERILIZATION OF INSTRUMENTS.

English school requires immersion for two or three hours before operation in a 1 to 20 carbolic acid solution.

German school requires boiling for five minutes in 1 per cent. solution of carbonate of sodium.

French school includes prolonged boiling in ½ per cent. carbonate of potassium solution, dry heat, and a variety of other methods.

It is fortunate, according to Watson Cheyne, that a comparatively short immersion in a 1 to 20 carbolic acid solution will remedy any accidental contamination, which may occur after the instruments are taken out of the glass press, where they are kept and where they are in reality pure. And if an instrument during the operation drops to the floor, it is effectually and rapidly rendered aseptic by dipping it for a few seconds in undiluted carbolic acid.

About the two or three hours immersion, Watson Cheyne says that the disinfection is "generally quite satisfactorily accomplished." When a "comparatively short immersion remedies any accidental contamination," why does not the English surgeon stick to the short immersion, which according to the above statement is more reliable than the long one?

At the same time that Cheyne evidently sterilizes his instruments by the aid of carbolic acid, he makes the strange statement that he does not, as a rule, boil his instruments, as he sees no advantage in it. Still he confesses that it is certainly very convenient to have a vessel of water boiling during the operation, in case any instrument, which has not been previously prepared, is required, or in case an instrument falls on the floor, on a blanket, etc.; such an instrument can be immersed in the boiling water for a few minutes, and then be relied on as being thoroughly aseptic. I am at a loss to see the superiority of the English method of sterilizing instruments according to to Cheyne's own statement.

The German method of boiling the instruments for a few minutes in soda solution, is so simple, so convenient, so quick, so little injurious to the instruments and so absolutely reliable, that this method must be considered the ideal one. For that surgeon who keeps his instruments in good order—what we all should do—it is sufficient to pour boiling water on them and let the water cool off. That the addition to

the boiling water of an alkali raises the temperature and prevents rusting is known to all, and it is immaterial if carbonate of sodium, carbonate of potassium or soap is used. Lately I prefer liquor potassæ to other agents, as it gives no precipitate and is always at hand, as we use it in our urinalysis. The instruments come out of boiling solution of potassium bright, clean, sharp and aseptic—undoubtedly the best method of sterilization of the instruments.

It is a source of some regret that we do not command a practical method of keeping our instruments at hand all the time sterile. Many suggestions have been offered, but they have failed to prove acceptable. When, however, we consider that in all cases we will have to prepare our own hands and the patient's field of operation the regret is not of lamentable proportions. The time it requires to prepare the skin is all the time required to sterilize our instruments by the boiling process.

The Frenchmen are extravagant in their sterilization of the instruments, due to the fact that they aim at bacteriologic, while they speak of surgical sterilization. Boiling for half an hour is hardly considered enough; the addition of ½ per cent. carbonate of potassium is looked upon as better; some use hot air, others boiling oil, vaselin, glycerin, etc. Such methods are superfluous and to be rejected when we have simpler ones that have stood scientific and practical tests.

Many find that boiling water is detrimental to instruments, as they become rusty and dull. This is true, if certain precautions are not taken. The water should preferably be rain or distilled water, an alkali should be added, and the instruments not immersed before the water is boiling, and the boiling should not last more than from two to five minutes. To wrap the cutting instruments up in cotton is an additional safeguard. Under these circumstances the instruments will not suffer unnecessarily. But mistakes are continually being made and people are hunting for a safe, quick, chemic method and formalin has come conspicuously to the front, particularly among the oculists. Time will show that formalin has no advantage over carbolic acid or other chemicals. Formalin is a very much over-rated agent and the formalin craze, which has lasted about a couple of years, is fortunately gradually subsiding. Formalin sticks a long time to the various articles exposed to its action, and this circumstance is responsible for the exalted ideas of its sterilizing superiority. Whenever thermic sterilization can be used, it is imperative to choose this method on account of its mathematical accuracy. If not practicable, chemicals may be substituted for it as they are better than nothing.

DRESSINGS.

English school.—Gauze is impregnated with antiseptics.

German school.—Gauze is sterilized by ordinary steam (low).

French school.—Gauze is sterilized in autoclave (high steam).

The Englishman sterilizes his dressings by the aid of carbolic acid, corrosive sublimate or both. There is no doubt that dressings may be sterilized by chemicals if they remain long enough in a solution of proper strength. It is safe to say, it requires several days—Cheyne thinks two—for a 5 per cent. solution of carbolic acid to accomplish sterilization; and the same holds good with a 1–1000 sublimate solution. In so far, there is no difficulty in having properly sterilized dressings at hand, when needed. But dressings will suffer by a prolonged stay in the antiseptic solution, and they can produce harmful results locally as well as generally, for which reason they must be wrung out in a weaker solution or sterile water, before being applied. Moreover, as dry dressings are preferable to moist, for well known reasons, it is common for manufacturers to dry the chemically sterilized dressings and put them up in containers. These factory-made dressings, for which there is an enormous sale throughout the world, is a great humbug in spite of the undoubtedly well-meant efforts of the manufacturing houses to make them reliable.

First, it has been proven over and over again that factory-made antiseptic dressings are more or less full of bacteria, as they have been handled by ignorant and irresponsible hands after having been removed from the solution; second, chemicals do not sterilize unless they are in an active form, that means, in solution. This holds pre-eminently good with sublimate gauze, and in all probability, also, with carbolic acid dressings. The oozing from the wound will precipitate the chemicals and make them inert. As for Credé's silver gauze, it remains to be shown if the oozing dissolves the silver and makes it active. Dressings sterilized by chemicals are only reliable when they are conveyed directly from the fluid to the wound.

The factories claim that their antiseptic dressings have been sterilized over again, once or twice, in their containers by steam. As steam must penetrate, condense its moisture, revaporize this, and at the same time expel all air, everybody will understand the great humbug of sterilizing antiseptic goods in containers, which are either impregnable by steam or do not allow the escape of air.

The German sterilizes his dressings by steam at the temperature of boiling water (212 degrees F., low steam). He places the dressings, which have been thoroughly cleansed by washing and dried beforehand, in a steam sterilizer, which is so constructed that the steam enters the sterilizing chamber from above and escapes below, thus expelling all air and at the same time sterilizing every particle of the articles contained. The whole process takes about half an hour and the sterilized dressings are taken directly from the sterilizer and conveyed to the wound without being manipulated by suspicious hands.

Several devices have been recommended to keep such sterilized dressings ready for use all the time. The most simple and practical is that of Bloch: The gauze is wrapped up in a double layer of filtering paper, tied, marked and put in the sterilizer. The steam will penetrate the filtering paper with the same ease with which it penetrates the dressings, thus sterilizing it at the same time. (Steam can not penetrate ordinary paper.) After complete sterilization and drying, the contents of these packages will remain sterile so long as the filtering paper remains dry. Any one can unroll the outer layer, and the surgeon picks out the inner, which contains the gauze. It is strange that the zealous and willing manufacturer of surgical dressings has not taken up this idea, which dispenses with the objection above, that the sterilization process should be the last and not the first one. The market is full of plain sterilized gauze. I will heartily recommend the profession to buy their gauze from these houses, as the gauze has been thoroughly

cleaned, dried and sterilized. But do not have too much confidence in the sterization, but repeat the process in your own sterilizer. The German way of sterilizing dressings has proved to be perfectly reliable, and sterilizers constructed for this process are simple, inexpensive, durable and portable, qualities which enable every surgeon to accomplish his own sterilizing under any and all circumstances. For complete particulars in regard to steam sterilization and steam sterilizers I refer to my earlier writings, to which I have nothing to add.

Steam sterilization of dressings is unquestionably the best method, as in a short time and with very little expense and trouble it makes the dressings perfectly aseptic, and when they are first rendered aseptic it is an easy thing to make them antiseptic, if so desired, by plunging them into an antiseptic, sterile solution, or by dusting them or the wound with an antiseptic powder.

The Frenchman thinks his method of sterilizing dressings is superior to that of the German, because he can expose them to a much higher temperature in his autoclaves (high steam). There is no objection to bacteriologic sterilization of dressings which the Frenchman can obtain, but surgical sterilization, of which we speak, is effected by the German method to perfection; besides the autoclaves are expensive and cumbersome; they are stationary apparatus and do not give the dry dressings that can be obtained in sterilizers constructed on the German principle. Their only advantage, to my mind, is the fine show they make in a hospital and that they may be connected with the pre-existing steam plant, so that no extra fire is required.

SUTURES AND LIGATURES.

English school.—Silk is kept for a few days in 1 to 20 carbolic acid solution. Catgut is soaked in the same solution for at least a week.

German school.—Silk is sterilized by steam or by boiling; catgut by chemicals.

French school.—Silk is sterilized by boiling, first in filtered water, then in antiseptic solutions, and finally steamed in the autoclave. Catgut is sterilized by dry heat.

I have only mentioned silk and catgut as representatives of inabsorbable and absorbable suturing and ligating materials. Silk: As this material can remain in strong antiseptic solutions without detriment almost any length of time it is evident that thorough sterilization can be accomplished in this manner, and consequently there is no objection to chemical sterilization according to the English school of this particular material. But the advantage of having sterile silk present at all times is of doubtful utility. The needle, the needle-holder, etc., can not well be kept in a sterile form, and the surgeon who sterilizes his instruments by boiling will naturally prefer to boil his silk at the same time. It is no advantage in silk sterilized by chemicals that it is antiseptic. The chemical contained in the silk is certainly of minor importance as to poisonous action, locally or generally, because of the small quantity contained; for inabsorbable material it is enough that it is sterile. The best method of sterilizing silk is to boil it with the instruments, but in a separate container. The Frenchman is just as extravagant in his treatment of silk as he is in his sterilzation of all other articles.

Catgut: With reference to this ideal suturing and ligating material, there is no longer any doubt that it can be reliably sterilized, and with comparative ease. But Schimmelbusch, in this one instance, turns his back on thermic sterilization, which he considers very difficult, complicated, and requiring minute surveillance, which prevents its general employment. I commend the Frenchman who advocates dry heat (the method of Larochette).

Catgut can not be boiled or steamed; if thermic sterilization is to be used, it must be in the form of dry heat (Reverdin-Benckisser). If we possess a proper hot air sterilizer in which the temperature can be gradually raised to about 280 degrees F., and maintained for hours, we have a simple and perfectly reliable method of sterilizing catgut. It has been said that catgut sterilized by dry heat is not always perfectly sterile, but if the laws governing dry heat sterilization have been properly complied with, in a sterilizer correctly constructed, surgical sterilization is attained.

There is no doubt that catgut can be sterilized by a variety of chemicals, but as it is, first, antiseptic as well, it is difficult to say what shall be ascribed to the antiseptic, and what to the supposed sterility; and second, it requires days and weeks for the antiseptic, and only hours for the heat to accomplish its purpose.

Aseptic catgut sterilized by dry heat is a good culture medium for bacteria, and it takes a clean surgeon to handle it successfully. Therefore, it is the problem of the future to impregnate catgut with a non-irritating antiseptic which will remain with it until the last fiber is absorbed; when this is attained, then, and only then can we speak of ideal catgut.

DISCUSSION.

Dr. JOHN E. OWENS of Chicago—A few years ago I was purchasing my catgut from a certain place. Two patients were sent to me by a physician from the same town. I operated upon one patient, making an amputation of the breast. Intense septicemia rapidly set in and the patient died. She was considered a strong healthy woman otherwise. The same day I operated on the other patient, the operation consisting in opening the abdominal cavity to clear up the diagnosis. I found malignant disease of the liver at the hilum, which was in such relation to the vessels that an operation was deemed impracticable. I simply made a short incision, introduced the fingers and was able to get all the information desired. The patient was a debilitated, nervous man, and in three days he was dead. I was horrified at the death of these two patients. I went home and burned all my clothes, I did not know really what to do. I thought of some defect in the preparation of the instruments. The operations were performed in a hospital in which I never before operated. Then I studied and tried to work out the problem. I had some urine examined and found it was loaded with anthrax bacilli, and then I had the catgut which I had used in both cases examined, cultures made from it and anthrax bacilli were found. This leads me to say that the use of commercial catgut ought never to be thought of unless we know exactly how it is prepared. We immediately procured the apparatus of Dr. Boeckmann for use at St. Luke's Hospital, and we have since been using catgut prepared after his method. I have also been using it in private practice as prepared by him. We do not use catgut until we finally secure the degree of heat. But we had considerable difficulty in obtaining this heat owing largely to the gas stove that was used. The plate at the bottom of the catgut sterilizer was too small, and enough heat could not be utilized for the purpose, and instead of one row of jets we substituted another one, or two or three, and in that way we had no difficulty in getting a temperature of 200 degrees, but I have never touched commercial catgut since.

Dr. ARTHUR D. BEVAN of Chicago—I believe catgut can be sterilized thoroughly by a number of different methods. This, however, does not carry with it primary wound-healing if catgut is used, because undoubtedly it does contain at times, if not always, certain irritating and toxic substances which will so irritate the tissues as to produce suppuration and because a pathogenic germ is the essential factor, and it will produce

conditions which in a given case are sufficiently weighty to produce suppuration, because no surgical operation is absolutely aseptic. We must regard all surgical wounds as those in which bacteria are present that are capable of producing suppuration. I mean all wounds in which the skin is involved, or in which any of the hollow viscera are implicated. If we accept this no wound is absolutely aseptic, and following out this line of reasoning we must conclude that many wounds heal in an aseptic way, what we call normal wound-healing without any reaction and without any appearance of pus. In those cases we must suppose that the few germs present are not sufficient to infect the wound and the tissues are well taken care of. If in a case we add to the tissues an irritating substance, it requires a certain effort on the part of the tissues to remove it, and we very frequently add sufficient factors to bring about a suppuration which otherwise would not occur. I have watched this very carefully in some of my cases, and I am positive that we have many cases of infection from catgut in which the catgut is sterile. I have demonstrated this by making repeated cultures in catgut prepared in a number of ways, by boiling in alcohol, by the old method of ether and alcohol and bichlorid, by the catgut prepared by dry heat, and the catgut prepared by boiling after it had been hardened in formalin. If we accept the statements which I have made, or if this can be demonstrated it brings up the subject of the best method of surgical sterilization in a very much broader way, so that we must discuss all of the factors which prevent primary wound-healing, if we accept the fact that no wound is sterile, that the factors which produce suppuration are many times clinical, not necessarily the germs themselves, because we always have them present, but other added factors. I have followed out this line of reasoning in a systematic manner during the last year or two, and I believe the study of other factors besides the elimination of the germs is very important. Those factors are very many and will be noticed in our clinical work as, for instance, tension. You will approximate the wound with tension; your wound and your dressings are sterile; you have tension present; tension produces necrosis; you invariably have some germs deep in the skin and the tension is the cause of failure of primary union. In the same way we may consider pressure. I have had several cases in whieh the wound was absolutely sterile, yet pressure applied by a very hard dressing over the stump of an amputated leg will produce necrosis. We always have germs present later and infect the wound. In the same way we find that the presence of dead and mutilated tissue is an important factor. A wound in which we have clean incisions, no tearing, will unite much more readily than one in which we have tearing and gross tissue. The elimination of blood clots is an important factor.

Another point is the general condition of the individual himself. The subject is well illustrated by a case which has been in my hands recently. I operated for hernia in a diabetic patient. There had been at no time marked suppuration. The wound healed primarily, following which there was a little fluctuation two weeks after over the line of wound healing. I found apparently sterile fluid containing some leucocytes and later slight suppuration. Undoubtedly the general condition of the patient had much to do with this.

Another point is infection from the intestinal tract. Intestinal toxemia undoubtedly does occur quite frequently. How else can we explain such a case as this, for instance, primary healing of the wound of a shoulder joint amputation, the entire wound apparently sterile, and yet within ten days there was slight bogginess over the wound, it is opened and some suppuration is observed? The details in this case were failure on part of the nurse and interne to carry them out. The patient being rather ignorant was allowed to go a week without evacuation of the bowels. In examining the pus the bacillus coli communis was found. This case seemed to be a clear one of infection of the wound from absorption of the intestinal contents. I must apologize for introducing this feature of surgical work, but still it impresses me as being very important, because many surgeons place the entire responsibility of surgical operations in primary wound-healing upon the aseptic treatment. There are many other factors that are as important almost as the reduction of infection to a minimum, which is certainly all we can ever accomplish in the field of operation.

Dr. R. Harvey Reed of Columbus, Ohio—In the infection of wounds I have noticed that the infection only extends to the integument and down to the deep fascia. For instance, in the use of silk-worm gut, used for the purpose of suturing the abdominal wall, the interrupted sutures going from the integument through into the abdominal cavity, and then out again on the other side, and yet I have noticed when the silk-worm gut was sterilized completely we would have, after a few days or a week perhaps, a stitch abscess. I have observed in those cases that the muscles and peritoneum were completely united, there being no trouble whatever, notwithstanding the suture had gone through all of these layers. If you take out the suture you will simply find infection extending down to the deep fascia and no farther. Now, it occurrs to me that this does not come from pressure nor from infection due to the suture material which was used, whether it be silk, silk-worm gut, catgut, or whatever it may be. If the infection was due to the suture it should have extended to the peritoneum, and especially so if you have passed the same suture clear through into the peritoneum, and taken it up and out on the other side. It is possible to have infection, no matter how careful we are with our dressings after introducing the sutures. After applying what we believe to be aseptic dressings, in some way the infection will enter at the surface and extend downward to the deep fascia. I have tried to avoid this by using buried sutures and sterilized catgut, sterilized kangaroo tendon and sterilized silk worm gut, but I have had the same results in many instances wherever I had the suture coming to the surface, so that more recently, after using sterilized material, I have dressed the wound with an antiseptic dressing so as to prevent the entrance of germs from the surface, following up the suture and producing an infective center. Since I have adopted this plan, about a year ago, I have used silk-worm gut—have not used catgut—and have employed silk, and have practically gotten rid of stitch abscesses. Whether this is because of better sterilization of the suture material, or because I put on antiseptic dressings, which usually consist of gauze dipped in equal parts of alcohol and water and 1 to 2000 bichlorid laid on the wound, I am unable to say.

In the hospital it is conceded by the staff that Dr. Boeckmann's gives better satisfaction than any other sterilizer that we have used.

I have been using the last year pyoktanin catgut. By using pyoktanin it colors the catgut blue, and if the catgut is not entirely saturated and is white in the center, then it is not thoroughly sterilized. I have had good results from it.

One objection I have to chromicized catgut is that it is like a piece of wire, not easily handled, while the other suture material prepared by pyoktanin is soft and pliable, and I believe is better sterilized and becomes absorbed with less difficulty than chromicized catgut. I have found chromicized catgut remaining unabsorbed two months after operation, which is a thing we do not desire.

Dr. J. P. Lord of Omaha—I have noticed, where there has been suppuration following the use of silk-worm gut or silk sutures, that where the wound is closed *en masse*, too much is expected of a single suture. Many operators put in their stitches half an inch apart in a wound of considerable size, and expect altogether too much of these sutures. When inserted in this manner, they include a great deal of tissue and are necessarily tied very tightly, and I believe this to be one of the most fruitful causes of suppuration. I made this observation in watching Dr. Joseph Price this summer. He closed all his abdominal wounds in this manner, but the stitches were one-quarter of an inch from the margin, and not more than one-quarter of an inch apart. This made more thorough apposition than the same method observed by me in other hands. We should not expect too much of any one suture, and great care should be taken to make the tension uniform.

Dr. L. E. Lemen of Denver—One reason why we have pus when we insert our stitches through the entire abdominal wall and include so much tissue in the stitch, is dependent upon pressure necrosis. With stitches put in after a clean incision, although we may not have any pus, and tied moderately tight, we have more or less engorgement or thickening of the tissues that produces necrosis, and we would not have this condition if we did not include so much tissue in our stitch. I have attributed pus in my cases to that.

Dr. W. J. Galbraith of Omaha—I do not believe it is possible for us to use any preparation of suture material without evil results, unless we consider the mechanical features in its application. All wounds, no matter how carefully and thoroughly we carry out our asepsis and antisepsis, contain more or less infective material. If a suture is applied too tightly, it causes strangulation, which is followed by inflammation and destruction of tissue, thus preparing a bed for the propagation of existing bacteria to develop to a greater or less degree. I believe more serious results are produced by the improper insertion of sutures than by the knife of the surgeon.

As regards the various suture materials used, with few exceptions, I rely entirely upon catgut. I believe it can be used to better advantage, and that we can secure better results with it than by any other one ligature, or all of the others combined. In the last month I saw one of our most noted surgeons in the country perform an operation, first using a reten-

tive suture of silk-worm gut, then a continuous suture for the purpose of securing and maintaining apposition of the skin, and at least one hundred stitches were used. I consider this radically wrong, unmechanical and unjustifiable.

Dr. W. W. GRANT of Denver—If I understood Dr. Boeckmann correctly, he made the statement that the only way to sterilize catgut was with dry heat. All surgeons do not prepare it in this way, and I have had so little confidence that my catgut has been thoroughly sterilized that I have confined myself to the use of chromicized catgut as prepared by Mr. Lister. I get it from London, and place it in a 5 per cent. carbolic solution shortly before using it.

Dr. N. SENN of Chicago—Since we have prepared our catgut according to the formula of Hofmeister, somewhat modified, we have done away with the evil results and have noticed no stitch abscesses. We regard catgut as absolutely reliable and aseptic, as has been proven by extensive practice in a number of hospitals throughout the United States.

Hofmeister, who has done such excellent service in perfecting the formalin preparation of catgut, gives the following most recent method: 1, the catgut is wound on a glass plate with slightly projecting edges, so that the gut is free from the sides of the plate and exposed to the circulation of the boiling and flowing water; the ends of the gut are fastened through holes in the plate; 2, immersion twelve to forty-eight hours in aqueous solution of formalin 2 to 4 per cent.; 3, immersion in flowing water at least twelve hours to free the gut from the formalin; 4, boiling in water from ten to thirty minutes. Ten to twelves minutes is amply sufficient, as all microbes and spores are killed by exposure to boiling heat for that length of time; 5, hardening and preservation in absolute alcohol containing 5 per cent. of glycerin and one-tenth per cent. corrosive sublimate.

The first attempts to sterilize catgut by this method under my own direction were made at the St. Joseph's Hospital by the Sister in charge of the operating room. The result of experience has led us to modify the procedure in several ways. Instead of glass plates ordinary abdominal glass drainage tubes have been employed, upon which the gut is wound quite tightly. These glass drains have been found an excellent substitute for the plates. An ordinary large test tube will answer the same purpose. The remaining directions given by Hofmeister were followed to the letter. Numerous inoculations with fragments of catgut prepared by this method in sterile gelatin invariably gave negative results. The catgut is as strong as the raw material, hard, and the knot is less liable to slip than when the ordinary material is used. We have also ascertained that the formalin catgut can be reboiled almost any number of times without impairing its strength.

Catgut to be safe should not only be absolutely sterile but should contain a sufficient quantity of efficient antiseptic to render it unfit as a culture medium for pathogenic microbes. Hofmeister renders it antiseptic by immersing it in an alcoholic solution of corrosive sublimate. Others have substituted carbolic acid for sublimate. Both of these antiseptics unduly irritate the tissues and increase the primary wound secretion, effects which can not fail in interfering, to a certain extent, with an ideal healing of a wound by primary intention. The valuable and interesting experiments made recently by Lauenstein leave no doubt that it is almost next to impossible to render the field of operation absolutely aseptic by any of our present methods of disinfection. We are forced to admit that nearly every wound inflicted by the surgeon's knife contains some pathogenic microbes, notwithstanding that the strictest aseptic precautions may have been carried out. The experiments made by Ewald have also furnished positive proof that sterile catgut contains a sufficient quantity of an unknown toxic substance which, by its destructive action upon the cells engaged in the reparative process, transforms them into pus corpuscles, resulting in the production of a limited aseptic suppuration and the formation of sterile pus. Undoubtedly many of the stitch abscesses which occur in the practice of painstaking aseptic surgeons have such an origin. These experimental researches force upon us the conclusion that catgut should not only be sterilized, but that it must be made sufficiently antiseptic to at least inhibit the growth, if not destroy the pyogenic microbes which enter the wound during the operation, or which may reach it later through the circulation. In this part of the preparation of catgut I have modified Hofmeister's method by substituting, for the corrosive sublimate, iodoform. After boiling the deformalized catgut for twelve to fifteen minutes, it is cut into pieces of desirable length, tied into small bundles, containing from six to twelve threads, when it is immersed and kept ready for use in the following mixture: Absolute alcohol, 950, glycerin 50, iodoform (finely pulverized) 100 parts. The alcohol dissolves part of the iodoform. The bottle containing the catgut should be closed with a well fitting glass form, and should be shaken well every few days to bring the dissolved iodoform in contact with the threads. The catgut can be kept in this mixture any length of time without losing its strength. One of the valuable properties of iodoform applied to a recent wound is to diminish the amount of primary wound secretion. It does not destroy pus microbes but inhibits their growth. I have used catgut prepared by these modifications of Hofmeister's method with the most satisfactory results, and shall continue to use it until some better method is devised. (For a more detailed account of the method of catgut sterilization, see JOURNAL AMERICAN MEDICAL ASSOCIATION, Dec. 12, 1896, p. 1219.)

Dr. LEMEN—Have you had any difficulty with the iodoform decomposing and in having free iodin?

Dr. SENN—No. Until recently we used a 10 per cent. emulsion. Now we have made it a little weaker because the Sister claimed that it impaired somewhat the strength of the catgut. But we have used catgut for six months immersed in a 10 per cent. emulsion without losing any of its material strength. I have my reasons for modifying Hofmeister's formula, because I do not believe that the use of aseptic catgut will furnish us the ideal material. I desire to have absorable material that is not only aseptic but antiseptic for the purpose of eliminating both the microbes and the toxins of the microbes, and I believe it is this addition to the preparation that renders the catgut far more reliable. It is the iodoform that keeps the wound dry, that furnishes one of the conditions favorable to ideal wound-healing—a dry wound, at the same time, it is an active agent in counterbalancing the ill local effects of preformed toxins.

Dr. BOECKMANN—I did not say that catgut could not be sterilized in any other way than by dry heat. I did say, however, that we know almost to a mathematical certainty the effect of dry heat, and that if catgut is properly sterilized according to the rules laid down by bacteriologists, it is thoroughly sterilized. I have seen in reports from Germany and other countries that they have found bacteria in every kind of catgut that has been prepared in a chemical way, as well as by dry heat.

I am convinced that Dr. Senn prepares his catgut in the right way; that it is sterilized, not by boiling, but in formalin, which is one of the strongest germicidal agents we have.

TRAUMATISMS OF THE CONTENTS OF THE ABDOMINAL CAVITY.

Presented in the Fourth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 6-8, 1897.

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OMAHA, NEB.

When we turn our mental skiascope in retrospect, so as to reveal the dark places or shadows in the history of surgery, we are surprised to find that little more than a decade has passed since stab and gunshot wounds of the abdominal contents have been treated intelligently from a surgical standpoint. In these cases there was a wound of entrance and perhaps a wound of exit also, with perchance other and undisputable evidence of penetration of the organs within. Yet, notwithstanding these indications for operative interference, surgeons had continued for many years to ask the question so strikingly put by Abernethy, who asked, "is it enough that we examine the little hole made by the bullet, and as Nature, who shakes her head and leaves the patient to his hopeless fate?"

With the development of abdominal surgery, after the introduction of antiseptics, came the solution of the question. When, at the present day an advocate of any course other than that so generally adopted could not gain a respectful hearing. Slow as the profession has been to adopt radical surgical measures in the class of cases referred to, slower still have we been to adopt this course, in rupture from contusion, because of the absence of the same well defined evidence of visceral injury. These latter cases, which

are more in the province of the railroad surgeon, especially commend themselves for our consideration and discussion, because there can be no condition affording such amplitude of uncertainty as these. With the accumulation of cases and records of clinical observations we find our symptomatology uncertain. Hence the wisest acumen and profoundest judgment are required to guide the surgeon in his course, in the treatment of these frequently obscure, always grave and perplexing cases.

"Trumatisms of the contents of the abdominal cavity" is so large a subject that the symptoms, diagnosis and operative technique can receive but brief consideration, so that it shall be my province to discuss briefly the indications, contra-indications or limitations of operative interference and treatment in cases of subparietal contusion, rupture or laceration of the contents of the abdominal cavity, rather than try to cover the very large field indicated by the title of this paper.

The recent text-books on surgery, works on abdominal surgery, journal articles and the opinions and practices of operative surgeons may be said to be unanimous in recommending radical surgical procedures, which can not but be regarded as the most judicious conservatism.

The stomach may receive varying degrees of injury from the receipt of kicks, blows, falls, squeezes, etc. Contusions may be received which may amount to only a temporary soreness, aside from the transitory shock invariably experienced to a greater or less degree, but usually this symptom is more marked when the stomach receives the injury than that produced by the receipt of a like amount by any other abdominal organ. This symptom may be so variable, however, as to be a poor index to the amount of damage actually sustained. A severe contusion, therefore, should be treated with the greatest circumspection; the patient should be compelled to remain in the recumbent position and all food or fluid by the mouth withheld, for the purpose of putting the injured organs at perfect rest, to permit of early resolution and repair, and as a precaution against secondary perforation in case of gangrene of the stomach walls, and also to mitigate the evils of rupture if it be actually present.

These cases are always of sufficient import to require the co-operation of the consultant. The general practitioner, especially, should forearm himself by calling the surgeon to his aid, just as he should do in case of appendicitis, so that the moment the emergency arises an operation can be done without the usual delay so fatal to an unnecessarily large portion of abdominal injury cases of all kinds.

The writer takes a strong stand for operative interference just so soon as symptoms point to probable rupture, barring shock bordering on collapse. Patients in a state of collapse should be rallied from this condition if possible, with a view of a more favorable opportunity to intercept, if possible, inevitable fatality. For, unrepaired ruptures of any considerable degree, of either stomach or bowel are probably always fatal. The prognosis, therefore, of this class of abdominal cases is worse than that of other forms of injury to the hollow viscera. It exceeds in mortality that produced by gunshot missiles of the largest caliber.

To enable us to cope more successfully with these desperate conditions, we should be better equipped for treating shock and limiting its influence to a minimum. The hot water table, mattress or pad heated by an electric current is not enough. The extremities should be enveloped by some super-heated appliance to raise the body temperature; at all events, an efficient means should be made immediately available, to eliminate this fault, the need of which is almost universal.

With the more extended use of intra-venous saline injection, a distinct advance has been made in the successful handling of desperate cases, counteracting to a considerable degree the effects of hemorrhage, mitigating the severity of shock, reinvigorating the vital functions and contributing to the vital resistance. When we have added to these means a better knowledge of shock and improved methods of its treatment, we may limit the disastrous effects. This accomplished, earlier operations better borne, will lessen deaths from the second factor, septic peritonitis. Clean, judicious work in patients able to withstand the added shock, does not in itself decrease the patient's prospects. Closure of rents in the stomach or bowels by the most expeditious methods is imperative. Rather bring the wounded viscus outside the abdomen when practicable, or pack and drain, than to violate this injunction to provide against extravasation of visceral fluids. The stomach contents not being so septic as bowel excreta, rather more chances may be taken with the last named methods in dealing with the stomach than the bowel. Then, too, in the former it may be practicable to evacuate and cleanse, thereby lessening the danger in the use of this method. Though many bowel ruptures can be quite readily treated by leaving them outside the abdomen, when the same treatment of some wounds of the stomach may be quite impossible. If life is temporarily spared, much may still remain to be accomplished before the patient is made well. It must be remembered that nutrition is disastrously affected when the upper bowel empties outside the abdomen.

After rupture of the liver, gall bladder or bile ducts from contusion, there is not the same urgency for operative interference, unless it be for the arrest of hemorrhage, in which case the ligature, cautery and gauze tamponnage must be our reliance, to be used as required. Operative interference, however, after severe contusion about the liver, with symptoms to justify, should not long be delayed, for even though not septic the bile may be capable of much mischief. Suture of the gall bladder is indicated where practicable, which should be fortified by drainage. Gauze will answer in simple cases, but drainage by the gauze covered tube, together with judicious gauze packing, should meet the indications, and is probably all that is practicable to do where the cystic or common ducts are involved.

As to the diagnosis of rupture, Bryant says, after recently quoting five cases: "It must be confessed there are no special symptoms which can be accepted as indicative of its existence, although severe shock and collapse as immediate result of a forcible injury to the right side of the thorax should always suggest its probable existence, and even when the same kind of injury to the same region is unattended by any such serious symptoms the surgeon should be alive to the possibility of a limited rupture of the liver being present, and treat the same accordingly."

The spleen is especially vulnerable to injury, because of its friable nature and its bleeding quali-

ties. The organ should be saved if possible, but in case of necessity it may be partially or wholly removed, with less danger to the economy than under any other circumstances.

The pancreas may sustain sufficient injury to require ligation of its vessels, or its substance, together with partial removal. Gauze tamponnage may be sufficient in rupture of moderate extent.

Rupture of the mesenteric or omental vessels, causing free hemorrhage, can be treated intelligently in one way only—by celiotomy. After removing the blood from the abdomen, a forceps armed with gauze, introduced deep into the flanks and the pelvis, is likely to indicate the bleeding locality. The ligature is the remedy, but gauze may be required as a makeshift. Any considerable tear of the mesentry, parallel with the gut, necessitates resection of the latter, in the performance of which the shortest and best methods should be adopted. Intestine of questionable vitality should be left outside the abdomen if resection, for any reason, is contra-indicated. Exception may be made to this rule when the area of injury is small and in a loop of intestine near the abdominal incision, when gauze can be so placed as to isolate the questionable point and effect drainage in case of subsequent leakage.

Ruptured kidney requires exploration by abdominal or lumbar incision, for control of extensive hemorrhage, which is indicated by marked collapse and swelling. Excision should only be performed when the hemorrhage is uncontrollable and the presence of a second kidney is ascertained. Even moderate hemorrhage may demand nephrotomy for hydronephrosis and to clear the pelvis or ureter from an obstructing blood clot. Extensive laceration of the kidney may heal kindly; it being very vascular, repair takes place quickly. Gauze packing and drainage suffice in the majority of cases. Cystotomy is likely to be necessitated for the removal of blood clots from the bladder. In this the median perineal operation has the preference. Independent of other conditions, unilateral kidney injury has a favorable prognosis. Mr. Harrison says that "laceration of the kidney is a lesion more commonly recovered from than any corresponding one of an internal organ."

Absolute rest in bed, local application of cold, internal administration of opium and astringents—chief among them ergot—are the means to be employed in checking hemorrhage. The immediate repair of the ureter is indicated, but the diagnosis of torn or ruptured ureter can not usually be made until sufficient time has elapsed to produce the extravasation tumor; at which time the altered tissues prevent ideal treatment, when we must be content with tentative measures. Incision and drainage through the loin would seem to be the most practicable. Repeated punctures have been successful but not always. Secondary complications may require such surgical treatment as may be necessitated by the varying conditions. The surgery of traumatisms of the ureter has not been extensive. Sufficient data is therefore lacking from which lines of treatment may be established, but I have confidence that our highly perfected art will soon have greater achievements to its credit in this as in all other lines of surgical adventure. The bladder, ruptured through the peritoneal portion, requires repair as soon as a diagnosis is made, for peritonitis and uremia are imminent dangers, ensuing in twelve or twenty-four hours. The diagnosis should present no difficulty. The Trendelenburg position much facilitates the operation of repair. Lembert sutures or a modification thereof answers well the purpose, though the purse-string suture of Tait is probably quickest and best if the rent is not too great. Drainage is the rule and is a wise precaution. Frequent catheterization for several days should not be neglected The peritoneum should be dried with gauze. Saline transfusion should be the rule, to favor the elimination of urea absorbed by the peritoneum. Summers of Omaha reports the speedy onset of uremia, after leaving a quantity of salt solution in the peritoneal cavity, in a case otherwise favorable for recovery. It was thonght that the sudden large dose, following the rapid absorption from the peritoneum, overwhelmed the kidneys. Leaving salt solution in the peritoneal cavity would, therefore, seem to be a contra-indication in these cases.

The surgery of the thoracic duct may be said to be still in its infancy. Little more than tentative measures have as yet been accomplished.

Rigidity of the abdominal muscles, with marked restlessness and pallor, though variable in degree, are strong diagnostic indications of visceral rupture, more especially so of the stomach and liver. Constipation, though usually present in bowel rupture, is not to be relied on, and is practically worthless as a symptom in these days when a diagnosis must be arrived at in a few hours, rather than in a few days.

Operative interference is contra-indicated in traumatisms of the abdominal cavity. in severe shock, unless to contral hemorrhage. Never operate when the patient is in a condition of collapse or cyanotic from peritonitis and heart failure. General peritonitis from bowel rupture is nearly always fatal, but a few recoveries after operation have peen reported.

The sooner rupture of the alimentary canal or urinary bladder is operated upon the better. The proportion of recoveries decreaso rapidly after six and are usually hopeless after twenty-four hours. Indoed, most of the cases succumb in from twelve to forty-eight hours. The surgeon should have his inspiration before he gets his case, for there is no time for vascillating afterward. He should be prepared for action.

The railroad surgeon is in the service of two masters, which position always calls for the greatest circumspection, and especially is this true of our relation to railroad cases. But when we remind ourselves that in serving the best interests of our patients we are also doing the highest and best service for the railroad our course is plain.

Unnecessary and hopeless risks should not be taken in unwise zeal to render service. But humanity and duty require first consideration to our patients, an implied obligation required and expected by our employers.

DISCUSSION.

Dr. T. J. REDLINGS of Marinette, Wis.—I feel that I have been too conservative in the treatment of this class of cases and believe that Dr. Lord has outlined the proper limitation of precautions.

Dr. R. HARVEY REED of Columbus, Ohio—Dr. Lord has pointed out many conditions of the abdominal cavity arising from traumatism that baffle the railroad or any other surgeon to diagnosticate until the case has reached a serious condition. I recall a case in which a party was struck with a lath on the abdominal wall without even lacerating the skin, simply making a little red mark. The man was a large, muscular individual. He walked to his home, some four or five blocks, after the accident, and feeling badly he sat around the house for a short period, then went to bed and by and by what was termed

peritonitis set in. On examination I found a rupture of the intestine just as if the corner of the lath had struck it, tearing a triangular hole. This was done without laceration of the skin, fat or muscular tissues of the abdominal wall. I have seen two or three cases very much like this, but this was the most marked of the three in which there was no laceration of the abdominal wall, and yet there was severe injury of the intestinal tract. I advised operation at once, but some of the attending counsel thought it was unnecessary; that the condition was simply due to a bruise, and that the operation would not be of any advantage. After a little while the patient became worse and an operation was insisted on. On operating, we found the condition I have already described. Now, suppose it had been a railroad case and the railroad surgeon had been called in, the legal point would have been of great importance to the railroad, yet very excellent counsel had charge of the case and were unable to satisfy themselves that there was a tear of the small intestine, and it was surprising to find that the bowel, which is so movable and easily pushed from one point to another, should be torn by this force from the outside, without tearing the abdominal muscles. I can not account for it, but I know it to be a fact, and the patient died from peritonitis, extravasation and septic infection.

What are we to do under such circumstances? I think with the advantages of aseptic and antiseptic surgery, that where we have a doubt in our minds as to traumatism we are justified in making an exploratory incision to determine what is the matter at an early stage and not wait until the condition is such that we are unable to meet the complications that have arisen.

Dr. W. W. Grant of Denver—What were the symptoms or evidences that called for an exploratory incision?

Dr. Reed—In this particular case there was not the extreme shock that we would expect, but there was constipation. There was no action from the bowels from the time of the injury until I saw the man three days later. Where we have constipation following an injury of that kind, supposed to injure the bowels in a patient who is physically well otherwise and has been having action from the bowels every day, it is one of the points we should seriously consider. A little later we had a slightly increased temperature, followed again by a temperature a little below normal, but neither one sufficiently high or low to attract attention from the temperature standpoint. But I am always suspicious if I find a high temperature in a healthy man dropping a little below normal after an abdominal injury. Furthermore, we had in this case the physical fact that the man had been struck a terrible blow. He was an unsually strong man with great physical resistance which enabled him to walk three or four blocks to his home after sustaining the accident, and then there followed a condition which necessitated his going to bed. There was pain, lassitude and general depression. It seems to me these symptoms, following inside of twenty four hours after the accident, were sufficient to warrant a surgeon in making an exploratory incision, when there was nothing else to account for the condition; he was perfectly well when the accident happened.

I recall another case in which a person was shot five times in succession through the abdomen, every bullet passing through with the exception of one which was taken out of the skin of the back. That man did not have any particular shock. He, like the other patient, walked four blocks to his house, laid around for three or four days without any particular change in temperature and had no particular pain, and in a few days he was well and working again. Here was a case that I am unable to say what happened in the abdominal cavity, but evidently these bullets passed through without perforating the intestine. On the other hand, we had no perforation of the abdominal parietes, but we had the symptoms which would indicate that there was a serious injury to the abdominal tract.

Dr. W. J. Mayo of Rochester, Minn.—In order to widen the scope of the discussion, I wish to speak of those cases first seen more remotely from the time of injury, and particularly of those in which free fluid is present in the abdominal cavity. I recall the case of a boy, who was run over by a wagon and injured in the region of the liver. After a couple of weeks I found the boy was only moderately sick, with a temperature of 102 degrees, but he had a well marked ascites. The abdomen was drained of a large quantity of bile. The boy fully recovered.

The second case was that of a man of 40, brought into the hospital four days after receiving a severe contusion of the abdomen. He was obstinately constipated, had a temperature of 102.6 degrees, but a good pulse and looked well. After considerable effort his bowels were acted upon. About the sixth day ascites began to develop, although the general condition steadily improved. The free fluid slowly disappeared and in the course of six weeks he fully recovered. Just what the cause of the fluid was in this case can only be surmised. I was careful to keep him very quiet and put him on a liquid diet during the second week, when, as experience has shown, a contused intestine is so liable to undergo secondary perforation.

The third case was one of rupture of the bladder from great violence, and in which urine was present in the abdominal cavity many hours before drainage was instituted. There was no peritonitis. The man died, however, a week later from the effects of a crushed pelvis received at the same time.

In these three cases the tolerance which the peritoneum may occasionally exhibit toward injury was well marked.

Dr. Fred J. Hodges of Anderson, Ind.—I presume that it will be taken for granted that every logical-minded physician would inquire carefully into the previous condition of the patient, but when one is called to a man, and a history of the injury is obtained, it is not infrequent that one's attention is so firmly riveted upon it that he neglects going into the previous history of the patient. A recent case coming under my observation illustrates the necessity, however, of considering it from all sides. A man who was working on one of the construction trains, and had worked for at least a month before I was called to see him, had struck the handle of his shovel against the belly along toward quitting time on Saturday and felt very little inconvenience from it, except that the belly was a little sore. That night he was awakened about 10 o'clock by an excruciating pain. A local physician was called in and found him practically pulseless and suffering intense pain. I saw him at 4 o'clock in the afternoon. There were indications of peritonitis, with the man in a condition which forbade operation. The same evening he died. On the following day an autopsy was made, and a well marked appendicitis was found, with practically the entire appendix gangrenous. By inquiring into the history the night before, it was learned that the man had been having some intestinal disturbances for a week and a little elevation of temperature at night. Yet he worked through the course of the disease and up to within twenty four hours before his death from peritonitis. So that a case like this occurring in a man's practice will cause him to look more carefully into the previous history of all cases of injury than he might otherwise do.

There was one point in the paper with which I take issue, and that is regarding the method of ridding the bladder of clots. In a man of middle age or under, as the average railroad employe would be, I believe that the high operation, or high drainage of the bladder, to be preferable to perineal section, that it can be quickly made, the bladder easily emptied, and there is no subsequent danger of stricture, as in the lower operation.

Dr. W. A. Ward of Conneaut, Ohio—In connection with the point of obscurity in diagnosis, especially unattended with any outward signs, I was called to see a man who was kicked in the abdomen by a horse. Following the injury there immediately developed severe pain. This case came under my notice in pre-antiseptic days, and of course, an exploratory incision was not made. The man was immediately put to bed, although there were no severe symptoms aside from pain, for three or four days. The most careful examination failed to disclose any marks on the exterior; but the man died about the seventh or eighth day with symptoms of well marked general peritonitis.

Dr. W. W. Grant of Denver—How to treat these cases after the diagnosis has been made is the important question. In cases of laceration with extravasation, to open the abdomen and close the rent is the proper thing to do as soon as possible, or after reaction is established. But the difficulty is to know when we have a laceration as distinguished from profound shock, due to blows upon the abdomen through their influence on the solar plexus. We have all seen cases in which shock has been profound without laceration. Our axiom in surgery today is that no one should operate if shock was profound. After reaction is established, then the surgeon should determine in a few hours, if possible, whether or not there is laceration of any of the hollow viscera, or whether there is hemorrhage or not. These are questions it is often extremely difficult to determine. In case of hemorrhage we do not now wait so long before tying the bleeding vessel and closing the abdomen, because hemorrhage will prove fatal if this is not done. If we open the abdomen, although the prognosis is grave, we may save a patient that would otherwise die. If we can arrive at some of the symptoms indicative of the condition, it is the important point in this matter. In case of extravasation of urine we will have septicemia very soon if we do not open the abdomen and close the rent. If the intestine is lacerated and the colon bacillus has found its way into the general peritoneal cavity, we are quite certain to have general septic peritonitis and death, and early operation is the only thing to do, and the patient loses nothing by running that risk. If, after reaction, we have evi-

dences of localized peritonitis or a subnormal temperature, indicating a recurrence of hemorrhage or a continuance of it, the abdomen should be opened and the rent found, if possible, and repaired. With the opening of the abdomen we have a means of flushing the cavity with hot water and saline infusion, which at first were not thought to prove beneficial in bringing about reaction in many of these cases.

Dr. JOHN E. OWENS of Chicago—We ought to bear in mind that excision of the kidney is not always necessary in cases of traumatism, because we can remove a portion of it and get good results. This is an absolute necessity where we have no reason to suppose that the other kidney is diseased. In some cases an exploratory incision for the purpose of examining and handling the other kidney, when it can be done, is justifiable practice. I have done this a number of times where I have had to operate on pathologic kidneys, when I was in doubt as to the nature of the other kidney, and when the question of removal of the damaged kidney came up.

In some cases I have been impelled to open the abdomen when I did not seem to be guided by the assemblage of symptoms, except rigidity of the abdominal walls. This is a constant symptom of perforations of the intestine and in injuries to the other abdominal contents.

There is another matter we should keep before us in considering the differential diagnosis, namely, rupture of the diaphragm. We should ever be on the alert, even when a case has gone along well, or indifferently well for several weeks, and I can save time by giving you a synoptical report of a case. I forget the manner in which the patient was injured, but he had general uneasiness, which subsided in a measure, so that the patient was comfortable most of the time, as a result of the ordinary methods pursued—rest, opiates and hot applications. In the course of two weeks or more (I am speaking now with approximate correctness from memory) he had a very severe pain in the stomach and bowels, confined to the upper half of the cavity. We thought he would die in a short time, but opiates and hot applications brought him around, so that the next morning he was pretty well again. This occurred after eating several articles of food that his friends brought to him. He was doing so well that he was allowed to get up on a wheel chair, and one night subsequently he had this intense pain again. We prescribed the same treatment, but he died within seventy-two hours. This man had also a fracture of the ribs; he had emphysema and pneumothorax. A postmortem examination was made and we found the whole stomach and a coil of intestine that was gangrenous in the pleural cavity. The stomach was considerably dilated, and all this had passed through a hole in the diaphragm through which I could barely introduce the ends of three fingers.

Dr. H. REINEKING of Sheboygan, Wis.—One important condition which is apt to follow these injuries as a remote effect, is a localized adhesive peritonitis and the gradual development of intestinal obstruction. I have seen two cases within the last year which illustrate this danger very well. The great danger in these cases lies in slow development. Constipation comes on so gradually that operation is deferred until too late, until there is amputation of the afferent portion of intestine and perforation. When these symptoms develop, perhaps months after the injury is sustained, they call for an early exploratory laparotomy.

Dr. C. K. COLE of Helena, Mont.—The case mentioned by Dr. Reed illustrates the fact that there is a very wide difference with reference to symptoms in cases of injury to the abdominal viscera, and would seem to indicate that there are cases where operative interference is not necessary, or at least the condition can not be appreciated so that one would be warranted in operating. While in the other, and I believe in most of the cases of perforations of the walls of the abdomen, we are warranted in making an exploratory operation. Dr. Lord mentioned, in connection with the treatment, the use of opium and referred to the fact that Dr. Summers of Omaha left a saline solution in the abdominal cavity. As a rule, we should not make use of opium in these cases. I believe that we should leave the abdomen as dry as possible after a laparotomy for any lesion.

Dr. W. J. GALBRAITH of Omaha—Two or three important symptoms have been overlooked in injuries of the liver.

As regards Dr. Lord's quotation from Professor Bryant of New York, in which he says that delirium and shock are invariably two of the principal symptoms, I beg to take issue with him, for in at least five or six cases that I recall to mind, with one exception where there was the complication of ruptured spleen, evidence of shock was not manifested in the least.

I remember the case of a brakeman who fell from the top of a train, striking on the broad bars on his right side, and during the examination he said that it "knocked the wind out of him," but that otherwise he was all right and wanted to go home. Experience in this case prompted me to strongly insist upon the man remaining in the hospital, for he presented that peculiar pallor and uneasiness which we may regard as one of the objective symptoms of rupture of the liver. After receiving the injury he walked six or seven blocks to the hospital without any aid, and in company with one of his friends, who had telephoned me that they would like me to see the man and make a report. He was put to bed and kept quiet. On the following day there was a slight rise in temperature with increased uneasiness and that peculiar pallor which is indicative of shock, but without the other symptoms. At the end of four or five days there was slight tympanites, increased uneasiness bordering on delirium, and about the sixth or seventh day he died. Autopsy revealed a very extensive laceration of the left lobe of the liver.

Another case was that of a lady, 22 years of age, who was in a railroad wreck about a year ago. She received injuries without any apparent external evidences. I saw her three or four hours after the accident. She was sitting in a chair and was one of the last patients to be examined. I asked her if she was hurt, and she replied, "nothing to speak of," but felt a little sore in her back and a little bit nauseated. She was in the room with several other patients, and my attention was directed to her by the beginning peculiar uneasiness which is so characteristic and certain in these cases. She would sit in one position, then move to another chair, and as time went on the peculiar pallor manifested itself. She was admitted to the hospital at Omaha on the day following the injury. No evidence of any peritoneal irritation or inflammation could be found. The bowels, bladder and all secretions, as I remember, were normal. The following day there was a slight decrease in temperature, but all the time this increase and progressive uneasiness associated with the characteristic pallor that I have seen in every case of rupture of the liver that I have dealt with. On or about the fourth day she began to complain of pain in her head and of slight pain through the thoracic and abdominal regions. At first, there was only mild delirium, which increased as time went on. Repeated examinations, both manually and bimanually, with inspection of the abdominal regions and other parts of her economy, were undertaken by my colleagues. I diagnosed rupture of the liver. She died about the ninth day.

In the presence of fifteen physicians, an autopsy was made by Professor Crummer of Omaha. I was the only surgeon who had entertained the idea that rupture of the liver existed. Much to my humiliation, after the liver had been placed upon the table and many sections made through its lobes no rupture could be found. The balance of the thoracic and abdominal organs were removed, but nothing abnormal was found. Dr. Crummer at this time proposed that we open and explore the brain, believing that some lesion there had caused death. However, I was not satisfied with the apparently careful examination of the liver. I placed it on the table, and asked the doctor to make a few openings into the liver. There was, as I remember now, in the right lobe near the center, a space some three inches in width, and the left lobe of the liver was left intact. The characteristic discoloration, which was slight, prompted me to make an incision at this point. The first cut, extending through as described, opened up a cavity containing about four ounces of clotted blood, showing that the liver had been ruptured and that my diagnois was confirmed.

Another point concerning these cases is as regards the cause of this rupture. While, in a measure, we may state that ruptures of the liver are traumatic, how did the trauma occur in this case? There was not the slightest indication of any external violence, and in all other cases I recall the same condition existed.

I note the case spoken of, in which the man was hit by a lath and a triangular rent made in the small intestine. I do not believe these cases are the result of direct traumatism. Certainly no trauma was applied in the case that I have just reported. I believe these ruptures are due more to muscular action than to any other cause.

Dr. LORD—Authorities agree that a full stomach, or knuckle of bowel, which is so placed as to receive the injury, will rupture with slight force, so that the history and the amount of injury can not always be relied upon as showing the true condition of the case. Slight injuries sometimes produce disastrous results, but I think the rule is that considerable force has been applied in these cases.

Dr. Reed spoke of constipation as being a symptom in his case. I find in looking over the reports that constipation can not be relied on. While it may be rather commonly present, yet, in many cases, examination either during an operation or at the autopsy table has shown that quite extensive ruptures

have existed in the small intestine, and have not interfered with the action of the lower bowel, so that I think very little reliance can be placed on that.

In the cases of severe abdominal contusions which I have witnessed, there has been one symptom which is quite frequently noted, namely, inability to urinate, or symptoms of irritation referable to the bladder. In one of the cases I have seen there was momentary shock, but the patient suffered comparatively no inconvenience, and made a thorough recovery.

A rupture of the hollow viscera is very much more fatal than gunshot injuries. Many gunshot wounds are inflicted by instruments of small caliber, and such injuries may produce only a slight opening in the intestine, so slight indeed that the pouting of the mucous membrane is such as to completely occlude the aperture and prevent disastrous consequences, a plastic localized peritonitis being sufficient to cut off any escape of the contents. In dealing with these we can not treat them with the same "let alone methods" that we can cases where there is a wound or evidence of penetration.

One gentleman, in speaking of the method of relieving blood clots from the bladder in cases of rupture of the kidney, suggests that the suprapubic operation is preferable to the median perineal operation. The reason why the latter method is so regarded by most writers is because it affords drainage. Clots do not form: they pass out of the bladder as they accumulate. The median perineal operation is a comparatively simple one, and a drainage tube may be introduced which will carry off the clots and prevent their accumulation. While the suprapubic operation may be just as safely performed, although I am hardly willing to grant that, yet the complications, which afterward arise, in keeping the bladder clear of accumulated clots, would be evident, and I think that is the reason why the suprapubic operation is not regarded as highly as incision of the bladder with drainage. Other means may be used for evacuating blood clots, and if the hemorrhage can be arrested in the kidney, temporary removal of the blood clot might suffice. Breaking up the blood clots by instruments and withdrawal with an evacuator may be a preferable procedure. It has been suggested, also, that solutions of pepsin may be used for this purpose.

I think the point of determining the presence of a second kidney is a wise one. I saw the report of a case, by Phelps of New York, published in the *New York Medical Journal* quite recently, where a nephrectomy had been done for extensively lacerated kidney. The man died, and autopsy revealed the fact that the man had no other kidney. This occurs so frequently that it is well to be guarded before this operation is resorted to.

SOCIETY PROCEEDINGS.

Illinois State Medical Society.

Abstract of the Proceedings of the Forty-eighth Annual Meeting, held at Galesburg, May 17, 18 and 19, 1898.

The Society met at the Court House under the presidency of Dr. J. M. G. Carter of Waukegan.

Prayer was offered by the Rev. W. H. Geistweit. An address of welcome, delivered by the Hon. F. F. Cooke, Mayor of Galesburg, was responded to by President Carter. After listening to and disposing of the reports of the secretary, treasurer, committee on publication and of various committees, Section on Practice was called to order by the chairman, Dr. Arthur R. Edwards of Chicago; secretary, Dr. Frank P. Norbury of Jacksonville.

Dr. Frank P. Norbury of Jacksonville, read a paper entitled

MALNUTRITION IN INFANTS,

in which he said that the problem *par excellence* of an infant's life was that of nutrition. This was of great importance, as the days of infancy were dependent upon the ability of the infant to receive and assimilate nourishment. Nutrition was a physiologic-chemic process which had for its object the supply of materials necessary to maintain the human economy in a state of health and to provide for its growth and development. Most all cases of malnutrition were the result of gastro-intestinal disorders incidental to errors of diet. Over-education of the mother was responsible for her lack of ability to supply wholesome milk to the infant. Again, other conditions, such as excitement, worry, neurasthenia, the occurrence of menstruation or gestation, may produce unfavorable results upon the milk and thus disturb its nutritive value. Artificial feeding in a great many cases was responsible for indigestion in infants. This was the result of faulty methods of administration of foods and of the promiscuous and heterogeneous selection of food stuffs, prescribed by the neighbor or parent. The treatment had two main objects in view: 1, to arrest wasting; 2, to repair the damage done by the disease.

INFANTILE SCURVY, WITH REPORT OF CASES.

This paper was read by Dr. Isaac A. Abt of Chicago. He said the earliest reported of these cases were erroneously described as cases of acute rachitis. Möller of Königsberg, in 1859, described his first case. In 1862 he reported two more cases, one of which came to autopsy. Bohn in 1868 described a similar case. The cases reported by various authors show a striking similarity with reference to the symptomatology of the disease. He said we were indebted to Cheadle of London, who described the disease in detail as infantile scurvy in 1878, and later as osteal or periosteal cachexia with scurvy. He then cited cases that had come under his observation to illustrate the course of the disease. Its etiology was discussed at length, as well as the symptoms pointed out.

The diagnosis, in well marked cases, was not difficult. With reference to the differential diagnosis, congenital syphilis could be excluded by the history of the case, by the absence of syphilitic lesions on the skin and mucous membranes. In congenital syphilis there was never a history of severe pain. The pseudo-paralyses of syphilis were nearly always limited to the upper extremities; the swelling was never so intense as in cases of infantile scurvy, and was more prone to occur on the epiphyses than on the diaphyses. Separation of the epiphyses occurred in both diseases. A spinal paralysis might be thought of, although in such cases there was neither tenderness nor swelling.

The prognosis, if the disease be recognized sufficiently early and proper treatment instituted, was fairly good.

As to the treatment, brilliant results were obtained by providing a suitable diet. Fresh cow's milk or mother's milk, beef juice, orange or lemon juice, fresh vegetables, mashed potatoes, recommended by Cheadle, were the most suitable articles of diet. The child should be placed under the best possible hygienic conditions; good ventilation should be provided for, and under favorable conditions of weather the child should be out of doors. Cod-liver oil by mouth or inunction was especially indicated, when the child recovered from the scorbutic condition, to aid nutrition. Iron should be administered in those cases where atrophy or anemia persisted. Vomiting, constipation, dyspepsia, diarrhea, must be treated by adapting the diet to the age and condition of the patient and by the use of appropriate drugs. Small doses of calomel, mercury and chalk, pepsin or bismuth, may be used as indicated. Care should be taken to overcome the constipation which was frequently present. For the swollen and bleeding gums a mild antiseptic and astringent solution should be used.

Dr. Frank S. Churchill of Chicago, followed with a paper on "Modified Milk," in which he discussed the laboratory method and home modifications of milk. He claimed that substitute feeding is the most valuable method for artificial feeding.

Dr. James B. Herrick of Chicago, read a paper entitled

THE DIAGNOSIS OF PLEURISY WITH EFFUSION, WITH ESPECIAL REFERENCE TO MISLEADING PHYSICAL SIGNS.

He first spoke of the importance of careful inquiry into the history of the case, and dwelt upon the fact that in some cases there might be an absence of pain and of cough, the clinical symptoms resembling those of a mild typhoid. In other cases the severity of the symptoms and the explosive onset would remind one of pneumonia.

Among the signs that might mislead, he mentioned the occasional inspiratory recession of interspaces and the decubitus upon the sound side. He regarded vocal fremitus as of relatively inferior value, because of the many conditions that might cause it to be retained even though there is a large amount of fluid. The importance of the sense of resistance was emphasized. With small amounts of fluid a careful examination should be made in the posterior axillary line just external to the angle of the scapula, for signs are often present here though absent elsewhere. Even with quite large effusions there is a triangular area of relative dulness above the line of flatness posteriorly. Here could frequently be heard quite pronounced bronchial breathing and well-transmitted voice sounds.

The crucial test is exploratory puncture. With careful asepsis and with a knowledge of the anatomy of the thoracic viscera there was practically no danger. Negative results should not lead to the exclusion of pleurisy with effusion until circumscribed collections of fluid had been ruled out. By means of exploratory puncture bacteriologic and microscopic examination of fluid was made possible, throwing much light upon etiology, prognosis and treatment. Palpatory puncture, to

use Rosenbach's expression, may be of great value in the diagnosis of underlying tumor, and may be the only means of determining the presence of the thick fibrous plates that sometimes line the chest.

Dr. B. W. SIPPY of Chicago contributed a paper on

THE SIGNIFICANCE OF CERTAIN SIGNS AND SYMPTOMS IN HEART INSUFFICIENCY.

He said that the diagnosis of heart disease concerned itself not only in determining the particular lesion and its cause but, what was often of greater importance, in what manner was the diseased heart capable of performing its function? The author then dwelt upon the anatomy of the heart. He considered briefly insufficiency of the left and right hearts respectively and then, at length, total heart insufficiency. The left heart may become crippled in various ways. Owing to valvular defects at the aortic and mitral orifices, increased work thrown upon the heart by heightened arterial tension, as in chronic interstitial nephritis, the left heart may become incapable of doing its share of the work. Dilatation, compensatory hypertrophy of its walls and damming of blood in the pulmonic circuit takes place. The two sections of the heart sustain each other in their efforts to carry on the circulation. The passive congestion of the pulmonic vessels occasioned by the insufficient power of the left heart may be overcome by the right heart. As long as the right heart remains competent, the left heart lesion is compensated, the systemic arteries are filled more or less adequately, the systemic veins are emptied normally. The chief outward manifestations of this condition, dyspnea and cyanosis, are due to the overdistended pulmonic circulation. The right heart may become diseased independently of left heart affection, in the same manner that the left heart may become diseased independently of right heart affection. Increased tension in the pulmonic circulation due to pulmonary emphysema, fibroid phthisis, disease at the pulmonic or tricuspid orifices, results in similar pathologic sequences noted in left heart affections, namely, dilatation, hypertrophy and final damming of blood in the systemic veins.

The urine in heart insufficiency is diminished in quantity, highly colored, of high specific gravity, and as a rule contains a trace of albumin. Albumin may be continuously absent. As long as the degenerative changes of a nephritis are absent, the quantity of albumin will remain a trace. The hyaline cast, red and white blood corpuscles and epithelial cells, may be present. A considerable quantity of blood in the urine may be due to a kidney infarct. Such is the urine in kidney of passive congestion. The quantity of urine excreted in heart insufficiency is dependent much more on the diminished arterial tension in the kidney than on passive congestion, and is of great prognostic value.

In heart insufficiency the overdistended cervical veins stand out more or less prominently and the presystolic wave may become greatly exaggerated.

Dr. J. L. MILLER of Chicago, read a paper on

THE SMEGMA BACILLUS,

in which he drew the following deductions: 1. Over the entire surface of the body and exposed mucous membrane, and especially on the genitals, bacilli are found which resemble, morphologically and in tinctorial qualities, the bacillus of tuberculosis. 2. From the external genitalia they frequently gain access to the urine, especially in women, and may be a source of error in the examination of urine for tubercle bacilli. 3. The smegma bacillus presents wide variations in size and form, thus rendering morphologic differentiation frequently impossible. 4. While most smegma bacilli are more readily decolorized by any of the solutions commonly employed, occasionally they possess equal or even greater resistance than the bacillus of tuberculosis. 5, Methods of decolorization, where acids alone are employed, are fallacious; acid alcohol or dilute alcohols, unless long continued, are equally unreliable. Better, but not free from error, is the use of absolute alcohol for at least five minutes. In ammoniac urine, however, such prolonged use of alcohol may also remove the stain from the tubercle bacillus. 6. Attempts to remove the fat or fatty acids from the bacilli by ether, chloroform or other solvents, fail to furnish us with a means of differentiation. 7. We must rely on means of excluding the smegma bacillus from the urine. It has never been demonstrated in the bladder, and apparently seldom involves the deep urethra; therefore, by cleansing the external meatus and withdrawing the urine with a catheter, we can exclude this possible source of error.

Dr. GEORGE F. BUTLER of Chicago, spoke of the untoward action of drugs, with especial reference to hypnotic and antipyretics.

Dr. S. A. MATTHEWS of Chicago, read a paper on "A Pharmacologic Study of the Action of Digitalis on the Mammalian Heart and Circulation."

Dr. HUGH T. PATRICK of Chicago contributed a paper entitled

REMARKS ON THE TREATMENT OF NEURASTHENIA.

He said that for the production of neurasthenia, as for the production of nearly all disease, two conditions were indispensable, namely: 1, A noxious agent; 2, a relative vulnerability of the organism or of some part of it. The ratio of these two etiologic factors might be called the etiologic index. In some cases the first effect, that is, the extraneous agent, would be very prominent, the organism itself being considered as normal. In others, the exciting agent would be exceedingly slight, the inherent susceptibility or instability of the patient being an essential causal condition. Each of these two classes of neurasthenia would naturally need radically different treatment. In the first, those in which the patient once possessed of a normal nervous system, which had simply been overstrained and overdrained, the important features of the treatment would be rest and recuperation. In the second class of cases, those in which an unstable nervous system of the individual was at fault, the treatment is essentially mental, and the best way of administering it is by systematic education. For such patients isolation and an initial period of rest might be very useful, but for the further treatment gradually increasing physical exercise and mental occupation would be necessary.

A number of illustrative cases were cited to show the different types and the gratifying results of treatment varied in accordance with the classification before indicated.

Dr. M. L. HARRIS of Chicago described a new device for obtaining the urine separately from the two kidneys in either sex, and exhibited the instrument.

Dr. GEORGE W. COX of Chicago followed with a paper on

STREPTOCOCCAL INFECTION.

The author briefly discussed the subjects of puerperal septicemia, erysipelas, phlegmon, diphtheria, scarlatina, tuberculosis, and reported several cases of streptococcal infection, which he said could be easily detected and as easily cured, if the proper means were employed at the proper time. A microscopic examination would confirm the diagnosis and Marmorek's serum would accomplish the cure.

Dr. WILLIAM M. CATTO of Decatur read a paper on

URINARY FISTULA.

Urinary fistula may be congenital or acquired. The latter was most frequently encountered by the physician, and was nearly always due to violence, more rarely to disease. The various forms of fistulæ were mentioned according to their situation and the structures involved. The author closed his paper with a report of two interesting and instructive cases.

Dr. EMMA B. STANDLEY of Alexis contributed an interesting rhyme entitled, "My Name is Appendicitis."

Dr. GEORGE W. JOHNSON of Chicago read a paper on

OBSERVATIONS ON THE BLOOD OF TUBERCULAR PATIENTS.

These observations were made on patients in the advanced stage of the disease with cavities, and at times hemoptysis. As to the cause of the apparent anemia in tubercular patients, Cabot and others have found that it is not due to a reduction in the hemoglobin. The same authority states that in uncomplicated tuberculosis the number of red corpuscles remain practically normal. Dr. Johnson in his observations paid especial attention to the patient's physical condition as to cavities and hemoptysis. These observations were made just before meals, and no attack of hemoptysis occurred between the first and second examinations. The patients were up and out of doors most of the time during the day. The microscope was used to compute the blood count. Of thirty-three patients examined, all had cavities of various sizes and all had had hemorrhages or hemoptysis. Of these thirty-three cases, twenty-five were found to have leucocytosis, that is, the white cells ranged above 7500 per c.mm. The twenty-five having leucocytosis also showed cavities. Cabot and others state that there is always a leucocytosis when there are cavities and after hemorrhages. Nine of the thirty-three showed a red blood count of 5,000,000 or above, which Cabot states as a normal basis. The remaining twenty four showed a red cell count, in many instances far below 5,000,000, and in no case was the hemoglobin up to normal. In only one case did it reach 75 per cent.

Having made observations to determine the character of the blood, he also made some therapeutic observations, using 5 per cent. nucleinic acid, No. 2, in the first ten cases; 5 per cent. nucleinic acid, No. 1, in the second ten cases; ferratin in six cases and heminol in five cases. The first ten were given 22 c.c. every four hours for twenty-four hours. The second blood observation in the first ten cases showed six out of the ten to have a still greater leucocytosis. The red blood count was practically unchanged. The hemoglobin showed an

increase of from 3 per cent. to 10 per cent. in those cases in which there was a leucocytosis. The second ten were put on the nucleinic solution, No. 1, which is chemically pure and for hypodermic use. Thirty minims were given hypodermically every four hours for twenty-four hours. The second count in these cases showed the same condition as in the first ten, which were given the No. 2 solution by the mouth. None of the patients complained of any bad effects, but experienced a sense of renewed energy, the circulation being better and the appetite improved. The speaker has noticed repeatedly the splendid stimulating effect of nucleinic acid in every case in which he had used it. In cases not tubercular he has had splendid results.

Five cases were put upon heminol, 15 grain doses being given every four hours for thirty-six hours. A second examination of the blood of these patients showed an increase in the number of the red cells in four cases. Three showed an increase in the number of white cells, and only two showed an increase in the percentage of hemoglobin. The blood of the thirty-three cases was stained and studied, and in but two cases was there found a poikilocytosis.

Dr. H. W. CHAPMAN of Whitehall spoke of an undescribed form of la grippe.

Dr. A. C. COTTON of Chicago talked upon the subject of infant feeding at home and abroad. He gave an interesting description of the different forms of infant foods which he saw in foreign countries during a recent trip.

Dr. L. R. RYAN of Galesburg read a paper on "A Positive Antidote for Strychnia." The contribution was the result of a good deal of experimental research. The antidote in question is leontin. He detailed his experiments upon animals.

Dr. C. C. HUNT of Dixon followed with a paper on

CHELIDONIUM MAJUS IN INOPERABLE CARCINOMA.

He stated that Dr. Denicenco first experimented with chelidonium in cancer of the lip, and having obtained good results he used it in inoperable cancer. Dr. Hunt had used it in three cases, and while he would admit that the action of the remedy as observed in them was not absolutely conclusive, yet the results appear to corroborate in the main the claims advanced by Dr. Denicenco. Dr. Hunt concludes that: 1, chelidonium majus, injected interstitially into the substance of a carcinomatous growth, tends to its obliteration by necrobiosis; 2, copious and frequent interstitial injections of the fluid extract are unattended with danger to the patient, if judiciously used; 3, in cancer of the rectum, even at an advanced stage, stenosis may be prevented and the necessity of palliative colotomy obviated; 4, it is a deodorizer of no mean power; 5, there is some warrant for the belief that it has a favorable influence over glandular infiltration and tends to prevent metastasis; 6, it is a hemostatic and antiseptic; 7, it gives the patient hope of ultimate recovery, and this tends to mitigate or annul the awful apprehensions of impending dissolution, apprehensions, we may well opine, more appalling than death itself; 8, more comprehensive and exact experiments are necessary in order to determine the real value of the drug.

(*To be continued.*)

American Medico-Psychological Association.

Fifty-fourth Annual Session held at the Southern Hotel, at St. Louis, Mo., May 10-13, 1898.

(*Continued from page 1295.*)

FIRST DAY—EVENING SESSION.

Dr. E. N. BRUSH read a paper by Dr. C. W. PILGRIM, entitled "Does the Loco Weed Produce Insanity?" The author, incited by a statement by a popular writer of fiction, had nvestigated this subject and reported an interesting case ttributed to this cause, but which appeared to be rather due o specific infection.

The next paper read was by Dr. B. W. STONE of Nashville, ntitled "Thyroids in Insanity." He said that his experience vith this agent had been most favorable and that he would try hyroids in every case. He read reports of a series of cases of emarkable results of thyroid treatment including one of gitated dementia of over four years duration, nearly well at ne present time. Ill success in treatment is often due to nsufficient dosage. He had it carried up to 55 grains daily in obust men, had at times had alarming effects on pulse, etc., nd thought it ought to be carried out only in asylums.

Discussion was by Drs. Burr, Bancroft (unfavorable experiences), Brush (ditto), Burgess (worthless except in some cases of uporous melancholia, experience has simmered down to this). n one case of latent phthisis it probably killed the patient.

Dr. HILL suggested the subject might be one for inquiry by the Association. He had used thyroid from an early date and his enthusiasm still exists. He would think he had neglected his duty if he had not used it in some cases. He did not use large doses (7-15 grains sufficient), has made motor disturbances a guide, but has abandoned it in melancholia, perhaps because he did not use a sufficient dose. Thyroids decrease excretion of solids. He has experimented with suprarenal extract and found the opposite effects. How is it the loss of weight occurs? His pathologist, Richardson, suggests it is due to breaking up of hydro carbons into CO_2 and OH_2. A suggestion was made as to its value in diabetes and he reported a case in which in one month there was reduction of 63 grains of sugar with undiminished urine. Dr. Brush, reporting a contradictory result, added that three cases at Sheppard that were positively deranged were cases of diabetes.

Dr. MABON had used thyroids and found great results in stuporous cases.

Dr. BANCROFT asked about blood changes and what preparations were used.

Dr. MABON said that he was having blood examinations, but was not ready to report; he had used Parke, Davis & Co.'s preparation.

Dr. BUCKE had had lack of results.

Dr. HURD had had remarkable results in some cases, but in mental diseases he had not had good results with this remedy.

Dr. EDWARDS asked what was the effect on the thyroid gland itself.

Dr. STONE, in closing, stated that he had used both Armour's and Parke, Davis & Co.'s preparations. In all cases with improvement there was an increase of ruddiness, but he had made no special examination of the blood.

SECOND DAY—MORNING SESSION.

After miscellaneous business, reports of Finance Committee, report on candidates for membership, etc., had been attended to, the President called for the report of the Committee appointed on the treatment of the criminal insane. In the absence of the chairman, Dr. CHAPIN, Dr. H. E. ALLISON offered the report, the conclusions of which were as follows:

1. That medical officers connected with all penal institutions should possess an experience in a general hospital or should have manifested a fitness for the position by a successful general practice, and should have, in addition, some experience in the treatment of the insane.

2. The compensation for such services should be adequate to secure competent and well qualified men, and that the position should be a reasonably permanent one, dependent upon merit and efficiency and not upon political influence or personal preference; that the duties of such physicians be so defined by law that in the discharge of his professional work he can exercise an independent judgment and possess an authority sufficient to control his medical functions.

3. That there shall be kept at all prisons a record on admission of any mental or physical peculiarities, and that entries shall be made from time to time of any additional peculiarities or actions and that each case report shall be in permanent

4. That so far as practical, special hospitals for the insane form and at all times accessible to the proper authorities. criminals be erected as an adjunct to the courts and prisons, where the insane criminals may be transferred and therein detained, without regard to the length of sentence, until recovered or otherwise so improved in mental and physical condition for release.

5. That the attention of the National Prison Association be directed to this subject with a view to securing their co-operation in providing better facilities for the detention and proper custody of the insane in the prisons of the United States.

On motion of Dr. H. M. HURD, the Committee was continued and authorized to co-operate with the National Prison Association, and it was ordered that the report be published in the *American Journal of Insanity*.

Dr. C. P. BANCROFT, for the Committee on Nominations, reported as follows: President, H. M. Hurd of Baltimore; of Michigan; auditors, H. A. Tobey and C. B. Hull; council vice-president, H. A. Gilman of Iowa; secretary, C. B. Burr three years, L. C. Meade, C. W. Babcock, C. D. Page and L. P. Wade. These officers were elected.

Dr. HURD then reported on the *Journal of Insanity*, showing a balance of over $500 on hand in cash and good accounts.

Dr. MURPHY reported for the auditors, and Dr. Burr on the proposed amendment of the constitution, making eligible for membership those who by their writings and qualifications in the specialty of nervous and mental medicine were considered worthy aside from any hospital connections. The reports were accepted and adopted.

Dr. C. P. BANCROFT read a paper on "Subconscious Homicide and Suicide; their Physiologic Psychology." He discussed at length the the theories of consciousness and its aberrations and reported two cases occurring in apparently non-epileptics, in which homicide or suicide had been attempted in a state of suppressed or modified consciousness. Such cases of non-epileptic automatisms were of the greatest psychologic and forensic interest, and he reviewed at length their possible explanations.

Dr. H. E. ALLISON next read a paper on "Insanity and Homicide." He explained the methods and results at the New York Asylum for insane criminals at Matteawan. The crimes of the insane are mainly against persons. They had there 398 cases with records of successful or unsuccessful attempts against life, and 24 per cent. of those given life sentences in the State were inmates of the criminal asylum. His paper contained statistics showing the ultimate relations of insanity and crime and some striking cases were reported. In conclusion he called attention to the following needs; special hospitals for the insane in connection with the courts and the penal institutions of our larger States; more thorough examinations by the courts, of the mental conditions of persons charged with crime; better methods of obtaining medical expert testimony; the granting of greater powers and authority to prison physicians; more extensive clinical records in the prisons; and the acceptance of the doctrine that dangerous lunatics should be confined until mentally fit to be at large.

Dr. B. H. HILL spoke of recent legal decisions modifying criminal practice in Iowa courts as an advance in the right direction.

Dr. BANCROFT'S and Dr. Allison's papers were discussed by Drs. Tomlinson, Woodson, Harrington, Robinson, Eastman and Brush.

There was no afternoon session but the members were given a carriage ride through the city and parks, taking in the principal points of interest.

SECOND DAY—EVENING SESSION.

The annual address was delivered by Dr. J. T. ESKRIDGE of Denver, on

THE MUTUAL RELATION OF THE ALIENIST AND NEUROLOGIST IN THE STUDY OF PSYCHIATRY AND NEUROLOGY.

He spoke of the close alliance of the two specialties. The expert alienist ought to know something of everything in medicine and everything on psychiatry; he must necessarily be an expert neurologist. It follows that the study of mental ailments is the same in essentials as that of obscure nervous diseases. With the asylum physician it is especially difficult because the required history of the case is so often unattainable; were it not so, much would be clear that is now obscure and it is to the carelessness of the neurologist and general practitioner, in this respect, that is due much of the blame for the backwardness of psychiatry in this country. The speaker gave the essential points of the examinations and the requirements of a hospital. He dwelt especially on the examinations of usual as well as of emotional states, the condition of the memory, etc. Among all the hospital appliances were mentioned pathologic laboratories and their work, and a list of the institutions in which they existed were given. The neurologist is called upon to treat and care for many cases and phases of mental disorder and a practical knowledge of mental disorders is as useful and essential to them as is that of neurology to the alienist. It is only when the neurologist has become a practical alienist that he could greatly criticize the alienist. The neglect of training and instructions on mental disease in our medical schools was remarked upon as a cause of misapprehension and mistakes. A general plan of an ideal insane hospital was laid down in detail. The qualifications, duties and privileges of medical directors, assistant physicians, the proportion of the medical staff and attendants to patients, training schools for nurses, scientific associations, consultants, psychologic research, etc. The time would come when the recognizably best neurologists would be those who had had training in hospitals for the insane, and it is only in the combined and harmonious action of both alienists and neurologists that we are to look for real progress. A union of the Medico-Psychological and the Neurological Associations was suggested as a proper end to work for in furtherance of the common aim.

The president presented to Dr. R. S. DEWEY, on behalf of the Association, a massive silver pitcher, in appreciation of his work in carrying on the *Journal of Insanity* for three years. Dr. Dewey responded, expressing his thanks.

Dr. ESKRIDGE presented the invitation of the physicians of Denver to the Association to attend the meeting of the AMERICAN MEDICAL ASSOCIATION there. Dr. Hughes endorsed this as chairman of the Neurological Section.

Dr. WOODSON offered the hospitalities of the St. Louis Club and of the public libraries.

THIRD DAY—MORNING SESSION.

The report of the Council was offered and report on members and ballots cast for those recommended by the Council. New York was fixed upon as the next place of meeting, the date to be hereafter arranged and notification by the Secretary. Committee of Arrangements: P. M. Wise, A. E. Macdonald, B. Sachs, and Frederick Peterson. The report was adopted.

Dr. MURPHY finished the report of the Auditing Committee.

The Committee on Training Schools reported progress and was continued.

For the Committee on After-Care of the Insane, Dr. Dewey stated that a report had been made to the Conference of Charities last year and arrangements made for continuing the work. The report was accepted and adopted. Dr. Brush was appointed to attend the Conference of Charities and represent the Association, in addition to Dr. Dewey.

The first paper of the day was by Dr. R. S. DEWEY, entitled

SOME REMARKS ON THE RELATION OF MENTAL DISEASE AND SURGICAL OPERATIONS, WITH REPORT OF FORTY CASES OF INSANITY FOLLOWING SURGICAL OPERATION.

He, out of some five thousand insane, had met with eight cases of insanity following surgical operations in sound individuals, and many more in those with an insane or neuropathic taint. He presented a tabulated statement of forty-six cases, stating prior conditions, operation, anesthetic used, occurrence of shock, mental states following operation, duration of insanity, outcome of operation, etc. The class of operations followed by mental disorders were, in order of frequency, those on the genito-urinary organs, the eye and the mammary glands; operations on the brain were excluded, and with this exception the proportions of such cases in asylums was apparently not over 1 per cent. The sources of error in the statistics were dicussed at some length, misunderstandings of insanity, the ignorance of surgeons on this subject and their lack of study. The importance of the surgeon giving careful attention to the mental state of the subjects of operation as a prophylactic of insanity was emphasized.

The paper was discussed by Drs. Hurd, Tomlinson, Bancroft, Russell, Bannister, Punton and Woodson.

Next followed a series of papers, all bearing on the care of the insane, which were read consecutively, the discussions being postponed to the last. The first was by Dr. J. RUSSELL of Hamilton, Ont., on

ASYLUM VERSUS HOSPITAL.

The paper was a well-written plea for more conservative methods as compared with the tendencies of the time to assimilate all the institutions for the insane to general hospitals, with their active operative tendencies and scientific examinations. He gave a historic review of the use of the terms asylum and hospital, and remarked that in the list of institutions for the insane in the United States and Canada there were ninety-three hospitals and forty eight asylums. The word "hospital" was a misnomer as regards institutions for the insane, and their evolution must be along industrial rather than hospital lines. Mental and physical activity is the note that must be struck in the care of the insane, control in some cases, arouse in others and in all restore their brain's normal activity on a physiologic basis. He gave his ideal of the twentieth century asylum, treatment by regulated activity, and with this increased recoveries, success and economy. It is the duty of the alienist to instruct how to produce and how to live. The paper closed with a plea for the mental and moral treatment of insanity as opposed to the physical or modern scientific medical treatment.

Dr. W. M. EDWARDS read a paper on "Some New Hospital Buildings." He described and exhibited plans of new additions to the Michigan Hospital at Kalamazoo, and advocated the use of detached buildings for recent and curable cases.

Dr. B. D. EASTMAN'S paper on

STATE VERSUS COUNTY CARE FOR THE INSANE,

followed. After stating the present conditions in Kansas, he reviewed the question of State and County care in other parts of the country and gave especial attention to the contrasted methods adopted in New York and Wisconsin. He considered the Wisconsin claims excessive and held that this was confirmed by the report of the Pennsylvania Commission that treated of the subject, and analyzed the claims of the advocates of the asylum, Wetherill, Heg and others. The objections to the two systems were respectively: New York, care of the insane is too expensive, the institutions are too widely separated, there is less employment; Wisconsin, imperfect medical supervision, absence of classification, necessity of keeping all

the ill, feeble and dangerous cases in the State hospitals, lack of diversions, over-economy of rural authorities, lack of adequate inspection. The economy of the Wisconsin plan was, he thought, over-estimated. He summed up in conclusion, the advantages and disadvantages of each plan, and gave as his ideal system, State care in numerous small, well-equipped hospitals.

Dr. H. A. GILMAN'S paper on "Better Care for the Chronic Insane" followed the same general line of thought. He objected to the plan of county care as introduced into Iowa. The lack of individual treatment was a great objection in these county institutions.

THIRD DAY—AFTERNOON SESSION.

Dr. W. B. LYMAN opened the session with a paper on

THE WISCONSIN COUNTY CARE SYSTEM.

He claimed that Wisconsin has a system peculiar to itself, satisfactory to its people, and one that solves the question of the care of the chronic insane. A description was given of the county asylums, their relation with the State hospitals, the methods of transfer, etc. A lack of the system was the need of accommodation for chronic dangerous cases. He advised the commitment of chronic patients directly to the county asylums, instead of through the State hospitals as at present. After describing the condition of the State hospitals, he enumerated the advantages of the county institutions. Open doors were the rule, 70 per cent. of the inmates were on parole and a large percentage of occupations. Wisconsin has fewer deaths from tuberculosis in its insane than any other State. Other advantages were, more frequent visits from friends, the general popularity of the institutions. The Board of Control had full authority and responsibility, and under their system persistent abuse could hardly exist undiscovered.

Dr. F. C. HOYT'S paper on

OCCUPATION IN THE TREATMENT OF THE INSANE,

closed the series. He spoke of the advantages of rational occupation for the insane; it is the best method of preventing secondary mental degeneration, if employed under the careful and judicious oversight of the physicians and not of the lower grade of employes. The patient's own taste should be consulted; also his health and feelings. Open doors and paroled wards, if careful discrimination was not exercised, had a tendency to make idlers and hospital loafers; a parole should be earned by industry and good behavior. Speaking of occupation as a therapeutic measure, he thought it should be in small doses at the beginning and gradually increased till the full physiologic effects were obtained.

Dr. WOODSON, in the discussion, said he could not see the necessary connection between economy and small asylums, other things being equal; why should it cost less per capita in an institution with sixty or seventy inmates than in one with four hundred or five hundred. He described the night attendance at Fulton and the open dormitories. As regards occupation, he agreed thoroughly with Dr. Hoyt's paper. Abuses might occur anywhere but he had noticed that the public condoned them in a county asylum while condemning them in a State institution.

Dr. BURR said the Wisconsin asylum could hardly be called a success as yet. The real improvements are generally quite recent. The claims of economy and humanity were justified as regards the first element more than the last. He had visited the Wisconsin asylums in the winter time and had seen a lack of occupation and diversion, no books, pictures, etc.; that made the places dreary. It was admitted by the intelligent employes that the patients deteriorated in them. Among fifty-eight inmates of one institution there were fifteen with goiters, attributed by the visiting physicians to a lack of oxygen. The attendants were less watchful than he thought desirable, and while they claimed there was no trouble, he saw a patient with a black eye that looked suspicious. The nearness to home was sometimes an aggravation and was not a security against abuse. One official confessed to choking a patient as a disciplinary measure, and he heard stories of neglect, abuse and trouble. Political considerations were not entirely abolished in the management, and generally he had not found what had been expected from the claims made for the asylums. When the defects were done away with, the Wisconsin propaganda would be better justified, but not till then.

The papers were further discussed by Drs. Brush, Runge, Tomlinson, Gilman, Gordon and Gardner.

Dr. J. M. MAHON then read a paper on "The Value of Hospital Records," which was chiefly an exposition of a system devised for the New York State Hospitals, simple, thorough and labor saving, and which greatly facilitated the keeping of case records.

FOURTH DAY—MORNING SESSION.

The first paper read was by Dr. R. H. HUTCHINGS on "Practical Methods in Physiologic Chemistry." He described the methods used at Ogdensburg in the clinical study of the excretions, the blood, etc., and explained how, by the division of time and of the medical staff, this was made readily practicable.

Dr. A. H. HURD testified to the reflex value of this work on the staff and its influence on the patients who were led to take an interest in their own cases that aided in their treatment and led to a better feeling towards the physicians.

The paper was also discussed by Dr. HUGHES, who spoke of the methods as an antemortem pathology tending to more scientific practice and diagnosis; by Dr. W. O. KROHN, who described the psychologic investigations in Kankakee; by Dr. EDWARDS, who told of the methods in use in Michigan, and others.

Dr. BRUSH then read an outline of Dr. BABCOCK'S paper entitled "A History of the Insane in America. Shall the Association have one Prepared?" He moved that an editorial and revisory committee be appointed for such purpose; that Dr. Babcock be appointed chairman, with authority to name his colleagues, and be directed to report at the next meeting of the Association. Carried.

Dr. A. M. GARDNER'S paper on "The Insane in California," was then read. He mentioned the prevalent belief in the undue frequency of insanity in California, and gave the reason. State care was the system adopted, and he made a comparison with New York and Pennsylvania. The large foreign element in the insane was remarked, as shown for example in the Manhattan Hospital report. California has a predominence of foreign-born insane committed. The large cities and seaports are responsible for this, with the increase of urban population. Five-twelfths of the population of California is in the cities. More out of door agricultural life would improve the conditions. California is also the tramp's paradise, and these degenerates often find themselves finally in the asylum. The climate of California, by attracting the defective and degenerate, tends to increase the number of insane. Many of these immigrants err in their choice of residence in California, and this affects the figures. He mentioned the relation of tuberculosis to insanity, and said that its extensive introduction had already been felt in the increase of the insane. Narcomania was also more prevalent; the Chinese in introducing the opium habit had made a curse for the present and a danger for the future. With all this it could not be said that insanity was greatly increasing in the State; the commitments in 1898 were only eight in excess of those in 1886, which is an encouraging figure.

Memorial notices of Dr. GEO. ALLEN by Dr. TALCOTT; Dr. MOFFAT by Dr. GILMAN; Dr. MCNARY; Dr. W. H. JONES by Dr. BEAUCHANT, and of Dr. OLMSTED by Dr. W. S. NOBLE, were read by title and referred to the Secretary, who was authorized to have them published in the "Transactions."

Dr. C. R. WOODSON'S paper on "Some Forms of Syphilitic Insanity Resembling General Paresis," was next read. The author described certain types which he considered as indicating a difference between paresis and syphilitic insanity.

The paper was discussed by Drs. Runge, A. E. Macdonald, Hoyt, Gundry, Eskridge, Burr, and others.

The following papers were read by title: "The Nerve Cell Changes in Somatic Diseases," by Aug. Hoch, Waverly, Mass.; "A Short Study in Psychic Phenomena," by H. C. Eyman, Cleveland; "The Lesson Taught by a Few Hard Cases," by W. E. Dold, White Plains, N. Y.; "Hospital Treatment for Acute Insanity," by A. B. Richardson, Columbus; "The Boarding Out System in America. Why Not?" by G. Alder Blumer, Utica, N. Y.; "Incipient Melancholia—Its Diagnosis, Prognosis and Management," by John Punton, Kansas City, Mo.; and "Experimental Mania," by T. J. W. Burgess, Montreal, Canada.

Dr. MACDONALD reported that he had represented, as commissioned, the Association at the British Medico-Psychological Association and International Medical Congress.

Dr. BURGESS moved that Dr. Macdonald be delegate to the British Medical Association and British Medico-Psychological Association the coming summer. Carried.

Therapeutic Castration is the term applied by Rivière to the effect of thyroid medication in a couple of cases of arthritic obesity. The genital functions seemed to be suspended during the months of treatment, a phenomenon not noted before, but suggestive as extending the indications for the treatment to congested prostates.—*Semaine Méd.*, April 27.

Chicago Academy of Medicine.

Regular Meeting, March 18, 1898.

(*Continued from page 1294.*)

JAMES G. KIERNAN, M.D., in the Chair.

THE EFFECT OF PREGNANCY UPON TUBERCULOSIS.

Dr. C. E. PADDOCK—What effect has pregnancy upon tuberculosis? The usual answer to this question and the popular opinion is, that the result is beneficial; that the patient takes a new lease upon life. That this opinion is based upon good grounds is shown by numerous examples which any of us may recall. When we remember the changes which occur in the pregnant woman, it seems all the more plausible. We find an increase in the blood supply; the organs generally are more active; the skin becomes more hyperemic; the urine is increased in amount; the heart is enabled to meet the greater requirement which the condition demands. These changes are placing the woman in the best possible condition for the ordeal. In a tubercular pregnant woman we have emaciation, lowered vitality, anemia and every outward evidence of disease. The changes taking place, as enumerated, to prepare her for maternity, are unable to meet the requirements.

Normally, pregnancy is a physiologic process, but it borders so closely upon the pathologic that we are often called upon in the course of the pregnancy to give advice or treatment. For instance, the nausea, which occurs with such a regularity that it is largely considered in making our diagnosis as to the probability of a case of pregnancy. Ordinarily this does but little harm and yields to treatment. In a tubercular case, however, it is not so easily controlled, and in such cases has a very unfavorable influence. The woman's power of resistance would be lowered and the progress of the disease hastened. Not so much attention to this subject has been given as we would naturally expect, and our text-books hardly give it a thought. So far, scientific investigation does not aid us in determining the question as to the effect of pregnancy upon phthisis, and we must rely upon statistics and our personal experience.

In looking over the cases reported I find them about as this:

Case 1.—Patient pregnant two months, anemic, poorly nourished, tubercular. Dies before child is viable.

Case 2.—Same as No. 1. Lives to deliver child at term, and dies in a few weeks.

Case 3.—Pregnant, missed one period, tubercular. No external symptoms of the disease. Child born at seven months, dead. Mother lives but a few days.

Case 4.—Pregnant two months. Emaciated, every external evidence of the disease. Gave birth to a vigorous child. Lives to become pregnant again, but succumbs to the disease.

Now, these are every-day cases which come to our notice, and these are the cases we find reported in looking up this subject, and are of very little assistance. I believe, ordinarily, pregnancy does exert an unfavorable influence upon tuberculosis. It is often unwelcome. The patient becomes morbid. Soon we have nausea with loss of appetite; the patient refuses to take proper exercise, and everything is favorable to the progress of the disease. Her power of resistance is lowered and the vitality is not sufficient to support two beings. There are cases which surprise us in every branch of medicine. Notwithstanding our unfavorable diagnosis, they recover. So also there are cases in obstetrics that are tubercular and accompanied by pregnancy which seem to improve. But these cases are rare. Where we find one of such we will find one hundred made worse by gestation.

Having a case of tuberculosis complicating pregnancy, what is the proper treatment to pursue? Shall we interrupt pregnancy or leave the case to nature? I report two cases in my practice:

Case 1.—American; 30 years; blonde; never robust, but always considered in good health; four children in five years, fifth pregnancy occurring six months after last child was born; dulness in right apex, no cough, slight evening temperature; abortion at second month after consultation, patient anesthetized, cervix dilated with Hegar's; curetted.

Following this, the patient seemed to have a little more temperature, there being a slight rise both morning and evening; seemed to take a mild typhoid course for four weeks; no pelvic trouble; recovered slowly and soon went to the seashore and White Mountains in apparently good health. After an absence of eight months she returned four months ago; both apices involved; sent to New Mexico; has received no benefit, and death hourly expected.

Case 2.—American, age 24 years; blonde; second pregnancy; active, apparently healthy and great endurance. Two months previous to second pregnancy glands in neck were removed; tubercular; no other evidences of the disease. Pregnancy was complicated in the last month by hydramnios. A few months after delivery the patient left the city in apparent good health. Two years from date of delivery she died of pulmonary tuberculosis.

Case No. 1, I believe, was helped by the induction of abortion. I was enabled to institute treatment which would have been impossible in the pregnant state. In the second case the progress was certainly interrupted, but can we say that pregnancy was the cause of it?

In 1890 Dr. William Duncan[1] reported a case of interruption of pregnancy in a tubercular woman. This communication provoked a discussion which was, with but one or two exceptions, opposed to his line of treatment. Drs. Priestley, Routh, Playfair, Napier and others took part. Dr. Routh thought that most obstetricians had observed that the progress of lung destruction was at a standstill during pregnancy, but became very active during lactation. Dr. Playfair believes "that in the greater number of cases the mother is doomed, and everything should be done in the interest of the child. To say that pregnancy should be interrupted in any stage of phthisis and at any period in pregnancy is too broad a statement and gives too much latitude to the physician, and should not be tolerated." Cullen of Edinburgh asserted that phthisis in pregnancy was suspended or retarded, and such was the belief by others for years until M. Gaulard of France, took the other side and made the positive statement that there is no interruption in the progress of tuberculosis in pregnancy any more than there would be interruption of any other disease in the same condition. Dr. Priestley,[2] in a paper read before the London Obstetrical Society in 1880, laid it down as a rule "that abortion was only a legitimate operation when the life of the mother was imperiled by the continuation of pregnancy, emptying the uterus presenting itself as the only alternative to save the patient."

What evidence have we that this does prove the only means of saving the woman? and again, if we do produce abortion, what excuse have we for not doing it again and again? Once in a great while we will encounter a case who lives a long time and, as these cases of phthisis for some reason conceive very rapidly, if we operate once we will be called upon in such a case to do so again. There is not evidence enough to warrant us in asserting that the interruption of pregnancy means a saving of the life of the mother, and neither can we justify such a procedure by saying that an inferior child would be brought into the world.

My case No. 1 is not unlike nearly every case I can find recorded. The case was only benefited temporarily. A fetus was sacrificed which might have developed into a healthy child, for not all children born of tubercular parents are themselves tubercular or puny. I can see no justification for such treatment.

My conclusions are based upon clinical facts as presented by others and upon my personal observation:

1. Pregnancy does exert an unfavorable influence upon tuberculosis in the majority of cases.
2. That the case is progressive and not arrested.
3. That only in exceptional cases, as in advanced tuberculosis with the child viable and mother about exhausted, are we justified in terminating pregnancy, and then only after a consultation with two or more reputable physicians.

GENERAL REMARKS ON TUBERCULOSIS.

Dr. ROBERT H. BABCOCK—We should regard pulmonary tuberculosis and consumption as somewhat different. The former is a pure and unmixed infection, which is amenable to treatment. It is in this stage of the disease, when the infection is unmixed, that we get our cures. Consumption is a mixed infection, and when this secondary infection has advanced to any considerable degree, the prospect of an arrest of the disease is bad. Our efforts, therefore, should be addressed to the recognition and treatment of pulmonary tuberculosis while it is still tuberculosis, and not consumption.

I was greatly interested in Dr. Paddock's paper concerning the influence of pregnancy upon phthisis, and agree with him fully that the course of the disease is unfavorably affected by pregnancy. I should go farther, however, and say that in my experience, although I have no statistics and have not had time to look up my records, pregnancy can be regarded as an etiologic factor in the production of pulmonary tuberculosis. Women with an hereditary predisposition to consumption, certainly in my experience, have the disease hastened and often developed while carrying the child. I have frequently observed cases, have in mind one now, in which pulmonary dis-

[1] Dr. Wm. Duncan: Trans. London Obstet. Soc. 1891, Vol. xxxii, Lancet, 1890, p. 134.

[2] Dr. Priestley: London Obstet. Soc., Vol. xxii.

ase developed within a few weeks after parturition, before the njurious influence of lactation could be manifested. I do not agree therefore with those physicians who recommend pregancy to women of tubercular tendencies, on the ground that t will prove a physiologic tonic. They are too frequently in a state of lessened nutrition to stand the further drain made upon heir vitality in nourishing their children, and in such an event ulmonary tuberculosis is very likely to supervene.

Hemoptysis is one of the symptoms of pulmonary tuberculoiis which is justly regarded, both as a serious one, and also ooked upon as a symptom that ushers in pulmonary tuberculosis. I shall briefly speak of two cases of hemoptysis that ave recently come under my observation. One was a male who consulted me the day after he had twice expectorated blood he previous evening. Examination of his lungs was negative, although I was not altogether pleased with the findings in the ight apex. He was sent to a throat specialist, who reported large number of dilated veins in the pharynx, larynx, and far lown in the trachea, some of which showed evidences of recent upture. I believe this was a case of what Powell designates alse hemoptysis, and that the patient was not tubercular, but o settle the question I gave him three diagnostic doses of old uberculin. The result proved the correctness of my opinion, or none of these injections was followed by any reaction whatver. The second was the case of a female who had expectorted blood at intervals since December last. Examination of er chest was negative, except that at the left apex the respiatory sounds seemed to me not quite as vesicular as they hould be. Her throat was also examined, with the result hat some dilated veins were found at the root of the tongue. hree injections of tuberculin at proper intervals were given o this patient with the same result as in the other. There as absolutely no reaction, the temperature having been in his case, as well as in the other, taken regularly, and faithully recorded.

These cases illustrate the importance of careful investigation f those cases which consult us because of hemoptysis, and a autious opinion that they indicate the incipiency of tuberculosis of the lungs before they have been sifted to the bottom, nd the presence of the disease established, or satisfactorily nown not to exist.

The more experience I have with pulmonary tuberculosis, the ore impressed I am with the fact that we are likely to meet ith surprises. We not infrequently encounter cases of acute hthisis which are illustrations of acute, confluent, tuberculous ronchopneumonia, in which the patient loses strength and naciates rapidly; the lung rapidly goes on to softening and cavation, and there seems to be every prospect of a fatal terination within a few weeks. At length, however, just as it ems the patient's strength can not hold out much longer, the ng begins to give evidence of a change for the better, the mptoms improve, and the patient ultimately develops a case chronic phthisis, and under a favorable environment in a oper climate may even have an arrest. The cases which to y mind furnish an absolutely unfavorable prognosis from the art are those in which there is a disseminated peribronchial berculosis with secondary bronchitis. The persistent elevaon of temperature; the paroxysmal and uncontrollable cough; e rapid wasting and loss of strength, all the symptoms, in ort, are out of relation to the fewness of the physical signs served. These are the cases which resist all treatment.

I have used Dr. Fisch's serum in six cases. In five the sults have been highly gratifying. In one, a young man who me to me with hemoptysis, last July, and in whom there were gns of incipient disease of the left apex, bacilli were found in e very scanty sputum. This young man was placed upon the e of this serum in September last, and it alone, with the sult that today the signs in the left apex have almost disapared. In other words, the active disease process in that apex s disappeared, and there are only left the signs of the ordiry fibroid transformation which takes place in some of these ses. So gratifying was the result of treatment that about o weeks ago I decided to give him tuberculin for the purpose deciding whether or not immunity had been established in case. Two test doses were given without any reaction. A ird test dose of ten milligrams of old tuberculin were admined, and for twenty-four hours there was no reaction whater; then suddenly reaction took place, demonstrating that system was not rid of the disease. Several careful examions of his lungs, since then, have shown absolutely no irrition from the tuberculin in the former seat of pulmonary dise, and therefore I am forced to the conclusion that in his e there is glandular infection, probably intrathoracic, to ich the marked reaction is to be attributed.

nother case was that of a man, whom I first saw last April, h disease of the left apex, and who, under ordinary constitutional treatment, improved somewhat during the spring and summer, and reappeared at my office for examination in September with every evidence of extension of the disease in that lung. General measures had failed to do more than to hold him *in statu quo* up to that time. I advised a trial of the serum. He discontinued everything in the line of treatment, such as hypophosphites, cod liver oil, etc., and took the serum, with the result that by Christmas all signs of active disease in the left lung had disappeared. Resonance had returned in a very gratifying manner, and there were left evidences of only a small cavity with some surrounding induration. His weight had improved beyond any previous weight he had ever attained, and he considered himself so well that in the middle of January he suddenly discontinued treatment, before I believed he was perfectly cured. The result is that two weeks ago, he had hemoptysis. I have not seen him since, and know not the source of the hemoptysis.

(To be continued.)

SELECTIONS.

Response to the Toast "The Babies."—Dr. I. N. Love of St. Louis, at a banquet given at St. Louis to the General Passenger Agents of the Southern and Western Railways, April 30, said: "We fathers too often desert the field and leave our wives alone to look after our babies, and this is wrong. The father is more closely related to the baby than he realizes, is indeed *particeps criminis*, in other words, equally responsible with the mother, but in the majority of instances we shirk our duty and throw the burden upon the shoulders of the one already weary in well doing.

There is no power that could make the mother waver in her performance of duty to her child. It is not always so with the father, but it should be. No more serious question confronts us than "the babies," and there is no question that should command a greater part of our best thought. We should remember that the baby is shot into this cold and cruel world without having been consulted either as to whether he wanted to come, what particular place he would like, what special kind of environment, or what individual equipment he would desire. Indeed, he is not consulted at all as to the coming, but oftentimes after arriving here he is consulted more than he should be as to his own proper management. The preceding proposition being true, surely the physical authors of the babies' being should appreciate the fearful responsibility they have assumed. They should determine to make it the business of their lives to develop their child in the right direction, physically, mentally and morally.

In the early part of the baby's existence he is largely a "vegetable"; he then becomes "animal," and later the "spiritual" begins to develop. The fullest opportunity should be furnished for the most complete vegetable and animal development possible, and to this end the rules of hygiene and health are of vital importance. The baby that is properly fed, and the mother usually takes care of this part of it, thrives, but the father should remember that during this period he himself should assume more than his usual share of the burdens. He should realize that the, to him, sweetest object on earth, the mother of his child, has a dual nature; that she has intellectual and fruit-bearing functions; that during the period when she is engaged as a fruit-bearer and doing her duty to her child, she should be relieved of the mental burdens that otherwise might fall to her, and receive more petting, fondling, coddling than usually falls to her lot. Fathers are too often so completely absorbed in money getting that they neglect to get acquainted with their babies. It has been said that it is a wise child that knows its own father, but I think indeed it is a wise father that knows his own baby and continues to know him from the time that he comes into the world until either the one or the other leaves it.

How few fathers cultivate the right kind of friendship between their children and themselves? Let us really make our babies feel and know that we are their best friend, next to their mother, on earth, and if we make them believe this we will have in our children our best friends. Let us treat our

baby friend the same as any other friend, respectfully, considerately, courteously, tenderly, generously, and when principles of right are involved, firmly, stubbornly even, and bend them in the right direction, and bend them early. Let us help the mother realize that all the coercion of a physical nature ever needed with a baby is before it is two years of age. The most important lesson a baby can learn is obedience. A puppy dog five days old can be taught to obey through physical punishment, and a baby need not be very old to be taught in the same way. Severity is never necessary, but a gentle firmness, a consistent stubbornness upon the part of the parent to secure absolute obedience as a regular habit of life, is essential.

We should teach our baby, first of all by example, to be just; to be kind; to be honest; to be sincere; to be polite; to be considerate of others; to be truthful. We should teach him, too, that reciprocity, the new golden rule, "Be good to all who are good to you," is essential to salvation in this life. We can early saturate the child with the full knowledge, a complete grasp of the meaning of the word reciprocity. Teach him that it isn't honest, that it isn't manly to accept favors from others selfishly and not reciprocate them to the fullest. With this thought in mind the child will feel and know that the kindness, the fostering care given him by his father, must be returned, and it will be returned with interest. The father who neglects his child is putting a mortgage upon the latter years of his own life and that of his child, and frequently foreclosure will come when least expected, and when he is least prepared to meet the burden involved.

Let us prize more highly the good opinion of our child and its mother than that of any other creature this side of heaven. Yes, gentlemen, let us feel that it is more dishonorable to neglect the coupons that have come to us from our matrimonial bonds than to neglect any business obligation on earth. I admire the man highly who has the courage to face the wide, wide world with the thought that he proposes to capture everything in sight within the limits of right, even though misunderstood, condemned, disliked, and yet who, when he faces his family, his babies, faces those who know that he is the dearest, best, most faithful, just and generous creature underneath the stars. Business pursuits and professional duties become seriously absorbing at times and prompts us to neglect the loved ones near us in a manner that we little dream of. We must determine, then, we big babies, to go hand in hand with our little ones all along the valley, up the hill and down the hill again, and as we make the journey, if we do our share we will be cheered and comforted when we approach the setting sun. Then here's to us all, babies as we are. Yes, we come into this world puling, puking infants, naked and bare; we go through the world puling, puking infants, each with his own share of sorrow, trouble and care. We go out of it puling, whimpering, helpless infants, faint, feeble, tottering, God in His infinite, omnipotent wisdom only know where, but all along the road if we are thoroughbreds here, we will be thoroughbreds there!

A Climacterium in Males.—In many males, there is manifestly a physiologico-critical period about the beginning of their fifth decade. This change of life is one primarily associated with nutrition. The digestive and assimilative functions begin to slow down between 40 and 50 years of age, and the organism as a whole, undergoes a readjustment. If the digestion remain active while assimilation becomes less perfect, an increase of weight, due to accumulation of fat, takes place. If, on the other hand, digestion is the first to fail, symptoms of dyspepsia, with associated loss of flesh, characterize the period of transition. It is in athletic individuals of active muscular habit that the manifestations are most marked. A time arrives when lessened nutrition renders it impossible to maintain the normal activity of the muscular system. The eliminatory organs perform their function less perfectly, and the processes of disassimilation are hindered. The accumulation of the products of metabolic tissue change in the system, reduces the vitality of the subject and indisposes him to the routine amount of exercise. If the subject fail to grasp the significance of these sensations he renders himself liable to various functional disturbances which may culminate in organic disease of the organ or organs most exposed to the strain. Even if he yield to the pressure put upon him, it takes some time for the muscular and vascular systems to tone down to the reduced standard of vitality, and during the period of adjustment he is apt to suffer from a variety of more or less distressing feelings; which not infrequently determine mental depression. The change is not unlike that holiday spent in active physical exercise. There is the same want of harmony between nutrition and muscular exertion, but, in the waning adult, there is, of course, the factor of increasing arterial rigidity and general loss of tone on the part of the tissues. The so-called "critical period" is only critical in so far as the readjustment of the organism to changing conditions is interfered with. Those who have always led a sedentary life are less subject to these disturbances than the more robust and actively disposed. Once the harmony of the functions has been restored the individual resumes his normal existence, though on a lower scale, and he ceases to be liable to the visceral engorgements which are apt to resort from "retrogressive irregularity."—*Medical Press and Circular.*

PRACTICAL NOTES.

Chambellan's Rhino-pharyngeal Speculum can be managed with one hand, as the mirror is adjusted by a screw turned by the thumb without effort, leaving the other hand free.—*Bull. de d'Acad. de Méd.*, April 26.

Soothing Pomade For Congestive Alopecia With Cephalalgia.—(Leistikow.) Tinct. cantharides, 3 grams; chloral hydrate, 2 grams; lanolin, 5 grams; vaselin, cherry-laurel water and lime water, āā 10 grams. For external use.—*Semaine Méd*, May 4.

Physiologic Inferiority of the Tissues.—Tuffier considers movable kidney, dilatation of the stomach, enteroptosis, varicocele, etc., evidences of a congenital inferior vitality of the tissues, which requires medical and especially hygienic treatment, with surgery the last resort.—*Progrès Méd.*, April 30.

Ether Spray For Hypertrophied Spleen has proved extremely efficacious in relieving the respiration, the congestion of the organ and the pain, in twelve new observations of malarial hypertrophied spleen. The left half of the abdomen was sprayed twice a day with 25 to 30 grams ether, and in about a month the spleen was reduced to normal size.—*Semaine Méd.*, May 4.

Gastrorrhagia in Chlorotics cured by immobilization of the stomach is reported by Cipriani; three cases. After the failure of other measures the hematemesis was promptly arrested by a compressing bandage applied around the body over the stomach, combined with rectal alimentation, nothing allowed to pass the lips. The extreme thirst was met with injections of salt solution and the hunger by a subcutaneous injection of cocain which produced complete anorexia.—*Semaine Méd.*, April 27.

Artificial Serum in Epilepsy is advocated by M. de Fleury, who ascribes the etiology in many cases to auto-intoxication, which he combats with appropriate diet and lavage of the stomach and bowels, treating the circulatory apparatus by cardiac medication and artificial serum, possibly venesection. The injections of serum augment remarkably the effect of the bromid which he combines with them while increasing the diuresis, raising the arterial tension and maintaining the integrity of the intellectual functions, etc.—*Gaz. Méd. de Liège*, May 5.

Precision in Fluoroscopy.—A foreign body can be located much more accurately if the spot where it is apparently located is marked on the skin on the side toward the screen and also on the side toward the tube. Professor Angerer uses for this purpose a metal ring mounted on a handle, on pressing a button in the handle a colored pencil protrudes at the exact center of the ring and marks the spot. Changing the position of the tube and marking the spots again, shows the precise location of the foreign body. If the marks are closer together on one side than the other the body is nearer the surface on that side. Its position in regard to each surface can be found exactly by the formulæ: A (distance between the marks on one side) $\div$ A + B (distance between the marks on the other side), and B $\div$ A + B.—*Cbl. f. Chir.*, May 7.

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SATURDAY, JUNE 4, 1898.

THE DEADLY CAMP FEVER AND ITS PREVENTION.

During the past two months we have heard much of the danger to which our troops will be exposed from yellow fever in their expected invasion of Cuba, but nothing has been said of the future possibilities of a disease which during our Civil War affected every newly raised regiment soon after it went into camp. Typhoid fever was the camp fever of the Civil War. In the year 1861-62 it struck down 78.62 and killed 1.55 out of every thousand white men serving in the army. It was a deadly disease under the conditions then existing in the field, for of every hundred cases 7.90 proved fatal among the white troops and no less than 55.69 among the colored men. It was not a disease of certain months or certain seasons, for, as shown by Dr. SMART in a diagram facing page 20 of the third part of the medical volume of the History of the War, the highest crests of its several waves of prevalence and fatality corresponded with a period about two months after each of the calls made by the President for the raising of new levies. Again the President of the United States is issuing his proclamations for troops; again new regiments are being formed and concentrated in camps of organization and instruction, and already from these camps comes the newspaperer's information that everybody is well with the exception of one or two men who are in the hospital under treatment for typhoid fever. We know more about this fever now than we did then. We know that it is mainly propagated by the water supply; and in looking back we can see how it came about that the camps of both the Union and Confederate Armies were ravaged by typhoid fever. A single regiment in an isolated camp may be able to preserve the purity of its water supply, but when twenty or thirty thousand men are camped in the same locality it is a difficult matter to prevent the drainage and filth of one regiment or brigade from contaminating the water-supplies of other parts of the command. Strict sanitary rules should be made and enforced concerning the use of the sinks that there may be no surface deposits to be washed by the next rainfall into streams used as drinking supplies. This is very well as a general sanitary measure against other diseases as well as against those that are water-borne; but there are special methods of preventing the spread of typhoid fever among the susceptible young men of the new regiments. There are special methods of purifying the water from this dangerous infection but each of the methods requires the expenditure of money for its installation and the exercise of much care to obtain satisfactory results. The Subsistence Department provides the soldier with hard-bread, bacon, coffee and many other articles constituting his field ration and each of these costs money; but the soldier's right to wholesome articles of diet has never been questioned. Should his right to be furnished daily with a ration of wholesome water be questioned? Water is more urgently required in the animal economy than food; its deprivation is expressed by symptoms of greater intensity and its frequent impurity is liable to cause disability and death. The troops in the field should be protected against this. The history of the volunteers called out by President MCKINLEY should show no such high crested waves of mortality from typhoid fever as that of the volunteers called out by President LINCOLN. Expense should not be considered when the well-being of the fighting men is concerned. It will be more than covered by the money hereafter saved in appropriations for pensions for disabled soldiers and dependent relatives. The soldier should be deemed entitled to a ration of water and the subsistence or some other department should be held responsible for its issue and its purity. We believe something of the kind will be done as an appreciation of the importance of pure water has of late been growing rapidly in the public mind. At our military posts, in the time of small economies "before the War," using this phrase in its application to current events, our medical officers were accustomed to recommend the boiling of their doubtful or suspicious water-supplies; but other methods of treatment giving pure and palatable results are available if the price be paid. Investigations have been completed, under the direction of the Surgeon-General in the laboratories of the Army Medical School, into the efficiency of certain suggested methods of purification which will, we hope, result in giving pure water to the troops and in lessening the death roll from typhoid fever.

THE CIGARETTE EVIL IN ITS MILITARY ASPECT.

A newspaper statement that in the medical examination of volunteers to meet the President's call to arms, a very large proportion, it is said as much as 90 per cent., of habitual cigarette users were rejected, has brought out considerable comment and some attempts at refutation of the charge against the popular indulgence. Even prior to the outbreak of hostilities, however, the question of the sanitary dangers of cigarettes was a living one, and it is not long since that an extended symposium, so to speak, upon the subject was published in one of the New York professional publications. In that the general consensus of opinion appeared to be that the maleficent effects of the habit have been very largely exaggerated before the public, and that the evil, if it be such to any extent, was not by any means deserving of all the condemnation it had received. If, however, the army examiners' experience is truly stated, it can not be denied that there is in it an element of national weakness that deserves the most thorough consideration. If 90 per cent. of cigarette smokers are unfit for military service according to the reasonably strict standard of army recruiting officers and examining surgeons, any extensive generalization of the habit is a matter to be most profoundly deplored.

There is before us another item bearing on this subject that emphasizes the danger, if such it be, of the use of cigarettes. It is said that the increasing mortality in the French army, which is stated to be steadily on the increase, is largely due to pulmonary affections that are themselves favored by the general habit of cigarette smoking. Other presumable causes are not more active than they were a few years ago, but this one evil seems to be constantly gaining ground and is therefore held as mainly responsible for the increased mortality from lung disorders in the French army.

Allowing full value to the possible inaccuracy of newspaper statements there is some occasion for serious thought in these items. Where there is so much smoke, to use an old saw, there must be some fire; the ever resilient popular belief in the dangers of cigarette smoking must have some foundation. It is certainly not altogether due to fanatical reformers to whom every form of stimulant or narcotic is an evil to be fought, for it has a much wider advocacy than can be found in that limited coterie. For a while it was maintained by some that the adulterations of the cigarette were the source of danger, but this has been practically given up as not supported by the facts—the average cigarette tobacco is no worse, if no better, than that indulged in in other ways. The peril seems to be in the facility the practice affords for unlimited indulgence, and perhaps it may be added, in the very common habit of cigarette smokers of inhaling the smoke, thus enlarging the area of absorption, facilitating the narcotization and very possibly also producing deleterious local action in the bronchi and lung tissue that will, under favoring conditions, afford a more ready point of least resistance to the action of morbid germs. The very mildness of the grade of tobacco used is itself an aggravation of the danger, as has been pointed out by some of those who have discussed the subject, since it tempts to and makes more easy the pernicious practice of smoke inhalation. That this is a pernicious practice hardly requires argument, since it is plain enough that the larger the absorbent surface the more prompt and decided will be the narcotic action, and the combined effect of this with the more constant or frequent usage of tobacco that the cigarette habit favors, can not fail to be injurious to the nervous system whatever the grade of the tobacco or whatever individuals may say to the contrary. There is here a field for psychologic studies in our hospitals and laboratories and, from what has already been done in this direction, there is little doubt but that such researches will confirm the unfavorable opinion so commonly extant in regard to this habit of cigarette smoking as opposed to other forms of tobacco usage. The direct mechanical effect of smoke-inhalation in producing a pneumokoniosis or tabacosis is also worthy of consideration; it is possible that this has a direct weakening effect upon the lung tissue, reducing its power of resistance to germs and thus accounting for the alleged increase of mortality from pulmonary disorders in the French army.

Taking all the facts and all the possibilities together, it would appear that in the extension of the habit of cigarette smoking, with its consequent tendency to excess in tobacco narcotization, we have an element of danger to the community the greater because of its increase among the young and immature. The practice was originally a Spanish one, and it suggests a query whether the misfortunes of the Spanish nation may not be due in part to a race degeneracy thus produced. If so, it will be well for us and other nations to take warning from their example. In these days also, when wars are still in fashion, whatever can diminish the military strength of a people is a national calamity.

UNFIT FOR MILITARY SERVICE.

Since the closing days of the month of April the energies of a large number of medical men have been devoted to weeding out from the candidates for military glory, those who from any cause seemed likely to break down under the exigencies of an active campaign. The responsibility for much of the delay which has occurred in the mustering in of companies and regiments, has been placed upon these officers who have been charged with unnecessary strictness in excluding men for trifling defects. The Army requirements, as published in a recent recruiting circular, are that the limits of age should be eighteen and thirty-five years; the height for all arms of the service not less than 5 feet 4 inches, with a maximum limit of 5

feet 10 inches for the cavalry; the weight for infantry and artillery from 120 to 190 pounds, and for cavalry not to exceed 165 pounds. No minimum weight is prescribed for the last mentioned arm, but the chest measurement is required to be satisfactory. From 5 feet 4 to 5 feet 7 inches the measurement at expiration should be 32 to 33 inches, with 2 inches of mobility; from 5 feet 8 to 5 feet 11 inches, 33 to 34¼ inches, with 2½ inches of mobility, and men of 6 feet and over, about 35 inches, with 3 inches of mobility. These are not unusual requirements. Moreover, examining boards were authorized to accept men otherwise eligible who did not conform exactly to the figures given in the circular. Nevertheless it appears that so many men, including some of local repute as athletes, have been rejected as unfit, that the daily papers have taken note of the subject and assumed that the proportion of rejections was as unusual as it was unexpected. They endeavor to explain it by suggesting a decadence in the physique of American youths, owing to the prevalence of the cigarette habit, or by holding the bicycle responsible for heart strain, and its low handle bar for round shoulders and deficient chest measurement. But the percentage of rejections, when officially published, will probably be found to be much smaller than the newspaper articles would lead us to expect. For several years past about 15,000 candidates for enlistment have been examined annually in keeping our small Army up to its peace strength of 25,000 men, and nearly one-half of these candidates have been rejected as unfit for military service. It is hardly to be supposed that men obviously unfit would have presented themselves for examination, yet one-half of those who evidently considered themselves able to do military duty were not so considered by the medical and recruiting officers. In time of war we should expect the percentage of rejections to be increased because in view of the privations, exposures and fatigues incidental to field service in actual war, the minimum of physical qualifications should be raised rather than lowered, chiefly because the lowering of the age limit from twenty-one to eighteen years permits many to come up for rejection on account of defective physique, whose age in time of peace would have barred them from consideration. We are confident however, no matter what the percentage may be, that the medical men engaged in this important work have done their duty faithfully and well in the interests of present efficiency and the protection of the pension rolls of the future, from cases of disability wholly due to causes existing prior to enlistment.

THE SYNOVIAL MEMBRANES.

A recent article concerning researches in the etiology of articular rheumatism, recalls those lately carried on by Vienna investigators. Their work was directed not only toward discovery of the causative factor of rheumatism, but to determine why the joint forms a *locus minoris resistentiæ*.

The histologic studies of HOFBAUER led him to the conclusion that the low resisting power was due to the structure of the synovial membrane. Not only is it very vascular in all its layers, but its vessels passing close to the joint surface, from which they are separated by a thin layer of tissue, bend on themselves and pursue a tortuous course directly under, and parallel to, the surface of the joint. Some authors assert that the capillaries extend free into the joint cavity, covered only by synovial cells. He failed to confirm the findings of BUDAY, viz., that the endothelial cells lining the capillaries protrude into the lumen; that the more swollen these cells and the less firm their union, the more uneven the inner wall of the capillary, thus forming little depressions between the cells which render especially favorable the lodgment of floating bacteria. BUDAY believed that joint metastasis occurs only by embolism, with suppuration, necrosis and breaking down into the joint.

HOFBAUER holds the opinion, based on his histologic investigations, that the rich vascularity of the synovial membrane and the arrangement of the capillaries account for the frequency of joint lesions in blood infections and intoxications. In the former the lesion is due to embolism, or the direct passage from capillaries into the joint. That this is possible, he (as have also others) has been able to verify by experiments on animals. The arthritis of gout, as well as the joint swellings sometimes following the use of antitoxin, illustrates the affections of blood intoxications.

The histologic researches of HOFBAUER have been especially supportive to the bacteriologic investigations of CHVOSTEK. The latter has resorted to similar experiments on animals to determine the permeability of the synovial membrane, and he found microbes in the joint sixteen hours after injection of the animal with the same. On the other hand, his bacteriologic examinations of joint effusions, and microscopic examinations of synovial membranes, have proved negative, as has also the blood of rheumatic patients. His negative results are confirmed by other authors, some of whom even state that a positive finding speaks against rheumatism. CHVOSTEK, therefore, assumes that, in view of the easy permeability of the synovial membrane and the failure of finding any microbes in the effusion, membrane or blood of rheumatic patients, the joint changes are due to toxic substances which would pass as easily as would the microbes. He does not deny that the toxins are produced by germs, but asserts that they are not demonstrable in joints or blood.

SINGER believes rheumatism to be a variety of pyemia, citing a series of cases with examinations of joint contents with positive bacteriologic results, as well as positive findings of blood in 15 per cent. of the

cases. He lays especial stress upon the erythema multiforme occurring in rheumatism, comparing it with the eruption of pyemia, in which he has found staphylo- and streptococci. He regards the erythema as a skin localization of circulating microbes (the cases of purely nervous form being excepted), and maintained that the researches of HOFBAUER are equally supportive of his findings as of those of CHVOSTEK, claiming that the presence of microbes in joints is not necessarily demonstrable, as they may be few in number, or remain as sediment in the joint.

It is evident that the methods of one or the other of these investigators have been defective, as their findings stand in striking contrast, and such decided differences in results could hardly be referred to defective diagnosis by SINGER. Both concur in the opinion that the blood acts as the transmitting medium for the cause of the local change. With this premise one would expect the blood would give positive results at some stage of the disease. This many others beside CHVOSTEK have failed to find, while in 40 per cent. of the cases of pyemia where the blood has been examined by various investigators, microbes have been found.

No less interesting than the discovery of the indisputable cause, would be the establishment of the identity of the same in the various clinical manifestations now attributed to this undetermined factor of rheumatism. The endocarditis, the chorea, the pleuritis and the pericarditis that may occur singly or collectively, co-incidently, preceding or following an articular rheumatism, are daily experiences of clinicians.

The following case may serve as a sample of some of the various complications:

A boy 10 years of age was admitted to the hospital in June of last year. His history in brief was as follows: About six weeks before he was seized with pains in several joints, which became swollen and very sensitive on pressure or motion. A physician called at the time made the diagnosis of rheumatism. Under treatment acute symptoms subsided and the boy was around and playing after a few weeks. About this time his parents observed jerking movements of arms and legs, which gradually became more aggravated until entrance into the hospital.

Physical examination.—Child of average size for his age; nutrition fair; slight rachitic changes in skull and legs; all joints are freely movable, painless and free from effusion; articulation normal; choreic movements of arms and legs; lungs negative: heart on palpation shows apex in the fourth intercostal space and the width of one and one half fingers outside of the mammillary line; no tremor. Percussion: Upper border of dulness corresponds to lower border of third rib; left coincided with apex; right less clear note over lower part of sternum than upper but absolute dulness on left sternal border. Auscultation: Loud systolic murmur over apex, decreased in intensity toward base; second pulmonary tone accentuated. A few days later a presystolic murmur was also heard over apex. After an interval of several days auscultation gave a similar result to that found on entrance; liver and spleen dulness normal. Examination of sensibility showed right hemi-hyperesthesia, which afterward disappeared. Temperature varied from one to two degrees above normal; pulse 80 to 90, with no qualitative changes.

Diagnosis.—Acute endocarditis with mitral insufficiency, chorea; hemi-hyperesthesia regarded as hysterical. The diagnosis of endocarditis was based on the changeableness of the auscultation signs, no weight being attributed to the percussion findings because of patient being a child with high-standing diaphragm, placing apex in fourth interspace. From this circumstance it would normally lie outside of the mammillary line, though the case in point slightly exceeded the limit of this. After the patient's entrance into the hospital the choreic movements subsided, but did not disappear. Three to four weeks later they became more marked and the patient complained of pain in the right side and later of pain under the lower part of the sternum. Examination of chest showed on right side, posteriorly, absolute dulness eight fingers' breadth above the previously determined lung border; left side unchanged; heart dulness the same, with the addition of pericardial friction-rub, heard loudest along the sternum and over the base. Later examinations showed the characteristic increase in the heart's dulness accompanying a pericardial effusion. This was not to be clearly defined on right border because of its merging into dulness of pleuritic effusion. Aspiration gave a serous fluid. Present diagnosis, chorea, mitral insufficiency, pleuritis with effusion, pericarditis.

Traced from the first illness, that of articular rheumatism, we have successively developing endocarditis and chorea. The order in which these occurred must remain a matter of conjecture. Clinical experience shows that these three affections may alternate in any order, which circumstance would tend to confirm the identity of their etiology. The later development of inflammation of the pleura and pericardium showed these serous surfaces to have more resistance than the more susceptible synovial membrane.

It seems reasonable to assume that the etiologic factor had not been eliminated, nor had it ceased in its activity, as the clinical symptoms at no time entirely subsided.

A ROYAL ARMY MEDICAL CORPS.

For many years past the grievances of the medical officers in the British service have been of such a character as to enlist the sympathies of the medical profession. All the great medical schools have been in the habit of discouraging their students from entering into the open competition for service in the the Army Medical Staff. The standard of efficiency has thus been lowered, while more than 10 per cent. of the authorized positions have remained unfilled. As the Army, in consequence, has not enough of medical officers to meet the ordinary requirements of peace, the question of what would happen in the event of a serious war has been a subject of anxiety both to the medical profession and the War Office Authorities. A committee of the British Medical Association some time ago formulated the grievances of the medical staff and the demands of the profession. The medical officers of the army complained that while they had no longer that connection with individual regiments, which formerly gave them a recognized status and a social intimacy with their

combattant colleagues, they have been compensated by no substantive military rank, the relative rank given them with the cumbersome titles of surgeon-colonel, etc., having proved to be inadequate to raise their status above the level of a civilian serving with the army. The English papers of May 5, 1898, indicate that these unsatisfactory conditions will soon be remedied. At a banquet given at the Mansion House by the Lord Mayor to Sir SAMUEL WILKES, President of the Royal College of Physicians, Sir WILLIAM MACCORMAC, President of the Royal College of Surgeons, and the leading members of the medical profession, the Secretary for War, Lord LANSDOWNE, made a speech in which he frankly declared that the War Office had determined to treat the Army Medical Staff liberally and to remove the grounds for the complaints that had so long been ineffectually urged. He stated that the medical officers of the army will hereafter bear the military stamp. They will have the same titles, up to the rank of colonel, as other officers of the Army and will exercise command of their own corps, the Royal Army Medical Corps. It may therefore be confidently assumed, according to the *Times*, that at the next public competition there will be a marked improvement both in the number and quality of the candidates for the Army Medical Service.

The United States Army Medical Department has at the present time a difficult work before it in organizing and equipping its medical service and hospital corps, but fortunately it is not handicapped by any of the conditions which are now for the first time undergoing radical treatment in the British service. It makes its start in this war with Spain in full possession of that which has been the objective of the British medical staff for years, rank in the army and command over its own hospital corps men.

THAT ADVERTISING CIRCULAR.

We reproduce the following from *Printer's Ink* of May 25, which is self-explanatory. With this we close the subject.

TO RIGHT A WRONG.

"THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,"
Published Weekly under Direction of
Board of Trustees.
61 Market Street.
CHICAGO, May 16, 1898.

Geo. P. Rowell Advertising Co:

Replying to your letter of May 14, I have to say that on examination of the blank sent to this office concerning the alleged agreement to publish the Ripan's Chemical Co.'s prepared medicine, I find that the blank was never in this office to the knowledge of any responsible person connected with it. The handwriting in the blank is not that of any person connected with this office. The typewriting does not conform to that used on the machines in this office. Furthermore, the blank is not signed. The alleged rate shows that it is put in as a monthly rate instead of a weekly rate, which does not conform to the business of this office. In addition I will say that we had rejected this advertisement because of the ruling of the trustees, and we could not have accepted it under any circumstances. As the publication of the name of this journal in a list of those accepting the advertisement, without authority, has been a pecuniary loss to the JOURNAL I trust that you will publish this letter in order that the wrong may be righted. I am, gentlemen, faithfully yours, JOHN B. HAMILTON.

THE JOURNAL SPECIAL TRAIN TO DENVER.

The JOURNAL SPECIAL TRAIN will leave the Union Depot, Adams and Canal Streets, Chicago, Saturday, June 4, at 11 P.M., via the Chicago, Burlington & Quincy Railroad, arriving in Denver Monday morning 7 A.M., in time for the meeting of the American Academy of Medicine, the American Medical Editors' Association and other medical organizations holding sessions on Monday.

Pay no attention to statements other than those announced in the JOURNAL. The reason for arranging for the stop-over on the return trip was owing to the fact that the Exposition at Omaha will be in much better condition then than now. Passengers from the East taking the JOURNAL SPECIAL at Chicago may have their stop-over arranged without extra cost.

The "Special" will run through. Tickets will be good for thirty days. The rate will be one fare and $2 for the round trip, the most favorable rate yet granted the ASSOCIATION.

There is but one JOURNAL SPECIAL train, and that is managed solely in the ASSOCIATION interests. Personal and not ASSOCIATION interests have promoted most of the other "specials." Stand by the regular JOURNAL train, Chicago to Denver via the *Burlington* route.

CORRESPONDENCE.

Second Attacks of Measles.

ALMA, MICH., May 17, 1898

To the Editor:—Some weeks ago, I saw in the JOURNAL a communication from some one setting forth, tentatively, the theory that a second-time case of measles will not communicate measles. Six weeks ago Effie G. was taken sick with measles the second time. In the same family is a child of four years who never had measles. She remained in the room with the sick girl nearly all the time, and did not take the disease. If this is the principle in these cases it should be known.

Yours, I. N. BRAINARD, M.D.

ASSOCIATION NEWS.

Executive or Business Committee.—The first meeting of the Executive Committee of the AMERICAN MEDICAL ASSOCIATION will be held in the club room of the Brown Palace Hotel, Denver, Colo., Monday afternoon, June 6, at 5 o'clock. Subsequent meetings of the Committee will be held at the same time and place each afternoon during the meeting of the ASSOCIATION, unless otherwise ordered by the Committee. It is essential for the successful conduct of the ASSOCIATION that all the members attend the meetings of the Committee. L. DUNCAN BULKLEY, M.D., Secretary.

Announcement.—The following arrangements have been made for the Denver meeting of the AMERICAN MEDICAL ASSOCIATION:

Section Dinners will be given June 7, at 7:30 P.M., and social entertainments will be given on other evenings during the week.

Ladies' headquarters will be at Unity Church, where they will be received by the wives of physicians of Denver. Arrangements have been effected for their entertainment during their visit, and committees will escort the visiting ladies to the various points of interest in Denver.

On Friday June 10, a complimentary excursion to Idaho Springs and around the loop will be given by the Colorado State Medical Society. At Idaho Springs, the ASSOCIATION will be entertained by the citizens.

On Saturday, a complimentary trip will be made to Colorado Springs under the auspices of the Committee of Arrangements. At Colorado Springs the ASSOCIATION will be entertained by the local physicians and citizens. Visits will be made to all points of interest in the vicinity. Arrangements will be made for trips to Pike's Peak and the celebrated mining camp of Cripple Creek at low rates of fare.

At a date to be determined, special trains for Glenwood Springs will leave Colorado Springs via The Denver and Rio Grande Railroad and the Colorado Midland Railroad. Tickets $5.00, good going via one railroad and returning the other, and for ten days from date of issue.

The trip to Glenwood is one of the most attractive in Colorado, giving excursionists a view of some of the finest scenery in the Rocky Mountains, including Pike's Peak, Ute Pass, the Valley of the Arkansas, Hagerman Pass, Canons of the Roaring Fork and Frying Pan, Canons of the Grand and Eagle Rivers, Tennessee Pass and the Royal Gorge of the Arkansas and passing through the cities of Pueblo, Leadville, Canon City and Florence.

Special Hotel rates will be given by the Hotel Colorado and other Hotels of Glenwood Springs. The springs, baths and swimming pool will be free to the ASSOCIATION.

Special cars will be hauled on the Colorado Springs train and the Glenwood Springs Special, only when handed to the railroads with their full capacity.

Railroad Rates.—The Western Passenger Association, Chicago, formally announces the following rates for the Denver Meeting of THE AMERICAN MEDICAL ASSOCIATION, June 7 10, 1898:

Rate.—One regular first-class normal tariff (not temporarily) fare, plus $2.00, for the round trip from Association territory to Denver, Colorado Springs and Pueblo, Colo., and return.

Dates of Sale.—Tickets to be sold from Eastern Committee territory, June 2, 4 and 5, and from Trans-Missouri territory, June 5 and 6, 1898.

Limits.—On going trip tickets to be good for continuous passage commencing on date of sale up to first Colorado common point en route; stop-over to be allowed on going trip at intermediate Colorado common points, but to arrive at destination not later than June 7, 1898. The return to be continuous passage beginning on date of execution by joint agent, with the provision that the return passage shall not commence earlier than June 12, nor later than July 6, 1898. Tickets may be executed for return at destination or either of the other Colorado common points en route. Purchaser to commence his continuous return journey from point of execution.

Diverse Routes.—For this occasion tickets may read west of the Missouri River, going one route and returning another via any regularly authorized route via which regular short line one way rates are properly applicable.

SOCIETY NEWS.

Meeting of the Medical Publishers. The fifth annual meeting of the American Medical Publishers' Association will be held in the parlor of the Albany Hotel, Seventeenth and Stout Streets, Denver, Colo., June 6, at 2 o'clock P.M. The following program has been arranged: 1. Meeting of the executive committee. 2. Reading minutes of previous meeting. 3. Reading correspondence from absent members. 4. President's address. 5. Reports: *a*, executive committee; *b*, arrangement committee; *c*, committee on resolutions: *d*, committee on publication; *e*, treasurer; *f*, secretary. 6. Applications for membership. 7. Presentation of papers: "The Dignity of Advertising," by H. C. Smith, New Orleans; "Some Unique Features," by Henry Waldo Coe, Portland; "The Shadowy Ethics of Journalism," by T. O. Summers, St. Louis; "The Local Journal," by A. R. Axtell, Denver; "The Problems in Medical Journalism of today," by H. D. Reynolds, New York City; A paper by J. R. Clausen, Philadelphia; volunteer papers and subjects for discussion. 8. Resolutions introducing new business. 9. Miscellaneous business. 10. Election of officers. Adjournment. It is expected that at this meeting the question of admitting nostrum and lay-press advertisers to the columns of the medical press will be thoroughly ventilated and discussed. Some of the objects of this association are to protect against mutual enemies and impostors, and encourage a friendly feeling between publishers and editors; to teach and to be taught; to solve the problems which are continually confronting those engaged in medical journalism; to make the medical press of the country more worthy of a place in literature, and to make more uniform and consistent the business end of medical journalism. Editors, publishers and others are cordially invited to attend. William Warren Potter, M.D., President; Charles Wood Fassett, Secretary.

The Fifth District Branch of the New York State Medical Association held its fourteenth annual meeting in Brooklyn, N. Y., May 24. The President, Dr. N. W. Leighton, delivered an address on "The Physician and his Profession," which was ordered published. Sketches of deceased members by Drs. R. M. Wyckoff and John Shrady were also read. During the afternoon session there was a written discussion on the phases and treatment of gonorrhea, in which Drs. Robert W. Taylor, J. W. S. Gouley, William E. Beardsley, Lawrence Coffin, William McCollom, J. C. Bierwith, L. Grant Baldwin, George H. Mallett, Walter B. Chase, Fred. H. Wiggin, Robert Newman, N. L. North, Jr., A. Matthewson, L. A. W. Alleman and Thomas H. Manley were participants.

West Virginia State Medical Society.—The annual session of this Society was held in Martinsburg, May 18 20. Dr. J. N. Alley of Benwood presented a paper on "Cancer of the Tongue," Dr. R. W. Haglett of Wheeling one on "Sexual Perversion," and Mr. Munchen of Cincinnati an address on "Hypnotism," the first day, morning session. At the afternoon session Dr. Clyde S. Ford of Wheeling read a paper on "Fracture of the Patella," speaking of the "Treatment by Mediate Ligation" with a report of fifty cases. A paper on "Exophthalmic Goiter," by Dr. L. D. Wilson of Wheeling was then heard. The members of the association then discussed these papers. On succeeding days Dr. C. S. Hoffman of Keyser read the report of the Committee on New Remedies, and papers were read by Drs. S. L. Jepson, Clyde S. Ford and L. D. Wilson of Wheeling.

Washington State Medical Society.—The ninth annual meeting of the Washington State Medical Society was held in Seattle, May 10 and 11, and was in many ways the best meeting since the organization of the Society, especially in the character of the papers read and the interest taken in the discussions: The United States Marine-Hospital Service was officially represented by Passed Assistant Surgeon S. D. Brooks. The Oregon State Medical Society was represented by Wm. Jones, president, A. C. Smith and K. A. J. McKenzie, both ex-presidents, and Henry W. Coe, editor of *Medical Sentinel*. The officers elected for the coming year were: President, Henry W. Dewey of Tacoma; vice-president, J. W. Hickman, Tacoma; secretary, Chas. McCutcheon, Tacoma; treasurer, J. W. Bean, Ellensburg. The next meeting will be held in Tacoma on the second Tuesday in May, 1899. The Society took the preliminary steps toward the organization of a State medical library, and a board

of trustees was appointed to carry it forward. It will be operated in connection with the Seattle city library. This is the first public medical library to be organized in the Northwest and, so far as we know, the only one west of Denver.

PUBLIC HEALTH.

Yellow Fever in West Indies.—Dr. Anderson of Georgetown, British Guiana, has published a pamphlet narrating the results of an experience of thirty-four years in the American tropics. He was fortunate in having had a certain amount of preliminary drill as to yellow fever from able and experienced men before he had to treat his first cases, and he refers to the difficulties with which the inexperienced practitioner has to contend who is called upon to treat disease without any previous clinical knowledge of it. The author's remarks in this respect are not only applicable to yellow fever but to diseases of tropic and subtropic climates generally. The book contains but little on the pathology and bacteriology of yellow fever; it consists mainly of reminiscences of a clinical and therapeutic nature and of impressions derived from the author's practical acquaintance with that disease. In the first chapter the health conditions of the West Indies formerly and at the present time are briefly described and they furnish a striking testimony to the prophylactic results of progressive medical and sanitary work. The change is a very remarkable one, for formerly, owing to a disregard of obvious insanitary conditions and considerations of personal hygiene and defective medical knowledge, the mortality among British troops and Europeans generally was enormous, whereas under improved sanitation, improved habits of life, a clearer appreciation of the predisposing causes of disease, and better methods of treatment the death-rate has been steadily diminishing, until the West Indies may now be reckoned as among the most healthy of the British colonies, whither, as we know, tourists and persons in delicate health often nowadays proceed as a winter resort. Practically speaking, we may say that about the best thing to do in the event of an outbreak of yellow fever on shipboard is to put to sea at once and run toward the north. The author deals with the geographical distribution of the disease and its causes, reference being made incidentally to the bacteriologic observations of several writers, and to those of Sanarelli of Montevideo and Havelburg of Rio Janeiro in particular, regarding the existence of a specific organism as the essential cause of yellow fever. The susceptibility to attack is dealt with and it is pointed out that while natives and negroes have a relatively small susceptibility to yellow fever they are nevertheless occasionally attacked by it. The symptoms and course of the disease and the state of the urine in yellow fever are discussed; the observations regarding the latter point are valuable.

Legislation in Ohio Regarding Quack Medicines.—The *Cleveland Medical Journal* is righteously indignant over the opposition that has been, through mercenary means, raised against the "Bennett bill." This bill merely provides that "patent medicines" shall have their formula printed on their labels. There is nothing unreasonable about this, but the *Leader* sees fit to antagonize the bill as being "An Attack upon Business Men," just as if nostrum-makers were genuine merchants. So far as we can see, there is nothing in common between real business and the patent medicine business. The sawdust and mud brick business are more intimately related with the patent medicine "business." But to return to the *Journal*, which says, "It is impossible to lay aside the suspicion that the pressure which the patent medicine makers are known to be making on all the newspapers is the reason of the *Leader's* attitude. What other reason can there be? Its arguments are of a most surprising character. Absolutely the sole argument advanced against the proposed measure is that few patent medicines contain enough poison to be deleterious to health, and that 'nearly every physician's prescription contains one or more poisonous ingredients, and the compounds made from these prescriptions would be as deleterious to health as any patent medicine if taken in doses larger than are indicated by the directions.' Passing by the obvious fact that the last sentence entirely begs the question and destroys the argument, and also the fact of its general misrepresentation, one can but wonder if the writer of the above was simply fatuous or deliberately intended to deceive when he neglected to state that the physician's prescription is always on file at the drug store where it was filled, and hence the composition of the medicine made up therefrom is always readily ascertainable; when he further neglected to allow anything for the special training of the physician, taken for the purpose of learning how to use medicine intelligently, and further neglected to allow for the care of the physician under which the effect of the remedy is watched and the precautions taken to avoid ill consequences of over-use. If the opponents of the Bennett bill have only this style of 'argument' to urge against its passage, even the Ohio Legislature would be promptly compelled to put the law upon the statute books. Unfortunately a much more potent, persuading and insinuating 'argument' is at hand for use on both the newspapers of the State and the lawmakers themselves."

Vaccination and Smallpox.—The Council of the British Medical Association have published a tract and a leaflet; the latter being an abstract of the former, in answer to the anti-vaccination propagandism that is ever and again cropping out in England. The *British Medical Journal* for March 5, 1898, publishes both documents in full. Following is the text of the leaflet: "1. The mortality of smallpox is much less now than in pre-vaccination times. 2. The greatest diminution in the smallpox mortality is found in the early years of life, in which there is most vaccination. 3. In countries where there is much vaccination and re-vaccination relatively to the population, there is little smallpox. 4. In classes among which there is much vaccination and re-vaccination there is little smallpox. 5. In places where smallpox prevails it attacks a much greater proportion of the unvaccinated than of the vaccinated; especially where the vaccinations are comparatively recent. 6. In houses invaded by smallpox in the course of an outbreak not nearly so many of the vaccinated inmates are attacked as of the unvaccinated, in proportion to their numbers. 7. The fatality rate among persons attacked by smallpox is much greater, age for age, among the unvaccinated than among the vaccinated. 8. It can not be truthfully alleged that independently of vaccination, smallpox is a milder disease now than in former centuries. 9. The degree of protection conferred by vaccination corresponds to the thoroughness with which the operation has been performed, three or four marks being much better than two or one, and a large mark much better than a small one. 10. Sanitation can not account for the facts above set forth. 11. Thorough isolation of smallpox cases in hospitals is a useful auxiliary to vaccination; it is no substitute for it. 12. Vaccination is very safe. 13. Calf lymph is now available to boards of guardians, etc., for the vaccination of every child in this country" (England). These twelve statements are taken up seriatim in the tract and proved by statistics, etc.; the whole seems to be a very clear and succinct statement of the incontrovertible evidence for vaccination.

How Contagious Diseases are Disseminated.—To those who wonder how cases of contagious disease spread through a community, the following account, taken from the local paper of a town in western Massachusetts, may not prove uninteresting. On February 3, a young man who found occasional employment as a railroad news agent, was taken sick in the hotel where he lived. A physician was called, who reported that the disease was smallpox, and told him to keep the door of his room locked

and admit no one except a friend, a freight brakeman, who remained with him and took care of him. The manager of the hotel was present, knew what the diagnosis was, and is supposed to have understood the importance of isolation. Notwithstanding this, as the boy said, "everybody in the house dropped in to see me." Many of his newsboy chums called, and some of them spent a good deal of time with him, sitting socially on the bed. He was also visited by several young women acquaintances, who were employes in a shoe shop and who returned to their work. The newsboys returned also to their vocation. Two days after the physician who was first called saw the case, another physician was called, the diagnosis of smallpox was made and the Board of Health notified. Twenty-four hours later action was taken and a house on the outskirts of the town was secured for a pest-house, but no one in the town could be persuaded to furnish conveyance. Finally, a man living in a neighboring town, for the consideration of ten dollars, furnished a wagon, and the doctor and the brakeman who acted as nurse made the transfer. In the language of the reporter: "The equipage had the street all to itself. People were afraid to even look at it. One young woman in town who chanced to see it has since been in a miserable state of unstrung nerves, and is thoroughly convinced that she 'caught it.'" The brakeman has been quarantined in a room on the top floor of the hotel, and the hotel has been disinfected with sulphur and other disinfectants. Aside from this no quarantine has been established, and the hotel has continued doing business as if nothing had happened. The barber shop, bathing establishment and saloon connected with the hotel continue to do a thriving business. Many people, however, avoid the street in which the hotel stands, and small boys having occasion to pass the building have been observed to hold their noses and run past at full speed. All who were known to have been exposed have been vaccinated, and vaccination is being generally performed throughout the town. —*Boston Medical and Surgical Journal.*

NECROLOGY.

JOSEPH STEDMAN, M.D., Boston, died at Watkin's Glen, N.Y., May 17, aged 63 years. At the breaking out of the Civil War he enlisted for three months in the Sixth Massachusetts. When his time expired he re-enlisted, and returned to Medfield and raised a company, of which he was made captain. This company was in the Forty-second Massachusetts. During the war he was promoted to lieutenant-colonel, and after the capture of Colonel Burrill he was acting colonel.

LOTT SOUTHARD, M.D., Geneva, N. Y., 1852, died at his home in Newark, N. J., May 14, from diabetes. He was born in Basking Ridge, N. J. seventy-one years ago, was long identified with St. Barnabas Hospital as one of its surgeons, and at the time of his death was also a member of the Newark Board of Trade.

FREDERICK L. DIBBLE, M.D., New Haven, Conn., May 15, aged 68 years.——Thomas B. Dorsett, M.D., Manchester, Va., May 19, aged 62 years.——C. Earley, M.D., Ridgway, Pa., May 16, aged 74 years.——J. D. Kincaid, M.D., Catlettsburg, Ky., aged 89 years.——Jonathan Kneeland, M.D., South Onandaga, N. Y., May 21, aged 86 years.——Alexander Barton McWilliams, M.D., Washington, D. C., May 17.——Andrew Manning, M.D., Plainfield, N. J., May 19, aged 37 years——A. P. Ormsby, M.D., Kansas City, Mo., May 18.——Charles A. Shure, M.D., Port Deposit, Md., May 14, aged 57 years.——George W. Freeman, M.D., University of Pennsylvania, 1862, of Freemansburg, Pa., died May 16 of paralysis.

DEATHS ABROAD.—Dr. Anton Krassowski, the leading gynecologist of Russia, for many years professor of midwifery in the Military Medical Academy of St. Petersburg, author of an *Atlas zur Ovariotomie*, lecturer on midwifery and diseases of women, etc., aged 77 years.——Dr. Ludwig Schillbach, extraordinary professor of ophthalmic surgery in the University of Jena, aged 73 years——Dr. George Rosenbaum of Berlin, a neurologist, aged 40 years.

MISCELLANY.

High Degrees of Myopia, according to Knapp of New York, are more frequently seen in Europe than in America.

The Burning of the Hospital at St. Hyacinthe, near Quebec, May 16, has resulted in fourteen deaths, and this number was expected to increase. At date of writing three missing are supposed yet to be in the ruins.

Revised Mortality Statistics as applied to the population of the globe as a whole are stated by an exchange. Only 900 persons out of 1,000,000 die from old age, while 1200 succumb to gout, 18,400 to measles, 2700 to apoplexy, 7000 to erysipelas, 7500 to consumption, 48,000 to scarlet fever, 25,000 to whooping cough, 30,000 to typhoid and typhus, and 7000 to rheumatism. These averages might be considerably varied by careful autopsies, but perhaps fairly approach conclusiveness when the wide columns of figures are taken into account.

A New Vegetable Hypnotic, Casimiroa Edulis.—The study of the flora of Mexico, undertaken by the National Medical Institute, has already resulted in a new hypnotic, analgesic and antithermic, extracted from the seeds of the *casimiroa edulis*, a zanthoxylum of the rue family. Long experimentation and tests on several hundred persons have established its action, its freedom from secondary effects and determined the toxic dose. It does not seem to produce sleep, but rather to favor natural sleep, from which one wakes refreshed in four to six hours. It is especially adapted to insomnia from cerebral excitement or alcoholism. The northern cousin of the shrub prickly ash, has long been known as the "toothache tree."

Titles.—The *New York Tribune*, in a humorous comment upon the question raised at the State convention at Little Rock, Ark., regarding the right of those other than teachers in colleges and universities to the title of "Professor," which was decided in the negative, pronounces the custom "an old voluntary system—not seriously taken even in America." We are consoled in the present instance by the omission of reference to our own calling, which is so wantonly accused of follies not quite grown into sins such as these. England, France and Germany have their share of allusions and apologies, but the insignificant "medical man" is not noticed, unless by a mere reference to our Anglo-Saxon brother who prefers "Esq." after his name rather than "Prof." before it. "On the whole," concludes the article, "we are lucky to be free of many of the questions about titles which complicate life in Europe so much. Certainly we are not as yet oppressed by them."

Recognition of the American National Red Cross.—It is understood that the President has directed the recognition, for any appropriate co-operative purposes of the American National Red Cross, Miss Clara Barton, president, as the civil central American Committee in correspondence with the International Committee for the relief of the wounded in war. So far as international correspondence with the Swiss Government in relation to the deliberations of the Geneva conferences is concerned, this government has uniformly recognized the American National Red Cross as the only civil body in the United States which is regularly affiliated with the International Committee of Berne, for the purpose of carrying out the arrangements elaborated by the various conferences held at Geneva; and the representatives of the American National Red Cross at those conferences have uniformly attended with the sanction of the United State's Government. The army orders which we published in the last issue of the JOURNAL show that the military authorities have made all arrangements for the delivery of the neutralizing Red Cross brassard of the Geneva Convention, to those authorized to aid the medical department in its service in the field.

Records of Sick and Wounded in time of War.—The Act of Con-ess approved April 22, 1898, authorizing the organization of e volunteer army, requires all regimental and other medical icers serving with volunteer troops in the field or elsewhere, keep a daily record of all soldiers reported sick or wounded shown by the morning calls or reports, which records at the abandment of the organizations will be filed in the record and nsion division of the war department. To permit of this timate disposition of the medical records of the volunteers thout interfering with the medical histories of men belong-g to the regular army medical officers, who may have under eir care patients belonging to both organizations will have to ep a separate set of records for each organization. The Sur-on-General of the army has therefore called upon the sur-ons in charge of general hospitals to have separate registers patients, and monthly reports of sick and wounded made for gular and for volunteer troops. Similar instructions have en issued to surgeons in charge of hospitals in the field in ich regulars and volunteers are likely to be treated side by le. In time of peace monthly reports of sick and wounded required to be forwarded in duplicate, one copy to the chief rgeon and the other direct to the Surgeon-General, but dur-g the war only one copy is called for, to be forwarded from neral hospitals direct to the Surgeon-General, and from field spitals to the Surgeon-General through chief surgeons.

Field Supply Table of the Medical Department U. S. A.—The Sur-on-General has issued a Field Supply Table, approved by the cretary of War, May 9, 1898, to meet existing army condi-ns. It provides for the use of regimental surgeons, two dicine chests, marked No. 1 and No. 2, containing a varied ection of drugs, many in the form of compressed tablets, truments, dressings and books of reference such as Notter l Firth's "Hygiene," Osler's "Practice of Medicine," Zucker-dl's "Operative Surgery," Stephenson's "Wounds in War" l Hare's "Therapeutics." Each private of the hospital ps is provided with a pouch containing aromatic spirit of monia, first-aid packets with pins, scissors, jack knife, wire ize for splints, bandages and plaster, while each man on ty as orderly to a medical officer carries some additional icles such as a pocket case, rubber bandage, ligatures, chlor-rm and a hypodermic syringe. The medical officer is pro-ed with a field case, field desk, lanterns, litters, etc. The d desk is furnished with stationery, blank forms and copies he army regulations, manual for the medical department, ll regulations and Smart's "Handbook for the Hospital ps." It is stated that renewals of supplies can be obtained regimental surgeons from the surgeons in charge of a brigade division hospital on a special requisition approved by the ef surgeon, and that no receipt is to be given for articles t may be expended. On the supply list the names of ex-dable articles are printed in roman type, those of unexpend-e articles in italic. The table gives also the provision made a brigade or division hospital including medicines, antisep- and disinfectants, hospital stores, stationery, surgical ruments, appliances and dressings, furniture, bedding and hing and miscellaneous articles, with surgical chests Nos. 1 2, a case containing an Arnold's sterilizer and a Berkefeld r, a field operating case, a mess chest, a food chest, a com-le chest and a set of folding field furniture.

Water-Supply at Tampa, Fla.—Articles have appeared in the y press in relation to the unwholesomeness of the water-plies furnished to the troops recently aggregated at points he South. It is gratifying, therefore, to learn from an offi- source that at one of the points of concentration the supply undant and excellent. Dr. G. H. Altree, city health officer, Tampa City, certified in a circular letter dated May 9, 1898, in his observation during five years no inhabitant of that has suffered in any way from the use of the water-supply. During the years 1896 and 1897 the absolute number of deaths in the city was twenty-eight, eight of which resulted from accidents, leaving twenty due to all other causes. Not one of these deaths was occasioned by diarrhea or dysentery. An analysis of the city's drinking water by Prof. Geo. F. Payne, State Chemist, Atlanta, Ga., shows that although the water is somewhat hard owing to the presence of about seven grains of lime carbonate per gallon, it is perfectly free from organic matter. It yields no free ammonia and only .01 part of albuminoid ammonia per million parts of water. An analysis by Prof. A. A. Persons, State Agricultural Institute, Lake City, Fla., gave almost identical results.

Canned Salmon for Army Use.—The Subsistence Department of the Army has under consideration the advisability of issuing canned salmon in place of dried fish as an article of the soldier's ration and as a change from bacon when fresh beef is not available. Weight for weight, the canned salmon compares satisfactorily with fresh beef. Its calorific value is somewhat lower than that of beef on account of a smaller percentage of fat, but its muscle-forming material offsets this, particularly as a food in warm climates. A comparison of the analyses of salmon and sides of Texas beef, such as is usually issued at army stations, as given by Prof. W. O. Atwater in his "Clinical Composition of American Foods," Bulletin 36, U. S. Department of Agriculture, shows the average percentage of proteids in salmon, 19.5, and in beef, 14.6; fat, 7.5 and 16.0; refuse, 14.12 and 18.3, and water, 56.8 and 50.04. Of all canned goods salmon has the reputation of being that which has most frequently occasioned gastro-intestinal troubles; but this has little weight as an argument against its use when we consider the infrequency of such troubles and the immense amount of canned stuffs used annually by the population. There is no doubt the change will be accepted by the troops as giving an agreeable variety to the field ration.

The Mauser Rifle, the Spanish Arm.—It is believed that the Mauser rifle, as modified by the Spanish military authorities and used in the Cuban war by the royal troops, is a weapon better adapted for wounding than for killing, especially at short range. The bullet is one-third of an inch in caliber, conico-cylindric in shape, wrapped in five coverings, the outer of which is made of nickel-plated steel. With a charge of twenty-eight grams of smokeless powder the range is 2000 meters, and at 100 meters the bullet can pierce a meter of pine wood. Dr. J. S. Fernandez has described a case of Mauser gunshot wound in the *Cronica Medico-Quirurgica.* The patient, aged 41 years, was wounded in the left temple, the bullet traversed the frontal lobe of the brain obliquely, and escaped just above the inner canthus of the left eye. Immediately on receiving the injury the man fell to the ground, but after recovering from the shock he did not complain of pain. The eyelids became swollen and pressed down on the eyes, excluding light. After eight days the swelling diminished and then it was noticed that the globe of the left eye had become much smaller and that the sight of that eye was lost. Neither pain nor suppuration had followed the injury and the sole lesion discernible was atrophy. The surgeon, in commenting upon the great velocity of the bullet, considers that in its passage through the tissues it cauterizes those with which it comes in contact; hence the primary hemorrhage is slight, but secondary hemorrhage frequently occurs, probably from slight sloughs from the cauterized walls of the injured blood vessels. The destructive power of the weapon is well shown by Dr. Antonio Canello y Peirole's case of a soldier who was cleaning the barrel of his loaded rifle. He had placed his left wrist on the muzzle and by some accident the rifle went off; the bullet entered the anterior surface of the wrist and passed out at the posterior surface at the carpo-metacarpal articulations. It blew away the car-

pal extremities of the radius and ulna; the whole of the os magnum, semilunar and unciform bones, and the carpal ends of all the metacarpal bones. On examining the wound with the finger it was found to contain a large number of spicula of bone, some loose and some only partly detached. The hemorrhage was slight. Under strict aseptic dressing the hand was saved, but not without much trouble. On the fourth and fifth days the patient complained of much pain, had a high temperature and was restless. On the tenth day there came a copious discharge of pus, and on the twelfth day the temperature was normal, the pus lessened and the patient made and uninterrupted recovery.

Footwear for Soldiers.—Wellington was ever deeply anxious that his men should be well shod. "What is the most essential thing for a soldier?" asked a member of the government of the Duke of Wellington. "A good pair of boots to begin with," replied the hero of Waterloo; "and in the next place a second pair of boots; and thirdly, a spare pair of soles." Alexander's victorious army reached India on sandals, and to this day a similar flimsy foot-protector is generally worn in eastern countries, but the ideal boot for a modern soldier should be impervious to moisture, stout and yet pliable, accurately shaped, and constructed of the most durable material. It should also be easily put on and taken off, should prevent the entrance of dust, sand or mud, and above all, favor the free play of each pedal articulation, while at the same time affording support to the muscles of the foot and ankle collectively. An ill-fitting, clumsily shaped boot is worse than none at all. Undue pressure or friction at any point quickly leads to corns and lameness. Formerly bunions and ingrowing toenails, due to pointed boots and shoes, were causes of a halting gait amongst the population generally, but of late years more attention has been given to the anatomic features of the foot, especially in growing children. Deformed feet are, however, still of frequent occurrence in the ranks, each case demanding special treatment; but it should be an invariable axiom with officers commanding companies that boots should be made to fit the feet and not vice versa. The following recipe for making boots both soft and waterproof was recommended by Edmund Parkes, and it still holds first place: "Take half a pound of shoemaker's dubbing, half a pint of linseed oil, half a pint of solution of India-rubber; melt together with care and rub in firmly." The India-rubber solution is highly inflammable, requiring attention during the melting process. The *Daily Mail* says, "It is always the same story, knavery and slackness clogging and strangling the best efforts of the British soldier. To save somebody a few pence on a boot you stand to lose a good rifle and bayonet in a decisive battle, and to break a good man's heart into the bargain. Is it worth it? But it is always happening; the history of the army is a string of such disgraces; and each time we arise and bawl 'Somebody ought to be hanged.' So says everybody. And nobody ever is hanged."

The Medical Staff at the Front.—It is difficult at the present time to keep track of the appointments to prominent positions in the Medical Department of the Army and of the movements or assignments of officers. So far as we have been able to note, Colonel Chas. R. Greenleaf, Assistant Surgeon-General, U. S. A., has been assigned to duty on the staff of General Miles as Chief Surgeon of the Army in the Field. During the past week he has been engaged in superintending the organization of the medical department of the troops at Chattanooga, Tenn. Major William H. Daly (Pittsburg, Pa.) has been assigned to special duty with Col. Greenleaf on the staff of the General Commanding. Lieut.-Col. H. Lippincott, U. S. A., has been placed as Chief Surgeon on the staff of General Merritt, commanding the expedition to the Philippine Islands. Major W. H. Corbusier, formerly on duty at Angel Island, Cal., is to accompany Col. Lippincott as Acting Medical Purveyor for the expedition; and Capt. W. O. Owen, Capt. Ed. R. Morris, Capt. Thomas U. Raymond, Lieut. Henry Page, all of the U. S. Army, and Acting Assistant Surgeon Geo. H. Richardson have also been directed to report to General Merritt. At Chickamauga, Ga., the 1st, 3d and 6th Army Corps are concentrated under Generals John R. Brooke, James F. Wade and Jas. H. Wilson, respectively. The Chief Surgeons of these three corps are Lieut.-Cols. Rush Huidekoper, John Van R. Hoff and Nicholas Senn, U. S. Vols. Major E. T. Comegys, U. S. A., has been ordered from Fort Sill, Oklahoma, to Chickamauga as Acting Medical Purveyor for the troops in camp. At Tampa, Fla., are concentrated the 5th Corps, General Wm. R. Shafter, the 7th Corps General Fitzhugh Lee, and the Cavalry Division, General Joseph Wheeler with Lieut.-Cols. Benjamin F. Pope and Louis M. Maus, U. S. Vols., and Major Valery Havard, U. S. A., as Chief Surgeons. Major L. W. Crampton and Capt. J. T. Clarke, U. S. A., have been sent to the 5th Corps. Acting Assistant Surgeons Fred J. Combe, Samuel W. Stiles and Wilfred Turnbull are serving with troops at Tampa, and Acting Assistant Surgeon F. A. E. Disney is serving at Fort Jefferson, Fla. Capt. W. P. Kendall has been ordered from Fort Bronson, Texas, to duty with the 9th Cavalry at Tampa. The 4th Corps is concentrated in the neighborhood of Mobile under General John J. Coppinger with Lieut.-Col. R. M. O'Reilly, U. S. Vols., as Chief Surgeon. Capt. C. B. Ewing, U. S. A., is on duty with the 5th U. S. Cavalry at New Orleans, La., and Acting Assistant Surgeons Maynard J. Burgess and Arthur Jordan with troops at Mobile. The 2d Corps is in camp near Falls Church, Va., under the command of General Wm. M. Graham with Lieut.-Col. Alfred C. Girard as Chief Surgeon. No other assignment of medical staff officers has as yet been made to this Corps. Acting Assistant C. L. Anderson has been ordered from Hagerstown, Md., to Newport News, Va., for duty with Light Batteries of Pennsylvania artillery. The General Hospital at Key West, Fla., is under the command of Major Wm. R. Hall, U. S. A., who has with him Capt. H. A. Shaw, U. S. A., and Acting Assistant Surgeon E. A. de Lipcsey. The hospital at Fort Myer, Va., has Major W. B. Davis, U. S. A., as surgeon-in-charge, who has with him Acting Assistant Surgeon S. Melville Waterhouse. The general hospital at Atlanta, Ga., has Major Blair D. Taylor, U. S. A., as surgeon-in-charge, with Acting Assistant Surgeons Edgar A. Vander Veer and Edwin W. Patterson to assist him. The hospital at Fort Thomas, Ky., has Lieut.-Col. W. H. Gardner, U. S. A., as surgeon-in-charge, with Acting Assistant Surgeons David Baker and Burke L. Johnson to assist him. The hospital ship *Relief* is under the charge of Major George H. Torney, U. S. A., who has as assistants Acting Assistant Surgeons Llewellyn P. Williamson, Francis Metcalf Randolph M. Myers and Joseph M. H. Henry. The appointment of certain immune Acting Assistant Surgeons has also been reported as Drs. Edward Bragg, M. G. Burgess and Roger P. Ames, ordered to Mobile: W. E. Parker, H. W. Darforth, W. W. Calhoun, H. P. Jones, B. C. Leonard, G. M. De La Torre, W. P. Lawrence, Robert N. Pitts, and Hosea M. Delgado ordered to Tampa; F. S. Dabney, Jos. A. Tabor and A. R. Booth to New Orleans, La. Announcement has also been made of appointments as follows: To be chief surgeon with the rank of major, Clayton Parkhill of Denver, Colo. Herbert W. Cardwell, Surgeon-General of Oregon; James H. Hyssell of Pomeroy, Ohio; Henry F. Hoyt of St. Paul, Minn. Jefferson D. Griffith of the National Guard of Missouri; H. Emmet Giffen of New York; E. Boeckmann of Minnesota; Thomas S. Kimball of Marion, Ind.; Charles B. Nancrede of the University of Michigan, John M. G. Woodbury of New York, Lewis Schooler of Iowa; George Cook of Concord, N. H.; Jas. M. Jenne of Vermont; Leonard B. Almy of Connecticut, and Thomas Earle Evans of Woodward, Ala.

Lord Lansdowne on the British Medical Staff Corps.—At a banquet given in honor of eminent members of the medical profession of Great Britain, at the Mansion House, May 4, 1898, Lord Lansdowne, Secretary of War, is reported by the *Daily Chronicle* to have said: "There is no department in the public service which owes more to, and depends more upon, the members of your profession than the army. With every year that passes the engines of destruction are brought to a greater pitch of perfection. The wounds which could now be inflicted in a few seconds are more numerous and more serious than could have been inflicted in the same number of hours, not many years ago. Your skill and devotion are the correctives of our modern ruthlessness. I am using no idle phrase when I say that the army is proud that it contains a number of officers who belong to the medical profession, but who are none the less soldiers in the fullest sense of the word, wearing the Queen's uniform, holding Her Majesty's commission, ready to take their share or more than their share of the risk and hardship of warfare. We are determined that there shall be no failure, either in theory or practice, to treat them with the respect to which they are entitled. I insist upon this point, because I have observed with very keen regret that there has existed for some time past a certain estrangement between the army and the profession. This want of confidence has had for its result that we have been unable to attract to the service the number of candidates, and I am afraid I must add, the class of candidates, whom we should like to see serving in the medical staff. I will not attempt to diagnose the case. Some of the symptoms are puzzling and obscure. It is possible that in this case, as in many others in which reasonable people have agreed to differ, mistakes have been made on both sides. We on our side are determined that you shall have no cause of complaint of us. We have already shown by our action in dealing with several points to which you have called our attention that we were prepared to redress any injustice where you were able to satisfy us that injustice had been done. We are now about to deal, and to deal thoroughly, with a question with regard to which not only the medical staff of the army, but the medical profession generally, feels most strongly. I mean the rank and status of the Army Medical Staff. I sometimes hear it said: 'What does rank matter? Is not the title of doctor or surgeon by itself to be regarded as a title which any one should be proud to wear without further adjuncts?' I think the answer to that is, that in the army rank is the outward and visible sign of consideration and authority, and that although 'a man may be a man for all that,' it is necessary if he adopts the military profession, that he should have a military stamp to distinguish him and to secure him his proper place among his comrades. We have attempted several times to deal with this question of rank, as it affects the army doctors, and we have not been particularly successful. We have invented ingenious compromises which satisfied nobody, and titles of which some would, for cumbrousness and cacophony, be hard to beat. We propose to make a fresh start and to form out of the Army Medical Staff and the Medical Staff Corps a corps of officers bearing the same military titles as other officers of the army, always, of course, upon the clear understanding that those titles do not confer any right to command outside it. We propose to give them these titles up to the rank colonel. I have been pressed not to stop there, but to go on the rank of general officer; but there are reasons which seem to me conclusive against doing this. Our present policy to restrict as closely as we can the number of officers bearing the title of general, and to insist that none shall rise to that rank unless he is required to fill one of a limited number appointments, all of which will involve general command in the army and fitness on occasion arising to command troops the field. No departmental officers will, under this system, able to reach the rank of general officer, and it will be impossible for us to confer it upon members of the medical staff. Above the rank of colonel we propose to retain that of surgeon-general, with the rank and precedence of a general officer in the army. I have one thing to add. Her Majesty, upon whose good will toward your profession I need not dwell, has been pleased to signify her intention of bestowing upon the newly formed corps the title of Royal Army Medical Corps, a title which I am sure it will wear worthily. I trust that the members of the profession will recognize the sincerity with which we have endeavored to meet them, and that they on their side will help us, to the utmost of their abilty, to secure the services of the best of their students." Sir William MacCormac, responding to the toast of the Houses of Parliament, said he desired on behalf of his surgeon brethren to say how greatly they appreciated what had fallen from the Minister of War. In the face of great difficulties he had conceded all that the Medical Department and its friends in civil life had desired for it.

New Publication.—The *New Hampshire Sanitary Journal*, edited by Irving A. Watson, M.D., Concord, N. H., began publication with the May number. "The primary object of this journal is to advocate the public health interests of New Hampshire," it is also to be of practical value not only to health officers, but to all classes.

Tablet Erected to Two New Jersey Physicians.—At the annual meeting of the Camden County (N. J.) Medical Society, held at Blackwood, N. J., May 10, a large Tablet of brass was erected in the Camden County Almshouse, bearing the following inscription artistically engraved:

IN MEMORIAM.

This Tablet commemorates the services of
Dr. Joseph Wesley McCullough
and
Dr. Henry Ely Branin,
during the epidemic of Typhus Fever in the
Camden County Almshouse
from November 24th, 1880, to April 9th, 1881, when there occurred 103 cases with 33 deaths, including that of
Dr. McCullough.

The history of the Medical Profession of this Country affords no greater instance of unfaltering courage and heroic devotion to duty than was exhibited by these public servants, during this epidemic.

Erected by
The District Medical Society
Of the County of Camden, New Jersey,
May 10th, 1898.

The speech of presentation was made by Col. E. L. B. Godfrey, Assistant Surgeon-General of New Jersey, and that of acceptance by the Hon. Henry F. Wolfe, Director of the Board of Chosen Freeholders of Camden County. After the exercises, the Society was entertained at a banquet by the Board of Freeholders.

New Medical School's Faculty.—President Schurman of Cornell University has announced finally the faculty appointments in the new medical college in New York City, for which medical and scientific men all over the country have been anxiously looking for some weeks past. The list is as follows: Alexander Lambert, Professor of Clinical Medicine, Instructor in Physical Diagnosis; Charles E. Namack, Professor of Clinical Medicine; Francis W. Murray, Professor Clinical Surgery; George T. Elliot, Professor of Dermatology; Charles Stedman Bull, Professor of Ophthalmology; Allen McLane Hamilton, Professor of Mental Diseases; William F. Stone, Instructor of Anatomy, Assistant Demonstrator of Anatomy; George D. Hamlin, Instructor in Gynecology and Obstetrics; Louis W. Riggs, Ph.D., Instructor in Chemistry, Physics and Hygiene; Percival R. Bolton, Instructor in Surgery; Warren Coleman, Instructor in Clinical Medicine and Materia Medica; Lewis A. Connor, Instructor in Medicine; John Rogers, Instructor in Surgery, Assistant Demonstrator of Anatomy; Benjamin T.

Tilton, Instructor in Surgery; Edmund Pendleton Shelby, Instructor in Materia Medica Laboratory; Dever S. Byard, Instructor in Medicine; Edward L. Keyes, Assistant Demonstrator of Anatomy; Charles C. Barrows, Clinical Instructor in Gynecology; Bertram H. Buxton, Instructor in Bacteriology; J. E. Winters, Professor of Discases of Children; Newton M. Schaffer, Professor of Orthopedic Surgery; Gorham Bacon, Professor of Otology; William Sickles, Assistant Professor of Chemistry and Physics; C. N. B. Camac, Instructor in Clinical Microscopy.—*N. Y. Commercial Advertiser.*

Hospitals.

THE FOURTH large city hospital in Berlin will be completed in 1903. Over thirteen million marks have been appropriated for it and it is expectcd to be a model in every respect, with 62 different buildings, mostly one story, and 650 beds, and all the modern appliances for hydro- and movement-therapeutics, etc. It is located in the extreme northern part of the city, with large grounds. The Koch Institute is to be incorporated with it in four separate buildings. As in all large establishments of the kind there will be two medical superintendents, one university graduate administration superintendent and four pharmacists, with an assistant physician to every fifty patients.—*Pharm. Ztg.*——By the will of the late William Keinath of Philadelphia $1500 was left for the erection of memorial beds at the German Hospital, to be known as the William Keinath, Sarah Keinath and Julia Keinath memorial beds.——The new Georgetown University Hospital, corner of Thirty-fifth and N Streets, Washington, D. C., which has been in course of ercction since May, 1897, has practically been completed, with the exception of the interior furnishings. It has a frontage of sixty feet on N Street and a depth of fifty feet. It is four stories and basement in height and built of red brick. It is estimated that, completed, it will cost upward of $30,000.

Colleges.

THE SCHOOL OF MEDICINE of Georgetown University, Washington, D. C., held its forty-ninth annual commencement May 16, with a graduating class numbering seventeen.——The degree of M.D. was conferred on 103 students by the Medical College of New York University, May 18.——The thirty-ninth annual commencement of the Long Island College Hospital, Brooklyn, was held May 18, with a graduating class of seventy-two members.——The graduating class of Rush Medical College, Chicago, at the fifty-fifth annual commencement May 25, the first since the affiliation with the University of Chicago, numbered sixty-six.——The University College of Medicine, Richmond, Va., held its annual commencement May 26.——At the commencement of the Woman's Medical College of Philadelphia, held May 19, the degree of M.D. was conferred upon thirty-four students. Nine States and three foreign countries were represented among the list of graduates.——There were one hundred and thirteen graduated at the annual commencement of the Medico Chirurgical College, Philadelphia, May 21.——Jefferson Medical College, Philadelphia, is to have a new building on Tenth and Walnut Streets. The greater portion of the structure will be five stories, a portion six, and in the Italian renaissance style of architecture.

Societies.

The following recent meetings are noted:

Connecticut.—Connecticut Medical Society, 106th annual meeting, New Haven, May 25 and 26.

Illinois.—Chicago Medical Society, May 25 and June 1; Fox River Valley Medical Association, Elgin, May 24.

Iowa.—Iowa State Medical Society, Des Moines, May 18, 19 and 20.

Kentucky.—Southern Kentucky Medical Association, Hopkinsville, May 24 and 25.

Maryland.—Baltimore County Medical Association, Towson, May 19.

Missouri.—State Medical Society, Kansas City, May 24 26; St. Louis Medical Society of Missouri, May 28.

New York.—Monroe County Medical Society, Rochester, May 25; Washington County Medical Society, Argyle, May 17.

North Dakota.—State Medical Society, Jamestown, May 25 and 26.

Ohio.—Academy of Medicine, Mansfield, May 16; Belmont County Medical Society, Bellaire, May 27.

Pennsylvania.—State Medical Society, Lancaster, May 17-19; Venango County Medical Society, Franklin, May 24.

Tennessee.—West Tennessee Medical and Surgical Association, Jackson, May 19.

Cincinnati.

AT the regular meeting of the Academy of Medicine, May 16, a paper was presented by Dr. Gustave Zinke, on "Complicated and Difficult Labor." He reported three fatal cases with most complete and careful histories. Case 1. Puerperal eclampsia. Case 2, Post-partum hemorrhage complicated with nephritis. Case 3, Frontal presentation with prolapsed extremities, complicated with puerperal mania. Discussion was by Drs. Stanton, Kicly, Stewart, Fraid, McLean, Reamy, and the essayist. Dr. O. P. Holt reported a case of dilated and hypertrophied heart due to excessive use of tobacco: Male, 38, soapmaker, has been chewing tobacco for the last twenty-one years. During the last seven years he has used on the average three ounces of tobacco a day; smokes and drinks (beer) moderately; denies venereals and there arc no evidences of syphilitic infection; has never had any rheumatism; no sudden strain thrown on his muscular system or upon the heart, nor has he ever been in any occupation necessitating undue exertion; has never indulged in athletics. He entered the Cincinnati Hospital over a month ago, complaining of his heart and stomach. Physical examination shows him to be well developed and fairly well nourished; eyes normal, ophthalmoscopic examination negative, no contraction of the field of vision; lungs normal; apex beat in the seventh intercostal space displaced as far outward as the anterior axillary line; beat forcible, diffuse, vibratory so as to somewhat resemble systolic retraction, but palpation determines that such is not the case; heart's action irregular as shown at apex and by pulse. Heart's action and pulse correspond; the area of superficial dulness resembling that of aortic incompetency; to the right it extends about an inch to the right of the sternum while the apex as said before is situated in the anterior axillary line; auscultation, no bruits, both sounds loud and ringing all over cardiac area, irregular action marked; liver and spleen not enlarged; uranalysis, negative. During his entire stay in the house no murmurs have been detected at any time. The urine has been examined every day and no albumin or sugar has been present at any time; average specific gravity, 1020; no casts on repeated microscopic examination. Blood, reds, 4,200,000; whites, 7500; hm., 78 per cent. Sphygmographic tracings show quick rise though short, and long slow descent with slight dicrotism at about the center. With the history and symptoms, Dr. Holt could not but look upon the case as one of tobacco heart.

ACADEMY OF MEDICINE, May 24.—Dr. J. A. Thompson, reported a case of sarcoma of the naso-pharynx, in a child 4 years of age, which had extended down behind the tonsil so as to become readily visible. This condition had been noted by the parents two weeks before the case came into the hands of a physician. The child had had several severe attacks of dyspnea, and was only saved from death by suffocation by the almost constant attendance of the family physician. A week from the time first seen, the tumor had reached a very large size, and for the relief expected by the removal of the mass more than for any hope of any permanent cure, an operation was advised. The growth was encapsulated and was in great part removed by the cold snare, the child being of course anesthetized. The gross specimen was exhibited and the microscopic report proved the clinical diagnosis that the tumor was a small round-celled sarcoma. Attention was also called in this connection to the extreme variability in malignancy of malignant growths of this region. He seven years ago removed a carcinoma from a patient, first union had resulted, and no recurrence had been

noted until a few weeks ago, when operation and microscopic examination had again proved a carcinoma. The regular paper of the evening, entitled "Lymphatic Leukemia with Report of a case of Pernicious Anemia," was read by Dr. G. A. Fackler. He called attention to the advances made in hematology during the past decade, laying especial stress upon the absolute certainty with which a diagnosis could be made by attention to this tissue alone regardless of clinical symptoms; that this was true as regards lymphatic leukemia, which clinically greatly resembled many cases of Hodgkin's disease; that in lymph atic leukemia, in which like in all forms of anemia, there was a varying diminution in the number of red cells, the diagnosis rested upon the high grade of permanent leucocytosis, usually the white corpuscles averaging 100,000 per cubic millimeter. This increase was mainly in the young cells, the so-called lymphocytes, which contributed in place of their usual 20 to 30 per cent., fully 90 per cent. of the entire number. The adult cells or polymorphonuclear neutrophiles while absolutely increased were relatively diminished, while the myelocytes so common in the splenomyelogenous leukemia, were extremely scanty in the variety under consideration. He recognized but two varieties of leukemia, the spleno myelogenous and the lymphatic, pure splenic and pure myelogenous being so rare as scarcely to warrant consideration. He wished to speak mainly of the clinical features of his subject, leaving out mention of etiology and pathology because of the chaos that reigned at present in these branches of the disease. In the spleno-myelogenous form the permanent leucocytosis was much greater as a rule than in any of the cases of the lymphatic, averaging over 400,000, while the principal point was the presence of abnormal white corpuscles known as myelocytes, occupying about 30 per cent. of the field. These two forms were also well separated clinically; the lymphatic was usually characterized by but slight enlargement of the spleen, and by general glandular enlargement; it usually occurred in the young and ran, as a rule, an acute course from six weeks to three months. The spleno-myelogenous, on the other hand, was recognized by the enormous enlargement of the spleen, almost filling the entire abdomen; the glands were not usually enlarged and the course was chronic. Where the blood showed a combinatian of the two types, the clinical symptoms also varied to meet these altered conditions. In pernicious anemia, the diagnosis was reached by the marked diminution of the red corpuscles, averaging 1,200,000; but the blood was subject to considerable variation, often great increase over this number without apparent cause; high color index, diminution in the number of white cells, irregularity in size and shape of the red cells and especially the presence of nucleated reds both normoblasts and megaloblasts. The latter when in excess of the former always indicated an unfavorable prognosis. The treatment usually directed was arsenic in gradually increasing doses of Fowler's solution; this was the only remedy as far as he knew that exerted any favorable influence on the disease, and in spite of this the cases usually ended fatally, though the fatal termination was often preceded by periods of improvement. The paper was discussed by Drs. Cleveland, Greiwe, Kramer, Schenck, Keily (the difference between chronic malaria and leukemia), Joseph Eichberg, H. M. Brown (the relation of nervous troubles, especially cord lesions, to pernicious anemia).

Society of Medical Research.—Regular meeting was held May 12, with presentation of specimens and discussion of: "Fibrous Pneumonia," by Drs. Whitacre and Eichberg. "Malignant Adenoma of the Naso-pharynx," "Tuberculosis of the Nasal Septum," by Dr. Freiberg, "Plugging of Cerebral Artery," Dr. Zenner. "Urine Crystals," Dr. Crane.

Health Department, April.—Measles, 52 cases, no deaths; diphtheria, 19 cases, 5 deaths; scarlet fever, 20 cases, no deaths; typhoid fever, 19 cases, 4 deaths; phthisis pulmonalis, 67 cases, 66 deaths; membranous croup, 8 cases, 1 death; pertussis, 76 cases, 18 deaths: varicella, 8 cases, no deaths; variola, 1 case, no deaths. Diseases causing greatest mortality: Pneumonia, 70; phthisis, 66; heart disease, 37; bronchitis, 32; meningitis, 22; whooping-cough, 18; apoplexy, 18; accidental, 18. From all causes there were 518 deaths for the month. Of the outdoor poor there were 475 treated, 1722 visits paid, and 13 deaths recorded.

Detroit.

Wayne County Medical Society.—The regular meeting, was held May 19. Judge Wm. L. Carpenter read a paper on "Malpractice," confining his address as closely as possible to the legal interpretation of the term malpractice. Dr. H. O. Walker led the discussion, treating the question from the standpoint of a physician. He gave it as his opinion that it was fair to presume that the surgeon or doctor who finds himself the defendant in a suit for malpractice is in every case the victim of greed, and unfortunately is often at the mercy of a stupid jury or a prejudiced judge. The Doctor stated that he knew a number of instances where the defendant was mulcted in heavy damages, though he was certainly not at fault in the treatment of the case in question. Thos. Hislop, attorney at law, read a paper on "Expert Testimony," followed on behalf of the medical profession by Dr. Leartus Connor. The Doctor stated that he had decided a number of years ago never again to appear as an expert witness, giving as his reason that the present methods in legal investigation are so unscientific and besides so revolting to the witness that they are to be condemned. He then went on to give a full description of what would, in his estimation, be a rational and scientific method of taking expert testimony, or rather of obtaining expert information in a given trial. As it is now, he declared, each lawyer is desirous, not of seeing justice done, but of "winning his case." His proposed system is to have the expert witness confer with the court and with the attorneys as an adviser, imparting such information as he has, by long and patient industry obtained, and which is not possessed by the legal profession nor by any ordinary witness. Attorney Alfred Lucking followed with an address on "Physicians' Privileges in Giving Testimony," the substance of which was that a physician can not be compelled to answer a question in giving testimony by which he would divulge any secret he may have obtained in a professional way, except in the case of any person who has waived his right to the provision.

At the regular meeting, May 26, S. E. Sanderson read a paper entitled, "Senile Gangrene or Renaud's Disease—Which?" The author reported a unique case of gangrene involving the toes and integument of the foot and lower two-thirds of the leg, in a lady 72 years of age, which resulted in recovery to health with loss of only four of the toes at the metatarso-phalangeal articulations. The case presented many features of an interesting character. The age of the patient, the heart trouble, which, though not organic, was serious enough to produce oppression, and the beginning atheroma of the arteries pointed to senile gangrene. But the history of the disease, beginning by syncope of the blood vessels of the leg and foot succeeded by cyanosis and gangrene, each following the other in rapid succession, and the presence of hemoglobinuria and the complete recovery, would make one incline to the diagnosis of Renaud's disease. E. B. Smith read a paper on "Surgical Tuberculosis of the Skin and Other External Organs." He stated that surgery of the skin narrowed itself down to such simple procedures as curettage, scraping or, at most, extirpation of the affected area, followed by skin grafting or flap operation. He referred to the tuberculous diseases of the eye, ear and nose, and gave their diagnostic features and chief methods of treatment. Tuberculous ulcer of the rectum and anus he described as of two kinds: 1. Those which occur in persons suffering from tuberculosis of the lungs and which contain no bacilli. 2. Those occurring as typic tubercular ulcerations primarily. The treatment for the latter is early extirpation. F. D. Summers exhibited the excised tubes of a lady aged 19 years, who had been infected with gonorrhea some time before operation. The doctor had removed the tubes, but the abdominal wound had never closed, and during her menstrual flow blood had escaped through the sinus. The Doctor reopened the wound and found that the stump of the tube had attached itself to the abdominal wall at the sinus. This was removed and the patient recovered. Incidentally at the second operation, the Doctor discovered and removed a large cyst of the broad ligament of the opposite side.

Health Report for the week ending May 28: Deaths 84;

under 5 years 31. Births, male 37, female 41; contagious diseases, diphtheria none. According to the Health Office this is the first time in twenty-five years that the city has been free from diphtheria. Scarlet fever 17; deaths from diphtheria 1; scarlet fever 1.

Consolidation of Bellevue and New York University.—The union of these institutions was announced by Chancellor MacCracken of New York University at the annual commencement of the Medical College of the University, May 18, when he read the following: The following action was unanimously adopted by the New York University Council on Monday, May 16, being presented by Mr. William A. Wheelock, on behalf of the committee preparing the same:

The Council of New York University regret to be obliged to announce that by reason of the failure of some of our professors of medicine since May 26, 1897, to observe the duties belonging to their relation to us under the University system, as interpreted by the Council, we were constrained to condition their continuance as permanent professors upon their acceptance of existing University rules and requirements. The six professors who belonged to the governing faculty have rejected this offer, and accordingly will cease at the end of this college year to be connected with New York University.

The Council have further maintained that they are beyond all possible question the rightful successors of the trustees of the Medical College Laboratory, and are the only proper persons to execute that trust. Yet they have offered without reserve to submit all questions involving our equity in the entire medical property used by us to arbitration. This offer has been rejected.

We here record as a subject of equal surprise and regret to this Council that a sister University some weeks ago began negotiations looking to the establishment of a new medical school in this city, with what was plainly a combination of professors at variance with their own University, and this without any consultation with this University and without the slight delay which would have enabled these professors decently to tender their resignations of their present professorships.

The Council further announces that the trustees of the Bellevue Hospital Medical College have today voted to complete the consolidation of that college with New York University. The strength of these two venerable foundations will henceforth be given to a single medical school under the title of "The University and the Bellevue Hospital Medical College." The alumni of the two schools, numbering nearly ten thousand graduates, will be placed on the rolls of the University. The two properties, together occupying 225 feet front in East Twenty-sixth st., near First ave., and costing about $500,000, will be owned by the New York University and used by the united school.

The faculty of the new school will consist of Dr. Edward G. Janeway, dean, and seven professors of the former University Medical faculty, and twenty-one professors and adjunct professors of the former Bellevue Medical faculty, together with such additional professors as may hereafter be appointed. Besides these there are thirty or more lecturers, instructors and assistants. The complete roll of the faculty will hereafter be announced.—*N. Y. Tribune.*

CHANGE OF ADDRESS.

Armstrong, V., from Indianapolis, Ind., to Whitcomb Building Pueblo, Colo.
Brown, M. M., from Pepin, Wis., to Golden, Ill.
Bronnell, W. F., from Chilton to New London, Wis.
Bickle, S. D., from Norristown, Pa., to Atlanta and Illinois Aves., Atlantic City, N. J.
Berry, B., from 3026 Locust St., to 3400 Morgan St., St. Louis, Mo.
Brown, G. V. I., from Duluth, Minn., to Milwaukee, Wis.
Butterfield, F. A., from 713 Ashland Ave. to 624 North St., Rockford, Ill.
Campbell, D. A., from Windsor, Ontario, to Harper Hospital, Detroit, Mich.
Carter, G. D., from St. Louis to New London, Mo.
Fredigke, C. C., from 35th and State to 3243 State St., Chicago.
Goldnamer, W. W., from 2303 State St. to 3454 Indiana Ave., Chicago.
Grieger, H., from Pueblo to 3132 Boulevard, Denver, Colo.
Gray, A., from 248 Winchester Ave. to 456 Ogden Ave., Chicago.
Honan, J. H., from Berlin, Germany, to Rensselaer, Ind.
Hovender, J. H., from Lake View to Lawrence, Iowa.
Hodgkinson, C., from Detroit to 416 E. Cross St., Ypsilanti, Mich.
Hobday, Dr., from Louisville, Ky., to Marshall, Minn.
Homer, H. C., from Crain Creek to Horton, Iowa.
Hicks, J. M., from 171 E. Washington St. to 522 Massachusetts Ave., Indianapolis, Ind.
Johnson, H. C., from Columbia to Meadville, Mo.
Kennedy, W. U., from Winchester to Tallula, Ill.
Leresche, E. P., from 877 S. Spaulding Ave. to 1389 Ogden Ave., Chicago.
Layman, R. B., from Dandridge to Knoxville, Tenn.
Le Moyne, F., from Santa Barbara, Cal., to Pittsburg, Pa.
Malott, J. D., from Amboy to North Grove, Ind.
McFarland, J., from Philadelphia to 421 N. Price St., Germantown, Pa.
Moulton, M. W., from Maquoketa to Bellevue, Iowa.
Pry, E. T., from Knowlton to Tucker, Ark.
Russell, G. M., from Rock Springs to Dixon, Wyo.
Risjord, J. N., from Mt. Horeb, Wis., to Kensett, Iowa.
Reid, W. J., from 244 Alfred St. to 914 18th St., Detroit, Mich.
Rogers, O. L., from Baltimore, Md., to Milledgeville, Ga.
Sheldon, J. G., from Chicago, Ill, to New Haven, Iowa.
Seeley, T. P., from Chicago to Angola, N. Y.
Sherman, A. W., from 944 West Polk to 2400 Dearborn St., Chicago.
Stover, G. H., from 324 Jackson Blk. to 319 McPhee Bldg., Denver, Col.
Sullivan, A. W., from Shiloh, N. J., to Phoenix, Ariz.
Snoddy, F. B., from 1414 H. St. N.W. to 1217 K St. N.W., Washington, D.C.
Sloan, J. F., from Chicago to 613 Wayne St., Peoria, Ill.
Thornton, A. H., from Pocahontas to West Bend, Iowa.
Toan, J. W., from Detroit to Portland, Mich.
Veasey, C. A., from 47 N. 17th to 116 S. 19th St., Philladelphia, Pa.
Wheeler, F. B., from Dows, Iowa, to Strawn, Kan.
Winn, G. L., from Brown Bldg. to Masonic Temple, Rockford, Ill.
Worley, H. F., from Lexington, to Pine Grove, Ky.
Wegge, W. F., from Oshkosh to 693 Cass St., Milwaukee, Wis.

LETTERS RECEIVED.

Alma Sanitarium Co., Alma, Mich.; Ashmead, A. S., New York City; Allport, Frank, Chicago.

Brooks, Leshi E., Mobile, Ala.; Bischoff, C. & Co., New York City; Buck, S. C., Cresco, Iowa; Brothers, S., New York City; Beecroft, Wm. Gird, Madison, Wis.

Chatten, E. A., Earlington, Ky.; Craighead, Erwin, Mobile, Ala.; Crafts, Leo M., Minneapolis, Minn.; Carstens, J. H., Detroit, Mich.; Costner, T. F., Lincolnton, N. C.; Coley, Wm. B., New York.

Daniel, Z. T., Browning, Mont.; Dios Chemical Co. (2), St. Louis, Mo.; Dial, W. H., Laurens, S. C.; Durham, Chas. E., Dublin, Texas; Dunham, W. R., Keene, N. H.

Egan, J. A., Springfield, Ill.; Elliott, H. G., New York.

Fairchild Bros. & Foster, New York City; Frieberg, A. H., Cincinnati, Ohio; Fisher, Geo. Carl, Ann Arbor, Mich.; Freeman, W. C. C., Rock Springs, Wyo.

Goldsmith, M. A. (2), St. Louis, Mo.; Godfrey, E. L. B., Camden, N. J.; Grant, Thomas H., Louisville, Ky.; Grady, Richard, Baltimore, Md.

Hughes, Chas. M., St. Louis, Mo.; Hawkins, T. H., Denver, Colo; Hacker, M. C., Baraboo, Wis.; Hektoen, L., Chicago; Harvey, G. F. Co. (2), Saratoga Springs, N.Y.; Hallock, G.W., Chicago; Hummel Advertising Agency, A. L.(2), New York City.

Jayne, W. A. (2), Denver, Colo.; Johnson, Geo. W. Dunning, Ill.

Kathorman Chemical Co., St. Louis, Mo.; Kime, J. W., Des Moines, Iowa; Kempson, J. F., New York City; Kress & Owen Co., New York; Karger, S., Berlin, Germany.

Lathe, L. F., Cambridge, Mass.; Lawrence, F. F., Columbus, Ohio; Lichty, D., Rockford, Ill.

McKenney, A. D., Pierson, Iowa; Mulford Co., H. K., Philadelphia; Mariani & Co., New York City; Moody, H. A., Mobile, Ala.; Marks, A. A., New York City; Maltine Co., Brooklyn, N. Y.; Merrick, M. B., Passaic, N. J.; Miller, W. M., Pittsburg, Pa.; Merrell Chemical Co., The W. S. Netrecht, L., New Bremen, Ohio.; Nutrolactis Co., New York City.

Oakland Chemical Co., New York City; Ohmann-Dumesnil, A. H., St. Louis, Mo.

Pneumachemic Co., Cincinnati, Ohio; Platt, H. B., New York City; Potter, William Warren [2], Buffalo, N. Y.; Plummer, H., Harrodsburg, Ky.; Petersmeyer, Wm., Odebolt, Iowa; Priestley, J. T., Des Moines, Iowa; Parke Davis & Co., Detroit, Mich.

Rodman, Wm. L., Louisville, Ky.; Rogers, John, New York; Root, P. S., Monroe, Mich. Rosenthal, Edwin, Philadelphia, Pa.; Roseberry, Benj., Florence, Colo.; Reed & Carnrick, New York City; Ryan, L. R., Galesburg, Ill.

Smith, Kline & French Co., Philadelphia, Pa.; Sternberg, Geo. M., Washington, D. C.; Senn, N., Springfield, Ill.; Shelley, J. F. [2], Elmdale, Kan.; Schenck, W. Edwards, Cincinnati, Ohio; Schmitt, F. A., LaGrange, Texas; Stone, Ormond, Charlottesville, Va.; Still, D. V., Johnstown, N. Y.; Shields & Co., New Wilmington, Pa.; Safford, H. E., Detroit, Mich.; Shoemaker, J. V., Philadelphia, Pa.; Semerak, A., Chicago.

Treat & Co., E. B., New York City.

Upjohn Pill and Granule Co., Kalamazoo, Mich.

Wilmot, Castle & Co., Rochester, N. Y.; West, S. L., Philadelphia, Pa.; Woolsey, Geo., New York City; Weis, E. W., Ottawa, Ill.; Whitmore, B. T., New York City; Wherry, J. W., Mt. Pleasant, Iowa; Wilbur, C. T., Kalamazoo, Mich.; Wood, Chas. M., Decatur, Ill.; Warren, W. R. & Co., Philadelphia, Pa.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from May 21 to 27, 1898.

Acting Asst. Surgeon Francis W. Harrell, U. S. A., will proceed from Washington, D. C., to San Francisco, Cal., and report in person to the commanding General of the expedition to the Philippine Islands for duty.

First Lieut. William E. Richards, Asst. Surgeon, having reported to the Surgeon-General, in compliance with orders, will proceed to Mobile, Ala., and report in person to the commanding General, Fourth Army Corps, for duty in the field with the Fifth Cavalry.

Capt. Joseph T. Clarke, Asst. Surgeon, will proceed to Tampa, Fla., and report in person to Major-General William R. Shafter, U. S. Volunteers, for assignment to duty.

The following named officers of the Medical Department will proceed to San Francisco, Cal., and report for duty with the expedition to the Philippine Islands: Lieut.-Col. Henry Lippincott, Deputy Surgeon-General; Capt. William O. Owen, Asst. Surgeon; Capt. Edward R. Morris, Asst. Surgeon; First Lieut. Henry Page, Asst. Surgeon.

The following assignments of officers of the Medical Department are made: To First Army Corps, Lieut.-Col. Rush Huidekoper, U. S. Volunteers; to Second Army Corps; Lieut.-Col. Alfred C. Girard, U. S. Vols.; to Third Army Corps, Lieut.-Col. John Van R. Hoff, U. S. Vols.; to Fourth Army Corps, Lieut.-Col. Robert M. O'Reilly, U. S. Vols.; to Fifth Army Corps, Lieut.-Col. Benjamin F. Pope, U. S Vols.; to Sixth Army Corps, Lieut.-Col. Nicholas Senn, U. S. Vols.; to Seventh Army Corps, Lieut.-Col. Louis M. Maus, U. S. Vols.

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ADDRESSES.

THE ADDRESS OF THE PRESIDENT.*

elivered at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY GEORGE M. STERNBERG, M.D.

ellow Members of the American Medical Association:

I desire at the outset of my presidential address to xpress to you my high appreciation of the honor onferred upon me and my thanks for the same. I steem it a special honor to have been elected presi- ent of the American Medical Association at the emi-centennial meeting in Philadelphia. The large ttendance, the hospitable reception accorded us by ie citizens of Philadelphia, the admirable arrange- ients for our meetings, the high professional and cientific standard of the general addresses and of the apers read at the sectional meetings, all contributed o make this a memorable meeting, and it will be a atter of just pride in the future for those members ho are able to say, "I was present at the semi-cen- nnial meeting of the American Medical Association Philadelphia in 1897." Possibly some of our ounger members may have the privilege of attend- g the centennial meeting of the Association in 1947 id of giving testimony with reference to the success the semi-centennial meeting and the status of ientific medicine at the close of the nineteenth cen- ry. If so, they will not fail to mention the fact that e founder of the Association, Dr. Nelson S. Davis, as present on this occasion and that the distin- uished American surgeon, Nicholas Senn, was the esiding officer.

I congratulate you upon the favorable prospects for pleasant and profitable meeting of the Association this beautiful and hospitable city of Denver. I ve had no doubts as to the success of the meeting er which I am called upon to preside since I heard e decision as to the place selected for our annual nvocation. The invigorating air of this elevated gion, the grand mountain scenery, and the induce- nts to activity offered by a State rich in mineral sources, all are conducive to physical and mental ergy and to a broad-minded liberality, the results which will no doubt be apparent in the arrange- nts made for the scientific work of the Association d for the entertainment of its members.

Our Association, as the representative body of nerican physicians, will no doubt continue to rease in membership and in influence. The day perhaps not far distant when no reputable physi- n will be willing to confess that he does not belong the American Medical Association and when no gressive physician can afford to do without our URNAL. And in order that every physician of good professional standing may enjoy the privileges of membership I think it desirable that "Permanent Members" should be elected, upon application, without reference to their membership in "State, County or District Medical Societies" when they present satisfactory evidence that they are graduates in medicine of reputable standing in the profession and are willing to subscribe to the code of ethics of the American Medical Association. In other words, I would not exclude a reputable physician from membership because the State, County or District Medical Society to which he belongs declines to adopt our code of ethics. If he, individually, is willing to be governed by the regulations made by this representative body I see no good reason for rejecting his application for membership.

A liberal and progressive spirit will do much toward promoting the growth and influence of the Association. The medical profession in this country has suffered more from the ignorance of some of its members who hold diplomas from regular schools of medicine than from the attacks of those whom we call irregulars or quacks. Scientific medicine, being founded upon demonstrable truths, must in the end maintain itself and secure the confidence of the people. But when the results of scientific research are rejected through ignorance of the experimental data upon which they are founded, and the layman hears contradictory professional opinions about matters which the well informed knows to be definitely settled, he may be excused for not differentiating so sharply as we are disposed to do between regulars and irregulars. To maintain our standing in the estimation of the educated classes we must not rely upon our diplomas or upon our membership in medical societies, but must show ourselves superior in knowledge and in professional resources to the ignorant pretender or to the graduate of a medical school which is bound in its teachings by an untenable creed, adopted before the light of science had taught physicians to reject theories and the dicta of authorities in favor of truths demonstrated by modern methods of research. There are those who still speak of us as "old school physicians," ignorant apparently of the fact that scientific medicine is to a great extent of very recent origin, and that all of the great discoveries in relation to the etiology, prevention and specific treatment of infectious diseases, and nearly all the improved methods and instrumental appliances for clinical diagnosis and surgical treatment have had their origin within the ranks of the regular profession. While, therefore, we still have with us some "old school doctors," who have fallen behind the procession, the profession as a whole has been moving forward with incredible activity upon the substantial basis of scientific research, and if we are to be characterized by any distinctive name, the only one applicable would be "*the new school of scientific medicine.*"

*Owing to the arduous duties of his office Surgeon-General Sternberg not present at the Denver meeting. His address was read by Dr. Woodhull, United States Army.

Not that our science is complete, for we have still many things to learn and many problems which have thus far resisted all efforts at their solution; but we have learned how to attack these problems and no one any longer expects that they can be solved by the exercise of the reasoning powers and the facile use of the pen. The old saying has it that "the pen is mightier than the sword." This is no doubt true in politics, but in science the pen is a feeble instrument compared with the test-tube, the microscope, the chemical balance, etc. Nevertheless, I am about to advise well-informed physicians to make greater use of the pen, not for the elucidation of those problems which remain to be solved, but for the purpose of calling the attention of the non-medical portion of the community to the recent achievements of scientific medicine. It is a remarkable and lamentable fact that many persons belonging to the so-called educated classes are grossly ignorant as regards the present status of medical science. They not only speak of us as "old school doctors," but they entrust their lives and those of their children to pseudo-scientists who, taking advantage of popular interest in the great discoveries of the day, make extravagant claims as to the curative power of electricity, the X-ray, oxygen, ozone, or some wonderful microbe destroyer. Or, ignoring the exact knowledge which has been gained by experience and pains-taking researches with reference to the etiology of various diseases and the curative action of approved therapeutic agents, they accept the vagaries of the osteopath and the christian scientist as representing the latest development of scientific progress in medicine. The false assertions and claims of ignorant enthusiasts and conscienceless vampires, as a rule, pass unchallenged. Not only are they able to impose upon a gullible public through their published advertisements, but articles written by them or for them appear in the columns of reputable newspapers. The ever-present and irresponsible newspaper reporter espouses their cause through ignorance or for gain and their wonderful cures are related and copied from one paper to another without any competent critic raising his voice to show the fallacy of the claims. Again, positive denials of the value of the well-established achievements of scientific medicine are often made, unfortunately too often, by men who are authorized to attach the letters M. D. to their signatures. This leads to the frequent repetition of the old question as to "who shall decide when doctors disagree?" No matter how well a fact may be established by repeated experiment or by the common experience of the profession, some doctor may be found who, through ignorance or that obliquity of mental vision which characterizes the crank, will deny its truth. Thus, there are doctors who deny the value of vaccination, others who fail to recognize any value in results obtained by experiments on the lower animals, others who deny the etiologic rôle of well-known pathogenic bacteria, etc. As a result the anti-vaccination and anti-vivisection societies are able to fortify their position by quoting the opinions of medical men of more or less repute. But opinions are of no value when opposed to evidence, and it seems to me that those familiar with the evidence would do well to give to the public concise and comprehensible statements, suitable for publication in newspapers and popular magazines, setting forth the facts and the evidence upon which these facts are accepted by well-informed physicians. But in doing so, great care should be taken not to make any assertions that are not based upon reliable data. A distinguished surgeon who has taken an active part in opposing the anti-vivisection bill introduced into the Senate of the United States through the influence of the Washington Humane Society, recently wrote me as follows:

I have been corresponding with Welch, Burrell, Bowditch and others in reference to the formation of a society for the distribution of literature and fostering the sentiment in favor of scientific research. I would be glad to have your own views in the matter. It has occurred to me that at the meeting of the various special societies and especially at the AMERICAN MEDICAL ASSOCIATION this spring it might be well to introduce resolutions indorsing the formation of such a society.

In reply to this letter I said:

With reference to your suggestion as to the formation of a society for the objects mentioned, I think the idea is a good one and shall be glad to aid you in carrying it out. I think we have given those who are opposed to scientific medicine too much rope in allowing them to publish all sorts of misleading statements without our taking the trouble to contradict them or to educate the people. If we had an association organized for the purpose of answering such false statements as have circulation in the newspapers much good might result. When this is left to individuals generally no action is taken, on account, perhaps, of the disinclination on the part of competent physicians to have their names attached to articles appearing in the newspapers lest they may be thought by their professional brethren to be seeking notoriety and be accused of unethical conduct. Certainly it seems to me that the profession has a duty to perform in this direction and I hope you will take some steps to bring about such an organization as you suggest.

In carrying out this plan care should be taken not to engage in controversy with individuals whose misleading statements we desire to correct, but rather to have a systematic plan for placing the truth before the public. For example, an article on the medical uses of electricity might show its limitations and call attention to the fact that it has no germicidal effect when currents are used which are not destructive of the living tissues. Reference might then be made to the unscientific nature of the evidence offered in favor of the curative action of electric belts, electric rings and the electropoise, which is described as "a little instrument which enables the system to take on oxygen freely from the atmosphere." I venture to quote from a paper entitled "Science and Pseudo-Science in Medicine," which I read before the Anthropological Society of Washington in 1896, in further illustration of the kind of missionary work in the education of the public which I think such an organization as has been proposed should undertake. Referring to the electropoise, I say:

The *modus operandi* of this wonderful instrument is more fully explained in the following published certificate (advertisement in *McClure's Magazine*):

One might conclude, from its name, that it was an electric battery. But it does not generate electricity and is in no sense a battery, belt, sole, or anything kindred to them. It consists of a small cylinder called a "polarizer," which is used in connection with the patient's body by means of a common electric cord. This polarizer causes oxygen from the atmosphere to be absorbed by the entire surface of the body with great rapidity, the strength of the absorption being regulated according to the ability of the patient to receive.

. . . . . .

After a year's use we have this to say in its favor: 1. We have taken no medicine for the year. 2. All traces of la grippe and an old sunstroke trouble have disappeared and no symptoms of either remain. Once or twice, from severe overwork we have found it necessary to hold up for a few days, but in no time for fifteen years have we been better than during the past year. Much of this we attribute to the use of the "Electropoise."

This notice of the "Electropoise" is without solicitation and entirely gratuitous. We do it for the good of the afflicted. We have no personal interest in it and are not paid for what

e say in its favor. Persons desiring further information can ldress the agent.—Rev. Wm. McDonald in *Boston Christian 'itness.*

"We would suggest to the Rev. Wm. McDonald that ə try the following simple experiment: Having ɔnnected the 'polarizer' with his leg by means of ıe 'common electric cord,' let him place one hand ver his mouth and nose, thus shutting off oxygen of .e atmosphere from the lungs, which have been pro- ded by nature to furnish the necessary supply of is gas. Now let him note by a watch how long the pply of oxygen 'absorbed from the entire surface the body' will answer as a substitute for nature's ethod of supplying this gas. We venture also to ggest to the Rev. Wm. McDonald that 'all traces la grippe and of an old sunstroke trouble' might .ve disappeared during the year if he had not used e Electropoise. Assuming that this certificate is nuine, it answers very well to illustrate the fact that ucated men who have not been trained in the methods scientific investigation often arrive at conclusions tirely unjustified by the evidence before them and the dangerous use of the *post hoc ergo propter hoc* ɔthod of argument."

The fact that a considerable proportion of those ıo are sick from various acute or chronic ailments ɔover after a time, independently of the use of ədicinal agents or methods of treatment taken connection with this tendency to ascribe recov- to the treatment employed, makes it an easy ttter to obtain certificates of cure for any nostrum ich an unprincipled money-seeker may see fit to ər to a credulous public. If 10 in a 1000 of those o have used the alleged remedy believe themselves have been benefited, their certificates will answer purposes of exploitation and the 990 will not be ırd from by the general public.

As was to have been expected, the X-ray has ədy been made a source of revenue by more than pseudo-scientist. The following account of the *dus operandi* of its supposed therapeutic action recently been published in the newspapers:

fter the Crookes tube is excited by the coil the magnetic ə of force are projected down in the same manner as they off from a magnet, and traversing the intervening space, through the body down to the floor and back to the coil tube again, completing the circuit.

ıe X-ray is electrostatic in character and of a very high ntial. With every discharge from the Crookes tube ɔen is liberated in the body, as well as the surrounding ɔsphere, which, combining with nascent oxygen, forms .e.

is due to the electrolysis produced in the body that we are to destroy the bacilli in contagious disease, ozone being nost powerful germicide known.

e remark, first, that we do not fully understand why "the ıetic lines of force" are reflected back by the floor, "com- ng the circuit." Inasmuch as the X-rays pass through l, this mysterious action of the floor appears to call for further explanation.

ə will pass by the ingenious explanation of the formation one, as a result of the action of the X-ray, to call attention e mistaken statement that ozone is "the most powerful icide known."

e experiments of Fränkel show that the aerobic bacteria abundantly in the presence of pure oxygen, and some es even more so than in ordinary air.

was formerly supposed that ozone would prove to be a valuable agent for disinfecting purposes, but recent iments show that it is not so active a germicide as was ipated, and that from a practical point of view it has com- ively little value.

ɾaschewitsch found that one gram in the space of a cubic failed to kill anthrax spores in twenty-four hours. The ɾa spirillum in a moist state was killed in this time by the amount, but fifteen hours' exposure failed to destroy it. Ozone for these experiments was developed by means of electricity.

Wyssokowicz found that the presence of ozone in a culture medium restrained the development of the anthrax bacillus, the bacillus of typhoid fever, and others tested, but concludes that this is rather due to the oxidation of bases contained in the nutrient medium than to a direct action upon the pathogenic bacteria.

The conclusion reached by Nissen, from his own experiments and a careful consideration of those previously made by others, is that ozone is of no practical value as a germicide in therapeutics or disinfection.

Unfortunately lack of information relating to the definite results of scientific investigations is not confined to the non-medical members of the community. The statement above quoted to the effect that the X-ray, by electrolysis, produces ozone when passed through the body and that ozone is the most powerful germicide known, sounds very scientific, and having been made by one who has a legal right to attach the letters M. D. to his name, no doubt has been accepted as a reliable statement of fact by many educated people who have read the newspaper paragraph in which the statement occurs, which, having started in Chicago, was widely copied as an item of interest to the public in connection with the recent discovery of the remarkable properties of the X-ray.

Whenever any new discovery in medicine is announced some conservative physicians, and often men of reputation in the profession, are sure to commit themselves to a positive denial of the alleged fact. This occurred when the discovery of the tubercle bacillus was announced by Koch, it has occurred with reference to the treatment of diphtheria by antitoxin, and to the preventive treatment of hydrophobia by Pasteur's method. Yet these discoveries are based upon experimental evidence of the most unimpeachable character. To deny their reliability at the present day is simply to show ignorance of the nature of this evidence or a failure to appreciate its scientific value. Often the positive and premature statements of a physician relating to new discoveries in medicine are corrected, or at least regretted, at a later date; but sometimes the pride of opinion prevents a retraction in the face of the most conclusive evidence. The result is that such opinions, although they may have been given years ago, are always available to controvert the statements of those who maintain the value of vaccination, of experiments on the lower animals, of the diphtheria antitoxin, etc., and the non-medical public very often accept the opinions which coincide with their preconceived views, or arrive at the conclusion that there is nothing settled in our so-called medical science. It should be our aim to remedy this evil by elevating the standard of medical education, as we are doing in many parts of the country, by impressing upon the rising generation of physicians the importance of laboratory work not only as a means of instruction, but for the purpose of cultivating a scientific spirit of inquiry and just appreciation of the value of experimental evidence; and, finally, by instructing the public with reference to the present status of scientific medicine, the difference between fact and fancy, between the vagaries of the imagination and the demonstrable results of scientific investigation.

With the progress of scientific medicine, we have improved methods of teaching, and it is now generally recognized that reading medical books and listening to lectures is not a sufficient preparation for the practice of medicine, any more than the reading of

books on navigation would be for the responsible position of captain of an ocean steamer. It is for this reason that we insist upon the study of anatomy in the dissecting room, the teaching of methods of diagnosis and treatment at the bedside, and of chemistry, physiology and pathology in the laboratory. It is only within the past few years that our leading medical colleges have provided suitable facilities for practical laboratory work and even at the present day, as I understand, the laboratory courses are not compulsory in some institutions which provide for a four years' course of study as a requisite for receiving the degree of doctor of medicine. From my point of view these laboratory courses are a most essential part of the medical curriculum, not only because the student becomes familiar with the use of instruments and methods which will be of inestimable value to him in the practice of his profession, but especially because of the effect of the kind of training he there receives in enabling him to judge of the imperfections of our unaided senses and the small value of opinions in comparison with that of facts capable of demonstration; as also the relative importance of many things which to the superficial observer might appear to be insignificant and unworthy of attention. He learns not to accept the assertion of the professor in the lecture room or the dictum of any authority if this is in conflict with experimental evidence which he is able to verify for himself. On the other hand, he learns not to have an overweening confidence in his own judgment and powers of observation. He may fail to demonstrate the flagella on the typhoid bacillus, or the presence of the plasmodium in the blood of a malarial fever case, or of a trace of arsenic in the tissues of one who died with symptoms of arsenical poisoning. But having learned by repeated investigation that the failure was due to his want of expert skill in the use of the microscope or in the application of delicate methods of investigation, he learns that it is unscientific and injudicious to give a premature opinion in regard to any subject under investigation, and especially so when this opinion is based upon negative evidence. Failure to find the tubercle bacillus in a given specimen of sputum has little value unless the examination has been repeatedly made by an expert. It unfortunately too often happens that physicians, after a very perfunctory investigation, give a positive opinion based upon negative evidence. I have investigated, I have not found, consequently it does not exist. This is the attitude of the unscientific but self-satisfied man and it often leads to mistakes which are not only discreditable to the individual but damaging to the profession of medicine; for the mistakes of the doctors, as a rule, attract much more attention than their successes. The painstaking work and attention to details required of students engaged in chemical, physiological, bacteriological or histological studies, and the failure in their attempt to repeat an experiment or demonstration if through haste or carelessness they neglect any steps in the necessary technical processes, constitute an invaluable lesson. Indeed the scientific medicine of the present day can only be taught by such methods, and the scientific physician of the future must make his way to fame and fortune by traveling this somewhat difficult and time-consuming road.

I have spoken of the danger of arriving at hasty conclusions upon negative evidence, and wish now to call attention to the fact that physicians too often fail to recognize the value of negative evidence as opposed to the deductions made from facts coming under their immediate observation. Thus, a case of paralysis following diphtheria may be ascribed to the administration of diphtheria antitoxin, but in view of the fact that paralysis often follows diphtheria when no antitoxin has been given, and of the negative evidence relating to the administration of the antitoxin in thousands of cases and in immunizing doses in other thousands of individuals, the deduction in a particular case that paralysis and the administration of antitoxin stand in the relation of cause and effect may well be doubted. Again, when a case of yellow fever occurs in one of our seaport cities, failure to trace the channel of infection has not infrequently led to the inference that the disease was of local origin. The fallacy here depends upon the assumption that the investigation has excluded all possible avenues for the importation of the infectious material from a foreign source, and a want of appreciation of the negative evidence which shows that yellow fever epidemics never have their origin at interior towns, and that they do not originate at towns on the sea-coast which have no foreign commerce. As well might we conclude, as perhaps some have done, that a case of smallpox is of *de novo* origin because the physician who sought to find the source of contagion was unable to do so. The negative evidence, relating to the non occurrence of smallpox among persons not exposed directly or indirectly to contagion, is so conclusive that the profession accepts it as a fact that this disease does not originate independently of a previous case. It is a remarkable fact that some physicians still contend that the deaths which occur from hydrophobia in persons treated by Pasteur's method are due to the treatment and not to the bite of a rabid animal. If there is anything definitely settled in medical science we know that there is an infectious disease which we call hydrophobia, or rabies, which is transmitted from one animal to another and from animals to man by inoculation, through the bite of a rabid animal. Yet this well-established fact is denied by certain physicians. And ignoring the fact that more than ninety nine out of one hundred of those who have been subjected to the Pasteur treatment have not developed hydrophobia although they had been bitten by animals proved in a considerable proportion of the cases to have been rabid the inference is drawn that the few deaths (less than 1 per cent.) from hydrophobia which have occurred during or after the treatment are due to this and not to the bite of the rabid animal which preceded the application for treatment.

My object at present is simply to illustrate the value of negative evidence and not to present in detail the experimental evidence relating to the success of Pasteur's method of preventing the development of the disease in persons bitten by a rabid animal. But I may say, *en passant*, that this is one of the great and well established achievements of scientific medicine, which, however, is still doubted by many physicians not familiar with the evidence and positively denied by those who prepare and circulate sensational anti-vivisection literature. In supporting this view they ignore the evidence and publish the opinions of physicians, more or less distinguished, in opposition to the value of the method; which opinions were in some cases given years ago and before the method had been subjected to a sufficient test to demonstrate its practical value. The point I am trying to make

clear is that it is not only unscientific to give a positive opinion in advance of the evidence, or by one who is not entirely familiar with it, but that such snap judgments reflect discredit upon the profession. They are used by the enemies of scientific medicine to support their denial of any value resulting from animal experimentation, and greatly increase the difficulties of those whose task it is to convince legislative bodies that the progress made in scientific medicine during the past twenty-five years has been largely due to such experiments, and that restrictive legislation would to a great extent, arrest this progress.

Having referred to the injurious consequences of premature and unfounded opinions, especially when given by men of prominence in the profession, I desire to call attention to the best method of counteracting such mischief. This is undoubtedly by united action on the part of the more enlightened members of the profession in behalf of truth and progress. This assistance we have had in combating the anti-vivisection bill introduced into the United States Senate and vigorously pressed by the members of the Washington Humane Society, supported by their misguided friends in various parts of the country. The result has been eminently satisfactory, and shows that when exercised in a just cause the influence of the medical profession is a factor which will not be ignored even by the Senate of the United States.

Having made frequent reference to scientific medicine, it may be profitable to spend a little time in a consideration of the foundations, methods, resources and prospects of medical science as it exists today. We admit in advance that there is still much in medical teaching which is not science, but which is founded upon unproved theories and the traditions which have come down to us from a pre-scientific age. But medical teachers and writers show a constantly increasing appreciation of the methods of science and of the nature of the evidence demanded by for the establishment of truth, and a corresponding amount of respect for assertions and theories the truth which has not been demonstrated.

In all departments of science our exact knowledge has been obtained by observation and experiment, and the advancement of science has largely depended on improvements in methods of observation and experiment. Thus, the primitive astronomer observed the stars with the unaided eye, but the astronomy of the present day depends upon observations made with the telescope, measurements made with instruments of precision and mathematical processes, the results of which can be controlled and proved in various ways. So in medicine, the older physicians relying upon their unaided senses, made and recorded observations, some of which were exact and constitute part of the medical science of the present day, while many of which were inexact and unreliable, as were the inferences drawn from them. Until the compound microscope was invented and perfected we had no means of discerning the micro-organisms which have been proved to be the cause of many of the infectious diseases, or of recognizing the histological changes which result from various disease processes. By the invention and practical application of such aids to diagnosis as the stethoscope, the ophthalmoscope, the clinical thermometer, the laryngoscope, the vaginal and rectal speculum, the stomach tube, the urinary test case, the microscope and the X-ray apparatus, we are able to recognize pathological conditions which to the unaided senses of our predecessors were beyond discovery, and which being known only by their effects led to vague speculations and vain theories as to the etiology of disease.

Evidently scientific medicine must be founded upon an exact knowledge of the structure (anatomy) and functions (physiology) of the human body in a healthy condition and of the changes in structure and function (pathology) which result from various disease processes; of the causes (etiology), natural history (clinical medicine) and regional distribution (medical geography) of the diseases which afflict mankind and the lower animals (comparative pathology); of the toxic action of various substances from the animal and vegetable kingdom (toxicology), and of the use of these and of other non-toxic substances, physical agents, etc., in the treatment of disease (therapeutics) and of the prevention of disease by disinfection, quarantine protective inoculations, etc. (prophylaxis).

Anatomy, as a fundamental branch of medical science, may be said to have had its birth when dissection of the human body was first practiced by the Greek physicians Herophilus and Erasistratus, about 300 years before the birth of Christ. Since that time constant additions to our knowledge have been made by the same method, and during the present century by the use of the compound microscope, of various staining methods, etc., which have revealed to us the minute anatomy of the tissues. The discovery that various tissues are made up of cells of diversified forms and functions, and that all of these have their origin from one primordial mother cell—the ovum, belongs to the present century and must be regarded as a fundamental fact in its relation to scientific medicine.

The study of structure naturally preceded that of function, and accordingly we find that physiology is of recent birth. Indeed, physiology had no scientific foundation before the discovery of oxygen by Priestly in 1774, and its progress since that time has gone hand in hand with that of chemistry. Some of its most notable achievements during the present century are: The discovery of the digestive ferments and their action, of the function of the red corpuscles of the blood as carriers of oxygen, of the glycogenic function of the liver, of the inhibitory influence of the pneumogastric nerve upon the heart. It is evident that in advance of these discoveries, which all belong to the present century, there was no scientific basis for medicine so far as physiology is concerned. But today the tripod upon which scientific medicine rests, viz., anatomy, chemistry and physiology, is a substantial structure made up of established facts. While scientific medicine could not exist independently of these fundamental branches, they simply constitute the basis upon which the superstructure has been reared, to a large extent during the last half of the present century. The histologic changes which occur as a result of various disease processes, were unknown and unknowable in advance of the invention of the compound microscope, and the same is true as regards the etiology of infectious diseases. While we owe much to the methods of research devised by Pasteur, Koch and other pioneers in this line of investigation, in the application of these methods the compound microscope is absolutely indispensable. And as medicine could not claim to be

scientific so long as we were ignorant as to the etiology of disease, and of the histologic changes resulting from disease processes, we must recognize the perfection of the compound microscope as the most important event of the century from our present point of view. The principle involved in the construction of the compound microscope was invented as long ago as the sixteenth century, but it is only within the present century, and principally during the last half of the century, that those improvements have been made which have made it available for etiologic and histologic studies. There is, however, a growing disposition to suspect that our microscopes, notwithstanding the great degree of perfection attained in their construction, are still inadequate to the task of revealing to us the specific infectious agents of certain diseases, because of their minute size.

In a late number of the *Centralblatt f. Bacteriologie* Löffler and Frosch have published their official report of investigations, made for the German government, relating to the etiology of foot and mouth disease of cattle, the results of which are very interesting in this connection. As in smallpox, rabies, scarlet fever, typhus fever, and certain other infectious diseases, the efforts heretofore made to demonstrate the specific etiologic agent in foot and mouth disease have been unsuccessful. The carefully conducted investigations of Löffler and Frosch also failed to demonstrate the presence of any specific micro-organism in the lymph drawn with proper precautions from the vesicles about the mouth or udder of infected cows. Cultures in various media inoculated with this lymph remained sterile and no micro-organisms could be demonstrated, by the use of the microscope, in stained preparations. Nevertheless, experiments showed that this lymph was infectious material and that calves inoculated with a very small amount of it invariably developed the disease in two or three days. Very much to the surprise of the investigators named, they found that lymph which had been filtered through a porcelain cylinder, which was proved by experiment to arrest the passage of bacteria, retained its full infecting power. That the result was due to the multiplication of the infectious agent in the body of the infected animal, and not merely to the introduction of a very toxic non-living substance present in the lymph, was shown by the small dose required to produce the disease (1-10 to 1-40 c.c. of filtered lymph), and also by the fact that the disease could be transmitted to other animals by inoculating them with like amounts of lymph taken from the vesicles which developed in the calves inoculated with filtered lymph. The authors conclude their report as follows:

> It seems difficult to escape the conclusion that the action of filtered lymph does not depend upon a soluble constituent, but upon an agent capable of self-multiplication. This must be so small that it can pass through a filter which retains the smallest known bacteria. The smallest hitherto known bacterium is the influenza bacillus of Pfeiffer. This has a length of 0.5 to 1 μ. If the supposed micro-organism of foot and mouth disease were only $\frac{1}{10}$ or even $\frac{1}{5}$ the size of this, which is not at all impossible, it would, according to the reckoning of Professor Abbe of Jena, be too small to be recognized by our microscopes, even when provided with the best immersion objectives.

In the department of etiology the most brilliant and far-reaching discoveries of the century are the discovery of the anthrax bacillus (1850) and demonstration of its etiologic relation to the disease with which it is associated, by Davaine, Pasteur, Koch and others (1863–1875); the discovery of the tubercle bacillus by Koch (1882) and the discovery of the malarial parasite by Laveran (1879). These discoveries, so essential to the progress of scientific medicine, would evidently have been impossible without the aid of the compound microscope. But just here I wish to insist upon another point, which is, that for the untrained eye the microscope is little better than a toy and it may even be regarded as a dangerous instrument because of the inevitable mistakes which the novice will make if he undertakes to decide questions of diagnosis by the use of high power oil-immersion objectives without having had the necessary training for such delicate work. In blood examinations, especially, considerable experience is necessary in order to give value to the evidence afforded by a microscopic investigation. It is a very easy thing for the non-expert to overlook the malarial parasite, and still easier to mistake vacuoles in the corpuscles, deformed red corpuscles, etc., for parasitic elements. But the scientific physician will make himself an expert and I trust the time is not far distant when the microscope will be considered by the practicing physician as essential for daily use as is the stethoscope, or even the clinical thermometer.

For the illiterate and even for many of the so-called educated class the whole of medicine consists in the cure of disease by medicines, or by some agency, natural or supernatural, and a failure to cure is evidence that medicine is not a science. We readily admit that the cure of disease is one of the principal objects which medical science has in view, and that from a scientific standpoint therapeutics is very much behind some of the other branches of medicine. This is shown by the diversity of remedies prescribed for certain diseases, and the failure of any one of these remedies to effect a cure in many cases. But on the other hand, therapeutics has made great advances during recent years and by the application of scientific methods of research, the exact value of alleged remedies and of various methods of treatment is now determined with far greater precision than formerly.

A few years ago the intelligent and honest physician did not claim to have any considerable number of specific remedies at his command; but his scientific knowledge relating to the cause, symptoms and pathology of disease enabled him to conduct many cases to a successful termination, which without his assistance would have proved fatal. By the use of instruments of precision and scientific methods of investigation he was able to make an early diagnosis, and to give advice which might stay the progress of a disease, which in its more advanced stages it would have been beyond his skill to arrest.

Recently several additions have been made to the list of specific therapeutic agents, and there is good reason to believe that further discoveries in this direction will be made as a result of investigations now being conducted in pathologic laboratories in various parts of the world. Among the most important recent discoveries in this department of scientific medicine, I may mention the use of thyroid extract for the cure of myxedema, and the antitoxin of diphtheria. The discovery of the diphtheria antitoxin promises to be as important for therapeutics as the discovery of the anthrax bacillus was for etiology, and will no doubt henceforth be regarded as one of the most notable achievements of the century. It resulted directly from laboratory experiments relating to the production of immunity. The demonstration of Pasteur that ani-

mals could be rendered immune against anthrax and other infectious diseases by one or more inoculations, with an attenuated culture of the pathogenic bacillus to which they were due, at once led to an attempt to explain this immunity, and to numerous experimental investigations having this object in view. The result of these investigations was the discovery that the blood of animals rendered immune by such innoculations contains specific antitoxins which may be utilized for the production of immunity in other susceptible animals, and also in certain cases, for the cure of an infectious disease. While the practical results have been most notable in the case of diphtheria, some success has been attained in the specific treatment of tetanus, streptococcus infection, pneumonia, and even in tuberculosis. These results give encouragement to the hope that future investigations may develop methods of obtaining these antitoxic substances in such form and amount as will enable us to successfully use them in the treatment of those infectious diseases for which we have not heretofore had a specific remedy.

A recent discovery of considerable importance from several points of view is the so-called Widal-reaction. This depends upon the fact already demonstrated for several pathogenic bacteria, that during the progress and within certain limits, after the termination of a specific infectious disease due to micro-organism of this class, a substance is formed in the blood which has a specific action upon the particular bacterium which is concerned in the etiology of the disease. The reaction consists in the agglutination of the bacterial cells in groups or masses, and in the arrest of motion in motile bacteria in recent cultures. The diagnostic value of this reaction in typhoid fever is well established, but the reaction is not always obtained during the first days of an attack, when it would be most useful. However, the scientific value of the test is undoubted and it will be of great assistance in determining the true character of atypical cases of the disease, which have heretofore so often been called by some other name. The importance of this reaction for the differentiation of pathogenic bacteria, which can not readily be distinguished by their morphology and cultural characteristics is apparent. Therapeutics has profited greatly, not only by the scientific researches of chemists and bacteriologists, but also by those of the physiologists and physiologic chemists. Investigations relating to the internal secretions of ductless glands have shown the essential rôle which some of these glands play in the animal economy and also the fact that pathologic changes resulting from their impaired functional activity may be relieved by the administration of extracts from corresponding glands taken from the lower animals.

The curative action of thyroid extract in myxedema is well established, and some success appears to have been attained in the treatment of Addison's disease by an extract from the suprarenal bodies. The active substance in the thyroid has been called iodothyrin. According to Professor Chittenden, this substance is "a non-proteid cleavage product of a more complex body, naturally present in the gland and characterized by containing both iodin and phosphorus." He considers it pretty thoroughly established that iodothyrin "possesses all the peculiarities associated with thyroid therapy."

Abel and Crawford have succeeded in obtaining the active alkaloidal substance from the suprarenal bodies in the form of a sulphate. This in very small quantities causes a remarkable rise in blood pressure when injected into animals, and applied locally it promptly causes a constriction of the vessels of an inflamed eye.

Let us turn, for a moment, from therapeutics to prophylaxis. Here the progress of medical science has been even more prolific in practical results. Where thousands have been saved by the timely administration of suitable medicines, or by the skilfully performed operation of the surgeon, tens of thousands have been saved by preventive medicine. And preventive medicine is today established upon a strictly scientific foundation. If our practice was *pari passu* with our knowledge, infectious diseases should be almost unknown in civilized countries, and those degenerative changes of vital organs which result from excesses of various kinds would cease to play a leading part in our mortuary statistics. But while our knowledge is still incomplete in some directions, and while individuals and communities constantly fail to act in accordance with the well-established laws of health and the scientific data which furnish the basis of preventive medicine, the saving of life directly traceable to this knowledge is enormous.

Smallpox no longer claims its victims in any considerable numbers except in communities where vaccination is neglected; cholera has been excluded from our country during the last two widespread epidemics in Europe and its ravages have been greatly restricted in all civilized countries into which it has been introduced; the deadly plague of the seventeenth and eighteenth centuries is no longer known in Europe, and the prevalence of typhus (so-called "spotted" or "ship fever") has been greatly limited. Typhoid fever, tuberculosis and diphtheria are still with us and claim numerous victims, but we know the specific cause of each of these diseases; we know where to find the bacteria which cause them and the channels by which they gain access to the human body, and we know how to destroy them by the use of disinfecting agents.

The mortality from tuberculosis is constantly diminishing in our large cities, and the complete destruction of the infectious sputa of those suffering from pulmonary tuberculosis would no doubt go a long way toward the extermination of this fatal disease.

For a long time vaccination as a means of preventing smallpox stood as a solitary example of prophylaxis by inoculation with an attenuated virus. But Pasteur and others following in his footsteps have shown us that protective inoculations may be successfully practiced in several of the infectious diseases of the lower animals. Haffkine's cholera inoculations appear to have been attended with considerable success, and recent experiments in inoculating susceptible persons with cultures of the typhoid bacillus give some encouragement to the belief that they may be rendered immune against typhoid fever by this method. That children may be rendered immune against diphtheria by comparatively small doses of the antitoxin is well established. The value of Pasteur's method of inoculation for the prevention of hydrophobia in persons bitten by rabid animals is now generally recognized by well-informed physicians.

The time at my disposal is entirely inadequate for the purpose of setting forth the present status of scientific medicine, but I trust that enough has been said to justify the claim that we are not "old school doctors," and to show that medicine has not been

behind other branches of science in taking advantage of improved methods of research and in establishing itself upon the sound basis of facts, demonstrated by experiment and observation with instruments of precision.

What has been said will also show that there is no room for creeds and pathies in medicine, any more than in astronomy, geology or botany. Every man is entitled to his own opinion upon any unsettled problem, but if he entertains an opinion in conflict with ascertained facts he simply shows his ignorance. There is no restriction placed upon any physician who graduates from our regular schools as to the mode of treatment he should pursue in any given case. If he sees fit to prescribe a bread pill or a hundredth trituration of carbo vegetabilis there is no professional rule of ethics to prevent him from doing so. But if his patient dies from diphtheria because of his failure to administer a proper remedy, or if he recklessly infects a wound with dirty fingers or instruments, or transfers pathogenic streptococci from a case of phlegmonous erysipelas to the interior of the uterus of a puerperal woman, it would appear that the courts should have something to say as to his fitness to practice medicine. There is, however, nothing in the code of ethics which will prevent him from associating with reputable practitioners. But no matter where or when he obtained his medical degree, he can scarcely be said to belong to the modern school of scientific medicine. We must not fail to recognize, however, that the progress of knowledge has been so rapid that it is impossible for the busy practitioner to keep pace with it, and that even the requirement now generally adopted by our leading medical schools, for a four years' course of study, is inadequate for the attainment of such a degree of professional knowledge and practical skill in diagnosis and therapeutics as is desirable for one who intends to practice scientific medicine.

UNIFORMITY THE KEY TO RECIPROCITY.

Presidential Address to the National Confederation of State Medical Examining and Licensing Boards, eighth annual meeting, held at Denver, Colorado, June 6, 1898.

BY WILLIAM WARREN POTTER, M.D.
BUFFALO, N. Y.

The members of this Confederation are entitled to receive the thanks of the communities which they represent upon the substantial progress that is making all over the Union toward a more perfect system of medical education. It is believed that these improvements have been due in a large measure to the influence exercised by State medical examining boards. It has been my privilege on previous occasions when addressing this body to refer to the relationship between the medical schools and the State examining boards, and I hope I may be pardoned for again calling special attention to this subject, which I regard of much importance.

Before entering into its extended discussion, however, let me remark that it is a significant fact that no medical journal or magazine of influence anywhere in the United States has uttered a word of antagonism to the system of separate examination by the State, a practice which is fast becoming prevalent in all the States and Territories. If a few of doubtful standing have endeavored to create dissension, or have expressed opposition to the method, they have found no listeners, or at least they have not been able to impress their readers with their sincerity or the justice of their wail.

Society papers, too, have been devoid of adverse criticism except, perhaps, in a few unimportant instances. There was a time when considerable criticism was directed toward the character of the examinations, especially at the questions propounded; but as the conditions have been more and more appreciated we observe less complaint of this kind. It has been stated that only teachers in the schools could adequately examine for the State. However much this might appear good in theory, in practice its fallacy has been demonstrated. Only theorists now venture to affirm or reaffirm this now exploded sophism.

No one will, I believe, asseverate that the state examinations are perfect, for there is still much room for improvement; but the work may well be left in the hands of the examiners, who may be intrusted with it with every confidence that they will address themselves to its faithful and honest prosecution.

The colleges have now agreed by a considerable majority that four years is the proper time to set apart to medical training. Not a few are of the opinion that nine months in each year should be devoted to college work. Perhaps all will soon come to this conclusion. The two important questions remaining to be next settled are: 1, uniformity in preliminaries, and 2, equalization of State examination. The first concerns the colleges, the last the examiners must attempt to solve.

By far the most important of the two is the one relating to preliminary qualifications requisite to entitle a neophite to enter upon the study of medicine. If all medical colleges could agree upon a uniform minimum it would not be long before other moot questions would be settled, even to the interstate indorsement of licenses.

The difficulties in the way are chiefly of degree; for none question, so far as I know, the necessity of some literacy before accepting matriculates. In the East the tendency is toward higher preliminaries than in the West and South. Our Southern friends contend that good doctors can be made with less education than would satisfy our Eastern ideals; that in the mountainous regions not so much of letters as of sense is demanded; that highly educated men will not settle in those districts, hence the people will suffer for want of medical service; and that for these and other reasons not only must they be permitted to accept students with a low grade of educational attainments, but that also they must be allowed to graduate them in medicine after shorter terms of collegiate training. This on its face seems reasonable and is convincing to many; at least it appears to satisfy the consciences of many college professors. It is not an argument, however, that would hold for a moment if all the colleges were endowed. It is difficult to overcome it so long as incomes depend upon numbers in attendance. It has, however, been the experience of schools that have adopted high preliminaries, that the more intelligent students are attracted to their amphitheaters; that a more satisfactory quality of instruction can be imparted; that less time is required in primitive work and that broader training is the result.

It is a mistake to suppose that students will flock to low grade schools. They almost invariably search for the best and will not be satisfied with less. It is

a quality of the American character to surmount obstacles and to triumph over difficulties. This is as true in relation to medicine as in other affairs of life. If medicine is made easily it is not highly prized nor does it command respect. Cheap articles are of little value and are soon wasted. So a professional diploma easily obtained and bestowed upon the illiterate is tossed about or treated with indifference.

It is difficult to understand why there should be opposition to a reasonable elevation of preliminary requirements by any college of pride or standing. Is it unreasonable to say that no candidate should be admitted to matriculate who does not at least possess such acquirements as are demanded of a high school graduate? Surely no experienced teacher could reasonably object to such a standard as a minimum requirement.

Let us see if it works an injustice to the student. I have yet to meet a physician of a few years experience in practice who was deficient in his English education who did not regret the fact. Many have blamed the colleges for accepting them without proper preliminary acquirements. A very large group of this class begin to feel chagrin before their medical training advances very far. They mingle with other students well trained in their preliminaries and are not slow to recognize the immense advantage possessed by such, and to keenly feel their own incompetency. A few, perhaps, are indifferent to such accomplishments, but these generally hire themselves to a medical grocer who deals out his cure-alls by the gallon and advertises a medical staff of attendants with the illusory addendum—consultations free. Or, perhaps they employ a team of horses and a wagon and go about the country auctioneering their wares in sad English and with sadder morals.

Thoughtful men who enter medicine always feel regret when their early education has been neglected and they are quite inclined to blame the colleges for accepting them under such conditions. It would seem, therefore, a kindness to the students themselves to establish such a minimum standard of preliminaries as will make men self-respecting, as well as conduce to an appreciation of the dignity of the profession of medicine.

It seems to me that it has already been clearly demonstrated that neither teachers nor pupils are satisfied with anything less than a reasonable preliminary educational standard. It is true that some college professors are not yet aroused to the real necessities that are presenting on this question; indeed, they in few instances are inclined to ridicule any attempt to make things better. But such men are more to be pitied than to be condemned. They form the small minority that is constantly growing beautifully less. They sometimes display their oratory in debate or their facile pens in the magazines, but beyond a momentary applause they get very little recognition and still less approbation. I wish all such could have heard Dr. Holland, the distinguished president of the College Association, when he addressed this Confederation last year. It seems to me that his convincing words would have forever silenced opposition to the principles involved in the reforms we are seeking to establish.

In turning to the problem of equalizing or standardizing the State examinations we find a field for serious and ample thought. If we ask the colleges to adopt a uniform standard as to time, four years' courses of nine months each, and similar methods of instruction in laboratory and clinical work, is it not fair to them that we, ourselves, should establish a similarity of methods in conducting the State examinations? Is it not fair to teachers and candidates for State license that we shall foreshadow the general lines of our examination by a properly prepared syllabus and by modeling our questions upon the modern methods of teaching? Should we not in all the States also have similar examination tests, such as a uniform number of questions in each of the principal divisions of medical science, and a uniform period of time for conducting the examinations? These are some of the questions that are first presented in an inquiry of this kind.

One of the most absorbing questions connected with State examinations is that of reciprocity of licensure. When it is ascertained that physicians licensed by any one State can not commence practice in another State without submitting again to an examination, it naturally provokes criticism against the system. Sometimes this criticism becomes angry and defiant, and examining boards are condemned as being responsible for a faulty system.

Thoughtful men will, however, easily understand how unfair it would be to accept licenses indiscriminately by States having high standards. The pathway to reciprocity consists in establishing not only uniformity of methods of teaching, but similarity in systems of examination by the several States. Just as soon as colleges can agree upon a minimum standard of requirements, the examiners must turn their attention to standardizing their work. I hope much progress will be made this present session of the Confederation in bringing about the former. When this is accomplished it will be in order for a committee to be created by this body, probably to consist of one member from each State and Territory represented in it, whose province shall be to take into consideration the propriety of standardizing the examinations.

It is not my purpose at this time to enter into a discussion of the details of this important subject, but rather to invite attention to it in the expectations that some thought will be bestowed upon it that will lead to a clearer conception of the way and manner it should be dealt with when it comes up for consideration. Some reference was made to it in my annual address last year. I wish to accentuate what I then said on the subject, and to invite your serious attention to this most important and essential duty.

ADDRESS.

Presidential Address delivered before the Arkansas Medical Society, Little Rock, Ark.

BY A. J. VANCE, M.D.

HARRISON, ARK.

Today treasure-laden memory brings before me as an ever-changing kaleidoscope the faces of the men who have stood as I stand today before this honorable body. Some are still with us giving their energies and intellects to the up-building of our profession. Others have crossed over and are resting from the toil and heat of the day. Not only the faces of the men who have preceded me for the fifteen years I have known this society, but many of their thoughts found an abiding place in my search for medical knowledge, that have often been of great benefit to me.

It is not my object to speak today of the recent developments that have been made in the world of

medical science. It has been a matter of great interest to know something of the foundation of medicine, and in my research I find that it is from the Egyptians that we have our first intimation of the grand science which we represent. They had several divinities who presided over the cure of diseases, the principal one being Isis, a woman. Thot is supposed to be the author of the oldest medical works. These were engraved on pillars of stone, and afterward collected, formed a part of the so-called Hermetic books, from the prescriptions of which no physician might deviate, unless he was willing to expose himself to punishment in case the patient died. The remains of these books are probably preserved to us in the papyri of Leipzig and Berlin. The Leipzig papyrus was committed to writing in the sixteenth century, B. C. and was the offspring of an epoch of high civilization in Egypt.

The Berlin papyrus was committed to writing in the middle of the fourteenth century B. C., and the substance of both these works are referred back to the fourth millenium before our era.

The papyrus at Leipzig has been only partially deciphered, but in it we find remedies for diseases of the stomach, the abdomen, the bladder, and the removal of glands from the groins, a cure for falling hair, remedies for foul breath, etc The books are by different titles; for instance, one is called "The Book of Eyes," another, "The Book of the Banishing of Pain." It was the duty of the priests to study these books. We suppose they had specialists, as we read that when an individual needed treatment, he must send to the president of the temple, who selected and despatched the specialist best suited to the case.

It is doubtful if they had hospitals, as it was often the case that the sick were exposed on the street, that they might have the benefit of the advice of the passers-by, who had been cured of a like disease. They did some work in surgery, their process of castration being so dexterous that, even as late as the Roman period, most of the eunuchs were from Egypt. From artificial teeth being found in the mummies, we have reasons to believe that dentistry was also known to them.

History tells us how the original Egyptian medicine began to decline until it finally entirely vanished, except as magic and alchemy. In the middle ages Egyptian medicine was regarded as sorcery.

The next advancement we find in true medicine is among the Greeks in the Ionic school, about six hundred years before Christ. Its founder was Thales of Miletus. After him, for two or three hundred years, there were various theories and schools established, only to go out with probably the death of the originator. It was a time of great superstition and the god Æsculapius held sway over the minds of the masses. Then there appeared Hippocrates, the greatest and most famous physician of all antiquity. He was born 460 years before Christ and was called the great creator of scientific medicine. To him we owe the science of dietetics, as well as prognosis. His feats in surgery were remarkable when it is considered how limited were his instruments. The Hippocrates writings are from fifty to eighty in number, though not all by him, some of them being by unknown physicians of his age and school. He is said to have died 370 years B. C. at Larissa, in Thessaly. Tradition, which throws a halo of glory around all greatness, tells the story that a swarm of bees, whose honey was especially useful in the treatmen of aphthæ in children, made their hive within the walls of his tomb.

After him comes the dogmatic school of medicine in accordance with Plato. During that time origi nated the prohibition of drink in feverish diseases the revival of which not many decennia ago, cost the lives of many fever patients.

The next school of importance was the Alexandrian and although opposed by other factions it exercised an influence on subsequent antiquity, and even to medieval medicine, its educational merit was felt.

During the next several hundred years we find learning and science mixed more than ever with ignorance and superstition. Men then, as in our day practiced merely to swindle. An example given us i that of an old and well dressed Arabian, who applied to the president of the college at Bagdad for medica examination. At the first question asked, the man drew forth a well-filled purse and shook out the con tents. Though the applicant could neither read no write, this jingling answer was sufficient and he wa given a diploma with the understanding that h should never employ active purges, emetics, or per form venesection.

Through the fortunes of war, as one country would gain prominence, so would her medical theorie advance, as the power of the country waned, medicin would deteriorate. But some of the wheat was con stantly being gleaned from the chaff and, little b little, the science of medicine gathered strength.

The sixteenth century is of importance, similar t the age of Hippocrates, for during this era, the edi fice whose foundation he had laid, was enlarged. Th teachings that had gained ascendancy through th dark middle ages were thrown down and the banne of Hippocrates sustained with new and independen thinking, was firmly established. Anatomy receive fresh impulse; for years it had been almost obsolet as the only practical illustration allowed was from th dissection of animals; priests, holding that man bein born in the image of God, should not be so mutilate Surgery and midwifery also received fresh impetu We find that in this period occurred the re-introduc tion of that most beneficent operation, podalic versio About that time occurred the first Cæsarean sectio upon a living woman. It was done by a sow-gelder o his own wife, she being in labor with a number midwives and physicians in attendance, the chil could not be delivered. It is said that he went ou alone and prayed, then went back and cut into her a he would one of his sows. The child was delivere and the woman recovered.

Ophthalmology was likewise newly founded. Th revival study of the genuine writings of the ancien brought improvements, historically and philosoph cally. During this time there were several univers ties founded in Germany, also in other countries. man of that period who made himself famous w Ambroise Paré, a Frenchman; originally a barber, h became known as a great surgeon and was attached the king's court. He is said to have decided to stud surgery from witnessing a case of lithotomy. He pe manently advanced surgery by improving many o ideas, and advancing new ones that have since bor good fruit. He was the first man to introduce art ficial labor at full term in case of hemorrhage.

The seventeenth century is of peculiar interest the American medical profession, as it witnessed th

oundation and early struggles of what may be called merican medicine. The earliest practitioners in the olonies were the medical officers sent out by the migration companies that established the colonies. r. Thomas Wooton accompanied the colony that ounded Jamestown, Va., in 1607. In 1608, Dr. Valter Russel accompanied Captain John Smith on xploring tours. However, for some reasons these en did not tarry long, so Dr. John Pot was sent to ie struggling little settlement and cast his lot for ood or bad among them. He, therefore, enjoyed the onor of being the first permanent resident physician America. He was a man of merit and to some xtent, a leader, as in 1628 he was elected temporary overnor of Virginia. Among the "Pilgrim Fathers" ho came with their families on the Mayflower and ttled at Plymouth, was Dr. Samuel Fuller, the first ysician of New England. He was held in the ghest esteem, both as a man and a physician. As rly as 1629 an effort was made to instruct the youths this new country in the art of medicine. One Lam-rt Wilson was employed and sent over with a letter introduction to Governor Endicott. A part of his ity was to instruct one or more young men in the inciples of medicine that they might be helpful to m. In 1647 the General Court published the rec-mmendation, that those studying anatomy might ve a malefactor every four years (should there be e) on which to experiment.

At that time London and Paris were the favorite sorts for the Americans who went abroad to pursue eir studies, but during the eighteenth century the endency in medicine fell to Germany, where in 54, was established the first permanent and success-l clinical institution. America, though still in its addling cloths, was reaching out with increasing gor and clamor for knowledge, so in 1765 the Uni-rsity of Pennsylvania opened a medical department. uring the next sixty-one years there were eleven ier schools organized. The Jefferson Medical Col-ge in 1826, being the twelfth school organized in nerica. There are now 151 medical colleges in the ited States, six which were established in the year 93, half as many in one year as in the first sixty ars.

As the science advances the necessity of our being ed to keep abreast of the advancing tide becomes re paramount. The practice of medicine requires uch higher education and more continuous study an is usually demanded in other callings. The ve results for which we are responsible, compel us, we are true to the cause we espouse, to be con-ntly seeking at the "fountain of knowledge." It is refore with pleasure that I speak of the advance-nts that have been made in our medical schools l laws.

Not many years ago a man who had practiced med-ie four or five years without having attended med-l lectures, could, by attending one full course of r months, apply for graduation. Soon the five rs practice clause was eliminated. Following sely upon that a three years' graded course was pted, first optional with the student, then compul-y. Now many of our colleges require a four years' rse of six, eight or nine months each.

Notwithstanding the requirements for graduation more severe year by year, and the cost of medical cation has more than doubled in the course of ten rs. in the principal institutions of the country the number of students are increasing yearly. Statistics show an attendance in 1894 and 5 of 22,887, with 4827 graduates, an increase of students of 1085 over the preceding year, but a decrease of 306 in graduates.

While the lengthened course of instruction required by most schools may not diminish the number of matriculates, it is no doubt the cause of the decrease of the percentage in medical graduates, and this will probably be still more noticeable as other schools extend their course. A few years ago many of our ambitious graduates in medicine would attend, after graduation, other courses of lectures, taking all the didactic lectures of the course. Seeing the desire of the profession to become more proficient, and recognizing the demand for a college course with all clinical instruction, leaving out the didactic, some of the New York brethren, in the winter of 1880 and '81, organized the New York Polyclinic. This school, together with others since organized, supply a long felt want, enabling a busy physician to get more clinical instruction in six weeks than could be obtained in a five months' course of lectures.

As a result of increased interest and zeal in medical education, there is now some kind of medical practice law in every State and Territory. In twenty-two States, the District of Columbia and the Cherokee Nation, a medical examination is required. In three of these the applicant is only admitted to an examination after showing his diploma. Twenty-five States and Territories and the Choctaw Nation require a diploma. In fourteen of these, the diplomas are required to be from colleges in good standing. Massachusetts honors no diploma except those from colleges in her own borders. Applicants from schools out of the State are required to pass an examination. Arkansas is the only State that grants an examination if the applicant has not a diploma from a college in good standing. In nine States and Territories there are no medical boards, and no one whose duty it is to see that the laws are enforced. It must be that the brilliant achievements of modern medicine and surgery are the direct results of our ever improving system of study and future advancements must depend on the same resources.

The grand march of medical science sweeps ever onward and upward, not in a fitful or fickle way, but with majesty of centuries of study. If we have no ambition to be known outside of our own small sphere it is nevertheless our duty to fit ourselves as well as we possibly can, to render good service to those we are called upon to administer.

We can not all be great in the eyes of the world, but we can prove ourselves faithful to the trusts confided to us. And who has greater trusts than the family physician? He is a part of every family in which he practices. He knows their joys, fears, hopes and disappointments. He is friend and adviser in heights of joy and depths of sorrow. He fosters the feeble life of the wailing mite of humanity as it comes into the world, and the same sympathetic fingers close the eyes of the beloved dead.

Immobilization in Pulmonary Tuberculosis has been tried by Bloch, who reports that a demi-cuirass of plaster on the diseased side stopped the cough, pain and vomiting and reduced the fever, in a number of cases. Auscultation after the removal of the cast in two to three weeks showed that the crepitation and râles had remarkably diminished.—*Semaine Méd.*, May 4.

ORIGINAL ARTICLES.

THE DIFFUSE INFILTRATING FORM OF CARCINOMA OF THE STOMACH.

Presented to the Chicago Pathological Society, April 11, 1898.

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On presenting a specimen of diffuse carcinoma of the stomach to the Johns Hopkins Hospital Medical Society, Professor Welch[1] remarked that there are three diseases that may produce gross alteration in the stomach, indistinguishable from each other to the naked eye, viz., cirrhosis or fibroid thickening of the stomach, primary infiltrating carcinoma and secondary infiltrating carcinoma of the stomach. Orth[2] regards the majority of instances of contraction of the stomach as due to carcinomatous infiltration, and Welch looks upon a large number of the older cases in literature reported as cirrhosis of the stomach as diffuse carcinoma of this organ, because the diagnoses were not made by microscopic examination.

The first specimen of primary infiltrating carcinoma of the stomach, which I show here, is an example of a fibrous carcinoma, or scirrhus, occurring in a woman 45 years old, who had suffered some months with ascites, which required repeated tappings; there was also progressive emaciation, but never any prominent gastric symptoms. Postmortem there was emaciation, brown atrophy of the heart and atrophy of the liver. The abdomen contained about 800 cubic centimeters of reddish fluid. The peritoneum was universally rough and thickened and there were firm adhesions between the intestinal coils and the external wall; between the adherent structures cystic accumulations of clear fluid existed, especially about the cecum, around which the structures were matted together in a hopeless tangle. There were adhesions around the spleen, the stomach, and the pelvic organs. The omentum was drawn up into the form of a thick ridge across the upper part of the abdomen. In the mesentery were bands of thick tissue containing small islands of yellow color. There was marked induration and contracted adhesions about the portal vein, the wall of which seemed thick, the lumen reduced. There was no portal thrombosis.

On separating the perigastric adhesions, the stomach was found to be a small mass about one-third the size of the normal organ; it weighs 389 grams. It seems like a solid, hard organ and retains its outline in whatever position it is placed. Its serous surface is rough and shreddy, the serosa thickened, especially along the greater curvature, where the thickening extends into the contracted omentum; the induration and thickening ceases abruptly at the duodenal and esophageal limits.

Palpation does not indicate a hollow organ. An incision along the lesser curvature reveals a small balloon-shaped cavity, the bulb corresponding to the fundus; the cavity would probably hold 150 cubic centimeters. The mucosa is entirely smooth, pinkish, but thrown into huge stiff folds on account of great thickening in the submucosa. The duodenal and esophageal mucous membranes appear normal. The walls of the stomach are greatly thickened, mostly along the larger curvature; here the wall is 1.5 to 2 centimeters thick; the thickening is due to changes in the submucous and subserous coats principally; these are composed largely of a hard gristly substance. The muscular coat appears more hypertrophied. In no part of the stomach is there any primary tumor. There were no isolated metastases.

Microscopically it is shown that the thickening is due to the growth of a large amount of fibrous tissue in the submucous and subserous coats and to hypertrophy of the muscular layer. Shrunken epithelial cells are present in all coats arranged in small rows and alveolar masses, but the fibrous tissue predominates markedly, and it was necessary to make many sections in order to find any distinct carcinomatous structure. The mucous membrane is not at all characteristic because of a diffuse destruction of its cells and glands. Sections from the omental and peritoneal thickening also show a fibrous carcinomatous structure.

Here we have, then, a diffuse infiltrating fibrous carcinoma of the whole stomach; the growth is primary. The carcinoma has infiltrated the omentum, the peritoneum and the perigastric structures, resulting in great thickening and contracting dense adhesions which, among other results, led to compression of the portal vein and its branches, thus producing an ascites which is of interest from the standpoint of differential clinical diagnosis.

The second specimen of diffuse carcinoma of the stomach concerns an example of the somewhat rare form of infiltrating medullary carcinoma, the ulceration of the mucous surface being confined to a small circumscribed area.

The patient was a man 45 years old, in Dr. Edwards ward in the Cook County Hospital. The following facts have been abstracted from the clinical notes The illness began about four months before death with pain in epigastrium, vomiting of food only; has lost almost forty pounds in weight. He was much emaciated, the skin sallow and harsh. There was tenderness over the whole abdomen, the stomach apparently covered by the greatly enlarged liver which reached below the navel and into the left hypochondrium, being somewhat dome-shaped. Three attempts to secure stomach contents failed; the tube seemed to meet some obstruction at or near the cardiac end of the stomach.

The postmortem showed emaciation and general icterus. There were small but firm nodules on the peritoneum. The lymph glands in the hilum of the liver were much enlarged and caused pressure on the bile ducts, the gall bladder being greatly distended. The retrogastric and retroperitoneal lymph glands were also enlarged and infiltrated. The stomach is very small; it weighs 150 grams; the cavity is very materially reduced in size. On the posterior wall near the esophageal opening is an ulcer with raised margins and rough floor, about 2 by 3 centimeters in extent. Spreading apparently from this point, there has occurred a diffuse infiltration of the walls of the stomach leading to great thickening of all the coats of the organ, which gradually becomes less marked as the pylorus is approached, so that at a point about 5 centimeters from the pylorus the walls seem of normal thickness. The mucous membrane is covered with a grayish black mucus. The liver contained innumerable secondary tumors and weighed 550 grams.

Microscopically (sections demonstrated) the tumor of the stomach is seen to be made up of rather sma

1 Bulletin Johns Hopkins Hospital, October, 1893.
2 Pathologische Anatomie.

irregular epithelial cells arranged in a loose stroma in quite solid heaps and columns, which have grown diffusely throughout the coats of the stomach, following apparently the lymph vessels, the infiltration being most pronounced in the submucous and subserous coats, but invading the muscular coat also, in the form of a branching small-alveolated carcinomatous network.

CECAL HERNIA WITH A CLASSIFICATION OF SIXTY-THREE CASES.

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My attention was turned to the subject of cecal hernia by a case which occurred in the service of Dr. T. S. K. Morton at the Polyclinic Hospital about two years ago and later by another upon which I saw Dr. Richard H. Harte operate at the Pennsylvania Hospital, and it is due to the kidness of these gentlemen and of others who have allowed me the use of their unreported cases, that I am enabled to make the following report. By looking up the literature of this variety of hernia and by making inquiries among operators largely experienced in herniotomy, I have been able to collect and classify sixty-three cases, and from them draw certain conclusions which I trust may prove of interest. In the appended table of cases I have only included the inguinal and femoral varieties of hernia, and of these only such as have been proved clearly to contain some portion of the cecum or appendix, or both.

The history of cecal hernia dates back to the sixteenth century, since when at frequent intervals it has been the subject of much discussion. As to its frequency of occurrence it is rather difficult to speak definitely, but, judging from the number of cases recently reported and the number met with in the experience of single operators, one is led to conclude that the condition is more frequent than is generally supposed. Coley of New York, for instance, reports sixteen cases of hernia of appendix or cecum in 351 operations for femoral and inguinal hernia, and says he has frequently been able to diagnose the presence of the appendix in the sac of herniæ where no operation was done. Another surgeon whose experience is limited to twenty-five or thirty herniotomies has met with the condition four times, but this is unusual, as many men who have had a much larger experience have never had a case. The five cases of Wright of Manchester, which were operated upon and are found in this list, occurred in a series of twenty-four herniotomies done in children.

As to the age at which this form of hernia is most likely to be found, authorities have differed, but it certainly seems that it is in early childhood. Treves has said that it "is practically limited to adults," but Wright, Shepard and others regard it as most frequent in children. It is interesting to observe in this connection that Coley, whose work has largely been among children, has reported sixteen cases of cecal hernia, only one of which was in a patient over fifteen years of age, in 351 operations for femoral and inguinal hernia, while Halsted, in 291 operations for inguinal hernia, had only five cases, and in only two of these was the patient over 15 years of age. Combining these statistics we find that in 642 herniotomies there were twenty-one cases in which cecum or appendix was found in the sac, and of these twenty-one only three occurred in patients over 15 years of age. Of the present sixty-three cases, thirty-three were in patients under 15 years of age, five between 15 and 40 years, seven between 40 and 50 years, and fifteen in patients past 50 years. The oldest patient in this series is that of Dr. W. O. Roberts, a man of 80 years. The frequency of this condition in old age or rather after middle life, as shown in these cases, is probably due to the laxity of the tissues at this time of life.

Sex bears an important interest in consideration of this subject, the condition rarely occurring in women, and particularly is this true of the congenital variety. Only eight of the sixty-three are found in women and these patients are all over 40 years of age, and all are femoral with one exception. The anatomic differences, the infrequency of inguinal hernia in women, and the descent of the testicle in the male accounts for the relative frequency in the two sexes.

The right inguinal is the variety of hernia in which the cecum is most likely to be found, next, the right femoral, then the left inguinal and finally the left femoral. Of the present series forty-four are right inguinal, six right femoral, six left inguinal and one left femoral.

When occurring in adults the condition is most likely to be acquired, while in children it is usually congenital; of the thirty-six acquired cases in the present list only eleven are in children; and of the thirty-three congenital cases all are in children. Of the seven left sided herniæ, three were in children and congenital, and four in adults over 58 years of age and acquired. A great deal has been written regarding the cause of this variety of hernia; in children, the condition, being nearly always congenital, or coming on soon after birth, is more easily explained than in adults where it is acquired. During the process of fetal development the cecum is anchored more or less loosely to the front of the spine by its mesentery, and makes a pretty general circuit of the abdominal cavity before it at last settles down in the right iliac region; and it would seem that during this period it would be most likely to find its way outside the abdominal cavity. Wrisberg has accounted for congenital hernia of the cecum by showing how this portion of the bowel may follow the descent of the testicle in the processus vaginalis. Others contend that in fetal life there is a connecting band between the appendix and cecum and the testicle, and in several of the cases here reported the operator found a band attaching the appendix to the testicle so firmly that division with scissors was necessary before reduction could be made. Macready, who has given this subject a great deal of attention, writes that, "in congenital cecal hernia the peritoneal fold (plica vascularis) is generally still present, together with an unusual amount of unstriped muscle, distributed on the posterior wall of the sac and extending from the testis upward to the cecum." Occasionally the cecum does not become firmly fixed in its normal position and in such instances it has been shown to be of much smaller size than is ordinarily the case; a fact which would render hernia of this gut more likely and would probably account for some of the cases of the acquired variety. Still hernia of the cecum coming on in middle life is not easily explained. I am inclined to think, from several of the histories of patients here reported, that the

No.	Surgeon.	Reference.	Sex and age.	Variety.	Acquired or congenital.	Contents.	Condition of contents.	Results.	Remarks.
1	Austin, J. E. . . .	N. Y. Med. Rec., 1891, 39, p. 622.	M., 25	Right inguinal, strangulated.	Acquired, duration 3 days.	Cecum, appendix and 3 in. of ascending colon.	No sac could be found, cecum adherent to scrotal tissues, pale, appendix free, contents inflamed.	Recovery.	. . . . .
2	Annandale, Thos.	London Lancet, 1889, i, p. 627.	F., 60	Right femoral, irreducible.	Acquired, duration 20 years.	Appendix alone.	Pus and blood in and around sac, appendix adherent around neck of sac, occluding it, appendix perforated, but no concretion.	Recovery.	Appendix, 3½ in., removed. Thinks concretion may have escaped with pus without being detected.
3	Bennett, W. H. . .	Med.-Chir. Trans., London, 1890, lxxiii, 129.	M., 52	Right inguinal, strangulated.	Acquired, duration 18 years.	Cecum, containing invaginated ileum without sac.	Below cecum was found a sac containing omentum which was adherent to testicle.	Death.	Hernia was never altogether reducible and on day before admission became suddenly larger. Cecum was unintentionally opened.
4	Black, R. S. . .	Brit. Med. Jour., 1890, ii, p. 1177.	M., 69	Left inguinal, partially reducible.	Acquired, duration 5 years.	Cecum with appendix and portion of ileum.	Appendix adherent to cecum, but not to sac.	. . . . .	Condition found postmortem; no operation.
5	Coley, W. B. (1). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 22	Right inguinal, irreducible.	Not given.	"Cecal."	Not given.	Recovery.	. . . . .
6	Coley, W. B. (2). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 4	Left inguinal, irreducible.	Congenital.	"Cecal."	Not given.	Recovery.	Hernia was large.
7	Coley, W. B. (3). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 4	Right inguinal, irreducible.	Congenital.	"Cecal."	Not given.	Recovery.	Left inguinal hernia also present.
8	Coley, W. B. (4). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 1	Left inguinal, strangulated.	Congenital.	Cecum and appendix.	Very much congested.	Recovery.	. . . . .
9	Coley, W. B. (5). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 10	Right inguinal, partially reducible.	Congenital.	"Cecal."	Appendix 4 in. long, and adherent to sac throughout.	Recovery.	Appendix was outlined by palpation before operation.
10	Coley, W. B. (6). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 7½	Right inguinal, strangulated.	Congenital.	Cecum and appendix.	Appendix gangrenous and was removed.	Recovery.	Died later from marasmus.
11	Coley, W. B. (7). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 9	Right inguinal, reducible.	Not given.	"Cecal."	Not given.	Recovery.	Large.
12	Coley, W. B. (8). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 4½	Right inguinal, reducible.	Congenital.	Cecum.	Not given.	Recovery.	. . . . .
13	Coley, W. B. (9). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 8½	Right inguinal, reducible.	Congenital.	"Cecal."	Not given.	Recovery.	Hernia also present on left side.
14	Coley, W. B. (10). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 8½	Right inguinal.	Acquired, duration 5 years.	Appendix alone.	Adherent to sac.	Recovery.	Appendix 5½ in.
15	Coley, W. B. (11). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 4	Right inguinal, irreducible.	Relapse after operation by another surgeon.	Cecum.	Cecum adherent everywhere, no sac found.	Recovery.	At first operation cecum was found adherent to testicle, which organ was removed.
16	Coley, W. B. (12). .	Annals of Surgery, Apr. 1895, Mar. 1897	M., 6	Right inguinal.	Acquired, duration 2 years.	Appendix alone.	Adherent by meseutery to sac.	Recovery.	Appendix 5 in. long.
17	Coley, W. B. (13). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 7	Left inguinal.	Congenital.	Appendix.	Not adherent.	Recovery.	Appendix 4½ in.
18	Coley, W. B. (14). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 14	Right inguinal, reducible.	Congenital.	Cecum,	Not covered by peritoneum posteriorly.	Recovery.	Hernia was large.
19	Coley, W. B. (15). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 8	Right inguinal, reducible.	Acquired, duration 4 years.	Appendix.	Adherent, removed.	Recovery.	. . . . .
20	Coley, W. B. (16). .	Annals of Surgery, Apr. 1895, Mar. 1897.	M., 9	Right inguinal.	Congenital.	Appendix alone.	Adherent, removed.	Recovery.	. . . . .
21	Collier, Mayo . . .	London Lancet, 1896, ii, p. 1601.	M., 39	Right inguinal, strangulated.	. . . . .	Cecum with appendix and portion of ileum.	Cecum adherent posteriorly.	Recovery.	Very large.
22	Corson, E. S. . . .	Personal com. from Tonngoo, Burmah.	M., 10	Left inguinal, irreducible.	Congenital.	Cecum and appendix.	Cecum adherent and separated with difficulty.	Death.	. . . . .
23	Harte, R. H. (1). .	Personal communication.	M., 52	Right inguinal, strangulated.	Aequired, 36 years.	Cecum, appendix and portion of ileum.	Ileum lay in front and was easily reduced; cecum was very adherent, appendix much inflamed, containing concretions.	Recovery.	Appendix was removed; hernia became suddenly larger and strangulated on day of admission.
24	Harte, R. H. (2). . .	Personal communication.	M., 1/6	Right inguinal.	Acquired.	Cecum and appendix.	. . . . .	Recovery.	. . . . .
25	Halsted, W. S. . .	Personal communication (1).	M., 8	Inguinal, reducible.	Aequired shortly after birth.	Cecum and appendix.	Appendix adherent to sac.	Recovery.	Hernia very loose; appendix not removed.
26	Halsted, W. S. . .	Personal communication (2).	. . 3	Inguinal, indirect, strangulated.	Congenital.	Cecum, appendix and ileum.	Ileum adherent to sac.	Recovery.	Large hernia.
27	Halsted, W. S. . .	Personal communication (3).	. . 1 3/4	Inguinal, reducible.	Congenital.	Cecum and appendix.	No adhesious to sac.	Recovery.	Large hernia; appendix removed.
28	Halsted, W. S. . .	Personal communication (4).	. . 48	Inguinal.	Aequired; duration since childhood.	Cecum and appendix.	No adhesions, part of sac formed by meso-cecum.	Recovery.	Very large hernia.
29	Halsted, W. S. . .	Personal communication (5).	. . 35	Inguinal, strangulated.	Acquired; duration 6 hours.	Cecum, appendix and 3 feet of ileum.	Appendix injured by trauma, which produced hernia.	Recovery.	Appendix removed.
30	Keetley, C. B. . .	Med. Press and Circ., 1890, i, p. 85.	F., 53	Right femoral, irreducible.	Acquired; duration 6 months.	Appendix alone, somewhat swollen.	No distinct peritoneal sac.	. . . . .	Appendix removed; a portion of hernia reduced before operation.
31	Knowles, J. H. . .	Bostou M. & S. Jour., 1896, cxxxiv, p. 215.	. . 3/12	Right inguinal, strangulated.	Congenital.	Cecum, appendix and small gut.	Contents congested; "stinking pus" in sac.	Recovery.	No perforation of appendix, not removed.
32	Le Conte, R. G. . .	Personal communication (1).	M., 49	Right inguinal, strangulated.	Acquired; duration 32 years.	Large portiou of small intestine and appendix.	Appendix adherent at internal ring.	Death.	Appendix not removed.
33	Le Conte, R. G. . .	Personal communication (2).	M., 41	Right inguinal, strangulated.	Acquired; operated ou 22 years ago.	Cecum, appendix and small intestine.	. . . . .	Recovery.	. . . . .
34	Le Conte, R. G. . .	Personal communication (3).	M., 54	Right inguinal, partially reducible	Acquired; duration 35 years.	Cecum, appendix and small intestine.	Almost universally adherent to sac.	Death.	Adhesions very dense. Dr. LeConte thinks portion of bladder was present in sac.

	[illegible]	Personal communication (4).	M., 1 2/12	Right inguinal, reducible.	Congenital.	Cecum, appendix and small intestine.	No adhesions.	Recovery.	Hernia also on left side, but right was much larger.
36	Morton, T. S. K...	Personal communication.	M., 25	Right inguinal, strangulated.	Acquired; duration 5 years.	Cecum, appendix and ileum.	. . . . .	Recovery	. . . . .
37	Paget, Stephen(1)	London Lancet, 1891, i, p. 928.	M., 1	Right inguinal, strangulated.	Congenital.	Lower part of sac contained ileum, upper part cecum.	. . . . .	Recovery.	. . . . .
38	Paget, Stephen(2)	Loudon Lancet. 1891, i, p. 928.	M., 3/12	Right inguinal, strangulated.	Congenital.	Cecum and a very large appendix.	Congestion of appendix.	Recovery.	. . . . .
39	Paget, Stephen(3)	London Laucet, 1891, i, p. 928.	M., 3/12	Right inguinal, strangulated.	Congenital.	Cecum, appendix and small intestine.	Matted together and to sac, parts above much inflamed.	Death.	Perforatiou of peritoneum. sac filled with feces; artificial anus made.
40	Rand, H. W. . . .	Brooklyn Med. Jour., 1893, vii, p. 751.	F., 40	Right femoral, strangulated.	Acquired.	Cecum, 6 inches of colon and small intestine.	Bound together, while behind was fouud the appendix perforated and in cavity filled with pus.	Death.	No concretions.
41	Roberts, W. O.(1).	Med.Age, Detroit,1896, vol. xiv.	M., 80	Left inguinal, strangulated.	Acquired; duratiou many years.	Cecum and appendix.	. . . . .	Recovery.	. . . . .
42	Roberts, W. O.(2).	Med.Age, Detroit,1896, vol. xiv.	M., 56	Right inguinal, strangulated.	Acquired.	Cecum and large part of ileum.	No adhesions.	Recovery.	. . . . .
43	Roberts, W. O. (3)	Medical Age, Detroit, 1896, Vol. xiv.	M., 1	Right inguinal, strangulated.	Congenital.	Cecum and appendix, with pin protruding from appendix.	. . . . .	Recovery.	Pin protruded from posterior wall of appeudix which was removed.
44	Roberts, W. O. . .	Medical Age, Detroit, 1896, Vol. xiv.	M., 5	Right inguinal, strangulated.	Acquired.	Cecum and appeudix.	. . . . .	Recovery.	. . . . .
45	Roberts, John B. .	Annals of Surgery, 1895, 23, p 611.	M., 60	Right inguinal, strangulated.	Acquired, duratiou many years.	Cecum with absence of appeudix.	Congenital absence of appendix proved by laparotomy doue later.	Recovery.	Very large hernia, two operations previously.
46	Shepard, F. J. (1)	Annals of Surgery, 1892, 12, p. 122.	M., 53	Right inguinal, strangulated.	Acquired, duration 11 years.	At upper part of sac a mass of omentum and cecum, latter covered only in front with peritoneum.	Omentum aud cecum firmly bound together, portion of tumor returned to abdomen before opening sac.	. . . . .	Thinks this was a double hernia, became suddenly larger 2 years ago, before which time was reducible.
47	Shepard, F. J. (2)	Annals of Surgery, 1892, 12, p. 122.	M., 3½	Right inguinal, irreducible.	Acquired, duration 2½ years.	Cecum.	. . . . .	Recovery.	. . . . .
48	Silcock, A. Q. . .	British Medical Journal, 1888, 1, p. 294.	M., 1 3-12	Right inguiual, strangulated.	Congenital.	Cecum and appendix.	. . . . .	Recovery.	Large hernia.
49	Stevens, W. H. . .	Alabama Medical and Surgical Age, 1893, 4, vi, p. 521.	F., 74	Right inguinal, strangulated.	Acquired.	Appendix alone, gangrenous, sac filled with pus.	Appendix abnormal at basc all around internal rlng, thus preventing access of pus to general peritoneal cavity.	Recovery.	Heruia ou left side also.
50	Treves, Frederick	British Medical Journal, 1887, i, p. 382.	M., 41	Right inguinal.	Acquired, duration 6 years.	Two sacs with common neck; outer contained cecum, appendix and portion of colon and ileum; inner coutained ileum.	Cecuui adherent to sac, no mesocecum.	. . . . .	Hernia large.
51	Treves, Frederick	British Medical Journal, 1887, i. p. 382.	F., 56	Right femoral, reducible.	Acquired, duration 2 years.	Cecum and appendix.	No operation.	. . . . .	Cecum and appeudix easily palpated.
52	Van Hook, W. . .	Medical and Surgical Reporter, 1896, 74, p. 313.	M., 43	Right inguinal, strangulated.	Acquired, duration 1½ years.	Sac contained large amount of jelly-like amber colored fluid.	Was partly reduced before opening was made.	. . . . .	Proved to be a cyst of appendix, which was ruptured in reductiou.
53	Walker, John B. .	Medical Record, 1897, li, p. 227.	F., 67	Right femoral, strangulated.	Acquired, duration 29 years.	Cecum, appendix and ileum.	Gut matted together, but not adherent to sac.	Recovery.	Coustriction divided but yet not reduced for several days on account of its congested condition.
54	Wright, G. A. (1)	British Medical Journal, 1887, i, p. 506.	M., 5-12	Right inguinal, strangulated.	Acquired, duration 2 months.	Cecum, appendix and portion of ileum,	. . . . .	Recovery.	Operated upon twice previously, same conteuts.
55	Wright, G. A. (2)	British Medical Journal, 1887, i, p. 506.	M., 7	Right inguinal, reducible.	Congenital.	Cecum, appendix and ileum,	. . . . .	Recovery.	. . . . .
56	Wright, G. A. (3)	British Medical Journal, 1887, i, p. 506.	M., 11-12	Right inguinal.	Acquired, duratiou 1 week.	Cecum, appeudix and ileum.	. . . . .	Recovery.	Also has umbilical hernia.
57	Wright, G. A. (4)	British Medical Journal, 1887, i, p. 506.	M., 6½	Right inguinal, reducible.	Acquired when 3 months old.	Cecum, appendix and ileum.	. . . . .	Recovery.	Large heruia.
58	Wright, G. A. (5)	British Medical Journal, 1887, i, p. 506.	M., 3-12	Right inguinal, reducible.	Acquired, duration 2 weeks.	Appendix plainly palpated.	No operation.	. . . . .	Also has umbilical hernia.
59	Wright, G. A. (6)	British Medical Journal, 1887, i, p. 506.	M., 2	Right inguiual.	Congenital.	Cecum, appendix and omentum.	Broad band conuected appendix with testicle and had to cut before reduction was possible.	Recovery.	Hernia on left side also; contents reducible except appendix, which could be plainly palpated.
60	Wright, G. A. (7)	British Medical Journal, 1887, i, p. 506.	M., 4	Right inguinal.	Congenital.	Appendix plainly felt before operation.	Reduction made before sac was opened.	Recovery.	. . . . .
61	Waring, H. J. (1)	St. Barth. Hos. Rep., 1891, xxvii, p. 180.	F., 46	Right femoral, strangulated.	Acquired, duration 12 years.	Appendix alone.	Ulcerated and perforated at point of coustriction, healthy at attachments.	Recovery.	All symptoms of obstruction were here present.
62	Waring, H. J. (2)	St. Barth. Hos. Rep., 1891, xxvii, p. 180.	F., 58	Left femoral, incarcerated.	Acquired, duration 24 years.	Cecum, appendix and portion of ileum.	Congested, no ahesions.	. . . . .	Patieut's two brothers were ruptured.
63	DaCosta, J. Chalmers	Persoual Communication.	M., 41	Right inguinal, incarcerated.	Acquired (?) when 15 years old.	Cecum, appendix, portion of colou and ileum with a very large mass of omentum.	Coutents greatly congested Large bowel was to the outside and behind and was not entirely covered posteriorly by peritoneum.	Recovery.	Dr. DaCosta thinks this hernia was congenital.

cecum has been dragged down by a pre-existing hernia of the ileum. Given a small cecum, and perhaps one freely movable, and a hernia of the ileum it would seem plausible that some additional muscular effort might produce a hernia of the large gut. Dr. Harte's second case would rather show the reverse of this argument, however, as here the hernia of the cecum undoubtedly ante-dated that of the small bowel, which lay near the internal ring and was easily reduced while the cecum was below and firmly adherent. In several instances the appendix has been found just within the internal ring while the rest of the sac was filled with coils of the ileum; one of Dr. Le Conte's cases illustrates this condition.

Regarding the mobility of the cecum, Treves, by an examination of 100 bodies, has shown it to be very great; in many instances he could make it touch the liver and frequently was able to carry it to any part of the left pelvis. The various positions in which the appendix has been found would tend to confirm this opinion. The question regarding the sac of cecal hernia is interesting; Mr. Treves has done much to convince the profession that the old teaching of absence of sac in these cases is wrong. The idea of complete or partial absence of peritoneal covering in cecal hernia has been traced to Scarpa and it was until recently the prevalent belief. In his examination of 100 bodies Treves found the average distance from the tip of the cecum to the reflection of the peritoneum from the posterior wall of the colon to be four inches. In a very few of the cases here tabulated the sac was deficient posteriorly, but in nearly all there was a complete sac.

Probably the most interesting part of this subject is the condition in which the contents of a cecal hernia are found. In the present list twenty-eight were strangulated, twelve reducible, eleven irreducible, ten not stated, and two incarcerated. It will be observed in looking over these cases that beside the tendency to strangulation the adhesions between the contents and to the sac are more frequent in this variety of hernia than in other kinds. I was surprised not to find a greater proportion of diseased appendices in this condition. Bajardi found the appendix diseased in 30 per cent, which is much larger than is here presented although there will be found in this list several cases of very far advanced disease of the appendix. One of the most interesting cases is that of Dr. Stevens of Cardiff, Ala., in which the sac was filled with pus and the sole occupant a broken-down appendix, which was adherent all round its base to the neck of the sac, thus protecting the peritoneal cavity. Dr. Rand of Brooklyn, reports another case of perforated appendix and pus in the sac. A unique case is the one of Dr. W. O. Roberts of Louisville, in which he found the cecum and appendix in the sac and a pin protruding from the posterior wall of the appendix. A specimen in Guy's Hospital Museum also shows a pin protruding from an appendix which was present in the sac of a hernia. Dr. Van Hook reports the very unusual condition of a cyst of the appendix, ruptured in reduction and the sac filled with cyst contents. Annandale's case is very much like that of Dr. Stevens. He found pus and blood in and around the sac, the appendix being adherent within the neck. It will be observed that inflammation of the appendix has occurred in those instances in which it was alone in the sac, Dr. Rand's case being the only exception. There are several instances in this series where hernia was present on both sides, but, probably the most interesting case of this kind is reported by Broca, who found in the right sac, a loop of the colon, and in the left, the sigmoid flexure, cecum and several inches of ascending colon, and ileum. The presence of concretions and foreign bodies in the appendix are rare in this list of cases, again making a contrast with Bajardi's series. He studied ninety-eight cases and found the appendix inflamed in thirty, containing foreign bodies in eleven, perforated in sixteen, and gangrenous in four. In comparatively few of the present cases was the appendix diseased; its condition is frequently not stated and the supposition is that in these instances it was healthy. Foreign bodies were present in two cases and perforation occurred in five. Before leaving the pathology of cecal hernia two of the cases in this series should be mentioned. One is that of Dr. Bennett of London, who found the cecum to contain a portion of invaginated ileum. The other is one of congenital absence of appendix, reported by Dr. John B. Roberts.

The diagnosis of cecal hernia is very seldom made before the sac is opened, except, perhaps, in children and in old people, where the wall is very thin and permits of palpation of the appendix. Coley has been able to make the diagnosis on several occasions in children, and he and others have been able to reduce all the contents of a hernia except the appendix which was adherent and could be easily outlined. Several of the cases here tabulated were diagnosed before operation. In nearly all the cases where the cecum was in the sac, the hernia is described as large and when the appendix alone was present there was usually pain and tenderness.

The treatment of this variety of hernia varies little from that applied to hernia generally, unless in cases where a diagnosis is made, and then I think an early operation should be the rule, because of the tendency to strangulation and disease of the appendix. Particularly is this true where the appendix alone can be felt in the sac and is painful and tender on palpation because here suppuration is more likely to occur than where other portions of intestine accompany it. The removal of the appendix will depend upon its condition and the attitude of the individual operator toward the general question of its removal.

Of the sixty-three cases here appended thirteen have never before been reported and of the others I have endeavored to avoid any that might be included in other classifications.

324 South 19th Street.

CONSERVATIVE SURGERY.

Presented in the Fourth Annual Meeting of the American Academy of Railway Surgeons at Chicago, Ill., Oct. 6-8, 1897.

BY RICARDO ORTEGA, M.D.

CHIEF SURGEON MEXICAN INTERNATIONAL RAILWAY.

DIAZ, MEXICO.

The large number of maimed persons I have seen among railway employes, prompts me to make a few remarks with a view to enlisting co-operation in preventing the unnecessary mutilation of the injured.

It is true that we frequently encounter ungrateful patients who blame us because the member we have saved, after toiling with it more than we would have been obliged to do had we resorted to amputation, is not in as good condition as it was before the ac-

dent. Others aver that we are not surgeons if we do not mutilate. This opinion, however, is of no importance when we are conscious of having done our best. It is the better plan to preserve all we can of an injured organism, even at the risk of retaining, for a time at least, that which may ultimately be an encumbrance. I have had cases when it seemed that to preserve an injured member would be useless or a nuisance to the patient. Nevertheless I have, as an almost invariable rule, suggested preservation and results have more than fulfilled my hopes.

Among others, I remember the case of J. Griffin, a locomotive engineer, who had his left elbow crushed. The wound showed a comminuted, compound fracture of the upper epiphysis of the radius and cubit, and lower part of the humerus. Splinters of bone showed through and were extracted from the skin. My colleagues proposed amputation, but I succeeded in having it deferred until it should become absolutely necessary. Such necessity never occurred, for with proper antiseptic treatment, and infrequent, dry dressings the arm was saved, and, later on, the patient became known as one of the most efficient engineers on the road.

In my thesis on soliciting admission to the National Academy of Medicine of Mexico, I referred to the case of an articular gunshot wound. The larger portion of the bullet lodged in the tibio-astragaloid articulation, and the smaller fraction in the soft parts in front of the same articulation. The wound was infected by pieces of sock driven in by the bullet. Yet, at the proper time I extracted the bullet and the patient entirely recovered the use of his feet. I could cite many other cases of similar nature, but I think it will be sufficient to state, that since the year 1888, when I entered the service of the Mexican International Railroad, the only amputations I have been obliged to make have been one forearm at the lower third, one foot at the metatarsus and two fingers.

There is nothing so easy as to thoroughly clean a wound and the surrounding skin. In the case of train and shop men, it is often unnecessary for the washing process to be extra thorough if the skin has been stained with lubricating oil, because, although I have had no opportunity to make a bacteriologic examination of that substance, it is my impression that it has aseptic qualities, since in nine years practice I have yet to detect a case of poisoning from contact with black oil. Possibly its aseptic qualities are due to its having been subjected for a long time, to heat caused by friction in the machinery. The washing I have mentioned, can be followed by hemostatic treatment, and then over the bloody surface and fill in the interstices with an antiseptic salve, such as iodoform or salol 5 grams, antipyrin and borate of soda, each 1 gram, and vaselin 0 grams. This has an advantage over powdered iodoform, in that it prevents the gauze and cotton, which complete the dressing, from adhering to the wound, and causing, on their removal, not only considerable pain to the patient, but also tearing of soft tissues and consequent delay in healing.

A crushed member can be kept dressed in this manner for fifteen days or more, if no indications appear that the dressing should be removed. This seldom happens, because the flaps, which may become affected with gangrene, are surrounded by an antiseptic salve which prevents their infecting other parts of the wound. Many of these diseased flaps, which are considered impossible to preserve, surprise us, not only by living, but adhering properly, if we have correctly placed them. Then we may not have to intervene, and if we are obliged to do so, we will find the patient in a better condition, and no longer under the influence of the shock. Before wrapping up the member, we have to remove its extremity if it is only held by a few tendons or a flap of skin or muscle insufficient for nutrition. If we find a stump with a tendency to assume a conical shape we will have to trim it, but all this can be done without risk.

Dr. Paul Reclus, in an able article on the subject, published last year in the *Revue de Chirurgie*, advises the use of bichlorid of mercury and carbolic acid, in small quantities, in addition to the antiseptic salve, and the insertion of gauze in all the spaces. This last suggestion appears very appropriate in cases of large crushed wounds. He ends by saying, "henceforth we shall have no traumatic amputations."

In preserving instead of amputating an injured member, we do a more humane duty, and accomplish a practical purpose. We save the company we work for from payment of a heavy indemnity.

A PLAN TO MODIFY THE JAPANESE JINRIKISHA INTO A WHEELED LITTER FOR REMOVING THE WOUNDED IN BATTLE.

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Twenty-eight years ago a great industrial revolution occurred in Japan. It was nothing less than a total change in the ancient vehicles employed in the transportation of passengers. Wheeled carriages had seldom or never been used before this. A few officials rode on horseback. The usual plan was for the poor to go on foot and the rich to hire coolies who carried them litter-fashion in sedan chairs and cagos. The cago was a kind of litter suspended to a pole and carried on the shoulders of two coolies. As this is very exhausting labor each coolie carried also a stick as long as from his shoulder to the ground. When they found it necessary to rest they set these sticks upright under the ends of the pole, thus relieving them from the weight. Men of means traveling to a distant destination hired four or six coolies, who relieved each other from time to time. This laborious mode of travel went on for ages. In 1870, twenty-eight years ago, an ingenious man in the city of Tokio discovered the fact that coolies can draw about six times as much weight on a pair of light wheels as they can carry in a cago, besides traveling at twice the speed. This was an astounding discovery in Japan, and the author of it forthwith invented the famous vehicle called the jinrikisha. *Jin* means man, *riki* is power and *sha* is a carriage, literally the man-power-carriage. The Americans in Japan jocosely call it the "Pull-man-car."

It is simply a small chaise with light wheels about forty inches in diameter and drawn by shafts, between which a coolie stations himself instead of a horse. Seizing the shafts he trots off from four to six miles an hour. A fair ordinary day's work is a little less than twenty miles, but in emergencies they will do more. Two of them have been known to take a passenger forty miles in a day. The jinrikisha men are short and very strong and their business develops tremendous muscles in their thighs and in the calves

of their legs. Two of them will trundle a passenger up a high hill without difficulty.

The new invention won a phenomenal success in Japan and drove the old cagos totally out of existence. There are now in the city of Tokio alone over ten thousand jinrikishas.

It seems strange at first glance that European and American armies should still use hand litters exclusively in lugging the wounded from the line of battle back to the ambulances, but there are reasons for it. Up to almost the present time old-fashioned muskets were used, that had only a short range, and the danger belt behind the fighting line was so narrow that the ambulances could be driven up pretty close, enabling the litter bearers easily to bring the wounded to them. The new long-range guns have immensely widened the danger belt, and in level open ground the ambulances and the field hospitals will have to be kept very far back. Now the carrying of wounded men on hand litters is a very severe and exhausting work. Lieut. von Kries of the Austrian army experimented to see how much could be accomplished by the bearers. He found that eight litters carried by thirty-two men (four bearers to a litter as usual) got back only thirty-two wounded to a distance of about four hundred yards in three hours, and they were giving out with exhaustion at the end. Now the ambulances must often be twice that distance away, and in a severe action the bearers would not be able to clear the field.

Now if the jinrikisha idea were modified so as to give us a light pair of wheels with a slender frame, on which an ordinary removable hand litter could be laid with the wounded man upon it, two bearers could trundle the patient back to the ambulances in a very short time with little fatigue. Like hand-litter bearers, they must lie down when the gusts of heavy firing come and get up and move on in the lulls between them. These lulls in the firing will come with the new weapons fully as often as they did with the old ones, thus permitting the removal of the injured to go rapidly on.

This idea is not altogether new. Mr. John Furley, a surgeon in England, devised a wheeled litter a number of years ago. Also Gen. C. H. Thompkins of the United States Army planned another, which was quite ingenious but rather complicated. As the short-range guns were still in use the wheeled litters were not urgently needed and so the idea was dropped. A United States officer explains that the fighting of the American troops at that time was exclusively against the Indians, and carried on in such an extremely rough and broken country that General Thompkins' wheeled litter could not be made available.

To some extent this obstacle of rough country will exist hereafter, as it has in the past, but the great armies of the future will often line up for battle across broad open plains where ambulances can not come near the front, and then wheeled litters will become very necessary assistants in clearing the field of the wounded.

For valuable information on Oriental vehicles I am indebted to a Japanese gentleman, Prof. Massuo Ikuta, of the University of Chicago.

3912 Lake Avenue.

Cure of Asthma with Serum Treatment.—Two cases are reported of complete cure of asthma accompanying streptococcus rhinitis, with injections of antistreptococcus serum. This experience confirms Landouzy's assertions that asthma is caused by a toxin, usually tuberculous.—*Presse Méd.*, May 4.

THE ANCIENT AND MODERN INSTRUMENTS USED IN DIAGNOSIS AND TREATMENT OF DISEASES OF THE ESOPHAGUS AND STOMACH.

Read before the Colorado State Medical Society, June 15, 1897.

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The stomach and esophagus remained a terra incognita with reference to the diseases they are subject to as long as these organs remained inaccessible to direct examination and the application of local remedial measures. The invention of an instrument that possesses both diagnostic and therapeutic virtues has thrown much light into these obscure regions of the human anatomy. The instrument which now supplies the want felt for centuries is the stomach tube. This insignificant looking piece of rubber tubing, which has found a place in the armamentarium of every modern physician, was not born in a day. Like every other instrument, the stomach tube has a history.

History of the stomach tube.—The origin of the stomach tube is shrouded in mystery. Who was the first to dare insert an instrument into the esophagus and down into the stomach for some definite purpose we do not know. Was it necessity or curiosity, was it the juggler or the magician who first practiced this art, is equally unknown; it is reasonable to suppose that it was necessity, the mother of invention. We find in Æsop's fables a story wherein the crane is supposed to have used his long beak for the purpose of extracting a bone which stuck in the throat of the fox. Under similar circumstances, man may have used his fingers, or has improvised an instrument to extract a foreign body from his own or his fellow's throat. While performing this primitive operation he may have noticed that irritating the esophagus produces vomiting.

The first mention of a contrivance which may be considered as the forerunner of the stomach tube is to be found in the "Scholia" of Aristophanes.[1] The highly cultured Greeks, in cases of poisoning, introduced a feather into the esophagus and thus produced vomiting. The Alexandrian Meander tells us that the physicians of that period used to produce emesis either by hand, feather or wooden stick.

The Romans went a step farther. Their ideal was to eat well. It seems that they had only one meal a day—from morning till bedtime. In order to escape the evil consequences of an overloaded stomach the last course of every *menu* was a *vomitivum*. The emetic, however, proved at times a troublesome luxury. The dose was too small and an annoying nausea was the result; or the dose was too large and vomiting had no end. They had to give up the vomitivum in disgust, and the noble Romans resorted to their noble fingers as a sure cure for the oncoming dyspepsia. Running the finger down the throat was in most cases sufficient. Some Roman genius invented the *pinna*,[2] made of a bundle of goose-quills which was besmeared with iris oil. The throat was irritated with the pinna until vomiting ensued. Claudius, history tells us, used to have his throat tickled with the pinna by his physician after each meal. He was thus tickled to death by the order of his wife

agrippina; instead of the iris oil the pinna was ipped in poison.

In the 'Collecta Medicinalia" of Oribasius,[3] a cele-rated historian of ancient medicine in the fourth cen-ury, we find an exhaustive description of the various ıethods used to produce vomiting. For instance, the andidate for emesis was laid upon a kind of a ham-ıock which was swung and shaken until an artificial ea-sickness was brought on. The finger comes next ı order, the pinna is also mentioned, and a new in-:rument *digital vomitorium* is introduced. This con-isted of a leather glove finger, about ten to thirteen ıches long, the lower two thirds of which were stuffed ith woolen fiber, while the upper third was empty to ceive the directing finger of the physician. Before sing, the digital vomitorium was lubricated with the ils. The last named instrument can truly be consid-ed as the primitive stomach tube or stomach sound, idging by its length and mode of introduction. For ıe tube is based on the same principle as the sound -a contrivance to substitute for, or lengthen, the ıger of the operator where the region to be explored inaccessible.

With the fall of the Roman Empire, gormandism as at an end, and all the methods used to produce nesis were, little by little, forgotten. The noble omans were glad enough to take food and have it ay on the stomach. The various emetics were used ily by medical men in cases of *indicato morbi* or *dicato vitalis.*

Avicenna,[4] in the eleventh century, mentions an strument *gomor*, made of silk and used in cases of isoning, "et gomorem in os ejus mittat et ipsum cum strumento vomere faciat." Mercurialis,[5] who flour-ıed in the sixteenth century, mentions, in his book poisoning, among other things, *lorum vomitorium*, instrument known from antiquity, and vaguely scribed by Scribonius Largus,[6] as far back as the st century. It is supposed by Leube to have been leather strap treated with nauseating substances, ıich produced emesis by its nauseating taste, when roduced into the esophagus.

All the above described contrivances had one object view, viz., to facilitate the evacuation of the stom-ı contents. Another step toward the perfection of sound was effected when surgeons attempted to ply it to the extraction of foreign bodies from the phagus. Both the material and form of the instru-nt underwent some modification. It was construc-of metal, and the tubular form was for the first ıe introduced. Arculanus,[7] in 1557, used a short e made of lead with numerous holes to catch the eign body when introduced into the esophagus. ff[8] (1559) and Scultetus[9] (1679) used a silver tube. ldanus[10] (1641) was known as an expert in removing eign bodies from the esophagus by means of a bent er tube, to the end of which was attached a piece sponge the size of a hazelnut.

Hieronymus Fabricius ab Aquapendente[11] (1716) de further advance in the development of the sound. cases where the foreign body could not be extracted n above, he advocated the procedure of pushing same further down into the stomach by means of ougie. He used for this purpose a long wax can-the size of the little finger, which he bent some-at and introduced into the esophagus.

At the threshold of the new era, the end of the nteenth and the beginning of the eighteenth cen-, we find the stomach tube performing a new office, that of direct treatment of the mucous membrane of the stomach. This procedure, which has gained universal adoption only during the last few decades, was known to and practiced by the aboriginal tribes of America. Daper,[2] in 1673, in his ethnographic studies of the South American inhabitants, gives the following accounnt of the treatment of the stomach as practiced by the Tapugas, a Brazilian tribe. "They have a wonderful way of cleansing their belly from the inside. They stick a rope of pladded sharp leaves down their throats until it reaches the stomach, and there they turn and twist it so long until they vomit and spit blood. Hereafter they draw the rope and the belly is cleansed."

About the same time that Dapper published his description of the Tapugas. an instrument became known in Europe which served the same purpose. Judging by the number of monographs[13] written about it, the instrument must have created quite a sensation. The instrument was known under various names—stomach cleaner, stomach scratcher, and stomach brush.

According to Socrates[14] (1713), ab Aquapendente had improvised a stomach sound for the purpose of cleaning the stomach, and some kind of a stomach cleaner was known and secretly used by the fraters of the Italian monasteries. Rumaseus,[15] in 1659, published a pamphlet entitled "Organum salutis," or "an instrument to cleanse the stomach." It was patented by the inventor and was sold extensively in London. His stomach brush was made of a smooth, flexible whalebone from two to three feet long, the lower end of which had a knob-like projection to which a tuft or tassel of silk, cord, or linen was tied. "Those suffering from an excess of mucus in the stomach should introduce the brush and remove the same."

At about the same time the stomach brush was used in France, Norway and Germany. Sorbiere[16] tells of a Provencal who used to push into his stomach a stick of ash-wood three feet long, the lower end of which was in the form of a spoon, and therewith he cleansed his stomach. Pechlin[17] relates that two Norwegian peasants exhibited the trick before the court of Denmark in the presence ot the king.

Leube[18] gives an interesting account of a German ambassador to Russia, who returned from the Moscovite debauches with his stomach completely ruined. He was sent, by the king, to one of the monasteries for treatment. He found the inmates all in robust health. One frater was 115 years old and yet he was able to read and write without the use of spectacles. This gave him courage to undergo the mysterious treatment. He was obliged to donate a large sum of money to the monastery and give an oath not to reveal the arcanum as long as he lived. This arcanum was nothing but a stomach-brush. He was given a goodly dose of brandy, and ordered to lie quiet for a quarter of an hour. Two fraters introduced the brush. He spat, vomited, implored and cursed, but the holy fathers went on with their work of scrubbing the stomach; volens nolens he had to take a large quantity of water and the brush was once more introduced. This time large quantities of mucus, bile, blood, and offensive pus were brought up. After partaking of some chicken broth and an elixir he soon fell asleep. The operation was repeated four times. It was then noticed that the food brought up with the brush was completely digested, with the exception of a few pieces of turkey. The fraters reasoned that there

must be some mucus still left in the stomach, and he had to undergo the ordeal once more. In eight days he was completely cured, and left the institution. For fourteen years he used the brush himself and kept the secret. But to use his own words, "Out of Christian pity to the many sick and afflicted and the consumptive who have lost all hope of recovery" he broke his vow, and stomach brushes were manufactured in Leipsic and elsewhere by the thousands and sold as a cure for all sorts of sicknesses.

Socrates [19] asserted the stomach brush to be a panacea against all ailments emanating from the stomach, and even as a makrobiotic for all who wish to prolong their days upon the earth. "Brushing out the stomach, with an elixir of safron, aloes, and myrrh administered after, protects the body from poisons and pests; brings a good memory, improves the eyesight, etc., improves cold and hot fevers, asthma, mammary abscess, consumption, cephalalgia, apoplexy, toothache, croup, etc." It seems, the author remarks, as if death has laid aside his scythe and taken a stomach brush in his hands.

We possess a drawing of the instrument as given in the writings of Socrates and Heister. It is twenty-four inches long, made of a strong, carefully tempered, double brass rod, covered with plaited silk. At the lower end is attached a round brush of horse hair or goat's beard, which resembles the brushes now used for cleaning lamp chimneys. The modus operandi was very simple. The patient was given a little brandy and a pint of water. The brush was dipped in water and then introduced.

The citizens of Breslau were at one time stomach-brush struck. Thus Kundmann [20] writes in 1737: "There was no beer company at which some did not apply it to themselves after drinking heavily, either the same night or on the following morning, after having snored out their intoxication through the open mouth, if they were distressed with thick phlegm in the throat." "But," the author continues, "since those who have used the tube suffered either from nausea or continuous vomiting, some had hemorrhages, and others could not walk upright afterward, a good many became asthmatic, and a few gave up the ghost, the credit of the tube fell just as speedily as it rose."

I have dwelt at some length upon the history of the stomach brush, because its form, application and the enthusiasm with which it was received, by both the profession and the laity of 200 years ago, must be considered as an important landmark in the history of therapeutics. In an epoch when physicians were almost helpless in the treatment of internal diseases, and when, at best, they had a confusion of pharmaceutic agents whose actions were unintelligible to them at such an epoch, an internal organ was for the first time subjected to local chirurgical treatment, in spite of the conservative objections of the savants of the day.

Leube in his book "Die Magensonde," [18] to which we owe most of our information about the stomach brush, concludes his article as follows: "Nobody will wonder nowadays were the stomach brush to appear in a new and revised edition, and add to our instrumentarium for the treatment of diseases of the stomach. On the contrary I hold it quite worthy of a trial to apply some such instrument, as a therapeutic agent, in cases of neurosis and atony of the stomach."

The prophecy of this great seer of gastrology, uttered some twenty years ago, has come to pass. At the International Medical Congress, held at Rome, in 1894, Dr. Fenton B. Turck [28] of Chicago, presented an instrument which he called *gyromele*, and which is nothing else than the stomach-scratcher of two centuries ago, dressed up in the *fin de siecle* style.

The gyromele consists of a flexible cable to the end of which is attached a sponge covering a spiral spring which can be removed and changed. The cable passes through a rubber tube, and this again is attached to a revolving apparatus for the purpose of producing revolutions of the sponge within the stomach. The gyromele is used for diagnostic and therapeutic purposes. As the evolutions of the gyromele can be readily palpated on the abdominal wall, it is therefore obvious that the size and position of the stomach can be ascertained. It was found by the inventor that the revolutions of the gyromele stimulate the secretion of the gastric juice and, therefore, it can be used as a means of differential diagnosis between functional disturbances and atrophy of the stomach. The adherent material can be removed from the gyromele and subjected to a microscopic, chemic and bacteriologic examination. It can be used as a therapeutic agent in cases of functional anacidity, in mucous gastritis, where simple lavage is not sufficient to remove the mucus adherent to the wall of the stomach, and in cases of neurosis.

To return to the old stomach brush, as might be expected it has fallen into disrepute; physicians have only used it now and then for therapeutic and diagnostic purposes. Thus, Nahuys (1784) [21] reports a case of a neoplasm in the esophagus where the brush was used so as to cause an inflammation and discharge of pus from the neoplasm by the hard friction of the instrument. In the celebrated case of Willis (1673) [22] the patient, suffering from paralysis of the esophagus, used for sixteen years to push the food down with a modified brush; it was made of whalebone at the end of which a piece of sponge was tied. Jobus Basterus (1677), [23] in a case supposed to have been "excrescentia glandulave in œsophago indurato" made the diagnosis by means of the sound, and proved that the esophagus was permeable. Valisnery (1733), [24] used the sound as a dilator in a case of stricture of the esophagus. Van Geuns (1767), [25] in a case of stenosis of the cardia, used a sound with an ivory tip of an oval shape—an instrument used to this day. Abercrombie (1820), [26] used a silver wire, to the end of which was attached an egg-shaped knob, in a case of stricture of the esophagus in which bougies were of no avail.

In cases of impaired deglutition, the question naturally arose how to introduce food or medicine into the stomach. To meet this indication the instrument must assume the form of a tube, the lower end reaching the stomach.

Hieronymus Capivacens (1598), [29] was the first to recommend artificial feeding in cases of impaired deglutition "*canulam intra gulam immittendam*," which canula was provided with a bulb holding nourishing fluid. By compressing the bulb, its contents was driven through the tube into the stomach.

Fabricius ab Aquapendente [30] was the first to publish a comprehensive account of artificial feeding in cases of lockjaw. He introduced food through the nose by means of a silver bent tube, the lower end reaching above the epiglottis. In order to prevent the fluid getting into the larynx, the lower end of the tube was bent a little forward so that the contents would first

run into the mouth and thence by the act of deglutition, be swallowed. Later, he recommended the passage of the tube around the posterior molar teeth.

The next modification that the stomach tube underwent was with reference to its size and the material of which it was manufactured. It became obvious that the tube must be long enough to reach the stomach and must be made of flexible material. The latter requirement was met by the ingenious Van Helmont (1646),[31] who taught how to make catheters from leather. To make a stomach tube it was only necessary to make the catheter a little longer. John Hunter, the father of English surgery, in a lecture delivered before the Royal Society of Sciences, May 20, 1771,[32] advocated among other things the injection into the stomach, through hollow bougies or catheters, such irritating substances as ammonia, turpentine, etc.

The idea of using a hollow sound with a bulb-syringe attachment for the purpose of injecting fluid into the stomach once being firmly established, it was but a natural consequence that the same apparatus, by reversing the valves, should be applied in cases where the withdrawing of the stomach contents is indicated, *i. e.*, as a pump.

The English surgeon F. Bush,[33] was the first to use the stomach tube as a pump in cases of opium poisoning. He injected water into the stomach by means of the bulb, and then by reversing the valves he evacuated the thus diluted poison. One of the earliest descriptions of the so-called stomach pump was given by Dr. Samuel Moore.[34] The credit of the perfected stomach pump as it is used at present belongs to an American, Dr. Wyman[35] of Boston. The elder Bowditch[36] was the first to use it for the evacuation of empyematous collections.

In the second decade of this century various stomach pumps were described, invented, and used by Jukes,[37] Ward,[38] Reed,[39] Weiss,[40] and others. The sounds used in all the apparatus were made of elastic rubber, two and one-half feet long, and one-fourth of an inch in diameter, at the end of which a perforated ivory ball was attached (Jukes), also the same tubes with their ends rounded off, having two openings at the sides (Read and Weiss). Lafarg's[41] esophagus tube had three openings, one at the end and two at the sides.

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A RECORD OF THE DISEASES OF FIVE HUNDRED AND SIXTY CONVICTS UNDERGOING CELL CONFINEMENT.

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In this paper I have attempted to catalogue the more serious ailments affecting a number of convicts, whom I have had the opportunity to examine on admission and to have under observation for a period of from one to three years. I have excluded those already confined when I entered on my duties and all those who were admitted in the last year of my service, whom I had not sufficient time to observe.

In order to show the effect of confinement, if any, I have divided the whole number into two groups. In Group 1 are convicts under observation for an average term of eighteen months. In Group 2, convicts under observation for an average term of two and one-half years. In the latter group will be found many more of the malefactors who had committed crimes against the person or who belonged to the habitual offenders. There were 260 in Group 1 and 300 in group 2.

It will be noted in Table 1 that three of the thirteen deaths occurred within the first year of confinement, four within the second year and six within the third year; when this is computed on the number undergoing confiement the difference will be found more marked, since there were 560 who served at least one year, while only 300 served more than two years. The rate in the first year is therefore 0.53 per 100, while in the third year it is 2 per 100, or nearly four times as many.

Tuberculosis.—Of those who had phthisis on entrance only one died. Of those who on account of marked family history together with an enfeebled physical structure would be inclined to contract phthisis, only one became decidedly phthisical, and one developed scrofula.

Tuberculosis is usually very prevalent in prisons and yet only four of the deaths were from this cause among a population containing seventeen affected on entrance. Of the nine persons apparently contracting the disease during confinement, three died, showing a special virulence. Colored convicts when attacked succumb very speedily. Under proper quarantine for the sick and extra attention to those who are inclined to become affected the mortality from this disease has been lessened in a number of prisons.

Scrofula.—There were eight cases on entrance and

HISTORY OF INSANE AND INSANE TENDENCY.

No.	Age.	Nationality.	Crime.	Family History.	Personal History.	During Confinement.	Termination.
1	50	Italian.	Assault with intent to kill.	Negative.	Depression on head from accident. Is melancholic.	Attempted suicide twice, without success; improved.	Behaved well after discharged at expiration of sentence.
2	35	American.	Assault with intent to kill.	Negative.	Was an inmate of insane asylum four years before. Has delusions; was commanded by God to assault a stranger.	Delusions continue.	Remanded to insane asylum on expiration of sentence.
3	61	German.	Vagrancy.	Negative.	Apoplexy three years before, causing dementia. Has loud cardiac murmur. Does not understand reason for arrest.	Slightly improved.	Discharged on expiration of sentence.
4	34	American.	Assault on his mother.	Insanity in father and sister. In sister phthisis.	Very intemperate, illusious at times; quarrelsome when drunk; twice in prison for assault on mother.	No signs of mental disturbance.	Discharged.
5	19	American.	Larceny.	Negative.	Is phthisically inclined; has given parents much trouble.	Shortly after admission complained of poison in food; refused to eat; became very debilitated.	Was given in charge of parents in fairly good condition; returned in a few weeks on another charge; delusions absent.
6	26	American.	Larceny.	Negative.	Given to excess in drink and venery. Served four terms in prison for assault and larceny. No symptoms of insanity on admission.	One year after admission delusions of persecution arose which persisted to the end of sentence.	Was discharged not cured.
7	31	American.	Assault and battery.	Bastard.	Intemperance and venery. Seven times convicted for assault and battery. On last sentence developed dangerous delusions and had to be placed in cell by himself. Hallucinations of hearing and delusions of persecution. Has only been discharged two weeks.	Fairly well behaved, but inclined to be bothersome if angered.	Still in prison.
8	39	Negro.	Burglary.	Insanity in father. Phthisis in grandparents.	Excess in drink and venery; has had syphilis; served 4 times in prison within 4 years; believes he is persecuted by officers; talks to himself and is easily angered.	Served his sentence without any further trouble.	Discharged.
9	64	American.	Assaulting officer. Received 7 years for resisting arrest, while stealing some brass to perfect an invention.	Father and aunts insane.	Was hit on the head four years ago with a heavy weight, causing fracture of skull; since then occasioual spells of loss of memory; escaped from insane asylum shortly before. Is very emotional, k. j. greatly exaggerated, cries frequently, miud worried, no sleep.	Under nourishment and hyoscyamus great improvement. Is a good machiuist; given work at trade; has considerable inventive genius.	Still in prison. Case was considered by lunacy commissioi as fit for asylum, bu advised remainin in prison until th end of sentence.
10	30	American.	Murder. Killed officer while serving term for murder.	Negative.	Symptoms of insanity during confinement; hallucinatious aud delirium; killed keeper who attempted to quiet him: is ugly and will not speak to anyone; is quiet now without any known delusions.	Remained reticent during the whole three years of my service. No hallucinations; would not speak to me; would eat and sleep regularly.	Transferred to insane asylum, where h was killed the nex day in some un known manner.
11	27	Italian.	Assault with intent to kill.	Unknown.	Has been arrested four times for assault; claims to be the victim oi persecution; had delusions and noisy delirium in county prison; apparently sane ou entrance.	Shortly after admission claimed relation with King of Italy, protested agaiust being confined; was very noisy at times, singing and shouting; delusions of grandeur persisted after delirium wore of.	Still in confinement.
12	19	American.	Murder. Shot a police officer while resisting arrest.	Persecution. Insauity in mother.	Syphilis two years before; otherwise healthy.	Two years after admission had delusions of persecution and hallucinations, not marked.	Still in confinement.
13	28	Irish.	Assault with intent to kill.	Negative.	Had been acting strangely for several years; irritable; was sane ou admission.	Shortly before discharge 2½ yrs. after admission, commenced to refuse food; claimed it was poisoned; became emaciated; under treatment he improved.	Discharged apparently well: few days afte ask'd me to have hin placed in an asylum he was afraid of him self; this was done.
14	27	American.	Larceny.	Drink in father. Mental troubl' in some of family.	Seven times arrested for drunkenness; has been a tramp for four years.	Delusions of persecution six months after entrauce.	Discharged on expiration of sentence.
15	33	Irish.	Murder. Killed a man while drunk.	Negative.	During childhood had fracture of skull, leaving depression.	Suicidal thought, so that he would not commit any more crime; 1½ yrs. later debilitated and an attack of hemoptysis.	Still in prison.
16	54	Germau.	Malpractice. Abortionist.	Negative.	Well on entrance.	An attack of acute delirium, on the second day of which he killed himself by hanging.	Death.
17	53	American.	Murder. Killed a friend in a quarrel.	Phthisis in mother aud sister.	Had syphilis and was intemperate; in army had skull fractured which caused a dementia for one year; drink causes delirium quickly; k. j. greatly exaggerated; pin-hole pupils; is very excitable at times.	Had no symptoms during confinement.	Discharged well after three years' sentence.
18	27	French.	Assault with intent to kill. While in a fit of jealousy shot a woman.	Negative.	Had spinal meningitis eight years before; is hysteric and hypochondriac; imagined he could not walk; after the deed he shot himself in the jaw, causing a fracture.	Behaved well after a short time. Was made cook and performed his duties fairly well, but when suffering with the least pain made much ado over it.	Still in confinement.
19	22	Colored.	Murder. While drunk.	Insanity in father and cousin. Phthisis in mother.	Given to drink and venery; does not know anything about the crime; is very ignorant and dull witted; inclined to phthisis.	One month after, scrofula developed and it was allowed to form a large axillary abscess, which was opened; phthisis then developed and death followed one year after admission.	Death.
20	21	Colored.	Arson. Fifteen years' sentence.	Unknown.	Set fire to barn to see the hay burn, then summoned help; does not know what fifteen years mean; microcephalic; is an imbecile.	Gave no trouble during two and one-half years.	Still in prison.

eight arising during confinement. Those in whom the disease developed usually gave a history of a previous attack or had suffered from syphilis; nine of the sixteen cases were negroes; in five phthisis was present in the parents and five had syphilis in recent years. In only four was there no evidence of disease in the family or in their own lives. Cod liver oil was found very efficacious in the treatment of the enlarged glands.

Organic heart disease.—This seemed to be quite common among the convicts, but whether more so than among adults generally I am unable to say. In 2800 convicts examined by my successor and myself,

organic disease was detected in 3.2 per cent. In the causes of death of 790 convicts, occurring in the penitentiary during 65 years, 5 per cent. are attributed to disease of the heart. In our list, twenty were affected, making 3.5 per cent.; only one of this number died; the majority presented no subjective symptoms and were unaware of the existence of any defect.

TABLE 1.—DEATHS. GROUP 1.

Cause.	Time served, years.	Condition on entrance.	Diseases during confinement.
Cerebral tumor. .	1 1/2	Scrofula and Syphilis	Pneumonia, purpura rheumatica (died in Philadelphia hospital after an operation on brain).
Typhoid	1/3	Good.	None.
Typhoid	1 1/3	Oood.	None.
GROUP 2.			
Tuberc. pulmon..	2 1/6	Good.	Pneumonia.
Tuberc. pulmon..	1 7/12	Good.	None.
Tuberc. pulmon..	9/12	Good.	Intestinal tuberculosis.
Tuberc. pulmon..	11/12	Tuberculosis pulmonalis and imbecility.	Scrofular abscesses.
Sarcoma of thigh.	2	Sarcoma of heel.	Leg amputated.
Epithelioma of tongne.	2 1/2	Good.	Tumor grew gradually for two years.
Carcinoma of cervix.	2 7/12	Good.	Noticed only 7 months before death.
Typhoid fever. .	2 1/6	Scrofula and syphilis	None.
Aortic insufficiency.	2	Organic heart lesion, loss of compensation.	Under treatment constantly.
Suicide, hanging.	1 1/2	Good.	Acnte delirinm.

NOTE.—All three cases of malignant growths died after the expiration of sentence, bnt in so short a time that it is but fair to include them In this list.

TABLE 2.—Diseases on admission of 560 convicts.

Diseases.	Group 1.	Group 2.
Phthisis.	8	9
Phthisical history in family and tendency thereto	9	6
Valvular heart disease	13	7
Scrofula.	4	4
Syphilis (secondary)	4	3
Insanity.	4	5
Insane history and tendency thereto	2	3
Locomotor ataxia.	1	. . . . .
Renal ascites	1	. . . . .
Chancroid.	5	2
Gonorrhea.	9	2
Bronchial asthma	2	3
Pregnancy.	1	. . . . .
Sarcoma.	. . . . .	1
General debility	5	3
Hystero epilepsy	. . . . .	2
Imbecility.	. . . . .	3
Simulated insanity.	. . . . .	2
Opium habitue	1	2
Apparently healthy.	190	240

TABLE 3.—Serious diseases developing under confinement, in those apparently healthy on entrance.

Diseases.	Group 1.	Gronp 2.
Phthisis	4	5
Scrofula.	4	3
Insanity.	2	3
Syphilis	. . . . .	2
Typhoid fever.	4	2
Acute pneumonia.	1	1
Carcinoma of uterus	. . . . .	1
Epithelioma of tongne.	. . . . .	1
Abscess	1	1
Debility	. . . . .	2
Apoplexy (two attacks).	. . . . .	1
Acnte rhenmatism	. . . . .	1

Syphilis.—Here we have recorded only such cases as manifested the disease in an active state. There were many who gave a history of having suffered from the disease in years gone by, but seemed free from all symptoms at the time of examination. Many had suffered from gonorrhea and other venereal diseases at the time of their arrest, but had been cured in the county prisons before reaching the penitentiary. This probably accounts for the fact that I have never observed a case of delirium tremens or any great discomfort from the withdrawal of alcohol in prison, in persons who were chronic drunkards outside.

I have only attempted to note the more serious illnesses here. There were numerous demands upon the physician for treatment for intestinal trouble and bronchial affections such as ordinary diarrheas and colds.

The insane element has ever been an interesting topic and especially in this particular prison, where the method of confinement has been wrongfully accused of causing the insanity. I have dealt with this subject elsewhere to which those interested are referred.[1] I have however noted here, somewhat in detail, the kind of individuals received and the character of the insanity.

In this paper I have drawn no conclusions; it is simply a contribution of facts to the study of convicts, hoping that others might be stimulated to furnish statistics relating to the health of different groups of individuals observed for a like period of time. The ordinary reports of prisons and asylums relate to a constantly fluctuating population. Here I have tried to show the condition of the individual on admission, and the serious diseases he has been subject to during a certain time, and again I have grouped a number of individuals together all serving the same length of time and compared them with another group serving a different length of time. True, these statistics relate to convicts undergoing a particular method of imprisonment and can not, therefore, be applied to convicts in general without further study. If a similar statement could be had from Auburn or Sing Sing prison some comparison as to the effect of the two methods, cell and congregate, on the health of convicts might be made.

TUBERCULOSIS; ITS SEED, ITS SOIL AND ITS TREATMENT BY MEDICAL ASEPSIS.

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In the consideration of this subject we will endeavor to simplify it as much as possible, giving it a novel presentation so that its general conception may become clearer and more easy of comprehension. There is no special advantage in clothing and often obscuring our ideas in ultra scientific verbiage. Common sense is what we want in medicine as elsewhere, and the practical aspect of the healing art must not be lost sight of and forgotten in the fogs of hair-splitting laboratory work. Micro-organisms are but a part of medical science, but they have of late engrossed our attention to the exclusion of other and important factors in the production of disease.

In all the long history of that eternal war which man is waging more or less successfully against disease and its consequences, no phase of the conflict is of such vital importance to so many individuals as that which relates to the diseased condition of the human body, generally known as tuberculosis. Great epidemics of cholera, yellow fever, the plague, or the black death, from time to time, overshadow it in interest and public attention, but when we consider that, notwithstanding these more conspicuous causes, it is to tuberculosis alone that one-fifth of all the deaths upon this planet is said to be due—that in the United

1 "Insanity Among Convicts;" Journal of American Medical Association, Vol. xxi, No. 13. Medical Reports of Eastern State Penitentiary for 1892-93-94. "Tuberculosis in Prisons;" Proceedings of National Prison Association for 1894.

States it is estimated there are nearly five hundred fatal cases every twenty-four hours, we may in some degree realize how much more we have to dread from this insidious and ever active foe of the human race than from those the possible mention of which as possibly approaching our shores is the signal for wild alarm.

The subject is also specially interesting because of the very remarkable revolution that has taken place in the ideas entertained by medical men as to its cause and treatment—a revolution modern in its origin, and by no means ended. Less than a generation ago, tuberculosis was believed to be hereditary, and in such cases not to be prevented; it was thought to be contagious; it was practically regarded and treated as incurable. Today the best medical opinion does not consider it hereditary, nor contagious, that is, from personal contact, like smallpox or measles, nor incurable. It is infectious under certain conditions.

There is no doubt but that it can be prevented, even where there is a hereditary weakness which predisposes to the disease; there is positive proof that it can be, and is daily being cured, except in advanced stages.

In the treatment of tuberculosis and in the light of modern theories, the truth of which, since the discovery of Koch, announced in 1882, no longer remains to be demonstrated, two things are to be considered; 1, its seed; 2, its soil. Without seed there is no crop. Thanks to the spirit of modern investigation and research, the seed of tuberculosis has been defined and described until there is no more doubt as to its nature and characteristics than there is about a grain of wheat. Without entering into the unprofitable and probably unanswerable problem of where this seed first originated, bacteria or germs generally are coeval with the first appearance of organic life on the earth. It is now believed to have no breeding place in nature outside of men and animals, and their secretions. Developed in the lungs of a tuberculous patient, discharged in the sputum that comes so freely from the affected source, the tubercle bacilli go forth upon their mission in numbers beyond the conception of mathematics to compute. It is estimated that 5,000,000,000 may be contained in a single drop of water. So long as moisture is maintained they can not escape, but when dried without exposure to the sun they will retain their pernicious and virulent activity for months, and are easily set in motion—each one a living thing. Freezing does not effect them; the gastric juice does not kill them, and burial in the earth does not destroy their vitality.

When we consider the number of individuals who are more or less affected with this disease, that they are to be found in all classes of society and all parts of the world, that they are coming and going in public conveyances, and frequenting public places, that they are expectorating right and left, and that each deposit contains millions of bacilli, waiting to be taken up on the wings of the wind and carried wherever air permeates, we can realize the hopelessness of escaping their all but omnipresence. And yet we see boards of health acting under advice of those who surely have not given the subject all the study it deserves, suggesting well-intended but pitifully inadequate methods to exterminate the bacilli, by passing ordinances against public spitting—without doubt a beneficial measure—and some have even gone so far as to recommend the compulsory isolation of all persons affected—a plan that would be cruel in many cases, if it were generally practicable, which it certainly is not. Every movement in the interest of purer air should certainly be encouraged, and public cleanliness should be made imperative, but if the eradication of tuberculosis depends entirely upon the enforcement of such measures, we shall wait a long time before it will become as rare as leprosy is now in the United States. The seed of tuberculosis does not always sprout where it falls; if the tubercle bacillus attacked everyone exposed to its influence, the race would have been exterminated ere this.

Not only seed, but soil, is essential for the crop. As in agriculture, so in pathology, the right seed is no more essential to a crop than is the proper soil. You may sow wheat in Broadway every day for 100 years, and wait as much longer for a harvest. The germ is there; under the proper environment of earth and moisture and protection, it will sprout and grow, but lacking these, it comes to naught. Just so with the bacillus. If the soil for it is fertile, it will do its deadly work; if sterile, it will just as surely fail. In the sterilization of the soil into which the tubercle bacillus enters, rather than in seeking to escape its presence altogether, lies the hope of the consumptive.

How shall this be effected?

Life is much the same no matter where we find it. In biology, a sharp line of demarkation, separating animal from vegetable life can not well be drawn. The physiology of man and of plants are much alike, in many ways almost identical. The same causes operate to produce disease and death in both. The bacillus is not the primal factor, but is always secondary to the malnutrition and uncleanliness. The earth makes the sap, and the sap makes the plant—the food makes the blood, and the blood makes the body. If the earth ceases to nourish the plant, away at the top the leaves begin to wither and die; if the food ceases to nourish the body, the lungs, which are to man what the leaves are to the plant, begin to fail. Just as it is the yellow, sickly leaf that is attacked by germs, which upon the green and vigorous growth have no effect, so it is in the weak unnourished and impoverished lung, that the tubercle bacillus finds the soil it needs. The tubercle bacillus is therefore one of the bacilli of decline and decay.

Tuberculosis is not a disease of the lungs alone, although it is in the lungs that the decline of the system often makes itself most prominently manifest; it is in the lungs, or other parts affected, that the bacilli, acting under the great and beneficent law of nature, which thus provides for the disintegration and return to dust of that which has passed its usefulness and lost its vitality, begin and carry on their mission. As this disintegration progresses, the soil becomes more and more fertile, and there is more of it. Unless this decline can be stayed, unless the diseased and decaying tissues can be cleansed and vitalized, or sterilized, and fitted to withstand the ravages of the rapidly increasing germs, there is positively no hope for the patient To check the deterioration is the first step in the restoration to health,

What course of treatment is then indicated?

The answer is simple, as truth is always simple. Purify and strengthen the system.

It is a fundamental principle of surgery and external medicine that nothing is so conducive to the healing of external wounds and diseases as perfect cleanliness. If the lungs are to be cleansed and if internal

urfaces are be healed, why not adopt what is in effect similar treatment? The natural sluiceways of the ody furnish the channels; the eliminatives provided y the skilful physician furnish the means not only f cleansing the stomach and the digestive tract gen-ally, preparing it for better and more effective work, ut filtering through the whole system these best of emedial agents find their way eventually to the kid-eys, bowels and pores of the skin, which, carefully ept open by the ingestion of hot water in sufficient uantity, warm baths, massage and gentle systematic uscular exercise, eliminate the disease wherever it s possible.

Equally important is it to strengthen the system y the careful selection and use of foods. There is uth underlying the saying that, "if you take care f the stomach, the lungs will take care of them-elves," and in the building up of the body it is im-erative that the digestive organs should be in a nor-al and healthful condition, and be stimulated to ncreased activity by proper strengthening exercise ystematically carried out under medical direction. We see the value of this method in the training of he athlete, or even the race horse. The physiologic aw that exercise strengthens, and that all develop-ent is of gradual growth, must be considered in con-ection with the fact that about all the body, except he frame-work, the padding and the nervous mech-anism is muscle, and most of the organs, including he lungs, functionate only through muscular activ-y. Therefore, the great importance of strengthen-ng the voluntary and involuntary muscles by exercise nd proper diet and regimen is apparent. This must ot be lost sight of in the treatment.

By internal cleanliness, blood-washing and by elim-nation, we cleanse the tissues; by improving the nu-rition, we increase the germicidal power of the blood nd the vitality of the body. The presence of fer-enting or festering materials within the body is the ause of many of the symptoms we call disease. The moval of them by the eliminatives is medical asep-s. This may not be always easy to accomplish, but his is the direction in which our efforts should be pplied, and this is a method that should be used in he treatment of many diseases of bacteriolgic origin. n the treatment of surgical diseases, what would we hink of a man who did not believe in surgical asep-s, that great principle which holds good in all surg-ry. In medicine, which can not in treatment be sep-rated from surgery, each one treats pneumonia, phoid fever, scarlatina, phthisis, etc., according to s own ideas and without any great underlying prin-ple of medical asepsis. It is simply a case of do as ou think best or do nothing, the so-called expectant an of treatment, and the results are correspondingly rious.

Medicine and non-operative surgery, as is now well nderstood, have no sharp line of separation. The me principles in treatment, I claim, hold good for oth. The more we can simplify these and thus make em easily understood, the better it will be for the edical profession and their patients.

Many plants in their sap, or blood, as we might rm it, have a material that is noxious to low forms life. We see this in their products, belonging to e carbolic acid series, the salicin from the willow rk, quinin from cinchona bark, etc. And so it is th the sap or blood of the healthy animal body. ould not this principle, in a measure, account also for the efficacy of the serum or antitoxin treatment? The fresh serum, like that of Maragliano, containing the germicidal principles of healthy blood is poison-ous to the germ life developing in the exhausted, devi-talized tissues of the patient.

MALARIA.

BY R. S. MICHEL, M.D.

PROFESSOR OF INTERNAL MEDICINE, CHICAGO CLINICAL SCHOOL; MEMBER OF STAFF WEST SIDE HOSIPTAL.

CHICAGO, ILL.

It is said that one-seventh of the human race per-ishes of tuberculosis—a fearful mortality—but thanks to modern investigation, this enormous death-rate will be greatly reduced. Of even greater importance to humanity is malaria. It stands as an insurmountable barrier to the occupancy and civilization of a large part of the globe. Immense countries, fertile in soil and rich in countless natural products, otherwise cap-able of supporting a dense population, are lost to the aggregate wealth of the world because of malaria alone. The plasmodium malariæ is a tropic plant. It requires abundance of moisture, fertile soil and heat. Where the jungle is impenetrable, where dense forests strug-gle upward and shut out the light, where fierce storms and unbearable sunshine divide the equatorial day, the conditions of its existence are perfect. It is hard for us of the North, accustomed to the disease in its milder manifestations, to realize what a deadly scourge it becomes beneath a tropical sun. In the immense basin of the Congo and its tributaries, and in that of the Amazon in South America, the disease is seen at its worst. It has caused more human misery and suffering than any other one entity.

It is impossible to say at what period malarial fever was differentiated from other febrile disorders. Writ-ers of antiquity have described the disease sufficiently well to show that they were perfectly acquainted with its clinical features. Certain it is that it prevailed very severely in ancient Rome, owing to the climate, the proximity of marshes and absence of sanitation. The fact that the Romans had a god "Febris," and a god "Mephitis," who presided over noxious exhala-tions, would seem to indicate a suspicion at least of cause and effect. It was late in the seventeenth cen-tury, however, before the true conditions were approx-imately understood. Even then, and for long after-ward, exhalations, or impure air, or gas arising from marshland under a hot sun, constituted the supposed cause. Gradually the opinion obtained that the cause was a tangible one. Constant search was made for years by careful microscopists for the supposed bacil-lus. Announcements were made from time to time that the search had been successful, only to be con-troverted later on. Like an illusive "will o' the wisp" the little intruder had eluded their eager grasp.

It remained for Laveran, in 1880, to show the cause to be an actual organism—the plasmodium malariæ. Subsequent observation has confirmed the accuracy of his claim. The matter may be considered as defi-nitely settled. The life history of the plasmodium outside of the human body is still unknown. The universality of its distribution and rapidity of its de-velopment would indicate that it is easy of propaga-tion. It is, however, a hot weather organism, and two weeks are required, other conditions being favorable, before the germs are produced in quantity sufficiently great to poison the air. It nearly always gains access to the human organism by inhalation. After having

effected a lodgment, it attacks the red blood cells. As it grows it it causes a separation of the hemoglobin, and destroys the cell by segmentation. Spores are then liberated that in turn attack new cells, and thus the cycle goes on. From the time the cell is invaded by the plasmodium until its complete destruction, is but a few hours. It will thus be seen why profound anemia so soon ensues. The cells are destroyed much faster than they can be produced. The "chill" corresponds in time with the liberation of a new crop of spores, either by reason of the spores themselves, or of ptomains that are liberated at the same time. The liver and spleen, especially the latter, become enlarged sometimes enormously. The enlarged spleen may persist for years, or for life. The enlargement is caused by the deposit of separated hemoglobin, and the irritation incident thereto.

It does not effect man alone, animals also are attacked. Horses in India die of it. Stanley relates that the donkeys used to carry burdens in the Congo country were susceptible. It is of interest to note that Stanley's negro carriers were invariably attacked with malaria when taken into a strange locality, although that locality was not more unhealthy than the one from which they came. He also relates that getting wet, either by fording streams or by the rains that are so heavy in the African tropics was sure to cause an outbreak of ever. Among the farmers of our own country an attack is often precipitated by working in corn or other crops early in the morning while still wet with dew. The "old settler" in Indiana remains in bed until the sun is up.

Many conflicting traditions exist in regard to the discovery of the medicinal property of cinchona bark. It is named from the Countess of Chinchon, wife of a Spanish governor of Peru, who upon her return to Spain brought with her a quantity of the bark. It is maintained, erroneously I think, that the natives of Peru were cognizant of its febrifuge properties. After carefully investigating all the old stories connected with its early history, it seems reasonably certain that the discovery was made by the Jesuits. The Jesuits followed closely upon the footsteps of the armed men who over-ran this country shortly after its discovery; very often they were themselves the pioneers. They were men of considerable attainments in the natural sciences, and some were good botanists. While preaching the Cross, they made a study of the natural products of the new continent. The bark was brought by them to Rome in considerable quantities, about 1630, and introduced widely through members of the order. Hence the name "Jesuit's powder." The source and identity of the drug was maintained as a secret at first. Mystery adds to the zest with which the general public hails a new "cure" even now, but in the seventeenth century it was infinitely more true. The attitude of the medical profession to the new remedy is not a matter of which we may feel proud, although to our credit be it said, that among the physicians at that time whose achievements in other lines have brought their names down to us, the new remedy found support. Among them was Sydenham. The large quantity necessary to be taken as a dose was objectionable. In 1820 this objection was removed by the separation of the alkaloids by Pelletier and Caventou. The four alkaloids quinia, quinidia, cinchona and cinchonidia possess nearly equal antiperiodic powers. From force of habit probably, quinia is the one usually prescribed. Extensive and careful experiments made in India a few years ago in the British army, with the view of determining the relative merit of the alkaloids showed very little or no difference.

It soon became evident that the trees in their native habitat were doomed to early destruction. The demand for bark was great; the trees were felled, stripped and destroyed. Much wastefulness prevailed.

The English anticipated this condition of affairs by putting out large plantations in India; choosing situations that in altitude, temperature and humidity closely simulate the conditions that prevail in its Peruvian home. The experiment has proved a successful one. It is a curious fact that the yield of alkaloids is increased 10 per cent. by wrapping the bodies of the trees with cotton or other loose substance for some time before they are "barked."

The treatment of malaria consists in giving one of the alkaloids of Peruvian bark. It is immaterial which one, provided it is given in doses sufficiently large, say 0.15 to 1.3 grams twice a day. Two large doses each day is better treatment than small doses given at shorter intervals. A full dose of opium should be added to each dose of the antiperiodic. Opium possesses decided antiperiodic properties. It also conduces to the patient's comfort. The bowels should be moved twice or thrice daily, that the debris of disintegrated blood cells and ptomains may be eliminated. A very useful agent in the treatment of malaria is Warburg's tincture. Two preparations are on the market, one with aloes and one without. The one with aloes is to be preferred. It is the best agent with which to keep the bowels open. It should supercede calomel. Especially is it useful if there is jaundice. It is an excellent prophylactic. Added to the headache and lassitude present when malaria is impending, there is often some jaundice observable about the conjunctiva, a peculiar "muddy" color of, and bad odor from the skin, and constipation. The alvine discharge is ash colored or white. The biliary secretion is decreased. It is in cases of this type especially that Warburg's tincture is useful. It should be given in doses sufficiently large to freely move the bowels, and continued in doses such as will keep them open. As the Warburg's tincture contains only 0.65 grams of quinin in 31 grams of the mixture, there should be given in addition two 0.32 gram doses of quinin daily. The disagreeable taste of quinin makes it objectionable to children. This difficulty can be obviated by administering quinia glycyrrhizin—a chemic union of quinin with glycyrrhizin. This salt is practically tasteless, and is soluble in water or syrup. The quinin combines with the glycyrrhizin in such proportion that four times as much should be given as of the sulphate.

In this latitude it is never necessary to give quinin hypodermically. In the South it is often demanded. If the case is very urgent, or a congestive chill is impending, it should be given hypodermically, notwithstanding the fact that this form of medication will in all likelihood be followed by abscess.

If the temperature is not very high the sponge bath, given frequently, will suffice as an antiphlogistic measure. Should it be necessary, acetanilid in 0.32 gram doses may be used as additional means for reducing temperature. Refrigerant drinks are also useful, as lemonade or "lime-juice and pepsin."

During convalescence the patient should have an abundance of food that is nourishing and easily assimilated. He should also have some ferruginous preparation, as the ferrous carbonate. After convalescence

s thoroughly established, quinin may be discontinued and tinctura cinchonæ compound given instead.

Continued fevers, that are not typhoid, are often encountered in malarial districts, over which quinin seems to exercise no influence. They can not be classified as "irregular" malarial fevers for this reason, and because an examination of the blood does reveal the plasmodium, either in its regular or irregular (æstivo-autumnal) form. They are probably caused by an organism different from but closely related to the plasmodium.

For the enlarged spleen but little can be done by medication. Time will help the matter somewhat.

For chronic malarial poisoning a change of residence, either temporary or permanent, to a colder climate is demanded.

INFLAMMATION OF THE UVEAL TRACT, CONSIDERED IN ITS ANATOMIC RELATIONS.

Read before the McLean County Medical Society, May 5, 1898.

BY J. WHITEFIELD SMITH, M.D.

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BLOOMINGTON, ILL.

The choroid, ciliary body and iris, taken together, form the middle tunic of the eye, and is called the uvea or uveal tract. This may be considered embryologically and histologically, as forming a continuous membrane. If we remove the conjunctiva, sclera and cornea from the globe of the eye, and evacuate its contents—the aqueous humor, lens, lens capsule, vitreous humor, and detach the retina from the choroid—we shall have left, depending upon the optic nerve, the uvea. It gets its name from its fancied resemblance to a grape hanging upon a vine (uva). The microscopic anatomy presents a striking similarity throughout its entire structure. There are, however, some variations, which may be noticed before considering the inflammation in its respsctive portions. Beginning with the choroid *in situ*, we find that it comprises the posterior section of the uvea, extending from the aperture of the optic nerve to the ora serrata. At the optic aperture its termination is marked by a delicate ring of cellular and elastic fibers surrounding the nerve and firmly adhering to the sclera. Also, a few fibers are sent to the neurilemma of the optic nerve and to the lamina cribrosa. At the ora serrata the choroid is continued into the ciliary body. The termination of the choroid proper at this point, is marked by the limiting denticulated border of the retina which underlies it.

The choroid is situated between the sclera and the retina, and is essentially a vascular body. It is composed of four layers: The suprachoroid or lamina suprachoroidea is the outer layer and forms the attachment to the sclera. It is a non-vascular membrane, containing pigment and lymphoid cells. The next layer is the layer of large vessels, consisting principally of veins which communicate freely with each other. The spaces between the veins contain pigment cells of a brown color. The arteries lie on the inner side of the veins. The layer of medium sized vessels forms the next layer and it is but slightly pigmented. The small blood vessels or the layer of capillaries (tunica Ruyschiana) constitutes the next vascular layer of the choroid. These are closely packed together and contain no pigment. The lamina vitrea forms the inner coat of the choroid; it is also devoid of pigment cells. The framework uniting the vessels of the choroid is composed of delicate connective tissue.

The arterial vessels entering into the formation of the choroid are the short posterior ciliary arteries. These are about twenty in number and are derived from the ophthalmic artery. They pass through the sclera in a whorl or circle, close to the optic nerve, dividing into branches and passing forward for some little distance, where they change their course obliquely inward, terminating in the capillary layer. The venous system lies on the outside of the arteries and is arranged in curves (vasa vorticosa). They unite, forming four or five principal trunks, which pass through the sclera about half way between the corneo-scleral margin and the optic nerve.

The nerves of the choroid are branches of the ciliary, about fifteen in number. These are derived from the ciliary ganglion and the nasal branch of the ophthalmic division of the fifth nerve. They pass through the sclera near the optic nerve entrance, passing forward between the choroid and sclera, lying in immediate contact with the former, and partly imbedded in grooves, on the inner surface of the latter. They send branches into the choroid, in which they form a gangliated plexus.

The continuation of the uveal tract from the ora serrata to the peripheral or attached border of the iris is known as the ciliary body and consists of two portions, the ciliary muscle and the ciliary processes. The ciliary muscle is composed of two kinds of fibers, which accordingly divides it into two portions, the longitudinal or meridional fibers (Brucke's portion) and the circular fibers (Muller's portion). The ciliary processes consist of duplications or folds of the choroid. There are about seventy in number, arising near the ora serrata and extending forward to near the equator of the lens. They are arranged parallel with the meridians of the eye. The framework of the ciliary processes is of connective tissue. The ciliary processes are the most vascular part of the eye. They are covered on their inner surface by three layers—the hyaline lamella; a layer of pigmented cells, the pigmented epithelium; and a row of non-pigmented cylindrical cells. The last two rows of cells are a continuation from the retina and are called pars ciliaris retinæ. The blood vessels of the ciliary processes are derived principally from the anterior ciliary arteries, five or six in number. These arteries are supplied from the muscular and lachrymal branches of the ophthalmic artery. Perforating the sclera near the sclero-corneal margin, they divide into branches supplying the ciliary body, and assist in forming the circulus arteriosus iridis major.

The venous system is in connection with the vasa vorticosa. The nerves of the ciliary body are derived from the ciliary nerves, which form a dense plexus in the ciliary muscle; some fibers from the trigeminus also supply the ciliary body.

The portion of the uvea remaining to be considered is the iris. This springs from the anterior surface of the ciliary body. The stroma composing the iris consists of a connective tissue or cellular mesh work, containing numerous vessels and some pigment cells. Near the pupillary border of the iris on its posterior surface is a narrow circular band of muscular tissue

(sphinter pupillæ) whose function is to close the pupil. Also close to the posterior surface, beginning at the ciliary margin, the dilator fibers are found (dilator papillæ). The anterior surface of the iris is lined with an endothelium. This is a continuation of the endothelium of Descemet's membrane. The posterior surface of the iris is lined with a layer of pigment epithelium (pars iridica retinæ) and is continuous with the retinal pigmentary layer. The blood supply of the iris is derived mainly from the long posterior ciliary arteries, two in number. These arteries enter the eye near the optic nerve entrance, passing forward between the sclera and choroid. Each artery divides into an upper and lower branch just behind the peripheral border of the iris. The branches run concentrically with the margin of the cornea, uniting with the branches on the opposite side, forming the large arterial circle (circulus arteriosus iridis major). Near the pupillary margin they form by anastomosis the small circle (circulus arteriosus iridis minor). The long posterior ciliary arteries are branches from the ophthalmic. The venous system of the iris has a corresponding arrangement with the arteries. There is a communication between the canal of Schlemm and the veins of the iris. The nerves of the iris are the ciliary. They follow the course of the blood vessels and send off numerous anastomosing branches. Their termination is probably in the muscular tissue of the iris.

I have reviewed the anatomy of the three portions of which the uvea is composed in order that we may more fully appreciate the likeness and the differences of its structure throughout. It may be summarized thus:

UVEAL TRACT.

Choroid.	Ciliary body.	Iris.
Framework consists of a delicate connective tissue,	Same.	Same.
Cousists largely of blood vessels.	Same.	Same.
Contains numerous pigment cells, brown.	Same, black pigment.	Same, light or dark pigmeut.
Nutrient function; furnishes nourishment for the retina, vitreous and lens.	Same, ciliary processes; furnish nourishment for vitreousand lens.	Same; assist in furnishi'g nourishmeut to vitreous and lens.
Nerve supply; the ciliary nerves.	Same.	Same.
Muscular clemeuts, absent.	Ciliary muscle.	Sphincter pupillæ and dilator pupillæ.
Blood supply; short posterior ciliary arteries, mainly.	Short anterior ciliary arteries, mainly.	Long posterior ciliary arteries, mainly.

Aside from the muscular elements which enter into the structure of the uvea, the chief differences are in the blood supply to the different parts. In the study of the inflammations affecting the uveal tract, we may understand from this the reason for the characteristic differences in the clinical phenomenon presented.

An inflammation originating in the choroid, chroiditis, is usually limited to the posterior portion of the uvea—the choroid proper. It is not apt to pass over to the ciliary body and the iris. This is especially true of the exudative or non-suppurative form. The question may be asked, why this is the case, since the uveal tract is essentially a continuous membrane and so similar in structure throughout? I think the difference in the blood supply to this portion furnishes the answer. We might reasonably expect, but for this reason, that the inflammation would be continued forward by continuity of tissue. In the suppurative forms of choroiditis, the ciliary body and the iris become involved (irido-choroiditis), but the extension seems to be due to the violence of the inflammation, and probably to pyogenic infection, producing, in many cases, panophthalmitis with subsequent shrinking of the globe (phthisis bulbi). Again, an inflammation originating in the anterior portion of the uvea—the iris (iritis), is not so likely to be transmitted to the choroid, for the same reason. The blood supply to the iris is almost independent of that of the choroid.

An inflammation of the iris may be confined entirely to the structures of which the iris is composed. It is, however, very frequently accompanied by an inflammation of the ciliary body (irido-cyclitis). This may be accounted for by the fact that the blood supply of the two portions of the uvea, is in part, from a common source. The blood passing through the two long posterior ciliary arteries is distributed almost entirely to the iris. It is true that the circulus arteriosus iridis major is in connection with the anastomosing branches of the anterior ciliary arteries, and that the major circle sends some branches to the ciliary muscle, and in this way there is a connection between the iris and ciliary body in their blood supply, as well as in their anatomic elements. An inflammation beginning in the iris is less liable to be extended to the ciliary body than one originating in the ciliary body, is to be transmitted to the iris. This is probably due to the complexity existing in the blood supply to the respective parts. As we have already seen, the five or six anterior ciliary arteries enter the globe about two millimeters behind the sclero-corneal margin, where they divide into branches, and supply the ciliary processes, and join the major circle. Hence, the iris is somewhat freely supplied by the branches of the anterior ciliary arteries, more so, perhaps, that the ciliary body is supplied by the two long posterior ciliary arteries. Also, numerous small vessels extend from the ciliary processes to the iris, supplying the latter. In the consideration of inflammation affecting the middle portion of the uvea—the ciliary body—it is authoritatively stated that "simple cyclitis, without iritis, occurs but seldom and that only in the chronic form." I think the blood supply to these parts accounts for this. There seems to be a more intimate and intricate connection in the blood supply from the ciliary body forward to iris than exists between the iris and the ciliary body in a posterior direction. It may be further noted that an inflammation arising in the ciliary body is not so liable to be extended to the choroid as it is to the iris, and for the reason already given.

There are other factors that chiefly determine the tissue alterations in an inflammation of the uveal tract. Among them may be mentioned the distribution of the lymph channels and lymph spaces. Lymphatic vessels do not exist within the globe of the eye. Lymphoid cells are found in the lamina suprachoroidea, and a lymph space is located between the sclera and the choroid. This lymph space is in connection with Tenon's space. The distribution of the lymph in the region of the choroid is through the posterior lymph passages, in the direction of the optic nerve. The lymph collected in the anterior part of the eye, in the region of the ciliary processes and the iris, passes through ligamentum pectinatum, through Schlemm's canal, and finally is distributed to the anterior ciliary veins. Thus the lymphatic arrangement and circulation becomes an important element in considering inflammations in the different portions of the uvea. The chief thought which I wish to emphasize is that the blood supply to the

various portions of the uvea is a predominating and determining factor in the limitations and complications of an inflammation affecting the uveal tract. The complexity of the blood supply to the choroid, ciliary body and iris makes it all the more difficult to apply general statements to this etiologic factor in inflammatory processes. However, regarding the blood current as a conveying medium in inflammation of the uvea, I think that the course and the clinical phenomena are all the more easily interpreted by directing our attention to the blood supply of the respective parts.

An area of inflammation may be limited or confined to the part in which it originates. This is rendered more probable in proportion as the blood supply is less complicated with other portions. It may also be extended to all portions of the uvea, in which case the inflammatory process will be largely influenced in the directions, relations and in conformity with its vascular connections.

A very close sympathy must always exist among the component parts of the uvea in pathologic changes of any portion of its anatomy.

A CASE OF ANEURYSM OF THE LEFT VENTRICLE.

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Recently Dr. W. H. Witt, Demonstrator of Anatomy, found in the body of a colored woman of about 25 years, the cardiac aneurysm shown in Fig. 1. The surface of the heart was covered with shaggy fibrin



of a recent pericarditis, but whether or not this was the cause of death we have been unable to learn, as the body was of the "resurrected" variety and we have not succeeded in tracing it so as to get a clinical history. The aneurysmal pouch when opened contained soft black clots, showing no attempt on the part of nature to fill it up with laminated clot. The pouch communicated with the cavity of the left ventricle by a large opening just below the attachment of the anterior segment of the mitral valve. This opening is two and three-fourths centimeters long by one and one-fourth broad (see Fig. 2). The opening easily admits the tips of the thumb and two fingers. The edges of the orifice are markedly hard, smooth, rounded and in places fibroid, the appearance being that of a lesion of long standing. The dimensions of the pouch are: length twelve centimeters, width eight and height seven centimeters. The left ventricle is both hypertrophied and dilated, its wall wall being one and one-fourth centimeters thick and its cavity notably large, the interventricular septum giving the appearance of having been pushed toward the right in such a way as to lessen the cavity of the right ventricle. On account of the marked postmortem change, nothing



definite could be ascertained in regard to the heart muscle microscopically, but so far as I could see it was normal. There was no evidence of atheroma in the aorta, and the other organs gave no signs of syphilis. The walls of the pouch consisted only of thickened epicardium, the muscular tissue having evidently been broken through. As for the cause, it was probably an embolus or thrombus in a radical of the coronary artery, which by its occlusion gave rise to a myomalacia, and the disintegrated heart muscle disappeared, allowing the blood to push against and gradually dilate the visceral pericardium.

CREMATION.

BY GILBERT I. CULLEN, M.D.
CINCINNATI, OHIO.

Cremation, or the burning of the bodies of the dead, may be said to be an ancient custom with all countries excepting Egypt, where they were embalmed, Judea, where they were buried in sepulchres, and China, where they were buried in earth. In Greece only suicides, unteethed children and persons struck by lightning were denied the right of burial. At Rome one of the Twelve Tables said *hominem mortuum in urbe ne sepelito neve urito*, and in fact from the close of the republic until the end of the fourth century burning was the rule, although Macrobius says it was disused in the reign of Theodosius.

The Chinese were influenced by the doctrines of Feng-Shui, which taught that they must be buried in a grave on their own land, hence, the Chinese who die

in California are sometimes sent to their homes for burial. Even the Jews used cremation in the Vale of Tophet when a plague came, while those at Berlin and the Spanish and Portugese Jews at Mile End Cemetery have been among the first to welcome the revived process. Probably some nations had religious objections to pollutions of the sacred principle of fire and therefore practiced exposure, suspension, throwing into the sea, cave burial, desiccation or envelopment. The Colchians, says Sir Thomas Browne, made their graves in the air, *i. e.*, the trees. Cremation, while practiced over a great portion of both Asia and America, is not always uniform in procedure. Thus with some the ashes are stowed away in urns or buried in the earth, or strewn upon the ground, while with others curious customs are followed, as with the Digger Indians, who smear the ashes, mixed with gum, on the heads of the mourners. The Siamese have a rule by which the body, being embalmed, lies in a temple for a period which is determined by the rank of the dead person, the king for six months. In the event of the relatives not being able to have the body cremated, it can be buried and exhumed when the opportunity affords.

There can be no doubt that the practice of cremation has been prevented in a great measure by the Christian doctrine of the resurrection of the dead. Science has, however, shown that burning merely produces in a short time what putrefaction takes a much longer time to accomplish, but the feeling of opposition still lingers among many of the clergy. Some writers have been prominent in this reform movement, as for instance Mr. Hawers, who has expressed some very decided views in his work entitled "Ashes to Ashes."

The very general practice of burying the dead in the immediate neighborhood of a church, in order that they might have benefit from the prayers of persons attending, and the ceremony which precedes both the Asiatic and American form of cremation, have given the question a decided religious aspect in the minds of many. Cremation is really a much more sanitary procedure. The disgusting results of pit burial made cemeteries an absolute necessity, but cemeteries are equally liable to overcrowding, and are frequently nearer to inhabited houses or settlements than the older churchyards. It is possible to make a cemetery approximately safe by selecting a soil which is dry, close and porous, by careful drainage and by a rigid enforcement of the rules requiring a certain depth, eight or ten feet, and a certain surface space. But one has only to read Baker's laws relative to burial, to realize how many dangers burial legislation has to contend with. A certain amount of irrespirable gas will escape into the air or into the sewage drains, and thus reach houses, or will percolate through the soil to the extent of contaminating the water used for drinking purposes. An investigation has revealed that the residents in the immediate vicinity of the large Paris cemeteries are peculiarly prone to headache, diarrhea and ulcerative sore throat.

A dense clay soil is best for preventing levitation of the gases, but the worst for the process of decomposition. It must also be remembered that the cemetery system can only be temporary, the soil is gradually filled with bones and the encroachment on the cemetery property by newly erected houses, progresses day by day. The law itself permits the reopening of a grave after having been closed for fourteen years.

From the standpoint of sentiment it must be admitted that cremation would effectively prevent any interruption to "that sweet sleep and calm rest" which the old prayer "that the earth might lie lightly" has associated with the grave, while in addition we would escape the horror of putrefaction and of the "small cold worm that fretteth the unshrouded form."

For the past ten years many distinguished physicians and chemists have warmly advocated the adoption of cremation in Italy. In 1874 a congress was called at Milan to consider the matter, and a resolution was adopted petitioning the Chamber of Deputies to permit cremation to be practiced under the direction of the chief official having charge of that department.

In Switzerland, Dr. Vegman Ercolani is the champion of the cause, and there are two associations organized for its support. In 1797 this matter was extensively discussed by the French Assembly, while in Vienna the strong opposition has been overcome and cremation is now permitted, and in Berlin, Dresden and Leipsic there is a strong movement in favor of it, which is emphatically endorsed by Professor Reclam's last work upon the subject. In Great Britain the matter has slumbered for two centuries, since 1658, when Sir Thomas Browne published his book on "Hydriotophia or Urn-burial." In 1817, Dr. J. Jamieson gave a sketch of the origin of cremation, and for many years prior to 1874 Dr. Lord, medical officer for the health department, seems to have had the adoption of it. It was Sir Henry Thompson who first brought the subject prominently before the public, by organizing the Cremation Society of London. He also pointed out the danger of infection of air and water around cemeteries. The British authorities in India have already had much experience with cremation in that country, and Sir Cecil Beadon, together with the sanitary commission at Madras, have found it necessary, in the public interest, to erect cinerators, which might be used on the payment of a fee. At Poonah, in 1864, Colonel Martin constructed a pentagonal cinerator to obviate the excessively high cost of burial, which is generally above twelve rupees.

The Egyptians used a shroud of amianth, while the Greeks encased the bodies to be burned in asbestos.

The discussion which has recently been going on in Europe relative to the propagation of disease germs through the medium of the earth worms, will no doubt tend to greatly stimulate the interest in and support of cremation.

SOCIETY PROCEEDINGS.

Maryland Public Health Association.

Meeting held at Baltimore, May 11 and 12, 1898.

Dr. WILLIAM H. WELCH, president, in the chair and Dr. JOHN S. FULTON, secretary.

Dr. WELCH spoke of the age of the Association, started last year, and thought the only thing needed now is a large and influential membership to render this organization a power to demand and obtain anything that is for sanitary good of the State. We have already accomplished some practical results; we made some demands at our last meeting and the legislature has given us a vital statistics law, better than no law at all; and now we have a law which enables the State Board of Health to start a bacteriologic laboratory; this will enable us to investigate outbreaks of disease throughout the State. The diagnosis of tuberculosis, typhoid fever, etc., will be made for physicians throughout the State. This great work will stand in relation to public education and preventive medicine and it will stand on a sound scientific basis, with good laws and well

trained and good officers to administer these laws. Public opinion and effective legislation are necessary to secure the benefits of these laws, and we need in addition, the training of experts in public health as they exist in England. Training medical men does not necessarily carry with it the knowledge of sanitary science. This subject is being agitated and steps are being made to take those who would be trained in this department. The University of Pennsylvania has started a department looking to a degree for those who are expert in sanitary science. Organizations will accomplish these results and a National organization is important. We lack this; we have none here. We should have a department of public health, but there are reasons, partly political, why physicians have not been able to accomplish this. It is interesting to note how sanitation is effective, not only in solving many of our important medical problems, but in bringing about better health and greater contentment also. He spoke of the organization of a village inspection society, which was started by Mr. Northrop in New England, and said that such a thing might be done in this part of the country. In all this work, however, women are and must be a very important factor; they can be the important instrument in securing these results.

Dr. Joseph E. Gichner and Dr. Melvin S. Rosenthal of Baltimore then read papers entitled

THE SWEAT-SHOP IN ITS RELATION TO PUBLIC HEALTH.

Dr. Gichner said that we should look at the matter from all sides. The definition of sweat-shop varies; some so-called sweat-shops are really not sweat-shops, and *vice versa*. Charles Kingsley, in "Alton Locke," has given us a very clear picture of sweat-shops in those days. A sweat-shop is a place where a number of persons work under pressure and for a minimum wage, while comforts are not considered; it is generally contract work and it is usually in shops at home, and the dangers are from working at home. The condition of affairs in New York is very bad, but in Baltimore it is not so bad, on account of the small houses and the cheap rents. The Baroness Hirsch gave $1,000,000 to build cheap homes outside of New York, rent them at moderate prices and attract factories. In the city some of the worst sweat-shop houses bring better rents than many larger houses, on account of the enormous number of persons which may be crowded into a small space. He then gave the limits of the sweat-shop system in Baltimore. This is the congested district, but strange to say there is not much diphtheria and scarlet fever, while the child mortality is not very high; there is very little insanity and the general moral tone is not so low as one would expect; consumption, however, is on the increase in these sweat-shops, but the disease is not carried away by the clothes, on account of the pressure during ironing with a hot heavy iron in a hot room. The iron prevents, in part, the spread of the disease to these people; he spoke also of Russian Jews having a great love for their children. The charities providing free milk and ice have had good effects in decreasing the amount of tuberculosis. Many cases occur after the people come to this country. Unaccustomed to working in a small room, on a sewing machine, and the hard work, stooping position and dust inhalation, all tend to cause the disease. While they are a menace to the community in a certain way, still the bad effects react principally on themselves. It is extremely hard to do anything for these people through the health department, because they are dependent on their work and resist every attempt at inspection.

Dr. Rosenthal said that those who work in factories were usually fairly well provided for, while those who work in their own shops, and for wages, were usually the worst off. They usually work from twelve to fifteen hours a day, and in winter the rooms are almost air tight, with men smoking cigarettes and probably spitting all over the floor. We ought to enforce the law and report the cases of tuberculosis, but this is almost impossible. In some places placards are posted outside of the door that contagious diseases are there. The public should be protected from the dangers of these diseases.

The next subject taken up was

THE NEED OF A HOSPITAL FOR INFECTIOUS DISEASES.

This was presented by the Health Protective Branch of the United Women of Maryland. A letter was first read from Dr. Henry M. Hurd of the Johns Hopkins Hospital, speaking of the urgent necessity of such a hospital.

Dr. John S. Fulton, secretary of the State Board of Health, said that public feeling and private interest alike demanded defenses against whatever threatened the welfare of society. We provide against fire, crime, want and ordinary sickness, and yet we leave the hospital for such diseases as diphtheria, scarlet fever, etc., unbuilt. The health commissioner has some difficulty in knowing what to do with cases of this kind. Cases are usually reported by physicians, but any attempt to quarantine the family is fruitless and the disease may be, or is, actually carried in numberless ways, for if the city quarantines any family it must necessarily pay this family for any pecuniary loss. The trouble is we are too familiar with these diseases to be frightened by them. The cost of an infectious disease hospital would be necessarily great at first, but not as much as now dealing with individual cases. Such a hospital must be accessible, but almost every one objects to a hospital near them. Everything in this hospital should be free, and the city should bear all cost. Persons who would wish special accommodations and private rooms would necessarily have to pay for them.

Dr. William Royal Stokes, city bacteriologist, spoke of an ideal infectious hospital. He said in such a hospital cases are brought into an observation ward and kept there until it is seen which disease will develop. The case is then sent to the proper hospital, after the diagnosis is made; the observation room is then disinfected and cleaned before any other patient is admitted. Each department for such diseases as measles, scarlet fever, etc., is kept entirely separate, the nurses being separate and every department being cut off from the others; after the patient is convalescing he is taken to another room with cases of the same kind, and is kept there until the period of infectiousness is over, that is, until the germ has disappeared. Smallpox is not treated at such hospital, but in a separate institution entirely.

Dr. C. Hampson Jones, health commissioner, then related some of the difficulties in carrying out his work.

Dr. William J. Todd, health officer of Mt. Washington, said that infection was often carried by innocent persons and to innocent persons, and spoke of a very clear case by which some papers had been the means of carrying scarlet fever to a family.

Dr. William H. Welch, the president, said that the absence of an alarming tone in the papers of Drs. Gichner and Rosenthal were very gratifying; the fact that the clothing is sterilized before distribution, by the hot iron and the hot room is exceedingly interesting and had never occurred to him before. Nevertheless, danger from tuberculosis to those working in sweat-shops is a real one and it is an important matter. It is gratifying to notice that there is a diminution in the death rates from tuberculosis; the death rate among the Hebrews is smaller than among others, and the contagion in the rooms might be accounted for by a theory of Flügge of Breslau. He says that the dangers from the dried sputum in spreading tuberculosis are not so great as the dangers from coughing; in the action of coughing, sneezing and hawking one sprays from the throat a fine moisture, which emitted from the mouth floats in the atmosphere for many hours. This Flügge thinks is more dangerous than dried sputum. Probably this may explain the great danger of contagion in small rooms like the sweat-shops. In New York the board of health has power to close a room where a case of tuberculosis has died, that is to say, in tenement houses or small lodging houses, and these premises are disinfected, cleaned and kept vacant for a time at the expense of the owner. The need of a hospital for infectious diseases in Baltimore does not call for much discussion. He had brought this up in an address two years ago and it had passed the city council and become a law, and $30,000 had been appropriated, but no suitable location in the city could be found, as every one objected to the proximity of such a building. It must be accessible to be of use. He thought it was a bad plan to call it an infectious hospital or pest house, or such names, but municipal hospital would be a good name. There is no danger from contagion in such a hospital except perhaps from smallpox to the unvaccinated, and smallpox should never be treated in these hospitals. He thought that we should consider these subjects from a sanitary point of view only and not from an economic or business point.

Dr. William B. Canfield thought the subject of sweat-shops should be considered from all sides to be practical. He had not noticed that in any papers read any reference had been made to the origin of the sweat-shop; there must have been some reason for calling it into being, and he thought it was partly because of late there had been a greater demand for cheaper clothing both for men and women, but especially for men, and this demand could only be satisfied by working the poor people in the shops. He thought that every man or woman who bought cheap clothing helped the sweat-shops.

Dr. Savage, who is the physician to the Hebrew Benevolent Society of Baltimore, said that the sweat-shop is an American institution and of recent origin; he had seen a large number of cases of tuberculosis resulting from sweat shop infection.

Dr. Brown of New York, said that he thought many of these children of the sweat-shop workers escaped disease by prophylaxis; they are predisposed to the disease and contract it from

a general lowered vitality and a tuberculosis infection. But the fresh air societies in the city, and the free milk and ice, have all contributed to keep these children alive beyond the danger point. In New York the case is either removed from the house or else the house is placarded.

Dr. EDWARD M. SCHAEFFER said that all of these questions came back to the point of public enlightenment. Massachusetts says she has no sweat-shops, which is probably true.

Mrs. FENDLER said that such a model hospital as Dr. Stokes described existed in New York, the Willard Parker Hospital on Sixteenth Street; this is used as a reception hospital, only the cases which develop being taken to North Brother's Island. She said that the anti-expectoration law which had been passed in New York and Baltimore and other places had been very effective in Baltimore so far, but the street railways had prepared and were about to post cards calling attention to this law and forbidding spitting on the floor under penalty; and the United Women of Maryland were about to send out a number of watchers of detectives to have persons breaking this law punished.

Dr. HOWARD BRATTON, health officer of Elkton, related a case of infection the cause of which had been very difficult to trace.

Dr. GICHNER read several of the laws of Maryland in regard to sweat-shops, which showed that the laws were excellent if they were only enforced.

Dr. AUGUSTUS STABLER, health officer of Brighton, said that there must be concerted action to obtain any results; if the laws were good they ought to be enforced.

Dr. FLORA POLLOCK spoke of a case of scarlet fever in which the inspector called and it was a farce.

Dr. WILLIAM J. TODD of Mt. Washington, read a paper entitled "Vaccination and Revaccination," in which he said that vaccination and revaccination were not sufficiently regarded at the present time; too often certificates were given when there had been no proper vaccination. He thought that revaccination should be done at least once every twelve years, and oftener in many cases. This paper was discussed by Dr. Welch and Mr. Hartshorne.

Mr. CHARLES R. HARTSHORNE, school commissioner of Montgomery County, read a paper on

SCHOOL INSPECTION.

In his district, none of the buildings have a cubic air space commensurate with the seating capacity; the room that was supposed to be best ventilated was found to be very close and uncomfortable. In only one school were the children required to use individual drinking cups, but since that investigation other schools have adopted the plan. There has also been a greatly improved way of reporting the infectious diseases and the prevention of children from returning to school before a safe time after illness. In nearly every school the desks are antiquated and improperly arranged, in many cases the children being obliged to bend forward at a considerable angle in order to see the book.

Dr. AUGUSTUS STABLER, health officer of Brighton, said that in private houses heating is not so difficult, but in public buildings occupied for only a part of the day, especially in country districts, the floor is usually cold except in proximity to the red hot stove. Air soon becomes impure, windows are open, cold draughts come in and often cause illness. Nothing but ignorance can cause such conditions as these. In ventilating small school houses two things should be utilized: 1. Fresh air must be furnished through a flue placed under the stove, and this inlet should have a valve to regulate the influx of air, but should never be shut tight. 2. A ventilating chimney should be put on one side of the room, and if the stovepipe is inserted near this aperture the waste heat escaping will create a draught. If the building is already erected and the funds are limited, then the placing of a simple chimney made of plain boards, on the corner of the room and carried several feet above the roof and surmounted with a suction cap, answers the purpose. These have been found to work in rooms for thirty or more people. The opening near the floor should be the full size of the chimney, and the size of the chimney should be governed by the number of people who are to occupy the room. If there is not sufficient current, then a small lamp should be put inside of this chimney. Our children need not only free schools and free books but free ventilation.

Miss MCILVAIN read a paper for Miss RIDGELY, representing the Health Protective Branch of United Women of Maryland, describing the system of medical inspection which had been employed in Boston and other cities, which had caused diminution in the number of contagious diseases in the schools.

Dr. JOHN S. FULTON showed a device which he had for the ventilation of small rooms. It was a tin pipe within another pipe to be attached to the stove.

Mr. WORTHINGTON, school commissioner of Anne Arundel County, asked when the child was vaccinated if a certificate was given at that time?

Dr. FULTON said that a certificate only showed that the arm has been scarified and something rubbed on it.

Mr. WORTHINGTON said that if the child is not vaccinated it is the physician's fault.

Dr. TANEYHILL asked what reform would be suggested in this case?

Dr. WELCH asked if the certificate was given at the time of vaccination or when the arm was looked at?

Mr. WORTHINGTON said that it is usually not given until he is satisfied that vaccination has taken place.

Mrs. FENDLER said that in New York physicians go to every school and examine every arm, and send those who need it to be vaccinated. They visit the school again in a few days and see what the results are.

Mr. HARTSHORNE said that revaccination was very important and of use, but there should be some modification of the law. Some physicians give a certificate as soon as vaccination is done without seeing whether it takes; physicians should revaccinate every case that does not take. We must understand what "duly vaccinated" means. There ought to be a provision for revaccinating once in four to five to ten years. This carrying out of the law is placed on the shoulders of the teachers; this is a mistake, many of them being young women not paid much, and they have enough to do without this, and one would not think of fining one of these teachers unless in exceptional instances.

Dr. STABLER asked who should pay for the virus and the physician's work? He knew of no means provided in State or county for vaccinating children, and parents were not able to pay for it themselves; most of them do not want to do it if they can get out of it. It is too often a charity on the part of the physician; it is troublesome to do it properly; you first have to get your lymph and then catch your child. As it is done to prevent disease, the community should bear the expense, and there should be some stipulation in the law as to the kind of vesicle which is produced. As for Dr. Fulton's device, he does not like it, for if it is used, someone will think the building is ventilated and, though it may do the work, it is on a wrong principle.

Mr. HARTSHORNE said that an architect had just told him that Dr. Stabler was on the right track.

Dr. CHARLES W. MITCHELL of Baltimore, made some remarks on

PERIODS OF INCUBATION AND INFECTIOUSNESS.

He referred to the large number of cases attending the schools in the various cities, said inspection is possible with us in the large cities and towns, and gave definitions of the period of incubation, *e. g.*, the time between the entrance of the poison into the body and the appearance of the disease; this varies in different diseases and in the same diseases under different circumstances. The period of infectiousness is when the patient, by some of the discharges, retain the power of conveying the disease. He referred to the after-effects and some of the discharges which may contain the disease, which may spread long after persons think it is passed. The infectiousness is just as dangerous in mild cases as in severe ones, and mild cases are the most dangerous kind because people do not recognize them. He protested against the idea which is prevalent of exposing children to the contagious diseases in order to let them get over it. In the outbreak of a disease mothers will bring other children in the same room and into the same bed so that they can have all the trouble of nursing them at once. This has too often caused the death of one or more of the children. He then went over systematically such diseases as measles, scarlet fever, diphtheria, whooping cough, chickenpox and mumps and showed the periods of incubation, the period of infectiousness and the general reaction of all these diseases.

Col. GEORGE E. WARING, at the evening session, delivered an address on

THE SANITARY TREATMENT OF WATER-BORNE WASTES IN TOWN AND COUNTRY.

He said that while we often pay attention to sanitary matters in the house, we neglect them outside. Sewage is unpleasant to the sight and to the smell, and still further it furnishes a growth of bacteria harmful to man. When foul liquid is thrown upon the ground it gradually loses its power of harm but when discharge takes place in a cesspool dangerous putrefaction soon sets in. The cesspool is a source of danger in every place. The only proper disposal of sewage is to bring all of its organic contents into close contact with atmospheric air under conditions suitable for bacterial oxidation. There

can be no proper disposal that does not secure rapid resolution into elements. All decaying matter should be put in the way of being destroyed most quickly. If sewage be allowed to trickle over crushed stone, so arranged that air will penetrate all crevices, it will soon pass away as pure as water, leaving deposited a layer of sludge which is soon oxidized. Col. Waring then described a system of his own for disposing of sewage in country houses, which could be put up at small cost.

SECOND DAY.

Dr. EDWARD M. SCHAEFFER, representing the Physical Education Society of Baltimore, read a paper entitled "Wanted, a Man," a report of the physical training and hygiene in the schools. He referred to the necessity of physical training in schools as a means of making better students, and then he gave a detailed report of the different schools throughout Baltimore and Maryland.

Miss REBECCA STONEROAD, physical director of the public schools of Washington, D. C., read a paper on "Public Schools, Conditions, Problems and Methods." This paper was discussed by a number of the members.

After this the addresses of the morning were illustrated by exercises in physical culture at the schools. Several classes from the children's department, and also from the high school, went through various figures of the Swedish system illustrating the addresses.

Rev. T. M. BEADENKOPF read a paper entitled

PUBLIC BATHS IN EUROPEAN AND AMERICAN CITIES.

He spoke of the difficulty that boys had in Baltimore in going swimming, as they are always driven away by the police. By the aid of several gentlemen he had erected several bath houses, the beginning of a system of public baths in this city. Europe is far ahead of us in the system of public baths. London is said to have expended two and a half million dollars in this deserving charity. They also have wash houses where soiled linen is laundered by the poor people, who pay a small sum for the privilege. This yields a large revenue to the city. He thought that the shower-bath was especially successful when introduced into the schools and he thought that the children who did not have baths at home would be very glad to use those at the schools. He hoped that the School Board of Baltimore would endeavor to establish free baths for the pupils. In New York there are a few floating baths on East River, which provide for bathing but not cleanliness. The taste for bathing is acquired, not natural. In the slum districts of Baltimore there is provision for about 9 out of every 100 persons for bathing in bath-tubs; in Philadelphia, 17 out of 100; in New York, 2½ out of 100, and Chicago 4.

W. H. MORRISS, secretary of the Y. M. C. A., who is also a member of the City Free Bathing Commission, said that this work had begun about five years ago and even with limited facilities much had been accomplished; 30,000 men and boys used these baths last summer.

These two addresses were discussed by a number of members and several resolutions offered.

The following officers were elected for the ensuing year: President, George H. Rohé; vice presidents, Edward M. Schaeffer, Mrs. Daniel Miller, Miss Eliza Ridgely, Charles R. Hartshorne, Augustus Stabler, Howard Bratton; secretary, John S. Fulton; treasurer, L. Gibbons Smart.

Medical Society of the State of Pennsylvania.

The Fiftieth Anniversary, held in Lancaster, Pa., May 17, 18 and 19, 1898.

The President, Dr. W. MURRAY WEIDMAN of Reading, called the session to order at 9:30 A.M., and Dr. E. V. GERHART, President of the Reformed Theological Seminary, invoked the Divine blessing upon the members and their doings.

Mr. C. A. HEINITSH of Lancaster, extended the congratulations of the State Pharmaceutical Society, and referred to the fact that the first president of this body was Dr. Samuel Humes of Lancaster. He congratulated the Society upon the completion of its half century, and alluded to the fact that the meeting at which the Society had been organized was held in the city of Lancaster.

The address of welcome in behalf of the Lancaster City and County Medical Society was delivered by Dr. GEO. W. BERNTHEISEL of Columbia. He said it was eminently appropriate that this the semicentennial meeting should be held in the place of the Society's birth. He mentioned that the County Society of Lancaster ante-dated this Society, having been founded in 1844, and heartily welcomed the delegates and all to the hospitalities of the city. The other officers are: First vice-president, Wm. B. Atkinson, Philadelphia; second vice-president, Wray Grayson, Washington; third vice-president, B. H. Detwiler, Williamsport; fourth vice-president, J. H. Bittinger, Hanover; secretary, C. L. Stevens, Athens; assistant secretary T. B. Appel, Lancaster; treasurer, G. B. Dunmire, Philadelphia.

Dr. A. R. CRAIG of Columbia, presented the program and other arrangements for the meeting. At this point a handsome gavel was presented to the presiding officer on behalf of the Committee on Legislation.

Dr. J. AUGUSTUS EHLER of Lancaster, one of the founders of the Society, was invited to a seat upon the platform. Dr. S. S Towler, Chairman of the Committee on Scientific Business, reported the work of that committee to make this session a complete one in point of papers and attendance of members.

Dr. C. L. STEVENS, secretary, reported that there were fifty-seven county societies in affiliation with the State society, having a total membership of 3194; permanent members 1317.

The treasurer, Dr. DUNMIRE, read his report: Receipts $3,717, expenses $3,699, in treasury $2,720. The Board of Trustees and the Committee on Publication reported requesting that all papers read before the Society first be printed in the official Journal, the *Pennsylvania Medical Journal.* This was agreed to.

The report of the Committee on Pharmacy commended the activity of pharmacists in improving their profession, and aiding so materially in assisting the medical profession. Regret was expressed that in a few instances druggists from mercenary motives have striven to lower the tone and the high standard established by their more conscientious and painstaking brethren.

An amendment was offered to the Constitution to change the time of the annual meeting from May to September. This was laid over until next year.

At the afternoon session Dr. H. S. MCCONNELL of Brighton, read the "Address in Medicine." He treated it under two heads, therapeutics and dietetics, alluded to the progress in recent years of medical instruction and text books, and suggested to the younger members of the profession not to overdose their patients, as small and frequent doses have been found of greater value than large doses at long intervals. He believed in therapeutic fasting, and opposed therapeutic stuffing. Keep alimentary canal in an antiseptic condition.

Dr. J. M. BATTEN of Pittsburg read a paper on "Alcohol." He said this had been used from time immemorial, and that there is no nation but what uses some form of stimulant or narcotic, and alcohol in some form or other is a universal favorite. He gave a very entertaining account of the origin of alcohol, its use in ancient times and the different drinks to which nations are addicted. In view of the fact that alcohol has been much abused, he said that for hundreds of years after its discovery chemists considered it an invaluable adjunct to their laboratories.

Dr. T. J. MAYS of Philadelphia, followed with a paper on "The Ice Treatment in Pneumonia." He applies the ice to the chest in wide mouthed rubber bags, or wanting these, it may be wrapped in towels either with or without a mixture of snow and sawdust. One application usually lasts two hours. Ice to the head is also valuable. Internally, strychnia, morphia and quinia are to be administered in appropriate doses. The paper was fully discussed, some being decidedly opposed to this treatment, fearing a heart complication or the extension of the inflammation. Dr. Mays closed by citing many authorities and cases where the treatment had been succcssfully employed. His own cases had been markedly successful. Cold reduces the frequency of the pulse, tones up the heart; 85 per cent. are cured without other treatment, in fact a large percentage recover with very little medical treatment.

Dr. J. J. JOHNSTON of Pittsburg, read the particulars of a case of "Tuberculous Cirrhosis of the Liver," giving the diagnosis of a case which had occurred in his practice and the autopsy.

Dr. H. BEATES, JR., of Philadelphia, read a paper on "The Variation in Strength and Consequent Unreliability of the More Common Official Preparations of the Materia Medica, as Proven by Special Clinical Observations." He spoke of the variations in the composition, properties, etc., of the many drugs derived from plants which, on account of their wide differences and complexity of textures found in the same variety, explain the unreliability and the different results following the administration of what are regarded as standard medicines.

Dr. ADOLPH KOENIG of Pittsburg, spoke on "Therapeutic Fasting in Typhoid Fever." Where common sense dictates no food is demanded by a patient, none should be given. The feeding treatment is so engrafted upon the public mind, the profession have so long been told to feed up that it is difficult to introduce any innovation; still, the value of fasting in this

discase is gradually becoming known to both the public and the profession, and we find it less difficult to make patients agree to this plan. Benefit is produced by some medicines which act to prevent the accumulation of gases in the abdominal canal, to favor the ease and comfort of the patient, check diarrhea or other complications. He plead for a fair trial of this plan of treatment.

Dr. S. SOLIS COHEN of Philadelphia, read a paper on "The Management of Typhoid Fever." He spoke of the necessity of each case being studied separately. Each was a law unto itself. It was only by this careful investigation of each individual case that we are able to determine whether food is demanded and how it is to be administered. Small quantities of food are easily assimilated and generally prove of value. It is important that at least one quart of boiled water should be given in each twenty four hours. As to the bath, red wine is preferable to whisky before and after it is taken. After the twelfth day the plunge-bath should not be employed under any consideration. He detailed the various medicines needed in these cases.

Dr. A.A. ESHNER of Philadelphia, read a paper on "Orchitis Complicating Typhoid Fever."

Dr. MCCORMICK of Williamsport discussed hemorrhages in this form of fever. He was very positive as to the objection to opium in this disease and the necessity of maintaining an open condition of the bowels. Quite an animated discussion followed, participated in by many of the members.

Dr. MCCONNELL reiterated his views as to food in the disease and quoted a case of a lady who lived seventeen days without taking a particle of food and made a splendid recovery. He gave nothing but water to his patients at intervals of two hours, and only when hunger was complained of by the patient did he give food. The consensus of opinion was that more depended upon care, water, food only when absolutely needed, than upon any form of medication.

Dr. W. T. ENGLISH of Pittsburg read a paper on "Opiates in Treatment of Bronchitis." Among the valuable results obtained was the reduction of irritation, alteration as to the amount of secretion, removal of sleeplessness; and he claimed a speedy cure of the case to follow this plan. He preferred opium in the form of Dover's powder and preferably at bedtime.

Dr. H. A. HARE of Philadelphia, gave his "Treatment of Toxemia by Intravenous Injections and Hypodermoclysis; of Aneurysm by Electrolysis; of Hemorrhage by Calcium Chlorid." In each instance he gave the history of cases which he had successfully treated.

Papers on "Precocious Locomotor Ataxia and the Argyll-Robertson Symptoms," by Dr. F. S. PEARCE of Philadelphia, and "Notes and Observations in Purulent Pleurisy," by Dr. WESLEY S. STICK of Glenville, were read, followed by Dr. J. MADISON TAYLOR of Philadelphia, on "Three Cases of Lumbar Puncture in Infants, Affording Distinct Relief to the Symptoms of Leptomeningitis." He fully reviewed a number of cases of puncture of the spinal cord and the cases, three in number, where infants devoid of sight, hearing and speech, and suffering with meningeal symptoms, were restored. The operation is simple and devoid of danger under reasonable antiseptic precautions. He hoped the operation would soon come more thoroughly into use.

The "Address in Hygiene" was delivered by Dr. A. B. DUNDOR of Reading. He spoke of forestry restoration as of vast importance to the entire country, preventing floods, draughts etc., care as to prevention of fouling water by garbage purification, of drinking water, sewerage, attention to the mode of production of ice for domestic uses, the inspection of food products, the dangers of indiscriminate kissing, personal cleanliness, and similar topics relative to hygienic surroundings.

Dr. J. V. SHOEMAKER of Philadelphia, exhibited several cases of skin disease, detailed their clinical history, and showed a case of psoriasis superinduced by an attack of rheumatism, and another of fibroma molluscum where the body was covered with tumors, some of which the Doctor had succeeded in removing by electrolysis.

In the evening the semicentennial exercises were given in the Court House. Hon. W. U. HENSEL of Lancaster welcomed the society to the hearts and homes of the people of Lancaster and the County, and detailed at length the part that this county had taken in the organization of the State society. He alluded to the men of the past who belonged to Lancaster, the names of John L. Atlee, and others.

President W. M. WEIDMAN then delivered the Annual Address, which was a review of the past and the great part that the society had done in organizing the profession not only in the State but in the whole country; then he urged the need of the society taking a more active part in promoting legislation for the profession, the making of the several sessions of the county societies more valuable in every way, and also suggested that the bulk of the work done could equally well be done by special committees, saving the time of the society for more valuable matters.

A letter from Dr. ALFRED STILLE of Philadelphia, one of the founders of the State society, was read, deploring the fact that failure of health prevented his more active participation in the work of this society, of which he was once the Secretary, though he had always taken a deep interest in all its doings.

SECOND DAY.

The second day's session began at 9 A.M. The Committee on Nominations was announced and then the scientific business began. The death of Dr. CHARLES R. EARLEY of Ridgway, Elk County, was announced. Dr. Earley was long a prominent member of the society, but within the last few years had not been able to be present owing to the infirmities of age.

Dr. D. H. BERGEY of Philadelphia read a paper on "Natural Agencies Concerned in the Purification of Polluted Waters." He covered the subject of the tendency of nature to, by her vegetable and mineral agencies in the waters, purify the polluted water found in nearly every stream. All sources of pollution should be prevented as far as possible, thus not making the task of nature too great. His explanation of the work done by the benign bacteria in their destruction of the dangerous elements which enter so largely into polluted water was lucid and convincing.

Dr. H. S. ANDERS of Philadelphia discussed

THE INDIVIDUAL COMMUNION CUP AND ITS CRITICS.

The agitation for this reform has been conducted in a scientific manner. The fallacy of some of the criticisms is now to be dealt with, then show that the innovation is sound, sensible, sanitary and sacred in conception and practice. It is not a "fad" or its progress would not have been so quiet and steady, its appreciation so positive and permanent. Some say it is unnecessary. This comes from the class who decry vaccination, antisepsis and other sanitary improvements. The dangers of the common cup have not been exaggerated. He wished to emphasize the fundamental principle of absolute cleanliness as the true and efficient reason for individual cups, since that was impossible in the saliva-tainted, tobacco-fouled, breath-blown, moustache-dripped and sometimes disease-infected ordinary chalice. As to impracticability, the cups are practical and in constant use in over 300 churches in the United States. Inexpediency is a timid, politic excuse unworthy of any medical man professing to be instructed in matters pertaining to the public health. The conviction as to the principle involved is clear and strong. Why not have the courage of conviction in recommending and disseminating it? It is not always necessary to urge the adoption of individual cups, but the principle of cleanliness is never inexpedient to urge in relation to the communion, any more than to the home table. This movement is educational in method, not coercive. The criticism that the whole affair is unwarranted and sacrilegious interference is shown to be due to a misconception of the reason for the change: the form of administering communion wine only is changed, without trenching upon essential doctrine, creed or dogma, as was evidenced by the fact that all principal denominations, even in most orthodox churches, are using individual cups. That is believed to be no scriptural objection, since the wine, not the cup, is the essential element of ceremonial significance. Brief quotations from various denominational religious journals and the author's observation in being in close touch with the sanitary movement, controverted the criticism that the individual communion cup idea was subsiding and a failure. Marked progress has been shown to have taken place during the past year and many churches are now either about to adopt, or for financial reasons are only postponing to adopt, individual communion cups.

Drs. DILLER and MASSEY discussed the subject.

Dr. E. ROSENTHAL of Philadelphia read a paper entitled, "Remarks on Infant Feeding." He offered suggestions as to the preparation of cow's milk for use from the day of the infant's birth.

Dr. C. W. DULLES of Philadelphia detailed "The Simple and Satisfactory Method of Examining the Urine." In discussion, the majority appeared to regard the great need of the microscope in such examinations.

The "Address on Surgery" was read by Dr. W. L. ESTES of South Bethlehem, who mentioned some of the remarkable operations of recent years, especially the removal of the stomach by Dr. Schlatter, as a grand triumph, the patient being still alive. He expected the war would furnish much material for the skill of our surgeons.

Dr. C. K. LADD of Towanda followed on "Aseptic Surgery

in Country Houses," and gave at length the grand results obtained under such circumstances.

Dr. W. S. FORBES of Philadelphia read a paper on "Removal of Stone from the Bladder."

Dr. E. O. KANE of Kane read a paper on "Catgut" in its uses in connection with operations in surgery.

Dr. ERNEST LAPLACE of Philadelphia presented "The Pathology and Surgical Treatment of Chronic Varicose Ulcers of the Leg," and cited a number of cases which had been successfully treated at the hospitals in Philadelphia under his personal observation. He quoted these as a defense of his special manner of operating as had been detailed at a former meeting.

Dr. T. C. DETWILER of Lancaster in "Excision of the Thyroid Gland," reviewed the subject of goiter, and the method of treatment. He exhibited a case of a young man with a neck seventeen inches in circumference which could be increased to twenty-four inches.

Dr. B. ALEX. RANDALL of Philadelphia detailed "One Hundred more Mastoid Operations," in addition to a large number formerly detailed.

At the opening of the afternoon session, the Committee on Nominations reported: For president, W. B. Lowman, Johnstown; first vice-president, R. B. Watson, Lock Haven; second vice president, G. W. Guthrie, Wilkesbarre; third vice-president, J. Aug. Ehler, Lancaster; fourth vice president, Henry Landis, Reading; secretary, C. L. Stevens, Athens; assistant secretary, G. W. Wagoner, Johnstown; treasurer, G. B. Dunmire, Philadelphia, and a number of delegates to the AMERICAN MEDICAL ASSOCIATION and to other societies, and the usual Censors, Board of Trustees, etc. These were declared the officers for the ensuing year.

Dr. J. R. CARE of Worcester read a paper on "Unilateral Castration and Effect on the Prostate Gland." Here the gland was enlarged, and the operation followed by complete cure.

Dr. S. BIRDSALL of Susquehanna read a paper on "Delayed Ossific Union in Fractures of the Leg." He had had quite an experience in such cases, especially in children, and went into some detail as to the proper means of keeping the bones in apposition and promoting ossific union, etc.

Dr. L. H. ADLER, Jr., of Philadelphia followed on "Technique of Rectal Examinations and Diagnosis."

Dr. W. M. BEACH of Pittsburg read a paper on "Chronic Diarrhea as a Symptom of Rectal Disease," and exhibited, in illustration of his paper, a number of instruments which he employed in the treatment.

"Some Cases of Rectal Surgery" was treated of by Dr. A. R. CRAIG of Columbia, speaking more particularly of hemorrhoids as the most important occurrence demanding our attention here.

Dr. J. L. HAMMOND of Philadelphia spoke on "Radical Cure of Hernia, by the method of Nélaton and of Ombradin."

The Board of Trustees reported and recommended the appropriation of $2000 to the Rush Monument Fund to be held as a trust fund till the contract for the erection of the monument was accepted, then the sum of fifty cents was to be assessed upon each member of the various county societies in addition to the regular annual assessment, the year beginning January 1. Quite a discussion ensued on this and kindred topics, among others the way the journal was conducted, some appearing to oppose its continuance. It appeared as if a number of the members preferred the old method of issuing the proceedings annually in one volume, but after much discussion, the matter was decided in favor of the present method of publishing the papers and other transactions of the society.

Dr. G. B. MASSEY of Philadelphia read a paper on "Electro-Mercuric Treatment of Cancer," and detailed a number of cases so treated. He earnestly urged the efficiency of this method of treatment.

"The Pressing Demand for a Revision and Recast of Surgical Principles with the Birth of Some New Ones," was the subject of a paper by Dr. G. W. HIETT. He urged "horse sense" in place of the ancient theories as now developed by modern facts.

Dr. J. B. ROBERTS of Philadelphia presented a paper on "The Surgical Treatment of Common Deformities of the Face," advocating surgical operations for the correction of these deformities, and the repetition of operations till the best result has been obtained.

Dr. B. H. DETWILER of Williamsport delivered the Address on Mental Disorders. There are 10,000 insane cases in Pennsylvania, 800 not provided for. The annual increase is about 300. He regarded this as the result of the defective marriage laws. Like begets like, so when the defectives, the criminals, etc., are permitted to intermarry, the result is progeny of similar tendencies. This is not only for one but many generations. Law must stop this. We are entailing a curse on posterity.

Dr. J. CURWEN of Warren spoke on "Provision for the Insane in Hospitals especially Constructed for the Insane." He has long been connected with this matter and is perhaps one of the best experts as to the proper method of caring for these cases. He has been instrumental in having several hospitals for the insane built in Pennsylvania. He gave a very full history of the establishment of these hospitals in the State from the earliest inception to the present day.

"Hypnotism" was treated by Dr. G. E. BRILL of Harrisburg.

Dr. C. W. DULLES of Philadelphia again reported "On Hydrophobia." He stated that only six persons have died from this disease in Pennsylvania during the year past. Of 267 persons bitten, only 8 deaths have come to his notice.

Dr. T. C. DETWILER of Lancaster read a letter from the Pennsylvania University relating the manner of death of several rabbits inoculated with matter from cases supposed to be of persons afflicted with the disease. The subject was very fully discussed.

In the evening the members listened to the address of Dr. ROTHROCK on "Sanitary Relation of our Highlands to the State." He urged the vast importance of law to prevent the woodman's axe from destroying the wooded belt in the northern tier of counties. He believed forest land on high elevations is a positive cure for mild pulmonary tuberculosis. Another reason for preserving the woodlands is the protection of the water-supplies, regions becoming arid wastes solely by the destruction of the trees. The lecture was illustrated.

Franklin and Marshall College and the Seminary were thrown open to the visitors, who were hospitably entertained by the faculty and ladies, and every effort was made to show the appreciation of the visit of the Society to the City of Lancaster.

THIRD DAY.

On Thursday, the session was resumed, a number of valuable papers being read by members from all parts of the State. By the suggestion of Dr. L. J. Lautenbach of Philadelphia, a committee was appointed to investigate the text-books on physiology now used in the public schools, as some of these were misleading, even dangerous in their statements.

In the afternoon, papers were read by A. M. Fullerton of Philadelphia "Experiences in Gynecology"; by H. L. Williams of Philadelphia on "Primary Malignant Diseases of the Corpus Uteri and Value of the Microscope in an Early Diagnosis"; "Things which should be done or not done by the General Practitioner in Diseases of the Ear," by Ada Audenried of Philadelphia; "Nasal Catarrh and its Relation to Diseases of the Ear," by W. S. Brenholz of Lancaster, condemning the hot treatment so much in vogue and giving many arguments to prove the correctness of his views. He urged proper and thorough treatment of nasal diseases so as to prevent subsequent disease of the ear and objected to the nasal douche in the treatment.

Dr. L. J. LAUTENBACH of Philadelphia read a paper on "Rupture of the Drum of the Ear not Necessarily Incurable." He condemned the views so much held by the people, evidently due to improper teaching of the text-books.

Dr. TEODORE DILLER of Pittsburg read a paper on "Mental Hygiene of the Adolescent Period."

The Committee appointed on text-books on physiology, was Dr. Lautenbach of Philadelphia, Israel Cleaver of Reading, R. B. Watson of Lock Haven, O. F. Harvey of Wilkesbarre and John Fay of Altoona.

The installation of the President was then proceeded with, and after the usual thanks to the citizens, etc., the Society ended its semi-centennial session.

Illinois State Medical Society.

Abstract of the Proceedings of the Forty-eighth Annual Meeting, held at Galesburg, May 17, 18 and 19, 1898.

(Continued from page 1353.)

In the evening of the first day the Society met at the Auditorium. Dr. J. M. G. CARTER, the President, delivered his annual address,

ADVANCES IN THE DOMAIN OF PREVENTIVE MEDICINE.

The chief object of the address was to show that a responsibility, almost an emergency, existed in the field of preventive medicine, and that this responsibility rested upon the State. He did not expect to be able to present more than an outline of what seemed to him to be a partial possible solution of the problem. He presented the following propositions as expressing his ideas of what is required:

1. The State or municipality should give men who can not secure other work some kind of employment which will afford them a living.

2. This may be done by introducing such public improvements as will add to the comfort of the people or otherwise benefit them or enhance the value of property.

3. A minimum rate of wages should be paid so that only those who can not find work elsewhere would seek such employment.

4. All able-bodied men without work who have no visible means of support and who do not apply for such government employment should be subject to draft for this labor.

5. The unfortunate and disabled poor should be cared for as wards of the State. Religion, humanity and civilization demand this.

6. The State should see that the poor are properly or comfortably domiciled in houses provided with good ventilation, supplied with good water and sufficiently warm. If possible, houses should be furnished with bathrooms.

7. Inspection of the homes of all the people should be conducted regularly and thoroughly, whether in public or private houses. The object of this inspection being to see that they are in good sanitary condition.

8. All foods put upon the market, meats, vegetables, fruits, dairy products, milk, manufactured products, etc., should be inspected as to their source, composition and present condition.

9. Public baths should be established where the poor can have facilities for bathing free or at a nominal cost.

10. These provisions should be enforced under conditions which will not interfere with the freedom of a liberty-loving people.

These propositions were elaborated.

Dr. J. W. PETTIT of Ottawa delivered the Address of Section 3,

STATE CONTROL IN MEDICINE.

He detailed the progress of legislation in favor of stricter requirements for the licensing of medical students. The old diploma law was instanced. Reference was made to the movement for the passage of a bill raising the requirements for the practice of medicine. The bill in question provides that candidates for medical licenses shall be qualified in all the general principles of all systems and schools of medicine and shall be subjected to examination by a State board before they shall secure their licenses. This agitation can lead but to one end, the wiping out of sectional lines among medical systems. The Doctor outlined further the specific provisions of the proposed law. He noted its vast benefit to to the public and the profession alike, and urged the physicians of the State to use their utmost efforts to influence members of the legislature to bring about the desired enactment.

In the absence of Dr. NICHOLAS SENN of Chicago, who was to have delivered the address on surgery, entitled "The Surgical Treatment of Intestinal Tuberculosis," the President introdued Dr. John H. FINLEY of Knox College, who spoke upon

INTELLECTUAL BACTERIOLOGY.

He referred humorously to the micrococcus egotisticus, a germ which impelled one to look out for himself and get everything he can. The wool-gathering microbe often afflicted students and brought about in them a revulsion to thoughts of labor. Another microbe was the bacillus bombasticus, and still another, the micrococcus oratoricus, found frequently in Knox College. The spirillum Americanum abounded largely in the blood of Admiral Dewey.

SECTION 3, ETIOLOGY, STATE MEDICINE AND MEDICAL JURISPRUDENCE.

Chairman, Dr. DANIEL R. BROWER of Chicago; Secretary, Dr. C. B. JOHNSON of Champaign.

The Chairman, Dr. BROWER, in his preliminary remarks on opening the Section stated that the present status of medical expert testimony was a great discredit to the learned professions. The courts in many States have declared it to be of no value, whereas physicians know that testimony that is expert is of incalculable value in a court of justice.

Relative to State sanitation, legislation was needed. The medical profession deserves special credit for its self-sacrificing determination to prevent disease.

The first paper in this section was read by Dr. GEORGE N. KREIDER of Springfield. At the outset, Dr. Rreider stated that no law passed by the State legislature would succeed in driving out the quacks who were practicing in the State. He offered suggestions regarding the position of the Board of Expert Examiners, the fees to be charged, the penalties to be imposed for violations of the statute if passed. The physicians of Illinois required a good law on the statutes and should expend their utmost efforts to that end.

Dr. HAROLD N. MOYER of Chicago followed with remarks on "What Should Be the Law in This State?" He stated that a new restrictive law was particularly needed because a great number of quacks were practicing in the State under the protection of the present State license. The speaker sanctioned the clause in the proposed bill providing that each licensed physician register his name with the State every year.

Dr. L. R. RYAN of Galesburg spoke of the advantages of separating the State Board of Health from the Licensing Board. He defined the duties of the State Board of Health, which had now become so arduous, he said, that it could not attend to the additional duties of a licensing board.

Dr. BASCOM of Ottawa followed with remarks in which he spoke of drafting laws for Illinois upon the lines of those of other States. He promised the proposed bill, with its minor changes, the full support of the Illinois Homeopathic Medical Society.

Dr. J. O. DECOURCY of St. Libory gave a summary of the laws governing expert testimony in other States and countries.

DEFECTS OF LAWS GOVERNING EXPERT TESTIMONY IN ILLINOIS.

This paper was read by Dr. SANGER BROWN of Chicago. He drew attention to a feature which had in many instances excited more or less adverse comment from every one who had observed it. He referred to the spectacle afforded by the experts on one side appearing to directly contradict those on the opposite side. It is claimed that this happens because there is no efficient law to prevent any licensed physician whatever from posing as an expert where a medical question is involved. Further, that each side hiring its own experts, physicians so employed naturally take more or less of a partisan attitude upon the witness-stand, if indeed some do not lie very palpably. It is desirable that a course requiring instruction from an expert should avail itself of the services of the individual best qualified to render them, and also that he should sustain no relation to either litigant which might tend to render him in the least partial. Dr. Brown said that under the present lay an expert is usually allowed a fair opportunity to express his views on the case on trial, and if honest and competent, he need have no fear of cross examination; but if dishonest and incompetent, he is likely to fare badly and cast discredit upon the profession.

Dr. FRANK P. NORBURY of Jacksonville, also spoke on the subject of

DEFECTS OF LAWS GOVERNING EXPERT TESTIMONY IN ILLINOIS.

Expert testimony, he said, has been tossed ruthlessly on the wave of public opinion in recent years. Not that its value has been undervalued upon the whole, but rather that its practice has been considered too much of a barter and sell procedure. It has unfortunately fallen under the ban of commercialism, and the expert no longer represents to the public an untrammeled, unprejudiced witness, but stands in the light of having been committed to the tender rights and interests of the side for whom he is sworn, and by whom he is retained. He is supposed to represent the facts of his side in a way that will favorably sustain the opinions advanced by the counsel of the client and to construe these facts under oath. While this is the picture presented by the lay press to the people, and by them discussed, yet the courts, counsel and the profession find after all that expert testimony really has value and is essential to the administration of justice. The essential elements of value Dr. Norbury believes are based upon three factors, as expressed by Becker. 1. What is the own value of the expert, meaning his ability and honesty? 2. What are the established facts in the case upon which he bases his opinion? 3. What have been his opportunities for examination of these facts? Upon such a basis the courts recognize the true value of expert testimony, and in the general questions of science and skill, are disposed to give just weight and consideration to an expert opinion when expressed.

Dr. D. W. GRAHAM of Chicago, read a paper entitled

SUGGESTIONS FOR OUTLINES OF A LAW REGULATING EXPERT TESTIMONY.

He said that in the minds of those desiring legislation on the subject of expert testimony, there are two distinct things to be accomplished. One pertains to compensation of the expert witness, and the other looks toward some method of securing impartial testimony of such character as will command the confidence of all concerned. In outlining or framing a Bill that will in any degree accomplish this purpose and meet the approval of the majority of those most interested, there are several points to be considered. 1. The scope.—Should such a law be applicable to all kinds of expert testimony or only to medical? Should it be applicable in both civil and criminal trials?

Should it apply throughout the State or only in the larger counties, as, for instance, those having not less than a given number of inhabitants? So far as it is a constitutional question, he is assured by high legal authority that a law framed in accordance with either the affirmative or the negative of these propositions could not be construed as class or special legislation, such as is prohibited by the State Constitution. So far as the speaker's own judgment and information go, he believes it would be expedient to limit the application of such a Bill to medical testimony and make it apply both to civil and criminal cases throughout the State rather than to the larger counties. 2. The second point relates to qualifications. It seems desirable that the Bill should specify certain qualifications for the expert witness, such as a minimum of experience, special study, residence, etc., and if it were to be applicable only in the large cities it would be expedient also. The question of qualifications could be left almost wholly to the judge and counsel to determine by preliminary examination. 3. How and when appointed? The presiding judge in any case on trial involving medical testimony should be authorized in his discretion, or on the application of counsel for either party to appoint or subpœna one or more physicians as medical experts who shall be designated as court witnesses. The question arises whether the judge shall or may so appoint when either party to the suit applies to have court witnesses appointed. 4. The fourth point concerns what may be called the status of a court witness and his relation to other witnesses. He should be subject to the same rules as other expert witnesses and be examined and cross-examined in the same manner, and the Bill should provide that the rights and privileges hitherto enjoyed by litigants should not be abridged in any degree by reason of the appointment of court witnesses. 5. Remuneration.—The fees provided for witnesses by the Bill should be moderate, and must be so, if it ever receives any consideration at the hands of lawmakers. Probably they should be fixed by the hour rather than by the day—say, not less than five dollars, nor more than ten dollars, for each hour actually in attendance.

Dr. Graham spoke of the recent decision of the Supreme Court in the Dixon case, saying that it made it the law that the expert witness is exactly on the same footing as other witnesses as regards fees and compulsory service in both civil and criminal cases.

Dr. Denslow Lewis of Chicago, related his personal experience with the Dixon decision. He referred to its salient points, as well as to the arguments of counsel and the factors which apparently influenced the Appellate and Supreme Courts in arriving at the decision.

Dr. J. A. Egan of Springfield, contributed a paper entitled "Legislation Necessary to Promote Better Sanitation Throughout the State." The aid to progress in preventive medicine by better sanitation was alluded to and plans offered for such a division of labor by health officers that improved sanitation shall be secured.

The Society voted its unanimous approval of the Medical Bill to be presented to the State Legislature.

SECTION 2.—SURGERY, SURGICAL SPECIALITIES AND OBSTETRICS.

Chairman, Dr. J. L. Wiggins of East St. Louis; Secretary, Dr. A. E. Halstead of Chicago.

UREMIA IN THE PROCESS OF CHILD-BEARING.

A paper on this subject was read by Dr. Henry F. Lewis of Chicago.

Uremia was defined as a condition of the system resulting from the retention in the blood of toxic products which should normally be eliminated, chiefly in the urine. Eclampsia is a frequent sequel of uremic phenomena occurring in the course of the child bearing process. In the consideration of the subject the author included the eclampsias, neuroses, psychoses, and other symptoms due to the toxemia accompanying or following pregnancy. The subject also included the albuminuria of pregnancy, which is found in a considerable proportion of all cases; the cases exhibiting the more serious symptoms of toxemia without eclampsia; the cases where the toxemia causes convulsions, as well as the cases, few in number, where eclampsia comes on without albuminuria or other sign of urinary disturbance. Albuminuria occurs in about 5 per cent. of pregnant women. In most cases there is no important kidney lesion, and the albumin is due to a disturbed blood pressure or hyper albuminosis of the blood. Primipara are three times as liable to eclampsia as multipara.

Dr. Henry T. Byford of Chicago, read a paper entitled

IMPROVEMENT IN THE TECHNIQUE OF THE AFTER-TREATMENT OF PERITONEAL SECTION.

The day before a peritoneal section the patient is dieted and purged sufficiently to reduce the gaseous distention of the intestinal coils, to the end that they may be kept out of the way during the operation. In vaginal sections, and in abdominal sections for large tumors, the intestines are not so liable to be in the way as in abdominal sections upon small pelvic growths or diseased organs. In the latter class of cases the speaker tries to produce six or eight large stools the day before the operation is performed. Patients of relaxed fiber receive full doses of strychnin from the time he sees them. Two hours before the time set for the operation a mild but efficient cathartic is given, such as two teaspoonsfuls of the fluid extract of cascara. As soon as the patient awakes from the anesthetic, a dram of sulphate of magnesia in an ounce of water, or an equivalent dose of some mineral water, or an ounce and a half of the liquid citrate of magnesia is given every hour and repeated immediately whenever vomited. About six hours after the operation is completed a stimulating enema is given, consisting usually of two ounces of glycerin and four of water, or from half to a dram of inspissated ox gall in half a pint of water (without glycerin), is thrown into the upper rectum, and repeated every two or three hours until flatus passes freely between enemas. When this occurs the saline is also stopped, but not until then. In trying to start the passage of gas most surgeons think it enough if gas and feces come with the enema. But this is not sufficient. The treatment must be continued until flatus passes freely between enemas, and if it ceases to pass occasionally after the enemas have been discontinued, then another should be given. If the operation has been a simple one, Dr. Byford commences the salines and enemas a little later, not to prevent bad results, but because the patient is usually very uncomfortable until flatus passes freely and is nearly always perfectly comfortable afterward. It enables him to do without morphin. On the other hand, if raw intestinal surfaces are left after a difficult operation, he sometimes gives a high glycerin enema before the patient is taken off the operating table. As presumptive proof of the value of this treatment, he has recently had 105 consecutive recoveries after peritoneal sections, and he commenced to be thus thorough and prompt in its administration about the time this series commenced.

Dr. Franklin H. Martin of Chicago, read a paper on

OPERATIVE TREATMENT OF CARCINOMA UTERI,

in which he summerized thus: 1. A microscopic examination of the tissue of the three portions of the uterus should be made whenever one of the well known classic symptoms of carcinoma appears. 2. Carcinoma of the vaginal portion of the cervix should be treated by vaginal hysterectomy, including the upper portion of the vagina and as much of the base of the broad ligament as it is possible to include, with the ureters pushed well to the side of the pelvis. 3. Carcinoma of the body of the cervix should be treated by vagino abdominal hysterectomy, with thorough removal of the broad ligament and the deep iliac glands. 4. Carcinoma of the body of the uterus should be treated by thorough removal of the uterus by vagina or abdomen so as to include the tubes and ovaries. The iliac glands should be removed if involved. 5. Neglected carcinoma should never be abandoned, but should be symptomatically relieved by curettement and cauterization, if the more radical procedure no longer seems practicable, with the possible hope of permanent relief in a small percentage of cases.

Dr. Robert H. Babcock of Chicago, spoke on the diagnosis of acute pulmonary abscess and gangrene, with especial reference to their surgical treatment.

Dr. Henry P. Newman of Chicago, read a paper on

CONSERVATION OF TISSUE AND FUNCTION IN PELVIC SURGERY.

The object of the paper was to stimulate investigation along the line of greater conservatism of the general health of women. This may be aided: 1. By a deeper study into the problems of cell nutrition and general metabolism, in order to determine the relative value of glandular and other structures, and the relation of the pelvic organs to the great systemic laws. 2. By seeking the habits and regimen of individual patients as to diet, dress, social and educational life, etc., for the causes of disease, remembering that these, if allowed to go uncorrected, may handicap the best efforts of medical science, and effectually undo all that may be accomplished. 3. By giving to every definitely diseased structure the best opportunity to recover its function that science can devise, by prophylactic supervision of life and habits. By palliative treatment when it offers relief, and by prompt resort to surgical interference when it is called for in the interests of true conservatism.

Dr. L. L. McArthur of Chicago, read a paper on "Sacro-iliac Disease (Tubercular)," in which he reported six cases. The speaker's aim in selecting this subject for discussion was to present what practical points he had gleaned from personal experience with five advanced cases and a sixth possibly incip-

ient case (all tubercular), as well as to call attention to a disease which must be thought of in making a diagnosis in every suspected hip-joint disease, sciatic or low-lying Pott's, and which once seen will probably remain indelibly fixed in memory.

Dr. WELLER VAN HOOK of Chicago, described a new device for facilitating operations about the anus. Starting from the proposition that existing technical methods fail to provide means of aseptic or even approximately aseptic operating, especially in view of Cohn's demonstration of the penetrability of fresh cautery-eschars by pathogenic micro organisms, he reasoned that we should seek means of operating upon hemorrhoids and other anal lesions by dissection and suture.

The device consists of a half inch rubber drainage-tube, perforated near one end, and drawn through a minute opening in a piece of medium weight dentist's rubber dam tissue twelve inches square. It is essential to success that the bowels be prepared beforehand. The method recommended is: 1, laxatives to thoroughly evacuate the bowels, on one occasion only, four or five days before the operation; 2, daily colonic flushings thereafter; 3, after the laxatives have acted, one or two drachms of bismuth subnitrate daily in divided doses to keep the colon empty. In operating, e.g., upon hemorrhoids, the following technique is employed: The sphincters are stretched, the rectum irrigated and the tube with its covering introduced by means of an eight inch forceps. To keep the umbrella like device from slipping out and to keep the dam in contact with the rectal wall, some strips of gauze are pushed up into it, between the tube and the dam. The dam is then pushed aside, the tissues washed again with antiseptics and the hemorrhoids excised and the wound sutured. A piece of iodoform gauze saturated with compound tincture of benzoin is then inserted between the dam and the anal wall. The apparatus and dressing are left undisturbed for four or five days.

THE TREATMENT OF ACUTE ABSCESS AND GANGRENE OF THE LUNG.

Dr. E. A. HALSTEAD of Chicago, read a paper on this subject, in which he said that it was only within the last few years that well-known surgical principles had been applied to intrathoracic suppurative conditions. The term abscess of the lung was employed in the paper to designate only acute suppurative inflammation, non-gangrenous, which had its seat within the lung tissue, therefore cavities filled with pus formed either by a dilated bronchial tube or by destruction of lung tissue from tubercular infection were not considered. The most frequent cause of acute abscess of the lung was lobar pneumonia. Foreign bodies in the bronchi and penetrating wounds of the chest were occasionally the origin of pulmonary abscess. A pulmonary abscess varies in size from that of a millet seed to one containing a quart or more of pus. As to the prognosis, fully 75 per cent. of the cases of gangrene of the lung terminated fatally if left to themselves. Patients with these conditions should be treated by prompt operative measures. The surgical treatment of the lung abscess comprehended puncture of the abscess, aspiration, incision of the lung and drainage. Puncture should only be employed for diagnostic purposes. Dr. Halstead then dwelt at length upon the technique of the operation of pneumotomy for abscess or gangrene, which he said varies according to the exigencies of the individual case.

Dr. A. C. CORR of Carlinville, contributed a paper entitled "Points in Minor Surgery." He first discussed shock and allied conditions, and then passed on to the consideration of stitch infection, burns, ingrowing toe-nails, and infantile phimosis. These subjects were taken up consecutively, and their treatment outlined.

Dr. J. O. DECOURCY of St. Libory followed with a contribution entitled "Straits of Early Life." He said that nothing could be more important to the obstetrician than thorough preparations to meet emergencies and difficulties constantly arising in the lying-in room. The speaker would have his clientage know something of the potency of preventive medicine, in the line of physical development, dietetics, climatology, sanitary or hygienic law; something of right from wrong mating and marriage, and the laws governing progeny in the transmission of traits which affect the mind and body of the offspring, either for good or for evil. In connection with the paper the author exhibited plates from Moreau and other authors, arranged by Getchell in his "Science and Practice of Obstetrics."

AN INTERESTING CASE OF PYONEPHROSIS,

was the title of a paper by Dr. A. I. BOUFFLEUR of Chicago. The points of special interest in the case were: 1. The history would naturally lead one to believe that the disease had existed for practically three years without any interruption, but with a gradual increase in the number and severity of the symptoms. 2. Its chronicity and symptomatology with reported favorable effect of the salicylates would indicate the presence of lithemia with the probability of lithiasis. 3. The history indicates the occurrence of a pyogenic infection of a mild type at least one year before, as evidenced by the occurrence of sweats with malaise and a gradually increasing sense of weakness. 4. The development of pronounced evidences of sepsis probably marked the beginning of incomplete evacuation of the pyelonephritic abscess. 5. The persistent temperature and severe spasmodic cough were undoubtedly caused by the perinephritis with subsequent suppuration and a diminution of the cough, but with an increase in the evidences of general sepsis. 6. In the absence of any suppurative inflammation in the urinary tract Dr. Bouffleur concludes that the infection of the kidney came through the circulatory channel. While the source of such an infection is not infrequently indeterminable, he believes it can be safely concluded that the primary cause was the pneumonia or possibly a mixed streptococcus infection which complicated the measles. Such infections are prone to be of a mild character and metastatic manifestations may not appear for months after the primary affection.

Dr. JACOB FRANK of Chicago read an interesting paper entitled

PATHOLOGIC HISTOLOGY OF INTESTINAL UNION AFTER THE USE OF THE FRANK BONE COUPLER.

From the microscopic study of the healing of intestinal wounds after some of the various suture methods and mechanical devices, Dr. Frank arrives at the following conclusions: 1. That no suture method insures an exact coaptation of the various layers. The Czerny-Lembert suture, considered one of the best of the many suture methods, does not insure a perfect line of apposition. Frey, Wölfert's assistant, is of the same opinion. In a specimen three weeks after operation, after the Czerny-Lembert suture had been used, there was a marked turning in of the ends of the bowel. The mucosa in this specimen is not yet regenerated (here the speaker showed a chart). 2. In regard to the invagination suture method, he referred to but one very briefly, namely, that of Harris, which will stand as a type for the others. Union takes place, but the different layers are not in juxtaposition and the lumen of the bowel is greatly encroached upon. This is not only visible microscopically but macroscopically. The microscopic specimen was obtained sixty days after operation from a dog operated on by Dr. Harris himself. 3. That all suture methods leave the subsequent lumen of the bowel more stenosed than either the Murphy button or the author's coupler.

Referring to the different layers after the use of either the Murphy button or the Frank coupler, the speaker notes the following: That the mucosa regenerates completely and that it shows an entropion which is due to the contraction of the underlying scar. Boari, in his experiments with the modified Murphy button, claims that there is no regeneration of the mucosa. Murphy, in his experimental work, finds a complete regeneration of the mucosa. The muscularis mucosæ is lost in the scar tissue. The submucosa blends with the cicatrix and presents no change from the normal.

Muscularis.—Neither the inner circular nor the outer longitudinal fibers show any regenerative process. Dr. Hektoen, in his report on Dr. Murphy's button operation sections, states that after thirty days the longitudinal muscular coat can be said to be almost restored and the transverse muscular completely united by connective tissue. In describing the section which was removed after sixty days, Dr. Hektoen says that the longitudinal and circular muscular layers are continuous and not distinguishable from those in the normal intestine, except that they contain some small spaces (blood vessels) and occasional traces of fibrous tissue. Dr. Frank differs with Dr. Hektoen in that he has not found this condition in any of his specimens nor in that made with the Murphy button on a dog killed sixty days after operation. The most conspicuous part of the scar is the non-regeneration of the muscular coats, and it is the feature which at once attracts one's notice upon looking at the section through the microscope. Dr. Hektoen further says that "were it not for the thickening described in the submucosa and muscularis mucosæ it would be difficult, if not impossible, to recognize the line of union. The submucosa beyond question is thickened, but not so much so as to make it a prominent feature. This layer is regenerated, and as for the muscularis mucosæ, it, like the muscular coats, has not regenerated." Dr. Frank does not question that some muscular fibers may grow out into the scar and meet, but they are not sufficient in number to call the process a regeneration. This is not found in any of his (Murphy's) specimens and sutu

methods made by himself. The cutting of the muscular coat acts as a stimulus and the result is a proliferation in the cut ends, but the connective tissue grows far too rapidly to permit a regeneration.

Serosa.—This layer is invariably united perfectly and is closely applied to the muscularis. Owing to the irritation and reaction resulting therefrom it is considerably thickened and more vascular but otherwise presents no change.

The scar.—The fibers of the cicatricial tissue run from the serosa to the muscular coat. The direction of the fibers has an important bearing upon the subsequent narrowing of the lumen of the bowel. The fact that the fibers run from the serosa to the muscularis, tends to increase the lumen of the bowel when contraction takes place by lessening the thickness of the intestinal walls themselves. If the fibers took a circular direction a pathologic stenosis would ensue upon contraction.

Dr. H. C. Fairbrother of East St. Louis spoke on the repair of bones.

Dr. Joseph B. Bacon of Chicago read

A PLEA FOR EARLY OPERATION FOR LACERATIONS OF THE CERVIX UTERI.

He said that lacerations of the cervix uteri have been recognized and their resulting pathologic consequences scientifically noted only since about 1862. Emmet was the first gynecologist to recognize the fact that these lacerations were the cause of erosions, eversions, etc., that had previous to his discovery been treated and described as ulcerations of the neck of the womb. All were agreed that the Emmet as well as the Schroeder operation, in selected cases, was all that could be desired; but, unfortunately, there was quite a percentage of cases that neither the Emmet nor the Schroeder operation could cure. Dr. Bacon described a new adaptation of pathologic facts as recognized in the disease affecting non-striped muscles and fibrous tissues in other organs, and showed how like conditions may help to cause some of the serious results found in neglected cases of severe lacerations of the cervix. He claims that the destructive changes found in both fibrous and muscular tissue of the cervix, and later in the body of the uterus, are due to the persistent chronic inflammation and that these changes could be avoided or arrested by an early operation. But if neglected, there is no limit to the destruction and in time no operative procedure will more than relieve a part of the symptoms and can not remove the diseased tissue and cure the woman. He claims that the same pathologic laws that explain cicatricial strictures of the rectum, as advocated by Harrison Cripps, apply equally well to the cicatricial changes that are found in the cervix uteri because there is a like anatomic make-up of the muscles, glands and excessive fibrous tissue normally present in both: 1. The tendency of fibrous tissue, subjected to chronic inflammation, to become both hypertrophied and contracted. 2. The tendency of muscular fiber, when subjected to undue and persistent nerve irritation, to undergo fibroid degeneration with permanent atrophic contraction of its fibrous elements.

Dr. Emil Ries of Chicago gave an interesting talk on plastic operations on the tubes, illustrating his remarks by diagrammatic sketches.

Dr. Eliza H. Root of Chicago read an instructive and interesting paper on hydramnios and its effect on gestation.

Dr. Edward H. Ochsner of Chicago read a paper on

THE TREATMENT OF SEPTIC INFECTIONS FOLLOWING PIN-PRICKS, ABRASIONS AND SIMILAR INJURIES,

in which a clinical distinction was made between four kinds of infections following these injuries. Under class 1 he considered a form of infection which betrays itself by a marked local disturbance with the formation of pus at the point of infection, the systematic disturbance being relatively slight. Under class 2, he spoke of that form in which there is marked local disturbance with the formation of pus at the point of infection and with an ascending cellulitis, the systemic disturbance being usually more marked than in class 1. Class 3 is that variety in which there is only disturbance locally, but in which there is an early and severe involvement of the regional lymph glands and severe general disturbance. Under class 4 he considered that form in which there is no demonstrable local disturbance and only relatively little disturbance in the regional lymph glands, but in which there is severe general intoxication due to the presence of pathogenic bacteria or their ptomains in the blood. The treatment for these infections were dwelt upon at considerable length.

Dr. J. E. Best of Arlington Heights contributed a paper on

THE RELATION OF MIDDLE EAR DISEASE TO FACIAL SPASM.

He had seen a few cases with the following history: After severe exertion and exposure the patient complains of pain in the ear. This is followed in a few days by a discharge of pus, more or less profuse, from the aural cavity. Simultaneous with this or a few days later, facial spasm may occur. The author then dwelt upon the pathology. The etiology was purely of germ origin.

Treatment.—First treat the ear aseptically with peroxid of hydrogen, keeping it perfectly aseptic until all external trouble has healed. Allay pain during acute stage with morphia or other anodyne, used hypodermically if need be. Later, facial spasm may be relieved by ten grains of phenacetin, two, three or four times a day as required. This has given more relief than any other drug he has tried. If the case is of long standing or very obstinate, much benefit may be derived from the application of the electro-cautery applied to the nasal mucous membrane as nearly as possible over the site of the above-named ganglion. Repeat once in five or six days after thoroughly cocainizing the mucous membrane.

The election of officers resulted as follows: President, T. J. Pitner, Jacksonville; first vice-president, H. N. Moyer, Chicago; second vice-president, J. T. McAnally, Carbondale; permanent secretary, Edmund W. Weiss, Ottawa; assistant secretary, W. F. Grinstead, Cairo; treasurer, George N. Kreider, Springfield. Place of meeting, Cairo, the third Tuesday in May, 1898.

Chicago Academy of Medicine.

Regular Meeting, March 18, 1898.

(*Continued from page 1357.*)

TUBERCULOSIS OF THE OCULAR STRUCTURES.

Dr. Casey A. Wood—So far as the eye is concerned, tubercular diseases affect it with comparative rarity if we except the lids. The ocular apparatus may be regarded as an organ practically shut off from tuberculous infection. Even the conjunctiva is probably a less frequent seat of tuberculosis than any other mucous membrane in the body. I need not say much about the palpebral skin which becomes tuberculous (lupus, lupoid, etc.) about as often as any other part of the dermal covering of the face. Tuberculosis of the conjunctiva is often unrecognized owing to its close resemblance, in the early stages, to trachoma. I have seen a few cases that were undoubtedly tubercular, but I think the diagnosis is easy. The proof of its presence lies in a bacteriologic and histologic examination of the suspected tissues. The later ravages of the disease are unmistakable, or at least give rise to the suspicion that the process in question is not purely trachomatous. The treatment is practically that of tuberculosis of the skin, thorough destruction of the diseased parts. I believe that a general tuberculosis may be set up as a result of systemic infection through the lymph channels communicating with the pre-auricular glands.

Infection of the cornea is usually secondary to conjunctival tuberculosis, and when it occurs may for a time resemble an ordinary pannus or an interstitial keratitis.

Tubercle of the intra-ocular structure is still rarer. The chief sites are the iris and choroid, and when they occur they are usually late manifestations of a general tuberculosis. The nodules of a tubercular iris usually appear upon an otherwise healthy membrane, that is apart from acute inflammation, so that one's suspicion of the true nature of the small growths should at once be aroused by the fact. Some of these cases recur with more or less damaged vision, if the patient lives long enough, but in the majority of instances the eye is destroyed.

I have seen very few cases of true miliary tubercle of the choroid, the commonest form of the disease, but this manifestation of a tuberculosis does not differ in any material effect from similar deposits elsewhere in the body. As in the lung, the giant cells may be pigmented and the minute nodules are not always discoverable by the ophthalmoscope. Probably the ophthalmologist would know more about the tuberculous choroidea if the disease developed itself in the early rather than in the late stage of a general infection; the patient becomes moribund before vision is much affected.

TUBERCULAR MENINGITIS.

Dr. Daniel R. Brower—The diagnosis of meningitis as a general proposition is easy, but the differentiation of the various forms of meningitis from each other is attended with the extremest difficulty. I am of the opinion that the ordinary differential points of tubercular meningitis at the bedside are of no value. Unless we can find the source of tuberculous infection in the individual, in viscera or in glands, unless the patient has previously suffered from tuberculous manifestations, or unless we can find tubercles in the choroid, or better

than all, the Skeer sign of tuberculosis, we have no proper basis on which to make a differentiation at the bedside. The Skeer sign, first described by the late Dr. John D. Skeer of this city, is situated on the inner pupillary margin of the iris, about one-sixteenth of an inch from the margin, as a distinct wreath of white clouds, doubtless due to tubercular deposits, and as the disease progresses and the contracted pupils become dilated, instead of the white cloud-like masses we have yellowish-brown circle, undoubtedly due to degeneration of the blood vessels in consequence of the presence of miliary tubercular deposits. And as the third stage progresses and the pupils become more dilated this yellow-brownish circle becomes very much attenuated.

The procedure proposed by Quincke of Kiel to puncture the subarachnoidean space with a hypodermic needle, between the fourth and fifth lumbar vertebræ, and the microscopic and bacteriologic examination of the withdrawn fluid will determine the presence of the specific organisms that have produced the infection, and if it is tubercular meningitis, the tubercle bacilli should be found there. Indeed, the subject of the diagnosis and classification of meningitis should be rewritten, and in every instance we should determine by this simple procedure what the organism is, whether it be the diplococcus of pneumonia, the streptococcus or the staphylococcus, or whatever specific micro-organism may be the cause of the infection, and then with the nature of the infection known we will be in a better position to prescribe treatment and to make the prognosis. The prognosis in tubercular meningitis is absolutely bad and I think those cases of recovery reported are cases in which an error in diagnosis is made. They were not tubercle bacilli, but some one of the numerous other infections that may be produced. Sometimes they are so much alike that it is, as a rule, impossible to differentiate them at the bedside.

MENTAL PHASES OF TUBERCULOSIS.

Dr. HARRIET C. B. ALEXANDER—The psychology of phthisis has long been analyzed by alienists who not only recognize spes phthisica as a common phenomenon and as an expression of exhaustion removing the checks on emotional mobility, but recognize likewise another symptom which underlies much of the difficulty in treating seemingly sane victims of pulmonary tuberculosis. This mental symptom which is exceedingly marked, so much so that it always arouses a suspicion of tuberculosis, as a complication of psychoses, at least, is suspicious. The general mental state of the phthisical is essentially that of the primary confusional lunatic plus emotional mobility. As Spitzka has remarked, there is usually altering depression, emotional mobility, intensification of the egotism common to invalids and a suspicional mental state. As I pointed out nearly a decade ago, this suspicional mental state underlies the refusal of, and changes in, medicinal treatment, if the patient be at home, and the refusal of food if the patient be in a hospital for the insane. The most prominent and decided symptom which appears in the insane, in the larval stage of the disease, is this suspicion. In them, for this reason, physical examination is often difficult, and cough, hectic fever, etc., are often absent.

Frequently it happens that a far advanced phthisis seemingly likely to lead to sudden death comes unexpectedly to a standstill, cough, hectic fever, etc., cease, but demonstrable decrease of the mental symptoms is followed by reappearance of the pulmonary. This alteration was long ago pointed out by Dr. Schroeder van der Kolk. It had been observed by Dr. James Macdonald in the case of Guiteau's uncle, who died in the Bloomingdale Insane Hospital.

According to Clouston, it is possible to predict tuberculosis from the mental symptoms. If these cases have been acute at first, the acute stage is of very short duration and passes rapidly into an irritable, excitable, sullen and suspicious state. There is a want of a fixity of purpose in the mental condition. The intellect at first is not so much obscured as there is great disinclination to exert it. There are occasional unaccountable little attacks of excitement, lasting only for a short time, unprovoked paroxysms of irritability and passion in a subdued form. There is a disinclination to enter into any kind of amusement or continuous work. If this be overcome there is no interest manifest in employment. If there be any one single tendency characteristic of these cases it is to be suspicion. In many cases this insanity commences insidiously and shows itself by an alteration of conduct and affections, an increased irritability and waywardness. There are fitful flashes of intellectual brightness.

The inter-influence of insanity and insane hospital hygiene combined are illustrated in the results of Dr. E. C. Bondurant of the Bryce Insane Hospital, Tuskaloosa, Ala. He found from the results of autopsy among the negroes, who are peculiarly prone to tuberculosis of a rapidly fatal type, that while more than one-half of the patients in the insane hospital suffer from tuberculosis, one-third of those who contract the disease make a good stand against it, either entirely recovering or living for a term of years without being injuriously affected by small though unhealed foci of tuberculosis or dying from some other cause in the course of a very mild and chronic form of the disease.

My own results in the Cook County Insane Hospital, and those of Kiernan in the Ward's Insane Hospital, tend to corroborate and emphasize these results of Dr. Bondurant. His observations were made chiefly among negroes, in whom, since the war, phthisis runs a rapidly fatal course, since it usually attacks organisms broken down by lues. The prognosis of phthisis therefore in the white insane would be much more favorable than even that indicated by Dr. Bondurant. The influence of phthisis on many forms of insanity is to introduce a suspicional element not hitherto present. The suspicional emotional mobility renders it difficult to allow these persons any great liberty on parole as they are liable to take offense without any possible occasion. In some cases the emotional depression produced by phthisis in the ordinary types of insanity may proceed as far as melancholia in the true sense of the term. In one case coming under my observation, the patient seemed to be a true case of melancholia with the facies, capillary circulation and emotional depression well marked. The patient had phthisis and had been deserted by her husband. She ran down rapidly and seemed almost moribund from dyspnea, but rallied under the effects of quebracho given in half dram doses every two hours. She seemed to rally also from her depression. The fancies and depression of melancholia disappeared, but a new type of insanity made its appearance. It was found on careful investigation that the patient had had systematized delusions of grandeur for several years before being suspected of any mental disorder and that therefore the melancholia was a complication of a pre-existing paranoia which had not been suspected.

TUBERCULOSIS MAMMÆ.

Dr. ALEXANDER H. FERGUSON—Tuberculosis of the mammary glands is, comparatively speaking, rarely met with. The paucity of its literature no doubt led Cornil and Ranvier ("Treatise on Histology") to state that "examples of tubercles in the breast are unknown." Cornil has since contributed to this subject. The older surgeons described cold abscesses and fistula of the mammæ with such accuracy as to leave no doubt in the mind of the clinician that they were tubercular in character. Sir Astley Cooper spoke of a "scrofulous tumor of the breast," and Velpeau described tubercles in the skin over the breast, and three manifestations of tubercle in the breast. The next writer appears to have been Nélaton, in 1839 ("Thèse d'Agrégation," 1839). Under the head of diagnosis, Berard paid attention to it ("Diagnostic des Tumeurs cancereuses et tuberculeuses du Sein," Thèse de Paris). After this about forty years elapsed without anything appearing in literature except a short article by Koltz, in 1879 (*Archiv für Klinische Chirurgie*, Bd. xxv). In 1881 Dubar's monograph appeared on "Tuberculoses of the Mammæ"; as did also one by Le Dentu (*Rev. de Chirurgie*, 1881, 1-27). This is all I have been able to find in the archives of medicine before Koch discovered the bacillus of tuberculosis in 1882. The next year, however, an instructive article made its appearance by Ohnacker (*Archiv für Klin. Chir.*, 1883, Bd. 28, p. 366). Billroth treats of it in his work on "Diseases of the Breast." Other writers could be mentioned, such as Durel, Dubare, Marchand, Mandry, Bender, Poirier, Hutchison and others, as having given some attention to this affection of the breasts soon afterward. The literature has been steadily but slowly increasing. Our most recent works on surgery give it a place among the diseases of the breast demanding surgical interference.

1894.—Sabrazes and Binaud (*Archiv. de Médecine exp. et d'Anatomie path.*, Paris, November, 1894), noted that the patients are predisposed to tuberculosis by hereditary antecedents. They claim that traumatism awakens the inactive bacilli of tuberculosis, which are then carried by leucocytes into the injured interstitial tissue of the gland, where a caseous abscess forms. Their observations and conclusions are supported by Fiorentine and Parieti (January, 1894, *Journal d'Hygiène*, Paris).

Powers (*Annals of Surgery*, Vol. xx, No. 2, 1894), in an able article revises the literature. He found thirty-five cases recorded, only one of which was a male; twenty-two out of the thirty-four females were married; twenty-one of the married had borne children; six of the twenty-one had suffered with inflammation of the breasts; and three had a non-suppurative inflammation. He reports a case operated upon by Bull nine years previously.

1895.—Warren ("Surgical Pathology," p. 583) calls attention to the thirty-four cases recently corrected by Roux, two being males. Both breasts were affected in two cases; ages were from 16 to 52; injury happened in three cases, and in twenty-four cases it was secondary. Warren also quotes Mandry's collection of forty cases; one a male; aged 17 to 62; majority developed after confinement, but in eight cases no children were born; it was in the right breast in seventeen cases and in the left in eight cases; lymphatic glands enlarged in seventeen cases and appeared to have been secondary. No glands were noticed in seven cases. In one of Warren's cases infection took place through the ducts.

Berrink (*Beiträge zur Klin. Chir.*, Tübingen, 1895) thinks that extension to the breast from surrounding tubercular tissue infected from without is a common source of the disease, and where this is excluded the hematologic mode of infection must take place.

Gaudier and Peraire (*Revue de Chir.*, September, 1895, Paris) made a study of three personal cases. They state that the tumor may be small, movable, and as a rule, painless; the nipple generally retracted, and enlargement of the axillary glands often precedes the tumor in the breast. They insist on the epithelial intra-acinous origin of the growth, but they never found the Koch bacillus in the ducts of the breasts.

Catellani (*Il policlinico*, Rome, January, 1895) reports two cases. In one case there were three separate tumors, varying in size from that of a walnut to a pigeon's egg. The axillary glands were enlarged. There was no history of tuberculosis and her general health was good. The tumors and glands were removed and the bacilli of tuberculosis found in them; but inoculation experiments were negative. A year after the operation both cases showed no local relapse or sign of tubercle elsewhere.

Piskacak and W. Roux (*Klin. Chir.*, Vol. viii) described two forms, the confluent and the disseminated. They claim it is mostly secondary, being caused either by metastasis or by extension of tubercular process in adjacent parts. They advise, in the disseminated form, early amputation of the breast and removal of axillary glands in all cases.

E. Bender described two cases where he thought the infection was primarily due to cracked nipple.

Howitz (*Hosp. Tidende*, 1895) describes a typical case of tuberculosis of mamma. A young girl, aged 18 years, presented herself, complaining of several lumps in the right breast, about the size of a walnut, also of an ulcer in the lower border of the breast, which did not seem to yield to treatment. Family history.—Mother and two sisters died of tuberculosis; brother had enlarged glands of the neck. Personal history.—First noticed small lump on breast, very little pain. This lump later opened itself and the ulcer was the result. On examination of the breast it was found to be a mass of indurated nodules. The nipple was very much retracted; axillary glands very much enlarged. A diagnosis of tuberculosis of mamma was made. Operation.—The breast was totally extirpated and contents of the axilla removed; patient made an uneventful and rapid recovery. Microscopic examination confirmed diagnosis.

1897.—Charles Greene Cumston ("Intern. Clinics," Vol. iv, 7th series, 1897) reports a case in the surgical service of Dr. E. Kummer in Geneva, Switzerland, in which the gland was extirpated for tuberculosis and cured, and observed four years after extirpation. In this case the axillary glands became enlarged and tender first, and three weeks afterward a swelling appeared in the left breast, which soon formed an abscess that was opened by her physician. A second abscess formed above the nipple, which was also incised. A third abscess similar to the others made its appearance. Chronic fistula followed. The nipple was retracted, the whole gland smaller than normal, the scar brownish in color and depressed. The breast was lumpy and indurated.

Tuberculosis runs the same course in the breast as it does in the other soft structures of the body. The changes in the tissues do not deviate from the tubercular granuloma and gross lesions of the usual type. The same nodules, the similar infiltration, the cheesy degeneration and its liquefaction, the formation of sinuses which become chronic, the same tendency to lymphatic extension and general tubercular infection, and the low form of chronic inflammation, identify tuberculosis of the mammæ with tuberculosis elsewhere. The age, the puerperal state and lactation of the patient predispose to tuberculosis of this gland, as does also a family and personal tubercular history.

The breast may be larger or smaller than normal and look natural or be perforated with fistulæ. The skin may or may not be discolored over diseased areas. The nipple may or may not be retracted. Foci in the breast may be single or multiple, but usually the disease becomes disseminated throughout the organ. The axillary glands may be primarily or secondarily enlarged and fistulous or may not be diseased at all. Pain is not an early symptom and tenderness develops with it in the late stages. The tumor develops slowly and is usually accidentally discovered by the patient. When fistulæ form they have little tendency to heal. There appears to be a marked tendency to tuberculosis of the lungs when the breast is tubercular. The infection of the breast may be primary or secondary, usually primary. The prognosis of the breast is almost always bad, but for the individual good, if early extirpation is resorted to.

The origin of the disease may be through the lymphatics, the blood vessels or local abrasions or sores on the breast, such as cracked nipples. I have had occasion to extirpate the mammary gland twice for tubercular fistulæ and abscesses. One, an Icelandic woman, about 32 years of age, of scrofulous appearance, had nodules appear in the breast in the upper and outer quadrant several weeks after having had sore nipples during lactation. These formed fistulous tracts through the skin and opened spontaneously, and the glands in the axillæ were enlarged, all of which proved to be tubercular. A second case demanding extirpation was also fistulous from chronic abscesses which developed during lactation, in a woman 25 years of age, with a marked tubercular family history. Some of the abscesses had been lanced and two or three had opened spontaneously. The fistulæ led to almost any part of the breast and communicated with another. The nipple was retracted. The glands in the axillæ were not considered enlarged and were not explored. The number of cold abscesses of the breast and single chronic fistulæ that I have treated I do not recollect. I recall two cases of secondary infection of the mammary gland in the male, both of which extended from tuberculosis of a rib, and both of which were extirpated while dealing with the diseased rib.

Diagnosis.—The clinical history of the case in many instances may be all-sufficient to establish the nature of the disease, especially in its later stages. The surgeon should use his microscope almost as often as he does the knife and examine the contents of all abscesses and sinuses as a routine practice. The early discovery of the bacilli of tuberculosis in an apparently innocent abscess of the breast will materially influence the line of treatment and save the patient much suffering and possibly general infection. Nearly all cases of chronic mastitis, chronic mammary abscess, mammary fistula and the chronic mastitis of lactation, most of them, are no doubt tubercular in character. Ordinary pyogenic infections have usually a sudden onset, acute inflammation follows and in the exudate pus cells and pyogenic cocci will usually be found. Syphilitic gummata in the breast may be easily mistaken for tuberculosis. The specific history and test treatment are of importance here. Carcinoma should always be kept in mind in this connection, and one must not be misled by a hard nodule, a retracted nipple and lymphatic nodes, for these are found in tuberculosis of this organ.

Mammary actinomycosis.—Mammary actinomycosis very closely resembles tuberculosis in some instances. Müller (*Münchener Med. Woch.*, Munich, Dec. 18, 1895) has presented a study of the ray fungus in the mammary gland. The cases of secondary infection are not of interest to us, but two cases were apparently of primary origin. First case; aged 35 years; lactation, one breast used, the other received a blow and a nodule appeared. This was incised and pus let out. The wound healed in two months. The breast hardened again and a sinus formed. She looked well. The glands in the axilla were not enlarged. The sinus in the tumor led to a cavity which contained characteristic granules. The fungus was found in sections from the breast that was removed with the tumor. The second case, a woman aged 25 years, received a blow on the breast. It pained her for some time, and several months later a tumor formed. It was lanced and soon healed, but six weeks later another tumor formed, occupying the outer half of the left breast. A sinus formed in it. A cough was present, but there were no signs of lung disease. Linseed meal poultice was applied at one time in both cases. The diagnosis lay between chronic mastitis with abscess and tuberculosis. The diseased tissue was removed and some months later sections were made of it and the ray fungus discovered. From a diagnostic standpoint, it may be important to remember that in these two cases of probable primary actinomycosis there was in both: 1. A blow on the breast. 2. An incision. 3. The application of linseed meal poultices.

Treatment.—The treatment is local. For tuberculosis of this organ, as elsewhere, it resists all therapeutic measures. Tuberculosis of the breast endangers the life of the patient, and the researches of Kolossnikow have established the danger

of infecting an infant suckling a tubercular breast. The great tendency to implication of the whole organ, in addition to the above considerations, clearly demands the removal of the diseased tissues, usually of the whole breast and axillary glands. Vigorous treatment of cracked and excoriated nipples infected with tuberculosis may prevent the spread of the infection in the early stages. Local foci opened, curetted and iodoform dressing assiduously carried out suffice in some cases.

(To be continued.)

PRACTICAL NOTES.

Arterial Compression as an Anesthetic.—M. Jabony of France claims to have produced anesthesia for a few moments by compression of the carotid arteries. The absence of total loss of consciousness he claims to be sufficient for reducing a dislocation, making an incision or setting a fracture. The success, however, may be due to suggestion.

Return to an Old Method.—Dr. Laache in *Deu. Med. Woch.* (1898, No. 9), gives three cases of uremia in which venesection was employed with the happiest results. The quantity of blood withdrawn was from twelve to twenty ounces. In the days of Dr. Benjamin Rush, venesection unsuspiciously gained many triumphs in this class of cases, inasmuch as the first resort was had to it in all comatose and convulsive conditions. The received notion even in those days was that the method was eliminative.

A New Clinical Symptom of Scarlet Fever.—Meyers (*La Presse Médicale; Philadelphia Times and Register*) reports a series of cases at the Hôpital du Port d'Aubervilliers during 1897, in which he observed a slight paralysis of the upper extremities with frequently only numbness in the hands. At times instead of a numbness only a pricking sensation located in the palmar surfaces of the finger ends or in the palm of the hand was noted. This was rare in the feet, but if present was found at the same time in the hands. The duration of the sensation is variable and rarely before the scarlatinal eruption. The author states that he has never met this symptom in other eruptive diseases, in diphtheria, in erythema from drugs and notably in mercurial manifestations on the surfaces of the skin.

Foot Blisters heal rapidly without pain or inflammation if they are incised the whole length with a bistoury and emptied, then each lip raised with a sound and the cavity sprinkled with iodoform powder. The blister is then covered with a thin layer of cotton and a small piece of adhesive plaster applied outside. No inconvenience is felt in walking, even at once; the wound dries in a few hours and new epidermis soon forms. —*Semaine Méd.*, May 4.

Manifold Advantages of Oil in a Collyrium.—Prepared with water the effect is uncertain, the application inconvenient, as it causes considerable afflux of tears and spasm of the lids, and the sterilization is difficult. These difficulties are entirely obviated by using olive or peanut oil freed from fatty acids by washing with alcohol and then heated to 120 degrees C. for ten minutes. The basic alkaloids dissolve more readily in the oil than the salts; mix cold and keep in a cool place. Apply with a glass stirrer slightly flattened and curved at one end, which takes up the oil and deposits it much more effectively than the dropper or brush, while easy to sterilize and gentle in its touch.—B. Scrin, *Semaine Méd.*, May 4.

A Case of Suppurative Appendicitis.—Dr. Thomas H. Emory (*Medical Record*, May 21, 1898), before the Medical and Chirurgical Faculty of Maryland, reported the case. The patient was a colored man, 24 years old. The surroundings were most unhygienic. Recovery followed with only a small fecal fistula. The features were: 1. Absence of chills at any time. 2. A moderate range of temperature and the character of the pulse. 3. The seeming subsidence of the symptoms two or three days before the operation. 4. The apparent readiness of the abscess to break, the walls being extremely pliable. 5. The absence of any tumor or fluctuation.

Ichthyol in Affections of the Eye.—M. Eberson recommends ichthyol in the highest terms, especially for children, in treating trachoma, as it shortens materially the course of the disease and ensures complete recovery. It also heals rapidly all cases of catarrh of the conjunctiva with or without corneal complications. It is also a powerful agent in clearing up cicatricial formations in the cornea. He uses a 50 per cent. aqueous solution, to which a little glycerin is added, applied and left a minute or two. The *Klin.-therap. Woch.* of May 1, contains his report of numerous observations during the last two years.

Further in Regard to Orthoform.—The parts become insensible to pain in five minutes after the application of orthoform, in a powder of 10 to 20 per cent. salve. This effect lasts for thirty hours on an average, sometimes for three to four days. It always checks the secretion more or less, which is especially valuable in flap transplantations. In one case 60 grams a week were applied without secondary results, proving its non-toxicity. The base is preferable, as the salt causes slight transient smarting. Orthoform only acts locally and has no effect upon sound tissues, hence is valuable in diagnosing ulceration in the stomach.—*Münch. med. Woch.*, 1897, 44, 46.

Significance of a Green Color in Intestinal Strangulation.—Begoin, in discussing the different colors of strangulated bowel and their significance, says that he has been able to artificially produce shades of yellow, yellowish green, and olive in loops of human intestine by means of human bile obtained at autopsies, as well as by the bile of dogs; but that he has never been able to reproduce the Florentine bronze which he has seen in some fatal cases of obstruction. The practical outcome of his investigations he thus sums up: *a.* A clear green tint may exist without alteration of the intestinal wall. *b.* Yellow green, dark green, bottle green, and black green have a more sinister significance. They do not necessarily indicate the death of the tissues of the bowel, but the latter may occur with these colorations. At any rate it is desirable to use other methods to determine this point, such as irrigation with hot water or pricking of the intestine. *c.* The same precaution should be employed in the presence of that beautiful green color known as Florentine bronze. In the two cases under the observation of the author in which this color existed, there was gangrene of the gut; but the evidence is too limited to say that such is of necessity the case.—*Gazette Hebd. de Méd. et Chir.*, January 27.

Soluble Metallic Silver in the Treatment of Infections.—B. Credé of Dresden announces that he has been very successful in the treatment of pure and mixed staphylo- and streptococcus infections with his argentum colloidale, which dissolves almost perfectly in water and albuminous fluids, applied as a salve rubbed in, or taken internally in pills or solutions. It is also used for uterine pencils and rectal injections. In order to have the tests uniform he has only given his formula yet to one firm, Heyden of Radebeul, near Dresden, although later he intends to publish it generally. The extreme solubility of silver in this form is surprising, and also the fact that the addition of a little albumin protects it against the action of the acids of the stomach which would otherwise transform it into an insoluble salt. No secondary effects have been observed from its use in any form, even with months of treatment. Credé's recommendation of itrol and actol (arg. citr. and lact.) as a prompt harmless disinfectant for septic and aseptic wounds, clean, ready and marvelously effective, has been confirmed by many physicians in various countries, he states, adding that he has received most favorable letters from thirty-eight (*vide* JOURNAL, xxvii, page 1160). He expects that the soluble silver treatment will be found even more effective in internal medication.—*Klin. Therap. Woch.*, 1898, Nos. 14, 15.

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SATURDAY, JUNE 11, 1898.

TYPHOIDAL CHOLECYSTITIS AND CHOLELITHIASIS.

The subject of the formation of gall stones and their relation to the presence of microbes in the bile has attracted considerable attention of late, and has been made the subject of quite a number of experimental and other investigations.

It would seem that in typhoid fever, in which an infection of the bile with typhoid bacilli occurs so very frequently, the conditions necessary for the formation of gall stones upon, so to speak, a bacterial basis would be unusually favorable.

Suppurative inflammation of the gall bladder has long been recognized as one of the complications of typhoid bacilli. The first report of cholecystitis caused by invasion of the bacillus typhosus was made by GILBERT and GIRODE [1] in 1890, and since then a series of many observations concerning the relation of typhoid fever to infections of the gall bladder has been made. In 1891 BLACHSTEIN [2] noted the almost constant occurrence of the bacilli in the gall bladder in cases of experimental inoculation of typhoid bacilli in rabbits, and Professor WELCH [2] has called attention to the presence of the micro-organisms in this situation in these animals a considerable length of time after the inoculation; thus, in one case the bacilli were found in the bile on the one hundred and twenty-eighth day after the inoculation and after having disappeared from every other organ of the body. Since then a routine bacteriologic examination of the bile in the fatal cases of typhoid fever in the Johns Hopkins Hospital has shown that in about 50 per cent. of the cases a pure culture of typhoid bacilli can be obtained.[3] These organisms are usually present without any apparent symptoms; a variety of changes may be caused by their invasion however, ranging from catarrhal inflammation to the formation of stone, to ulceration and perforation and its consequences. Thus various writers emphasize acute suppurative cholecystitis as a not unusual complication of a late stage of typhoid fever.

CUSHING [3] calls attention to the fact that there is a distinct group of cases in which acute cholecystitis appears, not during the fever, but some months subsequently, and in all of these there have been found gall stones. BERNHEIM [4] emphasizes the frequency of attacks of gall stones in typhoid fever, and DUFOURT [4] was able to trace a history of typhoid fever, preceding the attacks of gall stone colic by a few months, in nineteen cases. A review of the cases of cholecystitis occurring in HALSTED'S clinic in the Johns Hopkins Hospital shows that ten out of thirty-one cases of gall stones gave a previous history of typhoid, the interval varying from a few months to several years.

In 1890 WELCH demonstrated micro-organisms in the center of gall stones, and suggested that they might be the starting point in the precipitation of biliary salts. NICHOLS is quoted by CUSHING as having observed the early appearance of the bacillus of typhoid fever in the gall bladder after intravenous inoculation, and a distinct clumping of the organisms was observed in those animals which were later examined postmortem. Such observations show that a reaction similar to the agglutination of the organism by serum may take place in the course of their sojourn in the bile, and indicate that the clumps may form the starting point for the deposition of calcium bilirubin salts and thus become the origin of a stone, symptoms of which may occur after convalescence. The development of post-typhoidal cholecystitis may therefore, according to CUSHING, be summarized as follows:

1. The bacilli, during the course of typhoid fever, quite constantly enter the gall bladder.

2. The organisms remain vital in this fluid for quite a long time.

3. In the course of time the bacilli become clumped, an intravesical agglutinative reaction takes place.

4. These clumps may be presumed to form nuclei for the deposit of biliary salts, in accordance with the fact that micro-organisms are quite regularly demonstrated in the centers of recently formed stones.

5. Gall stones associated with long-lived infective agents may provoke inflammatory changes in the bladder at any subsequent period.

CUSHING was able to collect four cases of post-typhoidal cholecystitis with cholelithiasis in which the bacillus typhosus was cultivated from the bile at

[1] Soc. de Biologie, 1890.
[2] Johns Hopkins Hospital Bulletin, 1891.
[3] Johns Hopkins Hospital Bulletin, 1898.
[4] Quoted by Cushing, loc. cit.

the operation. To these four cases he adds two additional ones. This sequence which he outlined does not seem to be necessarily limited to infection with the bacillus of typhoid fever. BLACHSTEIN[5] refers to a similar clumping of bacilli in the bile of rabbits after inoculation with the colon bacillus. The colon bacillus occurs in the bile in many fatal cases of typhoid fever. GILBERT and FOURNIER[6] divide biliary lithiasis into two groups, one due to the colon bacillus, by far the most common, and one due to typhoid bacilli. These writers, and MIGNOT,[7] have succeeded in producing experimental cholelithiasis of these two types. CUSHING has operated on one of the cases of the colon group, two years after an attack of typhoid fever. In this case the gall bladder contained many small facetted stones, in the center of which were evenly staining bacilli. Cultures from the stones were negative. The bile also contained isolated clumps of the bacilli, which possessed the cultural characteristics of the colon bacillus. The blood of the patient gave a Widal reaction to typhoid in a dilution of one to thirty.

It is extraordinary, however, to find that cholecystitis with stone may be associated with the bacillus of typhoid fever in which there is no history of any febrile attack, and in which the infection of the gall bladder seems to be primary. CUSHING reports a case of this kind. The wide-spread occurrence of the bacillus typhosus is just being recognized. Owing to the occurrence of the serum reaction many cases are clinically diagnosed as typhoid infection which may have but few of the clinical symptoms, and which, at the autopsy, may have been free from the characteristic anatomical findings of typhoid fever. A study of CHIARI'S summary of these forms of typhoid fever, an editorial abstract of which was printed in the JOURNAL recently, shows that he has no division under which one could class the cases, the only evident lesion of which is in one organ and which clinically never presented any indications of typhoid. In CUSHING'S case of this kind, which concerns a woman 26 years old, there was found a greatly enlarged gall bladder, with recent adhesions about it, containing gall stones. The bacteriologic examination showed on the cover-slips a few organisms, rod-shaped and with rounded ends. A comparative series of cultures demonstrated the presence of a bacillus which had all the characteristics of the typhoid bacillus. together with the serum reaction, which was controlled by the use of undoubted typhoid bacilli; and the blood serum of a case of active typhoid fever produced a similar reaction with both these organisms, while the blood serum from a healthy adult produced no clumping in either case. CUSHING therefore concludes that the bacillus found in the gall stones had the morphologic and cultural characters of the typhoid bacillus, and this conclusion, that it actually concerns the typhoid bacillus, is made practically positive by the occurrence of the Widal reaction with the serum from the patient and with the serum from a clinically typical case of typhoid fever.

In connection with this, reference may be made to a case reported by Dr. MILLER,[8] in which the bacillus of typhoid fever was found in the gall bladder seven years after an attack of the disease. This case concerns a woman 37 years old, who, in 1891, had attacks of cholelithiasis and a little later a febrile disease which was regarded as typhoid fever. Following this fever, which lasted four weeks, came a remission of about four weeks, to be succeeded by another rise in temperature lasting about one month. There occurred subsequent attacks that resembled gall stone colic. At the time of admission into the hospital she had constant pain and tenderness over the gall bladder. The diagnosis of gall stones was made, and operation revealed the presence of calculi in the cystic duct, which were removed. A bacteriologic examination of the contents of the gall-bladder showed the presence of a micro-organism which proved to be the bacillus of typhoid fever, giving the typical Widal reaction. The serum from the patient also agglutinated a known typhoid organism rapidly at one to one-hundred dilution, the reaction resembling that of an acute attack rather than one of an attack of several years ago.

5 Loc. cit.
6 Soc. de Biologie, 1897.
7 Quoted by Cushing, loc. cit.

EXPANDING VS. EXPLOSIVE BULLETS IN WAR.

The tendency of modern civilization is to more humanitarian methods even in war, but at the most it is only a tendency. The edicts of the Geneva Convention, while they should have the force of law, are like other laws, full of holes and possibilities of evasion. In civilized warfare no doubt they are expected to be observed, but a state of war is more or less a suspension of all laws, international and otherwise, and it is not probable that in all cases and under all conditions the considerations of humanity, or even the dicta of an international convention, will overrule the passions of excited warriors. As the state of the participants approaches to barbarism, this neglect of the dictates of humanity will be the more prominent, and the comparatively recent behavior of the Japanese at Port Arthur is a case in point. After all that is said, it was not so very much worse than Badajoz or Ciudad Rodrigo a little less than a century ago, when the soldiers of a Christian nation were at fault. In our own times we have the deliberate starvation of non-combatants in Cuba by a power calling itself Christian *par excellence*, whatever others may call it. War is hell, as General SHERMAN called it, and even its mitigations

8 Johns Hopkins Hospital Bulletin, 1898.

are not all perfectly and successfully humane, in their execution at least, in spite of good intentions.

Some time back the JOURNAL noticed editorially what was apparently a palpable evasion of the prohibition of the use of explosive small arm projectiles in war, namely the Dum Dum bullet in use in the British army, which it was stated was also about to be adopted in the Russian service. A prominent surgeon, basing himself upon the results of experiments on cadavers, has positively condemned this missile as being equivalent in action to explosive bullets, in a paper read before the German Surgical Congress. He finds that it "sets up" or mushrooms in its passage through the tissues so as to widely extend the laceration of the soft parts, rendering it infinitely more serious and fatal in its effects. That its origination in a war with fanatical tribes whose rushes could not be stopped with the full coated Lee-Metford bullet, was in a measure excusable, does not better the case if the same practice is to be introduced into civilized warfare, nor does the fact that it is a spreading or "setting up" projectile instead of an exploding one alter the question if the effects are practically the same.

An English army surgeon has in a recent issue of the *British Medical Journal* taken up the defense of the Dum Dum bullet against these charges, but his argument is hardly a valid one. He gives the history of the evolution of the English bullet from the time of the old smooth bore round ball used down to nearly the period of the Crimean war, through the various types of belted, conical and other forms of projectile to the modern small caliber steel or nickel coated missile. He also describes the genuine explosive bullet used in hunting large game, and makes it clear that at least one military projectile used in the past—that of the Snyder rifle—was practically one of this type, the air contained in its cavity acting on impact like an explosive.

The higher power of modern military rifles has made some more resistant material than lead essential to prevent stripping and obstruction to the rifling of the gun, and the long pointed projectiles are therefore covered externally with a steel or nickel coating. When this coating is intact the bullet is rarely changed in shape in passing through the tissues, and the wound is therefore small and free from detached particles of the missile. When, on the other hand, the lead center is exposed at the point, as in the Dum Dum bullet, and still more when its casing is also notched or slit at the point, it spreads and becomes distorted in the wound and the harder casing, instead of being a protection to the tissues, adds to the lacerating effect. The wound therefore instead of being a mere puncture, hardly larger at the exit of the bullet than at its entrance, is a lacerated one, constantly widening in its progress through the body. The principal difference between it and an explosive bullet would therefore seem to be that it tears its way through and makes a wound of exit, instead of lodging in the tissues. This is a distinction with a difference, it is true, but it is not necessarily an important one; if the damage done to the organs is sufficiently serious it matters little whether it is extended to a wound of exit or not, and in any case there is liable to be lodgment of detached fragments of the missile.

The motive of the prohibition of explosive bullets was the especially extensive and dangerous character of the wounds produced by them, and if this same effect is brought about by other means, the spirit, if not the letter of the law, is certainly violated. It is, moreover, not a valid defense to the charges made against any appliance to say that there have been others still more objectionable. The air explosive Snyder bullet does not excuse the spreading and tearing Dum Dum projectile.

It is a fine point for military casuists to decide, how far a weapon can be allowed to be destructive without going beyond what ought to be permitted in civilized warfare. The principal object in modern warfare is to disable rather than to kill the enemy, and if modern small arms with all their advantages of long range, lightness of ammunition, etc., are not sufficiently disabling, some other methods and appliances will have to be adopted. But in no case would it seem excusable to evade in letter or spirit the humane restrictions that by international consent have been accepted as imperative in warfare between civilised peoples.

PURE WATER FOR TROOPS IN THE FIELD.

Boiling the water is a sure way of preventing infection by the water-supply. It is a custom among the old soldiers of our regular army, who have done much scouting duty in their western service, to fill their canteens, for the day's march, with weak coffee or tea, which for practical purposes is the boiled water recommended by their surgeons; but it is not to be expected that 200,000 volunteers, hastily enrolled and equipped, could be trusted to protect themselves from typhoid fever and other infections in this way. The addition of chemicals to the water with the intention of oxidizing putrescent organic matters has been suggested; but if the water is so impure as to require their use, the simpler and better way of dealing with it is to insist on its conversion into cold tea. The use of small portable filters, to be carried and used by the individual soldier, has been urged upon the military authorities. But such filters, if issued, might be thrown away as an unnecessary incumbrance, since raw troops can hardly be trusted with the purification of their water-supplies. The purification must be done for them. To this end apparatus of various kinds for distillation have been considered. These, of course, give a sterilized water, and as arrangements may be made for aerating the water as it drops from the condenser, the distillate may be palatable as well as whole-

some; but there are practical difficulties in the way of managing such an apparatus in field service. Processes involving sedimentation are too slow to be of any use in camp life, even when these processes are hastened and their efficiency promoted by the use of such precipitants or coagulants as alum, lime or ferric salts; and electrolytic methods require a subsequent sedimentation or filtration, for their action is not that of direct purification, but merely the introduction of the hydrate of iron or aluminum into the water as a coagulant from the decomposition of the metal in the plates used. For troops in the field, filtration, therefore, appears to be the only practical method of purification.

A filter is efficient as a sterilizing medium in proportion to the fineness of its pores. When the pores are so small that water will not pass through them except when considerable pressure is exercised, as in the Pasteur-Chamberland or the Berkefeld filter, the purification is proportioned to the amount of pressure required. But in practice a layer of impalpable particulate matter, removed from the water, gathers on the outside of the filtering bougies or cylinders, blocking up their pores and putting an end to the filtration until this layer has been brushed away. The finer the pores the sooner are they obstructed. The porous cylinder which will give a sterilized water can be kept in use only by frequent interruptions for cleaning, during which its integrity is endangered. This seems to put these filters out of consideration for field use although Dr. CHARLES SMART, who used one last year on his emergency ration march with the First U. S. Cavalry in Oklahoma, states that his experience with it demonstrated the possibility of carrying on field service a machine which would supply a pure water for company use and urged that a provision of this character should be made for troops in the field. (Surgeon-General's Report for the year ending June 30, 1897, page 160.) On the other hand, filters with pores so large as to permit a free flow of water through them are necessarily inefficient. Although they may remove all particulate matters visible to the eye and give a transparent and clear filtrate, they do not remove the germs of disease. Evidently such filters are of no value for the protection of the troops. It is claimed on behalf of some of these that the thickness of the layer of filtering medium offsets the large size of the pores; but efficient filtration could be obtained in this way only by increasing the thickness until the resistance to the passage of the water was as great as in the earthen-ware cylinder, in which case there would be no filtration unless pressure was brought to bear on the water. Surgeon-General STERNBERG has, however, combined the use of the fine-grained earthenware filter and a large-pored asbestos filter in such a way as to have a free flow of sterilized water. The asbestos filter, operating under a water pressure of five or six feet, is used to free the water from its grosser particles, and the clear filtrate is then passed through the Berkefeld cylinder under piston pressure. On another page of this issue of the JOURNAL we print General STERNBERG's circular of instructions for the use of these filters that the troops may be supplied with not merely a clear but a germ-free water.

CORRESPONDENCE.

WAR CORRESPONDENCE.

BY LIEUT.-COL. NICHOLAS SENN, U. S. VOLS.,

CHIEF SURGEON SIXTH ARMY CORPS.

The beating of the drum, the measured tread of an armed host are again heard throughout the land and have aroused the patriotic spirit of the American people. For a fifth time our nation is face to face with a war the gravity of which it is impossible to estimate at the present time. The first war brought us our liberty and independence; the second established our reputation on the sea; the third taught our Mexican neighbor respect for our country; the fourth saved the Union, and the fifth, which is now being waged, was provoked in the cause of humanity.

For centuries the beautiful neighboring island of Cuba has been in the greedy grasp of a foreign nation. The people to whom this gem of the ocean belongs have been downtrodden, tyrannized over and abused by the cold iron hand of an effete monarchy. The humane liberty-loving people of the United States have heard the cry of the oppressed starving Cubans for years, and have done all in their power, short of resort to the sword, to relieve their sufferings, but without avail. The ear of the proud, cowardly Spainard remained deaf to well-meant and most earnest appeals. The Chief Executive of the United States exhausted every resource to improve the condition of the native Cubans, the rightful owners of the unfortunate island, without bloodshed, but all his efforts were ignored and antagonized by the brutal oppressors.

War is always a great calamity, but when entered upon for the sake of humanity, for the relief of the oppressed, it becomes a weapon in the hand of the Almighty. The issue before us is a righteous one, and it is not difficult to forecast the ultimate result. Justice and humanity are on our side; corruption and oppression on the other. On our part the struggle is purely unselfish; on the other it is a desperate but vain attempt to ignore the claims of an enslaved people. Such are the conditions of the present war with Spain, at the same time our people will now and for all time come "Remember the Maine."

The war has begun, the deafening roar of cannon has been heard in different Spanish ports, the hero of Manila has planted the Stars and Stripes, the emblem of liberty and equality, on the shores of the distant Philippine Islands; there it will remain until the unhappy inhabitants breathe the bracing air of independence. No war was ever undertaken in which the government had such a firm and enthusiastic support from the mass of the people regardless of politics, religion, nationality and position in life.

The policy laid out, advised and carried in effect by President McKinley, meets with the undivided support of the reunited nation. The gray is eager and anxious to don the blue in his country's cause. Federal and Confederate meet again to talk over the memories of the past at a common camp fire during the campaign against a common foe, who has been permitted far too long a time to abstract the life blood of an innocent people, the legitimate owners of one of God's most beautiful islands so close to our own great, forever free and united country.

ILLINOIS ARMY.

Illinois has always been in the front when our country was

n danger. Its record during the War of the Rebellion stands foremost in the history of the nation. It gave to the nation Abraham Lincoln, who, during the dark days of the Rebellion, guided the Ship of State through many a storm and many a danger into a harbor of safety and gave freedom to a despised and degraded race. It gave to the nation Grant, who led the army from victory to victory, until the misguided but determined foe was willing to sue for peace and accept the terms offered by its conqueror. It gave the nation a Logan, whose heroic and gallant deeds brought terror to the enemy. It gave the nation an army of soldiers who took an honorable and heroic part in the deadly conflict. It gave the nation Dick Oglesby, the intimate friend of Lincoln, who happened to be in Washington on the memorable night of Lincoln's assassination. The moment the fatal shot was fired he was summoned, and when he arrived at the entrance of the house to which Lincoln had been taken, he was confronted by an armed guard who refused him admission. There was no time for argument; the sturdy Governor grasped the guard by his collar and pushed him aside like a boy, with the words, "I am the Governor of Illinois, get out of my way!"



Surgeons of the National Guard and Illinois Volunteers.

Illinois will do her share in the present conflict. When the War Department called for troops, the message was received by Governor Tanner on April 26. After a brief consultation with Adjutant-General Reece, the button was touched flashing the order over the wires to the regimental commanders in different parts of the State, and in less than thirty-six hours 10,000 men were at the State Fair Grounds at Springfield ready to do their duty. General Barkley, the senior Brigadier General, was placed in command of the post, which he named Camp Tanner, and thanks to his foresight, energy and knowledge of military art, the troops received proper shelter and were assigned to their quarters immediately upon their arrival. Adjutant-General Reece demonstrated by every act that he was master of the situation. There was probably never a time when upon such short notice a temporary camp for so large a force was made more comfortable and efficient. Both of these officers, as well as their subordinates, are entitled to great credit and to the thanks of the good people of Illinois for having acted so promptly and wisely to efficiently meet such an emergency. The newspaper reporters and visitors to the camp were astonished by the fact that no complaints were made either by officers or men. Considering the limitations of equipment, the number of men in the camp, the unprecedentedly disagreeable weather and the short notice, this must certainly appear as the most satisfactory proof of the intense patriotism which animated every man and made him ignore his physical requirements in the thought that he was called upon to discharge a duty to his country.

A few days after the arrival of the seven regiments of infantry and the First Regiment of Cavalry, Captain Yeager of Battery A, First Artillery, appeared in camp with a splendid body of well drilled men, which added much to the military appearance of the camp. The representatives of the United States army, Lieutenant-Colonel Roberts, Captain Swift and Lieutenants Ballou, Cole and Davis were on the field early and rendered invaluable service in the organization and mustering in of the troops. It was indeed pleasant to observe the harmony in word and action which prevailed between these officers of the regular army and the officers and men of the National Guard. This war will do much in cementing together more closely the professional and citizen soldier. In less than four weeks all of the troops were examined, mustered into the United States service and turned over to the Government.

The Fifth and Third Regiments of Infantry were the first to leave Camp Tanner amid the cheers of their comrades left



Group of Hospital Stewards Illinois Volunteers.

behind. In due time they reached their appointed station, Camp George H. Thomas, Chickamauga, Ga. The Sixth Infantry was next ordered to Camp Alger, Falls Church, Va., near Washington, and the First Infantry a few days later joined their comrades of the Third and Fifth Regiments at Chickamauga. The Second Infantry was then ordered to Tampa, but en route received notice to report at Jacksonville, Fla. The Fourth Infantry, after considerable delay, was ordered to Tampa, the Seventh Infantry to Virginia, and the First Cavalry is now on its way to Camp Thomas, Chickamauga.

GOVERNOR TANNER.

The office of governor of a State is always important and responsible, but especially so in time of war. The citizens of Illinois have reason to congratulate themselves that during the last election their choice fell upon the right man at the right time. Governor Tanner has shown that he is made of the right metal for an effective and wise war governor. His experience during the late war as a private has been of great value to him in meeting the duties of the hour. He knows what it is to serve in the ranks, and has therefore taken the deepest interest in the welfare and comfort of every soldier who has come to the camp. He is a staunch friend of the common

people (the backbone of the nation), and has catered but little, if any, to the whims and fancies of the silk stocking element. He is now more popular than ever with the National Guard. He takes pride in his army. He imbues every soldier with the idea that the highest position is within his reach if he devotes himself to his legitimate duties. He has strained every nerve in bringing his troops to the front, and has had the satisfaction of seeing an Illinois regiment the first to be mustered into the volunteer service of the United States, and that the State he represents has thus taken the lead as regards promptitude and dispatch in answering the call of the President for volunteers.

Our Governor is intensely patriotic; he has shown this in every act in the organization and equipment of the troops. It is not generally known that Governor Tanner is a great orator; the speech which he made at a banquet he gave to the officers of his staff and of the regiments in camp, was a revelation to every one present. He seemed to be inspired; his eyes flashed: every nerve and muscle responded to his intense emotion; every word and thought found a hearty response in the hearts of his profoundly interested audience. I doubt very much if he will ever be able to duplicate that speech, because such an occasion comes but once during a man's life. It was a speech which left a deep and permanent impression, a speech calculated to make a man better and more devoted to his country and his country's flag.

The Governor has visited the camp daily and always has a cheerful word and a pleasing smile for every one he meets, privates and officers alike. John R. Tanner will go down in history as a famous war governor, a worthy successor to Governors Yates and Oglesby.

MRS. TANNER.

The beautiful, youthful and accomplished wife of our Governor came to the Executive Mansion at the right time. She takes great interest in the work of her distinguished husband. She is a great favorite with the people of Springfield. She is ready in conversation and quick in perception. She visits the camp frequently and takes an active interest in the care of the sick. Her cheerful disposition and her tender care of her husband have done much to lighten the heavy burden and many perplexities, which have been resting upon the shoulders of our overtaxed Governor since he assumed the duties of his office, and more particularly since the declaration of war with Spain.

THE CAMP GROUND.

When the sudden call for troops came it was an important matter to select a camp centrally located and adapted for the season of the year. The officers of the State Agricultural Society came to the rescue of the military authorities and offered gratuitously the State Fair Grounds for the use of the troops during mobilization. The grounds occupy 160 acres of land, north of the city limits, and are easily accessible by a line of electric cars. The surface of the ground is undulating and divided by several ravines well adapted for effective surface drainage with a little expenditure of time and money. The subsoil is of clay, which in combination with the continued rains made the streets pools of mud for more than a week, a destroyer of foot gear and a rich harvest for the bootblack.

The permanent buildings were well adapted for temporary quarters for the imperfectly equipped soldier. For two weeks two of the regiments lived in tents. The camp was supplied with filtered water from the Sangamon River. A specimen of the water was sent for analysis to Dr. A. W. Palmer, professor of chemistry at the State University, who pronounced it wholesome and practically pure.

A sufficient number of sinks were dug and boarded in and the dejecta were daily covered with dry earth. Fresh straw was furnished in abundance. The rations were satisfactory both in quantity and quality.



Company B, 7th Regiment Ill. Vol., after the medical examination.

EXAMINATION OF SURGEONS FOR THE UNITED STATES VOLUNTEER SERVICE.

Soon after the troops reached Camp Tanner an order was sent from the War Department to Governor Tanner, making provision for the formation of an Examining Board. This board was to consist of one surgeon from the United States army and two National Guard surgeons. The Government detailed Capt. H. P. Birmingham, U. S. A., stationed at Chicago, and Governor Tanner appointed Surgeon General Senn and Brigade Surgeon C. C. Carter of Rock Island, as members of the board. The duties of this board were to consist in the examination both as to physical condition and professional attainments of applicants for commissions in the Medical Department of the United States volunteers and the National Guard volunteer forces. The board was organized at once and proceeded to examine applicants for the Medical Department. The following blank was drawn up, typewritten, and presented to each applicant to fill out:

Applicants for the volunteer service are respectfully requested to fill out carefully the following blanks:

1. Name ——. 2. Age ——. 3. Height ——. 4. Weight ——. 5. Family history ——. 6. Physical defects, if any, either of congenital or acquired sources ——. 7. Residence and P. O. address ——. 8. Command, if any ——. 9. Place and date of graduation ——. 10. Professional or scientific study and investigation, other than military ——. 11. Foreign languages studied ——; *a*, able to speak ——; *b*, able to translate ——. 12. Subjects or titles of books written or published, essays prepared, lectures delivered or papers read, when and where ——; *a*, No. ——; *b*, ——; *c*, ——. Remarks ——.

The physical examination was made in a very thorough manner, the man being stripped, and demonstrated that the candidates for commissions in the Medical Department compared favorably with the line and field officers. Out of the whole number only three were rejected.

It was the intention of the Board, in view of the fact that most of the candidates had done good service in the National Guard for a longer or shorter period, to make the examination as broad and practical as possible. The following are some of the subjects on which the examination was conducted:

Anatomy and Surgery.—1. Give the origin and distribution of the pneumogastric nerve. 2. Mention the bones of the carpus and give their relative locations by illustration. 3. Describe the innominate artery and give its relations to surrounding structures. 4. Enumerate the different hemostatic measures and describe their technic and indications. 5. Detail the treatment of recent compound fracture of the leg. 6. Describe the different amputations through and below the ankle joint and mention the names of the surgeons who devised them.

Hygiene.—1. Give your ideas on the selection and sanitation of camps. 2. The prophylaxis and treatment of sunstroke. 3. How would you determine, in the field, in a general way, the salubrity of the water-supply, and what measures would you take for preventing its pollution?

Military surgery.—1. Give method of treating (temporary) gunshot fracture of the thigh, on the field, and when and how would you remove the patient? 2. What is the effect produced by modern small jacketed bullet, compared with the old large caliber missile? 3. Give method of procedure in rendering first aid to, and removal of, wounded from fighting line to field hospital.

Practice of medicine.—1. Describe pneumonia: Definition, etiology, morbid anatomy, symptoms, complications, prognosis, termination, diagnosis, treatment. 2. Describe cerebrospinal meningitis: Cause, pathology, symptoms, diagnosis, prognosis, treatment. 3. Describe diseases most liable to occur in tropical countries, with short description of causes, symptoms, pathology, prophylaxis, diagnosis and treatment.

Materia medica.—1. What are the more common forms of mercury used in medicine? Write prescriptions for four. 2. Mention the comparative advantages of ether and chloroform as anesthetics. 3. Indications for the use of emetics, cathartics and alcohol.

The minimum standard was fixed at 70. It was a source of great gratification to the Board that, notwithstanding the fact that many of the applicants had been busy practitioners for years, the papers they turned in were of a high character. The result of the examination shows that in these applicants the State had desirable material for service in the volunteer regiments.

The fact that the revised code of the Illinois National Guard made provision for five surgeons to each regiment and the regulation for the United States Volunteer Service called for only three, made it necessary for the junior assistant surgeons of some of the regiments to return unwillingly to their respective homes.

As soon as the results of the examination were announced, the assignments were made. The following is a list of the medical officers of the volunteer forces of Illinois:

First Infantry. Surgeon, W. G. Willard; Assistant Surgeons, T. E. Roberts and C. B. Walls.

Second Infantry. Surgeon, G. F. Lydston; Assistant Surgeons, J. G. Byrne and G. P. Marquis.

Third Infantry. Surgeon, J. B. Shaw; Assistant Surgeons, A. F. Lemke and C. E. Starrett.

Fourth Infantry. Surgeon, T. C. McCord; Assistant Surgeons, C. M. Galbraith and G. E. Hilgard.

Fifth Infantry. Surgeon, M. R. Keeley; Assistant Surgeons, E. A. Ames and J. L. Bevans.

Sixth Infantry. Surgeon, F. Anthony; Assistant Surgeons, C. A. Robbins and L. S. Cole.

Seventh Infantry. Surgeon, T. J. Sullivan; Assistant Surgeons, G. W. Mahoney and F. P. St. Clair.

First Cavalry. Surgeon, W. Cuthbertson; Assistant Surgeons, T. J. Robeson and J. Rowe.

Battery A, First Artillery. Hospital Steward, Dr. Jackson.

PHYSICAL EXAMINATION OF FIELD AND LINE OFFICERS AND ENLISTED MEN.

The examinations were conducted at the Senate Chamber of the State House from 9 A.M. to 6 P.M. daily, with an interval of an hour for lunch. The Board of Examiners was assisted by the regimental surgeon of each regiment and his assistants. The officers were examined separately in the Lieutenant-Governor's room. One of the assistant surgeons took the chest expansion, another examined the eyes and ears and a third the head, mouth, pharynx and neck. The Surgeon-General examined the lower extremities and abdomen, and Captain Birmingham the chest and the general aptitude for active service. Colonel Carter acted as clerk in conjunction with a number of the field and line officers.

The following blanks for physical examination were drawn up, and 10,000 copies were printed and distributed to the various regiments:

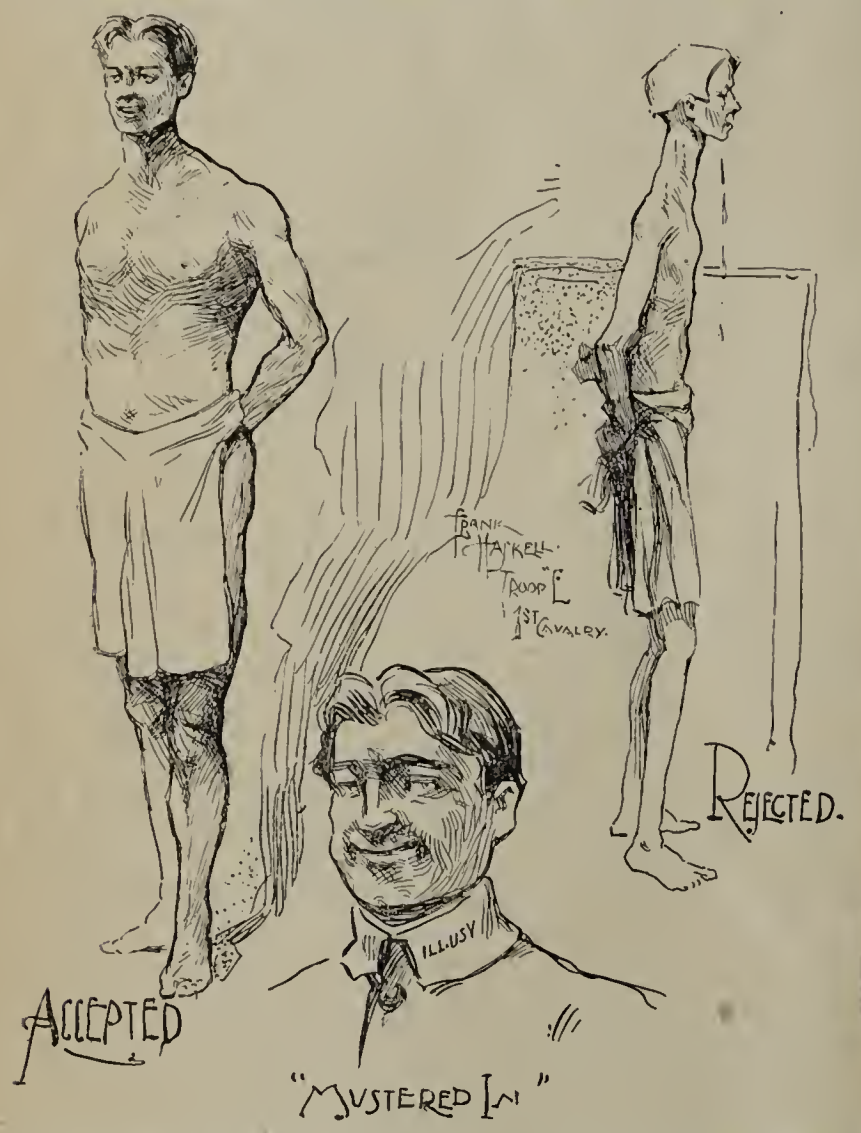
PHYSICAL EXAMINATION.

Name ——. Rank ——. Co. ——. Regiment ——. Age ——. Residence ——. Chest Expansion ——. Inspiration ——. Expiration ——. Are you subject to coughs or colds? ——. Have you ever had any serious illness? ——. Are you subject to sore throat? ——. Discharge of the ear? ——. Rheumatism? ——. Stiffening of the joints? ——. Hemorrhoids or piles? ——. Fistula? ——. Diarrhea or dysentery? ——. Do you believe you are sound and well now? ——.

Soon after the arrival of the Surgeon-General an order was issued instructing the regimental medical officers to make a preliminary physical examination of the recruits, which resulted in the return to their homes of several hundred men physically unfit for duty and which materially assisted the work of final examination. The most unenviable part of the examina-

tion fell upon the shoulders of the Surgeon-General, who for the purpose of quickening and lightening his duties devised the following commands: Heels together! Turn around! Turn back! Cough! Cough harder! which commands afterward became a favorite and familiar chorus among the men who passed the final ordeal to the satisfaction of the Board. On an average, it was found possible by following the thorough system adopted, to examine from 800 to 950 recruits a day. In all, 9899 men were examined.

The most common causes for rejection were hernia, varicose veins of the lower extremities, poor physique, heart disease, imperfect chest expansion, loss of teeth and flat foot. The presence of varicocele of different degrees in men otherwise apparenly in good health was marked. It was found that nearly 25 per cent. of all those examined presented a condition of varicocele of some degree. Only two recruits were rejected for this cause, as in their cases the varicocele appeared to be

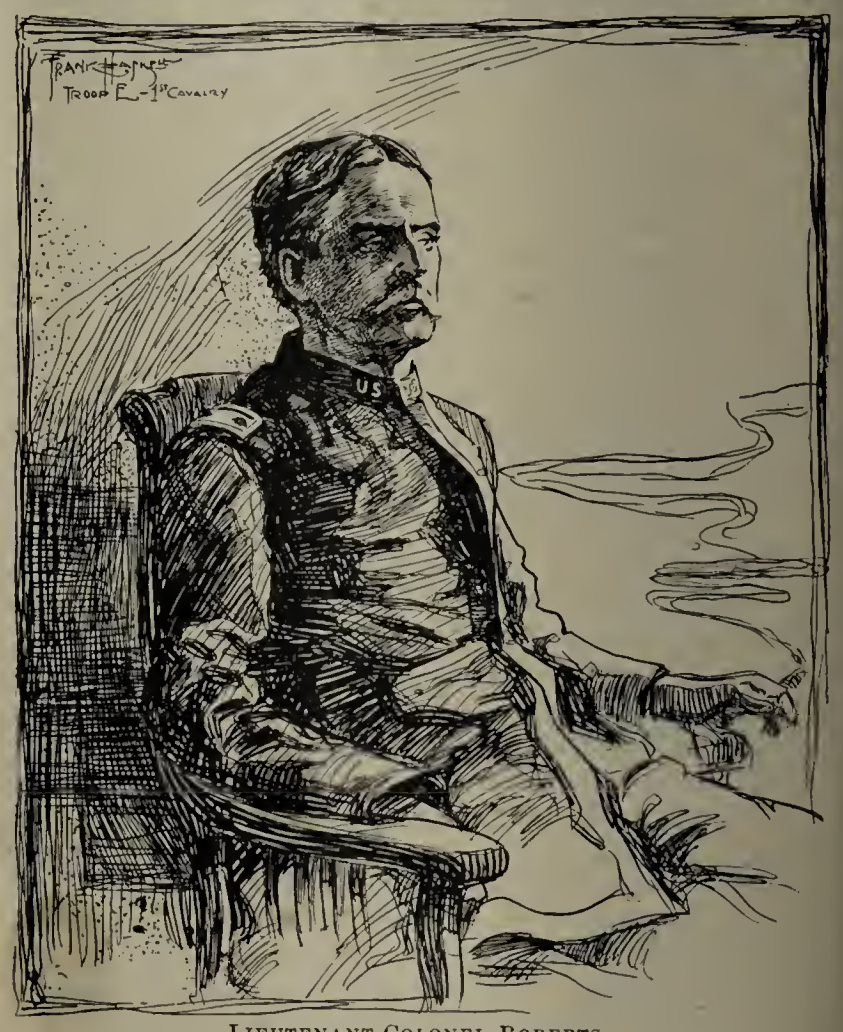


an acknowledged source of pain. In all the rest the statement was plainly made either that the applicant had no knowledge of the condition, or that it gave rise to no inconvenience. In probably one-half of all the cases the subjects were ignorant of the existence of this condition. The same remark may apply to flat foot as a cause of rejection, inasmuch as the deformity appeared to be extremely common, but only in a few isolated cases was it a cause of pain and consequently of disability for the volunteer service. The rejections for good and substantial causes were less than 10 per cent. This was influenced somewhat by the thoroughness with which the preliminary examinations had been conducted. The proportion of rejections was, on the whole, larger in the country regiments than in those made up of Chicago men. A great many men who passed the physical examination returned unwillingly to their homes by reason of the regulation reducing the number of men to a company from 109 to 84.

The intensity of the patriotic feeling which pervaded the men in camp is best shown by the illustrations which accompany this communication. The word "rejected" in many instances seemed to make a more profound impression than would a death sentence. The disappointment would be such that the soldier was often speechless, pale, staggering, and in not a few instances hot tears would roll down the bronzed cheeks as the best evidence of the deep regret of the recruit in being deprived of the great privilege of defending the honor of his country. On the other hand, the successful soldier would accept active service with a smiling countenance and would bound away into the dressing-room like a deer pursued by hounds.

SCHOOL OF INSTRUCTION FOR MEDICAL OFFICERS.

The second day after the Surgeon-General arrived at the Camp, he sent a telegram to Professor A. D. Bevan of Rush Medical College, Chicago, requesting him to send by the earliest train a cadaver for anatomic demonstration, and a course of operative surgery. The cadaver arrived promptly and a small amphitheater was extemporized in the Assembly Hall, which served as headquarters for the Third and Sixth Infantry. The hours between 8 and 10 P.M. were utilized in giving



LIEUTENANT-COLONEL ROBERTS.

lectures, anatomic demonstrations, and a course in operative surgery. In this course not only the medical officers, but the members of the hospital corps took an active interest. The Surgeon-General domonstrated on the cadaver emergency operations with especial reference to military surgery; one of the assistant surgeons made a dissection every day, and in the evening demonstrated his work to the class. Among the demonstrations made were the following:

Major Lydston, operations on the urethra and bladder. Major Cuthbertson, hernia operations. Major Adams, osteoplastic resection of the skull. Colonel Kreider gave a lecture at St. John's Hospital, Springfield, on Sterilization in Surgery, demonstrating his remarks by the exhibition of the means employed in the hospital for this purpose. Among the lecturers were the following: Colonel C. C. Carter, "Prescribing in Military Practice." Major Adams, "Shock and Sunstroke, and Temporary Hemostasis." Major Sullivan, "Temporary Dressing of Fractures." Major McCord, "Prevention and Treatment of Camp Diarrhea." Captain Mahoney, "Prevention and Treatment of Gonorrheal Ophthalmia." Lieutenant

Hilgard. "Treatment of Dysentery." Lieutenant Stanton, "Administration of Anesthetics." This School of Instruction was continued for nearly four weeks, and was found to be interesting, useful and well calculated to prepare the medical officers for their future work in the field. Those who took an active part in the teaching had the moral support of both field and line officers, who did everything in their power to encourage them in their work.

LECTURES ON FIRST AID.

On May 10, the Surgeon-General issued the following order: "Regimental surgeons are requested to give officers and men in their commands instruction in first aid or self help, as the case may be, in the following subjects: Diet and drink in health and disease. Care of the person, bathing, clothing, feet, etc. What to do in sunstroke. Temporary treatment of fractures. Temporary arrest of hemorrhage. Transport of injured men. Application of first aid dressings. The illustrated triangular bandage will be furnished, to be displayed in a conspicuous place in company quarters so that every man may understand its application."

These lectures were well attended and proved of signal value in preparing the line officers and men in the use of the first aid package, and in the prevention and treatment of hemorrhage. as well as enlightening them on the subjects of hygiene and sanitation.

VACCINATION.

On May 12, the Surgeon-General issued the following order:

"To all surgeons and assistant surgeons:

"Vaccination by regiments will take place as soon as they are mustered. You are directed to operate according to the following rules, assisted by your hospital stewards:

"1. The left arm is to be bared. A space four inches square at the outer border of the deltoid midway between its origin and insertion is to be thoroughly scrubbed with warm water and potash soap, then cleansed with alcohol and finally washed with pure water and dried with a pledget of absorbent cotton.

"2. The arm is to be lightly scarified where cleansed for a space of one-half inch square. Both ends of the vaccin tube are to be broken off, and the virus blown on the wound with the rubber bulb furnished, and thoroughly rubbed in with the point of the lancet. The lancet is to be cleansed with alcohol after each scarification.

"3. The arm is to be left exposed until thoroughly dry. A pledget of sterile cotton two inches square, is to be placed over the wound and held in place by an adhesive strap one-half inch wide and four inches long."

There is reason to believe that the above specific directions did much in the prevention of septic complications.

CAMP DISEASES.

The season of the year at which the troops were called out, the crowded condition of the camp, the imperfect equipment of the men, the continuous rain for over a week, and the changeable temperature were influences well calculated to test the strength and power of resistance to disease of the men who sought the service of the Government.

The appearance of cerebro-spinal meningitis on the first day the troops were in camp in the case of a man of K troop, First Cavalry, excited much interest, and as this was followed in rapid succession by three additional cases in other commands, led to a thorough investigation as to the origin and spread of this disease. This investigation was conducted by Lieutenant Colonel Kreider pursuant to an order from the Surgeon-General. Colonel Kreider presented the following report:

CAMP TANNER, SPRINGFIELD, May 23, 1898.

COLONEL N. SENN,

Surgeon-General, I. N. G., Camp Tanner, Ill.

Sir:—Pursuant to your order to investigate the origin and spread of the cases of cerebro-spinal meningitis which have occurred at this camp, I have the honor to report that up to this time three cases have appeared, all of which have resulted fatally.

1. Ernest Royal Parish, of Troop K, First Cavalry. On my request, Major William Cuthbertson assigned to the First Cavalry made the following report: "He was ailing for some days prior to enlistment. While waiting at Tattersall's at Chicago I have ascertained that he was compelled to lie down, but was up and able to pass inspection. He was taken violently ill on the train on the way down, with chills and vomiting. On reaching Springfield in the morning he was unable to walk and was removed to the Post Hospital on a stretcher. As soon as possible he was transferred from there to St. John's Hospital, where he now lies. I have just learned that another case of this disease exists at Western Springs, the patient's home." Parish died May 1. As stated in Surgeon Cuthbertson's report, he had not placed a foot on the camp ground, and his stay there did not exceed half an hour.

2. Edward B. Beebe, of the Third Infantry, residing at Elgin, was sent to the Hospital May 13 by the Surgeon of the Regiment on the eve of its departure, and was first seen by me on the following morning. In the afternoon I found him delirious, so that he required restraint and constant watching, which was given by a hospital steward of the Second Infantry. He died May 15.

3. Robert Leland, of Third Infantry, residing at Ottawa, was first seen by me at the camp at 6 P.M., May 14, and, as all ambulances were in use, was conveyed in my buggy to the Hospital. Assistant Surgeon Lemke writes of the onset of the disease as follows: "I saw him at noon, when he was complaining of intense headache. He became delirious the same night, although he was rational when aroused." The disease ran a very rapid course and death occurred May 17 at 11 P.M. From his family physician I have learned that a sister aged 20 and a brother aged 15 had died of tuberculosis. As ordered, I had intended holding a postmortem on this case, but the body was removed from the Hospital at 2 A.M. by his father.

The disease in the first case may be traced to other cases in his home town. He was not associated in any way with the men of the Third Regiment, and it seems hardly probable that the disease could have been transmitted from him to the others. It seems probable that the disease in the Third Infantry was caused by the crowded and poorly ventilated quarters which this regiment occupied, or by the damp straw on which they slept. Each of these conditions was caused by the weather prevailing during the stay of this regiment at the camp. Because of the rains the men did not leave the building during the day, and thus the rooms became foul. I called the attention of the Surgeon of the Regiment to this foul odor early in the tour; because of the rain also, the straw was brought in damp and may have figured in causing the trouble.

Respectfully,

[Signed] GEORGE N. KREIDER, Post-Surgeon.

Among the other camp diseases must be mentioned pneumonia, measles and mumps. The pneumonia contracted in the camp proved to be of an unusually malignant type. Of the thirty-two cases only two died, a mortality of about 6 per cent.

Upon the outbreak of measles an isolated part of camp ground was selected for an isolation hospital, and placed under guard with a yellow flag in front of the hospital tent. Three cases of measles and three or four cases of mumps occurred. The patients were placed in separate hospital tents, and as soon as they recovered from the illness were subjected to a thorough disinfection and their clothing disinfected before they were allowed to return to duty. This isolation of patients suffering from infectious diseases proved effectual in the prevention of a further spread of the diseases.

The ranks of the medical department were broken at an early date by the untimely death from pneumonia of Assistant-Surgeon Cole of the Sixth Infantry, who was taken ill while

en route with his regiment to Washington, and died at Fort Wayne, Ind. Upon receipt of the news of his death the medical officers drew up the following resolutions:

WHEREAS, By the untimely death of our comrade, Lieutenant L. S. Cole, Assistant-Surgeon, Sixth Illinois Infantry, U. S. A., a career of brilliant promise has been cut short, be it

Resolved, That in the death of Lieutenant Cole the State of Illinois has lost a valuable medical officer and the medical profession an efficient and able member.

Resolved, That we, the members of the Medical Department, of the Illinois National Guard and United States Volunteers at Camp Tanner, extend to his bereaved family and friends our condolence and sincere sympathy.

Resolved, That copies of these resolutions be sent to his mother, and to his regiment.

(Signed.)

T. J. SULLIVAN, Major und Surgeon Seventh Infantry.
T. C. MCCORD, Major and Surgeon Fourth Infantry.
Wm. CUTHBERTSON, Major and Surgeon First Cavalry.
S. C. STANTON, First Lieut. and Ass't.-Surgeon, I. N. G.
Committee.

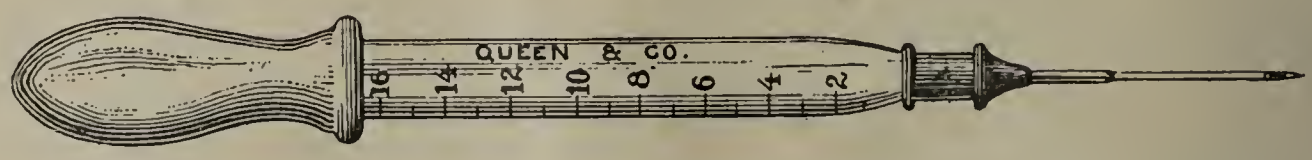
With this communication my official connection with the National Guard of Illinois is temporarily severed, as I have been mustered in as Lieutenant-Colonel and Chief Surgeon, Sixth Army Corps, U. S. V., to be assigned to the command of Major-General Wilson, Camp George H. Thomas, Chickamauga, Ga.

NEW INSTRUMENTS.

A SIMPLE ASEPTIC HYPODERMATIC AND LACHRYMAL SYRINGE.

BY SHIRLS JACKSON, M.D.
PITTSBURG, PA.

Any one who has been called upon suddenly, without adequate preparation, to use the hypodermatic syringe and found the latter out of order will appreciate a syringe that can not get out of order. The average syringe seems to spend its spare time collecting septic matter to render the injection an emulsion of dirty fat. The syringe shown in the illustration was intended primarily for ophthalmologic work, where delicacy of manipulation and thorough asepsis are imperative. In 1890 the original instrument was made for me and is still in active service.



Aside from the needle there are but two parts to the instrument; glass barrel and compression bulb. The compression bulb is that of the ordinary medicine dropper, to be had anywhere, and may be replaced in an instant. In addition to the fine needles, one of slightly larger caliber with conical point properly curved for injecting the lachrymal canal is used when the instrument is desired for this purpose. The difficulty of attaching the ordinary dropper bulb in a manner to withstand firm pressure without leaking is overcome by giving that part of the barrel a mat finish. This gives a perfect result. The caliber of this end of the barrel is so reduced and drawn out that the fluid in the barrel does not enter the bulb. The bulb of the syringe is held between the thumb and first finger, the other extremity guarded by the fourth and fifth fingers. Simple pressure, at right angles to the direction of thrust, injects the fluid without moving the needle, giving greater delicacy of manipulation than is possible with the ordinary syringe, on account of the uneven caliber of the barrel of the latter, and the firm pressure required.

Excepting the needle, there is no metal to corrode or wear out and leak; there are no sharp angles, no caps, threads, packing nor other receptacles for dirt; no regurgitating around the piston and up the operator's sleeve, and it can not dry out or get out of order. To any one who has ever removed the piston from a syringe and tried to replace it, comment upon repairs would be superfluous. There is no piston to repair.

PUBLIC HEALTH.

Pollution of the Passaic River.—The New Jersey courts have now before them a prosecution of the City of Paterson by Jersey city to restrain the former from continuing to discharge its sewage into the Passaic River. An argument was recently made before Chancellor McGill which will, if decided in favor of the plaintiff, be the first step toward compelling Paterson and some other filth contributors to provide a modern sewage-disposal plant. The importance of this pending litigation to the public health and property values in and for the entire State of New Jersey, as well as in certain of its great cities, is great and far-reaching.—*Medical News.*

Addition to Quarantine Regulations as to Consular Bills of Health.—Referring to Treasury Department Circular dated April 26, 1894, United States Quarantine Laws and Regulations, and to Article I, paragraph 2, regulations to be observed at foreign ports, Secretary Gage issued instructions April 12, 1898, stating that the following addition is made to the consular bill of health (Form 1931 *a*), to be furnished vessels bound for the United States, viz.: "Number of cases of sickness and character of same while vessel was in this port, ——."

Duty of Health Officer to Attend Smallpox Cases.—In the case of Reynolds vs. the City of Mt. Vernon, the second appellate division of the supreme court of New York reversed, March 22, 1898, a judgment allowing the health officer of the city $35 extra compensation for attending three smallpox cases. One of the cases he took charge of because the physician whom he had employed under the authority of the board of health to attend it did not prove satisfactory. In another case, when he reported it, he stated to the board that he would like to make what money there was in it; and thereupon the board passed a resolution that "the health officer be authorized to employ two watchmen, a trained nurse, at $5 a day, and attend to the case himself." As health officer of the city he was a member of the board of health, but did not vote on the resolution; and he drew a salary of $75 per month, which had been prior thereto fixed by the board. Judgment was given in his favor at the trial term upon the ground that the services he rendered were additional to the duties devolved upon him as health officer, and being of an extra hazardous character entitled him to extra compensation at the rate charged. But, while it says that the board of health undoubtedly had power to authorize the employment of other physicians, and create a legal charge therefore against the city, yet the appellate division does not think that the officer himself could exact extra compensation for the service which he rendered, upon the basis that such service was extra hazardous. It maintains that, although the statute under which the board acted did not specifically define the duties of a health officer, the nature of his employment and the purpose of the creation of his office sufficiently designated the character of the duties he was to perform, which it thinks necessarily embraced the character of service which was rendered in these instances. The fact, if true, that the city had prior to this time paid to another health officer extra compensation for such service, the court further maintains, did not have the effect of creating a valid claim against the city for the services in question rendered by this health officer.

A Tuberculous Residence.—The *Ohio Sanitary Bulletin* con-ains Dr. Gaston's story of a house at Mineral Ridge, Ohio, so ıanifestly the confirmed habitation of tuberculosis that the ownspeople are anxious to see it destroyed by fire, so soon as ; can be vacated. The writer has been informed that it was horoughly disinfected about one year ago; that the building ı very damp and the cellar in bad condition, and that in no ay will other residents of the town be satisfied until it is fired. he mother of the family has refused to give up the house, lthough urged to do so by the remaining children. The local oard of health has discussed this matter and now asks the tate board to take such action as it may deem best. The ouse was constructed about 1830 and was occupied by a fam-y by the name of F. It is related that a young man who ved with the family was "always ailing and in delicate ealth," but the only death at that time was that of a baby ith bowel trouble. They resided in the premises until 1846, hen the house was occupied by a family named S. They ere an unusually strong and healthy family when they first ıme to this place, with no previous tubercular history. The rst one connected with this family to pass away was a lady oarder, but information does not reveal the cause of her eath. It was quickly followed, however, by the death of two ons, two daughters, father and mother, from tuberculosis, aving only one son, who had previously gone to Illinois on ccount of his health, and who still survives. From 1879 till ow the house has been held by the present occupants. There no history whatever of consumption in the family prior to ieir coming to this house. The daughter who died recently as born here. Her death was the seventh in the family in as any years, from tuberculosis. A sister, two brothers and a other survive, but the characteristic traces of the disease are ainly visible in faces of one brother and the surviving sister. he building is a story and a half high and surrounded by ense foliage.

Sanitary Supervision of Schools in Respect of the Control of Infec-ous Diseases.—Dr. Dudfield, a London health officer, has been d to discuss the above subject. There is no denying the gen-al over-crowding of these schools which was favored by the gulations of the Education Department. The superficial id cubic space per head required for calculating the accom-odation of the school was far too small; while 350 cubic feet as the lowest allowance in factories 120 was fixed by the partment for schools, which to maintain a purity of .02 per 00 of CO would demand a renewal of the air twenty-five nes in an hour. But even this scanty allowance might be rtailed under certain conditions. This was dependent on e interpretation of the expression "habitual" in Clause 73 of e Code, which stipulated that the average attendance should t habitually exceed the legal accommodation by more than per cent. The intention was to avoid the exclusion of a ild from the appropriate class pending redistribution and e drafting of a number in excess to other classes. Memo-nda and instructions had been issued interpreting the pression so as to discourage overcrowding, but it was evi-nt that the teachers took it as permitting serious overcrowd-; during certain months to compensate the scanty attend-ce in others so long as the average for the whole year did t exceed the accommodation more than 15 per cent., a prac-e to which the payment to the head of the teachers of a portion of the grants still retained in many voluntary nools was a strong inducement. It was, however, clear m Mr. Acland's explanation that the permission extended ly to the temporary and unavoidable over-crowding of par-ular class rooms which it was the duty of the teacher to ieve as soon as possible by drafting the scholars or redis-buting the classes and to occasional aggregations of the ldren in the principal hall or otherwise. Inadequate, how-r, as was the cubic space in the schools the conditions of ny of the homes are no better, and the gravity of the mat-lay rather in the influence of over-crowding on the spread of eases, among which measles, not notified, widespread, hly infectious, and causing on the whole more deaths than scarlatina and several other fevers put together, was that which had the greatest influence on the attendance, and led most often to closure and other forcible interference. The *Lancet* in considering the duty of officials as to measles and whooping cough commends the decision recently made by the Scotland Local Government Board in the direction of excluding children from school when known to be ill from those diseases, regarding it as a move in the right direction, though we fear that in times of epidemic measles and whooping cough the medical officer of health will have a somewhat busy time; doubtless, however, his emoluments will be correspondingly increased. The gradual growth of public opinion in favor of controlling those infectious diseases which hitherto have been allowed to run riot as their nature prompted them is one which will have to be encouraged gently and discreetly by the public health service. Reform lies rather in the direction of educating the public to the necessity of caution than, in the first instance at least, in resorting to injudicious prosecution. If we are to reduce the mortality from such diseases as measles and whooping cough, the exercise of tact on the part of the medical officer of health is of the utmost importance, and it is only by this means that we can gradually educate the public for the more stingent measures which may ultimately have to be taken.

BOOK NOTICES.

The Fireside University of Modern Invention, Discovery, Industry and Art. With complete indexes by JOHN MCGOVERN. Pp. 545. Chicago: M. B. Downer & Co., Union Publishing House, 1898.

This is a book for the masses of the people and every person may derive benefit from reading it. From the publishers' preface we extract the following: "The spirit of this book and the need for it are illustrated in the following fact: covering one, two, three, four, five city blocks, there arises the enormous glucose factory, grinding one hundred thousand bushels of corn daily. The people look with wonder upon this rising and increasing pile of buildings (whose inmates seem to be forever at toil) with no thought that at the beginning there was only a chemist at work in his little laboratory, developing certain ideas. Between his ideas, his hopes, his glass tubes and his multitudinous apparatuses and this monstrous concrete thing called the glucose factory, there is an astonishing gap in the people's knowledge. How did it come to develop so completely, before they had grasped even the idea of the chemist and the inventor? The glucose factory gives but a single illustration of what has happened on every side of us. The nickel plated ornaments, the finely spun fabrics, the beautifully colored prints, the swiftly flying street cars, the glowing splendor of the modern night lit with thousands of incandescent lamps, the astonishing cheapness of all articles that were once so costly that only a king could buy them—these things are here considered." The contents of the volume are: Electricity; X-ray; condensed air; bread, cakes and pastry; butter, cheese, etc.; fruit; nuts; spices; coffee and tea; meat; pickles, vinegar, etc.; salt; spectroscope; chemistry; sugar; the bicycle; soap; light and heat; ice; clothes; india rubber; needles and pins; glass; paper; china; matches; astronomy. The illustrations are numerous. The scientific and historic information contained in the volume is enormous. Each chapter is complete in itself. The whole is taught by questions and answers, and the literary skill of Mr. McGovern has brought out the information in the most agreeable way. Few men past 40, however cultivated, have kept pace with the discoveries whereby our civilization has taken on its new conditions imposed by electric and chemic advances. This book will give them in brief compass a fair knowledge of the subject. For the young and for students it is invaluable.

Medical and Surgical Report of the Presbyterian Hospital in the city of New York, Volume iii, January, 1898. Edited by Andrew J. McCosh, M.D., and Walter B. James, M.D. Boards. Pp. 414. Illustrated, New York, 1898.

Besides lists of officers, staff, etc., the report contains the

following papers, many of which are accompanied by full-page illustrations of cases and temperature charts: "On Some of the Collateral Functions of a Hospital;" "An Unusual Case of Recurrent Multiple Neuritis of Uncertain Causations with Paralysis of the Phrenic Nerve—Recovery;" "Hydrochloric Acid Determinations in Gastric Contents;" "Contribution to the Surgery of the Pelvis of the Kidney;" "A Contribution to the Study of the Bacteriology of the Blood in Disease;" "Unusual Complications of Enteric Fever: 1. Suppurative Thyroiditis. 2. Purpura. 3. Eczema. 4. Neuritis of Arms. 5. Acute Cardiac Dilatation;" "A Report of Two Dermatologic Cases Complicating Cardiac Disease;" "The Malaria Fevers of New York City;" "A Report of Cases of Operation Upon the Gall-Bladder and Bile-Ducts;" "One Year's Experience with the Widal Test for Typhoid Fever;" "A Report of Three Unusual Cases of Appendicitis;" "A Case of Persistent Hiccough Yielding to Applications of Ice over the Diaphragm and to the Back of the Neck;" "A Study of a Series of Cases of Enlargement of the Thyroid Gland Examined with Special Reference to their Histology;" "A Report of Fifteen Cases of Abscess of the Brain;" "A Report of Forty-one Hysterectomies Performed During the Period of Two Years, Nov. 1, 1895, to Nov. 1, 1897, on Patients Admitted to Dr. McCosh's Service at the Presbyterian Hospital;" "Intermuscular Operations for Appendicitis with Application of the Method to Cases in which Pus was Suspected and Found;" "The Tuberculin Test for the Presence of Tuberculosis;" "The Diphtheritic Colitis of Corrosive Sublimate Poisoning;" "A Case Showing Extreme Leukemia of Lymphoid Infiltration of the Viscera;" "A Report of Two Cases of Intestinal Resection;" "A Report of Twenty-seven Cases of Pneumonia Following the Inhalation of Ether and Chloroform;" "A Contribution of the Study of Malignant Endocarditis Caused by the Micrococcus Lanceolatus;" "A Combination Stain for Ganglion Cells;" "Congenital Tumor of the Hard Palate;" "Two Cases of Amputation Through the Hip Joint;" "The Surgical Treatment of Epilepsy, with a Report of Fourteen Cases;" "A Rare Case of Septicema—Diffuse Suppuration of the Chest Wall;" "Some Cases of Pancreatic Hemorrhage, Pancreatitis with Fat Necrosis, and Retroperitoneal Suppuration of Unknown Origin."

Transactions of the American Pediatric Society. Edited by Floyd M. Crandall, M.D. Volume ix. Cloth. Pp. 218. Illustrated. Reprinted from the *Archives of Pediatrics*.

This volume covers the ninth session of the Society held in Washington, D. C., May 4, 5 and 6, 1897. It contains a list of presidents and officers for the years 1896, '97 and '98, members for 1897-98, meeting places, and minutes of the ninth annual meeting, besides the following papers, many of which are printed with discussion, illustrations and charts. The volume is on excellent paper, well printed and a decided credit to the Society: The President's Address, "The Evolution of Pediatric Literature in the United States;" "The American Pediatric Society's Report on the Collective Investigation of the Antitoxin Treatment of Laryngeal Diphtheria in Private Practice;" "Acetanilid Poisoning in a Newly Born Infant. Absorption From the Umbilicus;" "The Rapid Bacteriologic Diagnosis of Diphtheria;" "Bottle of Improved Form for Pasteurizing Milk and for Nursing;" "The Use of Thyroids in Disease other than Cretinism;" "Retained Intubation Tubes;" "Two Cases of Meningitis, Apparently Tuberculosis with Recovery;" "A Frequent Significance of Epistaxis in Childhood;" "Synopsis of Fifty-six Cases of Empyema Operated upon during 1896, in the service of Mount Sinai Hospital, New York, with Remarks;" "Prenatal Infection in Diseases of Infancy;" "A case of Congenital Diaphragmatic Hernia, Associated with Recurrent Attacks Simulating Asthma Dyspepticum;" "Symptomatology of Lithemia;" "Case of Varicella Gangrenosa;" "Diphtheria of the Eye;" "A Brief Analysis of One Hundred Cases of Frank Pneumonia;" "Sarcoma of the Cutis of the Newly Born;" "Two Cases of Unilateral Tremor Occurring in Children;" "A Case of Tic Convulsif (Maladie des Tics);" "A Case of Goiter Cured by the use of Thyroid Extract;" "A Case of Exophthalmic Goiter Apparently Cured by the use of Thyroid Extract;" "Heredity and Degeneration;" "Retro-Esophageal Abscess;" "Congenital Stenosis of the Larynx;" "A Report of Five Cases of Abscess of the Brain in Infants, together with a Summary of Twenty-seven Collected Cases in Infants and very Young Children."

Transactions of the Southern Surgical and Gynecological Association, Vol. x. Tenth session held at St. Louis, Mo., Nov. 9, 10 and 11, 1897. Published by the Association, 1898.

This volume contains a list of the members with their respective positions, the constitution and by-laws, the minutes of the proceedings and the papers and discussions. These have been abstracted in the JOURNAL and are well worthy a place in any physician's library. The editor has done his work well and the volume is handsomely printed.

Verhandlungen der Berliner medicinischen Gesellschaft aus dem Gesellschaftsjahre, 1897, Band xxviii. Paper, pp. 600. Illustrated. Berlin: L. Schumacher, 1898.

Part 1 contains the rules, by-laws, list of members of the society, with other data usually found in a society's transactions, and the proceedings of each session of the society from Dec. 16, 1896, to and including Dec. 8, 1897, taken up in regular order, reprinted from the *Berliner klinischen Wochenschrift*. Part 2 comprises a large number of valuable papers presented before the society. Among the contributors we notice, the names of Ewald, Harn, Baginsky, Klemperer, Bruck, Behrend, Lassar and Ewer.

SOCIETY NEWS.

A National Society to Study Epilepsy.—At a meeting held at the Academy of Medicine in New York City on May 24, representatives from eight States were present to organize a "National Society for the Study of Epilepsy and the Care and Treatment of Epileptics." Speeches favoring the formation of such a society were made by Drs. Abram Jacobi, Ira Van Gieson, C. A. Herter, Frederick Peterson, E. C. Fisher and William P. Spratling of New York; H. C. Rutter of Ohio; William M. Bullard of Massachusetts, and B. D. Evans of New Jersey, and the following officers were elected: President, Hon. William Pryor Letchworth, LL.D., New York; first vice-president, Frederick Peterson, New York; second vice-president, Prof. William Osler, Maryland; secretary, William P. Spratling, New York; treasurer, H. C. Rutter, Ohio. The society organized with forty-four members. Application for membership should be addressed to the Secretary at Craig Colony, Sonyea, N. Y.

Connecticut State Medical Society.—The tenth annual meeting of this Society was held at New Haven, Conn., May 25 and 26. The following officers were chosen for the ensuing year:

President, H. P. Stearns of Hartford; vice-president, C. Rodman of Waterbury; secretary, N. E. Wordin of Bridgeport; treasurer, W. W. Knight of Hartford; committee on matters of professional interest, Ralph A. McDonald of New Haven, T. T. Simpson and S. P. Overlook of Putnam; committee to nominate physicians for the Retreat for the Insane, H. S. Fuller of Hartford, E. P. Swazey of New Britain and E. K. Leonard of Rockville; publication, John Pierce and Gustavus Eliot of New Haven; honorary members and degrees, J. C. Kendall of Norfolk, H. L. Hammond of Killingly and Carl E. Munger of Waterbury; arrangements, E. Swazey of New Britain, C. C. Beach of Hartford, H. G. Howe of Hartford, S. B. St. John of Hartford and G. K. Welch of Hartford; annual chairman, S. B. St. John of Hartford; medical examiner, Max Mailhouse of New Haven; dissertator

C. Beach of Hartford; alternate, F. W. Wright of New aven. A resolution was passed, to be sent to Congress, ask- g that vivisection be permitted as far as absolutely necessary. ıe next meeting will be at Hartford. A resolution was also ssed asking that examinations for admission to practice in e State be held at stated times.

Missouri State Medical Association.—The association held its rty-first annual meeting in Kansas City, Mo., May 24, 25 and . Many matters pertaining to the public health were taken) and thoroughly discussed. A resolution was adopted pro- ding for the appointment of a committee to draft a bill to be esented at the next session of the legislature creating a ate board of health, and the enactment of strict sanitary ws, with provisions protecting the association from quack actitioners. Joplin was selected as the next place of meet- g and the following officers chosen: S. R. Highsmith, Car- llton, Mo., president; W. A. McCandless, St. Louis, W. S. ainwright, Kansas City, W. S. Allen, Olean, J. D. Brum- ell, Salisbury, W. E. Lucas, Minden, vice-presidents; A. F. ressel, Sedalia, secretary; B. C. Hyde, Kansas City, assistant cretary; E. Van Note, Hamilton, corresponding secretary; l. S. Wright, Fayette, treasurer.

Iowa State Medical Society.—The forty-seventh annual meeting this Society was held at Des Moines, Iowa, May 18, 19 and . Dr. H. L. Getz reported that of the $2000 pledged toward e Benjamin Rush monument fund, $179 had been raised, $50 which was contributed by the Polk County Medical Society. ıe Committee on Legislation made the report on osteopathy follows:

During the past session of our legislature several bills were troduced that were against public policy and hostile to the terests of our profession, but only one of them passed.

As you all know, the senate bill, popularly known as the oste- athic bill, was carried by a majority of one in each branch of e legislature.

Your committee, together with a large number of the prom- ent members of this society, did not care to oppose the bill a bill, but asked that those wishing to practice this fad in e State be required to pass an examination before the State oard of examiners on the subjects they profess to have udied, the same as any other practitioner; but a majority of ır legislature in their wisdom and by the aid of a very heavy id constant lobby, saw fit to open the way for the practice of l forms of ignorance and superstitions to gain admission to ır State under the cloak of this bill.

The operation of this law will do much less harm to the pro- ssion than it will to the over credulous public who is always aiting to be taken in by some new game. Yet it is very miliating to think that our splendid medical law should be actically amended. The only consideration is that it will on die out as do all such fads—let it alone.

Cedar Rapids was chosen as the place of meeting for 1899.

MISCELLANY.

Long Intubation in Infant.—A seven months-old infant, appar- tly dead from suffocation in croup, was revived by intubation id artificial respiration, although requiring nine insertions of e tube in twenty-two days, the tube being in the throat a tal of 390 hours.—French Congress of Otology and Laryng- ogy.

The Numerical Increase of Crematories.—According to the *Brit- h Medical Journal* as regards the number of crematoria, Italy mes first with twenty-four, America next with twenty-two, ermany is third with four; then come England with three, ance with two, Sweden with two, Denmark with one and vitzerland with one.

The Patient and the Bicycle.—Last week a curious Nemesis stored a bicycle to its owner, a medical man, at Portsmouth. ıe doctor while making a call left his machine resting against e curb outside. On his coming out the bicycle had disap- ared, but an hour or two later a man was brought to his surgery suffering severely from a fall off a bicycle, which turned out to be that of the doctor.—*Medical Press and Circular.*

Radiography for Foreign Body in the Nose.—A patient complaining of purulent rhinitis was examined and a canula found in the left canal, which had been inserted and forgotten forty-two years before. The rhinitis continued and a radiograph showed that the upper end of the canula was still in the nose. It was extracted through the inferior meatus, when all disturbance ceased at once.—French Congress of Otology and Laryngology.

To Educate the Gullible Public.—An Irish newspaper contains a communication from Lord Maurice Fitzgerald of Johnstown Castle, County Wexford, warning the people and peasantry to avoid the "cancer curers" so numerous in Wexford. "If persons of influence throughout the kingdom would follow Lord Maurice Fitzgerald's example, and thus warn their less instructed neighbors of the perils of quackery, they would be conferring a great boon on the community."

A Missionary Hospital in Korea.—The medical missionary, J. Hunter Wells, M.D., writes from Pyeng Yang, in Korea, that a small hospital over which he presides, and accommodating between thirty and fifty in-patients, costs only $1200. The floors in the wards are of stone, covered with clay and paper and heated underneath. The patient's board costs 12 cents per diem. The first assistant gets $3.50 a month, the second $3 and the errand boy $1.80. Drugs are obtained from Japan for less than half what they cost here, and the entire expense for everything but the missionary's salary, which comes from America, was $1000 for eighteen months. Hospital care averaged ten cents a patient.

Parturition During Parapiegia.—Routh (*Edinburgh Medical Journal*, February, 1898) relates the case of a multipara who, when about seven months pregnant, met with an accident which produced immediate and complete paraplegia. Labor began on the two hundred and sixty-first day. During the pains a feeling of "tightness" only was experienced, and when the head was passing over the perineum the cries of the patient were explained as being due not to suffering. The author offers the following conclusions that: 1. In pregnant women with paraplegia, labor may be apparently normal both as regards the period of its onset and its mode of completion, but without the sensation of pain. 2. Involution and lactation are normal. 3. Conception may take place during paraplegia.

La Grippe in Pregnancy is a serious complication and still more serious if it continues or first appears during childbed. Bar observed an epidemic of fifty cases in his maternity service, with four deaths, last winter. Severe broncho-pneumonia appeared in five of the ten post-deliverance cases. The other manifestations were varied, mostly affecting the respiratory organs, although endocarditis and purulent infection were frequent.—*French Obstet. Congress.*

Operative Treatment in Fractures and Dislocations.—Nichols (*Phila. Med. Jour.*, May 28) advocates operative treatment in certain fractures and dislocations, and reports cases. In none of his cases "has the operation added anything, apparently, to the shock, but in some instances relieved it." He believes there is little danger of septic infection with a competent operator. He favors operative treatment especially in oblique fractures of the clavicle, and cites three cases, so treated, where the only deformity discernible is a small linear scar.

Concerning Rabies.—Ruhräh (*Phila. Med. Jour.*, May 28) reports on "A Year's Work in the Preventive Treatment of Rabies," the results of an investigation through the Pasteur Department of the College of Physicians and Surgeons, Baltimore, Md. Thirty-five cases were treated and he shows, contrary to the general opinion, that there is "very great prevalence of the disease in this and adjoining States." Seventeen of

forty-two dogs examined proved to be rabid. None of the thirty-five cases treated have so far shown any signs of the disease. Of these, twenty-five were bitten by animals which were, in the laboratory, proved to be rabid. In the other ten cases rabies was suspected, but the dogs could not be obtained for experimental purposes.

Dosage of Antitoxin.—An increased amount of antitoxin is required to neutralize a toxin, if the coagulating property of the blood is reduced. Experiments at Marburg have demonstrated the fact that if the blood of guinea pigs, rabbits, pigeons, hens, be deprived of its coagulability with sodium citrate, twenty-five to fifty times as much antitoxin is required to neutralize the fatal dose of tetanus toxin, and one hundred times for diphtheria toxin. This fact is not identical with Ehrlich's discovery that a toxin molecule may retain its antitoxin binding property, while losing its toxicity, in which case it becomes a toxoid, as he has observed after weakening the strength of tetanus toxin with iodin trichlorid. The question now is, what element in the blood thus checks the toxin-neutralizing power of the antitoxin, and also whether the toxin or the antitoxin is affected, or both, and the import of the discovery from a therapeutic point of view.—*Deutsche Med. Woch.*, May 12.

Immunization.—The Ehrlich theory of immunity which has led to important results in the past three months is thus concisely stated by Behring: 1. A toxin only produces its specific disease in those individuals who already possess a substance in the living cells or tissues which has a chemical affinity for the toxin. 2. When this substance passes out of the tissues into the blood, it becomes a protecting and curing substance. In other words, the same substance which stored in the cells, is the preliminary and indispensable condition to an intoxication, transferred into the circulation, cures it, recalling Hippocrates' "what causes the disease, cures it," but unlike this, susceptible of scientific demonstration, as many have already reported, *vide* JOURNAL, pages 1290, 1127, 449. Wernicke has saved guinea pigs inoculated with a fatal dose of anthrax, by administering spleen substance, after killing the anthrax bacilli in it, thus causing the production of sufficient anti-bodies to subdue the infection. Pfeiffer has also recently announced that the cholera protecting bodies are accumulated in the blood-producing organs much more abundantly than in the blood itself. The application of this theory in therapeutics is more or less dangerous, as a certain degree of intoxication must be attained in order to start the production and dissemination of the anti-bodies, especially in cases in which there is already an advanced condition of irritability, evidenced by fever. Koch now refuses tuberculin treatment altogether to patients with fever. But these patients are the very ones who will benefit most when we finally succeed in supplying directly to the blood such a powerful toxin-binding substance that the effect will be accomplished without compelling the organism to extra work.—*Deutsche Med. Woch.*

Relief Associations.—The patriotic women of the United States being debarred the privilege of fighting for their country, are organizing for relief purposes in many cities and States. The last circular that we have seen relating to relief committees, was issued by the ladies of Providence, R. I. It sets forth that the reader is cordially invited to become a charter member or member of the Rhode Island Sanitary and Relief Association which is being formed for the purposes of sending comforts to our sick and wounded soldiers and sailors (under the directions of the surgeon generals of our army and navy), and also as far as possible to assist deserving families of enlisted men, residents of Rhode Island. The headquarters of the Association is in Room 221, Banigan Building, Providence, but branches will be formed in every city and town in the State. Charter members (women only) pay $10 initiation fee and $1 annual dues. Members (men and women) pay $1 initiation and $1 annual dues. "It is not too early to organize relief committees, for already one great battle has been fought, and we know not how soon the horrors of war may be at our very doors. Will not every patriotic man and woman in our State come forward and share in this work?" On the advisory board are His Excellency Governor Elisha Dyer and two original members of the Sanitary Commission of 1861, Rt. Rev. Thomas M. Clark and Professor Walcott Gibbs. Among the names of the promoters of the movement are those of Mrs. A. Livingston Mason, president of the Society of Colonial Dames in the State of Rhode Island; Miss Sarah E. Doyle, president of the Society for the Collegiate Education of Women; Mrs. Anna Garlin Spencer, president of Local Council of the Women of Rhode Island, affiliated with the National Council; Mrs. Henry L. Ballou, State Regent, Daughters of the American Revolution; Miss Ellen G. Hunt, president Rhode Island Women's Club, and many others.

A Visit to Dr. Schenk of Vienna—the "Sex Regulator."—Dr. Neesen of Brooklyn, who has been taking a post-graduate course at Vienna, writes of a visit to Professor S. L. Schenk: "When I called at Dr. Schenk's house I found the street blocked with carriages of all descriptions. A group of well-dressed people stood on the stoop of the house, waiting to be admitted. The anterooms were crowded to suffocation with visitors, most of them women, richly attired and genteel looking, all waiting to consult the professor.

"Dr. Schenk told me: 'I have been making experiments for the last twenty years, but the profession must decide whether or not I have discovered anything new. The wife of a Parisian journalist was sent to me by her physician. She was despondent because of her lonely home. I assured her that I could help her, and then with my experiments in mind, I asked her if she desired a boy or girl. She replied that both she and her husband wanted a boy. The woman underwent treatment, and in due course of time she had born to her a bouncing boy of twelve pounds weight. The husband was so overjoyed that he told the experience to his friends, and so it got into the newspapers. I am persuaded that the quality and quantity of the food digested has largely to do with the production of male or female offspring. Drugs are used to some extent, but they have no specific action on the determination of the sex. I use them simply as a means of raising or lowering the state of the general health.

"'I began twenty years ago treating animals, and I met with such success that I began experiments with human beings. Many persons have been misled by the incorrect reports that have got abroad about this treatment. The rooms out there are full of such. They come here wholly misinformed and expect me to do the impossible. They are pestering me constantly. I have, so far, endeavored to see every one and treat them courteously, but the task is getting too arduous.'

"Dr. Schenk has been unable to attend to his regular practice since his discovery began to be talked about. All of his household arrangements have been interfered with. He has had to slip out at the side entrance to avoid the crowd in front of his house. He has given out, again and again, the statement that he will not accept any fee for practicing his system, nor treat any patients except those whom he selects for experimental purposes and whom he places in his sanitarium."

His pamphlet propounding his theories has just appeared, and is the sensation of the day abroad. He believes that the most vigorous parent determines the development of the ovum, whether it is to remain a female, an inferior being, or develop further into a male. This influence of the parent on the sex is always a *crossed* influence; the male parent engenders a female, and the female, a male. All that is necessary, therefore, is to build up the would-be mother to such a condition of health and vigor that her influence preponderates, and behold,

son! If examination of the urine shows more or less glycosuria, then the woman is not in perfectly normal conditions and her diet must be regulated until all traces of sugar disappear, commencing several months before conception and continuing for three to four months afterward. Already the drug stores are placarded: "Analysis for sugar while you wait," and the medical press is observing that fortunately for the theory there are only two sexes.

The Hospital Corps of the Volunteer Army.—An obstacle in the way of obtaining men for hospital and ambulance duty with the Volunteer Army has been removed. The act authorizing the levy of troops made no provision for members of a hospital corps. Privates of the Hospital Corps of National Guard regiments could not be mustered as such into the service of the United States. They were accepted as privates of the line with the expectation that when a hospital corps was formed they would be transferred to it. No volunteer hospital corps has been formed, but authority has been granted for the transfer of men from the line of the volunteer organizations to the Hospital Corps of the Regular Army. Moreover, the regulations governing the assignments of active hospital stewards and the appointment of hospital stewards of the Regular Army were found to be inapplicable to the conditions existing in a hastily formed military force. Under these regulations a year's service as a private in the corps was a preliminary requirement to promotion to the position of acting hospital steward. The following orders, No. 58, Headquarters of the Army, Adjutant General's Office, May 31, 1898, modify these regulations and permit of the organization of a hospital corps suitable to the needs of the seven Army Corps now being formed:

Enlisted men of the volunteer organizations may be transferred to the Hospital Corps of the Regular Army by the Commanding General of the Army Corps in which the soldier is serving, upon the recommendation of the Chief Surgeon of the Corps.

The provisions of Army Regulations governing the Hospital Corps so far as they are inapplicable in the time of war and with troops in the field are hereby suspended during the existence of such conditions.

The Commander of an Army Corps, or of a Division or Brigade acting independently of a Corps, is charged with the full control of the transfer from the line, the enlistment, re-enlistment and discharge of members of the Hospital Corps of his command, with the detail of acting hospital stewards and the appointment of hospital stewards.

Acting hospital stewards will be detailed from privates of the Hospital Corps who are recommended by their medical officers as possessing the necessary qualifications. Hospital stewards will be appointed from acting hospital stewards who are recommended by their medical officers and who have served not less than three months in the Hospital Corps and are approved by a board of not less than three medical officers.

Enlistment papers in duplicate, examination forms and outline figure cards for members of the Hospital Corps will be forwarded to the Surgeon General's Office, as now required, and monthly reports will be made by the chief surgeon of the Corps, or Division if acting independently, showing the number of stewards, acting stewards and privates on duty, the names of men transferred from the line, of those enlisted or re-enlisted, discharged, died, detailed acting hospital steward, or appointed hospital steward.

The quota of members of the Hospital Corps for a corps of 25,000 men, is:

	Hospital stewards.	Acting hospital stewards.	Privates.
For each regiment of infantry	1	....	1
For each artillery battalion, 3 light batteries	...	3	1
For each regiment of cavalry	1	....	2
For each corps headquarters	1	....	2
For each division headquarters	1	....	1
For each brigade headquarters	...	....	1
For each division ambulance company and for the reserve corps company	7	3	104
For each division field hospital and for the reserve corps field hospital	6	3	90

The three volunteer hospital stewards mustered in with each regiment are included in this strength.

The Corps Commander may make such distribution of the members of the Hospital Corps within his command as he considers for the best interests of the service.

Pure Water for the Troops.—The following is the text of Surgeon-General Sternberg's Circular, dated May 31, referred to in our editorial on another page:

The Quartermaster General has been authorized to provide filters for the use of the Army. The filters recommended by the Surgeon-General are the Berkefeld cylinder and the Maignen asbestos filter. These filters are intended to supplement each other, and the use of both is required to obtain a plentiful supply of water free from the germs of disease. Medical and company officers should have a thorough understanding of the intention and action of each of these filters that the full benefit of their use may be ensured to the troops. The Berkefeld filter is a specially prepared earthernware cylinder through the pores of which the water has to be forced by the exercise of considerable piston pressure. The pores are so small that they exclude or filter out, not only all particles which would give a turbidity or cloudiness to the water, but those more minute particles which are the active agents in the production of typhoid fever and other camp diseases. The filter is, therefore, an efficient filter, but the smallness of the pores which gives it its efficiency constitutes an objection to its use in practice. Its pores speedily become choked by a coating of filtered particles. If greater pressure be used to increase the rapidity of filtration, the connections of the cylinder may become strained and the filter be rendered valueless, while if the cylinder be removed and its surface scrubbed it is exposed to the risk of fracture unless handled with the utmost care. The Maignen asbestos filter has larger pores than the other. Water passes through it more readily and under slight pressure. The coarser particles which give a cloudiness or turbidity to a water are strained out; but as the germs of disease are not excluded the filtration from the sanitary point of view is not efficient. It will be seen, however, that the Maignen filter may be put advantageously to use in preparing water for purification by the Berkefeld cylinder. By straining out the particles which otherwise would choke the Berkefeld filter, it enables the latter to operate as rapidly as itself and does away with the necessity for increased pressure or frequent interruptions for scrubbing the porous cylinder. To use the two filters in combination, the bucket or other receptacle containing the unfiltered water and the asbestos filter should be fixed securely at a height of five or six feet from the ground. From this bucket the clear, but not necessarily pure, water is delivered by the rubber tube of the filter into another bucket properly placed to receive it and to admit of the pumping of the filtered water through the Berkefeld cylinder into vessels for storage or use. It has been found that asbestos filtered water can be rendered sterile by the Berkefeld apparatus at the rate of about five gallons in twelve minutes, the pump working easily. The outer covering of the Maignen filter should be kept free from deposits of clay or other matters by brushing or scrubbing. If need be the outer casing of asbestos cloth may be removed, washed and replaced. The filter, as a whole, may be sterilized, when necessary, by boiling in water. When not in use it should be exposed to the air as much as possible. The Berkefeld filter is worked by placing the pump in the vessel containing the asbestos filtered water, with its nozzle resting firmly on the bottom. The piston is then worked without jerking while counter pressure is made with the left hand on the top of the barrel. To keep the cylinder in perfect condition, when thus used, it should be sterilized every fourth day. The thumb screws on top should be unloosed and the cylinder having been lifted carefully from its metal case, should be put in water of ordinary temperature which should be brought to the boiling point and kept at this temperature for five minutes. When removed from the hot water it should be allowed to cool before being replaced for use. The cylinder is liable to become cracked and useless by sudden changes of temperature. If a cracked or worn out cylinder has to be replaced the small wheel should be unscrewed from the lower end of the old cylinder and screwed upon the new one. The nut at the bottom of a cylinder should never be unscrewed.

Appointments and Assignments of Army Medical Officers.—Chief Surgeons of Divisions were recently assigned by the Secretary of War as follows:

Majors Clayton Parkhill, James H. Hyssell and Jefferson D. Griffith, Surgeons, U. S. Volunteers to the divisions of the 1st Army Corps, Major General John R. Brooke, U. S. Army, Commanding, at Chickamauga National Park, Ga. Majors

George Cook, Leonard B. Almy and Charles B. Nancrede, Surgeons, U. S. Volunteers to the divisions of the 2d Army Corps, Major General William M. Graham, U. S. Volunteers, Commanding, at Falls Church, Virginia. Majors Louis Schooler, James M. Jenne and Henry F. Hoyt, Surgeons, U. S. Volunteers to the divisions of the 3d Army Corps, Major General James F. Wade, U. S. Volunteers, Commanding, at Chickamauga National Park, Ga. Majors John M. G. Woodbury, R. Emmitt Griffin and Thomas C. Kimball, Surgeons, U. S. Volunteers to the divisions of the 6th Army Corps, Major General James H. Wilson, U. S. Volunteers, Commanding, at Camp George H. Thomas, Chickamauga National Park, Ga. Majors Thomas E. Evans and Eduard Boeckmann, Surgeons, U. S. Volunteers, to divisions of the 7th Army Corps, Major General Fitzhugh Lee, U. S. Volunteers, Commanding, at Tampa, Florida. Other assignments have been made as follows: To the expeditionary force for the Philippine Islands, Captains Frank R. Keefer and Paul F. Straub, U. S. Army; Acting Assistant Surgeon George H. Penrose to the Utah Batteries forming part of the command; Major Herbert W. Cardwell to duty as Chief Surgeon of a division in the Department of the Pacific; arrangements have been made for the relief of Captain Guy L. Edie, U. S. Army from St. Michaels, Alaska. To the General Hospital at Key West, Florida, Acting Assistant Surgeon A. H. Mann, U. S. Army. To the General Hospital at Fort McPherson, Georgia, Acting Assistant Surgeon James H. McCall, U. S. Army. To Fort Monroe, Virginia, Acting Assistant Surgeon W. P. Chamberlain. To Tampa, Acting Assistant Surgeons R. M. Geddings and Thomas R. Marshall, U. S. Army. To the Hospital Ship *Relief*, Acting Assistant Surgeon Wm. M. Gray, U. S. Army, from duty at the Army Medical Museum, Washington, D. C. Many appointments as Chief Surgeons of Brigades, and divisions with the rank of Major in the Volunteer Army have been sent to the Senate for confirmation. The senior captains and assistant surgeons of the Regular Medical Department have the lead in these appointments. The following is the list of nominees:

To be Chief Surgeons of Division, with rank of major—Capt. Wm. H. Arthur, assistant surgeon U. S. army; Capt. George E. Bushnell, assistant surgeon U. S. army; Donald MacLean of Michigan; George R. Fowler of New York.

Captains and assistant surgeons U. S. army, to be Brigade Surgeons, with rank of major—Wm. C. Gorgas, Henry P. Birmingham, Marlborough C. Wyeth, Richard W. Johnson, Edward C. Carter, Wm. O. Owen, Peter R. Egan, Wm. J. Wakeman, Wm. Stephenson, Adrian S. Polhemus, John L. Phillips, Wm. C. Borden, Edgar A. Mearns, Guy L. Edie, Wm. D. Crosby, Wm. L. Kneedler, Charles M. Gandy, James E. Pilcher, Charles B. Ewing, Walter D. McCaw, Jefferson R. Kean, Henry I. Raymond, Francis J. Ives, Wm. P. Kendall, Edward R. Morris, Henry S. T. Harris, Wm. B. Banister, Paul Clendenin, Charles E. Woodruff, Capt. Eugene L. Swift, Paul Shillock, Ogden Rafferty, Chas. F. Mason, James D. Glennan, Alfred E. Bradley, Philip G. Wales.

To be Brigade Surgeons, with rank of major—Willis MacDonald, Charles M. Drake of Georgia, Joseph K. Weaver, John Guiteras of Pennsylvania, Charles E. Ruth of Iowa, John W. Bayne of the District of Columbia, Milo B. Ward of Missouri, Schuyler C. Graves of Michigan, George T. Vaughan of marine-hospital service, Nathan S. Jarvis of New York, Wm. Devine of Massachusetts, John C. Martin of Ohio, Peter D. Machaughaton of Michigan, Samuel T. Armstrong, acting assistant surgeon; John Patterson Dodge of Ohio, John R. McDill of Wisconsin, Samuel O. L. Potter of California, Geo. A. Smith of Iowa, Arther Snowden of Virginia, R. Stansbury Sutton of Pennsylvania, Frank Bruso of New York.

Philadelphia.

HOMEOPATHS FOR THE ARMY AND NAVY OF THE UNITED STATES.—The homeopaths of Philadelphia have applied direct to President McKinley for recognition in the army and navy of the United States of America and the executive has promised them that no discrimination in this matter will be allowed. This may be a test then as to what homeopathy really means. If they give the same medicines and operate according to the teachers of surgery throughout the world then what is the difference between homeopathy and medicine? At any rate, the homeopaths of Philadelphia told Governor Hastings that they had been discriminated against. They stated that the Governor had explained that all the medical officers were appointed first by the colonels of regiments and that such applicants were subsequently confirmed by the adjutant generals. He further stated that if any case came before him in which any discrimination was shown he would call for an investigation. A case has been cited in which a homeopath by the name of Dr. William F. Satchell desired to enlist in the Pennsylvania Naval Reserves and was told that it was purely an "old school" organization. At the recruiting office they told him that those who practiced homeopathy might enter the hospital corps as privates but could not enlist as surgeons or assistant surgeons. The gentleman of that denomination also states that one of their number applied to Surgeon-General von Ripen who told him (Dr. Thomas H. Hollinshood) "that there was no chance whatever for him, but in truth he was in favor of having a few homeopaths in the service as it would be a great saving to the Government by doing away with a large drug bill since graduates of that school cured almost entirely by faith." These homeopaths took a final appeal and sent a delegation direct to the President. They were introduced by a senator from Pennsylvania (Penrose) and General Bingham. President McKinley, it is stated, received them cordially. After they had stated their case he told them that he had reviewed the subject and could find no law to prevent them from becoming surgeons and assistant surgeons in the army and navy provided they passed the examinations. It is supposed that this Committee left happy and it is said they will notify aspirants to make applications and pass the examinations.

PHILADELPHIA FOR CLEAR WATER.—The people of this city are still drinking water so contaminated with mud and coal dust that it is becoming almost unbearable. A great many remedies have been suggested, but the fact remains that the water is not clear. Recently a committee was appointed to make an investigation along the banks of the Schuylkill and try to find out the origin of the evil. The health officer Dr. Benjamin Lee now thinks the city will have to give up the Schuylkill water entirely and tap the Delaware River a number of miles above the large cities. This question is by no means settled, and out of the thousand and one remedies offered by councilmen and all, not one has been accepted to bring about the proper solution of a subject of most moment to any city or village of this country.

STATUE FOR DR. NATHANIEL CHAPMAN.—By the will of Dr. Samuel Jackson, formerly Emeritus Professor of the Institute of Medicine of the University of Pennsylvania (1835-1863), the sum of $3,000 has been left for the erection of a statue to the memory of Dr. Nathaniel Chapman, Professor of Materia Medica at the University of Pennsylvania (1813-1816) and afterward Professor of Practice of Medicine (1816-1850). It was the expressed desire of the benefactor to have the monument erected on Ninth Street "between the two college buildings," but as that space is now occupied by the post-office this request can not be carried out and a new site will consequently be chosen.

DR. GUY HINSDALE HONORED.—The Boylston prize offered by Harvard University has been awarded to Dr. Guy Hinsdale for his monograph on "Acromegaly."

GOOD-BYE TO BAD WATER.—The sanitary commission recently appointed by the Board of Health of Philadelphia recently made a tour of inspection of the Schuylkill river to find out the source of pollution. They found it in several places without much trouble. Sewage, coal dust and other varieties of filth pour into this stream constantly. After a great deal of hard work by the organized medical societies and health commission, $3,700,000 will be spent in establishing a proper filtration plant provided the select council will concur. Drs. William Pepper and John K. Mitchell have been two of the most unceasing workers among physicians for better water.

NEW PROFESSOR OF OBSTETRICS.—At a recent meeting of the officers of the Medico-Chirurgical College, Dr. George M. Boyd was elected clinical professor of obstetrics. Dr. Boyd is a graduate of the University of Pennsylvania and an ex-resident of the Episcopal Hospital, this city. He is a member of the County and State Medical Societies, the College of Physicians and of the AMERICAN MEDICAL ASSOCIATION.

HEALTH PROTECTIVE ASSOCIATION.—Dr. E. D. M. Sajous of Philadelphia will endeavor to organize a commission, composed of physicians, to devise health rules to be observed in the tropic countries during the war.

SUPPOSED PTOMAIN POISONING.—Three men of Philadelphia recently prepared a dinner, the principal article of which was pork. A short time after the meal all three became quite ill with symptoms of trichinosis, but subsequent examination proved absence of trichinæ and it is now supposed the meat when bought was in a state of decomposition, giving rise to the symptoms produced.

MORTALITY STATISTICS.—At noon, May 28, there had been for the week past a total of 409 deaths, an increase of 26 over the preceding week. Of these, diphtheria caused 10 deaths,

phoid fever 8, scarlet fever 4, as against 20, 7 and 3 deaths r the week preceding. Of the total number of deaths, 121 ›re children under five years of age.

Impassible Constriction of Esophagus. Rosenheim recently per-rmed gastrostomy on a child for this cause, and all food was ken through the gastric fistula, until the restriction was duced by laminaria and an inflated rubber ball. Ewald has ›quently observed these constrictions subside spontaneously ter gastrostomy.

ASSOCIATION NEWS.

The Denver Meeting.

LINCOLN, NEB., June 5, 1898.

The special train of the JOURNAL OF THE AMERICAN MEDICAL SSOCIATION left Chicago at the tick of the clock 11 P.M. Saturday. All the reservations were taken with the exception of ose reserved for members in Iowa and Nebraska, who intend- to join en route. The equipment of the train was superb, th every convenience and accommodation for the passengers. ıe party up to this point are very happy and seem to be en-ving themselves immensely. The train consists of nine Pull-ın sleeping cars, two dining cars and a baggage car. It quired two engines to haul the train from Burlington. The lowing comprised the party as it arrived at Burlington:

P. Clarke & daughter, Cambridge. Mass.
n. E. Upjohn & wife, Kalamazoo, Mich.
F. Ingals, Chicago.
Hakanson & wife, Chicago.
ank C. Greene, Chicago.
N. Greene & wife, Chicago.
ss Moore, Chicago.
as. Truax, Chicago.
L. Harris, Chicago.
C. Hotz & wife, Chicago.
J. Smedley, Chicago.
o. C. Prussing, Chicago.
s. Eastman & daughter, Indianapolis.
A. Horn & wife, Mauch Chunk, Pa.
E. Woessner, Huron, Ohio.
C. Taylor, Springfield, Ill.
D. Storer, Chicago.
ank Burridge, Chicago.
ank T. Stevens, Mt. Pleasant, Ia.
M. Postle & wife. Hinckley. Ill.
E. Munson, Mt. Pulaski, Ill.
ss Katie Mason, Brighton, Ia.
C. Terry & wife, Brighton, Ia.
B. Stockwell, Port Huron, Mich.
E. Tansey & wife, Chicago.
C. Taylor, Baldwinsville, N.Y.
S. Marshall, wife & son, Chicago.
H. Root, Chicago.
S. Conley, Chicago.
S. Hosmer. Ashland, Wis.
s. P. Stimpson, Pittston, Pa.
S. Mead, Lima, Ohio.
W. Sterne, Lima, Ohio.
ank M. Mason, Rossville, Ill.
s. Kate M. Mason, Rossville, Ill.
niel R. Brower, Chicago.
S. Mead, Kalamazoo, Mich.
H. Stealey & wife, Freeport, Ill.
W. Long & wife, Bryon, Ohio.
uis L. Gregory, Chicago.
len Salter, Lena, Ill.
C. Getchell, Worcester, Mass.
ex. McAlister, Camden, N. J.
W. Johnson, Chicago.
B. Campbell & wife, Syracuse, N.Y.
H. Tagert & daughter, Chicago.
E. Miller, Boston, Mass.
W. Bassett & wife, Chicago.
A. Bremmer & wife, Merritt, Ill.
G. H. Eiskamp, Washington, Iowa.
H. A. Spangler & wife, Carlisle, Pa.
J. H. Jackson, Bucyrus, Ohio.
F. E. Bell & daughter, Chicago.
Hugh McCall, Lapear, Mich.
Hon. Alonzo Garcelon, Lewiston, Me.
Miss Garcelon & friend, Lewiston, Me.
F. W. Werner & wife, Joliet, Ill.
Owen O'Neal, Chicago.
B. D. La Force, Ottumwa, Iowa.
Warren B. Hill, Milwaukee, Wis.
H. M. Brown, Milwaukee, Wis.
Letitia A. Westgate, Sycamore, Ill.
W. H. Earles, Chicago.
G. V. I. Brown, Milwaukee, Wis.
J. M. Anders, Philadelphia, Pa.
L. Tibbets & wife. Rockford, Ill.
J. T. Priestley, Des Moines, Iowa.
C. M. Hobby, Iowa City, Iowa.
Ernest Laplace, Philadelphia.
Marie J. Mergler, Chicago.
F. J. Whitney, Leominster, Mass.
James H. Hagenbuch, Mahanoy City, Pa.
Chas. Davidson, Chicago.
J. V. Shoemaker, Philadelphia, Pa.
C. T. Hoffman, Morea Colliery, Pa.
T. P. Stanton, Chariton, Iowa.
John L. Crofts, Little Falls, N. Y.
C. W. Prevost, West Pittston, Pa.
John Z. Shedd, N. Conway, N. H.
Carl Stutzman, Burlington, Iowa.
Louis Plessner, Bay City, Mich.
A. E. Miller, Boston, Mass.
C. B. Powell, Albia, Iowa.
J. M. Roberts, Philadelphia, Pa.
E. L. Mitchell, wife & daughter, Roseville, Ill.
W. E. Shallenberger, Canton, Ill.
J. P. Sherer, Little Falls, N. Y.
W. C. Taylor, St. Louis, Mo.
S. J. Wimmer, New York City.
S. C. Gordon, Portland, Mc.
M. Kemp, Calumet, Mich.
Geo. W. Orr, Lake Linden, Mich.
John B. Murphy & wife, Chicago.
H. B. Osborne & wife, Kalamazoo, Mich.
F. C. Robinson, Wyanet, Ill.
Anna M. Braumworth, Chicago.
A. A. Ashby & wife, Red Oak, Ia.
A. A. Rowson, Corning, Ia.
Henry B. Young, wife & daughter, Burlington, Iowa.
Stephen Hexter, Chicago.
A. I. Lawbaugh, Calumet, Mich.
E. G. Davidson, Chicago.
J. K. Lineaweaver, wife & daughter, Columbia, Pa.
W. Ruml & wife, Cedar Rapids, Ia.
Paul Plessner, Fremont, Ohio.
C. S. Parkhill, Hornellsville, N. Y.
D. S. Fleming, Jackson, Mich.
Chas. G. Cannaday, Roanoke, Va.
G. W. Hiett, Pittsburg, Pa.
Jos. E. Winters. New York City.
James Mills, Janesville, Wis.
Henry Gradle, Chicago.
F. W. Grecne, Chicago.
U. O. B. Wingate, Milwaukee, Wis.
Mrs. F. Henrotin, Chicago.
F. G. Byles & wife, Fredonia, Pa.
G. T. Armstrong, Osceola, Iowa.
Chas. True & wife, Kankakee, Ill.
J. R. Weist & wife, Richmond, Ind.
W. M. Sheffer, Ohio.
J. P. Beckley, Lima, Ohio.
A. C. Cotton, Chicago.
A. L. Hupp, West Union, W.Va.
E. Schifferle & wife, Creston, Ia.
F. E. Sampson & wife, Creston, Ia.
W. C. Abaly, Madison, Wis.
F. M. Corwin & lady, Bayonne, N.J.
Effie L. Lobdell, Chicago, Ill.
Wm. Eastman, Mineral Point, Wis.
J. H. Martindale, Minneapolis.
R. O. Beard, Minneapolis, Minn.
C. A. Wheaton, St. Paul, Minn.
J. R. Fulton, St. Paul, Minn.
F. D. Haldeman, wife & daughter, Ord, Neb.
Jas. W. Cokenower & wife, Des Moines, Ia.
A. L. Belt, wife & children, Gilmore City, Ia.
M. M. Newbecker, Asylum, Neb.
David F. Monash, Des Moines, Ia.
E. J. Lewis, Sauk Center, Minn.
A. E. Benjamin, Minneapolis.
M. F. Paterson, Minneapolis.
John B. Hamilton & wife, Chicago.
Wm. Whitford, Chicago.
W. C. Braun, Chicago.
E. W. Lee, Omaha, Neb.
Jas. E. Moore, Minneapolis.
W. J. Musgrove, Grafton, N. Dak.

[SPECIAL STAFF CORRESPONDENCE.]

DENVER, June 8, 1898.

The Denver meeting will pass into medical history as one of the most pleasant, enjoyable and profitable meetings the ASSOCIATION has yet held. The arrangements were well carried out, and the various Sections carried out their programs on schedule time and were well attended. The registration reached twelve hundred on Tuesday, a remarkably large number when it is remembered that many of our members are now in the service of the United States Government.

The meeting was called to order by Dr. J. L. THOMPSON, Second Vice-president, in the absence of President STERNBERG, whose official duties compelled him to remain in Washington. After prayer by the Rev. W. F. MCDOWELL, the ASSOCIATION was welcomed by His Excellency, ALVA ADAMS, Governor of the State; by the Hon. W. S. MCMURRAY, mayor of the city, and by Dr. J. W. GRAHAM of Denver. The Governor's address was eloquent, witty and patriotic. The others were of high order and were received with great enthusiasm. After the reading of the President's Address a telegram of congratulation was sent to Surgeon-General STERNBERG.

The Nominating Committee selected the following officers for the ensuing year: President, JOSEPH M. MATHEWS of Louisville; First Vice-president, W. W. KEEN, Philadelphia; Second Vice-president, J. W. GRAHAM, Denver. Annual orations to be delivered by J. C. WILSON, Philadelphia, on Medicine; ALEXANDER MCRAE on Surgery, and D. R. BROWER on State Medicine. The city of Columbus was selected as the next place of meeting.

The Section Dinners held Tuesday evening were well attended. The Sections on Surgery and Gynecology held a joint dinner, where patriotism and the red, white and blue ruled the exercises. The toasts were: "Our Absent Members," W. W. KEEN, Philadelphia; "The United States Army, 1861 to 1865," P. S. CONNER, Cincinnati; "The Confederate Surgeon," JOSEPH PRICE, Philadelphia; "Our Modern Navy," SHERWOOD DURK; "The Medical Corps, United States Army," CURTIS E. MUNN; "Our New Sanitary Problems," Jos. M. MATHEWS, Louisville. W. L. RODMAN of Louisville presided admirably, and the local committee of arrangements sang patriotic songs between the speeches. Deep feelings of patriotism and of sympathy with our army and navy pervaded the entire assembly, and the occasion was one long to be remembered by those in attendance and was calculated to bring out the best efforts of the speakers.

At the meeting of the American Academy of Medicine held Monday the following officers were elected for the ensuing

year: President, Dr. Edward Jackson, Denver; first vice-president, Dr. W. L. Estes, South Bethlehem, Pa.; second vice-president, Dr. J. T. Searcey, Tuscaloosa, Ala.; third vice-president, Dr. William Elmer, Trenton, N. J.; fourth vice-president, Dr. Robert H. Babcock, Chicago; secretary and treasurer, Dr. Charles McIntyre, Easton, Pa.; assistant secretary, Dr. W. L. Pyle, Philadelphia.

The American Medical Editors held an instructive meeting and Dr. T. H. Hawkins of Denver was elected president. The banquet was well attended. Dr. I. N. Love of St. Louis presided as toastmaster and speeches were made by various members of the editorial fraternity.

The Association of American Medical Colleges had a full attendance, several new colleges being admitted to membership. A committee was appointed to draft a new constitution. The following officers were elected for the ensuing year: President, H. O. Walker, Detroit; senior vice-president, Dr. H. Bert Ellis, Los Angeles; junior vice-president, Dr. G. E. Woody, Louisville, Ky.; secretary and treasurer, Bayard Holmes, Chicago.

CHANGE OF ADDRESS.

Aldridge, H. W., from Galveston, to Hitchcock, Texas.
Abbott, J. B., from Richmond to West Appomattox, Va.
Baumgarth, N. R., from Milwaukee, Wis.. to 425 South Clark Street, Chicago, Ill.
Beil, I. A., from 389 Elm Street to 137 N. Akard, Dallas, Texas.
Burkhart, J. R., from Ft. Madison, Ia., to 526 20th Street, Rock Island, Ill.
Condon, A. S., from Ogden City, Utah, to Fort Bayard, New Mexico.
Collins, T. S., from Keokuk to Ryan, Iowa.
Clements, G. E., from Chicago, Ill., to Crawfordsville, Ind.
Campbell, J. G., from St. Luke's Hospital, to 507 Lexington Avenue, Chicago.
Chapman, R. M., from 417 Walnut Street, to 510 Walnut Street, Des Moines, Iowa.
Cahill, L. L., from Chicago, Ill., to Elizabethlawn, New Mexico.
Cohee, W. H., from Burnsville, to Elizabethtown, Ind.
Cavenaugh, J. J., from Omaha, Neb., to St. Paul, Kan.
Canfield, B. V., from 325 Virginia Avenue to 525 Virginia Avenue, Indianapolis, Ind.
Dunlap, F,, from Bloomington, Ill,, to Danville, Ind.
Evans, W. A., from 116 43d Street, to 103 State Street, Chicago, Ill.
Fehr, H., from Milwaukee, Wis., to Angustana Hospital, Chicago, Ill.
Greensfelder, from 3500 Ellis Avenue, to 2512 Michigan Avenue,, Chicago, Ill.
Haynes, H. A., from Estherville, Iowa, to Harvey, Ill.
Hudkins. B. I., from Richmond, to Overfield, Va.
Hoff, F., from 58 Walnut to 510 Walnut Street, Des Moines, Iowa.
Hengst, D. A., from 1005 Park Bld'g., to Home Bld'g., Pittsburg, Pa.
Hull, A. R., from Chicago, Ill., to Sanitorium Waldheim, Oconomowoc, Wis.
Holman, J. H., from Columbia to Hartford, Mo.
Jacobson, F. F,. from 150 Orange Street to 306 Perry Street, Cleveland, Ohio.
Jones, R. L., from Nashville, Tenn., to 433½ Austin Avenue, Waco, Texas.
Langher, C., from 7137 Langley Avenue to 7107 Langley Avenue, Chicago, Ill.
Little, J. A., from Chicago, Ill., to Logansport, Ind.
Meany, J. E., from Reedsville to Manitowoc, Wis.
Maxwell, C. S., from Richmond, Va., to Mount Olive, N. C.
McCurdy, S. L., from 1623 Park Bld'g., to Home Bld'g., Pittsburg, Pa.
Moellir, T. O. E., from Thief River Falls, Minn., to Hillsboro, N. D.
Ornet, A. L., from Des Moines, Iowa, to Hiteman, Iowa.
Patterson, M. F., from 506 Walnut Street to 600 Walnut Street, Des Moines, Iowa.
Potter, L. C., from 351 W. 28th Street to 142 E. 83d Street, New York.
Spenzer, J. G., from 370 Central Avenue to 341½ Prospect Street, Cleveland, Ohio.
Toliaferro, V. H., from Atlanta to Eatonton, Ga.
Williams, R. F., from Richmond to Warm Springs, Va.
Williams, R. E., from Richmond to Hampton, Va.
Westervelt, J., from Housic Drug Store to 213 Main Street, Dallas, Texas.

LETTERS RECEIVED.

Ashby, A. A., Red Oak, Iowa.
Brown, E. V., Hebron, Ill.; Branch, G. H., Grand Isle, Vt.
Crane, A. M., Marion, Ohio; Cutter, J. A., New York, N. Y.; Cokenower, J. W., Des Moines, Iowa; Connor, L., Detroit, Mich.
Denison, C., Denver, Colo.; Dowling, Francis, Cincinnati, Ohio; de Schweinitz, E. A., Washington, D. C.; Dunn, I. J., Erie, Pa.
Egan, J. A., Springfield, Ill.; Engman, M. F., St. Louis, Mo.
Fox, J. F., New Philadelphia, Ohio; Fries, Bros., New York, N. Y.
Grant, T. P, Louisville, Ky,; Gihon, A. L., New York, N. Y.
Hummel, A. L., Advertising Agency, New York, N. Y.; Hektoen, L., Chicago, Ill.; Herrick, A. B., Santa Rosa, Calif.; Hance Bros. & White, Philadelphia, Pa.
Johnson, C. H., Grand Rapids, Mich.; Jackson, S. B., Pittsburg, Pa.; Jewett, J. H., Canandaigua, N. Y.
Lewis, B. S., Camden, N. J.; Larew, John T., St. Louis, Mo.
Marting, W. F., Trenton, Ohio; Milwaukee Sentinel, Milwaukee, Wis,; McKinnon, C. L., Pittsburg, Pa.; McQuiston, L., Fort Sheridan, Ill.; McFarland, D. W., Stamford, Conn.
Ohman, E. S., Columbus, Ohio.
Parke, Davis & Co., Detroit, Mich.: Pneumachemic Co., Cincinnati, Ohio.
Richards, F. A., Whitewood, S. D.; Reynolds, H. D., New York, N. Y.; Rogers, Jno, Jr., New York, N. Y.
Schering & Glatz, New York, N. Y.; Smith, Kline & French Co., Philadelphia, Pa.; Sharpe & Dohme, New York, N. Y.; Smart, Chas., Washington, D. C.
Telegraph Publishing Co., Nashua, N. H.; The Insurance Times, New York, N. Y.; Tuley, Henry E., Louisville, Ky.
Wilbur, C. T., Kalamazoo, Mich.

PAMPHLETS RECEIVED.

Abdominal Surgery, Some Remarks and Reports upon Specimens in. By H. O. Walker. Detroit, Mich. Reprinted from Physician and Surgeon.
Alcoholic Epilepsy. By C. H. Hughes, St. Louis. Reprinted from Alienist and Neurologist.
Bacteria, Procednres Recommended for the Study of, the report of a committee of American bacteriologists to the Committee on the Pollution of Water-supplies of the Amer. Public Health Ass'n. Paper, pp. 47, Concord, N. H.: The Rumford Press. 1898.
Colles Fracture and the Roentgen Rays; A New Operation for Balanic Hypospadias; The Radical Treatment of Carbuncle; Ueber den diagnostischen Werth der Roentgenstrahlen bei der Arteriosklerose. By Carl Beck, New York City. Reprints.
Crookes' Tubes; a Possible Step Toward Maximnm Radiance, a Preliminary Report on a Method of Overcoming High Resistance in. By Wm. W. Graves, St. Louis. Reprinted from American X-Ray Jour.
Commercial Spirit and Some of Its Influences, the. By Q. Cincinnatus Smith, Austin, Texas. Paper, pp. 10.
Galvanization and Galvano-Faradization. By A. D. Rockwell, New York City. Reprinted from N. Y. Med. Jour.
Heart Complications in Diphtheria. By Cleon Melville Hibbard, Boston, Mass. Reprinted from Boston Med. and Surg. Jour.
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Kryofin, a Clinical Study of. By Sidney V. Haas and J. Bennett Morrison, New York City. Reprinted from N. Y. Med. Jour.
Medical and Psychologic Aspects of the Luetgert Case, the. By J. Sanderson Christison, Chicago. Reprinted from Chicago Law Journal.
Morphin and other Drug Habits. By C. E. Patterson, Grand Rapids, Mich. Reprinted from Medical Summary.
Normal Salt Solution in Medicine and Surgery. By Palmer Findley, Chicago. Reprinted from Medical Standard.
Quinin in Malarial Hemoglobinuria, the Use of. By Albert Woldert, Philadelphia. Reprinted from Medical News.
Vaginal vs. Abdominal Operations, Principally for Pns in the Pelvic by Joseph Taber Johnson, Washington, D. C. Reprinted from Am. Gyn. and Obstet. Jour.
Wirkungsweise des kohlensanren nnd des calicylsanren Natrons bei Gicht, Rheumatismus und der Harnsäureanscheidung. By Dr. Mordhorst, Vienna. Reprinted from Centralblatt für Inuere Medicin.
Yellow Fever, Prevention of, and the Quarantining of Houses to Stamp it Ont. By Stanford E. Chaillé, New Orleans, La. Reprinted from N. O. Med. and Surg. Jour.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from May 28 to June 3, 1898.

Acting Asst. Surgeons Francis M. C. Usher and E. A. De Lipesey, U. S. A., will proceed to Key West, Fla., and report in person to Major William R. Hall, surgeon in charge of the general hospital at that place, for duty.

Acting Asst. Surgeon C. L. G. Anderson, U. S. A., will proceed from Hagerstown, Md., to Newport News, Va., and report for duty with Light Batteries A and C, Pennsylvania Volunteers.

Acting Asst. Surgeon Burke L. Johnson, U. S. A., will proceed from Kenton, Ohio, to Ft. Thomas, Ky., and report for duty in the general hospital at that place,

Acting Asst. Surgeon Walter Whitney, U. S. A., will proceed from Chicago, Ill., and report in person to the commanding officer, Ft. Sheridan, Ill., for duty at that post.

Major George H. Torney, Surgeon, is assigned to duty in command of the hospital ship "Relief."

Acting Asst. Surgeon S. Melville Waterhouse, U. S. A., is relieved from duty at Ft. Hamilton, N. Y., and ordered to Ft. Myer, Va., for duty in general hospital at that place.

Major Robert H. White, Surgeon, order assigning him to duty with the Philippine expedition is revoked.

Major Louis W. Crampton, Surgeon, will proceed to Tampa, Fla., and report in person for duty to Major-General William R. Shafter, U. S. Vols., commanding the Fifth Army Corps.

Major Valery Havard, Surgeon, will proceed to Tampa, Fla., and report in person to Major-General Joseph Wheeler, U. S. Vols., commanding the cavalry division at that place, for assignment to duty as chief surgeon.

Acting Asst. Surgeons A. R. Booth, Joseph A. Tabor and T. S. Dabney, U. S. A., are relieved from duty at New Orleans, La., and ordered to Tampa, Fla., for duty with U. S. troops at that place.

Acting Asst. Surgeon Robert E. Williams, U. S. A., will proceed from San Francisco, Cal., to Angel Island, Cal., and report for duty; he will also render medical attendance to the garrison at Ft. Baker, Cal

Acting Asst. Surgeon W. Hoepfner Winterberg, U. S. A., will proceed to Alcatraz Island, Cal, and report for duty.

Acting Asst. Surgeon John B. Darling, U. S. A., will proceed from St. Paul to Ft. Snelling, Minn, and report for duty.

Capt. William P. Kendall, Asst. Surgeon, is relieved from duty at Ft. Brown, Texas, and ordered for duty with Ninth Cavalry in the field at Tampa, Fla.

Capt. Henry A. Shaw, Asst. Surgeon, is relieved from duty at the brigade hospital in the field at Tampa, Fla., and ordered for duty in geueral hospital, Key West, Fla.

Acting Asst. Surgeon A. H. Mann, U. S. A., will proceed from Springfield, Ill., to Key West, Fla., and report for duty in geueral hospital at that place.

Acting Asst. Surgeon Ezequiel de la Calle, U. S. A., will proceed from Washington, D. C., to Tampa, Fla., and report to the commanding General Seventh Army Corps for assignment to duty.

Major Philip F. Harvey, Surgeon, will proceed to Tampa, Fla., and report in person to Major-General William R. Shafter, commauding the Fifth Army Corps, for assigument to duty as chief surgeon of one of the divisions of that corps.

Capt. John L. Phillips, Asst. Surgeon, is relieved from duty at Ft. Walla Walla, Washington, and ordered to Alcatraz Island, Cal.

Capt. Thomas U. Raymond, Asst. Surgeon is relieved from duty at Ft Canby, Washington, and assigned to duty with the expedition to the Philippine Islands.

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ORIGINAL ARTICLES.

THE DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS OF PULMONARY ABSCESS AND GANGRENE, WITH VIEW TO SURGICAL TREATMENT.

Read at the Forty-eighth Annual Meeting of the Illinois State Medical Association, Galesburg, Ill., May 18, 1898.

BY ROBERT H. BABCOCK, M.D.

Professor of Clinical Medicine and Diseases of the Chest, College of Physicians and Surgeons.

CHICAGO, ILL.

In dealing with the pulmonary diseases to be considered in this paper the surgeon is confronted with ıe following questions: 1. Is the affection in reality ɔscess or gangrene of the lung? 2. Can the focus be ached and should it be operated on? 3. Are the eural surfaces overlying the affected part of the ng adherent? A correct answer to these queries quires fine diagnostic ability at all times, while it ɔt infrequently baffles the diagnostician altogether.

To answer the first query requires a differential agnosis between abscess and gangrene on the one ınd, and on the other, the differentiation of these om the following conditions: an abscess of some ljacent structure, as of the liver, that has ruptured to the lung; an encysted empyema; an echinococ- ıs cyst of the lung; bronchiectasis; fetid bronchitis ıd pulmonary tuberculosis. I shall not deal with ɔpatic or other abscess perforating the lung; previous history and symptoms ought ordinarily to guard ;ainst mistaking it for an original pulmonary affecɔn.

In attempting to distinguish abscess from gangrene ıe should not only remember that they have much common as regards causation and symptomatology, ıt also that in some cases a sharp dividing line can ɔt be drawn. The recognition of a local lung destrucɔn, gangrenous or otherwise, depends not alone on ıysical examination of the chest. Indeed, in some ses this may furnish less information than do the story and symptoms. Thus may be discovered a ɐemia, a puerperal septicemia, or some distinct localed infection, which, by throwing light on the iology, may materially assist in a correct interpretaɔn of the symptoms and physical signs of the chest ɛection. The patient may be found to have been temperate and to have just had croupous pneumoa, or a child may have aspirated a foreign body into s lungs, or there may be an erysipelas, and quinsy d the like to serve as a probable cause of subseıent pulmonary infection. I recall a man in the ɔok County Hospital who died of multiple pulmory gangrene resulting from an old middle ear scess that had led to pyelo-phlebitis of the right ɛernal jugular vein.

There are four cardinal symptoms alike of pulmonary abscess and gangrene: pain in the affected lung, dyspnea, cough and fever. These are not distinctive, as they may all be present in purulent pleurisy. It may be said however, that in pulmonary abscess and gangrene thoracic pain is likely to be more persistent and severe, since, with the on-coming of effusion the pain of pleurisy often abates, even when it does not cease. Moreover, if the abscess be of embolic origin, it is announced by sudden sharp pain at the seat of the embolus. In hydatid cyst of the lung, on the other hand, pain may be a marked feature. Upon rupture of a pulmonary abscess into a bronchus there is generally agonizing pain, accompanied or followed by violent cough that ushers in the expectoration of pus, but identical phenomena attend the rupture of pus into the lung from a hepatic abscess or from the pleural cavity. With the evacuation of the abscess pain diminishes or ceases.

Dyspnea is a variable symptom, depending on the extent of lung involved and associated pleurisy, and possesses no characters peculiar to this affection. It may be shallow and hurried in consequence of intensification of pain when respiration is slow and deep; or breathing may be labored and difficult. In brief, this symptom may be said to denote some pulmonary embarrassment, but not its nature or location. Cough is a symptom of great importance, since it likewise points to lung disease, but it possesses no characters pathognomonic of abscess. In general it may be said to be more severe and paroxysmal than that of empyema and phthisis but not of bronchiectasis and gangrene, in which last-named affection it also racks the sufferer intolerably. The fever is that of sepsis, depending in its *minima* and *maxima* upon the kind of micro-organisms concerned in its production. For the most part its extremes are of wider range and its type more irregular than in either of the other affections excepting gangrene, while in bronchiectasis pyrexia may be absent. It is almost needless to remark that accompanying the irregularly intermitting fever are more or less pronounced rigors, sweating and loss of both weight and strength, all of them phenomena of grave constitutional infection.

So long as the abscess contents remain confined within the lung the sputum is of negative value and there is nothing in the symptomatology to denote the character of the inflammatory process occasioning it. So soon, however, as rupture into a bronchus occurs the characters of the expectoration assume the greatest importance. If it be a suppurative pleuritis or an abscess of some adjacent structure that has broken through into the lung, the sputum will, except immediately following the rupture, consist of pus without pulmonary tissue; whereas, if an abscess of the lung has ruptured, elastic fibers and fragments of pulmonary tissue will be mingled with the pus. The color is yellow or yellowish-green and there is generally no odor.

If the condition be gangrene and not abscess, the characters of the expectoration are very striking and different. Its most impressive feature is its almost unendurable fetor, alike distressing to patient and attendants. This may be of an indescribably sweetish character or it may be that of decomposing blood, or mingled with the stench of putridity is a fecal odor. It is most intense during the act of coughing, although the patient's breath is contaminated by it at all times, as is the atmosphere of the sick-room. The sputum has a dirty gray or brownish or brownish-green color and when allowed to settle in a glass divides into three layers. The uppermost consists of froth of the characteristic hue and contains mucus; the middle one is serous, transparent and albuminous; while the bottom layer, thick, greenish-brown, contains masses which horribly fetid consist of shreds of pulmonary tissue. According to Leube, elastic fibers are only present when the sphacelated parenchyma has been expectorated before the peptic ferment, shown to be present by Filehne and others, has had time to dissolve them. But even when elastic tissue is absent the microscope detects fibers having the characteristic alveolar arrangement. In addition, this bottom layer contains disintegrated blood cells, oil drops, hematoidin crystals, pigment granules, crystals of the triple phosphates and the various fatty acids, Dittrich's plugs, leptothrix and numerous micro-organisms.

A reliable diagnosis of pulmonary gangrene can only be made by a microscopic examination of the sputa, since a similar fetor of the breath may be detected in cases of bronchiectasis and fetid bronchitis. Even in these affections shreds of lung tissue may appear in the sputa when under the influence of decomposition of the retained secretions the bronchial walls soften and break down and the adjacent parenchyma becomes a prey to the necrotic process. In such instances a differential diagnosis is extremely difficult, if not impossible, and one must be guided largely by the history and duration of the malady. It might well be in such cases that the patient's emaciation and prostration would not have reached so extreme a degree as would exist had his ailment been gangrene from the start.

From the foregoing, it is seen that so long as expectoration is wanting the symptomatology of abscess and gangrene is practically the same (except that the latter often runs a much more rapid course) and that it is often impossible to establish the diagnosis prior to rupture and discharge through the bronchi. Some etiologic factor, as pyemia or the aspiration of a foreign body, may render the existence of one or the other disease likely and suggest which of the two it is, but the character of the sputum alone can determine the diagnosis.

Although the physical signs are of great importance and should never be neglected, they can not be relied on to clear up the diagnosis before the establishment of expectoration. These are the following: Dulness over a circumscribed area of variable size, provided the seat of lesion is not deeply situated, is single and large enough to alter the percussion note. If a cavity becomes established and other conditions are favorable the note is tympanitic. Upon auscultation the breath sounds are found to be bronchial, or if the area has broken down but not yet ruptured and evacuated, they will be suppressed, while the transmission of vocal fremitus is correspondingly altered. Râles over the affected area are usually wanting during this period. Should the focus be sub-pleural, the auscultatory phenomena of fibrinous pleuritis are likely to be added. If croupous pneumonia have preceded, there will have been signs of this affection.

It is now necessary to consider the diagnosis of cavity, inasmuch as the surgeon in dealing with abscess or gangrene has to be familiar with the means of determining when it has formed. To this end percussion is chiefly to be relied on, yet certain conditions are indispensable if percussion is to avail anything: 1, the vomica must have attained a sufficient size, at least that of a walnut; 2, solidified lung tissue must supervene between it and the surface percussed; 3, the cavity walls must possess sufficient resistance and smoothness to reflect the vibrations communicated to them; 4, the waves of air produced must have sufficient amplitude to produce the overtones essential to tympany.

If these conditions be fulfilled, percussion over a cavity will elicit tympanitic resonance, the pitch of which depends upon the length and number of the vibrations within the cavity. But other conditions than a vomica can give rise to this kind of resonance, as for instance, when cracked-pot resonance is produced by strong percussion of a child's chest in case of bronchitis. Wintrich suggested as diagnostic the change of pitch observed under favorable circumstances when the patient closed his mouth during the act of percussion. That is, when the vomica communicates freely with a bronchus, the pitch of the percussion note is perceptibly higher with the mouth open than with it shut. This, however, is not absolute and therefore Gerhardt's change of pitch was proposed as a diagnostic test. This consists of an alteration of pitch depending on the patient's position; if the cavity be longer in one direction than another and it contains fluid, change the patient's position, as from the recumbent to the erect or *vice versa*, will, through gravitation of the contents to the bottom of the vomica, correspondingly elevate the pitch of the percussion note. Either the Wintrich or the Gerhardt change of pitch is ordinarily proof enough of the presence of a cavity, but if the diagnostician is still captious, he may seek for the so-called interrupted Wintrich change of pitch. That is, when with the mouth open a rise of pitch in the percussion note is detected only in a certain position, as the recumbent, but not in the sitting posture. An elevation of the pitch during slow inspiration over that during expiration is also a sign of cavity, but of all of these none is held to be pathognomonic except the interrupted Wintrich change of pitch. In addition to the foregoing is that peculiar quality of note known as cavernous and amphoric, which must have been heard to be recognized, since it can not be described.

Upon auscultation of a vomica there may be heard bronchial, cavernous or amphoric breathing, which does not require more than mention. Likewise, there are the cavernous or amphoric voice and certain râles. Of these last the most significant are the gurgles or bubbling râles heard during inspiration, and the metallic tinkle of Laennec. A conjunction of two or more of the signs just mentioned may, in a given case, establish a diagnosis, although none of them be pathognomonic.

Finally, a differential diagnosis must be made in this early stage between a suppurative inflammation of the lung and circumscribed empyema. To this end the previous history and symptoms must largely contrib-

ute, owing to the similarity of the physical signs. The problem is rendered still more difficult by the following considerations: Abscess is a relatively frequent result of lobar pneumonia, while circumscribed pyothorax is often found complicating this form of pneumonia. The pneumococcus gives rise to a pleuritic exudate rich in fibrin and hence it becomes readily encysted. It is generally circumscribed within the confines of the lobe affected with the pneumonia, sometimes occupying the whole, but more often a part of this area, and through the failure of the dull patch to clear up after the crisis it may give rise to the belief that resolution has not taken place. Should this collection of pus, circumscribed under great pressure, at length break through into a bronchus, it is very apt to be mistaken for abscess. It should be remembered however, that pulmonary abscess generally occasions far greater constitutional disturbance; fever is higher and more distinctly septic; rigors are more pronounced and perspirations more intense; the patient's strength and weight decline more rapidly, and what is more important, local pain and cough are usually more severe. Pus produced within the pleural cavity by the pneumococcus is rather benign in character and unless mixed with strepto- or staphylococci, occasions only symptoms of mild infection. When, however, admixture with pyogenic organisms takes place, the pus becomes correspondingly more virulent and septic phenomena proportionately greater.

The importance of the information derived through physical exploration of the chest will depend upon the amount and depth of the exudate. If this be sufficient to threaten rupture, there is likely to be more or less evidence of pressure. Careful inspection and palpation will detect slight filling or smoothing out of the intercostal spaces over the affected area, and the side is apt to show slight elevation of the ribs, thus giving a little more rotundity to that part of the thorax. If the exudate compress the lung to an appreciable degree, the apex beat will generally be displaced, although accurate observation is often required for its determination. In my experience, an exudate of this kind is rarely massive enough to occasion appreciable displacement of the liver. Particularly careful study of the pectoral fremitus, and of the breath sounds, as recommended by Potain, will often furnish valuable differential information. I have repeatedly detected feeble vibration, extending into the distinctly dull zone, and being absent only over the very center of dulness, seeming thus to indicate a gradual increase in depth of the exudate from periphery to center. Such would not be the case in abscess and gangrene, for pectoral fremitus is usually exaggerated over the affected focus, during the inflammatory stage, and after evacuation, but absent after the lung substance has broken down, and before evacuation. In empyema, upon percussion, dulness is generally found to shade off gradually into resonance, the transition being less abrupt than in abscess. Upon auscultation the breath sounds may be either inaudible or, in case the exudate be not too deep, enfeebled and bronchial. In some instances, I have detected a vague friction sound about the edge of the dull patch, while in others, it has been rather an indefinite impression of a rubbing of rough surfaces rather than actual friction sounds.

Should the pent-up pus of empyema at length find exit through the bronchi, the event may be correctly interpreted by examination of the sputum, which as already stated does not contain elastic tissue except at the very beginning of or soon after the onset of the perforation. The physical signs will then become those of a cavity, and if the case be then seen for the first time, a differential diagnosis may be extremely difficult or impossible. The percussion note is tympanitic, and the respiratory sounds tubular or even amphoric, and moist râles or perhaps metallic tinkling may be heard. The loud and whispered voice-sounds should be carefully studied, for, unless the communication with the air-passages be very free, they would hardly be such as are heard over vomicæ of such dimensions. In the event of a failure of differential diagnosis, and the amelioration of symptoms that ensues renders surgical interference unnecessary, the subsequent history will probably clear up the doubt. In case of empyema, convalescence is more rapid and steady.

The differential diagnosis between pulmonary abscess and tuberculosis with formation of vomicæ is easy, although it must be borne in mind, as stated by Leube, that the seat of suppuration following pneumonia is most frequently the upper lobe. In consumption generally, the history and symptoms indicate a chronic disease, but it should be a case of acute pneumonic phthisis, with rapidly forming cavity, the detection of tubercle bacilli in the sputum, together with disintegrating lung tissue, will settle the diagnosis.

One of the most difficult tasks is to differentiate between pulmonary abscess and bronchiectasis, or in some instances between gangrene and bronchiectasis with fetid bronchitis. Here again as always, the anamnesis is of the utmost importance, pointing in the one case to an acute, while in the other to a chronic malady. Moreover, only very exceptionally are elastic tissue fibers, having an alveolar arrangement, present in the expectoration of bronchial dilatation, and when these do occur, the case has been converted into one of abscess to all intents and purposes, and may be treated as such. Not often does bronchiectasis present conditions favorable for diagnosis in respect to determining its operability. Its existence may be strongly suspected from history and symptoms, such as chronicity of the malady, the violent, spasmodic cough and thick muco-purulent sputum that is sometimes most readily expelled in certain positions and does not contain pulmonary tissue, etc., but it may be quite another matter to accurately locate the cavity, and to state whether more than one exists. As a rule, bronchiectases are multiple, and surgeons of experience like Dodlee assert that operative interference is successful only when a single, large sized dilatation exists at the base of the lung. In such a case, the physical signs are those of a cavity from any other cause, and have already been considered. A very significant sign of bronchiectasis is the detection of tympanitic resonance over a circumscribed area which prior to cough and expectoration presented dulness, and where bronchial breathing then replaces former absence of respiratory sounds.

The only disease remaining, from which pulmonary abscess must be differentiated, is echinococcus cyst of the lung. Pain in the affected side, sometimes very intense, severe and spasmodic cough and prostration are also present. Dulness does or does not exist only as the cyst is superficial or deep seated. In the latter event, there may sometimes be heard dis-

tant, numerous crackling râles over a considerable area. If suppuration be set up roundabout the cyst, sepsis may supervene and abscess be still more closely simulated. The one diagnostic feature is the expectoration of a thin, serous fluid containing the characteristic rolled up membranes, or hooklets. Morillou states that the diagnosis is confirmed, even before this pathognomonic expectoration, by the appearance of urticaria during the course of this obscure affection. Fortunately hydatid cysts are very rare in this country.

Suppposing that abscess or gangrene either before or after cavity formation, has been satisfactorily determined to be present, the question arises, is the condition operable? This depends on its etiology and location. If it be pyemic in origin, operation will probably prove of but little avail since other foci than that operated on may be scattered through the lungs. On the other hand, the abscesses most amenable to surgical treatment are those resulting from pneumonia, and in general also, they are the most readily diagnosed. Unfortunately, experience has shown that even when a pus cavity has been located by physical signs, the operator may have much difficulty in reaching it with the exploring needle. This is said to be owing to the fact that a cavity usually lies higher than is supposed.

Lastly, arises the query, whether or not the pleural surfaces overlying the affected part be adherent? If the seat of pulmonary inflammation be directly underneath the pleura, or if in the course of the disease pleuritic friction sounds have been detected in said area, then adhesion of the pleura may be strongly suspected. But more than this can not be affirmed in the present state of our knowledge.

I will now briefly describe a few cases that illustrate some of the difficulties encountered in the diagnosis of the affections under discussion:

Case 1.—In the very beginning of my practice I attended a young woman with pneumonia of the middle lobe of the right lung. After a few days her sputum became very copious, of a brownish red color and of the characteristic odor of decomposing flesh or blood. It was not examined microscopically, but as not many days subsequently a small zone of tympany developed at the lower edge of dulness, I concluded that gangrene had set in. My diagnosis seemed confirmed by the continuance of the fetid sputa, the septic symptoms and above all the gradual spreading of marked tympany, until at length it involved the entire area of original dulness. Convalescence now set in slowly and progressed until the patient was able to get about, although with troublesome cough and considerable purulent expectoration. The middle lobe now presented the following signs: Pronounced tympany, bronchial breathing, that could be plainly heard behind, pectoriloquy, some moist râles, and more than all, distinct bulging of the intercostal spaces in this area upon coughing. This last seemed to leave no room for doubt of the existence of a cavity. Dr. Christian Fenger concurred in the diagnosis, and a few days later operated by the means of the actual cautery. Two or three days subsequently the patient died, and the necropsy revealed, not a vomica, but multiple racemose bronchiectases throughout the entire area over which signs of a vomica had been erroneously thought to exist. This showed that the bulging of intercostal spaces during the expiratory pressure of coughing can not, as supposed by the late Austin Flint, be considered diagnostic of cavity.

Case 2.—This was a female patient in my service at Cook County Hospital five or six years ago. I made a diagnosis of diaphragmatic empyema at the base of the left lung, following pneumonia. Dr. Holmes operated, but instead of empyema found multiple small abscesses containing a cheesy material, and scattered along the base of the lower lobe from front to back, close to the diaphragm. At the time he looked upon these as tubercular, but I now conjecture that they were multiple abscesses, such as sometimes form in the course of broncho-pneumonia. The patient made an uneventful recovery.

Case 3.—Some years ago I was asked to see an elderly man who had passed through a recent croupous pneumonia, which was thought not to have resolved, but to have resulted in an abscess that had ruptured into a bronchus. He had had a low septic fever with harassing dry cough, and the day before my visit had suddenly begun to cough up pus.

Signs of a cavity had appeared at the right base, below the scapula. After careful examination of the chest and due consideration of the previous history and symptoms, I made a diagnosis of an encysted empyema, which had broken through into the lung, and advised operative interference. This was carried out, and in so doing the correctness of my diagnosis was determined.

Case 4.—Not far from that time, I saw another man, who had just passed through a lobar pneumonia that was thought not to have properly resolved, but to have resulted in abscess. A mild septic temperature persisted, with troublesome cough, and a zone of dulness over which breath sounds were absent, remained at the right base, behind. I diagnosed encysted empyema and advised an operation, which was done. Upon the surgeon's having entered the pleural sac slightly too far to one side, and having failed to find pus, he introduced his finger and felt the abscess wall, which seemed to him to bulge from the surface of the lung into the pleural cavity. He thereupon passed his instrument along his finger as a guide, and opened the supposed abscess from a little below and anteriorly. As he did so, air escaped with the pus. Therefore, he naturally concluded that my diagnosis was an error. Fortunately, however, I had requested to have a specimen of the pus obtained brought to me, and microscopic examination of this specimen showed an entire absence of pulmonary tissue. Obviously there was but one conclusion, that the lung had been perforated simultaneously with the penetration of the empyema. Both these last patients made a satisfactory recovery.

Case 5.—About a year ago Dr. Bayard Holmes asked me to see an elderly man who complained of pain in his left chest, behind near the region of the kidney. There was a history of an obscure affection that had been diagnosed about a year previously as abscess of the spleen. Two or three months prior to my seeing the patient, Dr. Holmes had made an exploratory incision over the left kidney and found it healthy; at the same time, all the abdominal organs were palpated by laparotomy and found normal. Examination of the lungs disclosed a dull area, with bronchial breathing and faint friction-like râles at the extreme base of the left lung, extending from the vertebral column, forward nearly to the posterior axillary line. A positive opinion was not given, but as the patient had a mild pyrexia, I concluded a thin layer of not very infective pus was encysted in the

leural cavity and advised operative measures for the ıan's relief. Dr. Holmes subsequently reported that e found an aneurysm of the descending aorta that ompressed the base of the lung. The interesting eature of the tumor was, that it did not pulsate and as so firm that it was not recognized until the doctor ıserted a hypodermic needle and withdrew blood. he aneurysm had begun to erode the vertebræ. The atient lingered for a few weeks and died of rupture f the aneurysm.

103 State Street.

UNIQUE CASE OF PERINEO-SUPRAPUBIC SECTION.

BY G. FRANK LYDSTON, M.D.

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CHICAGO, ILL.

Through the courtesy of Drs. Griffith and Ryan of t. John's Hospital, Springfield, Illinois, I had the portunity of operating a few days since, upon a ost interesting case. A man 45 years of age, occuation mechanic, sustained a fall upon his perineum me nine years ago. This was followed by urethral morrhage, with considerable swelling and ecchyosis in the perineal region. Retention of urine curred, and the catheter was used for some days. few weeks after the injury the patient noticed that s already lessened stream of urine was rapidly minishing in size. The contraction of the urethra ntinued until complete retention recurred. The theter was again resorted to, and, satisfied with mporary relief, the patient did nothing in the way treatment until another attack of retention came . This was treated as the other attacks had been, d with equal success. During the many years ıce the original injury the patient has experienced ıumber of attacks of retention, and has been treated sounds at intervals. On various occasions considble hemorrhage resulted from the passage of the ınds. The contraction of the urethra finally ame so marked that more or less constant dribng of urine from overflow resulted.

Examination showed a well nourished man of fairly od physique. The bladder was not distended with ne, although dribbling from the meatus was almost ıstant. The condition of the patient's clothing l the ammoniacal odor about him showed that this s of by no means recent development—an infere corroborated by the history. The prostate was arently normal. Exploration showed the urethra e free from contractions until the bulbo-membran- region was reached, at which point a firm fibrous traction was noted. This proved to be impermeto instruments. Had time permitted, however, s probable that a filiform guide might have ered. The perineum was hard and somewhat llen, peri-urethral inflammation, probably from ht infiltration, had perhaps occurred.

erineal section was proposed and consented to.

peration: Chloroform was used, as is my custom ong-standing cases of obstructive surgical disease he urinary tract. After flushing the urethra with -20,000 bichlorid solution, a grooved staff was ed down to the face of the stricture. The urethra then opened in front of the obstruction, and a ch for the opening in the stricture begun. The ıbranous urethra was found to be completely obliterated, the bulb being encroached upon and contracted for about an inch anterior to the bulbo-membranous opening. After a careful dissection, occupying fully three-quarters of an hour, the cicatricial tissue was divided, and my index finger apparently entered the urethra and penetrated the bladder. I could plainly feel the vesical rugæ, and the grip of the characteristically hypertrophied false sphincter vesicæ found in such cases. Much to my surprise, however, no urine escaped, nor could I detect fluid with the exploring finger. Suspecting that I had entered an old, false passage, I began a fruitless search for the normal canal, lasting probably half an hour. It has been my custom of late years, in such cases, to refrain from a too prolonged and dangerous search for the urethra in the perineum. I believe that suprapubic section and retrograde exploration with the finger or catheter does not greatly complicate matters, nor does it add much to the dangers of the operation. Prolonged anesthesia and hemorrhage are the elements of the operation that are most to be dreaded. These can be avoided by suprapubic section. In accordance with this view I entered the bladder above the pubes. I found the viscus very slightly distended with urine. I punctured the bladder well down toward the vesical neck, making an opening only as wide as the blade of the medium-sized scalpel I was using. I inserted a pair of forceps into the puncture, and, opening them, stretched the wound sufficiently to admit my left index finger. There was little trouble in dilating and exploring the vesical neck from within. On opposing the intra-vesical and perineal index fingers I found, as I had suspected, that I had entered a blind false passage. The thin lining of this canal covered my finger like the finger of a glove, and through it I had felt the rugæ of the vesical walls. After restoring the continuity of the urethra and laying the two canals into one, I proceeded to still further divide all the cicatricial tissue detected by the finger in the perineum. In accomplishing this an old peri-urethral abscess sac was discovered, containing eight small phosphatic calculi. This sac was thoroughly laid open.

The perineal wound was drained by a large firm rubber tube, about which iodoform gauze was tightly packed to check hemorrhage. No attempt was made to close the bladder wound. The suprapubic incision was almost entirely closed by catgut and silkworm gut sutures. A single narrow strip of gauze was pushed well down into the cavity of Retzius, no other provision for suprapubic drainage being made. The subsequent course of the case was uneventful. The temperature rose but very slightly. Perineal drainage was perfect; not a drop of urine escaped through the suprapubic wound, which healed by first intention, the gauze drain being removed on the fifth day, at which time the perineal tube was also removed.

The technique and results of the combined section in this case are worthy of note. The ideal healing of the suprapubic wound in the face of infection from the bladder was remarkable, though I have seen a number of similar results. The danger of leakage where the method adopted in this case is followed is practically *nil.* It is unnecessary and unwise to suture the bladder in such cases. Leakage can not occur unless the bladder becomes distended—which it never does if perineal drainage is free. A vesical opening that will readily admit the finger is difficult to find in the collapsed bladder. As a cardinal prin-

ciple, therefore, vesical exploration and operations should involve as little cutting as possible. This is wise even where stones are to be extracted.

Once the technique of suprapubic section has been mastered, the surgeon need not dread perineal section without a guide. There can be no justification, moreover, for a prolonged and dangerous perineal search for a lost urethra. In intensely septic cases, through and through drainage is advisable.

The rationale of the stone formation in the foregoing case is simple. Decomposing residual urine in an old peri-urethral pus cavity explains it. The false passage was probably of "surgical" origin, and had deluded several surgeons into the belief that they were successfully dilating the stricture. Such errors are by no means rare.

Camp Tanner, Springfield, Illinois.

PERINEAL OPERATION FOR PERFORATIVE APPENDICITIS WITH ABSCESS IN THE CUL-DE-SAC.

Read before the Peoria Medical Society, May 3, 1898.

BY E. M. SUTTON, M.D.

PEORIA, ILL.

The literature on the surgical treatment of appendicitis is replete, and it is the consensus of opinion that, for ordinary cases of perforative appendicitis with abscess formation the incision over McBurney's point, or the extra-peritoneal operation from the side, reaching the abscess without entering the peritoneal cavity, with simple evacuation and drainage, only removing the appendix when possible to do so without causing general infection, are the best methods of procedure.

In looking over the reports of cases it has not come to my knowledge that an operation reaching the appendix abscess, when located back of the bladder, below the small intestine, and in front of the rectum, has been operated on from the perineum. The difficulties of draining these cases through the abdominal incision and the avoidance of soiling the peritoneum are barriers which render the operation useless and fatal when attempted above, except when the operation is made before perforation or before any large quantity of pus has formed.

When the appendix lies externally or behind the caput coli the operation for appendicitis becomes quite simple, and those are the cases which encourage the physician to become a surgeon. But when the appendix lies internal to the caput coli, above the mesentery of the small intestine, the most skilled operators may have grave fears of the result. When the appendix lies below the mesentery of the small intestine, internal to the caput coli and perforation occurs, abscess forms, pressing on the rectum or the bladder. When the small intestine forms the upper wall of the abscess and the tendency of the case is toward rupture into the bladder or rectum, or both, with long-continued illness, never closing abscess sac or sinus, in some cases recovery may take place, or in others, death may follow from general peritonitis. It is not the diagnosis of appendicitis alone, which every skilled physician should be able to make, but the locating of the appendix, which marks the skilled surgeon, as upon this point the success of any given operation may depend.

By the following I wish to point to the possibilities of diagnosing the appendix perforation with abscess formation, in the somewhat unusual place the pelvic cavity of the male, and also the advantage of reaching the same extra-peritoneally, from the perineum.

Mr. F. A., age 35, locomotive fireman, stout build perfect health, on the evening of March 16, afte drinking a glass of milk and eating a light lunch i a restaurant, was suddenly seized with pain that wa referred to every place over the entire abdomen Returning home, a distance of ninety-three miles a physician was sent for and gave him the prope treatment for appendicitis. The pain, locating itsel along the lower part of the abdomen, over the sym physis, was continuous and extreme. The bowel responded to saline cathartic. The pulse was 10 temperature 100 to 102 degrees. March 19, third da of the attack, examination of the patient revealed tumefaction high up in the median line and to th right of the rectum. There was scanty urine, bowel responding to the use of salines, but greatly dis tended. There was profuse perspiration, pulse 96 t 100, temperature 100.

Having had sad results from operations for appen dicitis through the median line for this class of case when seen late, I counseled delay, as perforation ha taken place, and, with distension so great, th removal of the septic debris would undoubtedly en fatally if done in the usual manner while the patho logic condition seemed to be limited. Delay wit hope of the abscess discharging per rectum was wa rauted. The usual line of treatment for appendiciti was instituted, the patient going to the second weel when the symptoms of obstruction, extreme pai vomiting and great distension developed, with serious septic condition. I evacuated the absce through the rectum, high up, puncturing the anteri wall into the cul-de-sac with a small trocar. This knew to be unsurgical, but the symptoms were de perate and demanded instant relief. Twenty-tw ounces of foul pus were removed in this manner, i pressure having caused retention of urine an obstruction of the bowels. It was followed by a amelioration of the symptoms for two days, whe after a good night's sleep, the patient awoke with th most intense suffering, severe septic symptoms ar complete retention of urine, the abscess havir refilled and the symptoms decidedly worse. Pul was 120, temperature 97 to 98 degrees, tongue d and cracked.

An operation was performed through the perineu to drain the abscess in that manner, making th horseshoe incision of Kocher, beginning at a poi midway between the tuber ischii and the anu extending to the bulbous portion of the urethra ar from there to a similar point on the opposite sid separating the fat of the ischial fossa, pushing th external hemorrhoidal nerve and artery back, th transversus perinei, with the bulbous portion of th urethra and the superficial transverse perineal mu cles forward. The transverse incision of the fibers the external sphicter at junction with bulbo-cavern muscles was made and the division of the de fascia transversely where it dips down to join t pelvc fascia, separating the levator ani muscl reaching the prostate and continuing the dissecti up back to the cul-de-sac. The abscess cavity w opened and nearly a quart of foul pus mixed wi the liquid feces escaped. Washing with steriliz water and exploring with the finger, I found th

ensive cavity covered above by the intestines mat- l together, forming the upper abscess wall, with idus at the caput coli. A drainage tube was inserted, d ordinary tamponing with iodoform gauze used. e pulse and temperature became normal, bowels wed six hours after the operation and patient's pain ased immediately.

Subsequent history: Drainage was perfect, no ther discharge after fourth day, no fever, no diffi- lty of bowel movements or bladder action. Tem- rature and pulse were normal five hours after the eration and distension disappeared immediately. ainage tube was removed on the twelfth day. ound granulated nicely. Patient fully recovered; t in third week.

In regard to the perineal operation for abscess of appendix in this locality, the result was so satis- tory in this case that I have no hesitancy in vising the operation in case perforation and abscess mation takes place within the pelvis of the male, the point described. In the female it is quite sy to reach an abscess of this kind requiring cision through the posterior cul-de-sac or between ds of broad ligaments, but in the male it is not so sily accomplished, yet can be done with perfect fety, and the great danger of causing general septic ritonitis and death by the usual operation can be oided. The drainage being at the lowest point of e abscess, the intra-abdominal pressure completely acuates it and the surgeon remains extra-peritoneal all his procedures. The appendix could only be moved through the same incision if presenting and would be impossible to take away more than the ngrenous portion. It is otherwise left to nature. ie operator should have care not to break down the hesions formed by the coils of the intestines form- g the upper wall of the cavity, either by rough ploring or by too great force in washing it out.

The remarkable feature was the prompt closing of e perforation and healing of abscess, no fecal mat- appearing after operation.

It might be asked if there was bulging of the peri- um in this case that led me to incise here? While was plain that fluctuation could be obtained by one ger high up in the rectum with counter pressure the abdomen, not a sign of the collection could be tained through the perineum and it seemed to ose present that the proper method would be incis- n through the abdomen.

JRGICAL CLINIC IN GYNECOLOGY AT THE POST-GRADUATE SCHOOL OF CHICAGO, MARCH 7, 1898.

BY FRANKLIN H. MARTIN, M.D.,
PROFESSOR GYNECOLOGY,
ASSISTED BY F. A. BESLEY, M. D.,
INSTRUCTOR IN GYNECOLOGY.
CHICAGO, ILL.

[Stenographic report.]

Case 1.—The first case I have to present is one diagnosed ro-myoma of the uterus. The patient is 45 years of age. e has borne no children. For several years there has been menorrhagia developing, which lately has become excessive. o suspicious symptoms about the case is the disproportion- loss of flesh in the last six months compared to the blood s, and the almost universal fixation of the lower part of the nor as I palpate it through the abdominal walls. It extends just beneath the umbilicus. I should estimate the size of tumor, including the uterus of which it seems a part, as ght inches in its long diameter, corresponding to the long diameter of the patient, and the transverse diameter at the largest portion at four inches.

Exploratory Laparotomy.—I will make an exploratory laparotomy with the idea of removing the tumor if that course seems practicable. The assistants have thoroughly scrubbed the skin of the abdomen, first with soap and water with a soft flesh brush (the skin having been previously prepared by the nurses), then have washed it thoroughly with 95 per cent. alcohol, then with 1 to 1000 bichlorid solution, and finally rinsed with hot sterilized solution. Sterilized towels are placed around the field of the operation.

We make an incision from two inches below the umbilicus to an inch above the pubes. On opening the peritoneum with an incision about three inches in length we find a large tumor of the uterus presenting, resembling a fibroid, covered in different areas of its free surface with papillomatous growths. This form of growth extends into both broad ligaments, and on both sides in the region of the broad ligament, the space between the uterine tumor proper and the sides of the pelvis is filled with this peculiar wart-like growth. It is obvious that it would be impracticable for any one to attempt to remove this uterine tumor with the complete fixation which exists as a result of this material. The papillæ extend onto the intestines, the mesentery and the omentum; they vary in size from that of an English walnut to that of a grain of mustard. The smaller ones resemble miliary tubercles. Without the microscope I will venture a diagnosis of adeno-carcinoma of the ovary with extensive direct continuity to the broad ligament and the fibroid uterus. The small piece of tissue that I secured on first opening the abdomen was immediately sent to the laboratory for examination.

Dr. Bethel, our pathologist, says, "I found it showed an adeno-carcinoma, papillomatous form."

I will close the abdominal wound without attempting the impossible—the removal of the tumor. Our prognosis must be of the most hopeless character. While the patient will probably recover from this exploratory operation, her lease of life will not extend, probably, beyond six months.

Case 2.—This woman is 37 years of age; married; has had three children, and two miscarriages. About three years ago she had an attack of peritonitis which followed "catching cold" after a miscarriage. This term catching cold is another term for infection. Infection, extending from vagina or cervix, which was present before the miscarriage occurred, or infection introduced by a careless obstetrician or midwife in attendance on the miscarriage, or it might have occurred as a result of the patient using a dirty douche point in attempting to cleanse herself after the miscarriage. Infection occurred and this was manifested by a high fever with rapid pulse, excessive pain in both sides in the region of the appendages, and considerable distention of the intestines.

This was undoubtedly caused by infectious material extending into the peritoneal cavity from the open ends of the Fallopian tubes. The immediate result of the leakage was a violent inflammation of the peritoneum at the point of infection. Fortunately, when this occurs at any point in the peritoneum the omentum, intestines and outlying peritoneum rushes in and attempts to limit the extension of the inflammatory action. This it ordinarily succeeds in accomplishing, and then the peritonitis remains local and runs its course in a few weeks, leaving the peritoneum with one or two pent-up pockets of pus. If this pus loses its virulence in the meantime, it may lie dormant for an indefinite time, and finally it becomes completely sterile. If the suppu-

ration is of a highly infectious character it will find an outlet through some of the adjacent organs, as the vagina, bladder, an intestine, or even the abdominal wall. In the case before us there is no history of an abscess having been discharged.

Symptoms.—This woman has been practically an invalid since her attack of ("inflammation of the bowels") peritonitis. She experiences excessive pain in the ovarian region almost constantly. The constant pain is of the character of pressure. Occasionally there are sharp acute pains in either side. She is never free from a severe backache. As menstruations approach the pressure symptoms and backache are greatly exaggerated. When the menstruation actually appears the woman suffers with excessive uterine cramp. As the flow is thoroughly established the pain becomes less. The woman, of late, has become excessively nervous. Her digestion is poor, and assimilation imperfect. She has headache, palpitation of heart, and frequently nervous spells in which it is with difficulty that she can control her will, and she becomes hysterical. These symptoms are all gradually increasing until she has become a despondent, suffering invalid.

Examination.—With the patient anesthetized, I proceed to make a bimanual examination with the finger of the left hand in the vagina and the right hand on the abdomen, I am able to palpate an irregular mass or tumor in the pelvis. With the cervix of the uterus fixed, I am able to trace what seems to be the uterus, about normal size, projecting backward into the Douglas cul-de-sac. From the sides of the uterus on both sides are large masses the size of a large orange on the right side, and of a smaller one on the left. Their large diameters, respectively, are three and a half and three inches. They are rather hard, but have the characteristic feel of tubal ovarian abscesses surrounded with adherent intestines. There are slight lines of demarkation between the masses and the uterus.

Operation.—From well-marked physical findings and symptoms, I am justified in performing a laparotomy. This I shall do with the idea of removing the diseased and destroyed appendages, and then fixing the uterus to the abdominal wall. As I incise the peritoneum the air rushes in and by that we can recognize the fact that we are in the abdomen. The intestines are full of gas, the patient not having been here long enough to be properly prepared. I immediately pack back the intestines with large gauze sponges, for three reasons: First, to keep them from being pinched or wounded during our manipulations; second, to protect them from any fluid which may escape during enucleation, in order that they may not become infected, and third, to protect them from being chilled because of exposure to the air of the room. With the bladder above, below and to the right we have a mass which seems almost inseparable from the intestines, and on the opposite side what seems to be a continuance of the mass.

The first thing to do is to locate the uterus, which is bound down in the posterior cul-de-sac and pracally covered up. I go back of where the uterus should be and with the fingers gradually advance, posteriorly, until I reach the cul-de-sac of Douglas, using an unusual amount of pressure, of necessity, with these strongly adherent tissues. I now have the uterus well in hand, and passing off to the right and left, will endeavor to enucleate the appendages. Going to the right and keeping well within the line of demarkation I gradually bring this large mass into view, but as I do so, because of its friability, it breaks and the fluid passes into the abdominal cavity and is absorbed by our protecting packs. In order that it will not gravitate beyond our packs into the abdomen we will lower the foot of the table a little. This enucleating is very difficult, and I can only liken it to the scooping out from the uterus of an adherent placenta.

We have finally brought up an infected mass, ovary, tube and broad ligament, from the right side, and from appearances it would not seem possible to successfully separate these tissues. I ligate the right broad ligament outside of this tumor deep enough to include the ovarian artery, in order to prevent excessive bleeding on this side. I now ligate off the tumor, which consists of a large cystic ovary filled with purulent matter, and a large adherent Fallopian tube. The ligature of catgut is made to include a pedicle near the right horn of the uterus. Now we start from the uterus again and pass off to the left side to begin enucleation of the appendages. It is almost impossible to get a starting point, and we must be careful not to penetrate an intestine. I have finally found a point from which I can begin my enucleation and am gradually getting the mass in hand and separating the adhesions. Here, posteriorly, is a large infected ovary and tube, very much like the opposite side, which accounts for the woman bearing no children since 1896. It is very seldom we see a double pyosalpinx so typically demonstrated. We tie off the mass the same as on the other side, including the round ligament here, in order to get a more stable pedicle.

I have the tube and ovary well up and will sever them close to the horn of the uterus, leaving nothing but the uterus. I disinfect the horn of the uterus thoroughly with strong bichlorid, and, before fixing the uterus to the abdominal wall, I will break up any further adhesions, getting a separation down into the cul-de-sac. I take a strip of tissue from the side of the wound, about three-fourths of an inch wide, and which contains the urachus, as a suspensory ligament for the uterus. With the uterus well up under the arch of the pubes I pass a Cleveland needle through its fundus, from behind forward, and draw the strip of tissue through this opening. Then, with a piece of catgut I secure the uterus to the peritoneal layer immediately above it, passing the catgut below the opening made by the Cleveland needle, which will act as a temporary stay until the uterus becomes fixed in the abdominal wall.

I have an enormous raw surface from which I enucleated these tissues, but adhesions of long standing bleed comparatively little, and there is less blood than you would expect. The peritoneum takes care of a large amount of blood and fluid of any kind if we can succeed in keeping it clean and antiseptic. I will put a glass tube into the cul-de-sac for the purpose of removing superabundant fluid and reducing the probability of infection to a minimum. You will be told by others, or read it in your books, that there is danger of the infection being carried from the exterior to the interior by means of the tube. This is impossible when the tube is properly cared for. We, who use the glass drainage tube, argue that it can do absolutely no harm when properly cared for. I have used it in hundreds of cases and no bad results followed,

nd I know it may do an enormous amount of good. f you put in a tube, as a rule, the pulse will remain elow 100, the skin will be moist, and you will have lmost an ideal condition, simply because there is othing left in the peritoneal cavity which can nur- ire bacteria, and without bacteria we can have no eptic intoxication. The tube is dressed in one hour fter the patient leaves the table. If there is less nan two drams of fluid we increase the interval one our, and continue to increase the interval one hour ach time the wound is dressed if we get less than wo drams, until we have increased the time to six ours, when, if we get very little fluid we will remove he tube. If, after the first two or three dressings, 're get very little fluid the tube may be removed much arlier. In this case, we will probably be able to re- iove the tube by tomorrow morning.

I believe the results are better, in a case like this, o leave the uterus, when it is firmly fixed to the bdominal wall, than to remove it. I believe the bad esults which frequently occur where the uterus is llowed to remain after the removal of diseased pus ibes are caused by the uterus being left in a retro- erted position. If I should leave this uterus without xing it forward, we would soon find it in retrover- on, in which position it could easily become adhe- nt, and we would have all the symptoms we usually et with a retroverted uterus. Ventral fixation of the terus overcomes the objections, and we do not leave vacuum, as when the uterus is removed, for the itestines to drop into.

In order that it shall not be necessary to open the hole wound in dressing the tube, place over the end f it a protecting dam, and this only will have to be pened when we dress the tube. The nurse who resses it will take all the precautions to keep asep- c that she would in assisting at an operation.

Case 3.—Age 47; occupation, general housework. Family story: Mother died at age of 47; father died of tubercu- sis; one brother and one sister living. Personal history: enstruated when 14; always regular; never pregnant. Eight ars ago she began to have trouble with her bladder, having in when passing urine, which was worse at times; no other lvic symptoms.

After a careful examination of this patient's pelvic gans, I find no displacement of the uterus or path- ogic conditions of the pelvis, such as tumors or in- ammatory swellings, which could give rise to bladder mptoms such as this woman complains of. By using clean catheter and cleansing the external urethra e urine obtained from the bladder does not show is. By palpation I can not discover any signs of inary calculus. One can readily see that this is a thologic condition existing at the meatus urinarius. he symptoms complained of by the patient, pain ore or less constant and excessive smarting, discom- rt after urinating, with a frequent desire to urinate, e referred to the external end of the urethra.

As a precaution I will make a cystoscopic examin- ion with the Kelly instruments. The assistants ll place the patient in exaggerated knee-chest posi- on and hold her there. The external genitals have en thoroughly disinfected, and the external end of e urethra is likewise carefully cleaned. I measure e caliber of the urethra with the cone shaped cali- ater and select a speculum which will pass into the ethra easily without undue stretching. This one is out one centimeter in diameter. I introduce the eculum, remove the obturator, and, by means of a nd mirror, reflect light into the bladder. As I with- draw this obturator from the speculum the bladder balloons and I can easily observe the blood vessels in the interior of the bladder, and its mucous membrane as far as I can see is normal. We have a beautiful picture of the normal net-work of blood vessels. The granulation appearing tissue, seen at the external meatus, extends about an inch into the canal. The family physician thought she had chronic cystitis. It looks much like carcinoma, but carcinoma of the urethra is very rare. I will remove a small portion and have it examined by the pathologist.

It is a very easy matter to dilate the urethra of the female when it is necessary with the index finger so one can make a thorough digital examination of the interior of the bladder. It can even be done by sev- eral sittings without an anesthetic. Here I am care- ful to dilate only the external portion and not carry the finger into the bladder so as to run the risk of infecting that. We will keep the urethra dilated for a few days, wash out the bladder with boracic acid solution, and wait for our report from the pathologist.

Professor Skene of Brooklyn, a distinct authority on diseases of the female bladder and urethra, says of neoplasms of the urethra: "These growths have been variously known as carunculæ, cellulo-vascular tumors, fleshy and vascular growths, fungoid excres- cences, strawberry and rasberry tumors, each name sometimes having been used to cover the whole class." He makes a classification after Winckel's, which is as follows: Papillary condyloma, glandular cysts, myxadenoma, mucous polypi, vascular-angioma, vari- ces, phlebectases, connective tissue fibroma, sarcoma, epithelial-epithelioma, carcinoma, compound papil- lary polypoid angioma, erectile tumors.

Case 4.—Age 61; German. Family history: Parents dead; one brother living; eight brothers and one sister dead; broth- ers died in early childhood. Personal history: Has borne eleven children; seven living; labors natural. Health good until two months ago she noticed left breast enlarged and painful. Has been able to attend to her work since then. Nothing hereditary in the family so far as known.

There is a tumor of the left breast, the diameter of which I estimate to be three by four inches. From the fact that Billroth, out of 440 tumors of the breast, found only 18 per cent. non-malignant, we are justi- fied in looking upon a breast tumor as a grave matter. Now, when we take into consideration that sarcoma of the mammary gland is rare compared to carcinoma, and that it is more frequently met with in young women, we are inclined to look upon this as a carcinoma, if it is malignant at all, rather than sarcoma.

This tumor is irregular and movable, has begun to involve the skin, but has not involved the chest mus- cles or chest wall. On one portion of the surface we can trace a line of infected lymphatic glands, and there is marked contraction of the nipple. These are both characteristic signs of carcinoma, as distin- guished from sarcoma. There is severe and almost continuous pain, while in sarcoma there is rarely severe pain. Upon examining the glands of the axilla I find them enlarged. One especially is large. The lymphatic glands are rarely infected in sarcoma. We can readily eliminate an inflammatory swelling as the cause of this tumor. Its nodular conditions and den- sity eliminates a fatty tumor. Our diagnosis then is carcinoma of the breast with involvement of the axil- lary glands.

I consider no rule which can be more safely fol- lowed in well defined tumors of the breast than to always remove them. I proceed with the operation

by making an incision from the axillary space along the border of the pectoralis major muscle toward the sternum in such a manner as to make one side of it, near the center of the breast, include an elliptical piece of skin surrounding the nipple. The skin over the center of the breast, as far as involved, I seek to include in the tissue to remove. I now remove the mammary gland, entire, including the tumor, keeping as far away from the indurated tissue as possible until I have removed the whole mass, and then follow carefully my dissection into the axillary space, and, with extreme care, I remove all loose connective tissue, fat, and several well-marked, enlarged, lymphatic glands.

I now feel that I have done all that is possible to do with any certainty of benefiting the patient. All bleeding points were caught in artery forceps by my assistants as rapidly as exposed. I now twist or tie these points according to their importance, using catgut for tying. I now close the wound with interrupted silk-worm gut sutures. I place a short rubber drainage tube in the axilla so as to drain the lower angle of the extensive wound. After tying the sutures, a liberal dressing of absorbent gauze is placed over it and the tissues still further supported with adhesive straps.

The pathologist reports that the growth is carcinoma.

AN EPIDEMIC, SEPTICEMIC DISEASE AMONG FROGS DUE TO THE BACILLUS HYDROPHILUS FUSCUS.

FROM THE PATHOLOGIC LABORATORY OF RUSH MEDICAL COLLEGE.
CHICAGO.

Presented before the Chicago Pathological Society, April 11, 1898.

BY FRANK HORACE RUSSELL, A.B.

During the last half century or more science has made an extensive use of frogs in her laboratories: they have been used to demonstrate the laws and facts of biology; to ascertain the presence and effect of a variety of poisons; to show the circulation of the blood and the nature of the processes of inflammation; to contrast the action of different currents of electricity upon the muscles; to demonstrate the action of curara in destroying the properties of motor nerves. Notwithstanding the close observation to which this laboratory animal has been subjected during recent years, observers have rarely found in it evidence of disease.

In 1891 Sanarelli described and named the organism under consideration. He discovered it while performing some inoculation experiments upon frogs. They accidentally became infected and death soon resulted and this so seriously interfered with his work that he was lead to investigate the cause, isolated the bacillus and described the growth of the cultures on plates, glycerin-agar, agar-agar, gelatin, serum, blood serum, and potato. The cold-blooded animals for which the micro-organism was pathogenic were frogs, toads, salamanders, lizards, sunfish and fresh-water eels. Among the warm-blooded animals which died of the infection were guinea-pigs, rabbits, new-born dogs, new-born cats, mice, field mice, chickens and pigeons. The source of the bacillus Sanarelli claims to be in water. Out of twenty-six water-supplies which he examined he found it present in two.

In 1893 the attention of Trambusti was called to this organism because of an extraordinary mortality among the frogs in the laboratory in which he was experimenting. He identified it with that described by Sanarelli. His investigations in this direction had mainly to do with the physiologic action of the toxic products of the micro-organism upon frogs. He divided his experiments into three lines: 1. The action of the pure culture. 2. The action of those substances soluble in alcohol. 3. The action of those substances insoluble in alcohol. Besides this he investigated the chemic reaction of the muscles, brain and spinal cord of the frog after the injection of the toxic products of the organism.

During the same year the organism was discovered and identified by Rogers. His attention was directed to it because of the death of frogs in the laboratory after the introduction of a fresh lot.

During October 1897 an epidemic broke out among the frogs kept for experimental purposes at the laboratory of Rush Medical College, and was so remarkable as to demand special attention. The frog tank is a zinc-lined box through which a continuous stream of hydrant water flows. In the bottom were placed some porous rocks of various sizes upon which the frogs could perch and the outlet of the tank so placed that about three inches of water continually remained in the tank. At the beginning of the school year a new supply of sixty frogs was put into the tank along with eighteen which had been kept over from the preceding year. In a short time they began to die and during six days about seventy perished, while not many days passed before the remaining ones died. The tank was then thoroughly sterilized, the sharp-cornered rocks replaced by boxes of sand, and a new lot of frogs put in. A few of these died, but by removing the affected ones as soon as any symptoms developed the remaining ones have been fairly well protected.

The symptoms following infection commenced with a disinclination to move. When touched on the end of the nose there was not the customary response. Along with this lassitude there was swelling of the abdomen, which varied some what as to degree. There was also more or less change in color. The dark greenish hue faded to a greenish-yellow tinge; especially was this marked around the black spots on the back. The change in posture was noticeable. The animal changed from a semi-erect position to a horizontal. The head was not held up but carried on the same level as the body. Rather late in the infection the legs were thrown out from the body. The fore legs had their palmar surfaces directed outward. The hind legs took a position about at right angles to the body. When urged the frog did not jump but tried to get along by a creeping movement. During this stage swimming was difficult. Shortly before death muscular contractions were observed, during which the hind legs were thrown as far forward as the head. These spasms were of short duration but recurred. Toward the end of the disease there was coma and during this stage all outward signs of life disappeared. The body showed no regidity and remained in any position in which it was placed. When the thorax was cut open the heart was found still beating.

At least sixty frogs were examined postmortem. All of these presented practically the same lesion whether infected spontaneously or inoculated with cultures.

In making the examination the following precau-

ons were taken: To prevent contamination all instruents were sterilized with heat. As each cavity was pened inoculations were made on various media and the same time cover-slip preparations were made. ach organ was examined in the same way. Cultures ere made upon the different kinds of media but in ldition to this, provision was made to grow the organm in the absence of oxygen. The tissues from all .e organs and from the muscles were preserved for ctioning. The hardening fluids used were alcohol, rrosive sublimate, formalin and Mueller's fluid.

The following is a résumé of the most important ndings in the examination of the dead bodies: The ngue in most cases had hemorrhagic spots upon its per surface. The muscles, especially those of the igh, contained more or less infiltration of blood. The pearances varied considerably; sometimes there ere only a few spots which were large in size, one was served which was nearly the size of a pea, sometimes e points of hemorrhage were very small and thickly t. In this form all the muscles of the legs and abmen were involved and distinctly red in color. The domen was distended. An incision revealed a ser- is blood-stained fluid, found subcutaneously and in

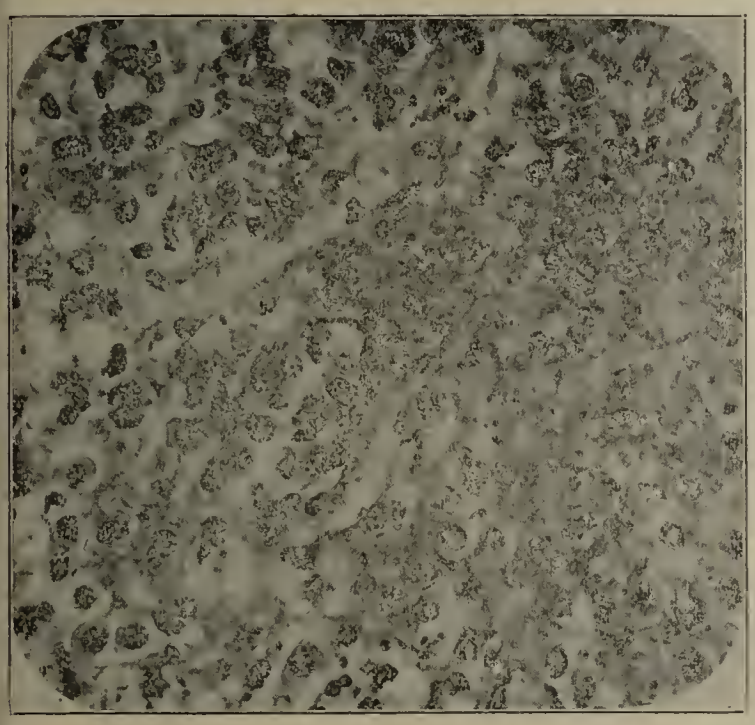


Fig. 1.—Necrosis in spleen of a frog. Stained with hematoxylin and eosin (x 200).

l the cavities of the body. In quantity this was relavely large, especially in the abdominal cavity. The ngs were sometimes distended with air but more ten collapsed. The heart muscle was pale and bby. The stomach and intestines were markedly stended. The blood vessels on their surface were uch congested. Upon opening these viscera a large nount of jelly-like material was seen. The spleen is soft and contained considerable blood, the liver rk brown in color and of a mottled appearance. It is soft in consistence. The gall bladder contained nsiderable greenish-yellow fluid. The kidneys were gative. In the bacteriologic examination, cultures ere obtained from all the organs and cavities of the dy Cover-class preparations showed a large numr of bacteria. The organism was a bacillus (Fig. 3), shape short and thick with rounded ends. It peared at times almost egg-shape. Its size in the ltures varied greatly according to age. When examed from the fluids of the body the characteristic pearance was in twos joined together end to end. Occasionally bacilli appeared isolated and at times short chains were seen, and sometimes a number are clumped together.

CULTURES ON DIFFERENT MEDIA.

1. *Agar-agar plates, twenty-four hours old.*—In shape the colonies are round, edges well defined, and regular with a few indentations about the periphery. Usually a dark spot appears in the center. The culture as a whole presents a granular appearance. In color it has a slight bluish tinge when viewed with the unaided eye. Under the low power of the microscope it is yellowish. On the second or third day a ring appears about midway between the central dark spot and the periphery, which encloses a darker colored area.

2. *Plates on gelatin, twenty-four hours old.*—The colonies are yellowish in color and uniformly granular, the edges well defined but a little ragged. After the second day they can not be studied to any advantage because the gelatin is liquefied.

3. *Cultures on agar-agar slants.*—The organism grows rapidly on this medium appearing first in three or four hours as a whitish gray line along the streak of the needle. The edges often show round colonies which possess a pearl-like glistening. In its growth it becomes raised above the surface of the medium and spreads slowly from side to side. In two or three days it turns to a dirty gray, gradually changing to a dark amber color which becomes more pronounced with age. This amber color is not only present in the cultures but also becomes diffused through the medium. There is a radiating appearance to the culture with a narrow zone about the edge which is light in color.

4. *Blood serum.*— Examined after twenty-four hours it shows an ash gray color. The growth is quite spreading with undulating edges. In the bottom of the tube is a quantity of fluid due to the liquefaction of the media. This is cloudy, resembling the growth in bouillon. The growth on the slant stops at the edge of the fluid. After forty-eight hours the liquefaction is increased. The growth looks milky and is partly undermined at the edges.

5. *Glucose agar* to which has been added from two to three drops of glycerin and inoculated on the slant shows a spreading diffuse growth. After about twelve hours a slight blue fluorescence appears, which again disappears in about two days.

6. *Glucose agar, stab culture, twenty-four hours old.*—On the top there is a growth about the point of puncture. Along the track of the needle and branching from each side are many gas bubbles.

7. *Bouillon, twenty-four hours old.*—The fluid is diffusely clouded. When shaken slightly it is seen to contain a grayish-white sediment which looks like rolling clouds. In the bottom there is quite a collection of the same material. A characteristic odor is present which is a combination of two odors, a slightly fetid and an aromatic odor.

8. *Glycerin agar, twenty-four hours old.*—Here a white line appears along the track of the needle. The growth does not tend to spread much. There is a slight bluish flourescence at the edges. The growth is slow and does not turn dark, as is the case on the agar-agar. The color of the media remains unchanged.

9. *Litmus milk, twenty-four hours old.*—Nearly the whole of the contents of the tube is coagulated.

The color is light purple. After forty-eight hours the coagulum has become much firmer and reduced in size until fluid and coagulum are about equal in quantity. The color of the fluid now becomes cherry-red.

10. *Gelatin stab, twenty-four hours old.*—A grayish-white growth appears along the whole path of the needle. At the top there is a depression of liquefaction about the size of a pepper seed. Gas bubbles often appear along the needle track. At forty-eight hours there is liquefaction at the top, the size of a pea, with more or less liquefaction along the whole needle track. In about four days liquefaction is complete.

11. *Potato, twenty-four hours old.*—The growth when turned toward the light is glistening. At first it is straw-colored; if any portion of the potato is somewhat dry, the growth here is orange yellow. It does not show much tendency to spread. The outer edge is irregular. Many raised points can be seen resembling blebs. Examined forty-eight hours after inoculation it has a dirty appearance. The blebs become more prominent. On the fourth day the growth begins to take on a chocolate color which resembles the growth of the bacillus of glanders.[1] The brown color becomes more marked with age.

Cultures do not die readily. They will live at least five months upon media without being transplanted.

LETHAL TEMPERATURE.

The bacteria are killed by a temperature of 50 degrees C. in from five to eight minutes. The method employed to determine the point of thermal death was as follows: A bouillon culture was put into small sealed glass tubes. These were put into water maintained at a temperature of 50 degrees C. At different intervals these were removed, broken open and inoculations made into media. Five minutes at this temperature greatly retarded the growth and eight minutes was sufficient to kill them. Cold will not kill them. After being exposed for seventeen hours at a temperature of —20 degrees C. they still grew when put into the incubator, though their growth was greatly impeded.

MOTILITY.

The organism examined by means of the hanging drop exhibits active motility. It has the power of both backward and forward motion. If its movements are watched, frequently it will be observed to start in a certain direction, stop suddenly, and without turning to go in exactly the opposite direction.

REACTION TO STAINS.

It does not stain by Gram's method, but takes the other common stains readily. Methylene blue makes a very distinct and convenient stain. For blood preparations a simple and easy process of staining is by the use of eosin and methylene blue. The red blood cell is stained light green, the nuclei of the red and the white blood corpuscles together with the bacteria are stained blue.

Another method used for studying the action of the bacteria in the blood is the following. A staining solution is made by adding methylene blue to a physiologic salt solution to the point of losing its translucency. A wall of vaselin is made on the slide inclosing an area somewhat smaller than the coverglass and into this a little fresh blood is put with two or three drops of the staining solution. The coverglass is put on and the preparation examined under the immersion lens. The blue readily stains the bacteria, the leucocytes and the nuclei of the red blood corpuscles. The bacteria can be seen moving in the midst of the corpuscles. Some are isolated and move rapidly; others show chain formation and are sluggish. Occasionally a leucocyte is broken down and is seen to contain bacteria.

FLAGELLA.

Flagella (Fig. 4) were demonstrated by the use of a modification of Loeffler's method of staining. Cultures on agar four or five hours old gave the best results. The older bacilli do not show any flagella. A platinum wire was flattened out for the purpose of touching the culture without getting any of the media. This wire was then introduced into a small quantity of distilled water when a string of bacteria could be observed leaving the needle. A very fine capillary tube was then filled with this water containing bacteria and very fine drops placed on a slide previously cleansed with alcohol and acid and then heated to a redness. When dry the slide was fixed in the flame in the ordinary way. The mordant was applied and the slide held high above the flame (no alkaline or acid solutions were used). After steaming the slide was washed with distilled water and then alcohol. Carbol-fuchsin was then added and heated to the point of steaming. The slide was then washed, dried and mounted. By this method it was ascertained that the organism has but one flagellum. This is attached to one end. It appears wavy and is from four to six times the length of a bacillus.



Fig. 2.—Intermuscular hemorrhage in the thigh of a frog (x 200).

INOCULATION EXPERIMENTS.

1. Frogs were inoculated in the thigh, in the peritoneum and in the lymph sac on the back. They gave no symptoms additional to those already given in describing the epidemic disease, except occasionally after inoculation a frog would have a paroxysm of coughing during which a frothy fluid would come from his mouth. After these inoculations with virulent cultures death ensued in from eight to sixteen hours.

[1] This is easily differentiated from glanders by the use of a saturated solution of mercuric chlorid. A few drops added to the culture turns the bacillus of glanders to a bluish-green color which persists several days. A few drops of the solution added to the bacillus hydrophilus fuscus turns it to a milky-white color. In the latter the original color returns after a short time.

2. The rabbit was inoculated into the ear vein; this produced death in a little over two days. The inoculated ear was enormously swollen and drooped to the floor. Upon examination no exudate was found subcutaneously; a slight amount of blood-stained fluid was in the abdominal cavity, also in the pleural cavity. The heart contained much darkly colored blood; the liver, spleen and kidneys were congested; the stomach and intestines were distended with gas; the bladder was full of urine; the lungs were normal. Muscular hemorrhages were not noticeable. One of the rabbits that was used had been made immune to pus microbes. It was inoculated in the abdominal cavity, also in the vein of the ear. Each time it became sick but resisted the infection.

3. The guinea pig was inoculated in the abdominal cavity. In about an hour it had a severe chill; in another hour it became restless, breathed rapidly and showed evidences of fever; in three or four hours after inoculation it became very weak and continued in a state of prostration until death, which occurred eight hours after inoculation. The internal lesions were practically the same as in the rabbit.

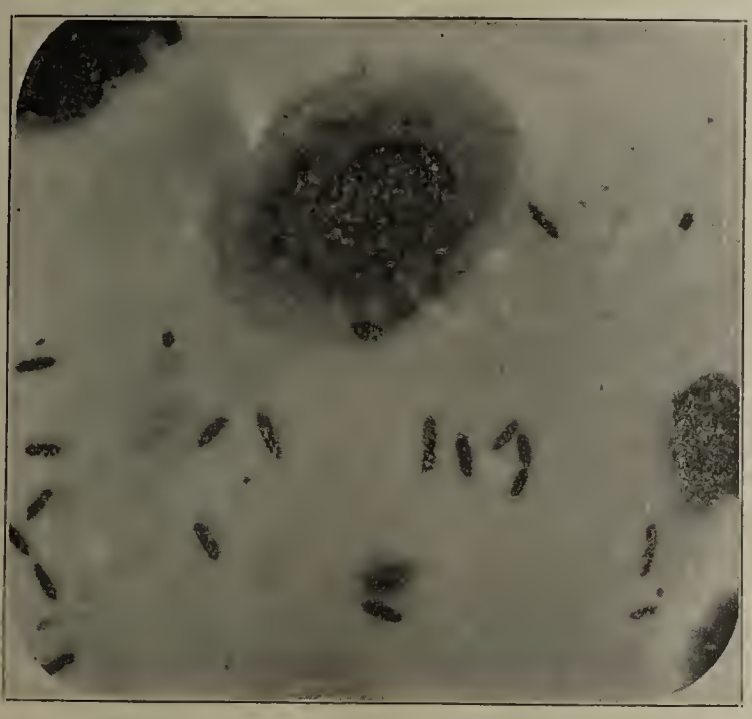


Fig. 3.—Bacilli in blood of frog. Stained with methylene blue (x 1200).

4. The house mouse was inoculated in the abdominal cavity with a culture from agar-agar shaken up with a little bouillon. Soon after inoculation the mouse became very restless, ran about the cage and scratched itself. Later it shivered and soon went into a prostrate condition and died two hours after inoculation.

5. The white rat died five hours after inoculation. The symptoms were shivering, bristling of the hairs, and later prostration.

6. Two different pigeons were tried. They were inoculated in the breast and the axillary veins. They became sick after each inoculation but resisted death.

EXAMINATION OF THE TISSUES MICROSCOPICALLY.

1. Frog.—The tissues were stained with hematoxylon and eosin and with methylene blue. The spleen shows evidences of marked congestion. Through the organs there are areas of retrograde changes and areas of congestion: *a*. The areas of retrograde changes differ much in size and shape and are always irregular. The groundwork consists of a granular eosin-staining material not uniform in thickness. Around the heavier staining material are spaces of less density. This groundwork is thickly studded with hematoxylon staining material, especially where the groundwork is less dense. This hematoxylon staining material, including nuclei and their fragments, exhibits a great variety of forms and staining properties. There are lightly staining nuclei more or less enlarged. The outline stains dark and the center light. Within the nucleus the chromatin is collected in granules which have a tendency to collect in bunches around the periphery. Although these nuclei in places are regular and round in outline, they are mostly irregular and abnormally shaped. They assume a large variety of shapes, pear shape, dumb-bell shape, crescent shape, K shape, spiral shape. Some are ragged in appearance where one side of the nucleus has disappeared. Another variety of nuclear substance is bodies which stain very deeply with hematoxylon, homogeneous in character, resembling a fused mass. In size they vary from those just visible to the size of a red blood corpuscle. They are globular in shape. Resembling these globular bodies are oblong bodies, but which do not show the difference in size. They have a tendency to mass and sometimes are arranged slightly star shape. Another variety is irregularly shaped dark granules. These do not stain evenly, are accumulations of granules of chromatin, very ragged in outline and joined together in many ways, not infrequently cauliflower in shape. In these areas of nuclear fragmentation a few isolated red corpuscles appear. Some fields contain more than others, but they are comparatively few. Many of the corpuscles are distorted in shape (Fig 1). Sections stained with methylene blue show that these fields contain many bacilli, frequently distributed in clumps. Stained with Weigert's fibrin stain, minute bands of fibrin run in all directions inclosing the nuclear granules in a delicate network. In the necrotic areas there are many hematoidin crystals, appearing as isolated single crystals and also collected in masses. *b*. The congested areas.—The congestion in these areas is intense. So compact are the blood corpuscles that no spleen structure can be seen except at the edges of the areas. Here the blood fills the lymph spaces and infiltrates the tissues.

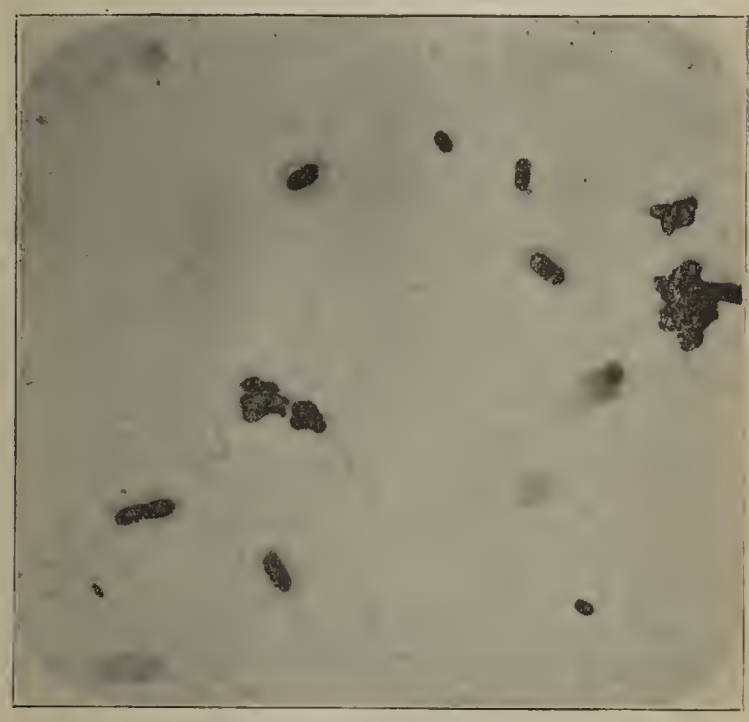


Fig. 4.—Flagella (x 1200).

The muscles present changes of interest. Those of

the thigh were examined. In looking at a cross section a number of areas are observed showing retrograde changes in the muscular fibers. These are always accompanied with hemorrhage. The changes in the fibers are of two varieties: *a*. Through compression.—In the densly congested areas the muscular fibers undergo pressure atrophy. Some have become so small that only a delicate band is left. These may show further retrograde changes or may not. *b*. Degeneration.—The changes seen are the separation of the fasciculi from one another, accompanied by a wavy appearance. The crossed striæ disappear. The fibers refuse the eosin stain and are dark yellow in color. Subsequently the nucleus disappears and there remains only a mass of granular débris. Fibers are then seen in all stages of degeneration. An individual fiber may be observed in which a part may be undergoing a retrograde change and the remainder be little affected (Fig. 2).

The lungs and kidneys show little or no change.

In the liver marked changes occur. The retrograde process is of a diffuse character in which the whole liver participates. In comparing this with the normal liver one of the first things to be noticed is the differ-

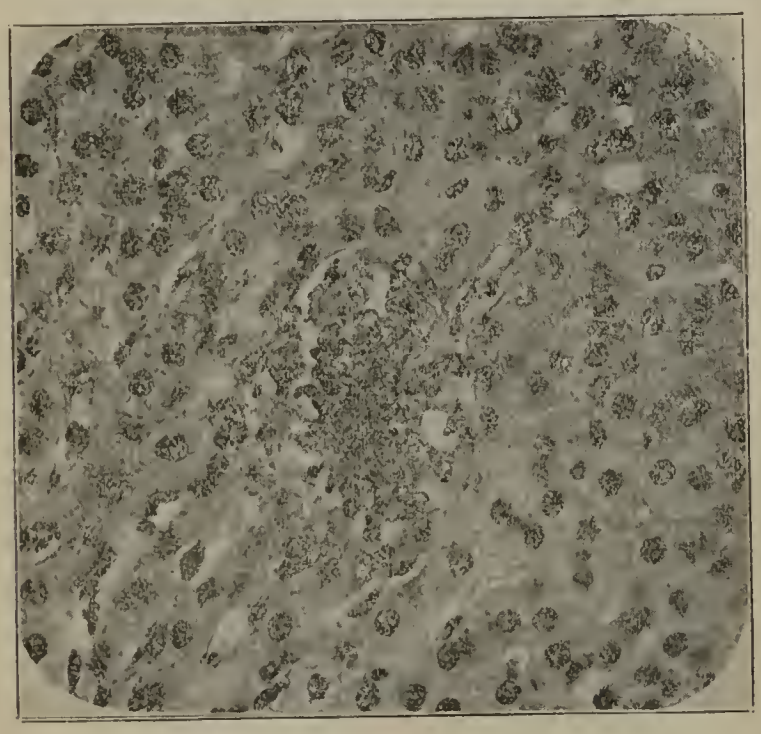


Fig. 5.—Focal necrosis in the liver of a guinea pig (x 200).

ence in staining property manifested by the cells. In the place of the protoplasm taking the eosin stain exclusively, as in the normal liver, it takes the mixed stain. The cell bodies do not stain evenly. The protoplasm has the apprarance of a bunching of granular material so that some parts of the cells are denser than others. This often affects the contour of the cell; the edges are often irregular and ragged; sometimes no distinct cell outline can be seen at all; sometimes the outline of the cell stains rather deeply while the center shows little remaining cell matter and the nucleus, if it has one, appears free. In the protoplasm of the cell are many darkly stained granules. In a single cell there are from one to eight or ten. These differ in size from those barely visible to those one-tenth the size of a normal nucleus. They do not occupy any special place in the cell. The nuclei of the cells show all stages of degeneration. They have suffered far less, however, than the cell bodies. Some of the nuclei appear bladder-like and contain little chromatin, others show a mass-like accumulation of chromate granules about the edges, often located almost exclusively on one side. The nucleus frequently loses its round contour and becomes elongated, assuming many shapes. In some of the cells the nuclear membrane has disappeared leaving an irregular mass of chromatin granules. The capillaries are dilated and contain considerable blood, together with cell detritus and fragmented nuclei. The walls of the capillaries are broken in many places and the blood corpuscles have escaped among the cells. Bacteria are found in abundance in the capillaries, appearing usually in bunches and often occupying many of the broken down cells.

Cross sections of the spinal cord and brain show that these organs do not escape the destructive action of these agents. Quite extensive necroses occur in both places. When sections are stained with mythylene blue bacteria appear in abundance in these tissues. The minute study of the lesions and effects of the toxins on the nervous system will be deferred to a subsequent time.

In frogs, where infection has lasted several days the lymph sac on the back shows great changes (it is here that inoculations were made). In the recent state the sac is quite well filled with jelly-like material. In character it is a rather soft, semi-transparent mass which can easily be squeezed between the thumb and finger.

Microscopic sections show that these growths are attached to the inner surface of the skin. They appear pedunculated. A cross section of one of these masses shows a dark center and a light periphery. Blood vessels are present. The vessel walls are thin and lined with flat endothelial cells. With high power the dark center is seen to be made up of a large aggregation of nuclei and nuclear fragments, mostly the latter. There are dark granules which are round, oblong and irregular, together with a great number of very fine granules. Mixed up in this mass of broken down nuclei are a few red blood corpuscles, many leucocytes and a few lightly staining nuclei distorted into many shapes.

The periphery shows a somewhat reticulated structure which to some extent enters into the formation of the dark center described. In this eosin staining groundwork are a few blood cells with a few nuclei and granules.

Fibrin is present in these structures, as is shown by Weigert's fibrin stain.

2. Guinea pig. The tissues of the guinea pig show evidences of an infection, although the time between the inoculation and death was only eight hours. The spleen and the liver contain most of the changes. The muscles, testicles, lungs and heart do not present any marked pathologic conditions. *a*. In the spleen a strong contrast exists between the Malpighian corpuscles and the spleen pulp on account of the large amount of blood in the latter. In looking over the specimen with the low power many dark spots appear scattered through the pulp. These areas are relatively small, contain a granular center and are full of bacteria. Surrounding this there is quite an extensive zone consisting of leucocytes more or less broken down, and nuclear fragments. The pulp is everywhere greatly congested with blood. The Malpighian corpuscles show no changes. *b*. The liver also shows many focal necroses. These do not choose any special part of the lobule by preference. They are mostly small in size, some so minute as to occupy only one liver cell. The central part is finely granular and stains darker than the liver cells. In the process of

disintegration the cell body seems to show the first change, which is a granular appearance. The outline becomes irregular and ragged. The chromatin of the nucleus, which soon shows changes, collects at the periphery in masses. Frequently it is nearly all on one side. The circle becomes broken and the nucleus as such disappears. The cells through the liver have a more or less granular appearance. The edges are not easily made out and their nuclei do not stain evenly. The capillaries are dilated and contain many cell fragments and granular material.

3. Rat. *a*. Liver.—In looking over the specimen one of the first things to attract attention is the large number of leucocytes which it contains. These are often gathered in masses. The liver cells contiguous to this round cell infiltration may or may not be affected. In not a few places the liver cells have undergone disintegration. Away from these areas the liver cells do not show any particular change except

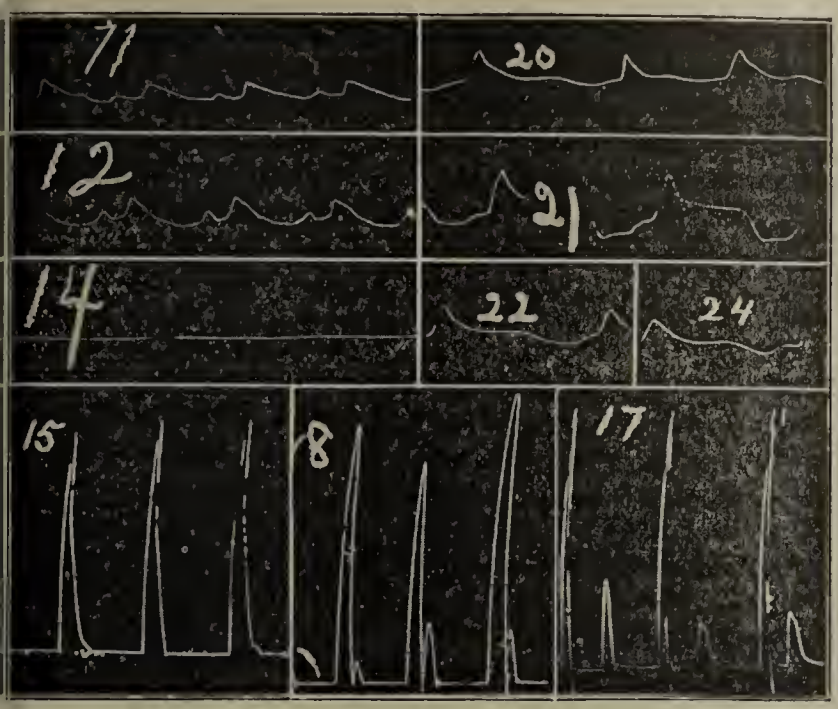


Fig. 6.—20, tracing with the cardiograph of the frog's normal heart beat. 21, five minutes after injection of toxins insoluble in alcohol. 22, fifteen minutes after injection of toxins insoluble in alcohol. 24, thirty minutes after injection of toxins insoluble in alcohol. 15, contraction of normal gastrocnemius muscles. 18, gastrocnemius muscle one half hour after injection of toxins insoluble in alcohol. 11, tracing of normal heart. 12, ten minutes after injection of toxins soluble in alcohol. 14, thirty minutes after injection of toxins soluble in alcohol. 17, gastrocnemius muscle thirty minutes after injection of toxins soluble in alcohol.

he granular appearance of its protoplasm. *b*. Spleen.—The most noticeable feature is the congestion. The Malpighian corpuscles appear very prominent. The lymph spaces are greatly crowded with blood. In a few of the Malpighian corpuscles some infiltration has taken place. In a few areas there is cell fragmentation about the edges of the Malpighian corpuscles. In them we see lymph cells which stain lighter than usual. They have lost their normal shape and many appear vacuolated. Nuclear fragments and bacteria are found in large numbers in these areas. *c*. Kidney.—No marked changes are to be seen except in the veins and convoluted tubules. In some of the large veins there can be seen breaks in the walls. Here the blood infiltrates the tissues, accompanied with a dissolution of the contiguous tubules. At the junction of the vein with the tissues there are fragmented nuclei. Some of the nuclei of the vein can be seen free, still retaining their natural shape. The lumina of some of the convoluted tubules are very irregular and ragged. *d*. The muscles, stomach and heart muscles show no change. *e*. The lungs show no changes except a moderate congestion.

4. Rabbit. *a*. The spleen shows much congestion. In the pulp a large amount of hematoidin crystals exist, isolated and in masses. The Malpighian corpuscles show little change and are not infiltrated to any extent. There are no focal necroses. *b*. Many of the liver cells appear rather narrow, surrounded by distended capillaries filled with blood. They are granular in appearance. In places much of the cell body has left the nucleus, leaving it almost and sometimes quite free. Some of the nuclei have assumed abnormal shapes. The capillaries contain protoplasmic and nuclear material mixed in with the blood. Liver cell nuclei, having more or less surrounding protoplasm, can be seen distinctly in the lumina of the capillaries. In many of the large veins and in many of the central veins of the lobules can be seen free bodies consisting of eosin staining material in which are mixed darkly staining granules. There are no areas of round cell infiltration. Throughout the specimen are scattered a large number of hematoidin crystals. *c*. In the kidney the convoluted tubules show granular changes and stain irregularly. The lumen contains granular material, epithelial cells and nuclear fragments. There are no focal necroses and very little congestion. *d*. The muscles and stomach show no changes. *e*. In the brain the most noticeable thing is the congestion of the blood vessels.

5. Mouse. *a*. The liver shows focal necroses which answer in description to those found in the liver of the guinea pig. The liver cells are granular. Many of the nuclei have lost their shape and show different forms. In the capillaries there are cell fragments consisting of cell protoplasm and nuclear granules. Small masses are present in the large vessel as was described in the liver of the rabbit. When stained with methylene blue bacteria appear in large number in the capillaries. *b*. The testicles, epididymis and heart muscle are negative. *c*. The kidney is very similar to that described in the rabbit.

A fact to be noted in the examination of the tissues is the relation of the virulency of the organism to the focal necroses. As a culture grows old it becomes less virulent. Virulency is best retained in blood taken from the heart and kept in sealed tubes. When a culture which is two months old or more is injected into the frog, sickness is produced which rarely results in death. Thus different grades of virulency can be observed. If after an inoculation with a culture attenuated by age a frog survives two days or more, no focal necrosis may be expected. The congestion in the organs remains about the same, except less marked. The exudation into the serous cavities is also less noticeable. This same relation between the degree of virulency and the amount of lesion holds true with the warm-blooded animals. The greater the virulency the greater the amount of necroses.

As to the mode of infection nothing definite can be stated. If bacteria are put into water and into this is introduced a frog having a cutaneous lesion, infection will take place. Several times frogs which supposedly had no cutaneous erosions were put into infected water and only one died. In this case it would be impossible to prove that no lesion of the skin existed. Bouillon cultures of the organism on several different occasions were introduced into the stomach by means of a glass tube, but with no apparent effect. It seems very probable, therefore, that the sharp-cornered rocks

in the frog tank had much to do with the original epidemic. The frogs gliding over these sharp projections could easily sustain injury of sufficient extent to admit of the entrance of the bacteria.

The source of the bacillus is yet an open question. During the epidemic, bacteria were found in great numbers in the water of the frog tank. It has been ascertained also that a frog inoculated with the bacillus will infect the water. It is evident, therefore, that there might be two ways to explain the source of the organism. The bacteria might be in the Chicago water or they might come with the frogs. The tap water has been examined several times with negative results. A frog, in which was kept an open wound, was put into running water and retained there for two weeks. No infection took place. It is most probable, therefore, that the bacteria came with the frogs.

Widal's test was performed on two different occasions. Frogs were used which were at the point of death. The serum was diluted thirty times and no agglutination took place. With five to ten dilutions there was agglutination, which after a few hours in a warm place disappeared. At another time forty dilutions were made with no clumping of the bacteria.

TOXINS.

In order to test the toxins a culture of bouillon was placed in the incubator at a temperature of 37 degrees C. and left to grow for three weeks. This was then filtered through a Chamberlain's filter. When 2 c.c. of this filtered fluid was injected into the lymph sac of the frog no effect whatever was produced.

Dead bacteria were also injected into a frog. This produced some indisposition which was shortly recovered from.

This filtered bouillon culture (following Trambusti's method) was subjected to farther processes in order to get the toxins in a more concentrated form. To about 115 c.c. of this fluid 290 c.c. of absolute alcohol were added. With occasional shaking the alcohol was left in contact about two days. Then this mixture was filtered through two thicknesses of filter-paper. The filter-paper was then dried and washed with 22 c.c. of distilled water. This constitutes the toxins which are insoluble in alcohol. The fluid which passed through the filter was evaporated in a water bath. Then 30 c.c. of absolute alcohol were added to the residue so as to precipitate all the toxins which were not soluble in absolute alcohol. This was filtered and the filtrate evaporated a second time. This last residue was then dissolved in 15 c.c. of distilled water. Thus two classes of toxins were obtained, those which are insoluble in alcohol and those which are soluble. When these toxins are injected into frogs marked effects are produced.

1. *Toxins which are insoluble in alcohol.*—A frog was prepared in the usual manner and a tracing of its normal heart taken by the cardiograph (Fig. 6). Then 1 c.c. of the solution of the toxin was injected into the lymph sac of the thigh and also into the peritoneal cavity. Five minutes after injection a tracing was taken (Fig. 6). The horizontal distance through which the lever moved was twice that of the normal. Diastole was prolonged. The tracings also show a retarded action. The following table shows the number of beats per minute taken at different times subsequent to the injection:

Time.	No. beats.
11:17	35
11:25	31
11:46	28
1:01	22
1:07	17
1:12 heart stopped in diastole 4 or 5 minutes.	
1:27	5

About two hours after injection the action of the heart became peculiar. It would stop in diastole for four or five minutes. Then it would begin to beat again. The rate was slow, being only five to eight times per minute. After six to thirteen beats it would again stop in the same way. Although the rate was very slow, every beat was forceful. The ventricle contracted so firmly as to become white.

Tracings made by means of the myograph on the gastrocnemius muscle showed changes which can best be seen by comparing Figs. 15 and 18. A short curve appears immediately after the long curve; then a straight line follows until the next long curve.

2. *Toxins soluble in alcohol.*—The frog was prepared and treated in the same way as already described (Fig. 11). Ten minutes after injection there was no variation in the curve except it was stronger (Fig. 12). The rapidity of the heart was the same. Thirty minutes after injection the action of the heart was so feeble that practically a straight line was obtained by the cardiograph (Fig. 14). Thirty minutes after injection the gastrocnemius muscle showed a decided variation from normal (Fig. 17). The down stroke of the major curve is continued below the basement line, then arises a little above it and falls again to the basement line. Half way between the major curves is a short curve. Thus we have two toxins produced by this organism, each having a powerful effect upon both the voluntary and involuntary muscle. (A more extended study of the toxins in connection with the nervous system is reserved for a later date.)

It is quite evident that the cause of our epidemic in the frog pond is identical with that described by Sanarelli, Trambusti and Rogers. Our experiments have very similar conclusions to theirs, but a few things have been added. In looking over the literature there is no record of necroses observed in the organs, the flagella had not been studied, the thermal death-point had not been ascertained, and no observations had been noted in relation to the degrees of virulence. Two differences are to be noted between Sanarelli's organism and ours: we fail to get gas bubbles in the substance of the media after inoculating a slant of glycerin-agar, unless the needle penetrated it. Another difference is in the inoculation experiments with the pigeon. Here infection by an intravenous injection produced sickness from which the pigeon recovered on the second day; in his case it died.

To sum up, we have been studying a water organism, a short thick bacillus with rounded ends, which possesses active motility and has but one flagellum, is chromogenic, gas-producing and aerobic, but grows also to some degree without oxygen. It grows well upon all culture-media. Gelatin is liquefied, bouillon diffusely clouded, upon agar-agar there is produced in a few days an amber color which also colors the media, potato produces a chocolate-colored growth, litmus-milk is made acid, glycerin agar produces an ash-white growth but does not change in color and glucose-agar shows gas formation. It grows best at body temperature and does not stain by Gram's method. The cold-blooded animals for which it is

pathogenic are frogs, toads, salamanders, lizards, sunfish, and fresh-water eels. The warm blooded animals which succumb to infection are guinea pigs, rabbits, new-born dogs, new-born cats, common mice, field mice, bats, chickens and pigeons (Sanarelli). The virulence of the organism varies greatly. Cultures gradually lose their virulence with age, but blood taken from the animal and sealed in tubes will retain it for months. Infection produces a septicemia. Warm-blooded animals are seized with shivering and restlessness, followed by prostration and death. Cultures can be obtained from the blood and from all the fluids and organs of the body. Exudations of blood-stained fluid occur in all the serous cavities, especially marked in the peritoneum. Histologic examinations reveal focal necroses in the spleen, liver, brain and spinal cord with congestion in the other organs. In the frog, intermuscular hemorrhages occur with destruction of muscular fibers. The organism produces powerful toxins which were divided into two classes, one resembles in its action digitalis and the other veratrin.

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CHRONIC NASAL CATARRH.

Read before the Sixty-sixth Semi-annual Meeting of the Fox River Valley Medical Association, Elgin, Ill., May 24, 1898.

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What is nasal catarrh? I believe the only comprehensive definition is: A pathologic change in the system or in the structure of the nares, accompanied by altered function of the mucous membrane. Nor do I place the constitutional before the local causes on account of their greater importance and frequency. On the contrary, the large majority of cases depend upon local causes and are amenable to local treatment. My definition includes a great variety of conditions, and for the very good reason that catarrh, so-called, necessarily includes a great variety of conditions or diseases requiring the most diverse measures, medicinal and operative, for their successful treatment.

It is a popular fallacy that catarrh runs into, or predisposes to, tubercular diseases. On the contrary, Hosworth ("Diseases of the Nose and Throat," Vol. I, page 99) ridicules the idea of a catarrhal diathesis, and claims that catarrhal inflammation always remains catarrhal, producing hypertrophy, never ulceration or necrosis. As to catarrh inducing tuberculosis, Dr. Ingals (JOUR. AMERICAN MEDICAL ASSOCIATION, June 12, 1897) from a careful analysis of 14,953 private case-records, finds that nasal catarrh is less frequent in a given number of tuberculous patients, than in the same number of healthy people.

Physiology.—Formerly the nose was considered the organ of smell, but physiologic research has demonstrated that the olfactory function, although exclusive, is no more important than its functions in respiration, in phonation and in audition. Indeed, the impairment or loss of the sense of smell is a far less serious matter than interference with the other functions.

The respiratory function includes filtering, warming and moistening the inspired air, all of which take place in the ciliated portion or middle and lower meatûs. Coarser particles inhaled are entangled in the vibrissæ and, unless the air inhaled is excessively dust-laden, the finer particles are arrested by the cilia and carried downward by the serum. The air is warmed in its passage through the nares by the large mucous surface exposed and especially by the superficial location of the sinuses of the turbinates which respond instantly when the inspired air is cold and dry. Goodale (*Boston Med. and Surg. Jour.*, Nov. 5 and 12, 1896) found that the relative humidity of the air after passing the nasal chambers is near the saturation point with reference to its own temperature. Aschenbrandt and Kayser demonstrated that the turbinates secrete 500 grams of serum in twenty-four hours. Wright and Park (*Laryngoscope*, June, 1897) found that nasal mucus is not bactericidal, but is not a good medium, while many germs are washed away by it. The importance of normal functional activity on the preparation of the air for the delicate structures it encounters below can scarcely be overestimated.

The ideal nares are symmetric cavities with no opposing surfaces in contact, as Pynchon tersely describes it (JOUR. OF AMER. MED. ASSO'N, Dec. 12, 1897). He emphasizes impaired ventilation and drainage as the common cause of catarrh. As a *rara avis in gurgite vasto* the ideal naris is comparable to an ideally beautiful face, which does not imply that most of us need nasal operations any more than we need plastic operations for cosmetic effect. The test for operative interference is largely the amount and character of obstruction met with, whether it consists in deviation or thickening of the septum; of enlarged and malformed turbinates; of thickened mucous membrane and swell-bodies or of abnormal growths.

Chronic catarrh, for convenience of description, is divided by Ingals ("Diseases of Chest, Throat and Nasal Cavities," 3d Ed., p. 25) into four varieties. 1, Simple chronic catarrh. 2. Intumescent rhinitis with frequent swelling of the membrane on the turbinates, and on the upper part of the septum on one or both sides, but more often alternating from one side to the other. Seiss (Burnett, I, p. 633) calls this the vasoparetic period or stage of dilatation of the venous sinuses. 3. Hypertrophic rhinitis or the state of fibrous metamorphosis of Seiss. 4. Atrophic rhinitis, usually a sequel of the hypertrophic form, but much less common.

SIMPLE CHRONIC RHINITIS

Is a catarrhal inflammation with little swelling, but great irritability of the membranes, with congestion and profuse, watery, or irritating mucopurulent secretion. It occurs among all classes and in every climate, but children are more susceptible than adults.

Etiology.—The causes of simple chronic rhinitis are not materially different from those of acute colds. The chronic form generally supervenes in subjects who, from exposure or debility, acquire frequent colds, and throughout its course the patient is liable to have frequent acute exacerbations.

Symptoms.—A history of almost constant nasal irritation, with frequent sneezing, itching and burning, and extending over many months regardless of the seasons, points toward chronic rhinitis. Headache and pain in the eyes are common symptoms. The early watery discharge later becomes thick and mucopurulent. The digestive functions are sometimes

impaired, but the general health is not often affected. Upon inspection the membrane is seen to be congested and bathed in excessive secretion. In about half the cases deviations or spurs of the septum encroach more or less upon the cavities. The membrane of the nasopharynx is generally congested and the excessive secretion forms thick gelatinous masses that are expelled by hawking. The nares may remain free, except for secretions, but the disease generally results, after months or years, in either atrophy or hypertrophy of the membrane and underlying structures.

Diagnosis.—Hay fever resembles this condition somewhat in the watery discharge and spots on the membrane very sensitive to the probe; but the former is readily distinguished by its sudden appearance and periodicity at certain seasons, by excessive swelling of the mucous membrane and the more severe constitutional disturbance as well as by the well-known results of change of climate.

Treatment.—In the treatment of simple chronic rhinitis the objects to be attained are the relief of excessive sensibility and the checking of excessive secretion. For the former, oily antiseptic sprays, such as liquid albolene, 1 ounce, with terebene, v to x, may be sprayed into the nares freely two or three times a day with Davidson's No. 50 atomizer. This also tends to check the secretion, but if greater astringent effect is desired a few grains of the following powder should be blown into the nares once or twice a day: Alumnol 1, soda bicarb. 1, soda bibor. 1, mag. carb. 2, cocain mur. 2.5, iodol 20, sacch. lact. ad 100. In every case applications should be so mild as to cause only temporary discomfort followed by a sense of relief. When spots of tenderness are found, with frequent sneezing, superficial cauterization will overcome the sensitiveness without destroying the membrane. Small areas only, not over 5 to 10 millimeters in diameter, should be cauterized at one time, and about a week should intervene between cauterizations, with the use of sedative applications in the intervals.

When the secretions are thick and difficult to dislodge, antiseptic, alkaline washes give great relief, and should precede the use of the oily spray, especially in the morning when the greatest collection of secretions is liable to occur. The ideal solution is agreeably aromatic, mildly alkaline and antiseptic and of a specific gravity near that of the nasal serum (1015). These conditions are met very closely by the solution of Rhodes' tablets of the following formula, when dissolved in four ounces of tepid water. (*Jour. of Laryngol., Rhinol. and Otol.*, January 1897).

R.	Potass. chlor.	2½ grs
	Soda bicarb.	10 grs
	Soda chlorid. C. P.	10 grs
	Soda salicylate	5 grs
	Soda bicarb.	5 grs
	Thymol	⅛ gr.
	Eucalyptol	¼ min.

The Bermingham douche is a convenient instrument for introducing the solution.

INTUMESCENT RHINITIS

Is the most common form of chronic catarrh, and is characterized by intermittent swelling of the mucous membranes with corresponding stopping up of the nares. Upon lying down the lower naris is generally occluded.

Etiology.—The causes of this condition are the same as those of simple chronic rhinitis.

Symptoms.—To the symptoms of simple chronic rhinitis are now added the obstruction to nasal breathing, and all the long train that logically follows. The secretions may remain thin, but are more often thickened and may form crusts difficult to dislodge, but becoming offensive if long retained. Drinking warm fluids in this condition often dislodges masses of secretion that nauseate the patient. Mouth-breathing becomes more pronounced as the amount of swelling increases and in proportion to the respiratory need. Thus with moderate swelling a patient may be unconscious of mouth-breathing unless extra exertion calls for more air than the nares can admit. But even when at rest a series of ordinary inspirations will be followed by a yawn or a deep inspiration. During sleep the mouth is often kept open and the patient rises with a dry throat and coated tongue. The membrane is often irritable, with spots sensitive to pressure with the probe. The slightest touch over these sensitive spots causes an intense burning sensation and is often followed by sneezing (S. F. Snow, *Med. News*, July 10, 1897). Frontal headache is a common symptom, especially when the middle turbinate is swollen. The sense of smell is abolished when the naris is occluded.

Suffusion of the eyes, with mild conjunctivitis, occasionally occurs with this condition of the nares. Inhaling through partially obstructed naris causes a partial vacuum in the passages behind the seat of obstruction. This is the principal physical factor in the chronic congestions of the membrane lining the nasopharynx, the pharynx, larynx and trachea, all of which frequently follow prolonged obstruction.

The proper ventilation of the middle ear is affected unfavorably by nasal obstruction and long-continued tinnitus is often followed by sclerotic changes that impair the hearing.

The voice is affected both by the congestion of the larynx and by the lack of resonance due to nasal obstruction. It is thus not only unpleasant as to quality, but speaking and singing become an effort that can not be long sustained.

I will not attempt to enumerate the remote symptoms except chronic cough due to some of the above conditions, and asthma which is associated with a certain proportion of cases of intumescent rhinitis. Wm. L. Ballenger (*Medicine*, November, 1897), and Titeff ("Thèse de Genève," 1896), note the aprosexia exhibited by severe cases, and attribute it to autointoxication due to accumulation of carbon dioxid in the blood. It seldom approaches in severity the same symptom in children with adenoids.

Upon inspection the nasal membrane is found swollen smoothly upon one or both sides so that the normal space is closed anywhere from a small fraction to totality. The swelling on the septum is generally far less than that on the turbinates. The membrane is usually congested. Firm pressure by the probe will flatten the membrane against the bone, but the groove thus formed quickly fills up when the pressure is removed. A solution or powder containing 4 per cent of cocain will also quickly reduce the swelling.

Diagnosis.—The swelling of the membrane distinguishes this from simple chronic rhinitis; occurrence regardless of seasons, from hay fever; intermittent smooth swelling, from hypertrophic rhinitis. Mucous polypi are differentiated by passing the probe to either side of them, by their being movable and by the effect of cocain.

Prognosis.—Spontaneous recovery occurs rarely

More often the disease lasts for years and eventuates in the hypertrophic form. Pharyngitis, laryngitis and throat-deafness, are common sequelæ, and are especially intractible unless the nasal cause is recognized and relieved. The aprosexia mentioned above is associated with a lessened resistance of the system to morbific influences.

Treatment. — Prophylaxis demands avoidance of exposure to the common causes of taking cold. Persons who are particularly susceptible should constantly wear woolen underclothing of suitable texture. Cold bathing or sponging with friction to cause reaction is a valuable measure. The digestive and eliminative systems should receive due attention to maintain a high standard of functional activity. Acute colds should have immediate attention. Cases of intumescent rhinitis that are mild in this variable lake climate with its sudden changes of temperature and excessive humidity improve rapidly upon removal to warm, dry regions. Mild oily sprays and alkaline washes should be used in mild cases much as in simple rhinitis. I prefer solutions of camphor, gr. ½ to 1, or menthol gr. ½ to 3, to the ounce of albolene. When the swelling becomes annoying only on taking cold and at long intervals, the patient may be provided with a powder containing 4 per cent. cocain only to be used very sparingly at the time of greatest discomfort, which is usually in the morning or evening. It must never be used except under the strictest limitations, and the patient should never have a prescription for it. If all patients were ignorant of the properties of cocain it would be easier to confine its use within proper bounds.

Well developed cases obtain only temporary relief from the applications mentioned. When the swelling causes more frequent and annoying obstruction, removal of the excessive tissues by surgical means including cauterization offers the only prospect of speedy relief.

Cauterization of the membrane in lines (Ingals) or in spots (Bosworth) by application of chromic acid was formerly the best available means. This application, however, is painful and causes a sore that heals slowly, while the scab is hard and irritating to the tissues adjacent.

Electricity in the form of the galvanocautery offers a method that is certain, easily controlled and in every way desirable. The method perfected by Dr. Ingals (p. 538) I have used in a large number of cases with great satisfaction. After anesthetizing the swollen lower turbinate thoroughly with a 4 per cent. solution of cocain, the cold electrode is inserted and applied against the posterior end. The contact button is pressed and the electrode drawn slowly forward through the most prominent swelling. Pressure should be exerted until the operator feels the electrode "grate" on the bone. The electrode must be removed from the tissues before breaking the circuit, to avoid tearing off the eschar, and it is then allowed to cool before it is withdrawn from the nostril. The naris is sprayed with albolene containing a few drops of oil of cloves to the ounce, and iodol is insufflated. The patient is directed to wear absorbant cotton in the nostril when out of doors. He is also provided with an oily antiseptic spray to be used freely, and a powder containing 4 per cent. cocain to be used sparingly, and only when the naris is closed by swelling. On the fourth day the scar tissue is gently removed. This usually prevents the formation of adhesions. The cauterization is repeated at intervals of two or three weeks until both nares remain freely open. Two cauterizations on each side are usually sufficient. There is no danger of destroying too much tissue if this rule is observed. In a few cases where too severe reaction follows cauterizing the whole length of the turbinate, it is better to cauterize only half a line at one sitting. The electrode is made of No. 21 platinum wire, which retains the heat sufficiently to burn through any thickness of tissue liable to be encountered in the nares. Many electrodes in the market are so light as to be mere "spiel-zeuge" as our German friends say. For some years I have used two chlorid accumulator cells of type D, three plates, to heat the electrode.

HYPERTROPHIC RHINITIS.

Hypertrophic rhinitis consists essentially in chronic thickening of the turbinates, and is often associated with malformation of these structures and with deviations and spurs of the septum. Thus the nares are obstructed and the passages irregular, causing the greatest interference with nasal functions.

Etiology.—The hypertrophic is commonly the sequel of intumescent rhinitis, and the causes are the same.

Symptoms.—The subjective symptoms are the same except that the obstruction is more constant, the postnasal secretion more annoying and the pressure and obstruction symptoms more marked. Upon inspection the membrane is found thickened, but less congested than in the intumescent form. It is also often uneven and the swelling is irregularly distributed. The lower turbinate is most often affected, but the middle turbinate is occasionally greatly hypertrophied and presses upon the septum. Mucous or mucopurulent secretions collect in the fossæ, and dry crusts form in the concavities of the septum. The posterior ends of the lower turbinates may fill the choanæ and project into the nasopharynx.

Diagnosis.—Pressure with the probe detects greater density than in the intumescent form, nor is the swelling reduced markedly by the application of cocain.

Prognosis.—This disease is liable to remain for many years, but a small number of cases undergo atrophic degeneration from causes at present not well understood.

Treatment.—The indications are to restore the normal contour of the nares, and the efficient means to that end are necessarily surgical. The use of acids is no more desirable or efficient in this than in the intumescent form. Of surgical instruments the scissors, saw, snare, trephine, spoke-shave and electrode each has its advocates, and each has its peculiar field of usefulness.

Soft hypertrophies hanging downward like a curtain from the turbinate can be readily snipped off with scissors. Bony hypertrophies yield to the saw or trephine. The spoke-shave of Carmalt Jones has given rise to a vast amount of discussion ("American Year Book," Gould, 1898, p. 871), but the cases that require such radical treatment are few. Dundas Grant (*Jour. of Laryngol.*, May, 1897) advocates anterior turbinectomy, making an incision with strong scissors, and completing the operation with a snare. Posterior hypertrophies can be removed by the cold snare. It would seem that eucain would be preferable to cocain, as a local anesthetic for this operation, as it does not cause so much contraction of the tissues (L. A. Somers, *Therap. Gazette*, Jan. 15, 1897). Preston M. Hickey (*The Phy. and Surg.*, Detroit and Ann Arbor, January, 1898), modified the Jarvis' snare by drilling a

hole one-fourth inch from the end of the canula and passing the loop through it to grasp the posterior hypertrophy more readily. L. A. Coffin in the current *Laryngoscope* described an ingenious syringe for injecting monochloracetic acid into posterior hypertrophies via the mouth.

Submucous cauterization by a lance-shaped electrode (Blondian, *Jour. Laryn., Rhin. and Otol.*, December, 1896), avoids the liability of synechia formation. D. Bryson Delavan (*Laryngoscope*, August, 1897) advocates submucous incision with an ophthalmic knife. None of these methods are as satisfactory in the average case as the method of linear cauterization described in the consideration of intumescent rhinitis. When deflections or spurs of the septum encroach unduly upon the normal cavities the removal of excessive cartilage and bone, and straightening the deflection become necessary. Submucous thickening on the sides of the vomer causes obstruction and is readily reduced by linear cauterization.

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CAUSATION THE FACTOR IN TREATMENT.

Read at a meeting of the Portland Medical Society, March 1898.

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The instinct of self-preservation is probably the strongest characteristic which we see exhibited throughout all the animal kingdom; nor does this tendency of living things to remain alive seem to be entirely due to an instinct, but there seems to be a constant effort on the part of the tissues themselves to prolong and preserve that series of phenomena which we call life, entirely independent of any volition on the part of the individual. We find this effort displayed not only in the animal kingdom, but in the vegetable as well. We see the seeds of small plants and vines, having taken root in unsuitable places, sending out their shoots through cracks and chinks in walls to gain the sunlight; the roots of trees curving around rocks and obstacles, and even displacing these by the exertion of considerable force, to reach the rich soil below. Nor does nature alone seem to tend to the perservation of the individual, but by her mysterious and manifold methods of reproduction apparently does all in her power to perpetuate the existence of the species. I say apparently, for if that loop-hole was not left it might be difficult to explain the certain death that finally overcomes each and every living thing, gradually causing whole species and even classes to become extinct and to disappear from the face of the earth, without casting doubts on the sincerity or ability of nature to carry to a successful issue the plans she has laid out.

As far as we know, all living bodies can be resolved into a certain number of chemic elements, which belong distinctively to the mineral kingdom, to the absolutely physical nature. The mineral existed before the living world, and in some incomprehensible manner, life made its appearance on the earth. If we could regard life as a form of motion, it would not seem to be going too far out of the way to apply Newton's law to the series of phenomena which make up life. A body at rest tends to remain at rest; a body in motion moves with a uniform velocity in a straight line unless acted upon by some external force to change its condition; in other words, life having once started tends to go on as such until acted upon by some external force, which is incompatible with it. Could we by any means determine what force or forces interrupt life we would be in better condition to try and contend with them. If a cannon ball fired from some huge gun meets with no obstruction in its path it tends to keep on going in a straight line, only impeded in its course by the force of gravity, which, acting on it continually, finally brings it again to a condition of rest. It seems not improbable that there may be some similar force which acts on the living individual from the very moment of conception to the time of death.

As physicians, self-appointed custodians of the public health, whose professed aim in life is not only to ward off the accidents with which our lives seem to be beset, but to do all in our power to preserve and prolong life, it behooves us to inquire into the causes which bring about its cessation.

Let us inquire, first, what seem to be the causes of death in the natural course of events? By this I mean what is called death from old age, not the immediate cause, but the conditions which have brought about the opportunity for the occurrence of the immediate cause? What differences in structure would we find in the body of an individual having died of old age, from those to be found in the body of a new-born child, more than those of size and weight? As far as we would be able to see with the present means at our command, the main difference would be found to consist in a great increase of the fibrous structures of the body over the cellular elements, which are so richly developed in the very young. Again we see the same difference existing between the first tender shoot which makes its appearance above ground in the spring and the old and wind-battered tree, which, like every other living thing, is obliged to meet its final fate. We find this increase of fibrous tissue to be located principally in the walls of the arteries and in the immediate neighborhood of the capillaries, particularly among those which ramify throughout the glandular organs of the body, as well as among the nervous structures. We find, in other words, a more or less generally disseminated sclerosis. On the integrity and functional activity of the blood vessels the nutrition of the tissues depends. The food that we take into our mouths, after being acted upon in the alimentary canal, is either directly absorbed into the blood, or poured as chyle, directly into the blood vessels, by means of which it is carried and distributed to all the tissues of the body, where each takes what it is most in need of and gives up that which is either necessary to some other tissue, or which is to be excreted from the body as useless or even harmful to its functional activity. This increase

of fibrous tissue in the blood vessel walls must necessarily interfere with the nutrition of all the tissues of the body, impairing the function of all the glandular structures by offering an obstruction or inteference to the normal interchange of product between the tissues in the blood vessels and those outside, and it is further possible that the increase in the fibrous reticulum of the glands themselves, through which the capillaries mainly pursue their course, may operate by producing atrophy and consequent diminished activity of the glandular epithelium, by an encroachment on their territory.

When the ovum of the female becomes fertilized by the absorption into its interior of the male spermatozoon we see the original cell split up into two cells, then into four and so on, without there being any particular difference apparent in these cells, until they begin to arrange themselves into layers, when three distinct portions become differentiated from each other. From the two external layers are derived all the epithelial tissues of the body as well as the nervous structures, in other words, the chemically active tissues of the body and the nervous tissues which preside over the co-ordination of these functions; while the middle layer gives rise to the connective tissues, or those tissues which have a more purely mechanical function, with the one startling exception of the sexual organs, whose importance in the production of the future generation must not be overlooked. In the middle layer what is known as the area vasculosa makes its appearance, which is supposed to be the beginning of the vascular system, and from the endothelial cells or plates, which form the inside lining of the vessels, the first formation of fibrous tissue takes place, and with the advance and spreading of the blood vessels this tissue is carried along throughout all parts of the body, and it seems fair to suppose that the fibrous reticulum, which makes up the scaffolding of the glandular tissues, is derived directly from the capillaries themselves. Thus we see that from the very beginning of life a tissue is being formed which, in the absence of any other accident, will eventually bring about the cessation of life, just as in the case of the cannon-ball, the same force of gravity acting on it from the start, in the end brings it to a period of rest, providing no other obstruction intervened. Granting the preceding to be facts, it must follow that any thing which increases the tendency to the formation of fibrous tissue hastens death, while anything which diminishes this tendency must act to prolong life.

In Dr. Meigs book on "The Origin of Disease," the importance of fibrous tissue in the blood vessels, as a causative factor of disease, is particularly dwelt upon, and if I understand correctly the philosophy of this book, it is to teach us that most chronic diseases are simply premature old age, and the consequent necessity of our consideration of the patient himself as an entity in our treatment of him, instead of directing all our efforts to subdue symptoms due to a local disorder, which may be only due to the outcropping on one particular organ of a process really widely disseminated throughout the body. Dr. Meigs classifies all diseases as arising from either intrinsic or extrinsic causes. If I might hint at a classification, I would suggest that all diseases arise from either infection or disorders of nutrition. Dr. Meigs' classification, as far as the extrinsic causes go, is simple enough, but it seems that the intrinsic causes might be open to doubt. For instance, an alcoholic subject who dies from cirrhosis of the liver, dies from an intrinsic disease brought about by an extrinsic agent, the alcohol. In the classification which I suggest, cirrhosis would naturally come under the head of a disorder of nutrition, just as old age would, whether it is allowed to come on by itself, as a natural result of the forces at work, or whether it is hastened by an extrinsic cause.

Infectious diseases tend to get well of their own accord; that is, the inherent forces of the tissues themselves are generally sufficient to overcome the infection and prevent any great disorder of nutrition, where the infection is not too great. Where the infection is too great, disorders of nutrition are produced, and we find the tendency toward the production of fibrous tissue increased, as we see well illustrated in the sequelæ of scarlet fever, typhoid fever, tuberculosis and other diseases. Everything seems to prove that syphilis is undoubtedly an infectious disease, and yet one of its most startling anatomic features is the increase of fibrous tissue, which suggests the doubt as to the complete curability of the disease. An individual may be cured of all his symptoms, he may be cured of the contagion, he may have healthy offspring, but is it not probable that his life is shortened by the disease, and if so, can it be said to be truly cured? In the business carried on by a life insurance company, medical knowledge would seem to find its commercial value, and the unwillingness of such companies to accept syphilitic risks, shows by experience that life is thereby shortened.

In regard to infectious diseases, I have always had doubts that in the microbic theory of disease, the story was more than one-third told. The schizomycetes, to which the so-called pathogenic bateria belong, are a part of the vegetable world. Vegetable life is dependent first on the seed, secondly on the soil, and thirdly on the climate. A cocoa-nut will not grow and bear fruit in the arctic circle, and we know that certain infectious diseases, which flourish in the tropics, do not occur spontaneously in the temperate zones. The microbes furnish the seed, the tissues of our bodies the soil, and surrounding circumstances may play the role of climate in many infectious diseases. Syphilis is a disease which particularly affects the human race. I believe that there is no authentic case of its successful inoculation in the lower animals, as demonstrated by the consequent symptoms beyond a reasonable doubt. All animals do not respond alike to the action of pathogenic bacteria, some species, so far as we know, being absolutely immune to certain bacteria. This may be a question of soil. Two individuals may be exposed to smallpox and only one of these contract the disease; scarlet fever breaks out in a school, all the children are exposed, but only a limited number are attacked. May this not be owing to some condition present in the tissues of the individuals which may take the place of climate. Experience and statistics have always seemed to show that some diseases appear to be hereditary, and again to refer to the opinion of life insurance companies, these companies are always careful to inquire very thoroughly into the family history of an applicant before granting him a policy. Can not this apparent inheritance of disease be explained on the ground of inheritance of the soil, just as we inherit the outward configuration of our parents, without making it necessary to inherit the

disease itself, which seems to be contrary to physiologic laws.

A few years ago the practice of medicine was based almost entirely on symptomatology, which seemed to be an advance over the older empirical method. Today we seem to be in an anatomic age, in which treatment and classification is based on structural change, a much greater step in advance, but the one to be hoped for in the future must be based on causation, for that attacks disease at its origin and results in prophylaxis, which, if it could be carried out, would abolish the existence of disease. And already what tremendous strides have been made in this direction, so far as infectious diseases are concerned! Where the seeds of the disease can be absolutely excluded, the soil and the climate are of less importance. Puerperal fever has almost disappeared; septicemia as a sequel to surgical traumatism, is now very rare, and with still further improved methods, should become obsolete. But we must not forget that microbes are an invisible foe; that they are widespread in nature and can not under all circumstances as yet be combated by either mechanical or chemic means, and it is here where soil and climate assume their importance. If we could only render the soil unfertile, the climate unsuitable, the mere presence of the seed would not cause us much annoyance. If we could only see how the tissues themselves combat infection, we could then, perhaps, aid them in their battle. Let me take a simple example. An acute gonorrhea is an infectious disease; its most objective symptom is a discharge of pus from the urethra; this discharge of pus is an effort on the part of the tissues to rid themselves of the disease; an increased flow of blood is determined to that part of the urethra attacked; quantities of leucocytes are thrown out; the superficial epithelial cells, which are first attacked by the gonococci, are thrown off and passed out of the urethra; so long as the discharge persists we believe the disease to be present; our object, then, should not be to stop the discharge, but to assist the tissues, and that is just what the modern treatment of gonorrhea attempts by the use of germicidal irrigation; even the so-called abortive plan, the benefits of which are still in doubt in the minds of most surgeons, has the same object in view, to aid in the desquamation of the diseased cells. What we have yet to learn in many conditions is which symptoms are the result of effort on the part of the tissues to combat the infection, and which are caused by the victory of the infection over the tissues; that is, which symptoms to encourage and which to overcome. Even pain is not always to be overcome, as it often acts as a salutary warning.

As to the diseases arising from disorders of nutrition, whether they all give rise to the production of fibrous tissue or not, though there seems to be very good evidence that they do, directly or indirectly. We have seen that these changes are in some way connected with the blood vessels. To explain what I have just said, let me state that in the light of recent investigations by some of the most noted pathologists, there seems to be good ground for the belief that many of the so-called degenerations, such as mucoid, colloid, hyalin, amyloid, etc., are preceded by or dependent upon the formation of fibrous tissue. We have seen that this fibrous tissue about the blood vessels is a constant accompaniment of old age, and it has been shown almost conclusively that it is produced by the endothelial plates lining the blood vessels, by the intima and not the adventitia. The studies of the changes which take place in the capillaries is very much more difficult than those which take place in the larger blood vessels, owing to the post-mortem changes which seem to occur almost immediately in the endothelial plates, of which alone the walls of the smallest capillaries consist, but from the fact that it seems probable that the fibrous network of the glandular structures owes its origin directly to the vessels which ramify through it, any increase in this fibrous tissue must be produced from the endothelial lining of these vessels, and traceable perhaps to some change or irritation which has taken place in this endothelial lining. We know how readily adhesions are formed as a result of any irritation to a serous membrane, serous membranes being covered with endothelial cells identical with those lining the blood vessels, and adhesions consisting of fibrous tissue. Now if we could account for any irritation to the endothelium of the blood vessel walls, we might perhaps be able to account for the production of sclerosis. As the blood is the only tissue which is constantly in contact with the endothelium lining the blood vessel walls, and as the blood is constantly changing its composition, according to the amount and variety of food which is directly poured into it, it would seem rational to find the source of irritation which gives rise to the production of fibrous tissue, to reside in our food itself. In other words, it is indirectly our food which eventually kills us. In the vegetable world we see the same thing among bacteria during the process of putrefaction. At first we have only aerobic bacteria, which give rise to the production of carbonic acid, which finally encompasses their destruction; these are followed by the so-called facultative bacteria, which are both aerobic and anaerobic; these are again followed by anaerobic ones, and each finally disappears by the products of its own chemic changes. We are at once faced with the terrible proposition that that which is absolutely necessary to our existence eventually brings about our destruction.

As I stated in the beginning of this paper, all living bodies are resolvable into their chemic elements; that is, our tissues are made up of a not very large number of chemic elements, whose molecules are held together in such peculiar arrangement that they are capable of exhibiting those phenomena which we are in the habit of calling vital. Could we increase our knowledge of the chemic changes which go on in the cells during absorption and elimination, and of the consequent physical changes which take place, we would be in a better condition to contend with disease, and I believe that it is along these lines that our greatest discoveries will probably come. And perhaps it may be eventually proven that the same physical laws which govern the movements of the planets, govern what we are pleased to call vital phenomena.

If we look over the list of diseases which we are able to cope with successfully by the use of medicine, diseases in which we would all agree upon the treatment, malaria and syphilis stand out prominently. Upon what is their treatment based? Empiricism pure and simple. Quinin was used long before the discovery of the plasmodium malariæ. What the future may hold for us, when time has been able to sit in judgment on the results of serum therapy, and treatment by animal extracts, it is yet too early to say. Surgery would undoubtedly claim for itself the great-

est advances, but if we sift down the facts will we not find that those advances have been more in the line of possible mutilations than in the cure of disease? The successful removal of a woman's stomach in its entirety is undoubtedly a great surgical feat, but was not its removal caused by a confession on the part of the surgeon of his inability to cure the disease. Far be it from me to in any way minimize the untold benefits which have been enjoyed by suffering humanity, as a result of the hard work, the deep study and the combined efforts of all who belong to the medical profession, and to be a member of which I consider myself honored, but it seems to me that it is sometimes healthful to stop and consider what we are really doing; not to rest too comfortably on our laurels already obtained, but by a just and honest view of our possible shortcomings, to remember that there are new fields to be cultivated, new glory to be won in our everlasting battle with disease, and that each one of us, however humble we may be, may by diligent work, thought and observation, be able to add our mite to that grand sum which makes up the total of human knowledge.

A RATIONAL METHOD OF RELIEVING ASPHYXIA IN THE NEW-BORN INFANT.

Read before the Florida Medical Association, April 27, 1898.

BY S. STRINGER, M.D.
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I desire to call the attention of the medical profession to a method of relieving asphyxiated new-born infants which I do not think has been presented to their notice heretofore.

I do not claim for this method that it is novel, unique, etc., but that it is based entirely upon chemic and philosophic principles and, like many other facts in our profession, is the result of accidental discovery.

We know that in the asphyxiated infant, unless the blood becomes oxygenated very soon, the child must die; we know that from several causes the sensorium has become so deadened or blunted as not to respond to the irritation of the atmospheric air, the application of water or other methods of inducing respiration; yet fetal life still remains and would continue were it not that the placenta has become detached and thereby respiration or oxygenation of the blood, through the medium of maternal circulation, is cut off. Now, if we could maintain fetal life by any method until the sensorium can sufficiently recover to respond to the nervous excitants of respiration we would, in many instances, save the life of the infant.

How this is to be done is the object of this short essay, as well as to relate the circumstances which led to the discovery thereof.

A few years ago I was called to see a multipara in labor and was told she was in about her fifth month of pregnancy. In a few hours she was delivered of a fetus which I thought to be close to the age indicated. The fetus, membranes and placenta were all delivered by the same effort. Nothing unusual having occurred, the fetus and envelope were laid aside till my departure, when I had it placed in some cloths and rolled up to carry with me for the purpose of saving it as a specimen, but, it being late at night, I deposited it till morning, when I proceeded to examine it and, to my astonishment, found the fetal circulation still going on, with pulse at wrist very perceptible. This was several hours after birth. Here was a case of fetal circulation, to my mind, carried on by the aeration of the blood through the medium of the placenta exposed to the atmospheric air.

In contemplating this case it occurred to me that this information might be utilized in cases of asphyxia in new-born infants, and I resolved to try the first case that came under my care.

At last a case presented itself; a large and well-developed child, of white parentage, and in which the head had been molded into cylindrical form by a narrow pelvis. The child could not be induced, by the usual method of cold application and rolling, to make any effort at respiration. The circulation was still going on in the funis with some vigor, but the deepening of the dark hue of the surface plainly indicated that, unless oxygenation of the blood could take place, death would soon follow.

Already the pulsation in the cord had become feeble and was becoming more so rapidly, when I delivered the placenta, cleaned it of clots and exposed the maternal surface to the atmospheric air. In a very short time the pulsation was perceptibly increasing in force; the livid and death-like hue was being displaced by one of life and health, when it required but a few moments for the restoration of sensibility and process of respiration commenced.

I feel sure that had the placenta remained in the os uteri or vagina, excluded as it was from atmospheric air, death from asphyxiation of the child would certainly have occurred.

Several subsequent cases have proven, to my mind, that this simple and rational plan of restoration is preferable to all others; and I will ask, Why not? Does not the blood become rapidly oxygenated when exposed to the air even in an open vessel? Have you not seen venous blood reddened in a few moments after exposure to atmospheric air? Then, why not when exposed to the air by osmosis, through the irregular surface of the placenta, where aeration had been going on from the time of the earliest distinct organization of the embryo?

In nearly all cases of asphyxia the labor has been tedious, owing to narrow passage and time to mold the head to the same by the powerful expulsive effort which detaches the placenta and throws it into the os, or entirely into the vagina, as the child emerges from the third stage of labor. Therefore you will find no difficulty in the immediate removal of placenta, should you have a case of asphyxia.

After its removal from the vagina it will be much easier to lift the cord from the neck and examine it for any interference with free circulation and correct the same. The placenta should be spread out with maternal surface cleansed of all clots and membranes so that free access of air can be had. If it becomes necessary, on account of numerous clots, to use water to cleanse the maternal surface, it is advisable to have it warm, as it is remarkable how quickly the use of cold water will chill the child; yet it is but natural to expect such result when you apply cold to so large surface of the capillary circulation as is maintained in the maternal surface of the placenta.

So long as the circulation keeps on through the cord you need not fear for the life of the child, for it is a continuance of fetal life, after birth.

As soon as respiration occurs, which has been delayed as long as twenty-five minutes in some of my cases, the circulation is diverted from the placenta to the lungs, and pulsation in the cord ceases in a few

seconds, when the child should be separated from the placenta as in ordinary cases.

I commend this method to the profession and ask that it be tried where more cases present themselves than are met with by provincial practitioners, when, I am convinced, it will be universally adopted.

I can not omit referring to the great advantages which, it seems to me, must result from the delivery of the placenta in cases of placenta previa, advantages not only to the mother but to the offspring. As the consideration of this subject would require considerable time I will only give a few extracts from the literature on dystocia. Dr. Simpson has collected 120 cases in which the placenta was delivered prior to the birth of the child. Of this number 31 of the children were born alive, 2 were putrid and 87 still-born. I have no doubt but that a large per cent. of the 87 still-born died of asphyxia, in consequence of the retention of the placenta for some time after its detachment. Had it been promptly delivered and exposed to atmospheric air many lives would have been saved.

ALBUMINURIA FROM THE STANDPOINT OF LIFE INSURANCE.

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At the present day, in considering the advisability of accepting a certain risk, the presence or absence of albumin in the urine may be readily regarded as the deciding weight, either for rejection if present or acceptance if not. Certain it is that the examination of the urine for this abnormal ingredient is looked upon by the home office as of such importance that except in industrial insurance, no report will be accepted without definite statements. Nor is this a matter of surprise when we remember the large number of fatal diseases accompanied by albuminuria. In many companies the albuminuria alone is sufficient cause for rejection and the underlying disease, if not entirely disregarded, is at least looked upon as a matter of but small moment. In this manner mistakes are made upon both sides. No greater error can be made than to look upon every case of albuminuria as Bright's disease, unless it is to regard every case not accompanied by albuminuria as not being Bright's.

It has been estimated that about one-sixth of the applications for life insurance (ordinary) are refused, all causes being taken into consideration. At least one-fourth of these rejections are based upon the presence of albumin in the urine. It is preposterous to assume that one twenty-fourth of the number that apply for life insurance are afflicted with nephritis; we must always be on the lookout for other explanations than irreparably damaged kidneys to account for our symptoms. Nor must it be forgotten that albumen may exist in the urine in several forms, of which serum albumin is the most important, responding to the usual rough tests applied by examiners. Again an admixture of urine with substances containing albumin, blood, seminal and purulent fluid, will throw down a white cloud to the heat and nitric acid test just as readily as will a chemical solution of albumin in urine. Here enters a first plea for microscopic examination in all cases where the slightest trace of albumin is found. A small amount of any of the above abnormal admixtures might and, as a matter of clinical observation, frequently does escape detection on macroscopic examination, yet even such a small amount may cause a slight albuminous reaction, a reaction very like that of chronic interstitial nephritis, the disease which so slowly but surely carries off such immense numbers of the race. One's doubts as to the existence of such abnormal constituents as pus cells, blood corpuscles or spermatozoa in the specimen under consideration, will be at once dispelled by a few minutes use of the centrifuge and microscope. When we reflect upon the large number of pathologic conditions which might result in the pouring out of blood or pus, or both, into some part of the genito-urinary tract, especially when we remember the great prevalence of urethritis, simple and specific, acute and chronic, we are not much surprised at the frequency of albuminuria; indeed, we are rather inclined to feel correspondingly encouraged at the lessening of the number of cases of possible Bright's. Of late years the increasing frequency of life insurance among women, while not liable to increase the average of insurance mortality of Bright's, yet certainly must hold its own as regards the ratio of albuminuria. Menstruation, endometritis and vaginitis, would easily maintain the standard. From this it can readily be deducted that uranalysis in a female is not of much value unless the urine is obtained by means of the catheter.

Albuminuria in its present day aspect is divided by clinicians into two types, the physiologic and the pathologic. The former is a convenient head under which to class cases in which the symptom is transient or intermittent, and in which it occurs, presenting no other sign of kidney or circulatory disease. The albuminuria of pregnancy is termed by the adherents of this class as physiologic in a large number of cases; that it is a frequent symptom among women in this condition is admitted by all who have looked closely into the question, Aufrecht reporting as high as 56 per cent In new-born children albuminuria is common during the first few days of life, but the changes in circulation would readily account for this. Among these intermittent cases, the albuminuria that occurs in bicycle riders is of late receiving deserved attention. Mueller[1] reports eight cases in trained cyclists, in whom, after a fatiguing ride, there appeared an albuminuria which even with the aid of the microscope was absolutely indistinguishable from that of true nephritis. It is interesting to note that after several days of rest the albuminuria disappeared. The urine when examined previous to the ride was free from albumin in all cases but one, while after the ride seven out of the eight showed albuminuria and the majority casts of various kinds. These cases will be referred to again in speaking of the pathologic type. Suffice it to say here that they were regarded as physiologic, by their reporter, on the grounds that the albuminuria was intermittent, disappearing completely on the cessation of the excessive exertion, without apparent damage having been sustained by the kidneys. The ultimate fate of these men might make an interesting contribution to the etiology of nephritis. Vaccination is not infrequently followed by transient albuminuria in subjects who were previously free from the abnormality. And so we could go on adding case after case called physiologic because the albuminuria is transient and is not accompanied by casts. Tyson,[2] in considering physio-

1 Muench. med. Woch., 1896.

2 Tyson's Practice of Medicine.

logic albuminuria, writes: "The presence of a physiological or functional albuminuria at the present day is generally conceded. By it is meant an albuminuria which is associated with no other symptoms. There are no tube casts or feeling of ill-health. Such albuminurias are often discovered accidentally, especially by examiners for life insurance. Much care should be exercised in concluding upon the nature of an albuminuria suspected to be functional. In the first place it should be small, not exceeding one-tenth the bulk of urine tested, and though it is not necessary that it should be absent on rising, yet it is a strong point in favor of the functional nature if it is absent at this time and present only after some exertion has been made or on taking food. No tube casts should be in the urine, the urea should be in sufficient quantity, there should be no retinal change, no hypertrophy of the left ventricle, no high tension of the pulse, nor even a suspicion of dropsy. *And this condition should be maintained over a considerable length of time* before the conclusion is arrived at that we have to do with a harmless funtional albuminuria." This latter italicised clause practically settles the question as far as life insurance is concerned. Very few applicants will consent to wait patiently for several months, "on trial," as it were, submitting themselves to the inconvenience of frequent examinations of their urine. If they are not ejected immediately they will soon suspect from the delay that there is something wrong with their urine, and will withdraw their application before it is ejected. No, a company must do one of two things, accept or reject; half-way measures will do much to weaken a company.

It is a fact constantly brought out from insurance offices that cases of albuminuria which have been insured show a large and early mortality. These are selected cases, looked upon as of cyclic albuminuria by the examiners, which latter have returned favorable prognoses. Is it not more reasonable, in light of this fact, to regard many of such cases as in the first stage of that organic change which leads to granular atrophy? Take the instance of the trained cyclists referred to above, for example; a frequent repetition of the exercise which was followed by the appearance of albumin and casts would inevitably bring about organic destructive changes in the kidney substance itself; for we know that if an irritative lesion be exerted upon an organ over a considerable period of time newly formed connective tissue will result, to be followed sooner or later by cicatricial contraction. In the infectious diseases, smallpox, diphtheria and typhoid, the presence of albumin in the urine is of common occurrence, and no one attempts to claim that such albuminuria is physiologic, though it may disappear entirely without sequelæ with the cessation of the original disease, and is not always accompanied by the appearance of casts. Here the specific microbe of the disease or its ptomain is said to bring about changes in the circulating fluid, followed by fever, increased arterial tension, and finally by structural changes in the cells of the internal organs. The kidneys participating in this cloudy swelling, as it is called, the organic changes occurring in the delicate epithelium of the tubules and glomeruli readily allows the transudation of albuminous elements from the blood, which would be rejected were its integrity preserved. This is the main principle underlying every case of albuminuria; some interference with the integrity of that portion of its secreting structure that acts, as it were, the part of a dialyzer—in other words, the epithelium of the tubes. As long as this remains intact, just so long will the non-osmotic albuminous elements be prevented from entering the tubules and eventually the urine; the greater the destruction of epithelium, the greater the amount of albuminuria, provided the tubes do not become obliterated as they do in chronic interstitial nephritis. From this standpoint the pathologist would regard every case in which albumin was present as pathologic, even though pathologic structural changes were few and microscopic. He would look upon any case of transient or intermittent or cyclic albuminuria, not as a physiologic process, but as a pathologic one, in which the ever working silent forces of nature had succeeded in calking the leak, in replacing the diseased or destroyed epithelium; in short, that no such thing as physiologic albuminuria exists; that every case in which this symptom occurs is pathologic and is always accompanied by definite organic nephritic change, though they may be of only microscopic size and are quickly repaired. To quote from Osler,[3] "the presence of albumin in the urine, in any form and under any circumstances, may be regarded as indicative of change in the renal or glomerular epithelium." From a life insurance standpoint, one can not but regard the matter in the same light. When we consider the enormous interests often involved and the frequent crudeness of the urinary examinations, the rejection of cases with albuminuria without casts or other symptoms of nephritis can not be looked upon with surprise, though such rejections might add a powerful enemy to the company to say nothing of the direct loss from his premiums.

As shown above, the presence of albumin in the urine means very little in itself, aside from giving us a strong hint for further investigation, for a considerable amount of albumin may be present and the kidney lesion be slight, or we may have other of the genito-urinary organs at fault. We have but one way of thoroughly understanding the condition and that is by microscopic examination. On the one hand we may have no kidney trouble, yet considerable albuminuria; on the other, we may have chronic inflammatory disease of the kidneys well advanced without the constant presence of this substance in the urine. It is of the greatest value for the home office to know what has been found under the microscope, when albuminuria exists.

In that most common of kidney diseases, that slow inflammatory process in which by the contraction of gradually formed new-formed tissue, the kidneys are reduced markedly in size, chronic interstitial nephritis, gouty kidney, contracted kidney or whatever one may choose to call it, the urine usually presents the following changes: Passage of a larger quantity than normal in the twenty-four hours, a low specific gravity, almost without color; in these albumin may be found only after testing several samples of urine and then only in traces. The heart and arteries would next claim our attention. The presence of an hypertrophied left ventricle without valvular disease, combined with a pulse of increased tension, would be significant. Arterio-sclerotic changes in the radials or temporals would be strong evidence of a similar change in the arteries of the kidneys. One of the most valuable points in the diagnosis of suspected

[3] Osler: "Principles and Practice of Medicine," 1895, p. 768.

Bright's disease, especially of the form under consideration, is a dilated, tortuous, congested appearance of the retinal vessels; pulsation of the retinal veins is also frequently observed. As mentioned above, the urine may at times be free from albumin, but continued examination will eventually prove its existence. The difficulty lies in the fact that even in policies calling for many thousands of dollars but one urinary examination is made, or if there are two examiners on the case, both obtain a specimen passed at approximately the same time. Undoubtedly, large numbers of cases of beginning atrophic cirrhosis are passed every year in this manner. In the incipient stages of this disease, probably the symptoms above mentioned would not be sufficiently in evidence to provoke comment, unless we except the retinal changes. How few of us, however, outside of specialists, are able to make a satisfactory ophthalmoscopic examination! One interesting fact in regard to the etiology of Bright's disease must not be lost sight of: That the form known as chronic interstitial nephritis rarely occurs before the age of 40. Now what shall we do in cases where an albuminuria has been found or even when albumin is not present? It seems that the only remedy is to have a microscopic examination made in every case in which the application calls for more than a certain fixed sum, say $2000, provided the applicant is over 40 years of age. Some companies have instituted such a plan when the application calls for a large amount, $20,000 or over. This is a step in the right direction, but the limit should be greatly lowered. Companies would do well in securing this end to appoint in all cities, in addition to their regular examiners, one microscopist, whose sole work should be to make the microscopic tests whenever required by the amount of the application. Such an examiner would be working independently and would not be hampered in the slightest degree by the influence of agents. He would know nothing as to the other findings in the case and his results would stand strictly on their own merits. In this way, too, statistics would be soon forthcoming from the home offices as to the frequency of albumin without casts, casts without albumin, presence of both albumin and casts, and a satisfactory working basis started. In time we could work backward and the poor unfortunates, from a life-insurance standpoint, who have habitually slight albumin without casts, instead of being universally rejected, be allowed insurance, though perhaps at an increased premium.

FALLACIES IN THE PHYSIOLOGY AND FUNCTIONS OF THE LABYRINTH.

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The great advance made in our knowledge of the physiology and pathology of the external and middle ear during the past decade has far overshadowed, in quality and quantity, the results which have been obtained in the investigations of the internal ear. Perhaps this may be due, in part, to the relative infrequency of diseases of the labyrinth, and the consequent insufficiency of data; perhaps also to the difficulties which often present themselves in making correct diagnoses of many labyrinthine affections. On the other hand, we have many series of valuable clinical observations on diseases of the internal ear, without being able to determine the pathologic changes which have taken place; again, we have interesting postmortem findings in labyrinthine diseases without the support of proper clinical data. Thus, much of our information on the subject is but the combination of hypotheses and possible conditions, lacking the strength of absolute scientific data and certainties.

Concerning our knowledge of the anatomic and functional changes and the diagnosis of diseases of the internal ear, we are still on the threshold of our subject, notwithstanding the many interesting reports of cases and clinical observations furnished by experienced observers in every section. The physiologic significance of the semi-circular canals has been the subject of considerable difference of opinion, and many of the experimental data now at our disposal are so conflicting that our results have been based on a rather indefinite foundation.

The former theory, that the angles which the semi-circular canals form, arranged perpendicular to each other, thus accounting for their capability to determine the direction of sound, seems to have been entirely discarded. More interest centers about the functions of the semi-circular canals as organs of co-ordinate movement. The fundamental experiments upon which this theory is based, were first performed by Flourens. He repeatedly observed, after division of the semi-circular canals in pigeons and rabbits, considerable motor disturbance, which convinced him that these canals were the central and control organs for co-ordinate movement.

Careful investigators however, operating along the same experimental field, have arrived at decidedly different conclusions. Thus Goltz, Crum-Brown and others, look upon the semi-circular canals as the "organ of the sense of equilibrium;" Cyon designates them the "organ of the sense of space"; Löwenberg refers the symptoms mentioned to a reflex transmission of the irritation caused by the injury to the motor nerves of the thalamus opticus. Opposing these theories, Moos, Böttcher, Baginsky and Tomaszewicz infer that all disturbance after injury to the semi-circular canals proceeds from a simultaneous injury to the cerebellum. Many of these conclusions have been reached by experiments conducted on some of the lower mammalia, and the great variation in the data acquired would tend to establish, even without further proof, the uncertainty and fallacy of these several theories.

Permit me to add my own clinical observations relating to the functions of the labyrinth, which though limited, I have nevertheless been able to repeatedly verify.

In April, 1895, I reported my clinical data of an especially interesting case of exfoliation of the labyrinth. The case was that of a young negro boy, 6½ years of age, who developed a suppurative otitis media after a severe acute rhinitis. After nearly two years of profuse and continued suppuration, during which time no complications had arisen, the patient came under my observation. The unfavorable aspects of the case had now presented themselves. Mastoid infiltration and inflammation were marked, and complete facial paralysis of the affected side was demonstrable. On operation the greater portion of the outer bony area of the mastoid was found to be a softened,

necrotic mass, and could have been more easily ladled out with a spoon than removed with a curette.

In the course of five weeks, five sequestra were successively removed from the temporal bone. The largest exfoliated mass contained nearly the entire bony labyrinth. The cochlea was almost completely exfoliated; the vestibule with the ampullæ were plainly visible, also a considerable portion of the semi-circular canals, together with a honey-combed mass of mastoid cells. After the removal of the last sequestrum, the patient was convalescing rapidly, and January 5, two months after operation, he was presented at a meeting of the St. Louis Medical Society. He was then bright, active and in good spirits. Three weeks later, a rapid, general decline ensued and the patient died shortly afterward of acute, miliary tuberculosis.

Unfortunately, permission was not granted for a complete postmortem, but, the right temporal bone was removed, and the involved area carefully inspected. Examination of the affected temporal bone, after its removal, corroborated my description of the necrosed and exfoliated areas.

Circumscribing the region of the osseous external auditory meatus, and involving the mastoid and squama, with a radius of about three-quarters of an inch, was a necrotic zone with irregular, but well defined margin. Designating this as the base of a long, cone-shaped canal, we note an axis of about two and one-half inches in length, directed inward, downward and backward, with its apex merging into the Eustachian tube. This cone-shaped sinus, through which the exfoliated bone masses were removed, was lined with quite firm, closely meshed granulations. All landmarks of the osseous meatus auditorius externus and cavum tympanum had disappeared. Of the petrosa, the superior wall and part of the posterior portion of the meatus auditorius internus still remained intact. Examined while fresh, the portion of the nervus acusticus, lodged in the depth of this canal, was to all appearances normal in color and consistency. I desire to especially emphasize this fact to substantiate later observations.

After removal of the bone, the exposed cavity was carefully examined, with special stress laid on the cranial areas in direct relationship to the necrosed one. On the periosteal surface of the bone still remaining, numerous erosions and irregularities were noted, yet the dura mater at all points was perfectly firm and intact. With the existence of a disseminated and rapidly progressing tubercular process, our anticipations of the presence of a tubercular meningitis might have been well founded; the most careful and detailed search, however, failed to reveal any meningeal lesion whatever.

In the first place, I would offer as a proof of the fallacies of the present accepted theories concerning the functions of the semicircular canals, that this patient walked into the assembly hall of the medical society with a thoroughly steady gait and a perfect sense of direction, walking with head and body erect, and turning to the right or left as indicated by members of the society conducting the examination, and all this while the exfoliated labyrinth containing the cochlea and semicircular canals, taken from his right temporal bone, was lying on the table awaiting inspection.

The postmortem examination substantiated my conclusions that not only the osseous semicircular canals had been entirely exfoliated, but no vestige of even a membranous labyrinth remained, so we are justified in concluding that it also had been destroyed.

Walking and standing tests were repeated frequently; varying the same in every conceivable way by blindfolding the patient, testing with eyes closed, permitting the patient to walk under the influence of loud noises, etc. The results were always positive, the gait firm and steady, position of the head erect, and the power of equilibrium and sense of direction preserved to a nicety.

In presenting these facts it is not my purpose to promulgate any new theory concerning the functions of the labyrinth, but to emphasize the fact that many of our ideas thus far conceived, will admit of decided revision.

Concerning the functions of the cochlea, much of our present information is based on hypotheses. By the labors of Helmholtz, Corti, Ranke, Hensen, Hasse, Exner and others, great progress has been made in establishing the functions of the delicate structures of the labyrinth, yet even Helmholtz, whose pioneer work in the physiology of the ear has contributed so many interesting and valuable data, admits the possibility of error in these observations.

In the literature of otology, necrosis of the cochlea or part of the bony structure of the internal ear is not of infrequent occurrence, but an exfoliation of the entire labyrinth in one piece is indeed very rare.

Sexton, Gruber, Guye, Bezold, Rueda and others have seen and reported cases where exfoliation of the cochlea alone has not been attended with total loss of hearing on the affected side. Sexton even emphasizes his observations by the statement: "I fancy no one disputes that in one of my cases marked hearing remained." These cases are, in themselves, substantial clinical evidence that the cochlea is not an absolute essential to hearing. In these cases, however, only the cochlea had been exfoliated, the other structures of the labyrinth remaining intact.

I desire to advance one step farther in the conclusions thus far reached. I maintain that in the case which I have reported, of exfoliation of the entire labyrinth, a very fair degree of hearing was retained in the affected ear, and herewith present for consideration the tests and observations recorded. I have been thoroughly cognizant of the difficulties and responsibilities attending an effort to substantiate so radical a statement, and have necessarily adopted the most careful methods and delicate tests to convince myself of the accuracy of my conclusions. The most serious obstacle to contend with was the exclusion of the healthy ear from the sound tests which were instituted. In the majority of the tests made I adopted the method suggested by Dennert and Lucae, with modifications. In determining what degree of sound perception still exists in an affected ear in a case of one-sided deafness, the healthy ear of the patient is stopped, turned toward the source of sound and the tests then made, the affected ear being alternately opened and closed. Whatever difference in the hearing then elicited, is attributed to the affected ear.

A more delicate modification of this method has been successfully used by Burnett. The patient is so placed that the affected ear is toward the operator. The healthy ear (not the ear to be tested) is plugged. With the affected ear open, hearing tests are then instituted. Having thus reached the apparent limit of the hearing power of the affected ear, that ear is

then closed, and the tests continued. If the closure of the deaf ear causes no difference in the hearing distance already obtained, it is fair to conclude that whatever amount of hearing exists is not due to passage of sound through the external auditory canal of the affected ear turned toward the test. In such a case the conclusion must therefore be that sound has reached the brain through the agency of the healthy ear. If, however, the stoppage of the affected ear is accompanied by an absolute inability to hear sound tests, it is again rational to conclude that this difference in the hearing power must be attributed to the affected ear. Thus, the final conclusion: "Whatever is heard just as well with the deafer ear stopped as when open, the better ear remaining stopped throughout the testing, must still be heard by the better ear through the head; but whatever is heard with the worse ear open, the good ear being stopped, must be attributed to the worse ear."

The question might be asked. Why can not sound be conveyed to the deaf ear through the head, if it is conveyed to the better ear which is stopped and turned away from the sound source? The reply would be that an ear which, either when stopped or open, perceives no difference in sound conveyed by the meatus, is not sensitive enough to hear sound conveyed to it through the head.

In the consideration of the case at hand, bone conduction tests by aid of tuning forks were excluded, as they were deemed less delicate for a differentiation than aerial sound conduction. Furthermore, as our dealings were directly with an exfoliated labyrinth, the tuning fork, relative to bone conduction, was practically of no value.

The following tabulated notations will indicate clearly the conclusions reached in hearing tests of the affected ear:

HEARING TESTS.	Hearing capacity with both ears closed.	Hearing capacity with affected ear open and good ear closed.
Loud conversation.	300 cm.	900 cm.
Whispered conversation.	30 cm.	90 cm.
One hundred and fifty centimeter watch. . . .	5 cm.	15 cm.
Politzer's accoumeter, designated by patient as a loud ticking watch.	15 cm.	35 cm.
Galton whistle; pitched high	30 cm.	60 cm.
Differentiation in sound of C from C⁴ tuning fork	8 cm.	35 cm.
Musical notes of a loud sounding-harmonium. Differentiation of C (3d octave) from C (5th octave)	35 cm.	90 cm.

In the execution of the enumerated tests the patient was blindfolded; the plugging of the meatus was done by a competent assistant, the forefinger being used as a tight plug. Taking into account the age of the patient and all tendencies to a possible misrepresentation of the hearing capacity, the tests were repeated at frequent intervals with many variations, yet the tests proved doubly valuable, owing to the demonstrable accuracy of the patient's statement.

Thus, the conclusions which have been logically and carefully reached tend to establish the fact that this patient, with an exfoliated labyrinth, still retained partial hearing faculties in the affected ear.

Pathologically, we deal in this case with a destruction of the peripheral or terminal filaments of the auditory nerve, as indicated by necrosis of the cochlea and semicircular canals.

Physiologically, we know that the auditory nerve, when stimulated either at its origin, in its course or at its peripheral terminations, gives rise to sensations of sound. We also have the report from several authentic sources that after exfoliation of the cochlea considerable hearing power may be retained by the affected ear. As the peripheral apparatus is hereby destroyed, how is the function of audition carried on?

We know that perception of light does not depend entirely on the presence of rods, cones and lenses; walking along in a dark corridor and suddenly coming in contact with some external object causes an impression of a bright flash of light. Nor does the sensation of taste depend exclusively on an exercise of the physiologic functions of the tongue; when a galvanic current is applied to the face we readily experience a metallic taste in the mouth.

We even speak of "seeing sounds" where the impressions of musical tones are interpreted by certain individuals as colors of variegated hues; and of "nasal vision," where the nose, in part, performs the function of the impaired or absent eye.

I would illustrate with these examples that even the nerves of special sense may have compensatory functions. Why then can there not be such compensation of the nervus acousticus?

In the postmortem examination it was found, macroscopically and microscopically, that the portion of the auditory nerve still retained within the internal auditory canal was, to all appearances, normal and healthy.

Is it not possible that sound waves could have been conducted through the large sinus left by the removal of the several sequestra, and could thus have been impinged directly on the stump of the exposed auditory nerve and transmitted directly to the brain?

3702 Olive Street.

SOCIETY PROCEEDINGS.

Associated Health Authorities of Pennsylvania.

Fifth Annual Meeting held at Lancaster, Pa., May 18 and 19, 1898.

FIRST DAY—MORNING SESSION.

Prof. E. O. LYTE, Principal of the Millersville Normal School, made an address of welcome, which was responded to by Prof. G. G. Groff, President of the State Board of Health, who was introduced by First Vice-President Crosby Gray of Pittsburg, Superintendent of the Bureau of Health of that city.

The first paper was by Prof. R. C. SCHIEDT of Franklin and Marshall College, on

THE RATIONAL TRAINING OF CHILDREN A PROBLEM IN PEDAGOGIC PHYSIOLOGY.

The subject was treated exhaustively, not only from the standpoint of the teacher, but from that of the psychologist and the physiologist. He said that his results differed from those obtained by the German and French psychologists and because of the difference in the children of different nationalties. The American boy is superior to any other on the face of the globe. The Professor has had splendid opportunities to observe the difference in the physical condition of children through his connection with various German institutions. It is generally agreed that we are living in an age of unusual activity that has placed its stamp upon the children of the land. Education is looked upon as a panacea for all the ills the body politic is heir to, and the responsibility of the future of the race is placed upon the schools. As a matter of course, in a land like ours, we are confronted with a maze of conflicting opinions. But is it actually true that the children of our age are in such a deplorably nervous condition? I am inclined to think not. I have made extensive experiments in Berlin and America to study the nervous condition of children. By means of a machine I measure the degree of fatigue under which any individual may be suffering. In Germany the best

pupils exhibited only the slightest trace of nervousness. Some nervousness was traced to the use of alcohol and an insufficient amount of sleep. Only 23 per cent. of those examined were refreshed by gymnastic exercises. In the schools of Lancaster, the experiments showed 15 per cent. without any nervous fatigue. These experiments were made on different days so as to obtain different atmospheric conditions, with widely varied results. On a clear day 90 per cent. of the boys showed a good condition before the school opened. At 3 P.M. 15 per cent. were more refreshed than when they started to work in the morning. But 7 per cent. were unaffected by atmospheric conditions. The large number of 43 per cent. exhibited abnormal fatigue. The experiments on the whole were very gratifying as far as the children of Lancaster were concerned. These show that alternate periods of study and relaxation, as is the practice in Lancaster, is the best plan to pursue. The 43 per cent. showing abnormal fatigue should have more systematic out-door exercise, otherwise the results can not be satisfactory to teacher or pupil. Intellectual activity is a prime essential in the development of a sound and vigorous body. He advocated, most earnestly, indulgence in out-door exercise; would abolish the afternoon session and have a long morning session with a number of recesses. With the introduction of manual training in all schools each child will thus be afforded a better opportunity to develop its individual tendencies. In the class room the pupil is but one of a dozen, and the only virtue adduced therefrom is obedience, which the child should have learned at home. Physical exercise should be divided into three classes, muscular, cutaneous and inspiratory.

A discussion followed by Drs. Benjamin Lee, Secretary of the State Board of Health of Pennsylvania, J. Madison Taylor and S. D. Risley of Philadelphia, each commending and agreeing with the points made by the reader.

Miss DORA KEEN, Chairman of the Committee on this subject appointed by the Public Educational Association of Philadelphia, had prepared a paper on

MEDICAL INSPECTION OF SCHOOLS,

which was read by Dr. J. M. Taylor.

In October, 1896, Dr. C. F. Robert, Sanitary Superintendent of the New York Board of Health, sent a communication to the board, setting forth his belief that the greatest source of the transmission of infectious and contagious diseases among children was through the contact with one another at school, and that this transmission would best be overcome by systematic daily inspection of the schools by medical inspectors. Such inspection had its first trial in the parochial schools of Philadelphia some years ago, and was abandoned owing to a mistaken opposition. This city was ahead of the times. Boston soon seconded her, and now New York and Chicago have adopted this plan. It has proved the value of the work, and abroad Brussels has adopted it, and Boston is getting the credit of it. Providence, Baltimore and Milwaukee are agitating the question. Only yesterday, the Philadelphia Board of Health took the proposition of the Public Educational Association into consideration, referred it to its sanitary committee, and appointed a hearing for May 31. While the inauguration of this work comes properly within the function of the city boards of health, with whom it lies to organize and conduct the work, yet no less does it claim the interest of physicians and teachers. To assure themselves of the value and necessity of the system the Boards of Health of New York and Boston conducted preliminary investigations. The latter published tables by months of all cases of diphtheria in nineteen years in that city. There was a variation of 1600 cases reported in any two months and the smallest numbers were during the summer vacations. The total for nineteen years was 3339 cases in January and 2537 in June, as opposed to 1765 in August. So with scarlet fever. Records for twenty years showed 3107 cases in January and 1885 in June compared with 1208 in August. An example of the protection of the community by the Boston plan was shown in 1897 in an epidemic of diphtheria. A primary school of forty pupils had fourteen attacked in eighteen days, all from one room. Seven were discovered by a medical inspector, three of these by cultures. All suspicious cases were dismissed and recommended to the care of the family physicians. The next morning everyone was examined, many cultures were taken, the class was dismissed and the rooms disinfected and cleaned. For ten days after the return to school everyone was examined when first the class assembled in the morning, and no child absent with any suspicious symptoms was allowed to return till it was proved safe by a negative culture. The result was that not a single case resulted beyond those known to have been infected at the time the epidemic was discovered. Similar experience occurred with scarlet fever in the service of the same inspector shortly after, in which all eleven cases resulted from the presence of one pupil, whose illness had been diagnosed German measles. In New York the best results were obtained by securing a list of the absentees where a case of contagion had occurred, and visiting the families to learn the cause of absence. Eighty-five families visited showed fifteen cases of scarlet fever and nineteen of diphtheria, in which the first case was a school child. The statistics seemed to show that many cases of diphtheria went unnoticed, and the same to a lesser extent with scarlet fever. Children sent home with a "sore throat" fail to call in a physician, and return to school when feeling well. Thirteen out of twenty cases would have remained unknown if the absence list had not been examined in one report of scarlet fever. Of these, four did return and would have remained to spread contagion if they had not been known as dangerous. Others were preparing to return, so that the epidemic would have been indefinitely prolonged. In regard to measles, seventeen cases were reported, and upon investigation twenty more were found, which from ignorance had not been reported. Of these, twenty-two had contracted it in school. This evidence was so convincing that application was made for the appointment of a chief medical inspector, with a staff of 150. In both Boston and New York school inspectors are separate from regular medical inspectors. The duties of the school inspector are "to visit the schools of his district daily at the opening of school, examine all pupils whom the principal has found to be ill or complaining, and advise the teacher concerning them; to keep a record of the diagnoses for the custody of the principal, and to forward daily and weekly reports to his chief. He never encroaches upon the rights of the family physician. He is simply to examine all children that appear to be ill, point out the need of treatment, and to exclude contagious cases from the school. A courteous note is sent to the family physician stating the cause of exclusion. Blanks, wooden tongue-depressors, culture outfits, etc., are furnished at the central office. The inspection consumes very little time and creates but little confusion. Results: In Boston, 1896, 8964 were examined, 1156 too ill to remain in school; 3934 were suffering from oral and respiratory diseases, 267 from specific contagious diseases.

In one school parasitic diseases of the head existed in 74 per ent., and 7 per cent. were very badly affected. In Chicago so much benefit resulted from the inspections that it was determined to continue the work to the full extent of the resources. During four months 350 inspections of 233 schools were made, 1417 cases of diphtheria and 306 of scarlet fever located. In New York 63,812 were examined in the first three months, 4183 or 6 per cent. were excluded for contagious diseases. Parasitic diseases of the head numbered 2627; contagious diseases of the eyes 702. Among a large number of people no dread of measles or scarlet fever is felt and such often oppose the means of prevention.

On the side of defective sight and hearing, preliminary and unco ordinated tests are all that can be reported. This field is an important one, yet no city has yet co-ordinated that work with general medical inspection of schools. The work is worth doing well, but it is a severe piece of drudgery. One specialist says that 300,000 examinations have had very little scientific value. As for methods, it has been shown that a fairly complete examination of both eyes of an individual can be made in three to five minutes. A part of the work can be done by an assistant. Conveniences for the examination can be usually arranged at the school, and may be either in or out of school hours. One thousand children may be set as the limit of one man's work, pretending to be thorough. Many of the alleged studies on record can be used to prove anything and really show nothing. Looking at the results thus far, we find that awakened interest of the community has already greatly improved the conditions for the school child. Nevertheless, near sightedness has not decreased. Large classes and the pressure of changing methods of instruction, force the teacher to a somewhat wholesale treatment of pupils, while the recent investigations of 2,000 children of the Philadelphia Teachers' Society for Child Study purports to show 54 per cent. suffering from defective vision. Some cases were so serious as to interfere with the intellectual development of the pupils. An interesting statement of results showed a majority were not aware of any defect of vision and the strain on the mechanism of the eye was going on unnoticed. It is a system of education fruitless of real development that attempts to force all children alike, regardless of the fitness for work of the particular child. Philadelphia's contribution to this branch was made by a committee of the County Medical Society under the direction of Dr. S. D. Risley, in 1878. He received the hearty support of the Board of Education and the community. Twenty-six hundred examinations were made in two years. "Many a

school boy idle only at his books, dull only in the recitation room, is so because he finds the continued use of his eyes a painful task," and near-sightedness comes to affect his mental habits and moral character as well as his physical constitution. Extended observation in Europe showed that this trouble increases steadily as the education goes on. In America, it rises from 3.5 per cent. of children 8 years of age to nearly 20 per cent. at 17½ years. In Germany, perfect hygienic conditions of hours, seating and lighting, failed to arrest the increase. The committee of the County Medical Society sought to answer the question, To what extent are our educational methods and manner responsible? The following conclusions were reached: That the possible presence of defective vision should be excluded by examination before entering school; that children enter too young; that the course of study should be so chosen and arranged as to avoid protracted use of the eyes at a near point; that the system of term examinations should be entirely abandoned; that text-books should be of good paper and large type; that the method of writing should be optional; that since numbers of the pupils with the weakest eyes drop out after the first few years a more elastic curriculum that would admit of steady though slow promotion is advisable.

The suggestion of a study of the individual needs of the child brings us to the conscious realization of the opportunities the inspector will see open to his intelligent study. While his primary duty is to seek and recognize signs of contagion, he may find a useful line of study in the incidental detection of defective children. The modern plea for individualism in education seeks to adapt conditions to the child, not the child to conditions. Let us, therefore, look to the results of scientific medical inspection, if we would know how great is the need for special schools for special classes. Europe has special schools; our National Education Association has a branch on special schools, and these already exist in Wisconsin, Chicago, Boston and Providence. Mr. Alexander Graham Bell makes a plea for special schools for the deaf with small numbers and centered at convenient points. Chicago reports eight public day schools for the deaf. Let us hope that an intelligent public sentiment may in time recognize that facilitated work and results to both teacher and pupil justify a demand for special schools for the mental, the physical and the moral defectives. The financial basis of medical inspection must be thought of. Where expense prevents a complete investigation, the work may best begin in the kindergartens and the primary grades. This plan will include practically all children under 10 years of age, and it is among these that the chief danger exists. This applies especially to the kindergarten in which, by virtue of different processes, children are brought into close contact with each other, and use in common a large number of objects liable to become infected. Comparison of the health reports of the cities now practicing inspection shows that an average of about 1000 pupils and three school houses is the capacity for work of each inspector. To be thorough, the work should include charity schools and day nurseries, quite as much as the public and parochial schools. Boston's annual pay to each medical inspector is $200; that of New York $300; making the total cost to New York $45,000 per annum, irrespective of report blanks, officework and incidentals. In connection with this outlay, however, it must be remembered that the incident control over contagion causes a constant decrease in the work of the district medical inspector. The school work may thus in time become a paying investment. Coming next to the sanitary and hygienic side of the subject, the control that will be obtained over contagious diseases will redound to the credit of health boards and repay the community for all that it may cost. It has been estimated by one physician that 70 per cent. of epidemics might be prevented by inspection. There are many diseases upon which the law requires no report, parasitic diseases of the head, contagious diseases of the eyes, follicular tonsillitis, oral and respiratory diseases, and further mumps, whooping cough, measles, consumption and chicken-pox. Medical inspection will detect a large number of these. While the main purpose of inspection is the preservation of life, yet the community has a right to demand the best possible protection against the spread of the above-named diseases and the consequent interruption of the school life of the child. In a very large number of cases the mildness of the disease or ignorance has prevented its recognition, etc.; the child nevertheless was in a condition to spread contagion. To quote Dr. S. H. Durgin, the Boston pioneer in the work, a child with an unrecognized case of diphtheria, not attracting attention, may attach infective matter to the desk, chair, books, slate, pencil, penholder, sponge, drinking cup, door knob, window sill, banister, wainscotting, or to anything which he may handle or touch after using his fingers about his mouth. The fact that these things may become infected with diphtheria in this way has been conclusively shown in the laboratory by Prof. Ernest. This statement would seem to substantiate a plea for simple instructions and facilities for disinfecting purposes in the schools. The far-reaching effects of inspection can hardly be over-estimated. In Chicago, 744 individual cases of diphtheria brought to light 2619 cases at home, and 231 cases of scarlet fever disclosed 745 cases at home. Inspection should begin in the old school houses, as the number of sick children from these is greater than from the new buildings. If the School Inspector is alive to the possibilities of his work, full information may be incidentally gained as to defective conditions of school life and particular defects from time to time will be brought to the attention of the authorities. It will suffice to enumerate the conditions to which attention should be directed: Overcrowding, defective heating, plumbing and ventilation, dark basements, insufficient and uncleanly sanitaries, seating and school furniture, recess periods, overstudy and grading of pupils.

The medical profession quite generally, through the journals, have suggested or endorsed the movement for school inspection, and wherever established, the boards of education have co-operated in the work. After two years and a half of test, Boston reported the plan constantly growing in favor with the medical profession, among the teachers, and in the community at large. When organizing the work in New York, the Board of Health took the wise step of giving a few explanatory lectures to the school inspectors. It is hoped that a movement to institute the work throughout the State may result from this presentation of the proven value.

Discussion followed by Prof. W. W. KEEN of Philadelphia, who spoke from the sanitary standpoint.

He said that the State owed two duties to its children: That they should have a good common school education and that, as far as was possible, their health should not be endangered in school. In order to attain the former, compulsory school attendance had been provided by law. We had no right, however, to force children to go to school unless we protected them from infection of some of the most loathsome and deadly diseases. Compulsory vaccination provided against smallpox, but against diphtheria, scarlet fever and a large number of less deadly diseases no provision was made, unless there was a medical inspection of schools. Any child, therefore, was liable to be brought in contact with such diseases without any possibility of escape. It might be objected that these children could not be very sick if they were able to go to school. To this he replied, that at the beginning of many such disorders, and at the end, before health was completely re established, such children would be perfectly able to go to shool; nor must it be supposed for a moment that only the serious type of cases was dangerous. A very mild case of scarlet fever in one child could easily give a fatal attack to another. An attack of diphtheria so slight as not to keep the child at home, much less in bed, might breed in the throat of another child the severest form of the disease.

Most of the epidemic diseases which are contagious arise in childhood. It is therefore particularly important that children of school age should be protected from them. The only way at present of having them protected is through reports to the board of health. But this does not meet the case entirely. There are a large number of diseases that physicians are not required to report, such as measles, whooping cough, chicken pox and the like, and a very considerable proportion of children attacked with these diseases succumb to them. The death rate in measles varies from only 2 or 3 per cent. up to 20 per cent. in severe epidemics. In 1880, 11,102 children died of whooping cough in the United States. Besides this, very many of the dangerous diseases which ought to be reported, are not reported because of the very mildness of the cases, when parents do not think it needful to call in a physician, and in others from the ignorance or wilful neglect of the parents, who endanger not only the lives of their own children but those of other people by not securing medical aid. The rich send for the doctor in the slightest illness. The poor often, from motives of economy, delay till they *have* to seek medical advice. Inspection of schools remedies most of these sources of mischief.

The figures given in the paper were very striking: In Chicago, in 744 cases of diphtheria among children at school, when the absence list was consulted and all families of absent pupils visited, it was found that 2619 cases of diphtheria existed at home, which would not have been revealed but for the school investigation; and similarly, 221 cases of scarlet fever in school children revealed 745 home cases. These home cases of diphtheria and scarlet fever were not only a danger to the school children, but to the entire neighborhood in which they existed.

Dr. S. D. RISLEY of Philadelphia—The systematic medical

inspection of our schools, not only as regards the hygiene of the school house, but the examination of the individual pupils for the purpose of excluding contagious and infectious disease must commend itself to the judgment of every thoughful citizen of our great commonwealth. At first sight, the problem of school inspection seems not only wise and necessary, but its execution very simple. When carefully considered, however, in all its phases, it grows in complexity, and difficulties at first unsuspected are confronted.

The primary purpose of school inspection is to exclude temporarily all children affected with forms of disease which may be communicated to others. It is unquestionably true that a cursory inspection of the throats of the children would exclude a large group of infectious diseases, either in their incipiency, or when present in mild form and their real nature not suspected by the pupil or his parents. Systematic examination of this kind with carefully preserved records would soon prove of great scientific value as showing the possibility of warding off epidemics of measles, whooping cough, scarlet fever and diphtheria.

A careful study of the problem of individual inspection of schools leads us much farther afield than the simple exclusion of infectious and contagious disease. It is reasonable to expect that some degree of physical deterioration will result from depriving children of the freedom of the nursery and playground and subjecting them to the confinement and tasks of the school room; but observation has shown that a considerable percentage of those who enter upon the educational process in apparently good health soon manifest impaired general vigor, acquire distorted spines and develop near-sightedness. It is plainly the duty of those in authority to prevent these misfortunes as far as possible. It may not be generally known that modern school hygiene has grown to its present state of advancement through the individual examination of children for the purpose of discovering the cause of the steady increase in the percentage of near-sightedness as they advance in their educational process. It was at first supposed that this increase was due to bad hygienic environments. Attention was then directed to the quantity, quality and direction of the light in the school room, and to the proper relation between desks and seats. This led to a most elaborate study of the mechanics of sitting, and to extensive measurements of the different parts of the body in order to determine the suitable relation between the height of desk and seat. The print in the text-books, the script used in writing, and the position assumed by the pupil were all subjected to the most careful scrutiny. These elaborate studies in different parts of the world, by many observers, led to great reforms in school house architecture and in the furnishings of the school room, while the examinations of the children's eyes served not only to verify the fact of the steady increase in the percentage of near-sightedness, but demonstrated the relation between that and disease of the membranes of the eye. It was reserved for observations made in the Philadelphia schools to demonstrate that the inflammation upon which the near-sightedness depended was due to the presence of certain congenital defects in the eyeball, which necessitated a constant strain upon the organ of vision during school work; that therefore no child should be admitted to enter upon his school life until the eyes had been examined, when if one of these congenital defects were discovered, he could be sent back to his parents with the advice to have the defect corrected before admitting the child to the school room.

This was a distinct advance in school hygiene, the importance of which can not be overestimated, and was the direct outgrowth of individual inspection of the school children's eyes. It is altogether probable that were systematic inspection adopted in other lines we would see equally important advances made in the science of school hygiene. Most parents in seeking to enter a child at either our public or private schools have considered only the fact that a suitable age has been reached, no thought being given to any other requirement. That the child is in poor health, that it may have defective vision, impaired hearing, or may be mentally defective, are questions that have never for an instant been considered. The only thought is that the child is old enough to go to school. The point in contention in these remarks is that it is the duty, not of the health authorities, as of our school boards to subject all new pupils to a rigid individual inspection, as to the condition of their general health, the sharpness of vision, acuity of hearing, and their probable mental condition. At the beginning of each school year all of the former pupils should be re-examined. As regards the general health the requirements of the school board might be met by a certificate of good health from the family physician. This would be in the interest of both child and school. It is idle to expect a sickly child to bear safely the same burden of toil and anxiety which is placed upon the shoulders of his healthy companions. While in some cases it might be wise to exclude the feeble child from school until in better health, there is a large group of physically weak or otherwise defective children, for whom special provision should be made in the required curriculum. Individual inspection should detect these cases and place them in the provisional class for which they are fitted. In it would be placed many children with defective eyes or ears, and with impaired general health. Their progress in school would be steady, but not so rapid as that required from their more fortunate fellows.

As it is at present certainly in our public schools, it is too often a survival of the fittest, the weak and unfortunate being compelled to drop out of the race. The individual inspection should cover, therefore, not only infective disease but search for impaired general and special functions, especially of the eyes and ears. Under no circumstances should any child with purulent discharge from the ears, or inflamed eyes, be admitted until subjected to expert examination; or if the vision is found defective, or the hearing impaired, they should be sent home with a note explaining to the parents how these defects must handicap them in their work at school, and urging them to seek professional advice. For this examination of the eyes, expert skill is not required. It is a simple matter to determine whether each child enjoys a normal acuity of vision or not. This procedure is not the best that can be devised but it meets the practical requirement of the case, and for many reasons is probably the only feasible plan. It would cost but little, and need not awaken the opposition of the parents or the family physician, both of whom are apt to be sensitive about any interference with their prerogatives. As regards the mentally defective, every educator must soon learn that these are not to be found only in the institutions for the feeble-minded. Medical or expert inspection on these lines is an exceedingly difficult and delicate problem, but nevertheless important. Mental defect declares itself to expert observation in many ways. Not only in dulness with books do we detect mental feebleness, but in bad habits, bad temper, incorrigibility, cruelty to playmates, moral obliquity, or even moral imbecility are often signs of hopeless congenital mental defect which should exclude the unfortunate individual from association with normal children, upon whom their influence is always deplorable, and their presence often dangerous. It is true that in some degree these signs are, many of them, the evidence simply of a defective home training, but it is equally true that many boys or girls who are regarded by their parents and teachers as simply bad, are hopeless defectives, and should be excluded from our schools and sent to institutions designed as training schools or asylums for the defective. Such children are often fine appearing, cunning and bright, and the teacher naturally supposes that they could learn if they would, but find to his disappointment that they add only to their store of craftiness. It is from such that our criminal classes are largely recruited. While still in school, the incorrigible pupil should instead of punishment be subjected to expert examination, and their parents or guardians frankly advised of their duty, provided the child is shown to be a member of this unfortunate class. The far reaching importance of this, in that it places these defectives under State control, will occur to the thoughtful.

While such inspection as has been suggested would unquestionably be of great value to the school children and to the community, great care must be exercised in the method of their adoption and the manner in which the inspection is made. School boards and boards of health are important institutions, but they must not be permitted to invade the domain of private rights, nor should they permit themselves to be drawn beyond their legitimate and proper functions by the specious pleas made not so much in the interest of public health as for the gratification of private ambition, or a desire for publicity. Little by little, almost unnoticed dangerous and arbitrary encroachments may be made by such excellently disposed gentlemen as compose our Board of Health, until we find ourselves on the border of State or municipal socialism. That it is proper that many things should unhesitatingly be surrendered to the State is set forth in the foregoing remarks, but we should be cautious as to the method of the surrender.

Dr. J. M. Taylor of Philadelphia said—It is not expected that the teacher will become an expert in differentiating the forms of defective children, nor, in the strict sense of the term, be able to pick out or label the kinds of defects. That is entirely the duty of a physician and can only be done by one of sufficient clinical experience. Once the child has come under suspicion and been separated from the others the physician can do this thing. Then, if he finds himself unable to exactly differentiate, again an expert should be called in. The

kinds of children which will show defects are many, and some of these defects may be only temporary and yet the deficiency or disability be so marked as to render the child unfit for association with the others so far as competitive work in the same lines and to the same degree is concerned. Many children who present themselves in a school for the first time are in a condition of lowered intelligence from the simple cause of malnutrition, living a life of poverty or other defective hygiene. They present a condition of insufficient nourishment, anemia, and are weakened in many or all organs. They may have been subject to household demands, have been made to labor and are in that condition of fatigued state which Professor Schiedt has so admirably portrayed. They may have just recovered from illness, or may be in a condition of chronic disability from many states which should be recognized and treated by a physician. Often these children will be restored by a few days' rest in bed or a period of hospital care to the average of intelligence and alertness. They can then rank as an average child. Another class of disability, the result of defects in various organs, as the eye, have been alluded to by Dr. Risley; the ear will be spoken of by Dr. Randall, and a number of conditions which the medical inspector should promptly classify and suggest means for relief. A third class of defectives are so by reason of brain insufficiency. These may have been subjected to conditions not likely to develop the brain. Such may be improved in varying degrees. Some may require a special line of teaching. As a subdivision of this class mental states have been warped to one-sidedness. There may be quick observation, deep cunning, many of the qualities which enable the child to go along well enongh in the ordinary walks of life, but not enough to progress along the lines of ordinary education as offered in the public school. They may be defective in powers of observation, slow in mental processes, with a fair share of symmetric activity which gives, if properly trained, sooner or later, a good quality of judgment, but only developed in lower lines of mental activity suited to their capacity. Such soon reach their limit of education. Another class will show morbid impulses, restlessness and tendency to do things which the routine of the school can not allow; yet if these were placed where they could get a form of education suited to their needs, they might be made more or less useful citizens. Finally, there is a class of mental defects which are inherently bad with distinctly evil tendencies, dangerous to mingle with other children, who ought to be separated and yet well deserve the most careful education to make them useful and less objectionable members of society.

All these classifications may vary from time to time in the same individual and a child who today or at the end of a certain year has made a fair measure of progress will need to be treated or educated in a different way the following year to bring out the best that is in him. Medical inspection will enable all these points to be elaborated and the work now being done in certain large cities in the maintenance of special schools for the mentally deficient is magnificent work, to weed out from ordinary children those who require separate training, and also for the good of the children who are thus freed from these objectionable elements. Again, those separated, classified and properly trained will do great things, but if left to blunder along with the others would fail to be other than a burden to society. No teacher can be expected to be an expert, it must be a physician. The physician must exercise his faculties for months, even years. The study of children is exceedingly important, demanding the highest qual ities of heart, brain and observation. It is to be regretted that most people believe children are easily understood. The inspection proposed will serve as a great economy of lives and capital. To be able to pick out promptly and subject to proper treatment those instances of contagious diseases, etc., will not only save many lives, but prevent spread of disease and enable many to grow up and take their places as bread-winners. Again, by the separation of these cases it will limit such diseases so considerably that fewer inspectors will be needed.

Dr. B. ALEX. RANDALL of Philadelphia wished to lay stress upon the aspects of the matter with which his experience had made him familiar, the examination of the eyes, ears and nose. Now that the school life is made compulsory, it is doubly incumbent upon the authorities to protect the children from the consequences of their own ills as well as from those communicable by their companions. The hygiene of the scholars demands that examinations be made as to their physical as well as their mental fitness for the tasks assigned them; for good school hygiene only means that the surroundings should be innocuous to normal pupils. But study shows that few children even approach a true normal and that a considerable proportion are so far short of it as to take serious harm from their school work. Disqualifying defects should be discovered at the beginning, when they are more likely to be remediable, than later, and threatening contagion noted and guarded against. This means a vast amount of work if well done, and if not is of little avail, or even leads to false security. The mere presence of a set of test letters in the schoolroom will show many that their sight is not up to the normal standard; but in this as in the other directions skilled study is needful to bring more than a fraction of the unpleasant truths to light. Any intelligent person can make many eye tests accurately, unless he insists on varying the methods of examination; in some railroads every new employe is required to show to the non-medical examiner his possession of adequate sight and hearing. But to learn that the eyes and ears are likely to remain good requires the expert medical examiner. Much work done in this direction has been inadequate, yet it may have had much value to the individual examined. My contention is that it is almost as easy to do it thoroughly as to slur it in slipshod manner. Examination as thorough as most specialists make in their offices can be made of the eyes, ears and of the nose and throat in about five minutes per pupil and subdivision of labor may reduce this. Few instruments are required that could frighten a child or in any flaw of sterilization be able to convey infection. Usually the school can afford a fitting room for the work and the individual need lose but ten minutes or less from his routine duties. There is room for objection by silly or contentious parents or pupils, as with regard to vaccination or any other sanitary invasions of individual liberty, but large schools in Philadelphia had the matter carried out annually for years without friction. The main difficulty will be in securing efficient examiners without excessive expense. Considerable experience and technical skill are requisite and those having such are generally too busy to care for the small honorarium likely to be paid. Yet if the work be carefully subdivided it is probable that competent men can be induced to undertake limited amounts of it, principally on the ground of its scientific interest and its value to the public, as they now serve in unpaid hospital positions. Many will not continue it after a year or two of its drudgery; yet the system will grow and perfect itself if carefully supervised and many points now set down by skeptics as impracticable will show themselves not only possible but really essential, and we will later wonder how we could expect to get on without such inspection of our schools.

(To be continued.)

Chicago Gynecological Society.

Regular Meeting April 15, 1898.

The President, Dr. HENRY P. NEWMAN, in the chair.
Dr. W. S. CHRISTOPHER spoke on the

NATURE AND MANAGEMENT OF PUBERTY.

He presented for consideration the proposition that puberty is a period during which force is recognized in a peculiar manner for subsequent use in a special manner. That the factors which interfere with the accumulation and latentization of this force interfere with the subsequent act of reproduction in all its phases, and that those factors, on the other hand, which favor the latentization and accumulation of this force, favor the subsequent factors of reproduction. Reference was made to the scientific contributions of Herbert Spencer, who has shown the antagonism between expenditure and genesis, as well as the antagonism between low nutrition and genesis. The speaker said the proposition that low nutrition and high activity are antagonistic to reproduction or genesis, and the converse, that low expenditure of force and high nutrition are favorable to genesis, is tolerably well established. Examples were given. He said it was unquestionably true that the expenditure of nerve force or physical activity, which goes on in the life of the individual during the generative formative period, was certainly greater than it was fifty years ago. There was no doubt in his mind but what the enormous degree of labor thrown upon girls about the time when they were passing through the period of puberty was greater than it was a generation ago. It was a common thing for him to find high school girls failing in their work, and it became necessary to take them from school or diminish their work very materially in order that they might develop properly. It was about the time they entered the high school, or before, that these changes began to show themselves. He cited the case of a girl, 12 years of age, who last October was taken sick with some trifling disorder. On questioning her, he found that she was constantly tired at the end of each school day, and extremely so at the end of each school week. She was removed from school, with

the result that from October until the present time she had gained considerably in weight, strength and personal appearance, and instead of being a fagged out, miserable mortal, she was now a blooming girl, fully up to her age and all that would be required of her in the future.

Dr. JOHN C. COOK thought that physicians were too careless in the general management of boys and girls during the period of puberty. He said: Girls particularly should be taught to stand up straight and to inflate the lungs in such a manner that the nutrition will be greatly increased by so doing.

Dr. BAYARD HOLMES read a paper entitled

HOW TO RECONCILE MODERN EDUCATIONAL METHODS WITH THE DEMANDS OF HEALTH.

He said the growth of the American girl into womanhood generally began at the end of the eleventh year, or some time during the twelfth year, or at the beginning of the thirteenth year, and it progressed with very great rapidity for a year and a half or two years. The law of growth in the human body was one which had not been always considered in relation to the development of girls. The energies of the body rose and fell in each individual with a certain rhythm. Each swell of physical growth was designed to bring about certain morphologic and functional conditions, and when those conditions were not secured at the time nature was accustomed to bring them about, there was absolutely no possibility of their completion and perfection in subsequent years. The maturity of the sexual apparatus and its function in the girl must be secured in that stage of development known as puberty. It was of all the periods of growth of the woman the most important for her future health. Therefore, it was the one above all others which should be considered in the education and training of the girl. All the intelligence and care that it was possible for teachers and physicians to bestow upon her should be given at that time. Not only motherhood and subsequent health, but sanity and life-long happiness were dependent upon the perfection of pubescent growth and function. It did not seem unreasonable, therefore, that the customs and prejudices of the time should be entirely laid aside in considering the proper education of the girl in and before pubescence. In the first place, it was to be recognized as a fact that our present educational methods, both at home and in school, were productive of imperfect women. The ever-increasing number of cases of breaking down, nervous prostration, dysmenorrhea, sterility and hysteric insanity, both among the highly educated and those who left school and entered "gainful occupations" early in life, was recognized by all.

As our public city schools, and most private schools, were now arranged, the boys and girls were educated together, having the same exercises, the same lessons, the same requirements and the same female teachers. This seemed to him the beginning of disasters. The girls should be at that time separated from the boys, the boys going under the care of men and masculine discipline, and the girls remaining in the care of women of experience and education, who would consider the fact that that increasing sensibility and excitability was a part of the pubescent development, and should not be too strongly encouraged.

In the girls' school in the city the occupations should be less and less desk or book study, and more and more the exercise of the hand and eye and body. The ideal school for the girl would make the schoolroom into a house or home in which all the domestic duties would be systematically taught by actual exercise. The schoolroom for the twelve year old girl would have many stoves for the preparation of at least one meal a day; it would have several bedrooms for the exercise of the art of decorating and preparing the sleeping room. Those domestic services would be performed, not for the purpose of educating good servant girls or skilful housewives, but for the purpose of developing the young girl physically and mentally. The cooking would become the basis of the study of physics and chemistry, as well as incidentally the exercise of English grammar and mathematics.

The preparation of the furniture for the sitting rooms and sleeping rooms would be done with the same educational idea. The sewing and the weaving would be made the basis of the study of the history of culture and civilization, and also an exercise of the lost domestic arts. Those school exercises would be most helpful in developing the body of the young girl by interrupted exercises of great variety and they would develop her mind by giving play to the imagination and by contact with real things, methods much neglected in our present educational system. The girl would become a handy, effective, self-reliant woman. It was possible that she would have no less skill in English composition than was secured by the present method of encasing the girl in a mahogany and cast-iron seat for six hours a day and cramming her by means of the memorizing and recitation method. When pubescence had been established and the girl had become a woman, it was possible that she might be able to withstand the trials and the burdens of our medieval and pedantic educational system and take her place in the last years of the high school or the beginning of the college course side by side with the men.

Women must become productive and independent members of society. Less than one-third of the women of the country were brought up in cities. The surroundings of the country girl were quite different from those of the city girl, and yet they were much influenced by the customs and habits of the great aggregations of people from whom civilization takes its name and inspirations. The country girls were trained as nearly as possible as the city girls were. They were taught to read, write, spell, figure, write compositions and read French and Latin, and despise all sorts of domestic or manual labor.

Dr. W. O. KROHN followed with remarks on the same subject. He mentioned a series of experiments and showed charts giving the relative lung capacity in boys and girls. He said modern educators were seeking to re adjust the course of study to fit the child both as regards physical facts and mental facts. In the matter of exercises they were managed according to growth periods, and there was no period more critical, and one that required so much close observation as the period of pubescence in both the boy and the girl. He exhibited a chart which represented the physical exercises most beneficial at different ages. Exercises at the period of from 9 to 14 years were classed under three heads, viz.: 1. Exercises that bring about incitement to, and the formation of growth. 2. Those which contribute to the acquirement of a graceful carriage or nice walk. It was during this time that the muscles of co-ordination passed through their particular phase of development, and this development could not so advantageously take place at any other period, and those physical exercises which conduce to grace and beauty and ease of posture must be given to the child at this stage of his or her career, in order to reap the advantages to be gained from such exercises. 3. We must have at this period exercises that conduce to practice and to skill. Forbidden exercises were those that conduced to straining of the muscles, and should be avoided because of impending molecular changes at this period. Exercises of endurance should be stopped when fatigue manifests itself. Long continued piano-practicing on the part of the girl at this stage was harmful, if carried beyond the point of endurance.

He said our modern methods of education must be readjusted to fit the child rather than the notions of any school board or superintendent, apart from his knowledge of children and ability to frame a logically trimmed, neat, pretty course of study. Teachers were beginning to realize more and more the important point that education must not be acquired at the expense of health.

Dr. ALBERT GOLDSPOHN had in numerous instances ordered girls, between 6 to 13 and 15 years of age, to remain a year out of school, and had observed marked beneficial results from such advice, as for instance, the cessation of excessive menstruation in those who were already menstruating; the cessation of persistent headaches, nosebleed, vertigo and dyspeptic phenomena, and occasionally of persistent neuralgias. He recommends exercise in the open air and the avoidance of sedentary occupations.

Dr. SARAH HACKETT STEVENSON said experience and observation had taught her that it was not the educated women who were the invalids. Before she had undertaken a trip abroad she was told that nearly all of the illness was among American women on account of excessive mental work. During her European trip she saw the dispensaries filled with women who had never crossed the threshold of a schoolhouse, consequently the cause of disease could not be reasonably ascribed to the education of women. The fact of a girl being in school and subjected to a certain amount of discipline at the period of puberty was rather beneficial than otherwise.

Dr. ERRANT believes it is good for a girl to be educated; at the same time the mental strain at the period of puberty, incidental to competition with boys in school, had its injurious effects.

Dr. FENTON B. TURCK spoke of the importance of having a system of dietetics suitable for age, time and conditions of children. The question of malnutrition in school children was the first to confront both medical men and teachers.

Dr. FRANK S. CHURCHILL dwelt briefly upon the importance of not overburdening the child mentally or over-straining its nervous system at the age of puberty at the expense of the physical body. It was of the utmost importance for physicians to encourage outdoor exercises and sports among girls and boys, and get them into the open air as much as possible. He said

that President Eliot of Harvard University had remarked that "the future of the American public depends upon getting the children of our large cities out into the country for as long a time as possible during the summer." This was easy of accomplishment among the children of well-to-do people, but unfortunately it was a much more difficult problem among the children of the poor.

Dr. C. S. BACON said in the management of puberty the first problem was to carry the child, particularly the girl, through this critical stage in such a manner that she shall go forth strong and sound; consequently there were three questions for consideration, nourishment, nutrition and exercise. If it was the object of the boy to become an editor, or the school girl to become an editress, it necessarily followed that her training should be to a great extent the same as that of the boy in order to meet him in competition. Our schools, as now constituted, were, he thought, conducted on the false principle that the training of both sexes should be to the same end. This had already led to fierce competition between the sexes and professions, which was ruinous to families, and would in time be more and more injurious to the female members of the race.

Dr. FRANCES DICKINSON mentioned cases to show that the ciliary muscle does its work the same when the child is in school as when it is out of school.

Dr. FRANK A. STAHL thought the school boy, by means of calisthenics, was fairly well developed physically. When, however, such a boy was put to work, in a short time the red cheeks and rotundity of form disappeared and the natural tendency to be active had given place to a certain amount of lassitude. Physical training and the development of the mental faculties should go hand in hand.

Dr. JOHN T. BINKLEY, JR., stated that his observations did not agree with those of Dr. Stevenson, in that he had found young women who were well educated, as school teachers, the least fit to undertake the work of nursing or any work which entailed much physical exertion. He recalled several instances among the school teachers who had undertaken nursing and abandoned it. He mentioned similar experiences in other walks of life. He places considerable importance on environment in the development of both sexes. The diet of children among the wealthy was carefully looked into and carefully prepared. The social demands upon wealthy parents were so great that in many instances the mothers could not take proper care of their daughters.

Dr. HENRY P. NEWMAN regretted that the obstetric and gynecologic aspects of the subject had not been elaborated more fully. The conditions seen by the gynecologist as a result of improper education or carelessness during the period of puberty were appalling. Attention should be called to them repeatedly, and when women and the public become better educated these conditions will be corrected. It was not intended to suppress education along this line, but to broaden it and thereby assist in eliminating those elements which will tend to greater preservation of the race.

Dr. HOLMES, in closing, said that one of the principal aims of his paper was to call attention to what could be done to make the school correspond with the requirements of the physical growth of the girl. He had nothing to say relative to the physical growth of the boy.

Dr. KROHN remarked that the object and aim of the American school were to develop the best type of manhood and womanhood and the best citizen, physically, mentally and morally.

French Congress of Internal Medicine.

Tuberculosis, mixed infections and organ therapeutics were the subjects of the day. Revilliod classified certain diseases as tuberculogenic: grippe, diphtheria, syphilis, puerperal fever and alcoholism. On the other hand, he stated that there are a number of diseases which absolutely veto the tuberculous infection; some are constitutional, such as arthritism in its multiple manifestations; others, while possibly favoring the tuberculous invasion, proceed to alter the soil until the infection spontaneously dies out. Evidences of this are seen in the stigmata of spontaneously healed tuberculosis found at one-fourth of all the necropsies. This latter class includes erysipelas, epilepsy, local tuberculosis, scarlet fever, typhoid fever (out of 1614 tuberculous patients in his service only 49 had typhoid antecedents, and most of these recovered from the tuberculosis), and diseases affecting the lung tissue: emphysema, sclerosis, putrid bronchitis, pulmonary gangrene, also pleurisy and pneumothorax, which, occurring even in advanced tuberculosis, may effect such a change in the lung tissue as to stamp out the tuberculous infection. "This antagonism between the lesions should lead to research to discover the antitoxin that exists from the beginning in certain organisms and develops spontaneously in others." Bosc urged the parasitic nature of cancer and that all ulcerated cancers should be considered contagious, suggesting that domestic animals and insects may convey the contagion, especially in damp, wooded districts. Vedel reported that he had succeeded in noculating a number of small animals with malignant tumors from man. Arloing has been applying sero-diagnosis to tuberculosis and found that the bacilli were agglutinated 94 times in 100 cases of pulmonary and 91 times in 100 of surgical tuberculosis; 34 in 100 cases of different affections and 22 times in 100 apparently healthy persons. Revilliod confirmed the great benefits derived from his siphon treatment of purulent pleurisy, which constantly aspirates the air, expands the lung by its negative pressure, renders resection of the ribs unnecessary and cures even so-called incurable pleurisies. Arloing stated that the diphtheria toxin and antitoxin both affect the respiration and circulation in the same way, increasing the number of respirations and pulsations and diminishing the arterial pressure. It follows that if the serum is introduced into an organism already strongly affected by the toxin, the effect is cumulative and hastens the fatal termination. Charrin reported that the urine decreases in amount under the influence of the toxin, while the serum increases the renal secretion. Pitres called attention to the fact that the displacement of the heart in pleural effusions is a providential process to protect it and keep it in a normal atmospheric pressure so that the valves can work properly. Hence the danger of bilateral effusions, in which this process is impossible. Gallard considers pyo- and hydro-pneumothorax in phthisis a *noli me tangere*. Courmont reported the case of a woman with Addison's disease transplanted with the suprarenal gland from a dog, causing hyperthermia, collapse and death in twenty-four hours. Two other similar cases have been reported, and they emphasize the danger of transferring to man the conclusions of successful experimentations on animals. The result may possibly depend upon the fact that the gland was derived from another species.

In regard to mixed infections, Widal asserted that each infection impresses its peculiarities upon the serum. He has obtained a whole series of agglutinative reactions in a single animal and found them reproduced in its young. "Mixed infections are probably of greater importance in diphtheria than in any other disease." Bacteriologic examination of vaccin lymph discloses a varied flora which tends to disappear as the lymph grows older. The preponderant rôle of mixed or secondary infections in case of influenza is familiar to all practitioners. He noted that the streptococcus passes most readily from mother to fetus, as it is carried by the lymphatic and sanguine circulation. The failure of antistreptococcus serum was ascribed to the number of varieties of streptococci and the fact that it is only effective against the identical variety from which it is derived. This renders it impossible to guarantee its effect for general use. Meyer announced that he has treated over three hundred cases of non-diphtheritic inflammation of the pharynx with gargles of sodium salicylate, 6 to 8 grams in 120 grams water, which he considers the best medication for the purpose; the pain, constriction, etc., are relieved at once. Chambard-Hénon reported three patients with biliary lithiasis, whose attacks ceased with the external application of methyl salicylate. Some experiments were related terminating with fatal meningo-myelitis caused by the action of the Roentgen rays on the spinal column. A village epidemic of typoid fever was traced to the dejecta of a typhoid patient thrown into the street and mixed with the dust. Eighteen of the thirty-four cases were children who played in the street. Sweeping and sprinkling the street ended the epidemic. After reviewing the history of organ therapeutics, including the recent theory that the histones substances existing normally in the organism can be introduced to reinforce its means of defense against infection, and mentioning the increased power of resistance conferred on the dog and guinea pig by injections of extract of leeches, liver, dog's intestines and calf's thymus, Mosso reviewed the present status of thyroid medication, the most important application of organ therapeutics to date, observing that opinions are divided as to the nature of the toxic substances which accumulate in the organism after the suppression of the thyroid function, and also as to whether the extract acts as a stimulant of the nervous system or as a neutralizer of the toxic products engendered by fatigued muscles, etc. The effects of the secretion of the thyroid gland do not seem to be due to a single active principle, as two have already been discovered: Baumann's iodothyrin which has proved effective in treating trophic disturbances and the chronic toxemia of hypothyroidism, and Frankel's thyreo-antitoxin, which has not yet been applied to therapeutics, although experimentally it seems to neutralize acute toxic accidents (tetanus, convulsions).

It is apparently established now that the thyroid gland holds the iodin brought into the system in the food, preventing injury to the nerve-centers from this metalloid, while at the same time it elaborates the iodized peptone discovered by Baumann. Mossé prefers ingestion of the fresh gland and asserts that the results of this direct opotherapy are excellent in the spontaneous myxedema of adults and congenital infantile myxedema, also in endemic cretinism. Cystic, vascular and cancerous goiters are not affected by it, but the results have been very favorable in fleshy goiters, especially in young subjects and in an early stage. Improvement is rapid if obtained at all. Thyroid treatment is usually injurious in classic Basedow's disease, but is often very useful in "basedowified goiters." This treatment also seems to be indicated in dysthyroidism with or without goiter and perversion of the cerebral faculties. The results in trophic disturbances, infantilism, arrested growth, etc., justify further trials, but in rachitis they are contradictory. He also cited contradictory results in obesity and diabetes. Doses should be small and at long intervals; the condition of the liver and kidneys carefully noted, they may not be able to stand abrupt "demyxedemisation." A neuropathic temperament, arthritism, obesity, also indicate caution; the urine should be periodically examined and medication suspended at the first sign of intolerance. Improvement has been noted in some gynecic troubles, and he urged further trials and research in this line, which may prove important as a means of administering already animalized iodin. Cerenville attributes an important rôle to the chemic substances contained in the juices of the glands, iodin, phosphorus, iron, assuming that these natural combinations have more powerful physiologic properties than ordinary chemic compounds. Possibly the glands elaborate ferments which affect the metabolism of the cell through the blood. Gilbert and Carnot reviewed the technique of preparing organ extracts, giving the preference to an aqueous extract. The organ is mashed and macerated in water, filtered and partially concentrated in a vacuum or with gentle heat. Thus prepared the extract represents 6 to 7 per cent. of the fresh organ. Ovarian extracts, "effective in troubles due to surgical castration, and useful in the disturbances consecutive to the menopause, do not seem to affect the troubles originating in genital affections." Extracts of the spleen, kidney, lungs, brain and pancreas, are still on trial, but extract of liver has already taken a high rank and proven "rich in experimental and therapeutic results." It has been successfully used in diseased conditions of the liver and in other affections comprehended in the term "hepatism." Its marked antitoxic and coagulating properties also render beneficial against certain symptoms. But it has proved most effective in arthritic affections, especially gout and diabetes mellitus. The sugar eliminated fell from 155 to 85 grams in one case; from 81 to 11 in another. Hemoptysis has also been arrested by injections of liver extract. They concluded by classifying the organs: 1, those that only act as vital process, and 2, those that transmit their properties to an extract. The kidneys, pancreas, marrow, etc., may belong to the first class, which would explain their failure in opotherapy, while the liver belongs to the second class. The action of the organ extracts also differs in another important respect: some reproduce *in vitro* the glandular action, such are the gastric, pancreatic and hepatic extracts, which are mostly disastases; others, active *in vivo*, are inactive *in vitro;* liver extract, for instance, does not transform sugar *in vitro*, but does *in vivo*, probably by stimulating the glycogenic function of the hepatic cell. The success of ovarian extract in chlorosis (17 cases), was reported by Etienne, and the cure of severe hemophilia with thyroid treatment by Combemale. Others announced very favorable results from the administration of lung juice. "It has demonstrated its efficacy as a heroic remedy for the general intoxication consecutive to pleuropulmonary septicemia, although its use must be long continued." The improvement obtained in ordinary tuberculosis is slight and transient. Lemoine confirmed his previous announcements in regard to the value of methylene blue in arresting pain in neuralgia, sciatica, etc., and reported several cases of diabetes and gonorrhea cured with it.

The German Congress of Surgery.

Berlin, April 13.

The principal incidents of this Congress seems to be its repudiation of gloves and of Calot's forcible reduction treatment of Pott's disease. If the hands are washed several times during an operation and rubber gloves worn to protect them in septic cases, that is generally considered sufficient, and Mikulicz' "full dress costume" of mouth mask, cap and lisle-thread gloves is not generally endorsed, and the gloves even considered bacteria absorbers by some.

He concedes that efforts to secure absolute asepsis are like trying to square the circle, and others claim that asepsis is not necessarily the absence of germs, as witness the aseptic course of wounds in mouths swarming with bacteria. Perthes exhibited flexible gloves made of silk tricot and rubber, and Friedreich, seamless gloves of thin natural rubber. Both bear steam sterilizing a number of times. Mikulicz controls the sterilization of bandages, etc., by having a strip of paper with the printed word "sterilized" pasted in the box, and stained with an iodin-potassium iodid solution until the printing becomes invisible. When the steam permeates the box sufficiently to fully sterilize the contents, it dissolves the stain and the printed word appears again. Another device is a small tube of brenzcatechuin which is expelled at a certain temperature. He keeps his fingers sterile by painting the tips with tincture of iodin. Schloffer stated that the secretion of a wound is strongly bactericidal for five to six hours, even to artificially implanted pus cocci, but that this property is lost if the secretion accumulates and stagnates, when it favors the growth of bacteria. In regard to auto-absorption Noetzel stated that fifty anthrax bacilli inoculated subcutaneously killed the animals, while 1000 could be injected into a vein without fatal results. An important announcement was that pneumonia and bronchitis follow the use of local Schleich anesthesia in laparotomies as frequently as after general narcosis, although there is no vomiting (Gottstein, 233 applications). The Oberst method was endorsed, but the drawback of pain from the ligature of the member was noted and an easier method of arresting the circulation hoped for (*vide* JOURNAL, p. 496). Twenty cases of empyema successfully treated with the Schede thoracoplastic method were presented, but all were children. Perthes reported brilliant success with an ingenious aspirating contrivance resembling a Bunsen water-air pump which aspirates the pleural cavity and ensures the expansion of the lungs by its negative pressure. Three old and nine recent cases were completely healed in fifty-five days at farthest. Lenhartz also endorsed its efficacy from experience in one case. Karewski reported the case of a woman with empyema, tuberculous peripleuritis and a tuberculous focus in the lower lobe, completely cured by extensive resection of the thoracic wall, curettement and cauterization of the lung focus. He has performed eighteen extensive operations on the thorax including five with lung complications. No deformities resulted, even with children.

In regard to resection and extirpation of the stomach, Krönlein observed that Schlatter's patient was still doing well and had gained thirteen pounds since her stomach was removed. She eats and drinks the same as a normal person. He has had only two deaths in his last seventeen operations for cancer of the stomach, which he attributed to the use of ether and strict asepsis. Schuchardt exhibited a preparation from a patient of 58 years, whose stomach and duodenum had been almost completely removed on account of a large tumor. The remnant of each had grown, as evidenced by the increased production of hydrochloric acid, until a large blind sac had been formed, mostly of duodenum, and capable of holding 500 grams of liquids. Death was from pleuritis long after perfect recovery from operation. Czerny has found that many cases of cancer seem to retrogress like tuberculosis after a laparotomy. A number of patients with inoperable cancers (adherences), gastro-enterostomized, have lived to two and one-half years. This operation for non-malignant strictures produces fine results. His mortality has fallen from 45 to 16 per cent. in his total of 290 operations on the stomach. Mikulicz insisted on an earlier diagnosis of cancer of the stomach. Swelling of the supraclavicular glands is often the first symptom. It is necessary to extirpate all the avenues along which the cancer may spread and the glands toward the pancreas are the most difficult to locate, but it does no harm to open up the pancreas aseptically. The Billroth method can not be applied in extensive resections. Hahn mentioned that in his 141 gastro-enterostomies eight resections, all over 60 years of age had died, and he considers this age a counter-indication for resection.

Bruns described the wounds inflicted by the "dum dum" bullets used by the English in India, already editorially condemned in the JOURNAL. He urged the Congress to call the attention of the authorities to this violation of the St. Petersburg convention. Kümmell presented some patients cured to date of lupus by means of the X-rays or concentrated light. Lewy Dorn protects the operator with the fluorescent screen against all the rays except those passing through the radiographed person, by enclosing the Roentgen tube in a lead box, with only one small opening for the passage of the rays. Walter also recommends placing the patient in a lead box, exposing only the part to be radiographed. This effect is

accomplished more easily with an adjustable board covered with lead. Most of the other communications presented have already been published and been reviewed in the JOURNAL. The Association has been presented with 50,000 marks, as a fund to send certain members to military campaigns in which Germany is not directly interested.

Chicago Academy of Medicine.

Regular Meeting, March 18, 1898.

(*Concluded from page 1414.*)

TUBERCULOSIS OF THE JOINTS.

Dr. JOHN RIDLON—More than one-half of all the work of the orthopedic surgeon does is in the treatment of tuberculosis of the joints. Tuberculosis may attack a joint either in the synovial membrane or in the bone. There is no evidence that it ever attacks a joint in the cartilage or in the ligaments. It is probably occasionally a primary infection. It is probably generally a secondary infection, secondary to tuberculosis in some of the glands, generally in the thoracic glands.

The positive symptoms of joint tuberculosis, when the disease is confined solely to the synovial membrane, and in those cases where traumatisim has not been a predisposing cause, are those of swelling, thickening of the synovial membrane and simply a mechanical restriction of the extremes of motion of the joint. In bone tuberculosis, that is, when the disease begins in the bone ends and before the synovial membrane is involved, there is no swelling of the joint except in cases of traumatism. The diagnosis must depend upon the restriction of motion in every direction to a greater or less degree. If in one direction motion is normally free, the diagnosis of tuberculosis must be seriously doubted, and probably excluded. This restriction of motion is from involuntary spasm in those muscles that normally control the motion of the joint. This condition is always present. The next symptom, which is practically always present, is atrophy of those muscles that control the motion of the joint in question. I have never seen but one case in which there was not this muscular atrophy. There may or may not be pain. If there is pain it is usually a distant rather than a local pain. There is usually some deformity, especially if the tuberculosis affects the joints or bones of the spine or of the lower extremities. The deformity is usually in the direction of flexion in the hip, associated with abduction or adduction, and flexion at the knee with outward rotation and abduction, plantar flexion at the foot, adduction at the shoulder, flexion at the elbow, flexion at the wrist and flexion in the smaller joints of the toes and fingers. In the spine, the first deformity is usually a lateral bend followed by a posterior bend or angle. Tenderness may be found in bone tuberculosis when the joints are superficial. Local tenderness is not found in spine tuberculosis, inasmuch as a tubercular focus is found in the vertebral bodies in practically every case. Disability comes on early and is very persistent. These practically make up the symptoms of joint tuberculosis.

The complications of joint tuberculosis are abscess, and in some joints dislocation, and in spine disease in a few cases paraplegia from pressure upon the spinal cord.

Cases of joint tuberculosis, if left without treatment, go on to a certain degree of deformity and disability and then the vast majority of them go on slowly toward a complete recovery of the disease. The tubercular focus may be evacuated by the formation of an abscess. It may become encapsulated or it may become absorbed by healthy granulation tissues. From 8 to 30 per cent. of the cases that are not treated die. A good many die from general tubercular infection; a good many of those that die have tubercular meningitis. A few of them die from waxy liver and kidneys, where there has been prolonged suppuration and the presumption of septic infection. Cases that are treated by orthopedic measures show a smaller percentage of deaths. Probably not more than from 8 to 15 per cent. of them die when so treated. The vast majority die from general tuberculosis or tubercular meningitis; and a few also die from waxy liver and kidneys.

The principles of treatment of all tubercular joint diseases are few and simple. The joint must be held as nearly immobilized as possible by mechanical means. The weight of the superincumbent parts must be removed in cases of spine, diseased joints of the lower extremities, and the dragging weight of the limb in shoulder-joint and elbow-joint disease oftentimes must be removed. This embodies the entire principle of orthopedic or mechanical treatment. As to what means shall be used to effect this immobilization and thus relieve the patients of pressure, the surgeon in charge must decide and resort to that method which is most fitted for the joint, which is best adapted to the patient, which will be best cared for by the family and which will cause the least criticism by the neighbors; for these cases must be treated for many years, and oftentimes you have to control the whole neighborhood as well as the individual joint.

The treatment of the complications will be as follows: As to the treatment of abscesses, there is a very decided difference of opinion between the orthopedic surgeon and the general surgeon. The majority of general surgeons believe that all tubercular abscesses in connection with joint tuberculosis should be opened at once and treated "surgically." The orthopedic surgeon believes that these tubercular abscesses should not be opened so long as they are simple tubercular abscesses, and should only be opened when they become septic; in other words, so long as the patient shows no septic symptoms the tubercular abscesses are left untouched unless they interfere by their position with the mechanical treatment of the joint. If the joint is thoroughly immobilized and protected from injury, possibly one-half of the tubercular abscesses will never proceed to spontaneous opening. They will become absorbed sooner or later and leave no evident result behind. They will give no unpleasant symptoms to the patient. The patient will never be aware of their existence from any illness, fever, loss of appetite, loss of weight or any ill feeling. When these abscesses approach the surface and become very thin the pressure becomes very great, from without, to open them, and most general practitioners will yield to that pressure and believe it is as well to prick an abscess wall if it is not more than one-sixteenth or thirty-second of an inch thick, instead of leaving it for a week or two or three weeks to break of its own accord. My experience has been that it makes a great difference which you do. If you leave them alone to break and to discharge of their own free will, without any pressure to evacuate the contents, the patient will rarely show septic symptoms, and by that I do not mean that I know the abscess cavity does not become septic. I simply know from clinical experience that the patient does not show septic symptoms, while in those that are freely incised, in the vast majority of cases, sooner or later the patient does show septic symptoms. When these abscesses cause septic symptoms before they have opened spontaneously they should be freely opened, they should be cleaned out and left open, and they should not be drained with a rubber drainage tube.

As to aspiration of tubercular abscesses, it is in my judgment a most absurd and ridiculous procedure. If the abscesses are aspirated early, while they are still in connection with tuberculous bone, they will surely refill. If an attempt is made to aspirate them after the bone lesion has healed it will be found to be impossible, because the contents will have become clotted and curdled so that they can not be completely evacuated.

With regard to the injection of various substances, of which iodoform has been the chief one for the past five or ten years, the orthopedic surgeons are thoroughly in accord that it is a useless procedure, that no case is benefited by these injections, and that very many are made worse by this method of treatment.

As to the treatment of complications or dislocations in conjunction with tubercular joint disease, there have been one or two cases reported, I believe, where a dislocation has been reduced and a cure has resulted without a redislocation. Usually this can not be done, and the effort is not worth the while.

As to the paraplegic complication in Pott's disease, practically all of these cases fully recover from the paraplegia if the patient is kept in the recumbent position sufficiently long. At present it is fashionable to attempt to relieve the paraplegia quickly by forcibly straightening the spine under an anesthetic, and a few brilliant results have been had from this method of treatment, but as yet it is so young that we can not say positively as to what the ultimate result is to be.

There is one point that occurred to me when Dr. Paddock was speaking, and which I wish to refer to outside of my remarks, namely, it is my personal experience that all cases of tubercular joint disease grow worse during pregnancy; that if they have had tubercular joint disease from which they have recovered, they are not necessarily made worse by a later pregnancy. At any rate, the risk is not greater from later pregnancy than from any other weakening condition.

Another point occurred to me during Dr. Babcock's remarks with reference to lung tuberculosis. Most parents are curious to know whether their child who is suffering from joint tuberculosis is likely to die from consumption. Unless it dies from general tubercular infection during the active course of the tubercular bone disease, my experience is that such children are not likely to die from consumption. Indeed, they are less likely to die from consumption than other people.

THE PEDIATRIC ASPECT OF TUBERCULOSIS.

Dr. Rosa Engelmann—Infants and children constitute a large horde of the victims, and run the gamut of almost every form of this malady. Of some manifestations they are almost the exclusive subjects. I need but mention scrofulosis or chronic glandular tuberculosis, coxitis, Pott's disease, primary intestinal tuberculosis, tubercular meningitis, and even solitary tubercle of the brain, spinal cord and spleen.

The excessive mortality in children from this disease is appalling. Before the antitoxin era, the diphtheria ratio headed the list; now a 35 and 48 per cent. tubercular mortality takes precedence. The gastro-intestinal death-rate of infants receives the attention of health boards, but compare its yearly 3 per cent. rate with the above mentioned proportion of deaths. Burdon Sanderson says, "That one third of all the children that die in hospitals die from tuberculosis." Indeed, one-third of all deaths in early years are due to tuberculosis. Simonds states that 35 per cent., or over one-third of infantile mortality in the second year of life, is ascribable to tuberculosis. Hecker of Munich, in his statistics of 700 autopsies upon children, discovered 21 per cent. of latent tuberculosis, 1 per cent. of which was in babes under one year old. Henoch believed, and substantiated by postmortem findings, that many atrophic sucklings die from latent tuberculosis. This important fact is overlooked, since: 1. But few nurslings are hospital inmates. 2. Our statistics are derived from hospital records. Biedert states that "the death rate from tuberculosis during the first year is 6.8 per cent., and from the first to the fifth year, 48 per cent." Because of less poverty and better hygienic environment, America furnishes a lower rate. The report published by Holt from the New York Infant Asylum and Babies Hospital, shows only 8 and 14 per cent. death rates respectively, as compared with the 40 per cent. by Muller of Munich.

The localization of the lesions has in part been mentioned and will be dwelt upon *in extenso* by other Fellows of the Academy. Primary pulmonary involvement, in contradistinction to the adult type of disease, is rare in infancy and childhood. Primary glandular and intestinal implication, according to Simonds' statistics and Muller's postmortem statistics, comprise 92 to 84 per cent. of all cases. Their tabulations in regard to other organs are as follows, with Simonds' first and Miller's last:

Lungs	76.2 per cent.	Pia mater	26.8 per cent.
Probably secondary,	92 "	" "	26.6 "
Liver	24.7 "	Intestines	22.7 "
"	33 "	"	38 "
Spinal cord	20 6 "	Kidneys	15.6 "
" "	43.3 "	"	23.3 "
Pleura	10.3 "	Bones and joints	10.3 "
"	6.5 "	" " "	22 "
Brain	9 "	Peritonenm	7 2 "
"	8 "	"	18 "
Male genitals	2.1 "	Tonsils and omentum	1 "

Maas reports a case of tuberculosis of the tubes and ovaries in a five year old girl, with probable source of infection in the navel. Isambert records a case of pharyngeal tuberculosis in a four and a half year old child.

Kossel's observations in the Institute for Infectious Diseases in Berlin demonstrate that 40 per cent. of the one to ten year old patients applying for treatment for diphtheria are suffering from latent tuberculosis, and two-thirds of these cases exhibit enlarged bronchial and mesenteric glands.

Ruge of Berlin cites two cases of primary tubercular tonsillitis with secondary tubercular myelitis. He says: "It is most difficult to differentiate it from simple tonsillar hyperplasia."

Heredity is an etiologic factor only in so far as the transmismission of lymphatic, immature, embryonic type of tissue predisposes to all kinds of infections, especially the tubercular. Scrofula seems better thus defined than by the term chronic glandular tuberculosis. Since it has been proven that there is a prenatal seminal, ovarian and intrauterine transmission of this disease, the question of inheritance therefore absolutely resolves itself into one of direct contagion. The germinative theory has been experimentally proven by such men as Landouzy, Martin, Konperoff, Pernise and Sirena; Birch-Hirshfeld and Schmorl were the first to prove its placental origin. Jahni confirmed the presence of tubercle bacilli in the semen of tubercular men, whose testicles were free from these germs. Theo bald Smith says: "The tubercle bacillus may pass in semen of the male and infect the ovum directly." Again, "the ovum may be infected by disease of surrounding structures in the female." J. Emmet Holt reports five cases of intra-uterine infection. Demme calls attention to a rare case of pulmonary tuberculosis in a twelve day old babe, doubtless of intra-uterine genesis. Berti reports a similar case at birth.

Post natal infection has been known to occur through the milk of a tuberculous nurse. Ritual circumcision is another established communicating agent. The ordinary infectious diseases of childhood add to the tubercular vulnerability. Infantile habits, such as creeping, placing articles in the mouth, are an added source of danger. Food, particularly milk, the staple dietary of infancy and childhood, here plays an important rôle. It is a well known fact that the lack of food and of dairy inspection laws, lax laws and improper enforcement of the same, account for the presence of from 30 to 50 to even 70 per cent. of tuberculosis in dairy stock and cattle. Lastly, household pets, such as dogs and cats, can communicate this dread disease to their little playmates.

To summarize: The points that I emphasize are: 1. Frequency in infancy and childhood. 2. Localization pertaining to this period of life; rare localization. 3. Etiology, pre-natal, post-natal.

CLIMATOLOGY IN THE TREATMENT OF PULMONARY CONSUMPTION.

Dr. Wm. F. Waugh.—In view of the extravagant claims put forward as to the value of climatic treatment in pulmonary consumption, it may be well to ask what can reasonably be expected from climate. It has not yet been shown that any atmosphere contains elements that are destructive to the tubercle bacillus, nor is any wanting in elements essential to the life of this micro-organism. Every variety of climate has been tried, from the equator to Iceland, the hot, the cold, the wet, the dry, the heavy damp air of the sea-level, and the thin cold atmosphere of elevated regions; even the germ-free depths of the Mammoth Cave have been exploited, but the result has been the same. Everywhere the tubercle bacillus has proved itself capable of existing and operating, of fulfilling its mission, to be fruitful and multiply and depopulate the earth.

The numerous claims made for various resorts as being free from tuberculosis, have even to be modified by the observation, singularly overlooked, that scarcity of consumption coincides with a scarcity of population. While tuberculosis becomes less frequent as we ascend from the sea-level, the population decreases as rapidly. Even in Western Kansas, at an elevation somewhat less than 5000 feet, agriculture has proved so unremunerative that many farms have been abandoned. But whenever any locality has acquired a reputation as a resort for consumptives, they have flocked to it in such numbers as to soon infect the soil and the air; so that now the first requisite may be said to be the fact that no other consumptives are present.

Admitting these premises, we must conclude that the only benefit to be obtained from climate is the improvement in the general health, the strengthening of the body in its struggle against the invading bacillus. And in the selection of a resort in each individual case we must apply the personal equation. Some persons thrive in the clear, cold, bracing atmosphere of Minnesota; others can not bear it, but do well in the warm, moist air of Florida. The thin, cool atmosphere of Denver brings health to some, death to others. Many find the most congenial conditions in the region stretching west from San Antonio; while if they were eligible and accessible, the Islands of Polynesia would be the ideal residences for many invalids.

In general that climate is best for the consumptive that permits him to spend the greatest proportion of his time in the open air, and affords the largest number of hours of sunshine.

But climate alone will not kill the tubercle bacillus, and the importance of this method of treatment has been vastly overrated with disastrous results, because it has led patients to rely upon climate exclusively, neglecting more important things such as the personal hygiene, rest during fever, avoidance of fatigue, the digestion, the local treatment of tubercular lesions and the specific treatment, which has now reached a development too important to be ignored. With these matters properly attended to, a consumptive will have a better opportunity for recovery here in Chicago than in any climate on the face of the earth where all other treatment is neglected.

SKIN AND GENITO-URINARY TUBERCULOSIS.

Dr. Wm. L. Baum—I do not care to go into the symptomatology and pathology of the various forms of tuberculosis of the skin and of the genito-urinary organs. Where the skin is concerned there must be a differentiation made in the kind of tubercular infection. There are many cases in which there is characteristic tubercular tissue present, but in which it is not always possible to demonstrate the presence of the tubercle bacillus. It has occurred to me that there might be an allied bacillus, one which is capable of producing the same tissue changes in the skin as the typic Koch tubercle bacillus. This is well shown in a case which was examined by Dr. Klebs some time ago, which occurred in my service in the Cook County Hospital. The patient, a negro, had the typic manifestations of tuberculosis of the skin of the lips. The glands of the neck were examined microscopically and were found so typic of the disease that the case was unhesitatingly pronounced tubercular,

yet no tubercle bacilli were found. This case forms one of a number I have treated with tuberculocidin injections (as prepared by Professor Klebs). The patient showed quite a decided improvement, but a cure has not been affected up to the present time, although he has been under treatment for a long time.

Lupus vulgaris, which is classified as a form of tuberculosis of the skin, is, strictly speaking, not always of typic tubercular formation, probably due to small number of bacilli and slow growth of the focus. There is a tubercular ulceration of the skin which is characteristic and presents a clinical picture that is characterized by a progressive ulceration of the skin, and which does not start with primary nodules as is invariably the case with lupus vulgaris. A case of this kind was under the care of Dr. Moyer some four years ago, who asked me to see the patient. The diseased process occurred on the patient's cheek and was accompanied by marked glandular involvement; for this reason an unfavorable prognosis was made. The large ulcerated surfaces were scraped out with a Volkmann spoon. Large numbers of tubercle bacilli were found. The fungoid granulations destroyed repeatedly with silver nitrate and the surface scraped repeatedly with the sharp spoon; the object of these successive scrapings was to prevent a heaping up of epidermal cells, and to produce a flat, non-adherent cicatrix. The patient's glands decreased considerably in size; she gained twenty-five pounds in weight and is living today. Cases of this kind lead us to conclude that the most virulent forms of tuberculosis of the skin are at times amenable to treatment. The other form of tuberculosis, lupus vulgaris, is too common to need any particular reference at this time.

In genito-urinary work there are frequently found tubercular deposits in the testicles; if they are recognized as such early in the disease, the removal of the offending testicle is probably the best method of treatment. A large number of cases of tubercular diseases of the bladder and sexual organs come to us at a period when they are beyond operative interference. Tuberculosis of the prostate gland, in which the prostate has already been partially destroyed and in which are found frequent hemorrhages, and where the actual presence of tubercular disease by a bacteriologic examination can be demonstrated, reaches the physician at a period when no operative procedure will give even temporary relief, because at that period there is not only a tuberculosis of the prostate and bladder, but extensive tubercular infiltration of the glands. Two such cases have come under my observation in the last two years. One of them was sent to me by Dr. Nelson of Morris, Ill., in May, 1897. The case was very interesting. It occurred in a Norwegian. The Norwegians, many of whom have settled in this country with their families, seem, when infected with tuberculosis, to have the disease in a virulent form. Those who have had experience with these cases say that they are usually hopeless when once infected with tubercle bacillus. This patient was 34 years of age and came to Dr. Nelson for treatment in 1896, at which time he was suffering from epididymitis, and owing to the great swelling of the epididymis the physician made a diagnosis of gonorrheal epididymitis; the patient strenuously denied any infection. A number of months later the patient had a slight sero-sanguine discharge from the urethra, followed by hematuria. About this time, in May, 1897, he was sent to the Post-Graduate Hospital for treatment. Examination revealed the fact that the patient had a nodular growth present in both testicles, and that upon the introduction of an instrument into the posterior urethra he had considerable hemorrhage. He gave a history now of not only having hemorrhages at the end of micturition but hematuria from the kidneys proper with marked pain in the back. He had an average temperature of 99.8 degrees during the first three days after admission. There was no stricture of the urethra and no history of venereal disease. The man is married and has two children. The patient was examined by Dr. Klebs and myself. His lungs were found apparently in excellent condition. An examination of the urine showed a large number of tubercle bacilli with spores, showing a breaking down of tubercular masses. He was immediately put upon tuberculocidin (Klebs). After the first injection the temperature rose to 103.5 degrees. This temperature lasted only about thirty-six hours, when it gradually declined until it reached 99 degrees. He was given a second injection on the third day, when the temperature rose to 102.8 degrees. These injections were made into the tubercular mass in the testicles, first on one side then upon the other. At the end of the tenth day we noticed a slight fluctuation in the right testicle. This fluctuating point was opened and a considerable quantity of cheesy material removed. This material contained large quantities of tubercle bacilli. The patient did not react after the tenth injection. The injections were continued for a period of four weeks and the patient sent to his home in the country. He worked during the harvest period last year. He has gained in weight and is in good condition. Frequency of micturition, which was a prominent symptom, has been reduced to seven or eight times a day and he does not need to get up at night to urinate.

The second case was an American, 29 years of age, who was admitted to the hospital July 19, 1897, with a temperature of 100 degrees. The lungs were apparently sound. Tubercle bacilli were found to be present in the urine of this patient as demonstrated by Professor Klebs. After the first injection the temperature rose to 102.3 degrees. Subsequently the man had about the same clinical history as the other patient, with the exception that he had marked pain in the apex of the right lung and expectorated considerably after the first injection. The patient apparently recovered, that is, he did not react to injections of tuberculocidin.

In reporting these cases I simply wish to point out that in non-operative cases we have apparently some means of treatment whereby we can hope for some amelioration of the symptoms in tuberculosis in the genito-urinary tract. I would not be justified in saying that these patients are cured, but they are certainly benefited and the results are rather encouraging.

I have here a report of a case in the *Progrès Médicale* of Dec. 11, 1897, by Dauriac, who has used the T. R. tuberculin of Koch, which I will briefly cite. The patient, an accountant by occupation, aged 32 years; brother died of pulmonary tuberculosis; patient had typhoid fever two years ago and has been ailing some since; has been a hard drinker, has had a cough for over a year, the expectoration being yellowish; has twice had hemoptysis; right lung affected. In May, 1897, he had an attack of hematuria which was not abundant, but consisting principally of mucus and small clots. These persisted for a number of days and reappeared from time to time during the treatment. Since May patient micturates very frequently, every twenty to twenty-five minutes. There are no renal pains but a continuous heaviness of the back. At the level of the bladder there is a considerable sense of uneasiness. Appetite is poor; evening rise of temperature, night sweats. Patient very emaciated and had diarrhea. No tubercle bacilli found in urine. In September he was given the first injection of T. R. tuberculin of Koch serum. The injections were continued until November. Urine shows a decrease of the deposits. Patient only urinates four or five times in twenty-four hours, and passes several nights in succession without any desire to urinate. Urine still shows slight trace of albumin. On November 2 the urine was perfectly clear. No more deposits; no more blood. Pains had disappeared. Auscultation shows the condition of the lungs considerably modified, only a slight difference in respiration. Patient eats heartily, but partakes mostly of milk. The milk treatment had previously brought about no amelioration in his condition. December 1 reports a complete cure.

I should not be justified in my cases in reaching this conclusion as the time is entirely too short to make any definite prognostications as regards the future.

SELECTIONS.

Idiopathic Dilatation of Colon; Operation; Recovery.—Mr. Frederick Treves, the eminent surgeon to the London Hospital, has recently performed a notable operation in the removal of the whole of the larger bowel below the transverse colon together with the anus, for the relief of that perilous condition known by the term in the caption of this article. The patient was a girl over five years of age, who had been the subject of painful symptoms, almost from birth referable to intestinal distention, and for the relief of this a first operation had been done in January, 1897, for the establishment of an artificial anus, which was measurably successful for a time. Nine months passed by and the difficulty of maintaining the artificial outlet was present, as is always the case with such openings when made as the present one was made. This necessitated the introduction for so many hours each day of a bent rubber tube which kept the orifice quite patent, but which occasioned the child a good deal of distress. In October, 1897, Mr. Treves resolved to attempt the excision of the colon from the splenic flexure to the anus, as this appeared to afford the only possible prospect of giving complete relief to what was still a distress-

ing condition. This second operation was performed on October 29. By means of an elliptic incision in the skin he isolated and removed the artificial anus, entering the abdomen on each side of the opening. The orifice in the colon was closed by a series of substantial sutures. The gut, which had at one time been so enormously distended, was now of more moderate dimensions, and its point of juncture with the narrow tube which represented the lower part of the colon was still abrupt. The narrow tube had shortened somewhat as the result of removing the distension. The dilatation of the colon extended up to the splenic flexure. Beyond that point the colon was practically normai, although it had evidently been to some degree distended and still showed some hypertrophy of its walls. The colon on the right side was normal and the whole of the greater bowel had a very free mesocolon. Having found that he could bring the left extremity of the transverse colon to the anus, he isolated and ligatured the left colic artery, and having clamped the bowel divided it at the splenic flexure. He then isolated the sigmoid artery and the superior hemorrhoidal vessels and ligatured them. He then excised the gut representing the descending colon, the sigmoid flexure and the upper part of the rectum. He divided the bowel low down in the pelvis below the entrance of the superior hemorrhoidal artery. The child was now placed in the lithotomy position, and having made an elliptic incision around the evidently narrowed anus he proceeded to remove the anus together with the lower and remaining portion of the rectum. The lower end of the rectum having been removed, the transverse colon was brought down into position and secured by a series of close sutures. The gut was conducted into position by four pressure forceps which were passed into the abdomen through the hole in the perineum. The operation was concluded by closing the wound in abdomen without drainage. The child made a speedy and excellent recovery. No sedative of any kind was needed, as little pain was complained of. The only complication was represented by some suppuration between the new rectum and the vagina. This was no doubt due to accidental infection of the tissues while drawing the transverse colon into place. As soon as the child began to run about again this discharge ceased entirely. It is probably safe to conclude that the patient will in due course obtain control over the new anus. Be that as it may, it was clear that the condition previous to the second operation was not consistent with other than a very short life. Mr. Treves has presented the specimen to the Royal College of Surgeons; he describes it as follows: It is quite clear that in this particular instance the dilatation of the colon was due to a congenital narrowing of the lower extremity of the bowel as represented by the segment supplied by the inferior mesenteric artery. This narrowed part exhibited no structural change. Little idea of the immense degree of dilatation of the colon can be gathered from the preparation as it now appears. The junction of the narrowed portion with the dilated part is not so abrupt as it appeared to be before the intestine was removed. At this point of junction there is no mechanical obstruction and no disease of either mucous or muscular coats. In mounting the preparation the structures which formed the anus have been removed. The *Lancet* offers a brief comment on the case, saying "the patient's condition was one where a tremendous operation was the only resource left to the surgeon, for the issue of cases of so-called idiopathic dilatation of the colon is as certainly fatal as the issue of cases of carcinoma of the intestines. That the little patient would have died without prompt surgical interference no one can doubt who reads the notes of the deplorable condition into which she had drifted. The attacks of obstruction of the bowel were growing more frequent and prolonged, the abdominal distension was extreme, no aperients could be used and enemata had lost their effect." All surgeons will be interested in reading the account of the operation as recorded in that journal, the whole story forming a perfect illustration of the remarkable possibilities and resources of abdominal surgery.

Epileptic Colonies Abroad.—Before the Harveian Society of London, Dr. A. Turner read a paper on the treatment of epilepsy in epileptic colonies, refering especially to the English colony established at Chalfont St. Peter. This charity had been founded for the purpose of giving employment to those epileptics, both male and female, who, by reason of their disease, were unable to obtain work or who were discharged from remunerative posts on account of epilepsy. The experience of the colony during the four years of its existence pointed to the fact that the younger the epileptic and the sooner he is admitted after the onset of the seizures the more satisfactory is the result of the general management and régime adopted. The principles which direct the management are simple: 1, removal of the epileptic from the town to the country; 2, regular employment under direction; 3, the maintenance of a well-ordered and regular mode of life, with avoidance of excitement and abstinence from alcoholic liquors; and 4, abundance of good nourishment of a simple nature. The general result is that the fits in the majority of cases diminish both in number and severity, in some cases to quite an extraordinary extent; the physical health materially improves, while the mental condition in all but a few cases shows obvious improvement. Some were sent in as suffering from Jacksonian epilepsy and as being in urgent need of operation; but the fits would cease or subside in frequency and severity so long as the patient remained in the hospital, although medicines were almost entirely withheld. He mentioned the difficulty of treating epilepsy occurring in those past middle life and instanced the case of a man who after being a great sportsman all his life had become epileptic. He would often be seized by a fit while out shooting and would lie down until the attack passed off and then resume his sport. He had taken the responsibility of allowing the patient to continue his favorite pursuits in spite of the obvious danger entailed, thinking that the danger to general health would be still greater were the patient to forego the mode of life to which he was accustomed.—*Lancet*, April 30.

PRACTICAL NOTES.

Varices of the Lower Limbs are successfully treated with Trendelenburg's resection of one or more segments of the saphena between ligatures, but this does not relieve the annoying hard chronic edema. Ledderhose accomplished this and completes the intervention by making from two to five incisions the length of the limb from the root of the foot to the knee, passing through the skin and subcutaneous cellular tissue to the muscular aponeurosis, suturing each incision as soon as made and applying a tight bandage. The limb is held vertically to prevent hemorrhage.—*Semaine Méd.*, May 11.

Application of the Forceps to the Superior Strait in Deformed Pelvis.—Budin reports sixty-four cases thus treated, with no deaths nor morbidity among the mothers; forty-five of the children left the hospital alive and well. Several of the children were already dead or deformed so that death was inevitable. He ascribes three other deaths to the antero-posterior application, which he denounces, advocating the direct application and changing this to the oblique without losing any of the advantage gained. One branch of the forceps is then over the mastoid region on one side and over the frontal on the other.—*French Obstet. Congress.*

Tuberculin in Tuberculosis of the Eyes.—Six years ago Zimmermann enucleated the left eye of a patient for ocular tuberculosis. A year ago the other eye became affected in the same way and while the tuberculous patches were cauterized tuberculin was administered, commencing with $\frac{1}{500}$ milligram and increasing in a month to 0.02 to 0.03 every second or third day. The patient is now practically cured, and a series of similar experiments on animals confirm the favorable results of tuberculin as a therapeutic agent in ocular tuberculosis in man and beast.—French Congress of Ophthalmology.

Intra-ocular Hemorrhage in Youth differs in nature and etiology from the same occurring in maturity or senility. Sudden, relapsing hemorrhage, evidently a form of epistaxis, is best combated by hygienic and tonic measures, quinquina, iron, combined with citric or sulphuric lemonade and ergotin. It is rapidly absorbed. Dyscrasic hemorrhage, frequently brought on by a fit of anger, is treated much the same way. Wet cups

to the temple will also be found useful. If the hemorrhage is secondary to chorio-retinitis, mercurial treatment is indicated, as this affection usually follows syphilitic infection. Apoplectiform hemorrhage into the retina is best combated with one-half to one gram quinin sulphate a day, supplemented by wet cupping the temples and myotics, preferably pilocarpin associated with eserin when the symptoms of glaucoma appear. The prognosis of this latter class is grave.—Abadie, at French Congress of Ophthalmology.

Indications for Petro-Mastoid Evidement for Dry Chronic Otitis of the Middle Ear.—Operate only when the tuning-fork or acoumeter placed on the skull can still be distinctly heard. Operate early before the lesions spread, and only one ear at a time, selecting the ear with the poorest hearing. The improvement often extends to the non-operated ear. The lower tones are seldom improved, the intervention affecting especially the higher tones and causing the gradual subsidence of the subjective noises. It should not be attempted on elderly people. It requires more or less complete integrity of the fenestræ, but every subject whose aerial audition of the higher tones is not too much diminished should profit by the intervention.—*Presse Méd.*, May 7.

By the Rectal Administration of Large Doses of Sodium Salicylate in Articular Affections, the desired effects are obtained promptly and thoroughly without affecting the appetite and digestion, according to Harlet in the *Nord Méd.* of May 15. He commences with 8 to 12 grams a day in two injections, each in a cup of bran water, adding a little opium or laudanum if necessary. It is completely absorbed in six to eight hours. He then decreases the amount by a gram every second day according to results. After seven grams, but one injection a day is given. He applies locally a 10 per cent. salicylic acid salve, to which a little turpentine or phenic acid has been added, and keeps the patient in bed ten to fifteen days after all pains and swelling have subsided, to prevent relapses or reinfections. This treatment puts an end to the pain in less than three days; the affection leaves no sequelæ, locally or at a distance, and cardiac or gastric complications are avoided. He has been equally successful with it in acute or chronic articular rheumatism or hydro-arthrosis, iritis, gonorrheal joint affections, cold pleurisy, etc.

Obstinate Cases of Herpes.—Dr. Oppenheimer (London *Lancet*, April 23), remarks that in his experience herpes genitalis, if not symptomatic of urethral discharge or stricture, is usually due to the decomposition of the smegma præputiale. Ointments mix with the latter and share in the decomposition to which the smegma is so liable, hence there is a contraindication against the use of fatty substances. In his opinion scrupulous cleanliness is the most effective preventive against the recurrence of this troublesome complaint. Hot alcoholic lotions, as eau de Cologne or brandy in water, are quite sufficient. But as the treatment is usually more steadily persevered in when a medicinal lotion is given he is in the habit of prescribing the following lotion: Boric acid 2 dr.; absolute alcohol, 1 oz.; and rosewater to 6 oz. This is to be diluted with equal parts of boiling water and is to be used as a lotion several times a day. A dusting powder containing dermatol and calomel assists the treatment. He usually prescribes the following dusting powder: Calomel, 20 gr.; dermatol, 30 gr.; bismuth subnitrate, 1 dr. This treatment has to be carried out regularly for from four to six weeks and then to be repeated about once or twice a week.

Sinusitis.—Haight's assertion that over one-third of the external diseases of the eyes are due to nasal affections (*vide* JOURNAL, page 1210) parallels de Lapersonne's address at the French Congress of Ophthalmology on the orbitary manifestations of sinusitis. He notes a frequent intermittence in the symptoms of frontal sinusitis, due probably to the temporary obstruction of the fronto-nasal canal; sometimes recurring neuralgia, with radiating pains in the region, redness of the conjunctiva, photophobia and profuse lachrymal secretion, all aggravated by efforts at accommodation and all subsiding in the course of a few hours to return the next morning at the same time. These cases are preceded by grippe or measles and accompanied by rhinitis. They recover, but recur and tend to chronic frontal sinusitis. In one case the pain, very violent, returned only during menstruation, with dilatation of the pupil and accommodation paresis. He described an acute case in which there were indications of a phlegmon of the orbit, and of meningitis, delirium, temperature 40 degrees C., but the maximum of pain on pressure was in the upper inner part of the orbit and the exophthalmia slightly infero external, which indicated frontal sinusitis. Perforating the lower wall of the sinus released a purulent accumulation and resulted in a prompt cure with no recurrence. This operation, or trephining the anterior wall, will cure acute sinusitis, but a fistula is apt to persist in chronic cases. These require trephining with fronto-nasal catheterization and destruction of all the anterior and inferior wall of the sinus and of all the mucosa, by curettement or steam. He emphasized the importance of locating all the empyema which may have spread to an adjoining sinus, or be walled off by an abnormal bony partition, or in some abnormal supplementary recess in the palatine apophysis or elsewhere, such as Boulay has observed. Sphenoid or ethmoid lesions should be sought in every case of maxillary sinusitis. They explain a number of orbitary complications too often attributed to reflex action.—*Presse Méd.*, May 7.

Grey Oil in the Treatment of Syphilis.—Dr. Touren of the French navy has an interesting article in the *Archives de Médecine Navale* for April, 1898, on the treatment of syphilis by intramuscular injections. At the Moscow Congress Dr. Gaucher of Paris enunciated three propositions: 1. Mercurial injections in the treatment of syphilis should be the exception and not the rule. 2. When injections are employed the soluble salts of mercury are preferable to the insoluble; and 3, if an insoluble salt has to be used, the "grey oil" is the least objectionable. After five months' experience in charge of the Saint Mandrier venereal wards, Dr. Touren is in a position to disagree with the first two propositions, but with the third he is in accord. In civil life, he says, the administration of mercury by the mouth may be best, but in a military or a naval hospital this is certainly not the case. In the first place, there are not only some patients who keep their sores open or create fresh ones wilfully, but also others, more numerous still, who make away with their medicine. Secondly, it is universally acknowledged that in warm climates the digestive tract is peculiarly liable to derangement and should therefore be treated with circumspection. Intramuscular injections enable the physician to administer mercury safely, expeditiously and without any danger of digestive complications, while at the same time they ensure the ingestion of the drug as prescribed. There is therefore no valid objection to the universal employment of this method of treatment. In support of his second proposition Dr. Gaucher asserted that the administration of insoluble salts was a pharmacologic heresy: *corpora non agunt nisi soluta;* but Dr. Touren found that although the symptoms quickly disappeared when a solution of mercury perchlorid was injected, they invariably returned with equal rapidity. In his opinion, a clinical heresy was a far worse evil than a pharmacologic heresy, so he preferred to adhere to the drug which gave him the best results. In Dr. Touren's hands the "grey oil" answered all requirements. The injection was painless, the patient could walk about immediately afterward, salivation rarely showed itself and quickly yielded to an application or two of iodin, diarrhea only occurred once and, lastly, the mercury was absorbed with regularity and very slowly, the latter fact possibly accounting for the permanency of the cure. The formula adopted was as follows: Purified mercury, 20 grams; lanolin, 5 grams; and vaselin, 35 grams. The third of a Pravaz syringeful was injected at intervals of fifteen or twenty days, and as a rule three or four injections sufficed to ensure the disappearance of all transmissible symptoms.—*Lancet*, April 30.

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SATURDAY, JUNE 18, 1898.

TRICHINOSIS, WITH ESPECIAL REFERENCE TO THE INCREASE AND ORIGIN OF THE EOSINOPHILIC CELLS.

In the *Journal of Experimental Medicine* for May, 1898, THOMAS R. BROWN describes two cases, presenting the typic picture of trichinosis, observed in the medical clinic of the Johns Hopkins Hospital of Baltimore. The blood and muscles were subjected to minute examination according to modern methods, and certain facts of great interest have been brought to light. The red blood-corpuscles, counted at frequent intervals during the course of the disease in the first case, gradually increased from 4,200,000 per cubic millimeter at the time of admission to 4,900,000 on the day of discharge, nine weeks later. At the time of entrance the original percentage of eosinophiles was 37, gradually falling to between 10 and 15 per cent. Three weeks later the percentage began to rise and this rise continued steadily for one month, when it reached the remarkably high percentage of 68.2 per cent., so that more than two-thirds of all the white blood-cells were eosinophiles. During this time there was an absolute increase in leucocytes. During the whole period of observation the morphologic character of the eosinophiles was apparently normal. The detailed statement concerning the observations made on the blood with respect to the total number and percentage of the various kinds of leucocytes is clearly displayed in tables, which give the exact figures.

The three most striking points furnished by the study of the blood are: The marked increase in the number of eosinophiles, being 35 per cent. more than has ever before been reported; the coincident fall in the number of neutrophiles, and the marked leucocystosis. If further observations show this change in the blood to be characteristic, a symptom of the greatest value in diagnosis has been brought to light; a symptom which may perhaps help to clear up some of those cases which are regarded as rheumatic during life, the true diagnosis being revealed, perchance, in the findings of the postmortem table years later.

Pieces of muscle were removed from the right biceps on two separate occasions, and the microscopic changes are carefully described. The changes observed in this case, as well as in tissue obtained from a New York butcher, who died six weeks after the onset of the disease, consisted in marked proliferation of the nuclei, with the formation of muscle cells as well as of distinct vacuoles about the muscle nuclei and a granular degeneration of many of the muscle fibers, and, finally, the interesting and heretofore unnoticed condition, namely, the presence of a large number of eosinophilic cells.

This accumulation of eosinophilic cells in the muscles in trichinosis, coupled with the coincident marked increase in the circulating blood, suggests one way at least in which these cells may arise in the body. There are many views concerning the origin of the eosinophilic cells; all are hypothetic and some are rather far fetched. In Dr. BROWN'S study the constant inverse relationship between eosinophiles and neutrophiles, the increase in the former being associated with the decrease in the latter, as well as the similarity in the size and shape of the nuclei of the two varieties, all seem to point toward some intimate relation between the two forms. There is much to suggest that the transformation of neutrophiles into eosinophiles may have occurred in the muscles; thus transitional forms between the two were found in the first piece of muscle examined, and in the second piece, examined two weeks later, there was a greatly increased number of eosinophiles.

The process of transformation of one cell into the other can only be conjectured. The trichinæ, on reaching the muscle, cause various tissue changes and produce primarily or secondarily chemotactic substances that lead to a marked local leucocytosis. Polymorphonuclear neutrophiles emigrate and take up into their interior degenerated bits of muscle, and in these phagocytes a change in the character of the protoplasmic granules apparently occurs. Some material may be ingested, material originating from the disintegrating muscle fibers, which brings about a change in the chemistry of the cell, whereby eosinophilic granules are formed. Later these cells wander back again into the circulation and give rise to the marked increase of eosinophiles observed in the blood. This theory would not seem unreasonable, in view of the relatively large amount of muscle tissue in the body.

The study of the second case, which was not quite

so complete as the first, gave practically the same results.

These observations show that there may occur a marked increase in the percentage of eosinophilic cells in the blood in trichinosis; that this increase may be used as a diagnostic sign in this disease; and that systematic examination of the blood should therefore be undertaken in cases with indistinct intestinal, muscular, or articular symptoms, in the hope that perhaps some of the heretofore doubtful cases of this kind may be diagnosed.

THE RESECTION OF THE SYMPATHETIC.

The operative treatment of nervous disorders is an ever present surgical temptation that leads too often to the useless continuance of formidable experiments after the time that their proven insuccess ought reasonably to forbid them. Epilepsy is a condition that has especially incited surgical interference even in cases where the rational hope of cure or even of permanent alleviation is a minimal one. Trephining, excision of cortical centers, ligation of the vertebral arteries, castration, circumcision, the insertion of setons and various other operations have all had their advocates, and reports have been given out of their success, in very many cases, if not indeed in the vast majority, far too soon to be anything but misleading and actually dangerous as therapeutic guides. While the disorder is a sufficiently serious one to justify any operation, however grave, that can afford a reasonable hope of relief, it is certainly a waste of surgery and sometimes it may be also of human life, to indulge in formidable operations when an ample experience should teach us that any lasting beneficial efforts are only very remotely possible if in fact they are possible at all, and such temporary alleviation as may occur is equally likely to be the consequence of very much slighter interventions. The operative treatment of epilepsy, except possibly in comparatively recent traumatic cases, has been generally one of the brilliant failures of surgery.

The latest surgical procedure offered as a cure for epilepsy is resection of the cervical sympathetic, and it is recommended not for this disorder alone but for a number of others, Graves' disease, simple goiter, hysteria, chorea, paretic dementia, brain tumor, cretinism, idiocy and glaucoma. The theory of the utility of the operation is that by excision of the superior cervical ganglia—the cellular relays of the encephalic vasomotors—such a modification of the cerebral circulation will be produced as to affect the cause and course of these diseases. Any more exact pathologic basis for this procedure seems to be wanting and it does not appear at first sight how it is to be beneficial in so wide a range of morbid conditions, in fact, its usage in some of them rather resembles a rash experimentation grounded on no rational considerations. The cervical ganglion is often necessarily sacrificed in surgery of the neck without any evil results and the operation may therefore be considered as comparatively safe and harmless. If, on the other hand, it was serious, one necessarily involving risk of life, it would be absolutely inexcusable to perform it in some of these conditions without a better reason than the remote possibility of influencing the disorder through a general derangement of the cerebral vasomotors.

The reported successes, even by so strong an advocate as JONNESCO, are not such as to be convincing; a year and half, which is the longest time apparently of observation, is not conclusive as to cure in epilepsy and only the closest observation can absolutely exclude all possible manifestations of the disease. Many reported cases of relieved epilepsy still have nocturnal or abortive attacks, that may be and are easily overlooked and not infrequently what is considered a cure by a careless observer is in reality only a temporary change of type. The beneficial effects in Graves' disease may be real, but, so far, actual and complete cures of the condition do not appear to be generally reported. The fact that the vasomotor disturbances produced by the operation are not lasting, while it makes it less formidable, has also a bearing on its therapeutic value; it is hardly to be expected that a thoroughly chronic morbid habit, so to speak, of the nerve centers is to be completely broken up by a transitory derangement of the circulation.

There may be some question also as to the absolute harmlessness of the operation in all cases, and whether the production of a vasomotor paralysis of the head is necessarily as innocent a proceeding as the advocates of the operation would appear to claim. Cerebral congestion is not ordinarily considered innocuous, and it may not prove so in all cases when it is artificially induced. Injuries of the cervical sympathetic have in times past been credited with producing serious disorders such as insanity, and the inconvenient possibilities of operative interference with its functions ought not to be left entirely out of consideration. Advocates of newly introduced operations are strongly tempted to overlook their failures and to allow their prepossessions to color their judgments; it is therefore well in such cases to accept their results *cum grano*. When, as with this operation we have, with the claims of JONNESCO, CHIPAULT and its other advocates, the contradictory results of DONATH, PÉAN, and others, doubts of its value are certainly justified. In any case our knowledge of the pathologic physiology of the nervous system in this particular direction is too limited as yet to make the operation more than an experiment in the various diseases in which it is recommended, and one the success of which has not yet been satisfactorily demonstrated. As regards epilepsy, idiocy and other chronic and degenerative conditions its insuccess may be *a priori* expected from

our experience with other surgical interventions in these diseases, in spite of the premature claims of its upholders.

CONCERNING THE ABSORPTION OF FOREIGN BODIES THROUGH THE TONSILS, AND ITS RELATION TO THE DEVELOPMENT OF INFECTIOUS PROCESSES.

B. FRAENKEL[1] three or four years ago called attention to the frequency with which acute tonsillitis follows trauma or inflammation of the nasal mucous membrane. Inasmuch as a direct infection of the tonsil through its epithelium is to be regarded as rather difficult, because it has to take place against the exuding stream of lymph and leucocytes, he concluded that the inflammation followed an infection of the nasal mucous membrane, which reached the tonsil by way of the lymphatics. Histologically he was able to show the presence of bacteria in the crypts as well as in the tissues of the tonsil.

Further study of this theory necessitates in the first place the solution of the problem whether the tonsil is able to take up into its interior foreign bodies that come in contact with its lining membrane. The tonsil is generally credited with having a resorptive power, in the text-books, but experimental proof of this power seems to be lacking. In fact HODENPYL concluded from his experiments that the tonsils of lower animals did not absorb bodies through the intact mucous membrane. In order to throw some light upon this question, GOODALE[2] of Boston undertook certain experiments, to be detailed below. He regarded it from the start as more likely that if any resorption took place at all it would be more apt to occur from the loose lining that covers the crypts, rather than through the compact covering of the surface of the tonsil. GOODALE placed foreign bodies in the crypts of human tonsils, which were more or less hyperplastic, and which it was therefore necessary to remove. When the bodies had remained a certain length of time in the crypts the tonsils were excised and examined microscopically. After a few experiments it was found that a watery solution of carmine served the purpose of the experiments best, because the minute fragments could be recognized in the sections stained with the ordinary nuclear stains, as for instance hematoxylin. Carmine suspended in water was placed in the crypts by means of a blunt silver cannula fastened to a hypodermic needle.

When the tonsils were exercised immediately after the introduction of the carmine into the lacunæ there were no particles to be found in the lining membrane, though the little cavities were filled with the carmine water. After allowing the carmine to remain for twenty minutes in the crypts, fine lines of minute granules were observed running between the cells of the mucous membrane, in some places extending through a few layers of cells. Particles of carmine were also present in the interior of polynuclear leucocytes. After from forty-five minutes to two hours the carmine was found to have reached from ten to twelve layers of cells below the mucous membrane. Allowing two days for the carmine to be absorbed from the lacunæ the granules were found in linear arrangement between the follicles, lying mostly in leucocytes. There were leucocytes also in the crypts containing granules. In many of these leucocytes the nuclei seemed to be undergoing disintegration. After from five to ten days the carmine was found to have spread more diffusely through the tissues of the tonsils, lying especially in the interfollicular lymph spaces, but also present to a certain extent in the interior of the follicles. In sections of these tonsils, stained to show the presence of bacteria, no micro-organisms were found.

From these experiments GOODALE believes that the following conclusions are warranted:

Absorption occurs normally through the mucous membrane of the crypts of the tonsils.

The absorbed materials pass in through the follicular lymph spaces in the direction of the larger connective tissue septa.

During the absorption the foreign bodies are subjected to the phagocytic action of the polynuclear leucocytes.

Bacteria normally present in the lacunæ are not as a rule found in the tonsillar tissue.

Bacteria that may enter the tonsillar tissue would seem to be destroyed very soon after entrance.

It would also appear that acute lacunar tonsillitis is most frequently caused by the absorption of irritating toxins through the mucous membrane of the crypts, in which the bacteria grow as if in a test-tube.

1 Quoted by Goodale, Archiv f. Laryngologie, 7 Band.
2 Loc. cit.

THE BLOOD IN INFANCY.

One of the last lessons that a physician has to learn is that a child is not a little man. At birth the child is a very incomplete human; it increases in size rapidly during the first few months of extra-uterine life, but this rapid growth of its organs is of course at the expense of the stability, in other words, the resisting power of the organism to abnormalities of all kinds. The blood of infants and young children is especially prone to undergo changes from slight causes and, as a rule, the younger the individual the less the effort needed to throw the blood off its balance, so to speak. For instance, lesions causing a slight leucocytosis or an anemia in an adult would be very likely to bring about a marked leucocytosis or an anemia of high grade in a child.

The blood of a young child differs greatly from that of an adult; indeed, if we were to take the blood of a young healthy adult male as normal, we would be apt

to look upon the blood of a young infant as pathologic. If a specimen of adult blood were similar to that of a young infant we would be justified in concluding that that adult was suffering from some pathologic lesion that was exerting its chief malignant influence upon some of the blood-forming organs. But when we find in all infants these same differences from the adult type, it would be absurd to call infant blood pathologic, especially as it needs but the tincture of time to bring about gradually the condition we are in the habit of regarding as the true standard.

Normal adult blood consists of fluid and solid elements, the latter of which are only of interest to us at present and are known as red and white corpuscles, existing in the relation of one white to five to six hundred red. One cubic millimeter of blood contains approximately five million reds (4,500,000 in the female), and from 5000 to 7500 whites. The red are all of about the same size and shape and are normally not nucleated. The white are divided into several varieties, the division depending upon the age of the cell, young, adult and old leucocytes. The proportion of these one to another is a point of considerable practical importance; the young cells are of two varieties, the small lymphocytes comprising 20 to 30 per cent. of the whole, and the large lymphocytes 5 to 10 per cent.; the adult forms, known as the polymorphonuclear neutrophiles, 60 to 70 per cent., and the old cells or eosinophiles, 0.5 to 4 per cent. Many other points might be stated as regards the corpuscles, but the above are sufficient for the purpose at hand.

To take up the changes in infantile blood in the same order we have enumerated the facts in the adult, we find first that the infant is very liable to have an excess of red corpuscles per cubic millimeter from one-half to as high as one and a half million. A very common change, so common in fact as to be almost constant, is the leucocytosis or increase in the number of whites that occurs during the few first days after birth. Cases have been reported of a leucocytosis of the first day of nearly 20,000, increased by the first meal to over 25,000, gradually receding toward the normal line during the next few days. Leucocytosis occurs after a meal in adults, but never to this great height, another point showing how easily the blood of infants is affected by slight causes. The red corpuscles usually show considerable variation in size and shape, a condition known as poikilocytosis, and not infrequently we find in the peripheral blood that variety of nucleated red corpuscle known as the normoblast, a cell only found in adult blood when pathologic conditions exist. The most important difference, however, is between the relative number of the varieties of leucocytes as shown by the differential count. This count shows that the lymphocytes are relatively more numerous in infants, being present even as high as 60 per cent. This increase is mainly at the expense of the adult forms, which may exist as low as 20 per cent. When we remember that the adult forms are the only ones of the leucocytes to exert phagocytic action, the readiness with which children become diseased is rendered more easy of explanation. The hemoglobin estimate is not of much importance from a practical standpoint. As the reds are more numerous during the first few days of life, the percentage of hemoglobin would, other things being equal, be somewhat increased. This percentage falls with the lowering of the number of reds and in a somewhat greater degree, so that the hemoglobin after the first week is lower than in the adult. From the comparison then of the blood of infants and adults, we can readily see how unstable that of the former is; how easily it may be acted upon by slight causes, causes that would have little or no effect in the adult. It might also be stated that pathologic lesions that exercise but a slight change in the blood of the latter, are likely to produce in infants swift and terrible changes that result in speedy dissolution, so that it may be taken almost as an axiom that the blood changes by which disease is known in the adult, are in childhood vastly exaggerated, and that the younger the child, the more readily these changes occur and the more pronounced.

CORRESPONDENCE.

Dr. C. Henri Leonard replies to Congressman Corliss, who evidently misrepresents a large number of his constituents.

DETROIT, MICH., June 10, 1898.

C. HENRI LEONARD, M.D., Leonard Block, Detroit, Mich.

Dear Sir:—I am in receipt of your letter with a copy of resolution, and I regret that the medical fraternity should act so *hastily* and without proper investigation.

In the first place, I never introduced a bill in Congress of any name or nature, touching the subject embraced in your resolution.

Secondly, the Hepburn bill, to which you probably refer, I reported to the House by order of the Committee of which I am a member, thereby performing the *duty* devolving upon me as such member.

Thirdly, this measure simply enables the Marine-Hospital service to do more efficiently the work now being done, and does not materially extend the scope of that department.

Fourthly, the measure which the medical fraternity are advocating has not been acted upon by the Committee for the reason that, if adopted, it would entail a *very large expense* upon the Government.

I should be glad to place the physicians right on this subject, and as you seem to be chairman of the committee that prepared the resolution and one of the men who acted without due knowledge, I trust you will *undo the evil* you have created by the publication of *facts not true.*

Very truly yours, JNO. B. CORLISS.

DETROIT, MICH., June 11, 1898.

Hon. JOHN B. CORLISS, House of Representatives, Washington, D. C.

My Dear Sir:—Yours of June 10th duly at hand. In reply to the same allow me to say that your "firstly" and "secondly" are but quibblings over terms. So far as the medical profession of the United States is concerned we do not care

whether you "introduce" a bill, or "report" it to the House; the effect on the profession, if the bill be passed, remains the same. If you have been unjustly "sacrificed" for doing your "duty," why that is nothing that concerns us as medical men. What we are concerned in is your "doings," whether that be in accordance with your so-called "duty," or in accordance with what your medico-political constituents may wish you to do for them. "Duty," then, as you term it, is to be pitted against the powers that help create you a member of the House. The "powers" will see to the "duty" later on, for I assert that the bill you "reported" out, in accordance with "duty" is a bill that is decidedly objectionable, in many particulars, to the medical "powers" that made you a Congressman.

Your "thirdly" is not in accordance, in its conclusions, with conclusions formed by the medical men that have thought over and contemplated the Hepburn bill in its ultimate results. It does not meet with the approval of the mass of the profession in its "enlarged" powers of the Marine-Hospital service. That "power" of the said service, so far as the *general* profession is concerned, is abundantly far-reaching now.

Your "fourthly" is self-condemnatory. The Committee refuse to report the Bill out that has received the endorsement of tens of thousands of medical men throughout the United States, received the endorsement of our medical press, that has received the endorsement of our National, State and County and District Medical Societies, forsooth, because of its "expense!" But the same Committee had no hesitancy about "reporting out" an inimical bill, because it was less expensive! This is a fine *reductio ad absurdum!* Who made the Committee to sit as judges over their creators in the matter of "expense?" Who is paying the expenses of that same Congressional Committee but the ones now asking for a bill to *suit them*, and asking for a bill not to pass that does not suit them, but which may suit a handful of marine doctors—and the Committee, because it is "cheap?"

No, Mr. Corliss, if you and your Committee wish to be set right with the medical profession of this country you will have to undo what you have done, as far as you can, in the expansive provisions of the Hepburn bill, and do not let "expense" be such a bogie-man in the future. I am really glad to learn that a Congressional Committee does sometimes stop at "expense," even if my profession suffers thereby; later on we medical men, when we come to cast our ballots, may think certain United States Congressmen are a little too "expensive" for *our* use, in the National House; then comes *our* time to sit in judgment on "expenses." And when the doctors of a Congressional district get all to work it often proves quite "expensive" to the candidate they disfavor. And right here allow me to say that the *country* members of the profession are more outspoken on this matter, so far as I have heard them, than have been some city members of the medical profession.

I am really inclined to think that party lines, so far as doctors will be concerned, will be forgotten in the desire of attaining the Congressional representation that we have been seeking for the past six years or so. It is possible that this may not prove a National issue on Congressmen, but I think it will soon do so, if we are continually sat down upon on the ground of "expense." We doctors supposed we were working for the good of the country, for the good of humanity in general, else we would not be so in earnest about it. We have been at work too long and too unitedly for us now to sit down and "fold our hands" just because a Committee judge our wants too "expensive," and try to force something along that is against our will, because less expensive.

I am talking thus frankly and plainly, not from personal motives, or likes or dislikes; but as a member of a Committee from our State Medical Society that has been at work upon this matter for some years, jointly with other State and National Medical Societies, and I know of the intense feeling of the profession in this matter. It takes a long time to get State recognition of medical matters, and longer to get National recognition; but the time is coming, and that right soon, when the National Congressman may be, as the State Congressman has in the past found himself on several occasions, completely "snowed under" when he has come up for political suffrages.

We medical men are deeply in earnest about this matter, as a common cause of humanity, as well as for our betterment in the handling of epidemic diseases, and in the enlarging our general knowledge of cause of epidemics and means to be adopted to secure their control.

Yours very respectfully, C. HENRI LEONARD, M.D.

Appendicitis.

LONG ISLAND CITY, June 7, 1898.

To the Editor:—I have read with interest Dr. J. F. Baldwin's paper on "Some Unusual Cases of Appendicitis," in the JOURNAL of June 4, 1898, and particularly struck by his reference to the case of complicating general peritonitis (purulent) and his remarks thereon, and reference to Dr. Abbe's statement that the maximum limit of expectancy from an operative standpoint in these cases might be placed at two and one-half days. I have had a number of operative cases of such a character that would tend to substantiate this proposition as a certainty, yet have had several which would negative it, at least in individual cases.

Thinking that it might encourage others to persevere even in very desperate cases of this character, I beg to report the following case, which is the most positive and the facts of which are the clearest in my mind, the patient having been operated on by me on Feb. 22, 1898.

The man, a German about 40 years of age, went to work fairly well on Friday morning early, although he had suffered for several days previously with colic in right side, of which he had had a number of previous attacks, recovering each time after a few days. On the same Friday he was again taken with pain at his work and was brought home with difficulty. I saw him in consultation on the following Tuesday morning, four full days having elapsed. His abdomen was terribly distended and evidently full of pus. I operated at 3 P.M. on Tuesday, but when I placed him on the operating table I noticed the point of maximum swelling and induration was behind and over the lower ribs. I therefore determined to open mid-posteriorly and high up at this site, removing a section of one of the ribs for the purpose of better drainage. I removed about one gallon of pus. The abdominal swelling disappeared in keeping with the evacuation of the pus and I therefore made an incision over the appendix where I originally contemplated, and finding the peritoneum densely thickened and the pyogenic membrane beneath, I opened through and with caution passed a long drainage tube from the greater to the lesser peritoneal cavities, so that the wound could be gently flushed via its natural drainage channels. I made no attempt to find or remove the appendix, as in this class of cases I think it wiser to refrain from more than the most necessary means. The liver and the intestines, both large and small, came into view in the mid-posterior opening, but I protected them, although they were already the site of an active inflammation. The patient has made a good recovery, though somewhat slow owing to the immense drain on his system. The previous and present history of this man were unmistakingly that of suppurative peritonitis consequent on appendicitis, and in the other cases in which I have lost I am convinced too much importance was attached to the appendicitis, which was simply the causative factor in the production of the more grave and rapidly fatal septic condition of purulent diffuse peritonitis. By studying the planes of natural drainage of the pelvic and abdominal

cavities I am convinced that in these cases combined anterior and posterior drainage is the best, and if only one opening is made the posterior would be the better, as a man will not drain rapidly enough through an abdominal opening to remove such large quantities of pus as form in these cases, surprising even a surgeon himself and leading often to the supposition that they might be of longer standing. Some observers have recommended that the tract of the drainage tube in these cases be not washed out, but I think cautious washing after thirty-six or even twenty-four hours, with boracic acid, does good.

I would not trespass on your space save that such an excellent surgeon as Dr. Abbe should have failed to find cases that lived after two and one-half days, and that I am certain that if the essential cause for the operation (septic absorption from pus) is kept in mind, and the appendix kept subordinate in operative manipulations, we stand a far better chance of success.

Very respectfully yours,

JOHN F. BURNS, M.D.

A False Statement.

SPRINGFIELD, ILL., June 6, 1898.

To the Editor:—A concern in Chicago claiming to teach the alleged science misnamed osteopathy, makes the following remarkable statement relative to its so-called courses, in circulars which are sent broadcast over the country:

"Terms of study are so graded and the courses of study so broad and complete that they comply with all the requirements of the Illinois State Medical Board and allow our students two years' credit on a regular medical education. These credits are recognized in any medical college in this country and will be equivalent to two years' work done there."

If by the "Illinois State Medical Board" is meant the Illinois State Board of Health, the assertion made in reference to that body is a lie in the fullest acceptation of the term. It is not true, furthermore, that the "credits" named are recognized in any medical college in this country. On the contrary, it is exceedingly doubtful if a single reputable medical institution will grant any advanced standing whatever to applicants from this and other "colleges" of similar character. Should, however, this be done, it is needless to say that the institution or institutions concerned will receive no further recognition from this Board, and it will be remarkably strange if the various State Boards of Medical Examiners throughout the Union will view such irregular proceedings with complacency.

As the circulars are calculated to deceive the unwary and to cause prospective graduates in medicine to waste two years of time, I will ask you to give this letter a prominent place in the JOURNAL, in order that the facts in the case may be widely disseminated.

J. A. EGAN, M.D.,
Secretary Illinois State Board of Health.

PUBLIC HEALTH.

New Jersey Procedure for Violation of Health Act.—The legislation involved in the recent case of State vs. the Board of Health of Woodbridge Township, so far as its sanction is concerned, the supreme court of New Jersey says is anomalous and defies construction; for it inextricably blends together a civil and a quasi criminal jurisdiction. It holds that a jury trial is not permitted by the health act of 1887 (2 General Statutes, page 1638, section 18). And it futher declares that to sustain a judgment under that act there must be a conviction in the form prescribed by the supplement of 1888 (2 General Statutes, page 1642, section 41), which expressly requires a conviction as a foundation for judgment, prescribes its terms and provides that it shall be signed by the magistrate.

Railroad Hygiene in Germany.—The new regulations of the Imperial Health Board and Department of Public Works suggest that all passenger cars, especially sleepers on lines running to resorts for consumptives, are to be finished with smooth walls and ceilings, with no projecting or carved ornamentation and no plush or similar substance on the walls. The cushions and seat backs must be removed from the car at certain intervals and subjected to steam disinfection; the floor space under the seats left free and easily cleaned. Waiting rooms and all roofed-over stations must have the floors washed as often as once a day where there is much traveling and the walls occasionally washed to the height of a man's head. There must be an abundance of cuspidors in cars and stations, as large as possible, and so constructed that they do not easily tip over nor spill their contents. The railroads are to follow these regulations as far as possible at present and conform to them exactly in renovating and constructing in future.—*Münch. med. Woch.*, May 17.

Vital Registration in Connecticut.—In the last *Monthly Bulletin* of the Connecticut State Board of Health, Dr. Lindsley utters a note of despair over the poor success of all his years of hard work to bring about an intelligent and trustworthy registration of the cause of death in his bailiwick. Note the following paragraph: "The heaviest death rate occurred in Thompson, being equivalent to 45 per 1,000 annually of living population. In several instances the cause of death was very indefinite. Among them are the following alleged causes: Debility, paralysis of heart (which is only another name for 'heart failure' and for which a burial permit should not have been given), pulmonary emfalius, pulmorun, whatever the last two may mean. Query: Is it ignorance, or what Artemus Ward called 'just pure cussedness,' that explains such certificates of the causes of death by medical practitioners. It is, of course, impossible to include the above in any classified order." It is indeed a thankless and well-nigh hopeless task, but Dr. Lindsley will need to go right on with his efforts to the end of the chapter. Taking up for a moment Dr. Lindsley's last, or 1896, annual report, which came to hand a few days ago, we find that the mortality of the State was 15,025 in the year 1896 and that in the case of twenty certificates of death the *causa mortis* was not specified by the physician or coroner. In addition to these there were 858 certificates whereon the cause was assigned to "tumors," "debility," and similar vague terms which, as the Secretary says, "were not creditable to the physicians who rendered the certificates."

Typhoid Fever Disseminated by Outdoor Games of Boys.—An English practitioner refers to the fact that many cases of typhoid fever occur in the autumn, and attributes the cause of the disease to games, such as marbles and peg-top, which are played in the street during this time of the year after the cricket season is over. In playing marbles a boy frequently licks his fingers to prevent the marble slipping, and the whip-cord of a top is wet in the mouth for the same reason. In this way germs are conveyed into the alimentary tract. The writer's theory is borne out by the fact that the disease almost exclusively affects boys; girls do not as a rule play at games of that kind. Some weeks ago he saw a boy with typhoid fever, was asked by his parents how he accounted for the attack, as there was no case in the same street, and so asked the mother to let him see the trousers worn by the boy, and showed her how stinking the pockets were; they contained marbles, etc., and dirt from the street. These games may therefore be a great source of danger to children living a town life. But how to remedy the evil is not very easy while such crude methods of doing town scavenging work is permitted to continue. In his own city of Sheffield, he says that he has seen the contents of yard-vaults shoveled out into the streets or roadway in large heaps to be carted away afterward, but leaving behind remainders lodged between the stones of the road, upon and near which the open-air games of boys are daily practiced. He had thought it advisable to point out this source of danger to the young, as he had not as yet

een any mention of games in any paper or book. Contami-ated water in his opinion is not the only source of typhoid and ther filth fevers among boys.

Sanitation of Lodging Houses at Boston.—The Board of Health t that city has established an claborate new set of rules that vill probably exterminate a portion of her least desirable ouses for lodgers. The air-space, or "sacred breath-cube," as not been fixed at an unreasonably high minimum, namely, t 300 cubic feet per lodger, but much depends on the concomtant measures for ventilating the dormitories. The new rules tate that the means for light and ventilation must be satisfacory to the Board of Health and beyond the control of the lodgrs. All floors and stairways must be sound, smooth, and ither painted or shellacked. There shall be allowed not less han 300 cubic feet of space to each lodger in sleeping rooms.)pen and spacious dormitories will be preferred ; single or small ooms will be allowed only in exceptional cases, and then only vith fire-proof partitions. No carpeting will be allowed on loors or stairways. There shall be not less than two horizonal feet between the sides of any two beds. All bedsteads must e single and of iron. Blankets will be required and "comforters" will be prohibited. No person will be allowed o sleep in his day-clothing. No person who is unclean will e allowed to retire without a bath. Water-closets, one to very twenty lodgers, lavatories and shower-bath, with hot and old water, all with open plumbing, must be furnished on each loor, and the floors of the same shall be of marble, slate, or oncrete. Smoking in sleeping rooms is prohibited. All stairways, fire-escapes, and other means of exit in case of fire must e in accordance with the statutes and ordinances on that subect and to the satisfaction of the building commissioner. Stoves for heating will be allowed only under the most favorale conditions for safety. The use of portable kerosene lamps s prohibited. A reliable person or persons must be in attendance at all hours of the night.

An Interesting Parliamentary Debate on Vaccination.—An animated discussion on a vaccination bill in the English Commons on April 19. brought out a speech by Sir William Priestley, an eminent London practitioner, who was formerly a professor in King's College medical school; it contained a sharp arraignment of the enemies of vaccination. Among other points he stated that it is computed that at present about a third of all the children born in England and Wales were escaping vaccination, *i. e.*, about 300,000 children, and in this connection they could not but recollect the serious object lesson recently presented by Gloucester. The discovery of glycerinated lymph was made in 1891, and yet it had never been adopted systematically in this country. It was most likely, if once adopted, to remove many of the objections and apprehensions of parents, which he had no doubt were very conscientious. It had been adopted in other countries where they had ministers of public health, and where a great deal more attention was paid to the question of public health than was the case in this country. The system had been carried out at Berlin, Paris, Geneva and other centers, and as yet there had been no misadventures. Admitting that harm was done by the practice of vaccination, it was not easy at any time to do a vast amount of good without some modicum of harm. All medical efforts were relative; if they were absolute no one would die. If they were to look into the history of many remedies they would find that misadventures came by their use. It was well known for instance, that no one could avail himself of the administration of chloroform to relieve pain without fear of misadventure. In regard to those domestic remedies, Epsom salts and castor oil, the effects had gone in some cases much farther than had been intended or expected. The great thing in the use of all remedies was to do the greatest amount of good with the least possible harm. It was entirely a question of proportion. Unfortunately, there were always people possessed of what he might be permitted to call the "anti" mind who, with a perverse ingenuity, fastened on the harm and refused to look on the other side of the question. A distinguished scientific friend of his once said he always tried to teach his pupils to think to scale as well as work to scale; but these people who were always dwelling on the harm did not think to scale. They concentrated all their attention upon the mischief and they came signally to grief in their reasoning. Sir William Priestley then went on to express approval of the proposed domiciliary vaccination, although at the same time he hoped that stations would not be abolished altogether. Medical officers under the proposed system would have better means of persuading parents to submit their children to vaccination and of showing that objections were really not valid. It had been said that vaccinators might be very unfavorably received, and in some instances be in danger of violence of antivaccinationists; but in Chicago, among a population made up of all sorts and conditions of men, a system of domiciliary visits had the best possible effect, few children remaining unvaccinated. Some years ago, he had been informed, it was the custom in France to pay a small sum to parents who brought their children to vaccination, and it was surprising to find how parental scruples about danger to children were removed by the few sous paid. It was desirable that some arrangement should be made whereby medical men who vaccinated their own poor patients should receive the fee otherwise paid to the public vaccinator. To the extension of the limit of age he saw no objection so far as danger to children was concerned, for experience had shown that infants under twelve months were unlikely to take smallpox. There were some objections, but they might be overcome. True, there was more risk that the vesicles might be rubbed and contaminated when the child crawled about, and in twelve months removals made the following up of the cases difficult. We might also imitate the practice in Germany, which obtained also in Chicago, and impose some check on the admission of unvaccinated children to school. Antivaccinationists made capital out of the fact that in outbreaks of smallpox many victims had been vaccinated, but they omitted to say how large a proportion had never been revaccinated. It might seem hard to impose an obligation on parents to which they objected and of which they did not see the value. But the object of the State should be the welfare and happiness of the greatest number and the good of the children, above all things, should be the regard of the State as well as of the parents. The danger of allowing a large number of children to remain unvaccinated had been very clearly seen at Gloucester and he would venture to point out that in proportion to the stringency with which vaccination was carried out so was protection furnished to the community. Medical men thought that vaccination was just as essential to the welfare of the child as the provision of food and raiment. If it kept the child from disease, and they believed it would, there ought to be no remission of penalties. At any rate, if there were remission of penalties there ought to be something which was almost equally efficacious. He should be disposed not to remit penalties, but if the parent had conscientious objections to vaccination he would not give it up altogether, but suspend it for a time, say until the school days. This would be a great deal more logical than remitting the penalties. He would make one other suggestion. All parents who insisted that their children should not be vaccinated and who persisted in this course even after being fined once or twice, should be compelled to subscribe to isolation hospitals. Isolation hospitals had been again and again proposed as an alternative to vaccination and no doubt they were the next best thing, though they would not take the place of vaccination.

BOOK NOTICES.

Medical Reports for the Half-Year Ended Sept. 30, 1896. Fifty-Second Issue. Paper. Pp. 44. Illustrated. Special Series No. 2. Published by order of the Inspector General of Customs, Shanghai, China, 1898. Price $1.00.

This volume contains report on the health of various leading cities of China, especially as to cholera, smallpox and typhus fever, sunstroke, dysentery, enteric fever, sanitary improvements, and cases with full-page plates of parasites; also temperature charts. The various contributors to these reports are:

C. C. de Burgh, E. W. von Tenzelmann, James H. McCartney, Jno. D. Thompson, E. H. Hart, Alfred Hogg, J. J. Delay.

Sixteenth Report of the Garfield Memorial Hospital.—Paper. Pp. 64. Illustrated. Washington, D. C.: Gibson Bros., 1898.

This report covers the year 1897, contains the report of Board of Directors, Board of Lady Managers, Finance Committee, Medical Staff, and various tabulations and tables of operations performed in the hospital during the year, with classification as to nativity and occupation of patients. There is also a report of the dispensary service and training school for nurses. Numerous full-page plates of the hospital building, wards, etc., are an addition to the volume.

Report of Births, Marriages and Deaths in the Province of Ontario for the year ending Dec. 31, 1896. Cloth. Pp. 212, Toronto: Warwick Bros. & Rutter, 1898.

This report contains numerous tabulations relating to the registrations of births, marriages and deaths throughout the above Province, printed by order of the Legislative Assembly of Ontario. Data relating to other matters of public health are included, and the deaths from diphtheria, tuberculosis and other contagious diseases, with diagram showing comparative deaths from tuberculosis, and table showing deaths from tuberculosis grouped by counties.

Sixteenth Annual Report of the Provincial Board of Health of Ontario. Cloth, pp. 185, Toronto: Warwick Bros. & Rutter, 1897.

This report is for the year 1897, and besides tables and reports concerning other matters of public health, there is a chapter devoted to "Laboratories of Hygienic Research," in which comparisons are made of the work done in various laboratories in the States *i. e.*, Massachusetts and Pennsylvania; a chapter on "Laboratory Results in Serum Diagnosis of Diphtheria," one on "Air Purity as a Measure of Health," and an address on "House Sanitation in Relation to Consumption." Part 3 contains the annual report of various cities in the Province.

Clinical Report of the Rotunda Hospitals. By R. Dancer Purefor, M.D. Paper. Pp. 50. Illustrated. Dublin: Jno. Falconer, 1898.

This report covers the period from Nov. 6, 1896, to Oct. 31, 1897, and contains, besides many full-page plates, diagrams of the gynecologic department, and much data concerning cases in the Rotunda Lying-in Hospital for the above period.

Central Indiana Hospital for the Insane. Paper. Pp. 52. Indianapolis: Wm. B. Burford, 1898.

This, the 49th annual report of the Board of Trustees and Superintendents of the above hospital, covers the fiscal year ending Oct. 31, 1897, and contains matter referring to the administration of the hospital, various tabulations of admissions, discharges and deaths, and statements of revenue and disbursements.

Annual Report of the Department of Health of the City of Cincinnati. Cloth. Pp. 119. Maps. Cincinnati: The Commercial Gazette, 1898.

This report is well gotten up, on excellent paper and contains a diphtheria map, showing the relative distribution of deaths from diphtheria by wards during 1896 and 1897, and a consumption map, giving similar data relative to the distribution of deaths from consumption during this period. Other public health statistics are tabulated in handy form, but the volume lacks an index or table of contents, making it difficult to find the information contained therein.

A Preliminary Arrangement of the Species of the Genus Bacterium. By Frederick D. Chester. Paper. Pp. 94. From the ninth annual report of the Delaware College Agricultural Experiment Station, 1897, Newark, Del.

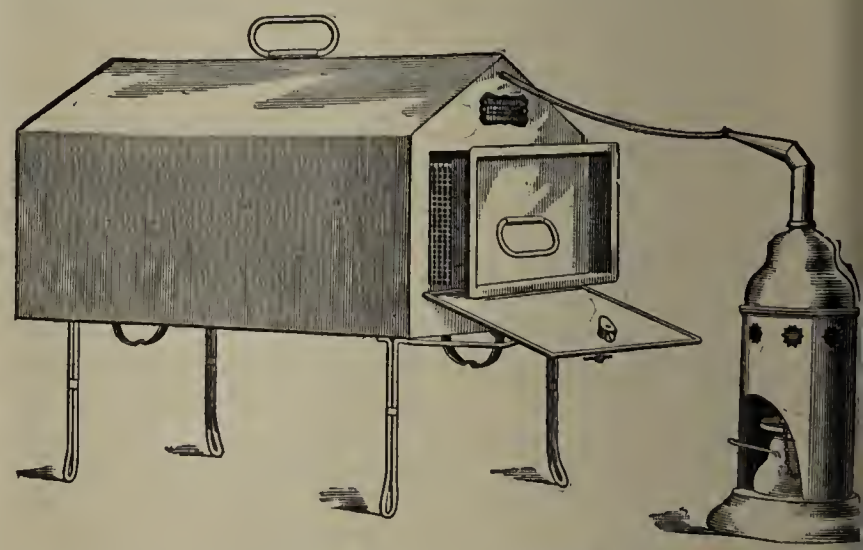
Part 1, "Contributions to Determinative Bacteriology," takes up characters of bacteria, description, classification, method of growth, species which follow growth on ordinary media, etc. The appendix contains a classification of bacteria associated with diseases of plants, and an index of the most important literature of the species of the genus bacterium.

NEW INSTRUMENTS.

NEW STERILIZER AND DEODORIZER.

BY JACOB R. JOHNS, M.D.
PHILADELPHIA, PA.

Formaldehyde is the gaseous disinfectant, par excellence, being incomparable to sulphur fumes, the chief agent of the past. Practically there are three sources of the gas, requiring vastly different apparatus for its liberation and application. In one form the gas is generated directly from wood alcohol on the principal of retarded combustion. In another form the gas is liberated from the paraform, or solid product. In the third style some form of the aqueous solution of commerce is employed. In all the above, heat is essential. In some the gas is liberated under considerable pressure, thus necessitating a bulky apparatus to guard against explosion. Simplicity of construction and economy are quite generally sacrificed, while in those employing wood alcohol there is always a considerable degree of uncertainty regarding the quantity of gas really involved.



The apparatus I wish to describe is that shown by the illustration. It is the most simple and economic yet suggested, while it is light, easily operated and absolutely free from dangers of any kind. The product employed is the 40 per cent. aqueous solution of commerce, which is decomposed by the heat from an ordinary alcohol lamp. The apparatus is designed especially for sterilizing surgical instruments and dressings, nursing bottles and kindred articles. For apartment disinfection, however small the apartment, the apparatus is totally inadequate. It consists, as will be observed, of a heating lamp, a device for collecting and delivering the gas and a closed sterilizing chamber. One ounce of the solution yields sufficient gas to disinfect the contents of the chamber. In employing this apparatus the author found the gas being liberated in large volumes within two minutes after lighting the lamp and in less than ten minutes the requisite amount of gas was liberated.

The process has the advantage of being perfectly dry, speedy and thorough. Cutting edges are not dulled nor handles injured.

The lamp is invaluable for deodorizing with formaldehyde gas, and when slightly modified by parts supplied may be used to medicate vapors or apply steam heat therapeutically. The apparatus is being introduced by H. K. Mulford Company.

NECROLOGY.

LOUIS E. BERTINE, M.D., (Bellevue, New York, 1881), of Mount Vernon, N. Y., died at his home May 30, the victim of a murderous attack. He was last seen alive May 28, at 11 P.M., when he parted with his brother after a joint attendance upon a public meeting in the Common Council Chamber. Nearly all the gaslights in the streets through which he had passed after leaving the central part of town were extinguished and it

is thought that in the darkness the assassin mistook him for an intended victim. Trephining was without avail and as he did not disturb his family on his arrival home, there only remains as a clue, a faint message sent by himself over the telephone to a police station that he had been struck by an unknown man. After this he was unconscious.

ROBERT TILLEY, M.D., a member of the staff of St. Luke's Hospital, Chicago, June 2, aged 55 years. St. Luke's Hospital staff passed the following resolution:

WHEREAS, Our friend and colleague, Robert Tilley, M.D., has passed from us,

Resolved, That we, the members of the Medical Board of St. Luke's Hospital, in Chicago, wish to extend and hereby do extend to his brother and his family our heartfelt sympathy; and wish to express to his many friends and to the medical profession our profound regret at the loss of an educated and earnest physician, a man ever courteous and kindly, a friend just to himself and generous to the faults and failings of others.

JOHN BLAIR GIBBS, Assistant-Surgeon, U. S. A., of Richmond, Va., reported killed at Caimanero, Cuba, June 10.

M. B. COCHRAN, M.D., Iowa City, Iowa, May 29.——Josiah C. Cooper, M.D., Philadelphia, May 30, aged 77 years.——W. H. Drury, M.D., Columbus, Ohio, May 30, aged 65 years.——E. L. Hutton, M.D., Kansas City, Mo., June 1.——Wm. L. Kennett, M.D., LaCrosse, Wis., May 26, aged 71 years.——J. T. Lindsay, M.D., Yorkville, S. C., May 20, aged 76 years.——W. H. McNary, M.D., Martinsville, Ill., May 28, aged 77 years.——J. E. Moran, M.D., interne at the Cook County Hospital, Chicago, of Braidwood, Ill., June 1, aged 23 years.——W. C. Roberts, M.D., Maywood, Ill., June 4, aged 45 years.

DEATHS ABROAD.—Wilhelm Grube, formerly Professor of Surgery in the University of Charkow, aged 71 years.——Dr. Amadeo Marianelli, Extraordinary Professor of Dermatology and Syphilography in the Medical Faculty of Modena.

ASSOCIATION NEWS.

Minutes of the Denver Meeting.—We had expected to publish in full this week the minutes of the meeting, but have not received them from the Secretary. We are informed that all the resolutions reported from the Business Committee and acted upon at the Thursday session are still in the hands of the Secretary of that Committee. According to parliamentary usage, when a committee report is presented to a convention, the report then becomes the property of the convention, and unless referred back, the committee has nothing further to do with it. The JOURNAL being the official gazette of the ASSOCIATION, the minutes when published must be accurate, and we are therefore excluded from publishing any partial or reportorial report of the proceedings. Our readers therefore will please understand that the copy has not been furnished us.

Convention Notes.—Many old-timers were missed, but the registration reached nearly 1400.

The plan of holding the general reception at the principal hotel is an excellent one, and added very much to the comfort of the guests.

Owing to the increasing work of the ASSOCIATION, the feeling is growing that it might be well, after the first day, to hold the general sessions at night, and give up the private receptions altogether. These, while occasionally enjoyable, are burdensome and take time that could be spent quite as agreeably in general session.

The enterprise of the Denver newspapers caused the procurement of many photographs and biographies, several weeks in advance of the meeting, which were sufficient in number to enable the appearance of a fresh batch of photographs with new biographies each day. As they had been procured in advance of the meeting, some of them represented gentlemen not present, and in some cases those who had died. One of these papers one day had side by side a picture of a Washington bureau officer with a fulsome laudation, and a picture of the lamented Quimby. "Yes," said one observing it, "The living ass and the dead lion!"

Two ladies were going down the elevator at Brown's; they were discussing a paper on cremation that had been read in the State Medicine Section, one of them had been a widow twice. This lady, who was very handsome, was warmly advocating cremation. "I am not surprised that *you* should advocate cremation," rejoined the other, "for you have husbands to burn." The quiet that ensued was painful.

On the JOURNAL special a lady was talking with a bright young Chicago surgeon. "I wonder," said she, "if Dr. ——— will read one of his 'soul-stirring' papers at this meeting?" "No, madam," replied the young surgeon with becoming gravity, "His paper this year will stir up the duodenum, I believe."

The trip to Idaho Springs was thoroughly enjoyable. At that place the ladies gave a magnificent entertainment, which was on the same grand scale of giant hospitality as the grand mountains by which the guests were surrounded.

The Association Program.—There is on hand at this office a limited number of programs of the Denver meeting of the ASSOCIATION. The book will be sent to any member desiring a copy upon receipt of their request.

Correction.—In the JOURNAL of June 11, second column page 1431, line twenty-one from the bottom, read Floyd W. McRae instead of Alexander McRae.

SOCIETY NEWS.

Indian Territory Medical Association.—At the regular semi-annual meeting of this Association, which convened at Wagoner, I. T., June 1 and 2, the following officers were elected for the ensuing year: President, G. R. Rucker, Eufala; first vice-president, G. A. McBride, Ft. Gibson; second vice president, J. G. Rucker, Claremore; secretary, Leroy Long, Caddo. The next meeting will be at Wagoner, I. T., December next, the exact date to be fixed by the president and secretary.

MISCELLANY.

Pay of Army Medical Officers.—In answer to a few correspondents the JOURNAL states that in case of war a National guardsman serving in the volunteer service receives the same pay as in the regular army, which is for an assistant surgeon, $150 a month; a surgeon, $208.35, and a hospital steward $45. An acting assistant surgeon under monthly contract which carries with it privilege of resignation at will, receives as a rule $100 per month.

A Physician's Generosity.—Sir Richard Quain, before his death, presented to the Royal College of Physicians certain very interesting mementoes. Among these were four pieces of plate, one of them being a large silver bowl inset with medals won by him during his collegiate and university career. The most striking piece is a beautiful candelabra fitted for the electric light, which was a gift to Sir Richard Quain from a grateful patient, as also was a silver salver. Another silver salver bears an inscription stating that it was presented to him by the Pathological Society for services rendered to it as honorary secretary.

Only One Inquest Upon Body.—When a coroner has held an inquest upon view of the body, and has returned a verdict and filed the same with the clerk of the circuit court as provided by statute, the appellate court of Indiana decides in the case of the Board of Commissioners of Fountain County vs. Van Cleave, March 31, 1898, that he can not, upon his own motion, hold a second inquest and bind the county for the value of the services of a surgeon who makes an examination of the body at the coroner's request. The court says that the Indiana statute gives the coroner no power to hold more than one inquest, and the fact that the second inquest in question was held at the request of the friends of the deceased person it pronounces not material

for any purpose, except perhaps to show the good faith of the officer in holding the second inquest. Nor does it consider the case changed by the coroner calling the second one returned a supplemental verdict. It says that the length of time to be taken in the inquest proceedings and the thoroughness of the investigation are matters to be determined by the coroner, and if he returns a verdict upon an investigation too hastily made, the matter is at an end so far as he is concerned. This case was transferred to the appellate by the supreme court.

Modifications in the Blood of Syphilitics During Mercurial Treatment.—A large number of persons being treated with intravenous injections of sublimate and benzoate of mercury were examined with great care, and it was constantly found that the blood improved from the first; the red corpuscles and hemoglobin increased, with corresponding decrease in the number of leucocytes, as long as the amount was below 140 to 150 milligrams of sublimate. As soon as this limit is passed, the blood undergoes an intoxication which reduces the red corpuscles and hemoglobin and increases the number of leucocytes. With injections of considerable amounts of weak solutions (10 to 11 c.c. containing each 10 to 11 milligrams) the reconstituting effect on the blood constantly parallels the favorable therapeutic effect on the syphilitic eruptions and general health. With the benzoate, the intoxication commences at the limit of 77 milligrams.—*Presse Méd.*, May 18.

The Massachusetts State Medical Examiners.—We have heard a great deal from time to time here in New York about the Massachusetts system of medical examiners being superior to our system of coroners. Some doubt concerning its excellence, however, is suggested by an occurrence in the Massachusetts General Hospital, reported from Boston on Monday. It appears that a well-known resident of this city who was a patient in that institution committed suicide there on the 13th, inst. The return of his death made to the authorities declared that he died "from organic disease of brain, cirrhosis of liver, etc., laceration of brain and shock to nerves." The fact was that he shot himself in the head, but this circumstance was concealed until disclosed by the undertaker. Suicide is either a crime, the commission of which ought not to be hidden or if committed under circumstances which negative criminality, is so important an occurrence that the concealment of cases of self destruction is of very questionable propriety. We did not suppose that such cases could be concealed by the medical examiners under the Massachusetts statute.—*New York Sun.*

The International Health Exposition at New York.—New features are added from time to time to the above display. The public is especially attracted to the sanitary living pictures. Take for example the tenement-house "sweat shop," which is shown in actual operation, in contrast to a model workshop with all modern improvements; a police lodging room, redolent with damp and every kind of foulness, side by side with a model lodging house, such as may be seen opposite Bellevue Hospital; an old country poor-house cell, with a "mad woman" chained to the floor, in contrast to a modern insane asylum ward; a model school in contrast with an unmodel school, and so on with every department of practical hygiene. An interesting exhibit is that of the trained nurses of the world. In this department the latest medical and surgical appliances and all sick appurtenances are exhibited, together with examples of the most practical and best work of the nurses. In this exhibition the nurses of many American institutions have joined forces in order to give ther exhibit an educational value to those of their class who have or have not reached their post-graduate course. The nurses of other countries have been invited to co-operate. This exhibit contains a modern operating room and an obstetric room as arranged in a private house. There is bed making, cooking for the sick, the way to give medical baths and other lines of work that may properly be demonstrated in public.—*Charities Review*, May.

Death Caused by New Shoes.—About a week after a strong and healthy man commenced wearing a certain pair of new shoes, the friction of one of the shoes against one of his feet unexpectedly produced an abrasion of the skin of one of his toes. He gave the abrasion reasonable attention, but it nevertheless caused blood poisoning in about twenty days, which resulted in the man's death about a week later. Was his death produced "by bodily injuries effected by external, violent and accidental means," as this language would be used in a policy of accident insurance? The United States circuit court of appeals holds that it was, thus affirming the judgment of the court below in the case of the Western Commercial Travelers' Association vs. Smith. On the question of whether the abrasion of the skin of the toe was the natural and probable consequence of wearing new shoes, it says that it must be conceded that new shoes are not ordinarily worn with the design of causing abrasions of the skin of the feet; that an abrasion of the skin is certainly not the probable consequence of the use of new shoes, for it can not be said to follow such use more frequently than it fails to follow it; and that neither can such an abrasion be said to be the natural consequence of wearing such shoes, the consequence which ordinarily follows, or which might be reasonably anticipated.

The Difficulties of a Physician in India.—A medical man writes from Bombay: "Often when we pay our visits of inspections to native homes we find the head of the household sharpening a huge knife, wherewith he has pledged his word to his neighbors to stab the first doctor sahib who enters his household. In one village we entered we found over three thousand of the inhabitants had disappeared and gone to various hiding-places, whence they emerged as soon as we had finished our tour. Of course, we were helpless in the matter. We knew the population was missing, but could not scour the country and conduct our physical examinations by force. It would have been like an Afridi expedition. So we returned with our work only half done."—*Hospital.*

Birds to Produce Tuberculosis Antitoxin.—Prof. E. Behring's announcement, already mentioned, that he has found he can avoid the injurious after-effects of horse and other animal serum, to which consumptives seem especially sensitive, by substituting the serum from birds, is considered a forward stride in this form of therapeutics. The antitoxin furnishes a test for the uniformity and specificity of tuberculosis toxin, whether derived from bacilli washed and dried in the vacuum exsiccator of which one gram is equivalent to 1000 to 1250 M.: "Exsiccator Tb."; or 2, treated with alcohol first and then dried, "Alcohol Tb." of about the same strength as the "Exsiccator"; or 3, derived with alcohol from Koch's old tuberculin "Tub." equals 250 M.; or 4, with alcohol from dialysed culture fluid, "T. F. dial." equals 750 M.; or 5, extracted from the bacilli at 150 degrees C., air excluded, "TD."; or 6, the same as the last toxin, "TD.," isolated and concentrated, resulting in a very powerful toxin, "TDr." equivalent to 12,500 M. The various processes do not affect the nature of the toxin. An individual immunized against one is immune to them all, and the saving effect of the antitoxin is identical for them all. He is convinced that the specific toxin of the tuberculosis bacillus is in a tissue, enclosed in a fat- and mucin-containing shell, which can be rejected in isolating the toxin. He reports extensive tests in progress at the veterinary college in Berlin, which seem to promise fine results from the application to animals of the principles of Koch's tuberculin treatment of man. —*Vide* JOURNAL, page 1235; *Deut. Med. Woch.*, May 12.

Functions of the Cerebral Hypophysis.—De Cyon has continued his research on the thyroid gland and hypophysis, and now announces that any pressure, even the slightest, upon the hypophysis, immediately produces an abrupt variation in the blood-pressure and a marked retardation of the heart beat

ich becomes much stronger at the same time. This pressure stimulating the pneumogastric, starts the same mechanism in the case of the thyroid gland (*vide* JOURNAL, xxix, p. 819), divert from the brain a dangerous afflux of blood. Electric citation of the hypophysis produces the same result, but th much greater intensity. In addition to this mechanical e, the hypophysis also produces a chemic substance, hypoysin or phosphoro-hypophysin, destined to facilitate the rkings of its automatic mechanism.—*Semaine Méd.*, May 4.

Antipyrin Eruptions sometimes assume an erythematous, pigmted form, distressingly chronic. The *Annales de Derm. et Syph.*, April, contains several instances. Intermittences ve been observed in some cases, and in others certain patches ve persisted many years, although no new ones have appeared twithstanding the continued use of the drug. Some deepen color with every fresh dose. Some cases acquire a tolerance time and the patches disappear. In some the skin remains pple; in others it is infiltrated. The term antipyrinid is ggested for the group of toxidermias caused by this drug.

Circumscribed Lymphangioma of the Skin and Mucosa develops at e expense of the dermic lymphatic vascular system, although e sanguine vascular system is also involved to a certain tent. Brocq claims a distinct place for it in cutaneous pathogy, apart from simple, diffuse lymphangioma, which on the ngue is a variety of macroglossia. It is also to be distinished from cystic lymphangioma, which includes the serous sts of surgical pathology, and also from the various kinds of mphangiectasis which may simulate it both clinically and stologically.—*Ann. de Derm. et de Syph.*, April.

Oriental Regions Having Philippine Conditions.—Mr. Caspar hitney, an American globe-trotter of note, has been explorg parts of Sumatra and Malacca, the jungles of which are but tle known in this country. Some of his observations in *arper's Weekly* are of interest to medical men. The jungle unhealthy, especially during the rainy season, but Mr. Whity says illness at no time interfered with his hunting plans, though his health was poor a good deal of the time, in spite the fact that he never slept on the ground; always slept in e smoke of a fire, boiled and filtered all water (which was retched in quality) before drinking and took quinin modately. In spite of these precautions he had attacks of both ver and dysentery, but escaped the terrible prostration nich usually accompanies them in that climate, probable cause of the above precautions coupled with great care as to et. His precautions would seem to preclude nearly all ance of air or water infection of the malaria. Of mosquitoes says nothing and it is to be hoped he will do so in later ports of his expedition, as late studies show infection is often rried by these insects.

Naval Preparations at the New York Navy Yard.—Medical Director Bloodgood, retired, U. S. N., of Brooklyn, has been receivg contributions of delicacies at the Brooklyn Navy Yard for e use of sick and wounded sailors in the navy. He reports the Navy Department that the women of the country are ting in a most generous manner in their patriotic work. A eat number of women's organizations have sent quantities of pplies of all varieties to the Brooklyn yard, intended for disibution to the sailors of Captain Sampson's fleet. Jellies, uit, cans of soups and broths, lemons and considerable money ve been received. All of this is to be stored at Brooklyn til the Hospital ship *Solace* returns from the South with her st load of invalids. As soon as the *Solace* reaches Captain mpson's fleet it is to take on board all the men who are ill d incapacitated for work. She will remain South as long as ere is prospect of a naval fight and will only return to the orth when her wards are filled with sick and wounded. It the intention to bring these patients direct to Brooklyn and to turn them over to the surgeons at that yard. The new naval hospital, just completed at the Brooklyn Navy Yard, is to be utilized for this purpose and it is likely that the first men to be sent there will be those injured in a fight with the Spanish.

Medical Comforts for the Sick of the Army.—The following memorandum from Surgeon-General Sternberg of the army embodies his reply to women's relief associations, societies and individuals who have written requesting him to direct their benevolent and patriotic efforts on behalf of the sick and wounded:

"Having received numerous letters from patriotic ladies asking what articles would be most acceptable for the use of our sick and wounded soldiers in the field or in hospital, I have prepared the following memorandum to be sent in reply to letters of inquiry. Money may be sent to the Surgeon-General of the Army as a contribution to the hospital fund of the hospital ship *Relief* and of United States general hospitals. This will be sent to the surgeons in charge, to be expended for delicacies for the sick, such as canned soups, jellies, lemons, oranges, etc. Those who prefer may contribute canned soups, clam broth, orange marmalade, ginger ale, Albert biscuit, Bent's water crackers, and similar articles in hermetically sealed cans for use on the hospital ship *Relief* and at the United States general hospitals at Key West, Fla., Fort McPherson, Ga., Fort Thomas, Ky., and at Fort Myer, Va. Bandages, lint and other surgical dressings are not desired, as these can now be obtained from the manufacturers sterilized for use and of the quality which experience has shown to be best suited to our purposes. Shirts and drawers are provided by the Government, but will be accepted and can be given to convalescents upon their discharge from hospital. Pajamas made of light gingham will be useful for the sick in hospital and on the hospital ship, as they can be worn by convalescents who are able to be out of bed. Long nightshirts of light muslin can also be utilized. Broad bandages of light flannel to protect the abdomen are highly recommended and may be worn to advantage by our soldiers in the field. The articles mentioned may be sent direct to the Surgeon-general of the Army, or to the surgeons in charge of the general hospitals named."

Post-operative Mental Disorders are much discussed just now on both sides of the Atlantic, and the majority incline to the opinion that a mind unbalanced by an operation was not worth much before, that is, mental disorders rarely follow an operation except in the predisposed. Instances have been related of a psychosis following the use of chloroform, and prevented by substituting ether when a second operation became necessary. The confinement and surroundings are frequently responsible for a psychosis following an operation on a person from the country, especially elderly farmers or farmers' wives. Some refuse to operate when there is excessive dread of the operation, and Gerard-Marchant observes that mental disorders are almost certain to follow an operation on a "false gonorrheic," or a subject with varicocele, or a young neurasthenic woman with the triad: renal ptosis, gastric dilatation and slight metritis. No benefit is ever derived by the patient in these cases, from the operation, and the surgeon only prepares trouble for himself. Le Dentu has had twenty-three cases of psychosis consecutive to an operation, and commenting upon them and sixty-eight in literature, concludes that the assumed connection between such disorders and operations on the genital organs is sustained by the facts observed, adding that there is a certain class of purely cerebral post-operative delirium of which the pathogenesis is still a mystery.

Gleanings.—Four cases of tuberculosis and carcinoma associated, the former evidently the primary affection; three intestinal and one in a lung cavity.—*Virchow's Archiv.*, 148, 149. ——Case of subjective parosmia, constant odor of putrefaction perceived, cured by galvanocauterizing the hypertrophied mucosa of the middle turbinate bones.——Lactic acid recommended as the specific for tuberculous lesions especially in laryngeal tuberculosis, preceded by curetting.——Cure of gangrenous diphtheritic angina complicated with mastoiditis, treated by trephining the mastoid abscess. This should inva-

riably be done without reference to the other conditions.—— Perforations of the tympanum closed by cauterizing every eight or ten days with trichloracetic acid, alternating with radiating incisions in severe cases. Hearing improved more or less in forty-nine out of fifty one cases thus treated; deafness aggravated in two.—French Congress of Otology and Laryngology. ——Importance of syphilis as a possible factor in ulcer of the stomach. Instances more frequent than supposed. Specific treatment will cure without an operation.—Paris Acad. de Méd., May 17.——Chorea assumed to be merely the cerebromedullary manifestations of rheumatic infection in a hysteric or neurasthenic.—Moncorvo of Rio Janeiro.——Spinal ganglia in the lower animals still enclosed in the medulla, descending lower and lower as we ascend the scale, until in man and in birds they emerge through the intervertebral foramina.—*Semaine Méd.*, May 18.

The Koran not Antagonistic to Vaccination.—Dr. Loir, director of the Tunis Pasteur Institute, in a recent communication to the Academie de Médecine of Paris, noting the prevalence of smallpox in the Algerian Protectorate, stated that in order to get the Mohammedans to permit vaccination it is essential to obtain from the Tunisian religious authorities a declaration that the procedure is not forbidden by the Koran. Dr. Laveran referred to a thesis by Dr. Bechir-Dinguizle, in which he states that, by inquiry among the superior Mohammedan clergy of Tunis, he ascertained that vaccination does not clash with any religious belief of the country.—*Phila. Med. Jour.*

Philadelphia.

APPOINTMENTS TO PHILADELPHIA (BLOCKLEY) HOSPITAL.—This hospital of over four thousand beds, the largest in the United States, is always an objective point to the student while at medical college in Philadelphia, and the different colleges are proud to have their students appointed to the different positions on the medical and surgical staff. At the recent examination ninety-three students presented themselves for the twenty-five vacancies. Of these, fifty-five were from the University of Pennsylvania, twenty from the Medico-Chirurgical College and seven from the Jefferson Medical College. Seven were women, but none of the latter received the necessary average (70) for the appointment. Of those appointed, fifteen are from the University of Pennsylvania and ten from the Medico-Chirurgical College. Dr. Henry C. Chapman, professor of institutes of medicine and medical jurisprudence at the Jefferson College, in speaking for the candidates from that college is quoted as saying: "We had only a 'scratch class,' as this is an off year. Three years ago we changed the course to a four-year one and this is only the fourth year, so we did not expect to have any graduating class at all. The men graduated came from other schools and made a small class of fifty, and only seven presented themselves for examination. Taking the large number of students from other colleges, a very large percentage of them failed, as the examination is a very severe one."

PATIENT WITH A BROKEN NECK LIVES A YEAR.—John K., a lad 9 years of age, living in Camden, N. J., fell from a tree June 9, 1897, sustaining a fracture of the cervical vertebra. The X-ray was applied and confirmed the diagnosis, locating the spicula of bone pressing against the spinal cord. Laminectomy was performed and the fragments of bone removed. The boy subsequently regained consciousness and by means of appliances was able to be carried in an invalid chair about the grounds of Cooper Hospital. Death occurred June 1, 1898.

DR. JOHN GUITERAS FURTHER HONORED.—Dr. John Guiteras of Philadelphia, Professor of Pathology in the University of Pennsylvania, who was sent to Tampa some time ago by the government, has recently been appointed a brigade surgeon with the rank of major. It is stated that Dr. Guiteras has formulated the necessary health rules for the guidance of troops against contracting the yellow fever while in Cuba. He will accompany the United States army in its campaign for free Cuba, and his services will be of incalculable advantage, owing to the fact that the fighting will be on his native soil.

PENNSYLVANIA HOSPITAL.—At a recent meeting of the staff of the above-named hospital Dr. James W. Wister was elected to fill the vacancy on the staff caused by the expiration of the term of Chief Surgeon W. J. Roe, which occurs July 1. Dr. Clarence de F. Leidy will then be promoted to the position of surgeon.

MORTALITY STATISTICS for the week ending June 4, there were 406 deaths, being a decrease of 3 over the previous week, but an increase of 39 over the corresponding week of last year. Of these, 120 occurred in children under 5 years of age. The causes of death were: from diphtheria 15, typhoid fever 7, scarlet fever 2, against 10, 8 and 4 for the week preceding.

Cincinnati.

ACADEMY OF MEDICINE, May 30.—Dr. Meyer Heidingsfeld reported a case of nævus vasculorum which he had treated for two months, by electrolysis. The patient was 17 years of age, nevus superficial and of a dark red color situated over the right temple. It presented an elliptic outline in the form of a broad band varying from one half to one inch in width, two and a half inches in breadth and three and a half in length. The center of the ellipse was not involved, save two small circular areas each the size of a half dime. This elliptic band involved the middle of the right eyebrow, upper and lower lid, and the anterior part of the hairy scalp. Treatment: Galvanic electrolysis, two m.a. in strength one-half minute for each insertion of the needle. The latter was inserted parallel to the surface of the skin as superficially as possible. In all there had been nine sittings, each on an average of one and one-quarter hours duration. A 2 per cent. solution of cocain was injected hypodermically before treatment. The areas in close proximity to the eyelids and those covered with hair were left untreated, and still possess the color and appearance of the original nevus. The cosmetic effect has been excellent, the treated area in almost its entirety showing but a vestige of the original color, and contrasting strongly with the cherry red of untreated portions. Inflammatory reaction has been apparently slight, and there are as yet no evidences of cicatrization or deformity, the affected skin being almost as soft and pliable as normal. The same speaker also presented a case of psoriasis vulgaris of the nummular type in a child two and a half years old. The efflorescences, which were only of two months standing, were particularly bright red in color, quite large and numerous, and coalescing over certain areas to form placques four and five inches in either direction, and broad bands several inches in length. These bands followed, for the most part, the lines of cleavage of the skin. The distribution was very extensive, involving all the extremities, a large portion of the body, and nearly the entire scalp. Alopecia was associated. Only one finger nail showed deformity and the knees and elbows were singularly enough but little involved. No history of heredity could be elicited. Discussion was by Drs. Caldwell, Drury, Ricketts, and the speaker. Dr. Ricketts exhibited a specimen of a case of tubercular tumor involving the large intestine about a foot from the ileocecal valve; the mesentery opposite was also the seat of a similar enlargement. Intussusception of the valve into the large intestine had occurred, and had drawn with it an appendix twelve inches in length. Obstruction was not complete. The case was very like that reported by Senn a few weeks ago. Dr. Judkins exhibited a specimen of a case of aneurysm of the arch of the aorta which extended forward and eroded the sternum, producing a large external tumor. The case was presented at the Academy several months ago; the skin was not broken at that time. Several weeks after, the integument necrosed and a slight hemorrhage occurred which, however, was readily controlled by the application of dried persulphate of iron and slight compression. About a week ago a severe hemorrhage took place which was rapidly fatal. Dr. Max Thorner read "Cholesteatoma of the Mastoid."

AT the regular meeting of the Society for Original Research, Professor Edwards of the Cincinnati University read a paper on "New Problems in Biology."

THE Tenth Annual Meeting of the American Pediatric Society was held in Cincinnati, June 1, 2 and 3. The evening of June 1, a reception was given by Drs. Forchheimer and Rachford at Chester Park, to which the members of the local profession were invited.

Washington.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ended May 21, shows the total number of deaths to have been 90, of which 49 were white and 41 colored. Twenty-one were under 5 and twenty-four over 60 years of age. The principal causes of death were: Diseases of the lungs, 15; nervous diseases, 12; typhoid fever, 3; and one death each from diphtheria, scarlet fever and measles. At the close of the week there were thirty-seven cases of scarlet fever under treatment.

THE report for the week ended May 28, shows the total number of deaths to have been 96, of which number 51 were white and 45 colored. Among the principal causes of death were: Diseases of the nervous system, 11; circulatory, 7; genito-

urinary, 9; respiratory, 23. There were two fatal cases of typhoid fever, diphtheria, measles, whooping-cough and la grippe. There were 41 cases of diphtheria and 41 cases of scarlet fever under treatment at the close of the week.

Drs. Louis J. Battle, Will Fred M. Barton, S. Clifford Cox, Francis R. Hagner and John L. Norris, have been appointed physicians to the poor at $360 per annum.

Medical Society.—At the recent meetings of the Society the following papers were read: M. F. Thompson, "Hydrophobia;" Dr. Burnette, "Gangrene of Eyelids and Cheeks, with Destruction of Both Eyeballs Resulting from Human Bites;" Dr. Acker, "Empyema and Purulent Pericarditis, case and specimens;" G. W. Johnston, "The Necessity of Accuracy and Uniformity in Chemic Laboratory Investigations;" G. Wythe Cook, "Cancer of the Stomach, case and specimen;" W. W. Johnston, "Sarcoma of the Lung, case and specimen;" Report of Committee on Public Health; Dr. Reyburn, "The Use of Expectorants;" Dr. Butler, "Nasal Polypus;" Dr. Lamb, "Hydronephrosis in a Calf; specimen."

Washington Obstetrical and Gynecological Society.—The 282d meeting of the Society was held on the 20th ultimo at the residence of Dr. Balloch. Dr. Van Renssalaer reported the removal of a large uterine polypus from a patient over 90 years of age.

Emergency Hospital.—Dr. Jeunemann's term of resident physician having expired, Dr. Fife, the first assistant resident, will be promoted to the office of resident physician. The competitive examination recently held to fill the office of first and second physician, resulted in the selection of M. W. Glover of the Georgetown Medical School and F. H. Mohart of the Columbian Medical School.

Dr. Ralph E. Gallinger, son of the Senator from New Hampshire, is quite ill at the New York City Hospital. Dr. Gallinger is one of the Assistants to the Staff of the Hospital.

Dr. Francis Leber has resigned from the Assisting Staff and joined his regiment at Key West, Fla. He has recently been appointed an acting Assistant Surgeon in the U. S. Army.

Miss Margaret Schaffer, the nurse in charge of the sterilizing department of the Hospital has resigned, to accept a position as Army nurse in the Hospital Corps of the D. A. R. Miss Schaffer has the distinction of being one of the four nurses first called to the Military Hospital Corps.

Woman's Clinic.—At the recent meeting of the Woman's Clinic, the Hospital was reported to be in a flourishing condition; 617 patients were treated in March and 460 in April. Miss Eva Simonton, Sup't. Central Dispensary and Emergency Hospital was elected a member of the Board of Directors. Dr. Isabell Haslup was elected a member of the attending staff.

Episcopal Eye, Ear and Throat Hospital.—The report of the work done in the Hospital for the past four months shows 730 patients were treated, of whom 249 were white and 236 colored. Two thousand and thirty visits were made to the different departments. Seventy-one patients have been received into the Hospital, of which 39 were free and 32 pay patients. The sum of $2256.16 has been collected for the Hospital since January 1; 92 operations have been performed during the past four months.

Contributions to Military Hospitals.—Surgeon-General Sternberg, in reply to numerous inquiries from persons desiring to make contributions to the wounded soldiers in the field, has issued the following general reply: Money may be sent to the Surgeon-General of the army as a contribution to the hospital funds of the hospital ship *Relief* and of the U. S. general hospitals. This will be sent to the surgeons in charge, to be expended for delicacies for the sick, such as canned soups, oranges, etc. Those who prefer, may contribute canned soups, clam broth, orange marmalade, ginger ale, biscuit, water-crackers, and similar articles in hermetically sealed cans for use on the hospital ship *Relief* and the U. S. General Hospitals, at Key West, Fla.; Fort McPherson, Ga.; Fort Thomas, Ky., and Fort Myer, Va. Bandages, lint and other articles are not desired as these can be obtained from the manufacturers sterilized for use and of the quality which experience has shown best suited. Shirts and drawers are provided by the Government, but will be accepted and can be given to convalescents upon their discharge from hospital. Pajamas made of light gingham will be useful for the sick in hospital and on the hospital ship, as they can be worn by convalescents who are able to be out of bed. Long nightshirts of linen muslin can also be utilized. Broad bandages of light flannel to protect the abdomen are highly recommended and may be worn to advantage by our soldiers in the field. The articles mentioned may be sent direct to the Surgeon-General of the army or to the surgeons in charge of the general hospitals named.

Dr. Ainsworth Recovering.—Dr. F. C. Ainsworth, Colonel U. S. army, who has been seriously ill for the past month, is considerably improved, and will shortly resume his duties in the War Department.

Miss Amanda J. Armistead of the Central Dispensary and Emergency Hospital, has been appointed by Surgeon General Sternberg, nurse to the Hospital Relief Corps of the D. A. R. This is the second nurse appointed from this institution to the Army Corps.

Microscopical Society.—At the meeting of the Society, held on the 31st ultimo, the program of the evening was: Exhibition of a high power projection lantern with arc light and slides including living objects.

Washington Obstetrical and Gynecological Society.—At the 283d meeting of the Society, held on the 3d instant, Dr. William M. Sprigg read a paper on "Pessaries;" an interesting discussion followed.

Colleges.

The Columbian University, Washington, D. C., held its seventy-seventh annual commencement June 1.——The graduating class of the University College of Medicine, Lynchburg, Va., numbered forty-nine at the annual commencement, May 26.——The Woman's Medical College of the New York Infirmary for Women and Children held its thirteenth annual commencement May 26.——The Atlanta Medical and the Southern Medical Colleges of Atlanta, Ga., have united.

Societies.

The following recent meetings are noted:

Indiana.—Vigo Medical City, Terre Haute, June 2.

Maine.—Maine Medical Association, Portland, June 1-3.

Minnesota.—Minneapolis Academy of Medicine, June 1.

Missouri.—Medical Society of City Hospital Alumni, St. Louis, June 2.

New Jersey.—Atlantic County Medical Society, Atlantic City, May 26.

New York.—Medico-Chirurgical Society, Syracuse, June 2; Otsego County Medical Society, Cooperstown, May 31; Queens County Medical Society, Mineola, L. I., May 31; Ulster County Medical Society, Kingston, May 31.

Ohio.—Butler County Medical Society, Hamilton, June 1; Clark County Medical Association, Springfield, June 2; Cleveland Medical Society, May 27.

Medical Colleges in the United States in active existence Jan. 1, 1898, to which recognition, partial or complete, is accorded by the Illinois State Board of Health:

Alabama.—Medical College of Alabama (Med. Dept. University of Alabama), Mobile.

Arkansas.—Arkansas Industrial University, Medical Department, Little Rock.

California.—California Medical College, San Francisco. College of Medicine of the University of Southern California, Los Angeles. Cooper Medical College, San Francisco. Hahnemann Hospital College, San Francisco. Medical Department of the College of Physicians and Surgeons, San Francisco. Medical Department of the University of California, San Francisco.

Colorado.—Denver Homeopathic Medcal College and Hospital, Denver. Gross Medical College, Denver. University of Colorado (Colorado School of Medicine), Boulder. University of Denver, Department of Medicine, Denver.

Connecticut.—Yale University, Department of Medicine, New Haven.

District of Columbia.—Georgetown University, School of Medicine. Howard University, Medical Department. National Medical College, Medical Department Columbian University. Medical Department, National University.

Georgia.—Atlanta Medical College, Atlanta. Georgia College of Eclectic Medicine and Surgery, Atlanta. Medical College of Georgia, Augusta. Southern Medical College, Atlanta.

Illinois.—Bennett College of Eclectic Medicine and Surgery, Chicago. Chicago Homeopathic Medical College, Chicago. Chicago Physio-Medical College, Chicago. College of Physicians and Surgeons, Chicago. Dunham Medical College, Chicago. Hahnemann Medical College and Hospital, Chicago. Harvey Medical College, Chicago. Hering Medical College, Chicago. Illinois Medical College Chicago. Jenner Medical College, Chicago. National Medical College. Chicago. Northwestern University, Medical School (Chicago Medical College), Chicago. Northwestern University. Woman's Medical School, Chicago. Rush Medical College, Chicago.

Indiana—Central College of Physicians and Surgeons, Indianapolis. Fort Wayne College of Medicine, Fort Wayne. Medical College of Indiana, University of Indianapolis, Indianapolis. Physio-Medical College of Indiana, Indianapolis.

Iowa.—College of Physicians and Surgeons, Keokuk. Homeopathic Medical Department, University of Iowa, Iowa City. Iowa College of Physicians and Surgeons, Des Moines. Keokuk Medical College, Keokuk. Medical Department, University of Iowa, Iowa City. Sioux City College of Medicine, Sioux City.

Kansas.—College of Physicians and Surgeons (Medical Department Kansas City University), Kansas City. Kansas Medical College, Topeka.

Kentucky.—Hospital College of Medicine, Louisville. Kentucky School of Medicine, Louisville. Louisville Medical College, Louisville. Southwestern Homeopathic Medical College, Louisville. University of Louisville, Medical Department, Louisville.

Louisiana.—Medical Department, Tulane University, New Orleans. New Orleans University, Medical Department, New Orleans.

Maine.—Maine School of Medicine at Bowdoin College, Brunswick.

MARYLAND.—Baltimore Medical College, Baltimore. Baltimore University, School of Medicine, Baltimore. College of Physicians and Surgeons, Baltimore. Johns Hopkins Medical School, Baltimore. Southern Homeopathic Medical College and Hospital, Baltimore. University of Maryland, School of Medicine, Baltimore. Woman's Medical College, Baltimore.

MASSACHUSETTS.—Boston University School of Medicine, Boston. Harvard University Medical School, Boston. Tufts Medical College, Boston.

MICHIGAN.—Detroit College of Medicine, Detroit. Homeopathic Medical College of the University of Michigan, Ann Arbor. Michigan College of Medicine and Surgery, Detroit. University of Michigan, Department of Medicine and Surgery, Ann Arbor.

MINNESOTA.—University of Minnesota, College of Medicine and Surgery, Minneapolis. University of Minnesota, College of Homeopathic Medicine and Surgery, Minneapolis.

MISSOURI.—American Medical College, St. Louis. Barnes Medical College, St. Louis. Beanmont Hospital Medical College, St. Louis. Central Medical College, St. Joseph. Ensworth Medical College and Hospital, St. Joseph. Homeopathic Medical College of Missouri, St. Louis. Kansas City Homeopathic Medical College, Kansas City. Kansas City Medical College, Kansas City. Marion Sims College of Medicine, St. Louis. St. Louis College of Physicians and Surgeons, St. Louis. St. Louis Medical College, St. Louis. University Medical College, Kansas City. Woman's Medical College, Kansas City.

NEBRASKA.—John A. Creighton Medical College, Omaha. Omaha Medical College (Medical Department University of Omaha), Omaha. Lincoln Medical College of Cotner University, Lincoln.

NEW HAMPSHIRE.—Dartmouth Medical College, Hanover.

NEW YORK.—Albany Medical College, Albany. Bellevue Hospital Medical College, New York. College of Physicians and Surgeons of Columbia University, New York. Eclectic Medical College of the City of New York, New York. Long Island College Hospital, Brooklyn. Medical Department Niagara University, Buffalo. New York Medical College and Hospital for Women, New York. New York Homeopathic Medical College and Hospital, New York. New York University Medical College, New York. Syracuse University College of Medicine, Syracuse. University of Buffalo, Medical Department, Buffalo. Woman's Medical College of the New York Infirmary, New York.

NORTH CAROLINA.—Leonard School of Medicine, Raleigh.

OHIO.—Cincinnati College of Medicine and Surgery, Cincinnati. Cleveland College of Physicians and Surgeons, Cleveland. Cleveland Homeopathic Medical College, Cleveland. Eclectic Medical Institute, Cincinnati. Laura Memorial College, Cincinnati. Medical College of Ohio, Cincinnati. Medical College of the Western Reserve University, Cleveland. Miami Medical College, Cincinnati. Ohio Medical University, Columbus. Pulte Medical College, Cincinnati. Starling Medical College, Columbus. Toledo Medical College, Toledo.

OREGON.—Medical Department Williamette University, Salem. University of Oregon, Portland.

PENNSYLVANIA.—Hahnemann Medical College and Hospital, Philadelphia. Jefferson Medical College, Philadelphia. Medico-Chirurgical College of Philadelphia, Philadelphia. University of Pennsylvania, Department of Medicine, Philadelphia. Western Pennsylvania Medical College, Pittsburg. Woman's Medical College of Penusylvania, Philadelphia.

SOUTH CAROLINA.—Medical College of the State of South Carolina, Charleston.

TENNESSEE.—Chattanooga Medical College, Nashville. Medical Department University of the South, Sewanee. Medical Department University of Tennessee, Nashville. Meharry Medical College, Nashville. Memphis Hospital Medical College, Memphis. Tennessee Medical College, Knoxville. University of Nashville, Medical Department, Nashville. Vanderbilt University, Medical Department, Nashville.

TEXAS.—Medical Department University of Texas, Galveston.

VERMONT.—Medical Department of the University of Vermont, Burlington.

VIRGINIA.—Medical College of Virginia, Richmond. Medical Department University of Virginia, Charlottesville. University College of Medicine, Richmond.

WISCONSIN.—Milwaukee Medical College, Milwaukee. Wisconsin College of Physicians and Surgeons, Milwaukee.

The above list, which has been carefully revised, includes every reputable medical college in the United States known to the Illinois State Board of Health. Of the institutions named, several are recognized unconditionally during all years, others are in good standing in certain years only, a neglect to comply with the requirements of the Board causing conditional recognition during some periods, and to a not inconsiderable number is granted conditional recognition only during all years of existence. Specific information in the case of any college named, or in relation to extinct institutions will be forwarded on request. To existing institutions not named, no recognition whatever is given by the Illinois State Board of Health.

J. A. EGAN, M.D., Secretary.

CHANGE OF ADDRESS.

Buchard, W. M., from Lemon City, Fla. to Uncasville, Conn.
Brown, J. R., from 8 Sterling to 1014 Central Ave, Indianapolis, Ind.
Campbell, C. H., from Iowa City, Iowa, to Oseeola, Neb.
Campbell, A. M., from Detroit to Hazlett Park, Mich.
De Lee, J. B., from 3318 Indiana Ave. to 3631 Prairie Ave., Chicago, Ill.
Emmerson, R., from 813 Harrison St. to 301 E. 31st St., Chicago, Ill.
Frahm, M., from Chicago to Tuscola, Ill.
Gage, M. R., from Phœnix, Ariz. to Sparta, Wis.
Goetsch, G. A., from 403 S. Lincoln St. to 857 W. North Ave., Chicago.
Hotvedt, I. J., from 907 to 912 21st Ave., So. Minneapolis, Minn.
Jaquith, W. A., from 491 LaSalle Ave. to 1184 Wilcox Ave., Chicago, Ill.
Josephson, D. V., from 155 S. Sangamon to 317 W. 12th St., Chicago, Ill.
McCreery, from DesMoines to Pioneer, Iowa.
Mason, L. D., from Brooklyn, N. Y. to Greenwich, Conn.
McEwen, from 191 S. Lincoln St. to County Hospital, Chicago, Ill.
Pearse, H. E., from 1018 E. 15th St. to 312 Rialto Building, Chicago, Ill.
Pleth, V., from 759 to 740 W. North Ave., Chicago, Ill.
Roach, J. U., from Primroy to Sill, Tenn.
Spaulding, H., from 3351 Indiana Ave. to 3133 Rhodes Ave., Chicago.
Sylvester, H., from Mineral Point to 132 Grand Ave., Milwaukee, Wis.
Smolt, C. F., from Newton to Hutchinsou, Kan.
Smith, P. C., from Indianapolis, Ind. to Charlotte, Mich.
Scott, J. W., from Springfield to Venice, Ill.
Thompson, J. F., from 14th and H St. to 804 17th St., N. W., Washington, D. C.
Teigen, M. O., from 408 Nicollet St. to 660 Temple Court, Minneapolis.
Thorp, C. W., from Denver Athletic Club to McPhee Building, Denver, Colo.
Warner, J. W., from New York to 19 York Ave., Saratoga, N. Y.

LETTERS RECEIVED.

American Embossing Co., Buffalo, N. Y.
Baltimore Medical College, Baltimore, Md.; Bell, F. C., Chicago, Ill.; Breedlove, J. W., Fort Smith, Ark.
Chicago Eye, Ear, Nose and Throat College, Chicago, Ill.; Chaille, S. E., New Orleans, La.
Dewey, C. R., Coloma, Mich.; Dulomy, R. W., Jonesboro, Tenn.
Foster, G. A., Wilkinsburg, Pa.; Frazier & Co., N. S., Aurora, Ill.; Fuller Advertising Agency, C. H., Buffalo, N. Y.
Grant, Thomas Page, Louisville, Ky.
Hennacy, Geo. W., Clinton, Iowa; Hektoen, L., Chicago, Ill.; Hatch, W. Grant, Prairie City, Ill.; Henry, C. W., Coon Rapids, Iowa.
Johns, J. R., Philadelphia, Pa.
Larew, Jno. T., St. Louis, Mo.; Lehn & Fink, New York, N. Y.
McCurdy, S. L., Pittsburg, Pa.; Mansfield, L. F., Watertown, N. Y.; Malster, R. M., Omaha, Nebr.
Newell & Heldman, Chicago, Ill.
Ople, Thomas, Baltimore, Md.
Pearson, W. W., DesMoines, Iowa; Philadelphia Medical Journal, Philadelphia, Pa.
Richardson, H., Mount Hope Retreat, Md.
Smith, W. O., New Castle, Pa.
Vanghan, V. C., Ann Arbor, Mich.
Wells, F. A., Garden Creek, N. C.; Wellner, Hermann, Concord, N. H.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from June 4 to 10, 1898.

Acting Asst. Surgeon James H. McCall, U. S. A., will proceed from Huntingdon, Tenn., to Ft. McPhersou, Ga., and report for duty in the general hospital at that place.

Acting Asst. Surgeon W. P. Chamberlain, U. S. A., will proceed from Washington, D. C., to Ft. Monroe, Va., aud report for duty.

Capts. Frank R. Keefer and Paul F. Straub, Asst. Surgeons, will report to the commanding General, Dept. of the Pacific, for duty with the expedition to the Philippine Islands.

Acting Asst. Surgeon Thomas R. Marshall, U. S. A., will proceed from Richmond, Va., to Tampa, Fla., and report for duty with troops in the field.

Acting Asst. Surgeon George H. Penrose, U. S. A., will proceed from Ft. Donglas, Utah, to San Francisco, Cal., and report for duty with the Utah batteries for the expedition to the Philippine Islands.

Acting Asst. Surgeon A. S. Condon, U. S. A., will proceed from Ogden, Utah, to Ft. Bayard, N. M., and report for duty.

Acting Asst. Surgeon T. S. Dabney, U. S. A., order assigning him to Tampa, Fla., is revoked, and he is ordered to Jacksou Bks., La., for duty.

Acting Asst. Surgeons Richard P. Strong and Henry E. Wetherill, U. S. A., ordered to Tampa, Fla., for duty.

Acting Asst. Surgeon Edward Schreiner, U. S. A., ordered to Ft. McPherson, Ga., for duty in general hospital.

Acting Asst. Surgeon Frederick McG. Hartsook, U. S. A., ordered to U. S. hospital ship "Relief."

Capt. Alfred E. Bradley, Asst. Surgeon, ordered to Camp Alger, Falls Church, Va., for duty with Second Army Corps.

Capt. Edgar A. Mearns, Asst. Surgeon, ordered to Camp George H. Torney, Chickamanga National Park, Ga.

Acting Asst. Surgeon James B. Ferguson, U. S. A., ordered from Olivia, Minn., to Ft. Yellowstone, Wyo., for duty.

Acting Asst. Surgeon Rupert Norton, ordered to Ft. McPherson, Ga., for duty in general hospital at that place.

Capts. Frederick P. Reynolds aud George J. Newgarden, Asst. Surgeons, having reported in person to the Surgeon-General of the Army, are ordered to Tampa, Fla., for duty with cavalry division.

Capt. James D. Gleunau, Asst. Surgeon, is relieved from duty with Sixth U. S. Cavalry, and ordered to Camp George H. Thomas, Chickamauga Park, Ga.

Capt. William P. Kendall, Asst. Surgeon, is relieved from duty with the Ninth U. S. Cavalry, and will proceed to Camp George H. Thomas, Chickamanga National Park, Ga.

Capt. Henry R. Stiles, Asst. Surgeon, ordered to Tampa, Fla., for duty with Fifth Army Corps.

Capt. William Stephenson, Asst. Surgeon, is relieved from duty with Fourth U. S. Infantry, and ordered to Camp George H. Thomas, Chickamanga National Park, Ga., for duty with First Army Corps.

Capt. Henry I. Raymond, Asst. Surgeon, is relieved from duty with Thirteenth U. S. Infantry and ordered to Camp George H. Thomas, Chickamauga National Park, Ga.

Capt. Charles F. Kieffer and First. Lieut. Powell C. Fauntleroy, Asst. Surgeons, ordered to Tampa, Fla., for duty.

Capt. Ogden Rafferty, Asst. Surgeon, ordered to Key West, Fla., for duty in the general hospital at that place.

Capt. William C. Gorgas, Asst. Surgeon, ordered to duty on U. S. hospital ship "Relief."

Capt. John S. Kulp, Asst. Surgeon, is relieved from duty in Dept. of the Columbia, and ordered to report in person to the Surgeon-General of the Army for further orders.

Capt. Edward C. Carter, Asst. Surgeon, will proceed to Chattanooga, Tenn., for the purpose of establishing a general hospital in the Chattanooga Park Hotel, to be known as the Leiter General Hospital, in accordance with such instructions as he may receive from the Surgeon-General of the Army.

Capt. William D. Crosby, Asst. Surgeon, will report to the Major General commanding the Dept. of the Pacific, for duty with the expedition to the Phillippine Islands.

Acting Asst. Surgeon Edwards C. Poëy, U. S. A., ordered to Tampa, Fla., for duty.

Acting Asst. Surgeon J. R. Shaunon, U. S. A., ordered to Tampa, Fla., for duty.

The Journal of the American Medical Association

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ANNUAL ORATION.

THE ESSENTIAL OF THE ART OF MEDICINE.

Oration in Medicine delivered at the Forty-ninth Annual Meeting of the American Medical Association held at Denver, Colo., June 7–10, 1898.

BY J. H. MUSSER, M.D.

PHILADELPHIA, PA.

The closing years of the eighteenth century and the y years of the nineteenth century marked an epoch medicine as transcendent for its welfare as the nts of the past decade bespeak for the glory of the licine of the future. In that epoch was witnessed passing of the old; the dawn of the new. A long well was being said to schools of medicine and ems of pathology and false methods; a timorous cordial welcome was extended to the beginnings hat which culminated in the realism of the nine- th century. It is true, as echoes of the past, nonianism, Broussaisism, the Stimolo and Contra- olo of Rasori, and subordinate "isms" furnished cise for the expiring idealistic intellect, and ned to condone for the pernicious therapeutics of early periods of this century.

lthough the reform period extended over the seven- th and eighteenth centuries, the death agony of lism began about the period we have indicated. It ue that Harvey and Willis and Glisson, and Mal- i, and Schwammerdam, in the seventeenth century plemented the labors of the early anatomists and fair to found a science of medicine. In this earlier ury, most important of all, arose the Baconian sys- of philosophy. Nevertheless the sway of the imag- ion and the rule of theory never seemed more pow- l. Deductive philosophy seemed to be at its height. ruments of precision had not been employed up to time, and the collateral sciences were not suffi- tly developed to invoke aid from them in the invest- ons of physiology and pathology. It is not to be dered at that the indefinite data secured by obser- n restricted to the unaided eye, and to the touch, ld lead them to indulge in elaborate classifications lisease and to refinements in symptomatology h now serve only to amuse and appal. Under e circumstances the Iatro-chemical, the Iatro anical, the Mechanico-dynamic schools, the ols of Animism and Vitalism and Solidism waxed waned, and out of them the Brunonian, Rasorian, nemannian and other fallacious schools were born. ong with pseudo-scientific systems, artificial clas- ation reached its highest pitch in that of Sauvage. system included ten classes of disease, each sub- led into several orders, and some as many as 295 ra and 2400 species of disease (Park). For Cul- four classes with 149 genera were enough to mpass the field of pathology.

me forbids entering into detail concerning the theoretic and speculative modes of treatment which grew out of such specious pathology. Again there was a rise and fall. To Willis again (seventeenth century) credit must first be given for approaching the rational and scientific in therapeutics (Leech), as in physiology and anatomy. Sydenham displayed the most astute scientific habit of mind in urging simple observation and simple treatment, in fully recognizing the healing power of nature, and in removing the immediate cause of the disease. Observation and experience was the central idea of his method, a revival of Hippocratic methods, which to this day influence medical thought. It is interesting to know on the authority of Leech that, with the exception of emetics, purgatives, bitters and carminatives, very few of the drugs he and Willis employed had the powers they claimed for them, and most of them have lapsed into a deserved oblivion. Both these great men were moderate polypharmacists, as many as eighteen herbs only being used in one prescription. Their rivals and successors, however, far surpassed them in the number and character of the ingredients of the formulæ they employed. With the growth and decay of systems in the eighteenth century—the death agony lapsing into the nineteenth—flourished and declined, remedial measures debilitating or stimulating, alterative or evacuant, according to the specific view in vogue. Venesection followed shortly and lingered long; stimulation raged, polypharmacy grew apace and then, when results did not warrant practice, change in the type of disease was invoked (Allison and others) to fit fact to theory.

Theoretic systems came to an end with the promulgation of the systems of Brown, Broussais and Hahnemann. A universal skepticism arose; the expectant treatment in France, and in Germany "Nihilismus," were the refuge of scientific inquirers (Benett). Therapeutics, with the development of chemistry and the growth of physiology and pathology, became rational. But, further reference, with your permission, will be made to rational therapeutics later.

In the meantime it must not be forgotten that Stahl and his followers were among the earliest skeptics, denying the efficiency of medicine, even doubting the value of opium and cinchona. Let it be recorded here likewise, as an admonition to those who oppose and a hope for those who favor, that as early as 280 B. C., perhaps by others earlier, Erasistratus urged gymnastics, exercise, diet and baths, in preference to drugs, and that the echoes of his refrain never died out. Asclepiades discarded all violent remedies and relied on hygienic means alone. Moreover, from time immemorial climatic treatment was extolled. Coming to later days, among the not a few essays on climatic treatment, Rush's description of the advantages secured by long journeys on horseback for the treatment of consumption is as fascinating as the many writings of this almost myriad-minded man.

It is quite impossible to leave the deductive philosophers, the theorists, the speculators in the medicine of the eighteenth century, without an inquiry into the methods employed by them to secure data upon which the diagnosis of disease was based and therapeutics determined. "What a patient said and what the physician saw and felt was all a case of disease had to tell him," Mitchell eloquently states. Such was the limitation of the inquiry. Instruments of precision were not used, chemic analysis not made, while biologic studies were not dreamed of. It is true Paulus Æginetа had employed sounds and specula: Santorini counted the pulse and used the thermometer and balance; Boerhaave used the thermometer in the axilla, and the lens: Floyer and Haller marked seconds with the watch. Their use was forgotten or neglected. This is not to be wondered at when we recall the obtuse state of mental receptivity that allowed Avenbrugger, who invented percussion and described it so pithily and exhaustively in 1760, to wait until 1808 for Corvisart's recognition of its value.

Examination of a patient included, careful scrutiny of the exterior, the face and features, the eye, the protruded tongue, the state of the extremities in comparison with the trunk, the color of the skin; observation of the temperature and degree of moisture or dryness of the skin and the varying pulse revealed to the touch; a note of the decubitus, the movements of muscles and of the naked-eye characteristics of the urine, the vomitus and the feces. Changes the character of the voice, and delirium, stupor and other gross evidences of impaired cerebral action were described. The eye saw more than it sees today, mayhap, but it looked through the glass darkly; the touch was more sensitive, but not as sensible. Generally it was "observation gone minutely mad." (Mitchell.) Fifteen minutes would have been ample time to make a complete objective examination of the patient, unless the refinements of symptoma tology, conjured by the imagination, furnished opportunity for the lapse of longer time. The accuracy of the diagnosis depended more upon the extent of the experience of the physician and his knowledge of medicine acquired by reading than upon precision in the method of obtaining facts upon which to base a diagnosis. Such diagnosis was often an intuition, as harmful then as now, and hence attained without it being possible to state the process of reasoning by which the end was secured. Think of it, that the number of the pulse and the respiration is rarely referred to in the writings of Rush and Cullen, and that Corvisart "On the Heart," says nothing of the frequency of the pulse, and Laënnec makes no mention of the breathing rate. In truth, actual diagnoses were not made, but instead, a symptom, such as jaundice, dropsy or fever was described It is not to be wondered at, as previously indicated, to appease the patient and establish his own authority, theories of disease were uppermost in the physician's mind, and deductions from such theories utilized to establish diagnoses and formulate lines of treatment. Cullen stated that theory could not be separated from practice, hence it was unimportant which came first, and that, therefore theories could control observations.

If guessing the truth from ill-defined data is an intuition, and so-called "rule of thumb" methods an inspiration, it can then be said that the medicine of this period reached the acme of perfection of such methods of diagnoses; from this time its displacement by inductive methods began.

But medicine as a science was no higher nor lower than cognate departments of knowledge. Law, it is true, was a science then as in the days of Justinian. Theology was not removed from the deductive methods of reasoning, although there was reaction and quickening. Metaphysics, because dealing with the unknowable, was deductive, but physics and astronomy were casting off their swaddling clothes. The former had just run the gauntlet of deductive philosophy, after the brilliant deduction of Black, whereby the theory of latent heat was established, one of the very few deductions which afterward was proved directly and inductively to be true. Chemistry was a new-born in the sciences under the brilliant accouchement of Lavoisier; geology had grown through the labors of Buffon and Rouelle, but it was only welcomed to the circle of the sciences by the genius of Cuvier. Botany, groaning with the classification of Linnæus, was emerging into light by virtue of the brilliant generalizations of Goethe in vegetal physiology (the awakening of evolution) and of Desfontaines and Jussieu in structural physiology. Berzelius and Lisle were organizing mineralogy. Cuvier was associating anatomy with geology and laying the foundations of paleontology. The brilliant dictum of this great man that the "first question in science is always a question of method" resulted in sweeping away the artificial classifications in natural history as of Linnæus in botany, and in removing natural sciences from the hands of the observer into that of the experimenter. Buckle's remark, "the consequences of which has been the attainment of that precision and accuracy of detail which experiment alone can give and which is every way superior to such popular facts as observation supplies," none the less applies to natural history, then and now, than to a minor department of it, the science of medicine. Cuvier, he further remarks taught naturalists the true path of inquiry by accustoming them to a close and severe method, and by teaching them to despise vague descriptions. How well we should take this to heart in our present day labors—close and severe method.

The latter half of the eighteenth century also shows the industrial arts flourishing to a high degree, but carried on alone by "rule of thumb" methods and by experience. Brewing, cheese-making, milling, butter-making, tanning, metallurgy and other industrial arts were conducted without scientific method, and the art transmitted from father to son, from master to apprentice after years of trial and oft, from repeated failures, of tribulation. In spinning and weaving, in iron-making and other manufactures, great machines, instruments of precision in industrial arts, were bringing about changes which were destined to modify the social fabric of the world.

In fine it may be said, science ceased to be deductive, and was fast growing to be inductive and experimental. Medicine too was becoming inductive and realistic; its art scientific and rational.

For more than nine and ninety months the gestation of modern medicine was in progress during this century. Morgagni was laying the foundation of morbid anatomy, (1761) the "great" Haller had brought light out of darkness in establishing experimental science and laying the foundation of modern physiology, but to Hunter in the eighteenth, and Pinel and Bichat in the late eighteenth and early nineteenth century, we owe our foundations of medicine. Hunter could not put aside the deductive methods of reasoning entirely, but in pathology he employed both induc-

ive and deductive methods alike, as Buckle points out, attaining the truth more nearly with the former method. Certain it is that to Hunter we owe the development of *method* in pathological inquiry, observation and experiment being the handmaidens with which he gathered the innumerable data which make him the "equal of Aristotle, Harvey and Bichat and the superior of Haller and Cuvier." To Pinel we owe the substitution of analytic for synthetic methods and the origin of systematic diagnosis by the careful construction of symptoms, while to Bichat, the "Napoleon of Medicine," to whom is due the foundations of modern morphology, we as clinicians owe "the establishment of that large and sweeping innovation which opens up a new view of thought and creates fresh resources." He of all others overthrew speculative tendencies in medicine.

The progress during the present century, familiar to all, has been marked by the employment of inductive methods of reasoning in the departments of physiology, pathology and clinical medicine. By the results of such methods and the development of a scientific habit of thought, the science of medicine, which is that of physiology in its broadest sense, the physiology of health as well as the physiology of disease, including the effects of drugs, can well fill its minor place in the science of biology. The old cry of the uncertainty of medicine, the unscientific character of the art of medicine, can not be held up to us. No Montaigne can at this day hurl the shafts of ridicule and satire that stung to the quick and stimulated honest doubt in the sixteenth century. Well do we know, ourselves, our limitations as well as our power, and with becoming modesty do we uphold the claims of medicine as a science. If science is "knowledge gained by systematic observation, experiment and reasoning; knowledge, co-ordinated, arranged and systematized," well fortified is he with cynicism who has the hardihood to maintain the contrary.

To sketch the struggles by which this firm height has been attained would be to reiterate that which is familiar to you and to detain you far beyond the measure of your desserts. Its history would be the story of the labors of Bailie, Laënnec, Cruveilhier, Rokitansky, and others in forming the foundations of morbid anatomy, and of Virchow, Cohnheim, Koch, Lister, Pasteur and hosts of others in both continents, creating the science of morbid physiology. Its history would be an account of the application of scientific habits of thought in experiment, observation and analysis. It would show the dependence of it upon the major sciences, if they may be so termed, chemistry, physics and biology, whereby instruments of precision and methods of chemical, physical and biological research became essential in the practice of the art of medicine, in diagnosis and in therapeutics. It would show that we have attained precise knowledge of the origin, course, mode of recognition and control of many diseases; that we can predict the recurrence of their daily phenomena, as the astronomer predicts the appearance and course of a comet. From our knowledge of etiology we can create disease at will, but more triumphant of all achievements, the glory of the century, we can deliberately and positively, and hence scientifically, prevent disease. We have learned that diseases are events exhibiting disturbances of the processes of physiology; that involution, degeneration, decay and death are normal events, as are evolution, growth and birth. The great postulates of Koch, the brilliant steps in inductive biology of Pasteur and of Lister leading to preventive measures, the scope of which is almost inconceivable, is akin to the conceptions of Newton and Dalton in physics.

Such advances were only attained by the master spirit of the naturalist. We are wont to forget that the use of instruments of precision, guided by the method and scientific habit of thought of the naturalist as physician brought us to this great height. Our debt to the naturalist must never be forgotten. The lesson we can the better learn from a closer analysis of the position of modern diagnosis and modern therapeutics in modern thought. It would be unjust however not to give credit to that scientific honest doubt and scientific receptivity of truth which is characteristic of the Anglo-Saxon intellect, by reason of which the philosophical structures of this era have been raised.

It must be remembered that the closing years of the nineteeth century are marked by the prevalence in all fields of mental activity of that habit of thought which has grown out of inductive philosophy. In whatsoever domain we make investigation we find that which may be called a scientific habit of thought prevails. In theology it has extended to such a degree as to alarm, without just grounds for such alarm, those who have the hardihood to cling to old habits attendant upon the deductive science. Here it now appears almost iconoclastic. It need not, on the one hand, be the occasion for fear; nor on the other, for the creation of antagonism. For experience has shown that the exposition of truth in this manner only the more firmly builds the temple which it is thought might be destroyed; while from many standpoints we know the utter futility of attempting to prevent the progress of knowledge thus attained. In history inductive philosophy has revolutionized methods, and wrought out a philosophy which harmonizes human action with organic law. In sociology, although as yet tentative, it is aiding in the solution of problems which will contribute to human happiness. Chemistry has verily grown to an exact science, and the exposition of the "Periodic Law" looks to greater exactitude in the science of pharmacology.

The conservation and correlation of forces in physics and the conception of evolution in biology are the triumphs of inductive philosophy and the glory of this great era.

Diagnosis.—The department of clinical medicine is an art as well as a science and includes diagnosis and therapeutics. I have elsewhere stated the limitations of the inquiry in diagnosis one hundred years ago. Then one-fourth, one-sixteenth of the time now employed sufficed to gather all data. It is not necessary to rehearse to you the expansion of the inquiry at this day. To establish any diagnosis perhaps days may be required. After securing subjective data, there are required the skill of the chemist to analyze secretions; of the physiologist to examine the blood and apply the physical instruments of precision so necessary to elucidate the facts derived from the visual apparatus, the nervous system, the circulation and he respiration; of the biologist, to study the life properties of the parasite that may be the ruthless invader of tissues. By these means, however, and by the use of auscultation and percussion; by the use of modern methods of direct vision with specula and lens and mirrors; or of indirect vision, with photograph

and Roentgen rays. or more precisely still by bringing the inaccessible to view by exploratory operation or exploratory puncture, precision in diagnosis has reached a degree over which exultation can only be calmed by awe at the possibilities of further expansion. It is seen that anesthetics and asepsis brought to us a timely aid in diagnosis—exploratory operation. To be more explicit and more emphatic, the accompanying table will more strongly display the scope and position of modern diagnosis.

DISEASES RECOGNIZED BY SCIENTIFIC METHODS—INSTRUMENTS OF PRECISION.

1. Malaria.
2. Leprosy.
3. Relapsing fever.
4. Dysentery (amebic, providing the ameba is recognized as the cause of disease).
5. Tuberculosis—bacteria and tuberculin.
6. Diphtheria.
7. Asiatic cholera.
8. Tetanus.
9. Actinomycosis.
10. Glanders—serum test Malein.
11. Cancer } in cerain localities.
12. Sarcoma }
13. Leukemia.
14. Various parasites, as filaria.

DIAGNOSIS RECOGNIZED BY SCIENTIFIC METHODS, WITH LIMITATIONS.

1. Typhoid fever (*may be certain*).
2. Various forms of pyogenic infection if in blood.
3. Various forms of meningitis from lumbar puncture.
4. Chlorosis.
5. Pernicious anemia.
6. Gonorrhea.
7. Effusions by exploratory incision.
8. Growths by exploratory operation.
9. Eye diseases.
10. Laryngeal diseases.
11. Ear diseases.

It is thus seen that whereas in 1800 only a few diseases could be positively recognized, now as many as fourteen in internal medicine alone can positively and beyond peradventure be diagnosticated, while eleven more with limitations that the scientific mind can appreciate can be affirmed to exist. What more forcible statement can be made to show the position of the science of diagnosis. Still more enforced however, when we remember that in addition the list can be swollen tenfold, if we would include the groups of the diseases of special organs, as eye, ear, etc., and those of internal organs which can be recognized by a scientific consideration of an orderly procession of the facts. These are those first, of etiology brought out in the social history; second, of the history and course of previous diseases, and third, of the evolution of the disease under consideration, united to. fourth, the data derived by an objective examination of the patient when in addition diagnosis by exclusion is judiciously employed—a close and severe method in gathering data. Under the above circumstances, scurvy, myxedema, exophthalmic goiter, hemophilia, the inflammations or degenerations of most organs and many other affections are not be overlooked.

What a difference in comparison with the diagnoses of bygone days. In a given case of suspected malaria, five minutes examination of the blood settles the diagnosis and wipes out the necessity of all considerations of the manifold subjective symptoms of the disease, and the objective symptoms which often were questionable facts from imaginary postulates. A conception of diagnosis or the breadth of research necessary to establish such diagnosis shows that time is gained to the patient, lost to the physician. It is not any wonder, therefore, that a general practitioner must have a corps of trained assistants or laboratories at his command. While the patient has gained in the precision and rapidity of a diagnosis, the gain of a community is much greater. The instant recognition of an epidemic forewarns and forearms. Instead of waiting for a large group of cases, and a series of autopsies, the biological diagnosis of one case settles all doubt.

It is thus seen that an essential in the art of diagnosis is skill in the use of instruments of precision and the application of a scientific habit of thought. It is further seen that with the incoming of scientific precision there is the outgoing of so-called art. Diagnosis by intuition, by careless "rule of thumb," methods, by an appeal to an experience which is incoordinated, unsystematized and unarranged, is as little trustworthy as the shifting sands of the Sahara.

Diagnosis has thus become in many directions scientific, precise and positive. It has minimized the value of experience and eliminated deductive reasoning as a factor in the art of medicine, which in consequence has grown more practical because more scientific, and less theoretic because more practical. In diagnosis the art of attaining the end has been replaced by the scientific method of securing this end—the large element of uncertainty based upon imperfectly gathered and unreliable data, replaced by the small element of possible error of method in securing positive data.

THERAPEUTICS.

Venesection, polypharmacy, treatment based on deductive generalizations, swayed medical practice a hundred years ago. The beginning transition to rational therapeutics has been outlined, and it is important to note that such change was the result of the projection of scientific habits of thought into the field of the therapeutist, and the appreciation by him of the facts and principles of biology. The first rude awakening took place when the therapeutist was asked to define what he was treating, to place on a scientific basis the knowledge of the nature of the disease against which he was exercising his power. He had to state with definiteness and precision, as far attainable as possible, the nature of the processes contending over the treatment of which the theorists gave birth to a jargon of medical literature as vast in its extent as in its indefiniteness, and by which the mental vision of the artisan was obscured. It was rational for him, in order to answer this question properly, to study the natural history of disease; to learn from the study of a large number of cases the origin, the progress, and the decline of diseases, and their effects upon the economy when death resulted. The promulgation of studies of this character was made more readily possible by the establishment of hospitals and dispensaries in the seventeenth and eighteenth centuries, by means of which the aggregations could be classified and compared. The practitioner, in the on-rush of duty, could not retain from month to month the recollection of a type of disease, for such comparison. The multiplicity of the cases, and the enlarged extent of the experience, the presentation in the ward perhaps of a dozen cases of a given type at one time, coupled with the habit of recording the history of cases, made the conduct of such studies possible. Out of this inquiry arose the Paris Pathological

School and the Vienna School of Medicine. Alth gh none the more forceful, the labors of the former seem to dominate the medical thought of the first half of the century. The numerical method of Louis contributed vastly to our knowledge of the course of disease and the effects of remedies. The methods that he supported to such an extreme as to lead to their own injury, resulted in the production of essays in the natural history of the specific ailment, indicating that disease had an evolution and involution which, if undisturbed, tended to a natural cure. Thus, the self-limitation of many ailments was worked out. The essays of Bennett and Wilks and Gull and of Bigelow and Flint awakened a judicious skepticism. The application of the analytic methods of various forms of treatment brought about the same result. Expectancy became the rule of the hour. That disease was an expression of morbid physiology, the natural tendency of which was to self-restoration, became evident to all.

The accumulation of knowledge, and its array in mathematic language, led to the interjection of other sciences—that of mathematic philosophy, as involved in the theory of probabilities and of the science of statistics. Cold, formal mathematics gave little ground for theory to stand upon.

The analytic study of a large number of prescriptions by Martindale, and later by Patch, carried out for another purpose, disclosed the fact that, after all, a great deal of our boasted therapeusis as to the number of drugs employed, was brag and bluster. A study of Martindale's analyses shows that the total number of times the drugs, which were called for more than thirty times, were used was 31,664 in 12,000 prescriptions; but 8,588 of these were employed externally or as excipients. Thirteen drugs alone in various preparations were prescribed 10,054 times, nearly one-half of the entire number, excluding externals.

Of course, the great array of agents employed, the fact that many perished with the setting of the sun that had arisen on the day of their birth, was called attention to by many observers, and led to further doubt. Then skepticism came about in another way. The more incurable the disease the greater the number of drugs vaunted for its relief. Hence, upward of 90 were advised at one time for epilepsy; hosts for exophthalmic goiter and for other affections, uncontrollable in days gone by. In scanning the literature of the "drug-house" one can too often set down as worthless the drug that "cures" many diseases, or one can fix in his mind as incurable the disease that has a multitude of remedies recommended for its cure. The pretentious and formidable array of drugs that the manufacturers thrust at us daily is alike as uncomplimentary to our knowledge and common sense as it is an evidence of the infantile state of their therapeutics. I counted 554 Galenical drugs alone in a price-list, not having the time to calculate upon inorganic and other preparations. Such drug-firms cater surely to that period of the solution of a doctor wittily epitomized by Radcliffe: "When young, he had 20 remedies for every disease; when old, 20 diseases for which he had no remedy." And thus it has come about that the individual judgment of the effects of treatment of individual cases, unless hedged in by limitations, is of very little value unless supported by laboratory experiments.

Calm, deliberative study on the lines established by the schools referred to, whereby the physiology and the patholgy of the disease were acquired, as well as knowledge of its course in new environments, led to the production of many essays on the limitations and the powers of drugs. Moreover, such studies led us to know the nature of the disease, the action of the drug in health and its action in disease. It seems most absurd that such processes of ratiocination did not occur long before the advent of physiologic therapeutics.

Then occurred to many, as they went along in practice, how small the number of drugs actually employed. Repeated papers have been published upon subjects that went to show how few drugs were actually employed, and how small the number upon which reliance could be placed. Moreover, drug-accounts and the requisition-blanks of hospitals and army and navy dispensatories showed what few drugs were actual necessities. A critical analysis of a modern work on therapeutics reveals the fact that the certainties are few. The number of drugs that are scientifically curative can be counted on the fingers of the two hands.

The criteria upon which to base statements of the value of drugs are those of experiment and observation. The number from which by experiment and reason we know produce a definite effect are limited, types of which are seen in opium, belladonna and alkalies.

Another group of observers, basing their criticism upon very patent scientific grounds, led us to understand that we could not judge of the action of a drug if it was administered in conjunction with other remedies. Hence, assaults on polypharmacy began. The most reasonable injunction that simplicity in therapeutics is essential prevails largely at the present time, but that the assaults must continue the following prescription, devised on the twenty-eighth day of May, in the year of our Lord 1898, by a writer of some prominence in therapeutics, witnesses—the drugs only are enumerated: sodium salicylate, potassium acetate, ammonium acetate, fluid extract of euphorbia, peppermint water, compound tincture of benzoin, compound tincture of capsicum, tincture of nux vomica, syrup of tolu. (I trust the recording angel will wipe out the sin of theft from a prescription-file). Here is another for an infant 9 months old, with nostrums from three other bottles, and the wonder was the child died. It contained quinin sulphate, protonuclein, pepsin, hydrochloric acid, arsenic chlorid, and one or two excipients.

The therapeutist may continue to smile blandly as he will, and continue to dogmatize. But when I am told that fluid extract of bugleweed controls pulmonary hemorrhage, I ask what is pulmonary hemorrhage, its physiology and pathology, and, with such knowledge, how far is its artificial control possible; secondly, whether pulmonary hemorrhage does not stop of its own accord; thirdly, whether rest, diet, etc., and above all, removal of the cause is not quite sufficient; and finally, whether "mental expectancy," or "confidence," does not bring about the imperturbability that secondarily brings rest? When these questions are answered, then it is time to decide upon the virtue of the remedy proposed. Unless we have a measure of such knowledge, and experimental knowledge of the powers of the drug, a scientific conscience will not allow us to use drugs in this manner.

It has then come to this, that the value of a system of therapeutics, or of a single remedy, can only be determined when, 1, the natural history of the disease is known; 2, the influence of other factors promotive

of the natural course of the disease, as rest, diet, etc., are eliminated; 3, when the so-called personal equation of the observer is set at naught; 4, when that peculiar influence of mind on body, the hypnotic effect of extraneous conditions, the results of mental expectancy, are eliminated. That the second, third and fourth liabilities to error can scarcely be controlled is almost self-evident. Hence, for the foundation of rational or scientific therapeutics, experiment must form a basis for conclusions. Such experiment, to be of value, must imply a knowledge of the disease or the essential in the disease to be combated. Until the discovery of toxins, we had no knowledge of the entity we are called upon to counteract in diphtheria. The therapeusis of this affection, prior to the discovery of the antitoxin, was promulgated from an appalling array of data subject to extraordinary liability to error because of the possibilities already indicated and because of the limitation of our knowledge. The vast labor attendant upon the collection of data from which to draw conclusions can hardly be appreciated, but the labor is not wasted. It is true the indications for management secured are subordinated to the one principle; they are none the less valuable. Through them we learned that certain lines of diet, fresh air and sunshine, limitation of the catarrhal process, and other indications were contributive to restoration to health. Our negative information was most valuable; above all, we learned what not to do. The amount of energy expended in such therapeutic warfare, commendatory for its profusion is startling, and were it not that an atom of good always results, one would wish its course could be turned into the lines of more precisely scientific inquiry.

At too wearisome a length have I trespassed upon your time and patience. A review of the rise of therapeutics to the dignity of science shows throughout, whether in combating the old or in bringing forth the new, the naturalist, the scientist in spirit if not in fact, is the controlling force. The physician as naturalist dissipated speculative therapy; by his habit of thought and mode of action he curbed excesses, destroyed fallacies, and erected new structures. Study the downfall of any system of therapeusis, and it will be seen the naturalist made the first incursion against its folly. Study the establishment of any truth and it will be seen that the scientist laid its foundations. As in diagnosis, so in therapeusis, all advancement, all gain has been made at the hands of the scientist.

Scientific doubt first prevailed; scientific action followed. So the art of therapeusis is being replaced by the science. To establish a diagnosis, therefore, and to conduct a judicious and productive therapeusis two things are required, the scientific habit of mind and a scientific method of inquiry, the essential in the art of medicine. The steps required in the elaboration of a diagnosis have been detailed. It has been seen that patient, elaborate, precise inquiry is necessary in diagnosis, involving the expenditure of considerable time and the use of instruments of precision to attain accuracy. The same spirit must prevail in the application of remedies. The carping critic may well say some diseases are cured by remedies the action of which can not be scientifically examined. True, some therapeutics is accidental, as the discovery of the utility of sodium salicylate in the treatment of rheumatism, but that does not lessen the necessity for all to be scientific.

The enthusiastic therapeutist may say your reasons will lead to nihilism. It is not necessary to be nihilistic, and indeed I am far from it. I thoroughly believe in the action of drugs. I am sure that an effect is produced, however small, by the introduction of various substances into the system. It is not that protest is raised against the non-action of drugs, but more truly doubt of the necessity for securing action is put forth, as its possibilities for good or evil can not be estimated. It is not a question whether the drugs act or do not act; it is a question of the necessity to secure such action. Save in the control of certain symptoms, for which, as pain, we have a capable armamentarium, it is not necessary to invoke remedies except those directed to the removal or counteraction of a definite cause. If the cause is not established scientifically the remedy can not be applied scientifically. But the over zealous will urge, if no drugs are administered, we lose the one great power of therapeutics—the effect of mental impression and the good results of mental expectancy. Quite true, but does the necessity of this lie exist any more in medicine than, as Zola points out, in religion?

Can not a method more practical, less harmful, or even with less possibilities of harm, be employed? The desired end is to secure faith and confidence. What can be more productive of both these than the careful, patient, systematic and analytic examination of a patient? What more surely establishes confidence than the feeling of the patient that the physician knows his ailment; that he knows how long to let it go unaided, and when to interfere with its course? Confidence, thus begot, eliminates the necessity of administering many or often any drugs, and when with the patient inquiry there is conjoined an imperturbability of spirit of the physician that he can only attain from self-confidence, secured by knowledge precisely acquired, what an amount of solace and comfort is given! Witness for yourself the therapeutic effect of one half-hour's examination of a patient. Hence it is that I plead for a scientific habit of mind in medicine. Is it not proved again that essential to the art of medicine is the science of medicine?

But do not think if we are limited in the number of drugs that cure, we have not unlimited means to restore health. The achievement of the century is that we recognize disease, not as an affection of one organ alone but as a process in which all are perturbed or involved; that, in consequence thereof, we strive to restore that perversion of the physiology of the entire economy. Hence, principles of treatment are invoked, which includes remedies and means to stimulate or repress or replace secretions or excretions, to similarily influence excess of physiologic action, to allay pain and quiet perturbed nerves. Systems of rest or of exercise, the use of water internally and externally, of heat and cold, of judicious venesection, of dietetic methods, the effect of climate, are our potent therapeutic agents.

The ultimate aim of the art of medicine is to cure the patient. It is assumed as a business, not as a calling, as was beautifully expressed in days of old. It may occur to the fledgling in medicine that he is "called upon" to engage in the professional labor, but it will soon come to him, sometimes rudely, that he is engaged in a business. It is true he has nothing to trade with; he has skill for the service of humanity. But for such service he expects remuneration. He

should have ideals of duty, but they are not different from those that any business man should hold. We may talk, we should talk, we must talk about ethics, but so should every man of business. The sooner, therefore, we remove ourselves from the pedestal we would fain usurp, and put ourselves among men, to be controlled by the ethics of all men, the better for us. Just so soon will we come into the possibility of controlling those of our brothers who do assume this practical attitude. Time was when we vied for supremacy with the judge, the minister and the schoolteacher. Now the banker, the engineer, the man of science, the scientific manufacturer and organizer, in every sphere rivals us in standing in the community. That higher ethical principles and a nobler conception of duty, a firmer grasp of truth, a more inspiring stimulus to action, a sure effacement of self and selfishness can accrue from the cultivation of science, need not be maintained. Huxley and hosts of others have eloquently pleaded on these lines, far beyond the feeble powers that are given me to uphold them. We can not hide ourselves behind that self-satisfaction which attributes to ourselves qualities and virtues a little above those of the ordinary man. We must do character building on a platform similar to that applied to ordinary men. Let us arm men with truth, surround them with truth, and give them the means of seeing truth. It has been shown that there is no necessity for the therapeutic lie, that it is unscientific, as well as inconsistent. Truth only can be cultivated. The constant use of speechless, yet speaking, instruments of precision that deal only in truth, begets truth. Truth to ourselves, to our patients, truth to our fellows, truth to our profession, will silently, even unknown to ourselves, grow if scientific habits of thought are cultivated.

Assuming, then, that in the practice of our art we are engaged in establishing a business—a fact, if not acknowledged, is always tacitly assumed—it can be said as a matter of business, that the scientific habit of thought must be cultivated. It is "business" to secure the confidence of your patient, for it is a step toward getting him well. If secured by the honest method of an honest study of his ailment it is divorced entirely from quacking. The "lie," not existing, is not paid for. It is "business" to establish truth between ourselves and our patients. Brains are necessary, but character is essential. People are far more willing to pay for character than for brains; they are far more willing to pay for honesty than for specious dogma.

The close of the nineteeth century witnesses the application to a high degree of the facts of science to the daily avocations of life. In whatsoever department of human activity we make investigation we find the application of scientific methods employed in the course of the industry. Reference has been made to the rise and progress of industry in the dawn of the nineteenth century. The close is fast approaching a consummation. In the great iron and metal industries, from mining to the conversion of the metal into its final mold, the man of science presides over its destinies. Every mine has its geologist; every furnace and every foundry its chemist; in tanning, in refining, in the making of sugar, of paints, of varnish, of oils, in dyeing, in the manufacture of cotton and woolen goods, scientific experts are employed constantly. There is no trusting to luck. Large hat-factories have chemists to pronounce upon the felt used; in the manufacture of food-products, the knowledge of the biologist is commanded; brewing, cheese-making, and the manufacture of all dairy products can be scientifically controlled. Hansen grows and furnishes yeasts of various kinds for the many varieties of beers. Kahn has changed butter-making from an art to a science. It is needless to further multiply illustrations. Look around you; in every mill and in every factory is seen this change from an art to a science—art, so-called, is declining, science is extending.

The nineteenth century cormorant, wealth, and its coadjuvant competition, have thus pushed science to the fore. The large amounts of money invested in business operations make it necessary to preclude all elements of chance.

Just as some connoisseurs aver, and others deny, that the beer of the day is not quite like the beer of the good old days of hand-brewing, so we are forced to admit that the science of medicine is not what yet may be expected of it. Science has much yet to learn from art. The change is in progress; it is irresistible; it will accrue to the benefit of mankind.

We have thus seen how, on parallel lines, art, *i. e.*, chance methods, is being replaced by science, and by the same analogies that the value of the science of medicine above the art of medicine can be appreciated. Where we have but little knowledge, the more so-called art is essential, the less precision is noticeable in our work; hence the greater the opportunities for the display of quackery; the less of the knowable, the more of charlatanism.

The history of all science and the history of medicine point to the absolute necessity for its development and growth, and its practical application to the welfare of man, that he who prosecutes it must possess a scientific habit of analysis and comparison, to put aside that which is false, recognize that which is true, or withhold judgment, as did Newton, who, when asked why he walked, replied with courage of power, "he did not know." With the conviction that essential to the art of medicine are those qualities of heart and head that belong to him who possesses a scientific habit of mind and cultivate sscience in the true spirit, come new responsibilities, new hopes, new fears, new rewards, new inspirations.

Our first responsibility will be to our successors. Those of us who are teachers must change our methods. Formerly, the apprentice acquired from the master an art that required the limited training of only one or two senses. After acquiring the secrets of the art as his master divulged it, lectures were attended to hear the problems (theoretic) discussed. Now, senses must be trained—a mind developed that possesses only a scientific habit; years are required. The early labors of the college must be supplemented by labor in the medical school. Two years should be devoted to the study of anatomy, including histology and embryology, to physiology, including as much biology as possible, to medical chemistry and to pathology. We owe it to our profession and to our students. We have added a year to our medical curriculum and robbed the college course of its valued year. We must replace it by honest training. The laboratory and the hospital-ward are to be the student's theater of action. Didactic lectures are to be the exception rather than the rule. In this manner, and in this manner only, can the student be fitted for his life-duties. Our further duty is toward the noble charities placed under our guidance. We cry against hospital abuse and dis-

pensary injustice. Need we not look to ourselves? Do we conduct our labors in such institutions in accordance with modern scientific methods whereby we contribute to knowledge and human health? Pardon a passing thought. All such institutions should be under the guidance of a State board, similar to the State Board in Pennsylvania controlling lunatic asylums. Undoubtedly abuse creeps in on the side of the management as well as the physicians. Then, if dispensaries are conducted on scientific methods there would be room for every man who deserved a position in a dispensary—certainly in the dispensaries of Philadelphia. Time will not permit further extension of this thought. The fact is, our methods must be reformed in our dispensary as well as in our hospital work. It is unjust alike to science and to the public to see as many as twenty-five patients per hour in dispensary practice.

Our fear is the possibility that we may become practical in the sense that the politician has grown practical. In this stage of our evolution such fears can be awakened. The ophthalmologist is our most scientific man; we know the dangers that surround him, but we see him emerge unscathed from the ordeal. Moreover, the environment of the physician is such as to preclude the possibility of the development of any but the higher and nobler traits of character.

The truths of medical science and their practical application are cosmopolitan. Law is limited by political barrier; religion by race and by mental development. The promulgation of truths in medicine, or the establishment of a method of its art, affects for good the entire universe, and not only men but all animal creation. The labors of Mitchell on snake poisoning, in Philadelphia, touch the welfare of the entire population of India. The result of Lister's researches are as valuable in China as in England. The words of Koch are as powerful in Japan as in Berlin. What greater reward is it than to be an humble fellow worker in a field so broad, and what higher inspiration than the stimulus attending such labors.

Our hope is that with such necessity for scientific labor will come the greater development of truth and character. Cant and hypocrisy, quackery and deceit, can not thrive in such an atmosphere, and as the years of toil are added one to the other, character grows broad, firm, clear. Constant association with instruments of precision that can not lie, incites truth. With the attainment of scientific habits, what more glorious rewards can come than that which accrues from the noble purpose, the lofty aim, the chivalrous spirit of the man of science.

Let us then, be not impatient. The adamantine position secured by the labors of Lister and Koch and Pasteur; the advanced state of preventive medicine at this day; the scientific method of the treatment of disease, as seen in that of diphtheria; the vistas that are opening with the advent of organ-therapy shows the rise of a new science of medicine. Unfortunate only are we, that to witness the dawn only, is our privilege. Of what the high noontide of medicine will show we can but hear the whisperings.

Sal Ammoniac in Tropical Dysentery has been found effective by Attygalle (Ceylon), administered every four hours, combined in some cases with small amounts of opium and cannabis Indica. The blood disappeared from the discharges and the colics ceased by the third or fourth day in nearly every case.—*Semaine Méd.*, May 11.

ORIGINAL ARTICLES.

SOME DISORDERS OF DIGESTION OF FREQUENT OCCURRENCE.

Read before the Medical Society of Erie County.

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Probably there is no complaint more frequently encountered in practice than disordered digestion. It is seen at all seasons, at all ages, and in all ranks of life. This paper will attempt to describe in outline the class of cases we see almost daily, and which are frequently spoken of as "functional disorders of digestion." By this is meant an abnormal condition of function unaccompanied by any pronounced anatomic change in structure, so far as we know. This limits the scope of the paper, as it excludes all those forms of disordered digestion resulting from organic disease of the alimetary tract, or any other part of the body, also the very acute forms, often called cholera morbus, and the indigestion of very young children. The rarer forms manifested by various reflex symptoms will not be considered.

The simplest method of describing the class of cases treated in this paper is to relate the average history and symptoms given by a patient applying for relief: The patient usually begins with the statement, "my stomach must be out of order," or "I am sick at my stomach all the time," or "everything I eat seems to sour on my stomach." Sometimes there is a complaint of epigastric pain. This is about all the patient volunteers as to the nature, or description of the disorder, but questioning at once elicits other significant symptons. There is apt to be an eructation of gas with or without a bitter sour taste after the ingestion of food, accompanied by epigastric distress relieved by the belching of gas. The above phenomena are often attended with precordial pain and oppression extending across the left chest and a variable distance down the left arm, shortness of breath, worse on exertion; in other words, the group of symptoms described as palpitation of the heart. Sometimes there is a slight feeling of uneasiness in the head, but never amounting to headache, also a feeling of languor, though not pronounced. The tongue is inclined to be coated presenting rather a brownish appearance, with the accompanying disagreeable taste. Vomiting is rare in the cases under consideration, though nausea is met with in a few cases. Usually the bowels are undisturbed; diarrhea does not occur in this form of digestive disturbance.

There is another class of cases more common than the one just mentioned, and the variety, in my experience, is the more frequent. These patients always begin their complaint with, "I am all used up," or "I am good for nothing and don't know what the matter can be," or again "I must be bilious," or "My liver must be out of order," and most frequently is the assertion made "I must have malaria from the way I feel." Complaint is made of the desire to sleep most of the time and inability to attend to customary duties without great mental effort. Further questioning brings out the statement that the languid feeling is always present and that sleep brings no sense of refreshment, the patient often feeling worse after sleeping. There is very apt to be a change in the disposition, the individual becoming irritable and trivial affairs cause much worry. There is often an

inability to fix the mind on anything for more than a few seconds consecutively, and even the reading of the daily paper becomes an effort. The one prevailing desire is to be let entirely alone in every respect, and could the inclination be followed, the patient would be content to remain sitting quietly gazing into space and the mind thinking of as near nothing as possible.

When local symptoms are sought, usually there is found a sense of fullness in the abdomen, most pronouncod three or four hours after a meal, and sometimes a sense of gas in the intestines, which may be audible. In a few cases there is a feeling of weight or uneasiness in the right hypochondrium, and even tenderness will be found. The tongue is usually clean, though in a few cases there will be a complaint of disturbed taste, and with this is often seen a brownish coating. The bowels have a tendency to be lax, moving two or three times a day, with the passage of more gas than is usual. The movements often smell so fetid that the attention of the patient is drawn to this fact. In a few cases of long standing, or that are especially marked, there is an abundant precipitation of the amorphous urates in the urine. This symptom is often the first to lead the patient to seek medical advice. The appetite remains unchanged usually and there seems to be no sort of food that the patient notices that aggravates the symptoms. The temperature is normal, the pulse usually accelerated a few beats and with less tension than in health. A few cases show a brownish hue of skin, which is different from a jaundiced skin. Palpitation of the heart is quite common in these cases. Sometimes diarrhea is the only symptom complained of by the patient.

The line between these two forms of digestive disorder is by no means very sharply drawn, one often merging into the other, and two often co-exist.

In seeking the cause in any case we usually find that one of the following is the active factor: Deficient teeth; rapid eating; improper food; use of tea, especially strong tea; eating between meals; eating when fatigued; too severe exercise after eating; use of alcohol, especially if concentrated, and most marked if taken just before or after a meal. Frequently two or more of these factors will be found to contribute to the production of the disorder. I have not enumerated them in their order of frequency, or their importance. Such a course is an impossibility.

To fully understand and appreciate the changes occurring in these cases a brief résumé of the process of normal physiologic digestion, and tracing the changes from the normal when the above mentioned causes operate, the production of the symptoms, both subjective and objective, will assist in understanding how such symptoms are produced, and the indications for the proper treatment become apparent and readily met. The first step in the digestive process is the mastication of food, the moistening and mixture with saliva and the oral mucus. This step requires the presence of proper teeth, the molars, both in the upper and lower jaw, and grinding one on the other. Simultaneously the food becomes mixed with and moistened by the saliva and oral mucus, and further moistened by the pharyngeal mucus in the act of deglutition. The saliva has slight amylolytic properties, but it is not likely that the brief sojourn of the carbohydrates in the mouth is sufficient to permit any transformation of importance, and if such a change did occur it would be promptly stopped by the acid of the gastric juice. Doubtless the chief function of the saliva is to moisten the food, rendering deglutition easy, and after thorough mastication the moisture more readily penetrates the substance of whatever may have been submitted to the action of the teeth. Even the softer forms of food, as bread, mashed potatoes, etc., are submitted to the same process, or should be in healthy digestion.

So far the digestive process has been merely preparatory for the important chemic process to begin in the stomach. The gastric secretion we may consider to be composed of hydrochloric acid, pepsin and rennin, of which the acid seems to be the important ingredient, at least from the standpoint of this paper. The action of the gastric juice is mainly proteolytic. Any other action may be disregarded. The proteids are transformed into peptones after passing through two or three preliminary stages. In undergoing this change they apparently swell up and gradually liquefy. The muscular movements of the stomach play an important part, inasmuch as they serve to mix the gastric contents thoroughly by a churning process, and eventually to force them into the duodenum for further digestion.

The peptones are by no means absorbed from the stomach, nor in fact are liquids absorbed to the extent formerly believed. It would seem that the stomach digestion is only an additional preparatory step in the digestive process. There is reason to believe that if the stomach fails to do its share of the transforming process properly, either from any inherent fault or some preceding failure of the digestive tract, viz., the proper mastication, that products incompletely prepared pass into the intestine, thus putting extra work on the intestinal part of digestion, and thus apt to embarrass the latter in the performance of its allotted function. The ingested food, partly transformed, now reaches the duodenum, where it is mingled with the secretion of the pancreas and liver, and the great chemic process of digestion is in the last stage.

As for the pancreatic secretion and the bile, and the part they play in the digestive or chemic process, suffice it to say that the secretion of the pancreas has a decided effect on the proteids, starches and fats. It is on the two latter that it seems to act principally, converting the carbohydrates into dextrose, which is absorbed by the circulation; the fats are emulsified and the proteids dissolved. The solution of the proteids is accomplished in a manner different from in the stomach. The proteids in the intestine disappear by a process of erosion instead of liquefaction.

After these chemic changes most of the converted food is absorbed by the circulation and the lacteals, the grosser and indigestible portion passing into the colon and after absorption of the moisture, forms the body of the feces. The digestive cycle is now completed, and the various structures engaged are entitled to a rest until the following ingestion of food.

The entire alimentary tract, from the lips to the anus, is the home of various forms of bacteria, including those causing putrefaction and fermentation. The ingested food, even if previously sterile, gathers a supply in the mouth, gains more in the stomach, and then meets a larger army in the small intestine.

That the bacteria of putrefaction do not always have full sway and increase seems perhaps remarkable, and they would were it not for a certain inhibitory influence. In the mouth the food remains too short a time to permit their growth. In the stomach

the presence of the hydrochloric acid acts as a restraint. In the small intestine it is known that the contents have an acid reaction, due to the presence of acetic acid, which probably is the result of certain bacteria developing normally in the carbohydrates with the production of this acid, which serves the purpose of restraining the action of the putrefactive bacteria on the intestinal proteids. In the colon it is the province of certain bacteria to develop and form the resulting products, but these need not attract our attention just now.

Briefly then this is the condition found in normal digestion, and it is evident that each portion of the digestive tract must do its share of the work or some one or more portions are apt to be overworked. As a result the overworked portions are apt to be unable to perform their function properly, and soon there is further impairment of the digestive function.

How such an impairment is produced and just how the above mentioned causes of digestive disturbances play their part or parts, will now be traced in detail.

Deficient teeth and rapid eating both act in the same manner. The lack of teeth does not permit the food to be properly divided and mixed with the saliva while in the mouth, consequently the mass reaches the stomach in an imperfectly prepared condition, sometimes insufficiently moistened. The stomach then has to do a portion of the work belonging to the mouth, and work it is unfitted to perform. It can not divide the food properly, and in the place of finely divided and moistened masses that can be readily acted on by the gastric juice, it has to work on the larger masses which can not be thoroughly permeated by the gastric secretion. The proteid portions of the food can not be liquefied readily and have to pass into the intestine in a preliminary stage to the peptone. The food not being thoroughly permeated by the gastric juice and containing bacteria derived from the mouth, is in a favorable condition to undergo decomposition, and this is exactly what does occur, and the resulting production of gas, fatty acids and various organic compounds of the ptomain type. The epigastric distress, the eructations of gas, the feeling of nausea naturally result from such a condition.

Improper food acts in a similar manner, and by improper food is meant not only quality but quantity. Too much food of a bulky and insoluble kind, even if properly prepared in the mouth, can not be properly cared for in the stomach and goes through the same or similar process of decomposition as just described. Among the improper foods may be considered a great excess of any one variety, such as too much bread, too much milk; commonly, nuts, dried vegetables, heavy pastry, cooked shell-fish are the varieties that are apt to cause trouble. Strong tea, from the tannin contained, interferes directly with the chemic process of digestion. The proteids fail to be transformed in the presence of tannin, and peptones already formed are precipitated in an insoluble form. There is one class of patients that owe all their trouble to the tea habit—sewing women. They commonly use very strong tea as a stimulant and keep a pot of the liquid on the stove, resorting to the drink frequently. This class of patients state that all the desire for food they have is for tea and toast, and they show by their appearance that such is the case.

The habit of eating between meals is a cause of difficult digestion, inasmuch as the stomach in place of having a period of rest is compelled to perform its function all the time, consequently it, like every other organ of the body when overworked, fails to perform its duty properly. The food taken between the regular meals, and after a time the proper meals, undergo the decomposition before described.

Eating when fatigued and exercise too soon after eating cause disordered digestion in a somewhat different manner at first, and later in the same way as the causes enumerated. When the body is fatigued from any exertion, either physical or mental, the entire system is in the same condition and the digestive system is unable to do its work from lack of strength. Exercise too soon after eating produces trouble from the fact that the energy or force required by the process of digestion is diverted to another purpose, leaving insufficient to take proper care of the food. There is a great deal of truth in the old saying, "Too tired to eat." When the system is fatigued the food fails to digest and undergoes the same chemic changes found in other conditions.

So far the changes occurring in abnormal gastric digestion have alone been mentioned. The most important changes occur in the small intestine when the improperly prepared food passes into it from the stomach. The intestine not only has its ordinary duty to perform, but is compelled to what was left unfinished by the preceding part of the digestive tract. Fortunately nature is very indulgent and will tolerate this sort of thing for a considerable time, but finally the intestine becomes unable to attend to the increased demand and even fails to perform its natural work properly. In the intestine is found all three classes of food, proteids, carbohydrates, fats. The proteids have not been properly cared for in the stomach and now demand work from the intestine, which it gives but at the expense of allowing the two other classes to suffer. The proteids may already be filled with bacteria and gather more in their new domicile. The carbohydrates are improperly cared for and their normal decomposition with the production of acetic acid, which we have seen prevents the proteids decomposing, becomes abnormal and perverted, and other products are formed. The proteids decompose from lack of proper inhibitory influence, with the resulting formation of abnormal products, many of which are powerful systemic poisons, and various gases. The fats likewise fail to be properly cared for and in place of their undergoing normal emulsification they are decomposed into fatty acids, the various sorts of gases and poisonous products. The intestine has become an active poison factory instead of digesting the food normally, and produces gas in sufficient quantities to cause pain from distension, and the imperfectly digested food is a foreign body to the intestine and is hurried along to the colon and discharged in unnatural stools, in which the undigested food can often be recognized.

The poisonous compounds formed are of the greatest interest to us, as they are to blame for all the constitutional symptoms encountered in cases of imperfect digestion. Their chemistry is complex and just beginning to be understood. They are described in a general way as toxins. These are absorbed and produce a condition of sepsis in most instances, as indicated by the soft and increased rapidity of the pulse. Some cause elevation of the temperature as well and various disturbances of the entire system can be attributed to their presence in the blood. There are some of these poisons that can be detected in the

xcretions, chief of which are indol, indican, leucin, yrosin, etc. Besides, the potassium and ammonium alts are freed and absorbed, producing their effects. These poisonous products produce the languor which s nothing more than a septic condition in these cases. The gas produces the distension, which is increased by the splitting up of the fatty acids, and is often xpelled from the stomach or remains in the bowels manifesting its presence by distension and pain, and requent rumbling, and finally escapes per rectum. This same pressure causes palpitation of the heart in many cases, though this latter symptom is the direct esult of irritation of the vagus by the abnormal food products in the stomach. The carbohydrates also form heir share of gas and acids. The undigested food rritates the intestine, often causing diarrhea with or vithout sharp colicky pains.

COURSE OF TREATMENT.

I do not wish it to be understood that the two orms of digestive trouble are all that we meet with n practice, for such is not the case, but they are by ar the most common. Furthermore, it is not at all simple matter to draw the line clearly between the wo, for the one having prominent gastric symptoms oon runs into the other type. Often patients are een with the typic symptoms of both forms. If left ntreated and the same habits are continued by the atient, the complaint may be prolonged indefinitely, ut this is not of frequent occurrence. The human igestive system will stand an enormous amount of buse for a long time, and then will do its work indly, if given a chance. I do not recall a single ase that had apparently undergone any permanent natomic change, and none that could not be relieved the active factors, as previously enumerated, could e removed and the directions followed. Such a re- ult is possible in every case, and I know of no com- laint that gives such a gratifying result when prop- rly treated.

The treatment is mostly dietetic; medicine is only n aid for a short time, to endeavor to overcome the aulty digestion then existing. The first and most nportant step is to remove the cause, or the causes, s two or more may exist. Lack of teeth, especially ne molars, can be removed by artificial teeth, and odern dentistry has given us bridge work which free from the objections belonging to plates, and many times more serviceable, especially in the wer jaw. All patients with dyspeptic troubles are etter without tea, and its use should be stopped. apid eating is not readily stopped, but with patience ne sufferer succeeds. Eating when fatigued can be voided, and rest in the recumbent position for ten or fteen minutes before a meal is sufficient. No exer- se should be taken for at least an hour after eating. his does not prohibit the usual walk to and from usiness, but means anything like hard work, long alks, riding a wheel, or even severe mental exertion. xact directions are required for each case and differ each case.

Improper food is more difficult to describe. I can ly state that by improper food is meant that variety at is apt to readily ferment or to decompose in a ealthy digestion, and is all the more likely to do so the cases under consideration. Improper food may divided into two classes for our purpose. The first ass consists of those articles containing a large nount of cellulose, such as the coarser vegetables, skins of fruit, etc. Also those containing an excess of fat, or prepared with the aid of fat, such as all fried food, made dishes, gravies, and in a general way those articles of food that merely gratify the palate without having any decided nutritive value. Sweets of all sorts are especially bad from the starchy matter contained, and especially from the pernicious habit of taking them between the meals. Oatmeal or other cereals as commonly eaten, the first thing in the morning, are especially injurious, not *per se*, but from the sugar used to render them more palatable. Sweets of any sort taken the first thing at a meal, or a short time before a meal, will effectually destroy the appetite. It is just as reasonable to begin the morning meal with a cereal flavored with sugar and cream as it would be to begin the midday meal with cornstarch with sugar and cream. It is quite probable that the starchy or sweet foods taken in this manner undergo rapid fermentation in the stomach owing to the insufficient secretion of gastric juice, and the resulting exercise of the inhibitory influence of the hydrochloric acid on the bacteria fermentation. At any rate it is a matter of common experience that cereals taken after meal do not cause the same disturbance. I frequently find patients who say, "all I care for at breakfast is a dish of oatmeal and a cup of coffee." Yet these same patients find that if the oatmeal is taken as a dessert, that is, after eating other food, there is a good appetite for other varieties of food and enjoyment left for the cereal without any of the subsequent discomfort. This serves to illustrate how a proper food may become an improper one, owing to the time of a meal it is taken.

Observation for some time has led me to notice there is one class of our population that is especially apt to suffer from digestive disorders, the farming class. This opinion has been frequently corroborated by men accustomed to see more of this class than I. I have inquired about the digestion of this class for a number of years and find that the majority of their minor ailments are digestive disorders. The cause of this is not the occupation but the food, which I think may be called decidedly improper. It is customary to find the three daily meals in many farmhouses to consist of salt or fresh pork, usually fried, fried potatoes, strong tea, sweets in the form of canned or preserved fruits or honey, and usually a liberal supply of pancakes with the ever present supply of maple syrup. Rapid eating is also the custom, and many of the older people lack the teeth necessary for proper mastication. Add to this fact that as soon as the meal is finished work is at once commenced, while the horses are having the necessary rest, and is it any wonder that digestion should be impaired? The fact that all do not suffer shows how much abuse our digestive system will tolerate before rebelling. I do not intend to cast any slur on the farmers as a class, but make use of a description of the custom of many of them to describe how improper food plays such an important factor in producing imperfect digestion.

There are two other classes of people that suffer from two factors at least in causing their trouble, improper food and eating between meals. One class consists mainly of students, principally girls, who are very fond of eating after study hours are over for the day, and that is usually late in the afternoon, at a time when the stomach and intestine can not get rid of the ingested food before the next meal when it is called upon to perform its function without any rest. The

food taken by these patients is decidedly improper consisting usually of pastry of some sort seasoned with preserves and followed by candy, or the latter is often taken on the way home as an appetizer for the coming repast. The lunch soon becomes the regular meal and a forced attempt to take food at the proper hour fails, or results in the production of trouble which increases as long as these habits are continued. Is it any wonder that the appetite grows poor, that flesh and strength is lost, and the parents become worried? Nearly two years ago I read before this society a paper on the subject of anemia in women occuring at an age of 10 to 20 years. At that time I spoke of the affect improper food and carelessness in eating had in producing an anemic condition. Further experience only more fully strengthens my belief that many anemic cases are due to this habit almost entirely. The other class referred to are molders. These men usually have a lunch about 10 A.M., with it a liberal allowance of beer and at the mid-day meal there is no appetite and more beer is taken to sustain the strength, another lunch in the middle of the afternoon with beer, and the evening meal is taken with the same enjoyment as the noon meal. Any proper amount of food taken at the regular meals usually causes distress. These two classes evidently keep their digestive system at work all the time except during sleep, and probably many of them do at that time; that it fails to do its work under such conditions is not surprising.

The effect of concentrated alcohol on digestion is too well known to require any description beyond the fact that it interferes chemically with gastric digestion; besides it affects the liver seriously in its work.

The description of these various classes of cases may assist in showing how the several factors contribute to cause trouble, and bearing them in mind the indication for the dietetic management of any case becomes evident. Briefly, this indication may be stated to be a correction of the patient's bad habits in eating, the direction as to the proper sort of food, the proper time for eating, etc.

Medicinal treatment is only secondary to the dietetic management, and without the former our treatment by drugs is practically useless. Many patients are benefited by taking a glass of water a short time before meals, especially on rising in the morning. This seems to have a good effect in causing the stomach to contract and expell any mucus or remains of a former meal, and so be better prepared to care for the food soon to come. Whether the water be hot or cold seems immaterial, and as cold water can always be obtained, I usually direct that the cold be taken.

Hydrochloric acid in the dilute form is of great value in cases with gastric symptoms, either alone in doses of 10 to 20 drops, or combined with two or three drops of liquor arsenii chloridi of the pharmacopeia. The purpose of the dilute acid is merely to prevent any decomposition of the food in the stomach, which I think it does, as naturally it is this same acid that exercises an inhibitory influence on the bacteria. The arsenic seems to assist in this action. I have not used any pepsin preparation for some time in connection with the acid, as it seemed superflous, the acid being given for a definite purpose. If fermentation or decomposition of food continues, or is excessive, the salicylates are useful in addition to the acid. The use of the various so-called vegetable digestives has always seemed to me an illogical practice, and I have never noticed any benefit from their use. Calomel in minute doses once or twice daily is useful, principally for the stimulating effect on the liver. The use of alkalies for the arrest of the gas and the resulting distention is decidedly an improper thing as a routine measure. It will neutralize the formation of fatty acids with their eructation by forming a chemic combination with these acids, and at the same time it forms a combination with the hydrochloric acid and thus aggravated the symptom for which it was given. An alkali before meals has a different effect, though I have never found any benefit from such use. I have seen a number of cases that were aggravated by the continual use of alkalies to relieve the acidity of the stomach. It is a far more rational proceeding to prevent the formation of gas than it is to allow it to form and then administer a remedy that alleviates apparently the trouble but all the time is aggravating it. The use of the muriatic acid, with or without the arsenic or salicylates, will do far more for this condition than all the alkalies a patient can swallow while digestion is going on in the stomach.

When the symptoms are mostly of intestinal origin, a different method is apt to give better results. It is necessary that the stomach do its proper share of the work, and by the time the intestine begins to fail in its work the patient has begun to allow the stomach to have a chance to do its work, by taking less food, either from a diminished appetite, or from noting there is less epigastric distress following the ingestion of the smaller quantity. Before any success can be secured in the faulty digestion of the intestine it is essential that the preceding portion of the alimentary tract be in proper working order. Fortunately this is the case generally, as just stated; if not, the proper directions as to diet, medicine, etc., must be given.

Calomel in small doses once or twice daily is of decided value; it increases the hepatic secretion, perhaps the pancreatic, but it is doubtful if it can have any antiseptic effect in doses of one-twentieth to to one-tenth grain. Dilute nitric or nitro-muriatic acid in 15 drop doses are very useful, they act through their effect on the liver, probably like calomel. Phosphate of soda sometimes acts well given in teaspoonful doses three times daily at first; later only before breakfast. The pancreatic extract proves valuable, especially in those cases accompanied by much gas in the intestine, given in doses of 3 to 6 grains an hour after meals. Inspissated ox-gall can be given with it if desired. The palpitation of the heart is often an annoying symptom and due to gas in the gut pressing on the heart. A ready and sure method of alleviating it is with nitroglycerin one-hundredth grain every half hour until relieved, one dose is usually sufficient and produces comfort in ten minutes. Diarrhea, if present, is to be treated as the digestive disorder and not by itself with laxatives or astringents. In cases weakened by the continued malnutrition, alcohol is often given with the result of an improvement in the general welfare. The best form is a dry wine well diluted with a carbonated water, or whisky and brandy well diluted. Sweet wines and malt liquors always produce more gas and the resulting discomfort. The above plan of treatment is the one I have employed for some years and invariably gives good results, but after all it should be remembered that it is only my personal experience and is open to discussion.

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CEREBRO-SPINAL MENINGITIS, WITH REPORT OF CASES.

BY J. F. SHELLEY, M.D.
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The disease has been demonstrated bacteriologically to appear in epidemic and sporadic form. In sporadic cases it is difficult and frequently impossible, if severe and rapidly fatal, to differentiate this form of meningitis from that secondary to other infectious diseases, except by lumbar puncture, and therefore it is as yet impossible to say how extensively the disease exists in sporadic form.

In 1880 Eberth supposed he had found in the micrococcus lanceolatus the essential cause of the disease, and since then until about 1895 it was generally accepted as the specific cause, the demonstration of a distinct micro-organism in 1887 by Weichselbaum, which he called the "diplococcus intracellularis meningitidis" notwithstanding. It seems that the organism found by Weichselbaum was supposed to be the lanceolatus (Flexner and Barker, *Am. J. Med. Sciences*, Vol. 107, p. 159), and it was not until Jaeger, Heubner and Finkelstein about nine years later took up the matter and confirmed the demonstrations of Weichselbaum that the meningococcus of Weichselbaum received general recognition. These investigators clearly differentiated between the two organisms both microscopically and by inoculation experiment. They found the lanceolatus far more virulent than the intracellularis.

Recently the epidemic in Boston through the researches of W. T. Councilman, Mallory and Wright (*Amr. Jour. Med. Sciences*, March, 1898), has thrown much light on the etiology of the disease, and has given us a clear definition of all the aspects of the micrococcus both in the organism and in culture. They made lumbar puncture in fifty-five cases and demonstrated the diplococci in thirty-eight of them. They think the negative results in the balance of the cases were not always because they were not present, and some of the punctures were made presumably after they had disappeared from the fluid.

In general he confirmed the results of Weichselbaum and Jaeger, but he thinks the capsule referred to by Jaeger as occasionally met with is simply a swollen condition in which the organism would not take the stain, except a small portion of the center. Councilman also confirms the statement of Weichselbaum that the diplococcus is decolorized by the Gram method, while Jaeger said coverslips could be stained with the Gram method. There seems to be some difficulty to differentiate between gonococci and the diplococcus intracellularis, but the latter vary more than the former in size and the meningococci are said to grow well on glycerin-agar.

The mode of entry and the avenue are still matters of very uncertain speculation. The nose, the ear and the intestinal canal all have been supposed by various observers to be the infection atrium. Strümpell believed there was a relation between coryza and epidemic meningitis, and if this be true, with the fact that Sternberg found the micrococcus lanceolatus in the saliva of 50 per cent. of healthy individuals, it was not hard to believe so long as this organism was supposed to be the cause of the disease, that the nares served a very probable way of infection. That the real microbe of the disease is not so constantly found in these parts does not, however, bar the possibility of thus infecting the meninges. Weigert made note of purulent inflammations of the nasal sinuses accompanying the disease. The writer has also seen a case (noted below) in which there was a copious discharge of purulent matter from the nose. But Flexner and Barker in their autopsies of acute cases at Lonaconing found the nasal sinuses free from disease. They believed the alimentary tract to be the source of infection. But it may be noted that they at that time still attributed the disease to the micrococcus lanceolatus.

The source of the infection outside of the body is likewise a matter shrouded in obscurity. We know that it is likely to manifest itself in overcrowded, ill-kept quarters. That it is most frequent during winter and spring, and that sudden lowering of temperature especially in wet weather is generally during an epidemic accompanied or followed immediately by the appearance of new cases. These are questions that will probably be explained in the future, but at present they are only suggestive.

There is as yet no evidence to prove the disease contagious. Inoculation experiments since the isolation of the diplococcus intracellularis and its distinction from the pneumococcus have been mainly negative, except when introduced into the pleura or the meninges. If inoculated into the latter a typical meningitis is the result and in the pleura it causes a pleuritis.

The disease is distinctive in that it is essentially primary, while other forms of meningitis are generally secondary to disease located elsewhere, or they are caused by injury in which the seat of infection is made to communicate with external parts. Councilman says, "in tuberculous meningitis we have never found a single case in which the lesion in the meninges could be regarded as primary. The only two cases of apparently primary infection were in the two pneumococcus cases noted, and in one of these the infection may have come from the intestinal canal."

The symptoms are varied in extent and intensity. The onset is usually abrupt and agonizing. Without premonition, the patient is seized with violent pains in the head and back, chill, fever and vomiting. In the severer cases these symptoms, with extreme restlessness, merge into active delirium and spasm, and death may take place in a few hours or days.

The headache is a prominent symptom throughout the course of the disease. It may be general or localized, but is apt to be most marked in the frontal and occipital regions. It may be continuous with acute exacerbations, or it may remit only to assert itself at intervals of various length. It sometimes recurs with striking regularity, but at other times there is no regularity whatever to the returns. Light to the eyes increases the pain in the head, and pains the eyes. The pain in the back is equally intense, and has the same characteristics. It soon extends to the spinal nerve-roots and to the nerves themselves, and motion becomes very painful. Hyperesthesia is soon marked in localized places or it may be general. Some authors mention anesthesia. I have not noted this symptom but can easily see why the exudate should produce it. The pain of meningitis is apt to be of a sharp lancinating character.

Temperature is generally moderate and bears no special relation to the severity of the disease. It may

be subnormal, or in approaching dissolution may reach a very high degree. There is no regular course of fever in meningitis as in typhoid.

Usually vomiting does not continue beyond twenty-four hours. but may be a prominent symptom throughout the course of the disease. More often it is recurrent. The cause of the early vomiting is central, but later, when the secretions are much disturbed, it may be partially due to indigestion. The tongue, slightly coated in mild cases, soon becomes heavily covered with a dark to brown coat, and presents a dry and cracked appearance in the so-called typhoid cases. The mouth is not infrequently covered with sordes. A characteristic feature of the disease is the retracted abdomen, but this condition may be changed in those cases of severe grade with prominent digestive symptoms, and in which intestinal secretions are greatly modified. It is not uncommon to find the abdomen tender, but this is due to the hyperesthesia general over the body, and must not be mistaken for the tenderness of ulcerated intestinal glands. The early history, the absence of the typhoid eruption, want of gurgling in the iliac fossa, and tenderness extending over the entire abdomen, rather than its localization in the iliac region, will usually serve to differentiate it from typhoid.

The pulse is variable and may be very rapid and feeble or it may be fairly hard and slow. It is frequently intermittent, dicrotic and irregular. It may be very rapid at first and then become abnormally slow, or the reverse may be true. It often changes in the same case and bears no relation to the temperature range.

Respiration is usually slightly increased in frequency in cases not complicated with pneumonia, and when so complicated, or in congestion of the lungs, it is increased in proportion to the lung affection. It may be Cheyne-Stokes in character, more especially in cases complicated with albuminuria. Involvement of the nerves of respiration may cause the most painful dyspnea. This may also be caused by disturbed innervation of the larynx. Sighing respiration is also noted.

The most constant form of eruption is the herpetic, and appears about the face and neck. The lips are mostly affected. A petechial eruption on the body or limbs is not quite so common, but is perhaps more characteristic of the disease. Other changes are noted in the skin, at times. The eruption bears no relation to the severity of the other symptoms and it may be absent in the severest cases.

The urine varies from scanty secretion with high specific gravity to polyuria with specific gravity 1002 to 1005. It is frequently alkaline and deposits excess of phosphates. The triple phosphates are especially abundant. Albuminuria is not an infrequent complication and should be constantly looked for. One of the author's cases had vesical paralysis; also paralysis of the sphincter ani.

The bowels are constipated, with very few exceptions. There are, perhaps, more exceptions among children than adults. Flexner and Barker report four cases in the Lonaconing epidemic, which were complicated with dysentery, and which they made the subject of special study. The discharges contained mucus, pus and blood, and the predominating organism was a lancet-shaped coccus, in pairs, apparently encapsulated. They also found bacilli resembling the coli communis, and short chains of streptococci. One of the author's lighter cases was dysenteric, with mucous pus and blood presenting.

Motor and sensory disturbances are a general part of the disease. Vision is disturbed in many cases, and metastatic optic neuritis is not uncommon. Strabismus and nystagmus are common. Sense of taste and smell may be perverted and hearing lost. The latter may, however, be due to suppurative inflammation of the middle ear, as well as to sensory disturbances. Muscular contraction soon manifests itself and we have the retracted head, opisthotonos, orthotonos (Osler), the arms flexed on the chest, the thighs flexed on the abdomen and the legs on the thighs. In this condition the case presents a typical picture.

Flexner and Barker in their report, and Osler, in "Nervous Diseases," edited by Dercum, cite a symptom described by Kernig as pathognomonic of the disease. It is what they call flexion-contracture (called by Kernig, beuge-kontraktur), by which is meant an inability to extend the leg while the thigh was flexed on the abdomen, or at right angles to it, this inability to extend the leg disappearing as the thigh is extended. I am surprised that, in consideration of the hyperemic and inflammatory condition of the nerves and nerve-roots and consequent hyperesthesia, it did not occur to them that this was due to tension on the sciatic nerve and that the same condition obtains in other painful affections of this nerve, as in sciatica neuritis. However, it may serve an important office in differentiating joint complications of the disease from nerve pain, as it differentiates hip-joint disease from sciatica. Epistaxis is a common symptom.

Typical cases not of the severest type are easily recognized after a few days. On the other hand, great difficulty may be experienced very early in the disease, and especially in severe sporadic cases. Malignant scarlatina, in which death occurs before the eruption appears, can be distinguished only by the history of the contagion. The writer has had two such cases, one of which gave no history of contagion, but three others in the same family following immediately with scarlatina, gave evidence for the diagnosis. The other was a child of 3 years in a family in which three older brothers had scarlatina and were convalescing. Without premonition it was suddenly attacked with vomiting, and this was followed immediately by convulsions, the eyes set, teeth tightly closed (trismus), the head drawn back, the back in opisthotonos and frothing at the mouth; soon becoming comatose, it died in about six hours after the first symptoms. Involvement of the nerve centers in the course of other infectious diseases, as diphtheria, pneumonia, typhoid, etc., can usually be differentiated by the symptoms of the primary disease. We think there is no longer any doubt that those cases of the acute infections which manifest the central symptoms are cases of involvement of the nerve centers proper. When we say central symptoms, we do not mean the ordinary delirium of typhoid, nor the coma of uremia. Postmortems in typhoid with central symptoms have revealed the specific typhoid bacillus in the meninges (Ohlmacher, JOURNAL AMERICAN MEDICAL ASSOCIATION, Vol. 29, p. 419), likewise the micrococcus lanceolatus in meningitis complicating pneumonia. Councilman found, besides the diplococcus intracellularis, the tubercle bacillus, pneumococcus, streptococcus, bacillus pyocyanus, staphylococcus pyogenes aureus and the anthrax bacillus.

Tuberculous meningitis is recognized by its insidious and gradual development.

Where two or more members of a family are simultaneously attacked, as in the recent cases of the writer, it is easily mistaken for acute poisoning.

In differentiating meningitis, the fact that a case recovers may have an important significance. Councilman says, "We believe that all infections of the meninges, other than the diplococcus intracellularis, are fatal." The one most important means of differentiating, however, is the examination of the exudate obtained by lumbar puncture, both with the microscope and in culture experiment. Lumbar puncture is said to be made not only with impunity, but in some cases with actual benefit to the patient (Councilman).

Medical treatment, for the main part, aims at the comfort of the patient and the relief of complications as they arise. He should be placed in a large, well ventilated room and the light modified to his comfort. The diet should be liberal and nutritious, milk in quantity being best suited to most cases. Opium in some form is indicated. It relieves pain, quiets the nervous system, lowers the pulse and increases its volume, and frequently lowers the temperature, thus making it possible to better nourish the patient. Bromids are important adjuvants to morphin or other opiates. An important matter in the administration of opiates is to give them cautiously, but increase until the desired effect is produced. They increase the desire for food. To move the bowels, I prefer calomel in small and divided doses, generally 0.065 gram in quarters or sixths; this may be given, when necessary, throughout the course of the disease. These fractions are given every fifteen minutes until the desired quantity is administered.

It is not intended to give here a complete résumé of treatment, since there is nothing new, and it is well discussed in the various text-books, as Hare's "System of Practical Therapeutics," Loomis' "Practice," Dercum's "Nervous Diseases," Rotch's "Pediatrics," and others.

Though the patient becomes very sensitive to touch, at times gentle sponging is grateful, and pain is often markedly modified by gently stroking the part with a soft hand. The surface of the body must be kept warm with flannel clothing, and we believe with Bartholow, that cold to the head is not the best treatment. Small blisters to the back of the neck are useful.

The following cases are of special interest for the simultaneous onset, in three of them, and the severity of two, with complete recovery in forty and forty-three days respectively.

The family of H. lived in a dilapidated house of four small rooms during the winter of 1897 and 1898. It consisted of ten members and the house was poorly furnished, there being but three beds and those very scantily equipped. In fact, there was but one bed that was in a condition for occupancy. The food was probably not all that it should have been; in fact, at the onset of the disease, the family became a county charge and it was found necessary to supply linen, while the balance of the family, except just enough to care for the sick, were removed to other quarters. Feb. 23, 1898, three members of the family, the father, aged 54, and two boys, aged 8 and 10, were simultaneously attacked with headache, pain in the back, chill, fever, vomiting and restlessness. The oldest boy suffered least and his proved an abortive case. After twenty-four hours his symptoms abated and in a week he was practically well, though the petechial eruption, especially on his legs, was far more marked than in the other cases, and the herpetic eruption was not inconsiderable. Both the others became delirious, the delirium being of a noisy character, especially in the man. He was, for a number of days, constantly up and down, often laboring under the delusion that he was ordered either to get up or return to bed, and no assurance to the contrary would induce him to remain in bed. Delusions and hallucinations were a prominent feature of his delirium. Cards, pictures and other wall hangings had to be removed, as they presented to him an army of menacing figures that gave him no slight concern. His speech was not noticeably incoherent, and he would have delusive mental impressions of such lasting effect that he would narrate them as facts, time and again, for days. Delirium did not last so long in the 8 year old boy, though most of the other symptoms were more marked. The herpetic eruption about the mouth was most marked in the man, vesicles forming and rupturing and the lesions coalescing, it presented one large crusted sore. It prevented closure of the mouth and increased the tendency to changes. Petechial spots were noted on the limbs and a light mottling could be seen over the entire body. There was a painful stiffness of the body and limbs, most marked in the right leg, in the knee of which he said he had rheumatism and wanted a plaster put on it. Examination revealed no swelling or redness, and it could be flexed and extended without pain, when the thigh was not flexed at the hip (Kernig's sign). The head was retracted for about two weeks, and for about twice that time he was unable to lower the chin. There was no noticeable opisthotonos. Pain in the back, head and right leg, at first constant, after several weeks became remittent, and lasted throughout the course of the disease. There were photophobia and deafness. The teeth were covered with sordes, and the tongue had a typhoid appearance. About the beginning of the second week there was a sudden discharge of purulent matter, in large quantity, from the nose. It continued for several days. There was general hyperesthesia and movements were generally painful. The pulse ranged from 85 to 110. It was soft and unsteady and stimulants were given, in moderation, after the first or second week. He was a habitual user of intoxicants and in considerable quantity, though he seldom became intoxicated. Temperature ranged from 99 to 102 degrees F., but was at times subnormal. Respiration was not materially modified. During the second week there was albuminuria, which lasted about a week. Potassii acetas was used, with spiritus etheris nitrosi to relieve this complication. During the third week there was vesical paralysis, requiring catheterization. Constipation existed throughout the disease and was relieved with calomel, as indicated. Milk was the main diet, of which he probably took, on an average, a quart a day, and never less than that half that quantity, except during the first few days.

The 8 year old boy had less eruption than either of the others. The herpetic spots were isolated and few in number, although he had some about the mouth, nose, and one on the upper lid of the right eye. His pains were excruciating, except as they were modified by large doses of morphin. There was no region of the body in which pain was not complained of.

Hyperesthesia was marked throughout. Retraction of the head became so marked that deglutition became at times very difficult or impossible. There was extreme opisthotonos, which, with the retraction of the head, continued for fully five weeks. His arms were flexed on the abdomen or chest, the lower limbs drawn up and flexed at the knees. The Kernig symptom was present for some time, but later any attempt at extension became painful. He lay on his side in the manner indicated and, to take nourishment, with some assistance, he would turn on his abdomen, which would throw the retracted head in an upright position so that he could receive it in a fairly natural manner. In assuming this position, however, he never failed to implore his attendant to be careful. There was deafness and intolerance of light. His pulse during the first week ranged from 100 to 120 per minute, but during the second week it dropped to from 55 to 70 (mostly beating about 60) where it remained for some weeks, then it again averaged about 90, and so remained until he was discharged. Temperature for first thirty-six hours was from 100 to 103. After that seldom above 101, and ranged mostly from 99 to 100. At times it was subnormal. Respiration was from 20 to 30, mostly about 24 per minute. During the second, third and fourth weeks it was markedly Cheyne-Stokes in character, the period of apnea lasting as long as twenty-five seconds. The pulse was also much influenced in its rhythm and volume during these changes in the respiration. The Cheyne-Stokes phenomenon was most marked during a period of albuminuria lasting several days, during the fourth week. Twice he had an attack of dyspnea with violent, painful constriction in the chest. His face had the anxious expression of one suffocating, while he tore wildly at the clothes about the chest. The urine was examined in both cases every day or two, both chemically and microscopically. The boy's urine was frequently abundant, with low specific gravity, 1005 alkaline, with excess of triple phosphates. At times, however, it was scanty, with high specific gravity, 1025. The father's urine was generally fairly concentrated.

Both these cases received morphin and the boy took, during his illness, very much more than his father. At times the boy required 0.016 gram every four hours to control the pain. It was, however, given mostly in 0.008 gram doses every two hours, but while giving it this way an extra dose was required at times. The morphin was only given as required, and as he began to improve intervals of half a day to a day would elapse in which it was not necessary to give morphin, but when the pain did recur it would yield to nothing short of the full dose. Even the very last paroxysm of pain required no less than three doses of the morphin. Atropia was always given with the morphin but not increased with it. Small doses of bromid were given throughout the illness. With the large doses of morphin required by the boy, his desire for nourishment did not seem impaired, and it is worthy of note that he took an average of a third more milk than his father, taking seldom less than a quart per day. With a view of promoting gastric digestion dilute hydrochloric acid was given in small doses. It did not, however, improve the digestion, but seemed to aggravate the general symptoms. The potassii acetas, on the other hand, seemed to have a favorable influence. Fowler's solution, in small doses, was tried as a reconstructive after convalescence was established, but was soon discontinued, as it seemed to increase hyperesthesia and general symptoms of neuritis. We think this remedy, if given at all, should be given cautiously and not so long as symptoms of neuritis are at all marked.

February 25 another boy, aged 15, became sick with symptoms of the disease, but they were mild, and in a week he was again feeling quite well. Two other members of the family, some days later, became sick and were indisposed for several days, but the symptoms did not point sufficiently to the disease to include them. There was, however, one other case in another family, a little girl 8 years old, who was sick fourteen days. Early symptoms were the same as those of cases described. There was, however, in this case, marked dysenteric discharges containing mucus, pus and blood. The case was also markedly intermittent in type. The pain was controlled with acetanilid, no opiate being given. Bromid was given in small quantity.

All these cases were frequently and carefully examined for signs of pulmonary changes, but with negative results, at least so far as physical signs were concerned. The disturbed or slightly increased respiration at times noted was due either to disturbed central innervation or peripheral nerve involvement making normal respiration painful, and hence the more frequent but shallow respirations.

OBSERVATIONS UPON THE SPECIFIC TREATMENT OF TUBERCULOSIS.

Read before the Monroe County (Michigan) Medical Society, April 20, 1898.

BY P. S. ROOT, M.D.
MONROE, MICH.

Briefly, today the pathology of tuberculosis takes into consideration but one real causative factor, the bacillus. Yet apart from this assumption I can not disabuse my mind of the impression that we may and do have a form of phthisis in which this form of bacillus does not directly figure. Such cases are characterized by a low form of inflammatory action, a fibrosis, if you please, with little or no fever. The expectoration is mucopurulent and profuse; consolidation, usually at the base, is present, with the usual classic symptoms. I have made many examinations of the sputum of these cases, finding no bacilli. I take it that this class of cases constitutes the long-drawn-out ones, lasting perhaps for years. They are doubtless susceptible to true tubercular infection, which infection usually runs to a rapid termination. The comparative absence of fever and the failure to find the bacilli, point quite conclusively to this form of consumption. If, then, we have among us this separate type of disease, we perhaps have an explanation of some failures along the lines of specific treatment.

Since the discovery of the bacilli of tuberculosis by Koch, in 1882, there has been a renewed impulse along various lines of investigation, with a view to find some means or remedy inimical to the growth of this bacillus.

If we stop to consider the fearful mortality of consumption we shall see how eminently humane and just are the efforts to mitigate, cure or control this terrible scourge. The true physician will strive to aid in this conquest, will try all things and hold fast to that which is good. In the use of Koch's crude

tuberculin, we found for the first time an agent capable of influencing the tubercular process. That this influence was not salutary, I need not tell you. And yet it was, perhaps, but the too powerful impression of the remedy which increased the degenerative processes. Koch's discovery did not, then, prove to be a distinctly curative agency; but it did serve to demonstrate that in tuberculin we had an agent whose influence upon tuberculosis was specific, and hence has followed the present spirit of investigation by physicians of every country.

In directing attention to a few agents of more or less conceded specific effect, we will confine our remarks to such remedies as have been used hypodermically, because by no other method can we so certainly obtain the real physiologic effect of any medicine. Among the first of these agents we may mention the Shurly-Gibbes treatment, the basis of which was gold and iodin. That these agents were possessed of some virtue I do not doubt; and yet the result has not warranted a very general application. While Drs. Shurly and Gibbes were able to immune monkeys, the remedies occasioned so much pain in their hypodermic use upon patients that it was difficult to properly carry out the indications. Soon after the treatment was placed before the profession, I obtained some very good results. One patient, whose recovery was thought impossible, is alive and in fair health today. Still, as I said, very few would submit to the pain of these injections. Within the past few months my friend, Dr. E. L. Shurly of Detroit, Mich., has found a solvent for iodin which does not occasion much irritation. The solvent in question is the oil of cloves. It has been found that one and one-half grains of iodin can be dissolved in one drachm of oil of cloves. Of this solution ten minims is given. Better still is it to add an equal amount of sterilized olive oil and then give twenty minims. The injection is given once a day deeply into the thigh or muscles of the back. In the use of this remedy my experience, as well as that of Dr. Shurly, has been fairly good. It is quickly absorbed and little or no irritation follows. While the oil of cloves is used simply as a solvent it may exercise some beneficial effect, for this oil has received considerable commendation in the treatment of tuberculosis, given internally.

The use of nuclein in phthisis is founded upon the theory advanced by Metchnikoff, that the white blood corpuscles act as phagocytes in destroying microorganisms. It has been proven beyond doubt that solutions of nuclein increase leucocytosis to a marked degree. At one time it was thought that this increase was only relative, but experiment shows it to have been absolute. I have been able to observe the increase within two hours after the exhibition of the remedy. If, therefore, the theory of action were to work ideally, we might expect these leucocytes to act as scavengers and to destroy the tubercle bacilli or impair their infective power. To a certain extent these results do follow its use. Professor Vaughan of Ann Arbor has found the remedy of pretty general utility in early manifestations of the disease. The consensus of opinion indicates that nuclein is deserving of further trial and that more or less benefit follows its use. In my own experience, I have noticed temporary improvement in nearly all cases. This improvement, however, has not been sufficiently permanent to inspire me with much confidence. Still, in properly selected cases, good will undoubtedly result from its use. At present it is placed upon the market in a 5 per cent. solution, which may be given either by the stomach or hypodermically. If given by the mouth it should be upon an empty stomach in from one to two drachm doses three times a day; hypodermically, fifteen to sixty minims, once a day. It must not be inferred that nuclein has any distinctive action upon the tubercle bacilli, but that it acts more or less alike upon all infective germs and should therefore offer some curative aid to their resulting diseases. It is also claimed by Dr. Vaughan to possess direct germicidal action.

Serotherapy.—After the apparent failure of tuberculin, Dr. Maragliano of Genoa devised a serum from the use of which good results are claimed. This serum is supposed to be derived from the horse in a manner somewhat analogous to that of the antitoxin of diphtheria. Dr. Maragliano's method of treatment claims 68 per cent. of improvement. The details of the manufacture and use of this serum are not familiar to the profession of this country, and I have seen no mention of any trial having been made in America. However, Dr. Maragliano's professional reputation is such that his deductions have had no inconsiderable weight with the medical profession of the world.

Dr. P. Paquin of St. Louis, has produced a horse antitubercle serum from the use of which he claims 66 per cent. improvement. Other experimenters have also reported favorably, so that it seems just to accord to these antitoxins a permanent place in the serotherapy of tuberculosis. Both are given hypodermically.

Finally, we come to the consideration of the various modified tuberculins. These are so numerous, and the claims based upon their use so diverse, that I can not hope to give anything like an exhaustive review.

Among the more common may be named antiphthisin, tuberculin R., purified tuberculin, watery extract of tubercle bacilli and oxytuberculin. These various tuberculins differ mainly in the amount of organic matter which they severally contain, also in their composition as to the presence of toxin or antitoxin. The use of some of them is followed by a rise of temperature, somewhat characteristic of the original tuberculin. It is therefore advised to begin with a small dose and increase very gradually. Dr. Karl von Ruck of Asheville, N. C., has used the purified tuberculin in twenty cases with an improvement in 90 per cent. Four cases have made an absolute recovery and five more are rapidly nearing that result. Koch's new tuberculin seems to have failed and the use of antiphthisin has not been followed by very flattering results, due possibly to improper selection of cases. The doses of these preparations are from 0.1 to 3 c.c. No claims are made for advanced cases. Oxytuberculin is a comparatively recent addition to this line and was brought out by Dr. Joseph Hirschfelder of San Francisco, Cal. His first general communication to the profession was made at the meeting of the AMERICAN MEDICAL ASSOCIATION in June of last year. Dr. Hirschfelder is a careful and conservative investigator and his deductions are therefore worthy of some consideration. The method of manufacture consists in gradually adding peroxid of hydrogen to true tuberculin and then sterilizing from 120 to 130 hours. By this "oxidation" process the infective power of the bacilli is destroyed and there is left simply the oxytoxin, the exhibition of which is not followed by interference with the temperature curve. If this toxin be added

to virulent cultures of this germ, growth ceases; and if applied to local tubercular ulcerations, the bacilli disappear and the ulcers heal promptly. Dr. Hirschfelder closes an article in the *Medical News* with these words: "All these tests show conclusively that the oxytuberculin inhibits the growth of the bacillus of tuberculosis. That this is a specific effect and not due to a general antiseptic action, is proved by the facility with which other germs develop in the fluid. From all the statements made I believe I have proved beyond a reasonable doubt that consumption may be cured by the use of oxytuberculin, if the remedy is administered during the early stages of the disease, and that the cure is effected by direct action upon the causative germ."

My own observations in the trial of this remedy are confined to three cases, none of which come under the classification of *early*. Case 1 was one of galloping phthisis, in a patient whose mother and sister had died of tuberculosis. The disease first declared itself in June, 1897. The area of tubercular infiltration spread with almost the rapidity of pneumonitis and very soon involved the lower and part of the upper lobe of the left lung. The sputa contained large numbers of bacilli. Within a short time a large abscess had formed in the central portion of the lung. Temperature ranged from 101 to 104 degrees, pulse from 110 to 120. About this stage of the disease I began the hypodermic use of oxytuberculin in doses of 12 c.c. The results were strikingly beneficial; temperature fell, cough decreased, night sweats were slight and at times none, while the appetite improved and the bacilli could no longer be found. We had, however, to deal with the septic complication incident to the abscess, which without doubt will carry the patient off before long. Were it possible to have drained the abscess cavity, I believe this patient might have recovered, for even at this date the right lung remains unimpaired.

Case 2 was of some three years' standing, or rather is of that length of time, during which time the patient had tubercular pleurisy, two tubercular abscesses of the sternum and a small abscess or cavity in the upper lobe of the left lung. The pulse was rapid, 112, cough annoying, expectoration profuse and well stocked with tubercle bacilli. The temperature ran constantly above 100 degrees. After about six weeks' treatment with oxytuberculin the temperature became normal and has so remained and the bacilli have nearly disappeared from the sputa, with general improvement in nutrition and respiratory power. Dulness has diminished to a marked degree.

Case 3 was one of three years' duration. Both lungs were involved, with a small cavity in the left one. The patient was confined to the bed, with high fever, night sweats and constant cough, bacilli numerous, nutrition poor. Under oxytuberculin she has steadily gained in flesh and the appetite and digestion are good. There is no fever, nor has there been for several weeks. She is constantly about the house and attends to many duties. The last examination of sputum failed to show but few bacilli, and these were difficult to find.

If time had permitted, I would have been pleased to have gone into the details regarding these cases, and yet I think I have shown that this oxytuberculin must be possessed of a wonderful (curative) power. None have been absolutely cured, but each case has demonstrated the benefits derived from this treatment. Not one of the cases could be classified as early, yet the manifest changes have been such as to point pretty certainly to Dr. Hirschfelder's conclusion that in early cases this remedy will cure a large majority.

The large dose and consequent expense of the oxytuberculin will probably to a certain extent prevent its general use. It costs $5 for three ounces and is given in doses of from 5 to 20 c.c. hypodermically, daily. Thus far I have used 140 ounces. The injection does not cause reaction or more irritation than an equal amount of water would do. I have never had an abscess or a symptom of one following the injection. If the theory of its action be correct, we have a remedy which will open up a new era in the treatment of tubercular joint diseases; for instead of using iodoform and like antiseptics, we shall simply inject oxytuberculin with possibly absolute results.

In speaking of these agents as specifics it must not be inferred that they offer the means of a certain cure, only so far as the real causative elements are concerned. The pathologic results of the invasion of the tubercular bacilli may remain, and if sufficiently grave, death will result; yet it is to me remarkable that such extensive and rapid repair follows the exhibition of this modified tuberculin. And finally, it seems to me conclusive that, if ever we find a true specific for tuberculosis, it will be among these agents. There are those who maintain that there is no foundation or proof upon which to build our hope for a treatment of tuberculosis by bacterio-therapy. Scientific skepticism is just, if it be predicated upon the correct appreciation of therapeutic deductions. Metaphysically speaking, we do not know the *modus operandi* of these various tuberculins, but for that matter, do we comprehend the intrinsic or dynamic power of any common remedial agent? Shall we say that quinin does not cure malarial fever by its specific action upon the plasmodium malariæ? Or that vaccine does not inhibit smallpox? These questions and their details must, therefore, be worked out upon lines of scientific investigation and close observation. If in the end we attain the desired result, what more glorious could redound to the medical profession and to the world? And if we fail, it can not be said of us that we considered the object unworthy our efforts.

TUBERCULOSIS OF THE MAMMARY GLAND.

Read by title at the meeting of the Ohio State Medical Society, May 6, 1898.

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Until very recent times tuberculosis of the breast has been considered one of the rarest surgical conditions; this is especially true of primary tuberculosis of this gland. Prior to 1880 we find practically no mention of this condition in surgical treatises save by Astley Cooper and Velpeau. Billroth, in his monograph on diseases of the breast, regarding all previous reports on this subject as inaccurate and lacking histologic confirmation, mentions a case of undoubted tuberculosis of the breast found postmortem in a woman who had died of pulmonary and intestinal tuberculosis. Since this time reports of these cases have multiplied, although the total number of authenticated cases of primary tuberculosis is still considerably below fifty. Of this number less than ten have been contributed

by our own countrymen, two of them having been reported by Powers of Denver. In view of the fact that the diagnosis is by no means always easy, and particularly early in the course of the disease, and regarding the number in which case reports have been added since attention has been drawn to this subject by clinicians, it is fair to presume that the condition of breast tuberculosis is more common than has been heretofore supposed, and that more cases will be brought to light as a growing familiarity with the clinical manifestations makes its recognition possible.

The following case came under my observation, having been under the care of Dr. Irvine of Tolesboro, Kentucky.

Miss Lizzie D., aged 31 years, weight 108 pounds, rather tall and of slight physique, was admitted to my service at the Presbyterian Hospital on Nov. 22, 1897. Both of her parents are living and well. She has four brothers and six sisters living. A brother has pulmonary tuberculosis, and one sister "is in poor health." Two cousins died of consumption. The patient had measles at the age of 20 years. Since then she has had a slight cough with a small amount of frothy expectoration. She has never had hemoptysis. Four years ago she had pneumonia, from which she recovered rather slowly. In January, 1897, she noticed a swelling in the left axilla, which was painful. It was quite large and anticipating suppuration, poultices were applied. Suppuration failed to occur, however, and in time the swelling disappeared. Two weeks after its disappearance she noticed a swelling in the upper and outer quadrant of the left breast. This also was poulticed and disappeared without breaking down. Both of these conditions were quite painful. The pain, without being constant, was sufficiently severe to frequently interfere with sleep. It is described as having been lancinating and radiating from the breast into the axilla and down the arm. It is further described as bearing no relation to the occurrence of menstruation. Gradually swelling and hardening appeared around the left nipple, and during the last two weeks a certain amount of softening seems to have occurred. Temperature 99.2 degrees.

The physical examination shows slightly roughened breathing at the right apex and also some lengthening of the expiratory murmur; lungs otherwise normal; heart normal; considerable enlargement of the left breast; areola enlarged and of a dull cyanotic hue, nipple not retracted. The region of the areola is soft and fluctuation can here be made out. Immediately beneath and surrounding the nipple there is felt a hard mass intimately connected with the glandular tissue but freely movable upon the chest wall. The skin was freely movable over this mass except in the region of the areola where it was in places adherent. Manipulation and pressure was decidedly painful. There was no enlargement of the axillary gland to be felt. Aspiration at the point of fluctuation yielded a small quantity of pale fluid in which tubercle bacilli were demonstrated in small number.

The patient was operated on Nov. 23, 1897; an incision was made into the mass from the nipple toward the axilla and a cavity entered about the size of a hickory-nut, and a quantity of thick cheesy pus evacuated. The entire breast was removed. In view of the entire disappearance of the former enlargement the axilla was not entered. The patient was allowed to return home on November 29, one week after admission, primary union having occurred. On April 6, 1898, Dr. Irvine assured me that the patient had remained entirely well.

By inadvertence the specimen which had been ordered preserved for histologic examination was lost, and I am therefore unable to describe the microscopic appearance. Macroscopically the mass presented a cavity lined with characteristic tubercular granulation tissue and surrounded by an infiltration rather firm in character and extending from the principal mass chiefly toward the axilla. This, together with the discovery of tubercle bacilli, leaves no doubt in my mind as to its tuberculous nature.

Studied from an etiologic point of view it seems rather remarkable that the breast should so seldom be found the seat of tubercular disease. Its anatomic relations and its structure and physiology are such that a frequent tuberculous infection would seem *a priori* probable. But were we even disposed to grant that it escapes clinical recognition fairly often, it must still be regarded as an infrequent occurrence. Powers states that of 185 cases operated on for breast neoplasms, conditions other than mastitis, but one case of tuberculosis was found, and they were all examined microscopically.

The determination of the infection in this particular locality has been explained in three ways: 1. A direct infection through the milk ducts; 2, an infection through the medium of the blood current; 3, by means of the lymph vessels. To these should be added infection by direct extension from a focus situated primarily in one of the contiguous structures. It is true that in this case we should not be dealing with a primary breast tuberculosis, but as Recnick has shown, the primary focus may be very insignificant clinically or even altogether undiscoverable. Direct infection from without, such as might take place through a fissured nipple or through the milk ducts, and infection by means of the blood current can very rarely be proved, but that pregnancy and lactation do exert an influence in this regard is shown by cases reported by Habermaas, Orthmann, Davis and Hanks. The theory of infection through lymphatic channels is given strength, as remarked by Delbet, by the fairly frequent initiatory swelling of the axillary glands. He speaks of no less than seven cases where the affection of the axillary glands was the original clinical manifestation. This requires, however, the assumption of retrograde lymphatic metastasis; a condition which must be looked upon with a degree of incredulity. It would seem more likely that in such cases we had to deal with a primary focus in the breast of inconsiderable extent, and overshadowed clinically by the secondary glandular infection. In the next place it should be remembered that in all probability the glandular enlargement is often indicative of simple inflammatory change and not tuberculous involvement. I have assumed this to be true of my own case.

Pathologically the disease has been described as occurring in two forms, the disseminated and the confluent, the latter of which is by far the more common. In this form we have to deal with one or less often several fairly large nodules, varying in their consistence and appearance upon section according to the amount of caseation and liquefaction which has occurred. Microscopically we find the formation of more or less typic tubercles with their epithelioid and giant cells and accompanying round cell infiltration. Characteristic also are the degenerative changes, but especially, of course, the existence in the tissues

of the tubercle bacilli. Sooner or later there appear marked caseation and liquefaction, and finally secondary infection with pyogenic organisms; there results then the formation of abscesses and sinuses just as in tuberculous processes elsewhere.

Clinically, primary tuberculosis of the breast presents itself in a variety of ways. It is probable from a study of the clincal histories that not infrequently the condition escapes recognition for a long time, not only by the physician but by the patient. This is likely to occur when it progresses slowly in an individual otherwise healthy and when pain is either absent or insignificant. Thus Shattock reports the case of a girl 21 years of age who six years before noticed a lump the size of a hazelnut in the left breast, which was occasionally the seat of slight and transient pain. During the last year the axillary glands were enlarged. Upon removal and histologic examination it proved to be typically tuberculous. On the other hand, the condition may be painful in its very incipiency. Not infrequently there is no pain whatever complained of until, with the advent of secondary infection, an acute inflammatory condition develops. As before remarked, the axillary lymphatic enlargement is apparently the first symptom in a considerable proportion of cases. In other cases this lymphatic enlargement has been absent altogether during the whole course. However, it occurs at one time or another in 75 per cent. of all cases, and according to Delbet, suppuration occurs in the lymphatics as a rule before it does in the breast itself. The physical examination of the mamma will, as a rule, disclose a tumor, rather ill-defined, closely connected with the gland substance, but freely movable upon the wall of the chest and beneath the skin. The edge of the mass has not the sharply defined boundary of simple chronic suppurative mastitis and not infrequently processes extend from the principal mass, similar to those of carcinoma. The induration is most frequent in the external segment of the gland and occasionally a firm cord of thickened lymphatics may be felt, continuous with those of the axilla. In consistence the mass is rarely uniform, save in the very earliest stages. Usual is the occurrence in some place or places of softened areas or even pronounced fluctuation. In some chronic cases retraction of the nipple has been described.

The disease is one of young adults chiefly; more than one-half of the cases have been described as occurring between the ages of 25 and 35 years and in women, with very few exceptions. The left side is considerably more often affected than the right.

Our chief interest in breast tuberculosis must be centered in the diagnosis. When liquefaction has occurred to a considerable degree, when sinuses have formed or when the condition affects a young woman of pronounced tuberculous habit, the diagnosis may be extremely easy; on the other hand, when found in one more advanced in years, say 35 or over, and especially when but little softening has occurred, carcinoma may be ruled out with the greatest difficulty, or not at all. This may be true of chronic simple suppurative mastitis also or even of the chronic interstitial form. When any degree of softening has occurred, an exploratory aspiration may determine the diagnosis definitely, as in my own case, by the withdrawal of broken down material in which tubercle bacilli may be found.

A perusal of some of the casuistic literature on the subject has brought me to the conviction that mammary tuberculosis is by no means as infrequent as has been assumed by some. Thus, Albert speaks of having seen fourteen cases in all and four of them within one year. The application of modern methods of diagnosis, and the examination for tubercle bacilli in particular, together with a more accurate knowlege of the clinical manifestations of mammary tuberculosis will, I truly believe, cause some cases formerly classed as simple chronic abscess to be placed under the rubric of tuberculosis. This refers especially to those cases occurring in quite young unmarried women with no cause apparent for the development of abscess. As such an example I might cite a case reported by Marcus and operated by Ransohoff. A girl of 17 years, unmarried, had been suffering for years with severe pains in the breast, for which a physical basis had not been found. Rather suddenly there developed the symptoms of suppuration. Pus was discharged upon incision, but a fistula remained, necessitating a second operation, at which the gland was found riddled with suppurating foci. In conversation with the operator he acknowledged the possibility of its having been tuberculosis. The patient is known to be enjoying perfect health at present.

The prognosis of this affection is about what we might assume from *a priori* considerations. If treated by radical surgical intervention, a recurrence *in loco* is in the extreme improbable, but the disease, betokening by its very presence a lowered power of resistance to the invasion of tubercle bacilli, and possibly an environment favorable to their development, is apt afterward to appear in other and more vital organs, the lungs in particular, and thus bring about a fatal termination. This has been the later history in quite a number of instances.

In the treatment of mammary tuberculosis we have but to follow well recognized surgical principles. With Robinson and others I believe it unnecessary to enter the axilla unless there be an appreciable enlargement of the lymph glands. In refraining from partial operations upon the breast itself and making the amputation in every recognized case of primary mammary tuberculosis, we can err only on the side of wisdom.

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NEPHRECTOMY.

Read before the Michigan State Medical Society, May 6, 1898.

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Formerly removal of the kidney was a most formidable operation as the mortality was from 85 to 90 per cent. It was only performed in the very last stages, as a *dernier ressort*. Diagnosis also being very difficult, the morbid conditions for which we now operate and remove the kidney, were treated by internal or external medications. But with the advent of aseptic surgery, great improvement has taken place, and the death record following operations has been so much lessened that, today, it is as low as the general run of

operations involving the peritoneum. The technique has been simplified, so that today no abdominal surgeon hesitates to remove the kidney when indicated.

Diagnosis.— The diagnosis of pathologic conditions requiring removal of the kidney is not easy, the symptoms in many cases being very obscure. Pain in the back is among the symptoms considered indicative of kidney troubles, and still how seldom is this the case. I suppose pain in the back has not once in fifty times any connection with renal disease, but if there is a supposition that this is the case, a careful examination of the urine must be made.

Urine analyses, as a rule, are made very superficially and the simple test for albumin or sugar is not sufficient. A most careful microscopic examination must be made, as well as chemic analysis. The microscope will show us epithelium from various parts of the urinary track, if it is diseased, and by the character of the epithelium we can tell where the disease is. Very often we will find no epithelium, and the urine must be examined repeatedly; and even then in a great many cases of diseases of the kidney of various kinds absolutely nothing will be found in the urine to help in diagnosis. One reason of this is that in a great many of these cases the ureter of the affected kidney is closed up, and consequently we only get the urine from the healthy kidney.

When there is an enlargement, a tumor, it is easy to make a diagnosis, because we get the swelling in the region of the kidney. Still, frequently, adhesions to the liver have taken place and it is absolutely impossible to diagnosticate from disease of the liver; but by careful palpation and percussion, enlargement of the kidney can, as a rule, be readily made out, except in very fat subjects.

Renal calculi, on account of the excruciating pain and the previous history, can more readily be diagnosticated. It is only by the most careful attention to the history and progress of the disease, and all the symptoms connected with the particular case, that the diagnosis can be made; but sometimes it is impossible and it can only be made after an exploratory operation. To show how very difficult it is, I mention one case operated on last year.

A woman, 60 years old, was taken with chills and fever, which continued for five months. She was first treated for typhoid fever, then chronic malaria toxemia, having a temperature varying from 102 to 104 degrees. She was finally attended by an able practitioner, who made the diagnosis of septicemia, but could not locate the pus. He sent her to me. The urinary analysis was negative, the abdomen was enlarged, the muscles were rigid so that palpation was impossible: the whole abdomen seemed evenly distended, and the liver seemed enlarged. The woman walked around feeling perfectly well, and had absolutely no pain anywhere, but every few days she would have a severe chill, and had a constant temperature of from 101 to 105 degrees. I put her under an anesthetic and when the abdominal walls were completely relaxed, I could distinctly feel an enlargement below the liver, evidently a kidney filled with pus, with the ureter closed. The next day I removed the kidney, which contained a quart of pus and she made an ideal recovery.

INDICATIONS FOR REMOVAL OF THE KIDNEY.

1. The reflex and other symptoms produced by a movable kidney, sometimes require its removal, after repeated efforts have been made to stitch it in place. 2. Renal calculi, although frequently these can be removed, and the kidney left in place. 2. Incurable urinary fistulæ. 4. Suppurating kidneys, hydronephrosis. 5. Tumors of the kidneys, benign or malign.

Technique of the operation.—The kidney may be reached from the loin or from the front through the abdomen. It seems to me that the selection must depend upon the character of the case. If the kidney is small, it can be reached from behind, and removed without opening the abdomen; but if the kidney is large, that is suppurating, hydronephrotic or contains a tumor, it is best to make the opening anteriorly, at the edge of the peritoneum, which must not necessarily be opened, unless the case is obscure and where it is necessary to explore the other abdominal organs.

Frequently there are gall stones complicating these cases, and then it is a good thing to make the incision at the outer edge of the rectus, remove the gall stones, close your peritoneal cavity, and then shove the peritoneum aside, making your way around it to reach the kidney.

In all large growths, it is very difficult to remove the kidney from the rear, difficult to get at blood vessels, and it is advisable to make your incision well forward, say from the anterior superior spinæ of the ilium straight upward; sometimes make a transverse incision from this, cut toward the back as far as necessary, make a T-shaped incision, although I like to avoid it and usually make a plain straight cut.

All surgeons have found by experience, that cases come in groups, and so I have lately come across a number of cases requiring removal of the kidney.

Case 1.—Mrs. B., aged 58 years, had an immense growth on the left side, which had been coming on for a year. Thirty-three years previously she had fallen and then noticed "a lump on the left side," but it never caused much trouble until a year ago, when it began to enlarge and continued to do so until I saw her. She had passed the menopause and was otherwise in fair health. She did not suffer much from pain, but the increasing size of the tumor alarmed her very much. It was a plain case of enlarged kidney, probably hydronephrosis. She went to Harper Hospital and I operated on her January 7. I made an incision at the outer edge of the rectus, opened the peritoneum for the purpose of exploring the abdominal cavity, and feeling the right kidney, I found everything all right. I closed the incision in the peritoneum, and made a transverse cut backward for two and one-half inches, shoving the peritoneum to one side. I could easily reach the growth and enucleate. Leaving in a small rubber drain, I closed the incision with silkworm sutures, and the patient made a rapid recovery, being up in ten days.

Case 2.—Miss R., aged 28 years, had been ailing for a year with gradual decline, and swelling in the left side in the region of the kidney. She was sent to me by Dr. Croman of Mt. Clemens. I diagnosticated a suppurating tubercular kidney. She was sent to St. Mary's Hospital. Finding her greatly emaciated, and evidently suffering from tuberculosis, I did not think it advisable to remove the kidney, but simply made a transverse incision between the ribs and the crest of the ilium down to the kidney, which I opened. About a pint of pus was removed, the cavity washed out, and a gauze drain inserted; the latter was removed in forty-eight hours and another one inserted. The patient made a rapid recovery, and in a few days developed a voracious appetite. In two weeks I allowed her to go home, although there was still a discharge, telling her that the kidney would probably have to be removed. She gained for six weeks and then began to decline. She returned to the hospital, where I removed the kidney, February 3, just two months after the first operation, keeping in a good large drain for a few days. Afterward she rapidly gained, and is now perfectly well, there being no evidence of tubercular deposits anywhere else.

Case 3.—Mrs. W., aged 24 years, had always been delicate from childhood, and a swelling had been noticed in the region of the left kidney ever since she could remember. She was married, menstruated regularly, but had no children. During the past three months the growth on the left side increased and caused considerable distress. I considered it a hydronephrotic kidney, and urged its removal. She went to Harper

Hospital, February 22, and I removed it, making a transverse incision just below the ribs. I easily reached the growth after cutting through the muscles. It was certainly cystic but did not seem to be a kidney, so I drew off the fluid and then could easily enucleate it. From its general appearance, although greatly distended, I decided it was a kidney. Examining the cavity again, I was astonished to find another kidney apparently perfectly normal, but small; having put my finger into the peritoneum, I reached over to the right side and found the right kidney normal. The kidney removed had evidently never functionated for years, if ever, one of those rudimentary, supplementary kidneys very rarely found. The woman made an uninterrupted recovery. Dr. Bird, who kindly sent her, reports today that she is feeling better than in years.

Case 4.—Mrs. S., aged 57 years, brought to me from Indiana, had a large tumor filling the abdomen and reaching down to the pelvis. The doctor supposed it to be an enlarged spleen and after careful examination I concurred in this. It reached down to the right iliac fossa, was semi-fluctuating and might have been taken for an ovarian tumor, but careful examination showed that it was connected with the pelvic organs, and the history, which is perfectly clear, showed that it started on the left side just below the ribs and had grown downward, increasing steadily. She went to Harper Hospital and I operated on her, March 9, making an incision from the ribs downward at the outer edge of the left rectus into the peritoneum. Introducing my hand into the abdominal cavity, I found the growth behind the peritoneum. The right kidney was all right. The liver and spleen and all the abdominal organs were normal. The tumor was behind the peritoneum, and evidently connected with the kidney. I closed the incision in the peritoneum and made a cut backward shoving the peritoneum forward. I had little trouble in reaching the growth, tapped it and removed over a gallon of fluid, and could easily shell it out, finding it to be a kidney containing a stone. I put in a gauze drain and sewed up the wound with silkworm sutures. The whole operation took twenty-three minutes. She made a splendid recovery and in fifteen days returned home.

These cases occurring within three months and all recovering, is very fortunate. In all the cases, I use dry sterilized catgut ligatures, chloroform as an anesthetic and, for external sutures, silkworm gut.

DERMOID CYST OF THE OVARY, WITH REPORT OF TWO CASES.

Read before the Union Medical Association of N. E. Ohio, at Akron, Ohio, Feb. 8, 1898.

BY J. F. FOX, M.D.
NEW PHILADELPHIA, OHIO.

A dermoid cyst may be defined as a heterotopic tumor, containing the products of epithelial proliferation, fat, hair, teeth, cholesterin, bone, etc. They were first described by Lebert in 1852, who applied the term "dermoid" to all cysts lined by a cyst wall resembling in structure that of the external skin. These cysts are found in nearly all parts of the body, the ovaries, testicle, orbit, floor of the mouth, brain, eye, lungs, anterior mediastinum and mesentery. They occur, however, far more frequently in the ovary. In 188 cases of dermoid cysts collected by Lebert, the ovary was found to be the seat of the tumor in 129 cases, being nearly 70 per cent. of the entire number recorded.

According to Senn the wall of a dermoid cyst is composed of connective tissue, its inner surface is often smooth resembling a serous surface, but microscopic examination always reveals an epithelial lining composed, according to the character of the epithelial cells, of one or more layers. If the cysts are lined with columnar or ciliated epithelium, the cells are arranged, as a rule, in a single layer; if on the contrary the matrix represents skin in place of mucous membrane, pavement cells in many layers line the cyst. In cyst wall supplied with the appendages of the skin, these appendages are seen and occupy the same relation to the cutis as in normal skin. Hair is the most frequent of the cutaneous appendages in dermoids. The hair in a dermoid, called by Virchow lanugo, is fine and of a blonde or light brown color, even in negroes. It is interesting to note that the hair found in ovarian dermoids of aged persons is white. also baldness of the inner surface of dermoids is as often met with as baldness of the scalp; the hair grows, as on the skin, from perfect hair follicles. The teeth found in these cysts are composed of dentine, enamel and cementum, arranged in the same manner as in normal teeth, and they are developed on the same plan.

Senn also claims that the cutaneous lining of dermoid cysts, like the external skin, is subject to the formation of benign and malignant growths. Carcinoma may develop in a dermoid cyst. Benign epithelial tumors, papilloma and adenoma are frequently met with.

In regard to the origin of these peculiar growths, physiologists have been very much at sea; many theories have been advanced; the theory of impaction advanced by Verneuil and accepted by a number of other investigators seems to be the most tenable. At one time the finding one of these growths in the ovary of an unmarried woman was presumptive evidence that the was unchaste, but this idea was dissipated as soon as examples were reported existing in children. According to the theory of Verneuil, a portion of the blastoderm is forced by pressure into the tissues, there remaining dormant for a while, afterward developing, thus producing by its growth an erratic development of normal tissue.

With reference to the period of life at which they were found, Pigné may be quoted. He analyzed 18 cases with the following results:

Five existed in virgins under 12 years old; 6 in children from six months to 2 years; 4 in the female fetus at term; 3 in fetuses cast off at eight months. On the other hand many cases are reported where they were found at puberty, middle life and old age. Potter reports, in examining postmortem the body of a woman 83 years old, found a similar growth, which though weighing five pounds and nine ounces, had occasioned no symptoms during life. It appears that up to the period of puberty the dermoid occurs oftener than any other form of ovarian tumor.

The contents of these cysts vary considerably in different cases. Sebaceous matter is always found in abundance. Hair is frequently found, short and stubby in some; in others again it is found quite long, as in the oft quoted case of Mundé where a switch of hair was removed measuring five and one-half feet. Again teeth are occasionally found in great numbers. Schnabel found more than one hundred attached to three pieces of bone removed from the walls of a large dermoid cyst in the case of a girl 13 years of age. Another case is reported by Autenrieth in which over three hundred teeth were removed. The presence of teeth constitutes one of the most remarkable feature s of dermoid cysts. They may be attached to bone or cartilage within the cyst wall, while their crowns extend into its cavity. Sometimes their fangs are surrounded merely by connective tissue; while again the entire tooth may be entirely imbedded in the cyst wall, no portion showing except when exposed by an incision. Occasionally teeth are well formed and of a distinct type. They are usually, however, faulty in point of development and shape, the crown, fang,

enamel or cortical substance may be absent. Caries is claimed to have been found by some writers and denied by others, describing it simply as a phenomenon of wear and absorption. Meckel has shown by his investigations, which have been corroborated by the experience of others, that the teeth of dermoid cysts develop by successive crops, and in many other respects correspond to the normal dental structures. Thus, a preparation in Rokitansky's collection shows the crown of an atrophied tooth resting upon an underlying growing specimen, in a manner which forcibly recalls the natural eruption of the deciduous and permanent teeth. Salter claims, it has also been demonstrated that the teeth are supplied with nerves.

Baumgarten reports a remarkable case where the cyst, besides skin, hair and teeth, contained a body which contained an eye, with a species of convex cornea and epithelium like that of the retina. Nervous tissue, both gray and white, and resembling brain substances as well as nerve-fibers and plain muscular fibers have been repeatedly found in these cysts.

Both ovaries may be simultaneously affected. Out of 15 cases of dermoid cysts operated on by Mundé, in three cases both ovaries were similarly affected. In 31 cases of this disease observed by Doran, 7 were bilateral, while Olshausen found both ovaries affected in 4 out of 16 operations undertaken for removal of these growths. Ponpinel collected 44 cases in which both ovaries were affected. Olshausen collected 2275 cases of ovariotomies, and out of this number there were only 80 cases of dermoid cysts, making 3.5 per cent.

Bradford of Kentucky reports a successful removal of one of these tumors from a girl six and one-half years old. Also, Raemer of Berlin operated successfully on a child twenty months old, removing an ovarian dermoid as large as the patient's head. Collingworth reports the history of a woman in whom both ovaries were apparently involved by dermoids, who had given birth to twelve children and had had three miscarriages, the last three months before the removal of the growths.

The diagnosis of ovarian dermoids, prior to an incision on the operating table, is extremely difficult and in many cases absolutely impossible. The main distinguishing features are, their slow growth when small, greater mobility, sensation of resistance and absence of fluctuation. It should be remembered that true dermoids are invariably unilocular, however it very often happens there is associated with it an ordinary ovarian cyst, in which instance the diagnosis is made more difficult. Inflammation of the interior of the cyst, by the entrance into it of pyogenic microbes occasionally takes place, whereupon the products of the suppurative inflammation of the cyst wall, added to the contents of the cyst causes a rapid enlargement of the tumor. Pelvic abscesses have been noticed and their true dermoid character proven by the removal of long hair through the sinus of the supposed abscess in the posterior vaginal vault. In one case reported by Janvrin of New York, the patient's attention was first attracted by a bunch of hair protruding from the rectum. This, after repeated efforts, she pulled away. Some years later her abdomen began to enlarge, two ovarian tumors were diagnosed and both found to be dermoids on removal, one of which had perforated into the rectum.

Case 1.—Miss L. H., aged 31 years, well nourished, menstruation first appeared at the age of 15, irregular at first, frequently not appearing for four to six months at a time, last few years regular, complained of tumor noticed in abdomen for over a year, enlarging very slowly, which could now be distinctly detected above the brim of the pelvis. She had attacks of severe pain in the abdomen that would confine her to bed for several days at a time and necessitate a free administration of anodynes for relief. Menstruation was comparatively easy and natural. Examination revealed a tumor somewhat larger than a child's head at birth, springing from the left ovarian region with semi solid contents. Diagnosis as to nature of tumor was in doubt, owing to its slow growth, great amount of pain caused and the partial solid feel of contents; advised operation. A few weeks later, Feb. 14, 1895, operation was made and on opening the abdomen the peritoneum was found considerably congested, also the wall of the tumor thick and very vascular. The contents was so thick it would not flow through large size ovariotomy trocar. On partially withdrawing the trocar a small hair was seen protruding from the wound made in the tumor and a diagnosis of dermoid cyst became easy. The abdominal cavity was now protected with sterilized towels and sponges, and the opening in the sac enlarged and about two quarts of a fatty substance removed, filled with short stubby hair, some muscular tissue and a bone resembling a miniature inferior maxilla, also a switch of hair about the thicknes of a baby's wrist and two and one-half feet in length. Accidentally some of the contents of the tumor escaped into the abdominal cavity. The pedicle was ligated, tumor removed and the abdominal cavity irrigated with sterilized salt solution, and the patient made a good recovery.

Case 2.—Miss M. K., aged 28 years, weighing 235 pounds, was examined April 24, 1896. She was suffering considerable pain in the abdomen, loss of appetite, chills and fever, temperature irregular 101 to 102.5 degrees. The abdomen was enormously distended by a fluctuating tumor which was enlarging very rapidly. The uterus was normal in size but driven low down in the pelvis. The tumor mass could be easily felt through the vagina. A diagnosis was made of suppurating ovarian cyst. The general condition of the patient was bad, being confined to bed most of her time for five weeks, which in connection with her fleshiness made operative proceedure extremely hazardous.

Operation was made May 14. A great many adhesions were encountered; many of them needed ligating before they could be divided. Over two gallons of gray matter, freely mixed with short hair and small balls of fat were removed with the trocar, the entire mass weighing twenty-two pounds. In closing the wound the peritoneum was sewed with catgut, the muscles with silver wire, the fat, fully four inches in thickness, by four tiers of continuous catgut, the skin also brought together with catgut subcutaneously.

The temperature at once dropped to normal and remained so until the sixth day, when there was a slight show of fever, which continued on the seventh, when we changed the dressings and the wound had united completely without any granulating points. On the eighth and ninth days there was still a temperature slowly increasing. Each day the dressings were changed and search made for a burrowieg abscess in the wound. Nothing could be discovered to explain this rise of temperature. On the tenth day the temperature was 102 degrees, and on examining by vagina a small tender mass in Douglas's cul-de-sac was found. The patient was at once placed under the anesthetic, the cul-de-sac freely opened, three or four small dark clots removed, also a small amount of pus and freely irrigated with sterilized water and the cavity lightly packed with iodoform gauze. The temperature again dropped to normal and the patient made a good recovery with no further trouble, and today weighs more than she ever did.

In conclusion, it may be stated that the former teaching, that the escape of a part of the contents of a dermoid cyst into the abdominal cavity at the time of operation, would necessarily be followed by a fatal peritonitis, is probably not correct; a number of cases have been recorded where the accident occurred and patients made a prompt recovery. In the second case the presence of the tumor was not detected until suppuration set in, and it commenced to enlarge rapidly.

An Improved Decolorizing Fluid for Nissl's Method is made by mixing 40 c.c. oil of cajuput, 50 c.c. xylol, 50 c.c. creosote and 160 c.c. absolute alcohol. It penetrates the section readily, dissolves the celloidin, which always hinders precise differentiation on account of its avidity for the anilin stains, and absorbs the stain wherever it is not to remain.—De Gothard, *Semaine Méd.*, May 18.

A NEW COMBINATION CHART FOR THE EXAMINATION OF SCHOOL CHILDREN'S EYES AND EARS BY TEACHERS.

Read before the Western Ophthalmological, Otological, Laryngological and Rhinological Association, in Chicago, April 7, 1898.

BY FRANK ALLPORT, M.D.

PROFESSOR OF OPHTHALMOLOGY IN THE CHICAGO POLICLINIC, ETC.

CHICAGO, ILL.

As an adjunct to my method for the systematic examination of school children's eyes by teachers, I have prepared a special compound test card, which I submit. It is based upon the standard types of Snellen, and is called "A Visual and Aural Chart for Schools." Roman numerals are on one side of each line and Arabic on the other. As, notwithstanding frequent instruction and printed directions, I am frequently asked by teachers, "which is the proper line to test by at twenty feet?" I have had printed under the twenty-foot line the following words: "This line should be seen by a normal eye at 20 (xx) feet," which would seem to make the matter perfectly plain.

Under the last line on the card proper, is a half broken line, at which point the lower portion of the compound card should be severed from the upper portion. Just under this line are printed the words, "Please detach by breaking on this line." The card which is thus detached contains the teachers' instructions how to proceed with the tests. The upper or long card, containing Snellen's types is the testing card and should be hung on the wall when in use.

Upon the lower card of instructions is printed the following matter, most of which is already familiar to those who have used this method. Some additions have, however, been made, as for instance the instruction not to expose the card except when in use, the advice not to examine first grade children, the question as to the existence of strabismus, the questions for the development of ear diseases, with their frequent nose and throat obstructions, etc.

INSTRUCTIONS FOR THE EXAMINATION OF SCHOOL CHILDREN'S EYES AND EARS. FOR USE OF PRINCIPALS, TEACHERS, ETC.

Do not expose the card except when in use, as familiarity with its face leads children to learn the letters "by heart."

First grade children need not be examined.

The examination should be made privately and singly, in a room apart from the general school session.

Ascertain if the pupil habitually suffers from inflamed lids or eyes.

Children wearing glasses should be tested with such glasses properly adjusted on the face.

Place a card of Snellen's Test Types on the wall in a good light; do not allow the face of the card to be covered with glass.

The line marked 20 (xx) should be seen at twenty feet, therefore place the pupil twenty feet from the card.

Each eye should be examined separately.

Hold a card over one eye while the other is being examined. Do not press upon the covered eye, as the pressure might induce an incorrect examination.

Have the pupil begin at the top of the test card and read aloud down as far as he can, first with one eye and then with the other.

If the pupil does not habitually suffer from inflamed lids or eyes, and can read a *majority* of the xx (20) test type with each eye, and does not, upon inquiry, complain of *habitually* tired and painful eyes and headache after study, his eyes may be considered satisfactory. But if he habitually suffers from inflamed lids or eyes, or can not read a *majority* of the xx (20) test type with *both* eyes, or habitually complains of tired and painful eyes or headache after study, a card of information should be sent to the parent or guardian.

FACTS TO BE ASCERTAINED.

EYES.

1. Does the pupil habitually suffer from inflamed lids or eyes?
2. Does the pupil fail to read a majority of the letters in the number xx (20) line of the Snellen's Test Types, with either eye?
3. Do the eyes and head habitually grow weary and painful after study?
4. Is the pupil probably "cross-eyed?"

EARS

5. Does the pupil complain of earache in either ear?
6. Does matter (pus) or a foul odor proceed from either ear?
7. Does the pupil fail to hear an ordinary voice at twenty feet in a quiet room?
8. Does the pupil fail to hear the tick of a good-sized watch at three feet with either ear in a quiet room?
9. Does the pupil fail to breathe properly through either nostril?
10. Is the pupil an habitual "mouth breather?"

If an affirmative answer is found to *any* of these propositions, the pupil should be given a card or letter of warning to be handed to the parent, which should read something like this:

Dear Sir;

After due consideration, it is believed that your child has some Eye——Ear* disease, for which an Eye——Ear* Doctor of recognized standing should be consulted. If you feel unable to consult one at his office, a dispensary will do the work free of charge.

It is earnestly requested that this matter be not neglected, as children with Eye——Ear* diseases can not attain the best results in school.

Respectfully,

. . . . . .

Principal . . . . School.

*Either the word "Eye" or "Ear" may here be crossed out, as may be appropriate for the case. If the pupil has presumably *both* and an Eye *and* Ear disease, *both* words may be left, and the space between the words "Eye" and "Ear" should be filled in with the word "and."

If school authorities desire to have these cards of warning printed (which of course facilitates the work), the names, addresses and office hours of the various free dispensaries may be printed upon the backs of the cards, if it is so desired. If this is done the names of *all* the reputable Dispensaries in the city should of course be included. Teachers should not exert their influence in favor of any particular Eye or Ear Surgeon or Dispensary.

It will be observed that these cards are non-obligatory in their nature. They do not require anything of the parent, who is at perfect liberty to take notice of the warning card or not, as he sees fit. They simply warn the parent that a probable Eye or Ear disease exists, thus placing the responsibility upon the parent.

Principals and teachers are urged to impress upon pupils and parents the necessity for consulting reputable Eye and Ear Surgeons and not *unprofessional tradespeople.*

It will be noticed that the language is plain and the instructions simple, in order that they may be easily comprehended by teachers and the laity into whose hands the cards will naturally fall.

The "facts to be ascertained" have been so worded that an affirmative answer to any one of them will indicate that the pupil needs a warning card to take to the parent.

I have several purposes in view in producing this chart. My original method for conducting these tests was to have an oculist appointed by the board of education, who should superintend the tests, collect data, make reports, etc. The examinations were to be made by principals and teachers, and pupils found defective should have their names, conditions, etc., enrolled upon what is called the "statistical blanks," upon which, after due time, is to be written the results of treatment upon the eyes, health and general conduct of the pupil. These blanks are handed to the superintendent and board oculist, who keep them on file and reports on their findings to the board of education.

This is the plan I have advocated and still advocate, but boards of education are not always amenable to argument, and their objections take many forms. Some will not hear to the plan at all; some are willing to have an oculist instruct the principals as to the workings of the plan, but wish him to have no further connection with the schools; some adopt the plan, but will not ask the principals to perform the extra labor of making out the "statistical blanks," and some will not allow the names of the dispensaries printed on the backs of the warning cards, etc. The combination card which I now propose harmonizes with most of the objections, and I think can be adopted under most circumstances.

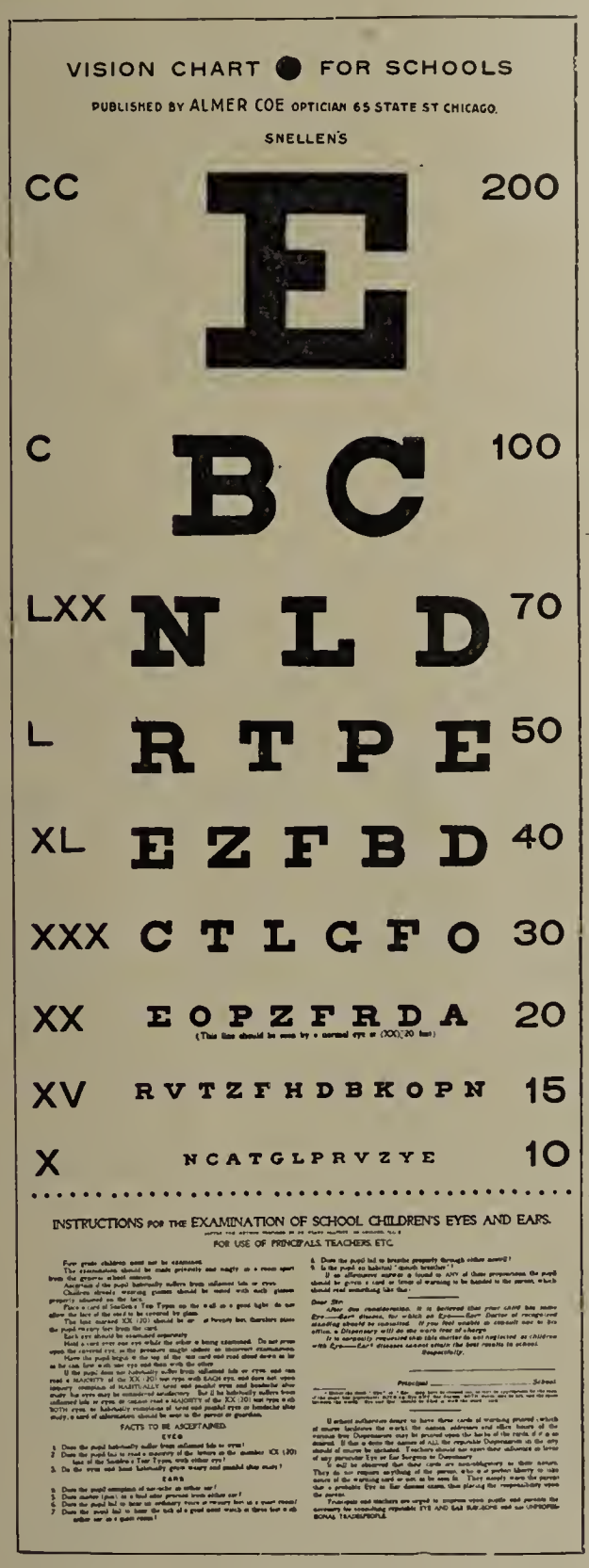
Many teachers are interested in this work, and are constantly inquiring how they may do it in places where the board has taken no official action along these lines. They can purchase one of these combination cards containing both the test types and instructions, and proceed with the work in their room or school. To this there can certainly be no objection, as the tests are absolutely harmless in every particular.

In case a board does not wish to burden its principals with statistical reports, but wishes the work done in other particulars, these cards may be purchased by the board, which will cover the entire expense, excepting the warning cards.

In the tests in the Chicago schools, which the Chicago Board of Education has requested me to super-

intend, the principals will not be called upon to render statistical reports, therefore my new combination card will be used. They will, however, be required to let me know how many children were examined, how many were found defective, how many they know to have been benefited as a result of the tests, and what are their general ideas as to the usefulness, etc., of the plan.

I do not in any sense depart from the original and more systematic plan which I have so many times recommended, but in case the more accurate method can not be used, this one will, I believe, render satisfactory service, as what we really wish to achieve is the benefit to the coming generation and not the compilation of statistics.



A. This section of the card should hang on the wall.

B. The two sections of the card should be separated or broken apart on this line.

C. This section of the card contains printed instructions to teachers, and should be kept for their personal use.

92 State Street.

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

Regular Meeting held May 13, 1898.

Dr. Daniel R. Brower in the chair.

Drs. Wm. L. Baum, James G. Kiernan, G. Frank Lydston, Harold N. Moyer and Eugene S. Talbot were elected Directors for 1898-9.

Dr. Reuben Peterson read an inaugural thesis entitled

PERIPHERAL NERVE TRANSPLANTATION.

He reported a case in which the sciatics of a dog were transplanted successfully between the severed ends of the median and ulnar nerves of a man. At the outset, the author stated that the operation of implanting between the resected ends of a peripheral nerve a segment of a nerve from a recently amputated limb, or from one of the lower animals, was comparatively rare. In the majority of cases of accidental impairment of the conductility of a peripheral nerve, the proximal and distal fragments could be brought together and directly sutured. Obviously this was the ideal method, and that oftentimes it was markedly successful might be seen from the reported cases of apparent primary union occurring after immediate suturing of divided nerves. In a certain proportion of cases so much of the nerve substance would be removed as to preclude all chance of a direct union of the divided ends of the nerve trunk. This would happen more often during the removal of tumors involving a peripheral nerve. The same condition might result from an extensive crush of the nerve substance, necessitating the resection of considerable portions of the nerve before healthy tissue was reached, or the injured nerve might be so imbedded in dense connective tissue as to render a dissection at the point of lesion exceedingly difficult and of doubtful utility. Under these conditions the surgeon must decide what method of bridging over the gap in the nerve trunk and restoring its conductility should be employed. His choice would naturally depend largely upon the recorded results of other operators as well as actual work on the human subject.

To intelligently observe, treat and record a case of nerve section required a knowledge of nerve physiology and histology, rarely possessed by the average surgeon. It was only by the combined efforts of specialists in these departments that such cases of nerve surgery could be worked out to the greatest advantage. The author then reports his case in detail.

A microscopic examination of the segments of median and ulnar nerves removed at the time of operation was made by Dr. G. Carl Huber of Ann Arbor, Mich.

The essayist then passed on to the consideration of the changes in sensation and motion following the operation in the case reported by him. The first return of sensation in a previously anesthetic area was noted within twenty-four hours after the operation, sensation being tested on the thumb by a pin. Tests made in this way were not open to the objection of those made with a blunt object, for, as pointed out by Létiévant, impact against the anesthetic area might be carried to sound papillæ and carried upward by other nerves. This rapid return of sensation was not an uncommon occurrence, as recorded cases of nerve section and suture would reveal. As it was generally conceded that the transplanted nerve segment degenerates, as does any other resected nerve, only more rapidly, it was contrary to all biologic law to suppose that sensation was so quickly conveyed over this bridge of foreign tissue. Yet the rapid return of sensation was advanced as an argument by those who claim that the fibers originate in the peripheral end from the sheath of Schwann.

The author then quotes Kennedy with reference to the rapid return of sensation after operation. He also reviews extensively and exhaustively the literature of the subject, giving an epitome of cases that have been reported.

General conclusions.—1. Transplantation of a peripheral nerve segment to bridge over a gap between the two ends of a resected nerve is a legitimate surgical procedure.

2. Under favorable conditions at least partial, and at times complete, restoration of sensation and motion may be expected to follow the operation.

3. Regeneration of the degenerated peripheral end is due to down growths from the axis cylinders of the central end.

4. From the slowness of this process, the longer the time after the operation the more favorable will be the results.

5. Sensation may return very early after operation, and as a rule precedes return of motion.

6. This rapid return of sensation is not due to down growth of axis cylinders or to conductivity of the transplanted fragment, but must be explained by collateral nerve supply.

7. In many cases very early return of motion, after transplantation, may be due to vicarious movements of other muscles than those formerly paralyzed, and not to a regeneration of the latter's nerve supply.

NERVE IMPLANTATION.

Dr. G. CARL HUBER of Ann Arbor, Mich.—I am proud to be able to make some remarks on this interesting case which has been so well presented by the essayist, Dr. Peterson. I became aware of this case after I had completed some experimental work on the repair of nerves after loss of nerve substance, and welcomed, therefore, the opportunity to test some of the conclusions reached, in a clinical case. The question of the repair of an injured nerve is one that has been frequently discussed, both by the experimenter and the surgeon. Opinions differ, however, even yet, as to the manner in which such repair takes place. It may not be amiss, therefore, to review briefly some of my work touching on this question, which has been done in the past ten years. As Dr. Peterson has stated, the views of the histologic process of nerve regeneration may be divided into two groups. One set of investigators, among whom may be mentioned Büngner, Galeotti and Levi, Kennedy, Ziegler and Wieting, contend for a regeneration of the peripheral segment of a divided nerve from the proliferated nuclei of the old, the degenerated nerve fibers. These cells are looked upon as cells having the value of neuroblasts; embryonic nerve cells. Another set of investigators, among whom may be classed Howell and Huber, Stroebe, Notthaft and Kolster, states that the regeneration of the peripheral end of a divided nerve is through new axis cylinders, which bud from the central, the undegenerated axis cylinders, and grow into the degenerated portion of the nerve. The proliferated nuclei of the sheath of Schwann are, according to this view, not looked upon as neuroblasts, but as cells, probably of neuroblastic origin, which furnish, wholly or in part, the accessory sheaths to the new axis cylinders. The discontinuous origin of the axis cylinder in a regenerating nerve was strongly defended by Büngner, whose apparently careful work and numerous excellent illustrations did much to bring before investigators the interpretation of the question under consideration. Büngner's observations may be summarized as follows: He points out that simultaneously with the breaking down of the medullary sheath in a degenerating nerve, there is observed a proliferation, by mitotic cell division, of the nuclei of the sheath of Schwann, and an increase of the protoplasm around these nuclei. The proliferated nuclei become arranged in rows, and the protoplasm begins to show a longitudinal striation. In this striation the author recognizes the first appearance of the fibrillæ of the new axis cylinders. These striated bands of protoplasm, formed in the old sheaths, become separated from the remaining protoplasm of the old fibers to form the new nerve fibers. This development of new fibers begins near the wound. They are less fully developed as one proceeds from the injury to the periphery. According to Büngner, the function of forming these new nerve fibers belongs to the proliferated nuclei of the sheath of Schwann, which he designates as neuroblasts, and regards as nerve cells. The work of Galeotti and Levi may here receive brief mention, as their observations pertain to results obtained on lizards in which the tails were resected and the regeneration of the nerves and motor end organs observed. They found that at the end of the cut nerves, spindle-shaped cells are to be observed, which they traced to the proliferating cells of the sheath of Schwann. These cells are rich in protoplasm. They become arranged in rows, and the protoplasm fuses to form bands. In the bands, sometimes in the cells before fusing, the beginnings of the new axis cylinders may be recognized. Ziegler's observations pertaining to the regeneration of nerves corroborate in the main those made by Büngner. He recognizes the importance of the proliferated nuclei of the sheath of Schwann in the regeneration of nerves, and also observed the striated protoplasm in the old sheaths, from which the new axis cylinders were said to be developed. These new axis cylinders are, according to Ziegler, formed near the wound, in the first place, it would seem, not in connection with the old fibers. This connection is said to be established through a nucleated, protoplasmic plug, which appears at the end of the central fibers. Wieting's work appeared from the Pathological Institute at Marburg, where Büngner's investigations were made. Wieting confirms Büngner's observations in full, emphasizing the following points: On the third day, he states, it may be observed that in the undegenerated portion of the central portion of the divided nerve, the axis cylinders terminate in a band of protoplasm, found in the degenerated portion of the central segment. At the point of lesion, cells rich in protoplasm wander out from both the cut ends of the nerve, and arrange themselves in rows between the divided nerve fibers. In the peripheral portion of the divided nerve, bands of protoplasm are formed in the old fibers.

There is now found in the entire degenerated portion of the injured nerve a mass of protoplasm, out of which are differentiated the new nerve fibers. On the fourth day, occasionally on the third day, there may be observed in the protoplasmic contents of the old sheaths, very fine fibrillæ, which always appear first in that portion of the protoplasm joined to the old axis cylinders. From these and similar observations Wieting is led to believe that as soon as a stimulus is received from the old axis cylinders, the neuroblasts lose their identity, flow together, and the fibrillæ begin to appear in the protoplasm. These fibrillæ are not to be looked upon as an outgrowth of the old axis cylinders, but are developed in the protoplasm derived from the proliferated nuclei of the sheath of Schwann, and this, under the stimulus of the old axis cylinders. These fibrillated bands of protoplasm develop into the new axis cylinders, the medullary sheath developing from the remaining protoplasmic contents of the old sheath, which surrounds the fibrillated portion. The new axis cylinders, medullary sheath and sheath of Schwann are, according to this view, formed from the proliferated nuclei and protoplasm of the sheath of Schwann, of the old, the degenerated fibers, as the result of a stimulus which comes from the central, the undegenerated portion of the nerve. Kennedy describes observations made on four surgical cases. He finds that the new nerve fibers originate in the peripheral as well as the central segment. The new fibers originate from cells within the sheath of Schwann. In the development of the young fibers, the central portion of the primitive protoplasmic thread forms an axis cylinder, and the myelin sheath is deposited in the surrounding protoplasmic zone, which latter remains along with the nucleus as the neuroblastic element of the interannular segment. The formation of new fibers in the peripheral segment occurs, although this is not connected with the central end, but maturation of the fibers is not complete while separation of the ends lasts.

Before discussing the results of investigators who contend for a discontinuous origin of the axis cylinder in the peripheral segment of a regenerating injured nerve, the position of such investigators as believe in an outgrowth of the old axis cylinders into the peripheral portion of a divided nerve, may be briefly stated. Stroebe may here be cited as being the first of the more recent investigators in this field to formulate this view clearly. His observations pertain largely to experiments on rabbits, in which the great auricular nerve was injured by compression. Seven days after such compression, in preparations stained after his anilin-blue-saffranin method, young axis cylinders were seen in connection with the central and regenerated axis cylinders; these were traced into the connective tissue, which was developing at the point of injury. Such new axis cylinders, were, in various experiments, followed step for step into the peripheral portion of the nerve, where they were found within or between the old fibers. The regeneration of a divided nerve begins, therefore, at the peripheral end of the central, the undegenerate nerve-fibers, as small axis-cylinder buds, which grow to the periphery. The protoplasm and nuclei in the degenerated fibers playing only a passive part in regeneration, in so far as they may, to some extent, at least, guide the down-growing fibers. According to Stroebe, the down-growing axis cylinders possess a thin medullary sheath from their first appearance, showing, however, no nodes of Ranvier, and no segments of Schmidt or Lautermann. These appear about the fifth week, by which time, in the rabbit at least, the new nerve fibers are nearly fully developed. The nuclei of the sheath of Schwann of the degenerated fibers form, according to Stroebe, the sheath of Schwann of the new fibers. Notthaft's observations were, in the main, similar to those quoted from Stroebe. He defends the down-growth of the axis-cylinder as the most important phenomena in the regeneration of an injured nerve, and gives diagrams to show the rate of this down-growth. He does not, however, give so clear a demonstration as does Stroebe, of the budding of the new axis cylinders from the central, undegenerated axis cylinders, and finds the new fibers at first non-medullated. The observations made by Professor Howell and myself, are usually interpreted as showing a down growth of the axis cylinders from the central end, although this was not so clearly demonstrated by us as by Stroebe. Kennedy and Wieting find in these observations support for a discontinuous origin of the new axis cylinders in the peripheral nerve. We described as the first stage in the regeneration of the peripheral fibers, bands or cords of protoplasm containing nuclei, which resembled developing nerve-fibers. These fibers, adopting the nomenclature of Neumann, were spoken of as "embryonic fibers." We were not able to make out an axis cylinder nor a medullary sheath in these fibers, but simply "membranous

sheaths filled with a protoplasmic material in which are numerous nuclei occurring at more or less regular intervals." These fibers seemed to show a low degree of irritability, and seemed more readily stimulated by mechanical stimuli than by electrical. Kennedy regards the fibers, described by us as "embryonic fibers," as nerve fibers, because "when the peripheral segment which contained only such fibers was mechanically irritated, a low degree of irritability and conductivity was found." Stroebe does not regard our embryonic fibers as nerve fibers (neither did we), but as completely degenerated nerves. He is of the opinion that in such cases, where a mechanical or electrical stimulus elicited a response in a portion of the peripheral segment, where only embryonic fibers were found, our histologic methods were insufficient to detect the new axis cylinders which may have been present. I am, from observations made in later work, inclined to accept Stroebe's interpretation of our results. From the investigations of His, on the development of nerves, we have learned that the nerve fibers, the embryo, which resemble the embryonic fibers described by us, thus the name, possess an axis cylinder, in fact, are the axis cylinder branches of nerve cells. Then it must be remembered, a point which Kennedy and Wieting seem to have overlooked, that in our physiologic experiments, irritability in a divided and sutured nerve, or in a nerve crushed with a ligature, did not return before the twenty-first day, and then only near the wound. From that time irritability proceeded centrifugally, and was never well marked until such a time as we were able to find axis cylinders at the seat of stimulation. In the experiments of Büngner and Wieting, the striated protoplasm, in which they see the beginning of the new axis cylinders, appeared as early as the fourth and fifth day after injury to the nerve. As far as I am aware, the irritability or conductivity of this striated protoplasm was not tested by Büngner nor Wieting. In Stroebe's experiments the down-growing axis cylinders reached the wound about the seventh day, and only at a later time were they found in the more peripheral portion of the degenerated nerve. My own experiments on the regeneration of nerves after loss of substance, in which segments of a nerve, a bone tube, or a catgut bundle, were implanted, seem to me of importance in this connection. In all these experiments I was forced to the conclusion that there was a down-growth of axis cylinders from the central portion of the divided nerve, and that it depended entirely on the mechanical conditions, as to whether the down-growing axis cylinders reached the peripheral portion of the divided nerve or not. It seems to me that the experiments of bone tube and catgut implantation were of especial importance in throwing light on this question. In these experiments it seemed to me clearly proven that the new axis cylinders came from the central end, in no instance were there found any axis cylinders in the peripheral portion of the nerve, until the down-growing axis cylinders had reached the peripheral segment. In no instance was there observed any migration of the proliferated nuclei of the sheath of Schwann, either from the peripheral or central end of the resected nerve, which might in any way be regarded as the *anlage* for new axis cylinders, or contribute to the formation of bands of protoplasm in which an axis cylinder differentiation might occur.

Experimental work teaches that an attempt at regeneration occurs after every injury to a peripheral nerve, and that regeneration of the peripheral segment follows if the mechanical conditions for a down growth of axis cylinder buds from the central end are favorable. Wieting asks this question: "How can such delicate fibers as the new axis cylinders grow through connective tissue, and how can they withstand compression when this connective tissue organizes and contracts?" To this we may answer: "The new axis cylinders grow through embryonic connective tissue, as Stroebe and I have shown. They are hindered in their down-growth, and many of them are deflected from their course, and no doubt many of these new fibers may degenerate again if much connective tissue is formed between the ends of the divided nerve, as, for instance, when a divided nerve is not sutured, or when during a nerve suture, the coaptation of the ends is not accurate. It seems to me this is shown after every nerve injury, especially where there is a loss of nerve substance. The nerve bulb found at the central end of a divided nerve signifies an aborted attempt at nerve repair. In these cases the new axis cylinders grow toward the periphery, but are prevented in their further development by the organization of the connective tissue. It is for this reason that it is necessary to suture carefully after nerve injury, to vivify the ends of the nerve stumps in secondary suture and to use some mechanical device which will protect the down-growing axis cylinders, as will absorb slowly, leaving paths of least resistance in the connective tissue between the divided ends of the nerve, along which the down-growing axis cylinders may pass in their downward growth. The implantation of a nerve segment, in case an ordinary secondary nerve suture could not be made, was suggested in the case presented by Dr. Peterson, because in the experimental work the implantation of a piece of nerve between the resected ends of an injured nerve seemed to offer the most suitable mechanical conditions for the down-growing axis cylinders. The fibers of the implanted nerve degenerate into fibers consisting of the old sheaths of Schwann, containing nucleated bands of protoplasm, through which, or between which, the down-growing axis cylinders may grow protected, sufficiently at least, from the surrounding connective tissue. This, it seems to me, is an operation that is demanded in every case where an ordinary primary or secondary nerve suture can not be made, owing to the separation of the divided ends of the injured nerve. It is an operation justified by experimental observation, and I may here be allowed the expression of the opinion, and this without in the least attempting to throw discredit on clinical observation, that in this and similar cases experimental observations, histologic, physiologic and pathologic, are more likely to a correct understanding of the question than are observations on clinical cases. The clinician can not expose the nerve at his pleasure, make physiologic tests, and then remove the nerve and study it histologically as can the experimenter. Kennedy, in his cases, was able to remove only a small portion of the nerves operated upon by him.

And I venture to say, that in these same cases, a study of the peripheral portion of the injured nerve would not have revealed new nerve fibers. If nerve fibers had been found in the peripheral portion of the nerve, an operation would not have been needed. The case reported by Dr. Peterson is one I feel sure Kennedy would have interpreted as showing a development of new fibers in the peripheral portion of the divided nerves. As you have seen from the figures thrown on the screen, cross sections of the central end of the peripheral portion of the divided median, showed a few very small medullated fibers. This might be interpreted as showing a development of nerve fibers in the peripheral end, as the distance between the central and peripheral portions of the divided median, measuring about 1 cm., was bridged by connective tissue. In longitudinal sections passing through the peripheral portion of the central part of the median, the intercalary connective tissue and a portion of the central end of the peripheral part of the divided median, small nerve fibers with thin medullary sheaths could be traced from the central to the peripheral part of the median, through the intercalary connective tissue, showing, it seems to me, a down-growth of new nerve fibers from the central end. How far down in the median such new nerve fibers extended we can not say, probably only a short distance. It seems unfortunate, the other features having been worked up so thoroughly and scientifically by Dr. Peterson, that the fingers sent him from Canada were not fixed in such a way that methods used in histology for bringing to view axis cylinders or the medullary sheath could not be used. This would have been of great use in this case from the standpoint of the scientist.

In closing, I can only express my thanks to Dr. Peterson for the opportunity to observe this case, and the Academy for giving me privilege to make these remarks. Your interest in the essay and in the remarks which followed, shows your appreciation of the subject under discussion.

Dr. KIERNAN—What are the nerve elements which occur in the extremities of a part, say the toes or fingers, after amputation; and are there new nerve fibers?

Dr. HUBER—A nerve bulb is formed at the end of the cut nerves and there are new nerve fibers in every bulb. These new nerve fibers grow out from the old nerve. The nerve bulb consists practically of new nerve fibers and connective tissue.

Dr. S. BROWN—I would like to know if this process is not a reduplication of the embryonic development of nerve fibers?

Dr. HUBER—Exactly. It seems to me that there is no doubt that the new nerve fibers grow out as they do in the embryo. This applies more particularly to the axis cylinder. The medullary sheath is of a secondary consideration to the surgeon. If he gets axis cylinder regeneration he does not care so much for the medullary sheath. The medullary sheath, I am inclined to think, is developed from the axis cylinder; the connective tissue part of the nerve is the sheath of Schwann, or the neurolemma.

Dr. TALBOT—Is the nerve tissue admittedly epiblastic in its origin?

Dr. HUBER—It is. The neuron is developed from an epiblastic cell; the supporting tissue of the brain and cord, that is, the neuroglia cells are also of epiblastic origin. Everything that belongs to the neuron proper, and neuroglia tissue is epiblastic in origin, and in no way mesoblastic.

Dr. FERGUSON—Is it possible to cut a nerve and prevent the formation of a nerve bulb?

Dr. HUBER—I do not think that thing can be done. You may possibly, by trimming off the end, prevent it to some extent, but I believe every nerve fiber that is cut away will attempt to regenerate. A nerve bulb is an attempt at regeneration; the nerve fibers try to grow out, no matter how or where a nerve is injured.

Dr. TALBOT—In France many years ago, it was customary to remove a sound tooth from one person and transplant the same in place of a decayed tooth removed in another person. Such teeth often healed without bleaching, which shows that the nerve fibers in the implanted tooth at once became united with the nerve fibers in the jaw, as otherwise the tooth would have changed color. I would also mention the observation that when such teeth were touched with a hot iron pain was felt.

Dr. G. CARL HUBER (closing remarks)—The experimental work of Schiff on "The Replantation of Teeth" goes to show that when a replanted or transplanted tooth makes union this is by means of the alveolar periosteum primarily. He also points out that the pulp in a transplanted tooth always undergoes necrosis. It may regenerate later on, but as I remember, this takes place quite slowly.

Dr. TALBOT—Yes.

Dr. JAMES G. KIERNAN—It seems to me, that there are three subjects which should be discussed here. Not merely the neurologic and pathologic question, but also the surgical. Before a neurologist takes up the question it seems to me better that a surgeon describe the actual results in these cases. Nerve surgery has assumed considerable prominence during the last ten years. At this time the results have not quite reached the standard anticipated. That difference could, with all deference to Dr. Huber's explanation, be accounted for by a difference between the regenerative powers of the animal experimented on and the human being. Take, for example, the work that has been done on bone-tubes. Nerve regenerative power is rarely exercised; as a rule, only the connective tissue part reproduces itself and not the nerve tissue proper.

With regard to the point which Dr. Huber made in which I was very much interested, and which to my mind was to a certain extent supported by a few results in connection with amputation neuralgia and amputation hallucinations, I should be inclined to favor rather strongly surgery alone, the line which Dr. Peterson has indicated. At the same time, the question comes right to my mind, whether with this nerve regeneration we do not have a connective tissue proliferation to correspond or even a greater one. Until that question is settled, one of the practical points, from a neuro-surgical standpoint, remains unsettled. The nerve regeneration in replaced cut-off fingers deserves study from this standpoint.

Dr. A. H. FERGUSON—I should like to draw the attention of the members to the fact that this case of Dr. Peterson was not one of nerve surgery alone; other structures were injured which must be taken into consideration. I refer to the return of motion, and with regard to atrophy or trophic changes that were observed in that hand. The vessels were cut in front of the wrist, all except the radial artery; this would account for some of the congestion, for some of the coldness in the hand, and it might also account in part for a number of other changes.

Nerve transplantation being the subject of the evening, I will simply read to you a report of my own case, which occurred five years ago, but which report I am sorry to say is not as complete as it might be, nor as replete with material as that of Dr. Peterson, but I think has a scientific value.

Miss M., age 18 years, presented herself at my office on May 3, 1893, with a tumor situated in the course of the median nerve about an inch and a half above the left wrist joint. It was painful to the touch, and pain was referred to the peripheral distribution of the nerve, especially in the index and middle fingers. Her suffering was gradually increasing in severity, and night pains were experienced. The growth was first noticed in February, 1893. Changes in the weather appeared to bring on pains in the hand. On May 9, 1893, assisted by Dr. Versailles, I removed the tumor under cocain anesthesia, through a lateral semilunar skin incision. It was found necessary to inject cocain into the nerve above the tumor before manipulation of it could be tolerated. By blunt dissection an effort was made to separate the nerve-fibers from the growth, but without much success. The tumor was almost round in shape. It measured an inch in its longest diameter, which was parallel to the course of the nerve. The nerve was severed about an eighth of an inch above and below the tumor. The distance between the ends of the nerve was bridged over with four strands of chromic catgut (No. 1, Seabury & Johnson), which brought the ends closer together than an inch. The wound was closed and dressed. A McNaughton splint was applied, putting the forearm, wrist and palm at rest, the fingers flexing over the end of the splint. The case was not seen by me for a week, when the dressings were removed, wound found healed, the skin sutures removed and the limb dressed as before. There was no return of sensation, and motion was not attempted. At the end of another week all dressings were removed and left off, and gentle friction and passive motion advised. She complained of a soreness in her hand. During the following three or four weeks the hand was weak and numb. A rubber ball was given her to exercise the fingers. Some days the finger and thumb appeared to be stronger than previously, and again they appeared to lose the strength gained. At the end of six weeks there was practically no return of motor or sensory function. The grasp was imperfect, and she could not feel the prick of a pin over the outer half of the palm, the palmar surface of the thumb, index and middle fingers. There was some sensation on the radial side of the ring finger. The tips of the thumb, index and middle fingers could be pricked with a pin without being felt. The tip of the ring finger was sensitive. Sensation was also absent on the dorsal aspect of the thumb, and two adjacent fingers immediately below the nails.

Three months after the operation (Aug. 12, 1893), the ball of the thumb was noticed to have atrophied. The grasp had not improved. The anesthesia on the palmar surface persisted, but she claimed that on being pricked several times in quick succession on the dorsal aspect of the thumb and fingers, to feel that something had been done. Return of sensation in these regions is put down as doubtful. Transplantation of a nerve from an animal was determined and carried out August 12, 1893. About an inch and a third was removed from the left sciatic nerve of a pup and transplanted into her arm in the following manner: Chloroform was administered to both. The old semilunar scar was followed and removed from her arm, a flap raised, the catgut was absorbed, dense scar tissue extended between the ends of the nerve, the proximal end somewhat bulbous, the distal about normal in size, but somewhat fibrous, the ends were vivified by transverse incisions and the nerve from the dog sutured in place with fine silk. I saw her again on the third day. She saluted me with the assertion that she could feel with all her fingers except the middle one, which I verified by pricking them with a pin. I saw her again on the eighth day. She now complained of soreness and hyperesthesia in the distribution of the nerve to the hand. From this time on the sensation of the limb became more and more normal. Motion improved gradually, but was vascillating and painful. Creeping sensations ran down the fingers occasionally. She was then under my observation for a month, at the end of which time she had a good useful hand, having been restored to about two-thirds of its function. I might say that passive motion was commenced about the end of this second week. She used to rub it a great deal with oils of different kinds, in which she was encouraged. Two years afterward (1895), I saw her for a few minutes on the street. She said her hand was still lame, but useful, and did not pain her. She could feel anything larger than a fine needle and thread or horse hair. I noticed that the atrophy persisted, and that the grasp of the hand was not fully restored. When Dr. Kiernan asked me to discuss Dr. Peterson's paper, I at once wrote to this lady, and the following reply was made to a series of questions I wished her to answer, and received yesterday: "I will just answer all your questions by saying that my hand is, may be, a little stronger than when you saw me last in Winnipeg. The feeling is about the same, and my hand near the thumb is still wasted." I do not understand how the sensation returns so rapidly unless the continuity of the median has something to do with it when we transplant a nerve. If it were due to the impressions sent along other tracks those impressions should have existed primarily immediately after the first injury.

Dr. E. S. TALBOT—Transplantation of nerve tissue is not new to the dental surgeon. Even one hundred years ago, the French nobility had their decayed teeth removed and healthy teeth of the peasants substituted. When these teeth were extracted, the nerve tissues as well as blood vessels were severed at the apex, but sensation and vitality were eventually restored.

This is true at the present day. It is not an uncommon thing for physicians and dentists to replace teeth that have been knocked out. It is impossible to say whether they unite or not. I can only say that discoloration of the tooth and alveolar abscess do not occur, which would be the case if union did not take take place. By the common practice in such cases of placing a heated instrument upon the tooth, the patient responds to sensation. These teeth remain in a healthy condition in many cases through life.

Dr. W. X. Sudduth—This is a subject that has a great deal of interest for me, because I can speak from two standpoints, that of a scientific observer and also as a patient. In the fall of 1878, as some of you know, I was in Wyoming Territory. I had been interested in the cattle business since 1873, and finding that I was unable to secure as good a market as I wanted I established meat markets in the northern part of Colorado, and had my agents at different points attending to the sale of meat that was taken to them. Being called to a mining camp in northern Colorado, and my agent there anxious to take advantage of the occasion to take a vacation (which means to go on a drunk), I had to take charge of the market, and having occasion to cut a rib-roast, I cut it through with a knife and started to use the cleaver, and in doing so held the ribs apart with my left hand, but in using the cleaver the blade went too far and struck me right on the upper portion of the wrist, cutting it to the bone, severing blood vessels, ulnar and median nerves, and as a result, having no means of attending it antiseptically, antisepsis being practically unknown in those days, a cicatrix formed between the cut ends, followed by paralysis of the abductor muscles with loss of sensation and loss of the use of the thumb for any fine manipulations. This lasted for several years, and in the meantime I returned to college work, experimental and embryologic, engaging my attention especially to nerve tissues, and came to the conclusion from experiments made on rabbits that the cicatricial tissue prevented the union of the nerve ends, as Dr. Huber has shown you, and in 1884 I spoke to Dr. Garretson, who was then living in Philadelphia, but since deceased, and he cut down and removed the cicatricial tissue and brought the cut ends of the nerves together by the only process we then knew (buried sutures), the wound healing by first intention. Following the operation sensation did not return at once, possibly by reason of lack of adjustment of the ends, as the operation was according to our knowledge of today, somewhat crude. Still sensation gradually returned and has been steadily improving till the present time. This case has never been published, because I have not discontinued my observations as yet. There is no question but what, in this particular case, sensation improved from the distal ends of the central nerve, that is, from the upper portion; it was not through a collateral division, because if it had in the six years after it occurred before operation it would have been restored. The anastomosis came from the union of the ends of the nerve and gradually the thumb has been restored to its full rotundency and the strength of the muscle improved and now all that remains is a certain tingling sensation when it is touched, and which is gradually getting better and better all the time.

Dr. Huber—Just the thumb alone lost sensation?

Dr. Sudduth—Yes. This whole question is one of vital interest to the embryologist, as to whether this regeneration of nerve tissue is through an inside extension of the neuroblast from the root nerve or whether there is a transmission or transformation of the embryonic connective tissue into nerve tissue. My observations made upon peripheral nerve endings, although not done with the later methods, the Weigert method being the one used at that time, still we got fair results. Perhaps the best work I have done along that line was in the development of peripheral nerves in the pulps of the teeth. Prior to the eruption of the teeth no nerve-fibers are to be observed at all, and the apical foramen of the tooth is fairly well developed, and yet at a certain point, the development of these peripheral nerve-fibers seems to come from the mesoblastic tissue of the pulp itself.

The point raised by Dr. Talbot as to the restoration of sense of feeling in the implanted or transplanted tooth is a good one clinically, but so far as I know no scientific work has been done to demonstrate the regeneration of these fibers. That there is a return of sensation there is no doubt, but that leads up to the subject of redevelopment of excised nerve. I have assisted in and performed operations of excision of the inferior dental nerve for neuralgia of the face, and we took the precaution to insert wooden plugs, also other kinds, into the dental foramen.

Dr. Huber—You have a bone-tube there?

Dr. Sudduth—Yes. And in our cases neuralgia returned, so that we had a very positive demonstration of redevelopment of the nerve-fibers, even where the nerve was excised. In those cases invariably the restoration of the excised portion, is from the trunk end of the nerve, not from the peripheral portion, except a plug was inserted to prevent it, at the upper end of the canal. This question is one fraught with great interest, and one that can not be discussed to any extent in the time that is allotted.

Permit me to express my thanks and appreciation to Doctors Peterson and Huber for their work and contributions to the Academy.

Dr. S. A. Matthews—In regard to the quick return of sensation to the part rendered anesthetic by division of its nerve-supply, after the peripheral and proximal ends of the cut nerves are reunited, physiologic experiments suggest the following explanation, which at present can only be considered a suggestion: We have quite good reason to think that sensation is not wholly supplied to a part by one nerve trunk, or from one segment of the cord, but that there is an intermingling of collateral sensory nerve fibers with those normally furnishing sensation to the part through which sensation may be supplied after section of the main nerve supply.

But this does not answer the question raised by Dr. Ferguson, why these collateral nerve fibers do not supply sensation immediately after section of the main nerve trunk, but do not come into play until the nerve trunk is again reunited. This can only be explained by assuming that at the proximal cut end of the nerve there is a continuous irritation. The sensory impulses set up by this irritation pass into the cord, and seem to have an inhibitory influence on the sensory impulses passing to the cord along the collateral fibers, and so long as this irritation continues, so long are the collateral sensory impulses inhibited. This has, to a certain extent, been proven experimentally, *i. e.*, it has been shown that an irritation of a set of sensory nerve-fibers may inhibit the same sensation, coming into the cord through other paths.

Then the explanation comes to this, that when the cut ends of the sectioned nerve are reunited the irritation which has been continuous at the proximal end is removed, thus permitting the collateral sensory nerve supply to the anesthetic part to come into play. I would not have you think this definitely proven, but only offer this as a suggestion based upon certain physiologic experiments.

Also, Dr. Peterson has spoken of certain variations noticed in the function of both sensory and motor nerves. This is in all probability due to changes in the nutrition of the muscle cells which they supply. It has been proven experimentally that living tissue, especially muscle tissue (contractile), if placed under conditions unfavorable to its nutrition, as the accumulation of poisonous products, etc., tends to do away with the nerve influence of the tissue. This has been shown to be true by letting the metabolic products accumulate in active muscle to such an extent that the nerve supply has no longer any influence. Then if a normal salt solution be permitted to circulate through the muscle, washing out the poisonous products, the nerve influence returns. In fact, I have often observed this phenomenon in studying the influence of poisons on contractile tissue, and it is well known that variations in the nutrition of muscle tissue causes variations in the influence of the nerves supplying such tissue.

Dr. Sanger Brown—The careful and thorough observation and concise expression in the paper we have just listened to reflect much credit upon the author. The Academy is certainly to be congratulated upon the accession of the essayist to its membership. I also have been very glad to hear the summary of our present knowledge regarding the regeneration of nerve elements by so competent an authority as Professor Huber. From all observations and experiments at present available, it would seem quite reasonable to assume the existence of collateral paths for the conduction of both motor and sensory impulses, similar to what is observed in the circulation, and in a similar way, to assume that when the more ordinary paths are interrupted the collateral paths are susceptible of development, and that the number and magnitude of these collateral paths vary greatly in different individuals. Assuming this hypothesis to be true, the explanation of much of the improvement that occurs from a few hours to a few days after the operation in these cases is, to my mind, reasonably explained on the ground of suggestion; that is to say, these collateral paths existing, suggestion would effect the necessary stimulus in the cortex to produce the result observed. Though not quite all the phenomena of rapid improvement may be satisfactorily explained on the hypothesis of suggestion, many of them are satisfactorily so explained. Certainly it is not reasonable to assume that the nervous energy could proceed through, perhaps, several centimeters of the inserted nerve trunk and then through a distal segment of nerve trunk devoid of axial cylinders, whereas all the conditions of the operation and of the influence brought to bear upon the mind of the patient after the operation are usually pre-eminently calculated to produce a powerfully suggestive effect.

Dr. Peterson—It is only in exceptional cases that we will be able to determine whether the connective tissue has been increased at the point of lesion after our nerve transplantation cases. Therefore, Dr. Kiernan's criticism will not hold, and we will have to depend upon the results of animal experimentation.

It is to be regretted that the amputated fingers were not

preserved in Müller's fluid, as the microscopic examination when the proper method of staining the axis cylinders could have been used, would have been very interesting. The patient's second finger is now troubling him, and if it be amputated I will see that it is preserved in the proper fluid.

It does not seem to me that Dr. Ferguson's criticism, that in the case reported we were not dealing with trophic changes due to section of nerves alone, should have much weight. It is true that the ulnar artery was also severed, but this will not explain the presence of the trophic changes, and if the changes noted were due to a loss of arterial supply, it is difficult to explain why the nutrition of the hand improved so markedly after the operation upon the nerves alone. A study of reported cases will also show that the same conditions as were present in the case reported before and after the operation may exist where the arterial supply has not been interfered with.

As suggested by Dr. Brown, one is naturally suspicious that the mental attitude of the patient may have a bearing upon the early return of sensation. I think this factor can be safely eliminated in the present case, however. It will also fail to explain such rapid return of sensation as was quoted in the paper, when there was actual loss of nerve substance. The reason why sensation is not conveyed through the collateral nerve paths immediately after the injury and is later on after an operation, must be determined by further experimental work.

Cincinnati Academy of Medicine.

Meeting held June 6, 1898.

Dr. HORACE WHITACRE read a paper on

THE USE OF IRRIGATION AND WET APPLICATIONS IN SEPTIC SURGERY.

The paper opened with a brief review of septic conditions calling for these measures, including cellulitis, septic machine wounds, compound fracture, head wounds and pelvic cases, with a division of septic wounds into the local and spreading type of infection. The great lack of conservatism in the treatment of such conditions was deprecated and the irrigation methods offered as a valuable aid in saving tissue. In considering the use of wet applications, a cellulitis of the hand was taken as an example, where a scratch is the point of infection, the finger swollen and painful, back of the hand reddened and puffed, and lines running up the forearm. The pathologic condition of the tissues was fully described and the essential lesion shown to be a growth of the virulent micro organisms within and along the line of the deep lymphatics. From this the indications for treatment are shown to be some antiseptic that will be absorbed by the lymphatics and carried along these channels to destroy the germs. The wound is too small to absorb and the skin is an osmotic membrane covered by fat and skin sebum and saturated with cholesterin fats, so that only those substances will osmose which will mix with this covering. Such substances are carbolic acid, acetate of lead, acetate of aluminum, etc., while those that will not are $HgCl_2$, NaCl, KI, etc. It was shown that a voluminous wet dressing of 1 to 80 carbolic acid retained moisture and heat and an antiseptic kept in contact with the skin for constant transfer to the seat of germ activity; also that $HgCl_2$ could have no such effect. This dressing is of value in all types of spreading inflammation and serves to abort many such attacks. The form of irrigation known as submersion, in warm water or weak antiseptic solution, was next taken up in its application to: 1. Cases of continued cellulitis where repeated incisions had been made, through and through drainage established and painstaking dressings persisted in, yet the tissues remained sodden and infiltrated, joints are destroyed, and the loss of the part is imminent. 2. Severe lacerated injuries, including compound fractures, where septic infection is present, the tissues widely involved and the wound has a pork-like appearance. 3. For the purpose of maintaining life in tissues where the circulation is cut off by lacerating injuries of the larger blood vessels (infection present or not), and by plaster, splint or other bandage. Under 1 and 2 the advantages gained were: 1. Water by direct solution and by diffusion takes up and carries away large quantities of the toxic, crystalloid, chemic products of the bacteria which are the source of the entire local and constitutional reaction. This, based on the fact that it is not the bacteria that are harming the cell or the body in general, but the toxin which by acting on the cell lowers its vitality and gives access to the bacteria, or by diffusion into the blood acts on the thermogenic center to produce fever, or in the heart, liver or kidney to produce cloudy swelling and fatty degeneration. In submersion the diffusion process is into the water instead of the blood. 2. Water alone is healing. 3. Moisture prevents exsiccation of the secretions, relieves tension and renders the tissues soft. 4. Heat to a surprising degree retains and brings back life to tissues that otherwise would be hopelessly lost. 5. Any antiseptic, such as carbolic acid in very weak solution, would be absorbed into the lymphatics and the tissues saturated by an antiseptic agent in such strength as to inhibit the growth of germs at their seat of development. Clinically the change in the patient is a prompt drop in temperature, diminished edema, the wounds clean up and tissues are saved that had seemed already lost. A special point was made of the natural resisting forces of the body represented by the vital energies of the cell; the fact was recalled that great numbers of bacteria can be eliminated without the slightest damage to the system, and that at other times an infection resisted with very slight artificial resistance. These facts call for agents which will stimulate the nutrition of the cell and not for strong agents which will lower the resisting power forces. Under 3 (submersion) it was shown: 1. That blood remains fluid and the vessel walls normal in the distal portion of an injured or obstructed blood vessel. 2. That the heat of a part is very rapidly diminished when the blood supply is cut off, a condition favoring the rapid death of tissue. The case of a trephine button was cited, also the fact that a Thiersch skin-graft may live twenty-four hours if kept in normal salt solution, and take well when applied. These and many other things would show that cells may live a long time without blood supply, and the use of submersion is based upon the fact that we artificially maintain conditions of heat favorable to the life of the cell until anastomotic circulation can establish itself. Irrigation by a constant stream was next considered and was again stated to be based upon the fact that the great object in septic surgery is to obtain good drainage, and that no permanent dressing, no matter how frequently changed, affords perfect drainage, but leaves secretions in contact with the wound for absorption. The measure consists in conducting a gentle stream of 1 to 1000 carbolic or to 10,000 $HgCl_2$ to the bottom of a septic wound and allowing this to bathe the wound constantly. It was stated that most of the germs were probably beyond the reach of an antiseptic and deeper in the tissues but the advantages seemed: 1. The mechanical removal of secretions and debris. 2. The prevention of the entrance of pathogenic bacteria. 3. The diffusion of toxins externally. 4. In carbolic acid we have an antiseptic that will penetrate albuminous matter and the tissues. 5. The main advantage is good results. The measure fails: 1. Because the flow of fluid is too slow. 2. The fluid often runs back along the tube and reaches none of the important interstices of the wound. 3. Irrigating fluids are often too strong. The application to pelvic cases was considered in its mechanical difficulties and much stress was placed on the proper placing of the irrigating tube of soft rubber at the bottom of Douglas cul-de-sac, and often a second tube by means of a Y attachment into the lateral recesses.

Chicago Ophthalmological and Otological Society.

Regular Meeting, April 12, 1898.

Dr. COLEMAN in the Chair.

Dr. WESCOTT showed a case of

CONGENITAL CATARACT.

The patient, 27 years old, says he is one of many children having the same condition. Two of his relatives had been operated upon, and one had been given better vision. He is unable to tell the nature of the operation. Vision in one eye is $^{20}/_{200}$, and in the other $^{20}/_{100}$; not improved under atropin. The opacity is so large that when the pupil is fully dilated there is only a narrow ring of transparent lens.

Dr. HALE—I have had one case similar to the one shown by Dr. Wescott, and operated on one eye with a resulting vision of $^{20}/_{40}$. This patient gets along very well by using his unoperated eye for near, but with glasses he complains that he can not see quickly enough on account of the asymmetry.

Dr. TILLEY—The fact that there is no improvement under atropin is considerably against the hope of vision being greatly restored.

Dr. COLEMAN—I would operate on the worst eye of the two if there is any possibility of improving vision. Asymmetry is an objection, but not so great as commonly thought. I have had several patients get good binocular vision with correction. I would not expect to improve this case by an iridectomy, but think discission the proper thing. Extraction of these lenses has not been a success in my hands.

SUPPURATING LID.

Dr. C. P. PINCKARD—This gentleman has kindly consented

to appear before us this evening to show an interesting condition of the lids, a condition I have not seen anything like before. It started some six weeks ago in the form of a sty which was opened and for a day or two apparently got better. Shortly after, however, the lid began to swell considerably and an ulcerative process commenced in the neighborhood of the sty, involving the conjunctival border of the lid for perhaps half an inch toward the outer canthus. Also one of the Meibomian glands upon the center of the lid began to suppurate. There was no previous chalazion, but from the gland extending clear through the duct to the border of the lid the same process started up. The peculiarity connected with the case is the character of the process. Along the border of the lid it destroyed the tissue very rapidly, so that in wiping it off there was not only considerable pus but shreds of the lid tissue itself. The process in the Meibomian gland broke through into the conjunctiva and a considerable quantity of the tarsus has been destroyed as well as the superficial parts of the conjunctiva extending down to the border of the lid. The first treatment was mild, followed, however, by strong escharotics, such as the use of nitrate of silver and powerful solutions of corrosive sublimate, but all the time the pathologic process kept advancing. About ten days ago, when the case first came into my care, ichthyol was started and seemed to have a beneficial effect on the diseased condition, but not much. After two or three days, the improvement not being marked, I started chinosol solution in the strength of 1 to 1500, and from that time it has continued to improve. The principal point is as to the nature of the process. There is absolutely no history of any general infection. Dr. Evans, in the Columbus Medical Laboratory, examined some of the pus and tissue from the edge of the ulcer for tubercle bacilli with negative results. An inoculation was made in gelatin, and after two days there was no growth. Then an inoculation was made in agar, and then in agar and glycerin, and kept in the incubator for twenty-four hours with no result. So we have nothing whatever to go by in this destructive process of the lid. If it be tuberculosis of the lid it certainly assumes a very unusual form. The hair follicles are not involved. The ulcer is now in the healing stage but shows the large amount of necrosis which has taken place.

Dr. Robert Tilley—The case reported by Dr. Pinckard is interesting as well as curious. Chinosol, of which he speaks, is being lauded as a valuable antiseptic, and yet at the same time there does not seem to be any vestige of any bacteria to be found on the minutest observation. Chinosol, which is manufactured by a Hamburg firm, is difficult to get, but I have used it somewhat with apparent satisfaction under certain circumstances. I suppose the still more recent article, protargol, may have the same effect.

Dr. C. P. Pinckard—This must be from our present knowledge a septic process, in spite of the fact that no culture could be made, and that powerful antiseptics like silver and corrosive had no beneficial effect. They made it worse, and during their use the disease spread rapidly, the tissue broke down, and there were shreds of tissue at the bottom of the ulcer. The ichthyol, which is not an escharotic, and the chinosol, which has a mild action, seemed to at once act favorably.

EMBOLISM OF ONE OF THE BRANCHES OF THE CENTRAL ARTERY OF THE RETINA.

Dr. H. W. Woodruff of Joliet, Ill.—I show you a case in which there occured sudden diminution of vision in the left eye in a young lady 20 years of age. It came on last Thursday evening while she was at home. She has had blurring of the eyes before, but this condition was something entirely different from anything she had previously experienced. She has a refractive error in both eyes. I saw her yesterday afternoon for the first time, and found on ophthalmic examination what is undoubtedly an embolism of one of the branches of the central artery of the retina. The light edematous area is to be seen toward the temporal side of the disc. The veins are plainly visible over this light area. Her direct vision is $^{20}/_{120}$. There is a large scotoma in the field of vision corresponding to the occluded area. There is no sign of any kidney or heart disease. Her urine has been examined and shows no albumin and but a trace of sugar.

Dr. Albert B. Hale read a paper entitled

STATISTIC REVIEW OF FIVE HUNDRED CONSECUTIVE CASES PRESENTED AT THE HEBREW CHARITIES DISPENSARY.

In this summary it is not meant that there were only so many cases of trachoma or of iritis, etc., but the diagnosis of the most important sign or symptom for which the patient wished treatment was considered; and therefore many examples of trachoma or refractive error are not put down in the table. Cases called amblyopia are those which require further examination, for which they failed to come. Operations not mentioned in the table were done as required. I can not explain why there have been so few cases of choroidal or retinal degeneration, because I have a large material in myopia with all its associated effects upon the fundus, and European clinics dealing with the same races report more instances of choroiditis and retinitis. I notice, too, that injuries are rare. This I ascribe to the fact that as a class this people is not industrial, but domestic and commercial. Cases of gonorrheal conjunctivitis are rare, probably because of the custom of early marriage and of the commendable virtue of both male and female parents.

I present the table herewith.

	Per cent.	Schwabe's Leipzig percentages from 15,675 cases.
1. Diseases of the lids: Sty 14, chalazia 6, cysts 1, phlegmon 5, fissure 1, pediculi 2, insect bites 2, papillomata 1, burns 1, blepharitis 56; total, 89	17.8	10.10
2. Diseases of the lachrymal apparatus: Dacrocystitis, 10	2.0	2.19
3. Diseases of the conjunctiva: Injuries 11, cyst 1, foreign bodies 22, trachoma 24, pterygia 1, herpes 1; inflammations: Simple acute 51, simple chronic 21, follicular 2, phlyctenular 16; total, 150	30.0	18.12
4. Diseases of the cornea: Injuries 5, foreign bodies 20, tatooing 1; inflammations: Simple infiltrate 9, vascular 3, ulcerous 21: total, 59	11.8	19.19
5. Diseases of the iris: Inflammations: Plastic 5, serous 1; total, 6	1.2	1.59
6. Diseases of the choroid: Choroiditis disseminata, 1	0.2	1.64
7. Glaucoma, 3	0.6	0.65
8. Cataract: Congenital 1, senile 7; total, 8	1.6	2.81
9. Injury to bulbus, 6	1.2	0.56
10. Refraction: Myopia 34, hyperopia 63, astigmatism 3, presbyopia 26, squint 12, nystagmus 1; total, 139	27.8	36.31
11. Diseases of the optic nerve 4	0.8	2.22
12. Amblyopia and amaurosis 25	5 0	0.44
	100	

Dr. Pinckard—At the eye clinic of the Michael Reese Hospital, where we have the same class of people to deal with, we see many cases of choroiditis. I do not recall the exact percentage, but it is comparatively large.

Dr. Coleman—I am surprised to learn the large percentage of myopia in Dr. Hale's report. I can safely state that not more than 10 per cent. of my cases are myopes. I have little faith in statistics of refraction unless the cases are all tested under mydriatics.

Dr. Wescott—I do not believe I see a case of myopia once in twenty-five cases. It is a rare condition compared with hyperopia with me.

Dr. Mann—I meet with a larger percentage of cases of myopia in the Germans, Russians and Poles than in any other class of people.

Dr. Hale—All the cases reported as myopia were examined under a mydriatic.

Dr. Elmer A. Lawbaugh reported a case of

BILATERAL TEMPORAL HEMIANOPSIA.

The case I have to report this evening is one of bilateral temporal hemianopsia in acromegaly. Though twelve years have passed since P. Marie first established and described the typic characteristics of this disorder, we know comparatively little more concerning the etiology, pathology and treatment of this disease. The patient is a woman 43 years of age, has had four children, three of whom are living; family history negative; first noticed the disease eleven years ago when menstruation ceased and a constant constipation commenced, which is relieved only by a very active cathartic. Headache is constant, always occipital, sometimes referred also to the top of the head near the anterior fontanelle, and about the size of a silver dollar. Memory is very poor; somnolency present. The tongue is greatly enlarged, also the tonsils and some of the adjacent tissues and a tickling sensation present there. There is typical condition of the hands and feet, enlargement of the head, pronounced prognathism, numbness in extremities, tactile sense impaired, urine normal, great thirst, good appetite; thyroid gland not enlarged, and no thoracic thyroid to be found. Kyphosis is present, also joint pains. Height, 5 feet; previous weight, 130 to 135 pounds; present weight, 186 pounds. Wore No. 4 shoe formerly, now a No. 7 man's arctic, Chest measure forty-one inches. Eye symptoms: Lids thick and edematous; conjunctiva and cornea normal; lachrymal apparatus normal; pupil normal in size but sluggish in action. Partial atrophy of both discs; veins congested and arteries small and pale. Retina normal, as also action of muscles, though very slow to demands of will. Field of vision, as shown by a perimeter in which colored lights were used, shows

bilateral temporal hemianopsia in white, blue, red and green fields. Right vision 10 200; left vision, 10 20. In from 45 to 50 per cent. of the cases eye symptoms were present. Since 1890 there have been reported twenty-one cases of bilateral temporal hemianopsia. One case of homonymous hemianopsia has been reported by Sir William Broadbent. A number of autopsies have been reported. Probably the most thorough one is that reported by Dr. Osborne, who is inclined to the opinion that the disease is due to lack of function in the pituitary body. In my case the wrist measures eight and a half inches around, and the ankle fifteen inches. The sternum and intercostal cartilages are enlarged. Kyphosis is almost always present.

Dr. WARE—I saw one case a number of years ago with beginning atrophy of the optic nerve, the result probably of bone pressure, as the bones of the skull were thickened and enlarged.

Dr. WESCOTT—I examined the case some years ago as to the eye symptoms and found some narrowing of the fields with partial atrophy of both nerves. The patient was sent to me because of constant headache. Glasses were of no benefit.

Dr. PINCKARD—I have seen three cases and none of them had any subjective symptoms of eye trouble.

Dr. LAWBAUGH—This is the fourth case I have seen. One had temporal hemianopsia in the right eye with total atrophy in the left. But the other two presented no eye symptoms at all.

Dr. COLEMAN—I have seen two cases similar to the one reported by Dr. Lawbaugh. One, a young woman 22 years of age, had bilateral temporal hemianopsia, but suffered little inconvenience from it. The second case was a man 75 years of age, who had right temporal hemianopsia with contracted field for all colors. Vision was 20/40 in one eye, the other being imperfect for many years.

Dr. LAWBAUGH—Benson, in the *Dublin Medical Journal*, reports a case of bilateral temporal hemianopsia with acromegaly in a man who was a drinker and smoker, but after dropping these habits the normal field of vision was regained. Benson attributed the symptoms to pressure on the chiasm, the tumor being increased by these poisons, and upon their cessation the normal size of the pituitary body was restored and the pressure relieved. He afterward resumed his old habits with resulting atrophy in one eye and temporal hemianopsia in the other.

Dr. WESCOTT showed specimens from a case of primary carcinoma of the conjunctiva. An examination made by Dr. Hektoen showed the tumor to be a carcinoma growing from the epithelial layers.

C. P. PINCKARD, Secretary.

103 State Street.

Associated Health Authorities of Pennsylvania.

Fifth Annual Meeting held at Lancaster, Pa., May 18 and 19, 1898.

(*Continued from page 1464.*)

FIRST DAY—AFTERNOON SESSION.

After the report of the Executive Committee, urging an effort to obtain a better representation from the boards of health throughout the State, Prof. J. N. RODDY of the Millersville School read a paper entitled

WEATHER FORECASTS AND HEALTH.

He said: There are two great fields of human knowledge: in one we seek truth for its own sake, and all honor should be to him who enters the field, for man is slow to reward the discoverer of pure truth as he merits. In the other sphere we are seeking to bring knowledge into relation with things. This is the application of knowledge to practical uses. In this experimental application of truth modern science has accomplished wonders for mankind. It has increased his earning capacity many times over. In no application of scientific method has more advance been made than in the treatment of disease; in sanitation, or in the creation of healthful hygienic conditions. Almost every department of knowledge has been made to contribute; new departments of investigation have been inaugurated. Hence it is somewhat of a surprise to find that little has been done in the way of experimentally tracing the relation of local weather conditions as well as general climatic conditions to health. It is especially desirable here in America that we seek the cause of whatever relation exists between weather and health, since we live under very inequable weather conditions. Moreover, weather does not come in homeopathic doses, but when a blizzard, a warm wave, or a cyclone strikes us, no one could desire a more generous portion. We all appreciate the fact that certain diseases lie in belts mainly within certain isothermal or temperature limits. Yellow fever fluctuates back and forth over the equator with temperature changes. Smallpox is a winter disease dying out with the increase of heat. These statements express not the reasons for the relation but simply a relation in very indefinite terms, because no one has even partially investigated all the conditions favorable or unfavorable to the propagation of the germs of these diseases. To obtain a concrete conception of the relation we know in reference to weather changes and health, and to personal comfort, we must express the laws upon which forecasts are based. Weather seems fickle but at the same time is subject to rigid law. The fundamental elements of weather changes are high and low pressure areas produced by heat and cold, mainly. Another fundamental element is moisture in the form of vapor distributed through the atmosphere in ever varying quantities, relatively. There are great varieties of topographic features making up the land surface of the earth, and many kinds of soils. When these receive the sun's radiant energy they are heated to different degrees, and hence the area most heated becomes by the uplift of air over it and the consequent outflow at the top a place of low pressure, while surrounding regions receiving the outflow of air above become areas of high pressure. High pressure areas may result from excessive cooling and consequent inflow of air. Since the air whirls in or out low pressure areas are cyclonic and high are anticyclonic. Humidity conditions may enter as a factor in making the highs and lows more equable. It follows, therefore, that in summer as the result of the great excess of heat on the land masses over that of the sea that low pressure areas predominate on the continents and highs on the ocean. The reverse is true in winter. These relations are an uninvestigated question. We may suggest certain theoretic problems. Every low, in consequence of the exhausted condition of the air, may contain much vapor and therefore be deficient in the essential to life oxygen. Lows in consequence are depressing and we would infer that care should be exercised as to skin conditions, in diet, and against over-exhaustion. The blood is necessarily not fully oxygenated and the digestive functions are in consequence not so vigorously performed; nervous energy is lacking; the tone of the body is low. This is theoretic, yet records show the greatest number of suicides under these conditions of low pressure and high humidity. Whether this be a coincident or a sequent relation, we need to investigate. With high barometer and low humidity there is greater abundance of oxygen; skin and lungs act vigorously; oxidation is rapid, the body demands more food and we feel buoyant. Nervous energy is in excess. Might we not under these conditions overrate some organ and suffer in consequence?

Every area of low pressure is an area of precipitation and an area toward which the wind blows from all directions. Every area of high pressure is one from which the wind blows away in all directions and the latter is also calm and clear. It is also a law of weather that in one zone the prevailing winds are westerlies. These prevailing push all weather areas across our country toward the east. If a low pressure area starts in the west it crosses the continent bringing with it some form of precipitation, storms, and higher temperature than usual. This low will be followed by a more or less developed high, bringing reverse weather conditions. From these laws it would seem to follow that we can prepare ourselves by proper clothing, proper food, prudent diet to withstand these changes and keep in perfect health. We do not regulate ourselves as the waves of so-called grip following in the wake of certain classes of storm indicate. The greatest and perhaps the most sudden fluctuations of weather are experienced in some of the New England States, and especially is this true in the changes in temperature and humidity. Corresponding with these sudden changes it is said by good authority that there are more pulmonary affections here than elsewhere in the country. Again, whether this is a direct resultant of the weather changes, or of other hygienic conditions, we as yet do not know, but it proves the necessity for thorough investigation. Not only do we experience the alternations of pressures and humidities, but also of alternating winds when an area of high or low pressure passes us. Suppose a low pressure area to be west of us, we will then experience east winds until the area of low pressure reaches us, when the winds will have reached their greatest velocity from the east and precipitation in some form has attained the maximum. When the low pressure, which we may term a storm center, passes us going eastward the wind is reversed, blowing with great velocity and bringing clear and cool or cold weather. Since the winds do not blow straight in nor straight out from the storm center, they are termed cyclones or anticylones. In winter they invariably result in blizzards that cross the United States in about two days and

often bring with them a rapid fall of temperature amounting in many cases to 40 or 50 degrees, and in northern Texas to 60 degrees. Over our continent in summer, storms of the same character sweep bringing in their wake westerly waves, dry, dust-filled, warm air called hot waves with rises of temperature as much as 20 degrees. Each of these is predicted by the weather bureau and announced at least twenty four hours ahead of the storm. It follows that these sudden changes in temperature, winds and humidity will affect us if we do not prepare for them, and since many of the diseases have their inception in common colds and since a cold is a mechanical condition of the pores of the skin in which the pores are simply closed by sudden chilling, thus throwing greater work on the other excretory organs, that some attention must be paid to clothing and food and perhaps mental condition. We need greater attention to these changes, a better appreciation of the laws, and subsequently a greater knowledge of the relation of weather changes to bodily conditions. In a series of experiments recently made by the Smithsonian Institution on the questions of external temperature, clothing and bodily temperature inside the clothing, several curious results were noticed. One was that there is no correspondence between our bodily sensations and the actual external temperature. It often followed that when the temperature was quite low the body did not feel correspondingly cold and *vice versa*. It was found that there is a fairly constant relation between bodily sensation and the humidity. With high humidity we suffer more from cold than when the air is dry. The reason is almost self-evident. Bodily functions are performed slowly when the air is full of moisture, because of the lack of oxygen and the partial failure of the skin to perform both its excretory and absorbent functions. The body soon clogs. Heat is not generated. Colds very easily result.

One of the strange meteorologic phenomena of our country is the magnetic storms. These, moving somewhat like a cyclonic disturbance, often move across the continent from the west to east. They also have an effect upon us in some mysterious way. Patients suffering with neuralgic or rheumatic affections find these storms intensify their pains and that wave like movements of the pains occur. This perhaps indicates some relation between nerve centers and magnetic conditions. Cyclonic disturbances which usually develop electric conditions of the atmosphere also produce these effects, but with less intensity. This leads us to say that we all desire the greatest possible personal comfort which tends to longevity and therefore highest mental efficiency. We secure this by careful attention to dietetics, efficiency of clothing and weather conditions. Finding that bodily sensations are deceptive, should we not regulate our lives more scientifically than we have in the past, more by the thermometer and barometer readings daily furnished us by the weather bureau? The daily isotherms and isobars furnish us the general conditions by which we may judge of the weather and to these our own observation and reasoning must furnish the requisite supplements to furnish local forecasts. In view of all these facts it becomes almost imperative that we institute investigations on the relations of high and low pressures to skin functions, to oxygenation of the blood and to digestive functions; so too with humidity. A large field is open for investigation on clothing in relation to personal comfort, healthfulness and the preservation of equable temperature for the body. At the same time it must not be forgotten that magnetic storms and their influence upon us need attention. I believe such investigations will well repay us in giving a better understanding of our relation to climatic conditions.

THE BUBONIC PLAGUE

was the title of a paper by Dr. Benjamin Lee, Secretary of the State Board of Health of Pennsylvania. He said: A plague is a wide-spread, virulent, epidemic disease; a pest or pestilence. One disease of this nature, however, is so pre-eminent above all others in point of malignity, destructiveness and horror that by common consent it has obtained the designation of "The Plague." The word signifies "stroke" and is a survival in our language of the belief of a superstitious age that an epidemic was the "stroke of God," the conscious vengeance of an angry deity, thus making the Almighty responsible for the inevitable results of our infractions of the simplest laws of nature, or, as has been well phrased, "flaunting our filth in the face of the Deity." It has also been denominated the "Oriental Plague," because it has always originated in the East; the "Egyptian Plague," because for a long period, comprising the last century and the early part of the present, it was never absent from Egypt; the "Levantine Plague," because it has prevailed in all the cities of the eastern end of the Mediterranean Sea, and the "Bubonic Plague," because one of its marked characteristics is the appearance of glandular swellings or buboes in various parts of the bodies of its victims. Under the name of "Black Death" it is estimated in the course of five years, about the middle of the fourteenth century, to have carried off 25,000,000 people, or one-fourth of the entire population of Europe. London, Marseilles, Toulon, Florence, Moscow, Transylvania, Venice, Lyons, Paris, Avignon, all have their fearful records of its devastating horrors. With the march of civilization and the adoption of personal, domestic and municipal hygiene, it has, however, been crowded back into the domains of the filth-loving Asiatics with whom it originated, having last invaded Europe on the lower Volga in Russia nineteen years ago.

In certain regions in China, and in the Valley of the Euphrates, it has never ceased to exist. Since 1873 it has constantly prevailed to a greater or less extent in the province of Yunnan, China, and for more than twenty years has been present in the city of Pahkoi. In February, 1894, it showed itself in the city of Canton, spreading with such rapidity that in the space of three months the number of deaths ran up into the tens of thousands. By the month of May it had reached Hongkong, ninety miles distant. It is from the careful and intelligent report of James A. Lowson, M. B., medical officer in charge of the Epidemic Hospital of that city, that we gain our definite knowledge of the disease as it appears during the present outbreak. Previously to this the only exhaustive and scientific study of this disease which had been made was the report of a committee of the Royal Academy of Medicine of France, made in the year 1846. This committee devoted two years to its work and, while it carefully sifted such histories as were available of the various European outbreaks in past centuries, it derived the greater part of its information from medical and official eye witnesses of the great epidemic in Egypt in 1835. Making allowance for the advance made in our knowledge of the causation of epidemic diseases during the intervening half century, we find a striking correspondence in the results. It is interesting to note that even at that day a member of the Academy, Bosquet by name, during the discussion which followed the reading of the report, announced his belief that the cause of the disease was a germ, and formulated the statement, remarkable in the light of modern discovery, that "every contagious disease creates a germ capable of reproducing itself." That which in his day was theory, and for announcing which he was ridiculed, has today become fact through the researches of a distinguished scientist, a native of a country at that time almost unknown, but since thrown open to the light of civilization by the action of the Navy of the United States, the Japanese physician and bacteriologist, Kitasato, to whom belongs the distinguished honor of having first discovered the bacillus of this dread disease, a discovery second only in importance to that of the germ of Asiatic Cholera by the immortal Koch.

From Hongkong the disease was conveyed to India, evidently by ships, making its appearance in Bombay in August, 1896, but its presence was not officially acknowledged until the physicians had recognized it for a month; much valuable time was therefore lost. In this city it raged for months with a virulence that was truly frightful. The facts of the Bombay visitation bear out in a very striking manner the history of the plague's ravages in the Middle Ages, when its victims were largely among the indigent and ill-fed classes. The outbreak in Bombay first occurred in one of the most squalid quarters of the town, and with certain exceptions it has spared the wealthier classes. Englishmen, whether through a transmitted immunity which they have shared with the nations of Europe since 1841, or from a higher standard of living or from whatever cause, have enjoyed a freedom from attack so remarkable as to render isolated cases among them quite phenomenal. While the mortality from all causes ran up to sixty-three per thousand at the beginning of November, and again to sixty-three per thousand in the third week of that month, the general death rate among the well-fed Parsees was just under thirty, among the even better fed Europeans twenty-four, and among the amply fed European community only eighteen per thousand. But among the filthy low caste natives the mortality was appalling. For weeks the deaths from plague alone numbered more than two hundred a day. Huge flocks of vultures hovered all day long over the "towers of silence" where the bodies of the Parsees are laid out on an iron grating to be torn to pieces by these unclean birds. In the Hindu burying ground graves could not be dug fast enough, and the Mohammedan cemetery is described as having presented the appearance of a battlefield. All night long the funerals wound their melancholy way through the streets, preceded by priests with flaming torches, breaking the midnight stillness with the discordant clashing of cymbals, and the weird dirge, "Ram sri

ram, Ram bolo bhai ram," to the accompaniment of the mournful wail of long twisted horns.

The disease may be briefly described as an acute febrile infectious disease, characterized by a tendency to buboes or suppurating lymphatic glands and carbuncular swellings in various parts of the body, marked cerebral and vascular disturbances and intense prostration.

It is due to a specific germ, a bacillus or short rod with rounded ends, which has been found in the blood and glands. Infection takes place through the lungs, digestive canal and wounds or abrasions of the skin. The period of incubation is brief, often less than two, rarely more than six, days. The death-rate is higher than that of any other known disease. About eighty out of every hundred stricken die, and the course of the attack is swift as well as sure and fatal, death usually occurring on the second day. If the patient is going to survive, symptoms of improvement begin to show themselves between the sixth and tenth days. No treatment has yet had any effect in reducing its mortality. Much is hoped, however, from an antitoxic serum similar to that used in diphtheria.

One very curious feature of its approach is that it attacks rats before it attacks human beings. These creatures come out of their holes to die, evidently in a state of delirium, as evidenced by their losing all fear of man. This would lead to the supposition that the germ grows in the earth, spreads along the surface and is not communicated through the air. This theory is also supported by the fact that certain localities become infected while others not far distant remain entirely free from infection. In this respect there is a striking resemblance between the mode of propagation of plague and yellow fever. This latter disease will sometimes prevail on one side of a street while those living on the other side are entirely free from its attacks. All the domestic animals are liable to this infection. Dogs, rats, hogs, buffalo and other horned cattle, and domestic fowls have all been known to die of it in great numbers. As all of these creatures browse or feed upon the ground, this fact gives additional support to the theory advanced.

The conclusion which we arrive at then is that this affection is not contagious in the strict sense of the term, not conveyed from person to person, but infectious, clinging to places and things, the earth, houses, ships, furniture, bedding and clothing, and developing its deadly qualities in such situations outside of the human body. The question may naturally be asked, Is not this subject rather one of curious interest than one of practical importance? Why waste our time considering a disease which has never been seen in this country and is never likely to be? To this I reply that there was a time when neither scarlet fever nor diphtheria had ever been seen in this country, and that within the present century. It is well known that the early settlers brought smallpox to this virgin land among the other blessings of civilization, and that under its blighting influence the aborigines, if they were such, melted away like snow before the sun. Plague is most readily conveyed in ships, and when once the soil of a country has had the seed sewn in it, the weed becomes most difficult to eradicate. The following incident shows that this danger is a real and not a mere fancied one.

On July 16, 1897, the British ship, *Annie Maud*, arrived at the U. S. Quarantine Station, Angel Island, California, having lost one of her crew from bubonic plague during the passage from Calcutta. Two more of the crew were seized with the disease but recovered. Under the careful system of disinfection pursued by the authorities, the infection was destroyed, but the incident is significant as showing with what ease the disease may be brought to our shores. The energetic health officer of the Port of New York was thoroughly justified in taking the precaution to disinfect all the mails from plague stricken districts in India. Everywhere in Europe the most energetic measures were taken to prevent the introduction of the disease through vessels or cargoes arriving from East Indian ports. We can not rely on climate to protect us from its invasion, as during the present century even it has been seen as far north in Europe as Moscow and points in Norway and Sweden.

Impressed with a sense of the responsibility resting upon them, in consequene of the frightful ravages of this disease in India at that time, and its evident tendency to spread westward, representatives of the State Board of Health, of the Board of Health of the City of Philadelphia and of the State Quarantine Board, met in conference on Jan. 23, 1897, to discuss the possible invasion of the disease, and the provisions which should be adopted to prevent such a calamity. A certain line of action was determined upon for each of these bodies in accordance with their respective powers and duties. The leading spirit of this little assemblage was Dr. Wm. H. Ford, then President of the Board of Health of Philadelphia, whose useful career was in a few short months so abruptly cut off. I can not better close this paper than by offering a brief and altogether insufficient tribute to the memory of that devoted Christian gentleman, faithful public officer and distinguished sanitarian. All the best years of his life were devoted unstintingly and without compensation to the good of his community. To him in great measure is due the admirable efficiency of the Board of Health in that city. Those of you who have been in the habit of attending these meetings will distinctly recall his noble personality and the wisdom of his words. At that conference he made substantially the following statement in regard to the possibilities of the arrival of the plague on these shores and the means which should be used to prevent it from finding a lodgment:

What concerns us most on this continent is the use of preventive measures. As it has been proven over and over again that this disease no longer occurs in countries where the people are prosperous and enlightened and rigid in the enforcement of sanitary measures, the prospect of the disease gaining a foothold in this country or of even gaining admission through our quarantine stations is extremely unlikely. Nevertheless, the wise man is never self-satisfied, but always on the alert and prepared for any emergency that may arise. Our quarantine defences are, as a rule, excellent, and the officers in charge fully alive to the necessity of constant vigilance. As the disease prevails under faulty hygienic conditions, the obligation of the municipality is to remove all such faults and place the city in the best possible sanitary condition. Domestic and public cleanliness is the barrier to this and all other dangerous communicable diseases. The public management of the plague is the same as we are accustomed to enforce with regard to contagious and infectious diseases generally, and consists primarily and fundamentally in isolation and disinfection. A people prosperous, enlightened, progressive and scrupulous in the application of well-known hygienic measures need have little fear of the oriental plague finding a lodging place among them.

Dr. T. S. LIPPINCOTT of Hoppenville read a paper entitled

WHAT MEANS SHOULD PROPRIETORS ADOPT TO PREVENT THEIR REFUSE FROM BECOMING A NUISANCE?

He wished to present some insanitary facts relative to the various creameries. In September last my man commenced to deliver milk to the creamery and as is customary with all its patrons (the farmers), all fill their empty cans with slop which they take home for hog feed. It is generally understood on the outside that the farmer who sends his milk to the creamery gets skim-milk in return, but when it comes to reality, they are only entitled to the slop out of the outwells where all refuse of the creamery is conducted. This is exposed to all kinds of weather, but nothing affects these wells as does the sun and hot weather, as they are never covered, nor cleaned out, having run in them each day skim-milk, water, dirt and washings from the building and utensils. This decoction also came home in our milk cans. Imagine my surprise when my man emptied the return cans of slop, which was the foulest as to odor. Not unlike the worst kind of a water-closet, or human excreta. After a few returns of this kind, finding it to be a perpetual thing, my man refused to wash the cans, and no one could blame him. Yet the farmer continues to carry this home and feed his hogs with it or let them starve. This is not only so of one creamery, but all over the State, and with our experience after washing the cans, they retained the filthy odor for days, yet the farmers fill the same cans in the evening with fresh milk for the next trip, day after day. From the milk comes the butter to our tables, and I am informed the State Board of Health is unable to remedy this evil for lack of legislation. While little Jersey is prepared to meet and correct any such insanitary matter, imagine my surprise when I wrote to Dr. Lee and suggested that he send an inspector, whom I would aid in his work, and he informed me that this great Commonwealth had no such person to send. If our bacteriologists are looking for a fertile soil for bacteria, a visit to one of these wells on a hot day would furnish all he could desire. After several inspections of these places, I suggested an easy means of correction, an outlet making it a flush well. They reply it is time enough when such things become a law; so the evil goes on. We have a mass of statistics tracing bacilli to milk and it is to be hoped that this Association will agitate this matter till we have laws similar to those of New Jersey.

A free discussion followed and on motion it was referred to the Committee on Legislation with instructions to draw up an act and submit it to the legislature.

Under the head of voluntary contributions, questions, etc., Dr. Crowther brought up the subject of milk inspection. It was shown that wherever there was milk inspection, improvement invariably followed. The whole milk question should not be in charge of the Department of Agriculture as at present, but in the hands of the Board of Health of the State.

As the Committee on Legislation was yet to report, this matter was postponed until that had been heard.

Dr. THOS. TURNBULL of Pittsburg offered a resolution from the Sanitary Bureau of that city, urging legislation permitting the medical colleges to give diplomas for Doctor of Public Health to such students as had completed courses in hygiene and kindred sciences. Such persons should be preferred as medical inspectors for all boards of health. On motion the resolution was adopted.

FIRST DAY—EVENING SESSION.

The Annual Address before the Board of Health was given by Dr. J. T. ROTHROCK, State Commissioner of Forestry, on

SANITARY RELATIONS OF OUR HIGHLANDS TO THE STATE.

It was illustrated by means of the stereopticon showing the results of the destruction of the forests throughout the State.

He said: Civilized man has reached his present condition by a series of steps, which in all countries show a general resemblance, modified by the surroundings known as environment. Originally labor was the lightest; he sought the lands which gave large crops with little preparation; preferred the level, bottom lands; only went to the mountains for chase or from necessity. As to changing the character of the country, his influence was about that of the beaver. New needs, commercial relations, pressure of the population brought the duty of invading other fields and seizing resources previously unutilized. Soon he became aware that he was a machine, subject to wear and tear, ills and aches, resulting from location, and he was compelled to act accordingly. We all know men who are conscious of danger, but lack the mental keenness to take the necessary steps to avert it. All know regions having pre-eminent salubrity, and of small value for other purposes. These should be devoted to sanitary purposes. This raises the relation of the commonwealth to its population. The State should protect itself, provide for its perpetuity. Hence we have no right to despoil the estate of the future, but leave it in as good a condition or better than we found it. We are a chosen people only so long as we obey the moral and political laws. We have no right to render any region less healthful. No business interest has the right to injure the land so as to make it unfit for the people. We strike at the power of the commonwealth. There is State charity for the sick or injured, lame, halt or blind, insane, etc. The fruit grower is to be protected against diseases which invade his orchards, but what affects the vitality of the race is so little prevented that it is nothing. Tuberculosis must not in the future menace others. The State must interfere. The world advances faster than any one of us, and soon we become back numbers. It is over forty years since I began to observe the character of the various portions of the State. When I began, there was an area of say 8000 miles nearly in the center of this State almost a continuous forest. One-sixth of the State was in its original condition. Now hardly a vestige remains. The axe and fire have destroyed it. But one or two original forests of any size remain in the State. Now, if woodlands have any hygienic relation to the commonwealth, is it not time for protection to be given? Unfortunately these lands have no agricultural value; desolation is everywhere. In looking at the Adirondack region of New York, healthfulness stands pre-eminent; it is a standard. The pulmonary death-rate is 1 in 854 to 985 of the population. This is a great advance from 1 in 400 of the population in the regions adjacent to New York City. In the seven southern counties of New York, the rate is 1 in 1091. In McKean county of this State, the rate is 1 out of 1330. In thirteen years, 1881 to 1894, in Philadelphia, the rate from consumption has decreased almost 31 per cent. But as we can hardly anticipate a time when it will be as low as McKean county, that will stand as a comparison. Now if hospitals were located there the patients would have the advantage of every favoring condition. Of the hospital appropriation of this State, $843,800, only $18,000 were spent in the counties of Warren, McKean, Potter, Tioga, Bradford, Susquehanna, Wayne, Pike, Sullivan, Cameron, Elk and Forest. These twelve counties, endowed by nature with an exceptionally healthful climate, with a population of one-fifteenth of the entire State, receive about one-forty-seventh of the appropriations of the commonwealth. The inference is that because of the very healthfulness they possess they are to that extent free from the necessity for a more equitable division. Again, we are informed that the region is one exceedingly favorable for those afflicted with pulmonary troubles, and here we have a natural sanitarium equal to the Adirondacks. From the time of the early Aryans, men have longed for the freedom and rejuvenation of the woods. People who have lost their fondness for the woods have lost their virility. Pennsylvanians spend thousands of dollars annually in the Adirondacks, mainly because we have destroyed the primitive attractiveness of our own woods. In the above counties there are large areas where agriculture is impossible, and even grazing gives but slight hope of becoming remunerative. Much of it is abandoned, and later will come into possession of the State. Protective fire laws will in all probability be enacted and allow restoration of the primitive growth. This area can be turned to no better purpose than that of a State Forestry Reservation, the property of the people, dedicated to them and administered for the good of the whole people. Here sanitariums will be located. He quoted the bill of New York for the establishment of such places and hailed it as an omen of the future. The Rush Hospital of Philadelphia is the only one in our State for consumptives. This year it received $5000 from the State, and is one of the forces working for better means of dealing with this disease. Abroad, all lead us in this care for consumptives. Recently, Dr. S. W. Trimmer has given, free, a lot of land favorably situated near White Haven for the erection of a sanitarium for consumptives. It is the starting of a great movement which promises to commend itself to the citizens and legislators. The ground is high, air pure, railroad access easy, and delightful drives will tempt the patients out into the open air. He alludes to three cases of this disease which made a deep impression on his mind; one a physician who had become so weak from tuberculosis as to be unable to work. On a raw day in March he accompanied the speaker in a drive thirty miles to a highland in Sullivan county. A snow storm came on, the man became exhausted when they reached the hotel, and it seemed doubtful if he could rally from the condition into which he had fallen by the exposure. He was put to bed in the hotel, restoratives employed, rallied, gathered strength daily, in six weeks went back to his profession, until the following spring when he again declined. He was sent to Cuba, no good followed, and he died in a few months. The speaker believed that a residence of a year in the North Mountain region would have prolonged this valuable life. Again, a geologist resigned his duties, sought health in the field, was assigned to a government position in the Rocky Mountains. In ten days he was sleeping on the ground in the open air, at an altitude of 12,000 feet. In June the air was still raw and masses of snow lay unmelted near the camp. In November when he rode his mule into Denver the thermometer was below zero, but he returned to New York with a gain of twenty pounds of flesh. He lives today, one of the honored scientists of the land. Again, a private soldier with a diagnosis of consumption, received no special treatment, and was assigned to duty; as summer wore away he gathered strength; in autumn, after more than five months of active field service he returned with his company, rugged, hearty, with a gain of thirty-five pounds. Now, while the invalids in Colorado breathed the same air at night, they were stowed away in more or less stuffy rooms, robbed of half the benefit which should have been derived from proper protection in the open air for twenty-four hours each day. Of course, we must have a fair recuperative power left, or it can not be successful. We should have protection so as to burn up the minimum of tissue in keeping warm. He alluded to the soldiers just now leaving, tenderly reared, thrown into camp, short of food, etc., yet while one might have expected a fearful amount of sickness, the list is very small. Is it not time for us to act in accordance with what we are shown; let all invalids have the open air, with proper protection, etc., and thus save many valuable lives for years. The pine woods of Minnesota have lost much of their value since the loss of the covering of timber. Pneumonia is more common; tuberculosis also, thus showing how guilty we are. Remember that pure open air is the important need. Summing up, the State highlands show a small percentage of tuberculosis as compared with other regions. They are in a large measure unfit for remunerative agriculture; are mostly stripped of the timber, the only crop for which they are fitted. Fires have destroyed the young timber. The soil is reverting to a desert condition on which no crop can be grown, even of trees, except at great expense. In the near future they will be a source of injury to the commonwealth. They diminish the productiveness of the soil by removal of the moisture, and increase the virulence of disease germs by concentrating them in a smaller volume of diluent. The State must assume control. Such areas would become the home of natural sanitariums, and nearer home than the Adirondacks. The fact does not appear to be recognized that there is an almost continuous belt from Pike to Forest county, with an altitude of 1200 to 2300 feet above the sea level, and one may find in it during the summer a temperature seldom above 80 degrees, and at night one may sleep with comfort under blankets. Again, while in the East the coast people suffer from east winds, these regions enjoy a more seasonable and comfortable climate. There re-

mains one point. Lord Kelvin, the scientist of England, called attention to the subject, "Is the Air giving out?" He thinks the oxygen is depleted beyond the power of plants to replace it. While at the same time plants are being destroyed, every forest destroyed is an oxygen factory destroyed. There is great pertinency in this point. In the near future our supplies of water must be changed all over the country. The wells are affected by disease germs. We will be compelled to go to the fountain head for water; but if we continue to destroy our trees the sources will be lost or greatly diminished. A mile square of surface will give to the sun in July not less than 3,229,304 gallons of water. If this amount could be saved, if we simply kept the fire off the ground, allowed the soil to cover itself with timber again, we could save this. Remember the average citizen is not fit to control the conditions upon which the water-supply depends, so we must ask the Government to give us such legislation as will enable it to be controlled. Delay is costly. We must act at once. Neglect a little longer and we can never reclaim the lands thus denuded. From just such unproductive highlands the German government is now deriving a large part of its income, by the production of timber. But this is not all. In the Black Forest a German student will spend a whole vacation gaining health, strength and knowledge, for a smaller sum than one of us will spend in a fortnight in one of the ordinary Adirondack resting places. So it might be here. But the wholesome life of the German forest villager or student at present finds little encouragement on desolated hillsides. We owe it to the future that this condition of affairs be changed; that the diminished volume of our streams in summer be restored to proper size; that 6000 miles of the area of our commonwealth be changed from areas of evaporation to become water-retaining surfaces, because the agricultural world is fast coming to the conclusion that the certain growth of crops will soon force the need of irrigation upon us here. Further, we need that these areas be made productive of forest wealth for our industries, and health for our ailing citizens. We have a right to demand that an end shall be put to the annual scourges of fire which turn to smoke and ashes the wealth of the State and the property of its people. We may confidently hope that the law will intervene and prevent that misuse of natural resources in soil upon which depend so largely the life and strength of the State itself.

PRACTICAL NOTES.

Essential Asthma Cured by Compressing the Pneumogastric.—Encouraged by his success in arresting paroxysms of coughing in pertussis by compression of the pneumogastric in the cervical region, as already mentioned in the JOURNAL, Miranda has accomplished the same results in severe attacks of asthma in subjects with pronounced neuro-arthritism. The patient himself or his family are easily instructed how to perform the compression. He reports four cases thus treated and cured; in each the nervous element predominated.—*Semaine Méd.*, May 18.

Dry Dermatitis.—According to the *Pennsylvania Medical Journal*, the toxic principle of poison ivy (Rhus radicans, L.) is non-volatile and, on the authority of Dr. Franz Pfaff of Harvard University, a fixed oil, which he has named toxicodendral. Alcohol dissolves it readily and alkalies readily saponify it, but the best of all applications is an alcoholic solution of lead acetate. Other popular remedies, *e. g.*, fluid extract of grindelia or serpentaria, doubtless depend upon the alcohol which they contain. An objection of the *Medical World* is that local applications of alcohol alone do not suffice without the grindelia or serpentaria, and a preference is given to the sweet spirits of niter full strength or diluted one-half.

Weiss's Treatment of Cephalalgia.—Weiss has endeavored to investigate this subject in the light of personal experiments and of physiologic review of the anatomy of the brain. He said it was usual to divide cephalalgia into angiospastic and angioparalytic, often described by Benedict as hyperesthesia of the scalp and cranial bones where lightning and hammering pains were present. These symptoms were usually associated with an irritation of the sympathetic, and most of our therapeutics have been directed to a modification of the circulation in the brain. Here and there electricity may relieve the pain, but compression on the carotid was without the expected relief. He was now of opinion that compression of the aorta in the abdomen between the xiphoid process and the umbilicus immediately removed the cephalalgia, which it had successfully done in twenty-three cases. On a former occasion he had described the action of this abdominal compression as being transmitted through the sympathetic, but he was now of the opinion that the compression of the aorta, acting on the blood supply, was the principal factor in the phenomena. These observations require further elaboration, as the pain in the head is only temporarily affected, and not cured.

Invariable Presence of Pneumococci on the Surface of the Tonsil.—Bezancon and Griffon have laid before the Paris Hospitals Medical Society the results of some researches which they had made on the presence of the pneumococcus on the surface of the tonsil. In place of using inoculations *en masse*, after the method of Netter, they employed a culture-medium specially fitted for the pneumococcus, namely, the serum of a young rabbit. It is generally admitted that the pneumococcus can be found in the throats of healthy individuals about once in five times; but according to these observers this is a wrong proportion and due to faulty technique in the examination. The pneumococcus may exist constantly as a saprophyte in the same way as the streptococcus. If up to now the pneumococcus has not been found in more than a fifth of the cases examined it is easily explained by an alteration in the method of cultivation, the method of culture being for choice by taking some of the tonsillar mucus and not simply the saliva. The forty individuals examined by them were of varying ages and kinds, quite young children, adults, old men, some taken from a hospital atmosphere, some from laboratories and some living under circumstances from which any source of contamination could be reasonably excluded. In none of these patients was there any history of pneumonia. The only conclusion which can be drawn from these facts is that its organism is found in a great variety of diseases.—*Lancet*, April 30.

Hints for Asepsis; Gloves and Hoods.—Avoid all contact with septic things. Use scissors and forceps in removing dressings, never the fingers, and always moisten them beforehand with warm salt solution, preventing infection of the fingers with dry floating particles. If the fingers must be used, rub them well with vaselin and cleanse and disinfect them at once afterward. Operate dry. Have the instruments lying ready on dry aseptic cloth, after having been boiled in soda solution. If they become smeared with blood it is not necessary to remove it unless it interferes with the operation, when they should be laid a few moments in boiling soda solution, which should always be at hand. The above suggestions are from an article in the *Münch. med. Woch.* of May 10, by Berndt, who adds that aseptic silk thread is less harmful to the tissues than antiseptic, as its injury is only mechanical. Vulpius, in the same number, asserts that he considers the Lisle thread gloves of great assistance in securing asepsis during operations which are not liable to be flooded with blood, as the gloves keep the hands sterile as long as they are dry. They are especially useful in orthopedic operations on the extremities. He also uses a hood or capote, with no opening except for the eyes, for all operations, except very long ones (when they would become oppressive), calling attention to the "rain of bacteria" that follows the accidental brushing of the operator's head against that of an assistant. Still another precaution is the covering of the surface around the field of operation with an impermeable cloth before laying the sterile compresses around to wall off the field. He has found that if these sterile compresses become moistened with dripping water or blood during the operation they suck up germs from the skin beneath, which is prevented by the impermeable covering.

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SATURDAY, JUNE 25, 1898.

STENOSIS AND OBLITERATION OF THE AORTA IN THE VICINITY OF THE DUCTUS BOTALLI.

EMIL WADSTEIN [1] has collected 113 cases of stenosis and obliteration of the aorta in the vicinity of the ductus Botalli; of these five are new cases. Ten of the total number are purely clinical cases, in which the diagnosis has not been confirmed by postmortem examination. In order to obtain a clear notion of the normal conditions, so as to be able to differentiate between a physiologic and pathologic narrowing of the place in question, the author also examined the aorta of 105 children, whose ages varied from newborn to three years.

With respect to the pathologic anatomy of this condition, then narrowing may occur in all possible degrees to atresia, which was present in twenty of the cases. The maximum degree of narrowing was found to be situated above the duct of Botalli in 16.4 per cent.; at the point of the duct in 38.8 per cent., and below in 44.8 per cent. Occasionally the narrowing may be double. The microscopic examination in one case showed the following changes in the wall of the aorta:

Both intima and media were very considerably thickened at the point of stenosis, and at the same time there was considerable disturbance in the normal histological structure, consisting in a thickening of the innermost layers of the intima, together with the presence of occasional bundles of connective tissue, which passed directly through the membrane. The media contained a larger number of smooth muscle cells, which formed a ring immediately underneath the intima and directly opposite the narrowest point of the stenosis.

Arterio-sclerosis of the aorta occurs in about every third case of stenosis. The average age of the patients in these cases of arterio-sclerosis was found to be only 35.7 years; in two cases the age was only 17 years; in three cases 19 years, etc. Arterio-sclerotic processes are most pronounced proximal to the stenosis in the majority of cases; then directly opposite the greatest point of narrowing; and least often distal to the stenosis. The author looks upon this distribution of the arterio-sclerosis as favoring the view that it depends upon increased arterial pressure. Both the ascending aorta and the arch were often found dilated, frequently in a circumscribed aneurysmal form. In some cases rupture had occurred, and in the majority of cases of rupture dissecting aneurysms had formed.

Of the remaining anatomic changes the most important are, hypertrophy of the heart, especially of the left ventricle, and an enormously and well-marked development of the collateral channels between the vessels upon the proximal and distal sides of the narrowed part of the aorta. The vessels which undergo dilatation for the purpose of furnishing collateral circulation are, on the one side the subclavian and axillary arteries and their branches, and on the other side the intercostals, superior epigastric, deep epigastric, and possibly also the phrenic. The blood reaches the lower half of the body by way of three principal routes: 1. Through the abdominal aorta by way of the intercostal arteries; 2, through the superficial epigastric and long thoracic on one side and the deep epigastric on the other; 3, from anastomoses through the intercostal arteries and the ilio-lumbar and circumflex iliac arteries. From the clinical standpoint it may be stated, that stenosis and obliteration of the aorta in childhood produce symptoms in but a small number of cases, and these symptoms resemble as a rule those of congenital heart disease. As a general statement, it is said that from about one to one and a half years before death some acute disease develops and in a comparatively short time the symptoms of incompetency of the heart present themselves and death results from heart failure or some intercurrent disease. The average duration of life of these patients lies between 31 and 32 years, but sixteen reached 40, twelve 50, and one lived to be 92. The principal diagnostic points are: The demonstration of dilated collateral channels; distinct differences in the pulse of those arteries which arise proximal and distal to the stenosis or obliteration, especially the retardation of the pulse in the distal arteries, and third, the disturbance of the heart's action.

Finally, the author presents a quite complete summary of the theories which have been advanced to explain the pathogenesis of the changes under consideration. He concludes that the different theories show very well how little in reality is known concern-

[1] Om stenos och obliteration af aorta vid eller i närheten af ductus Botalli, Lund, 1898.

ing the final cause of this condition. He therefore calls attention to the fact that at present almost all that can be said is to emphasize the possibility that the aorta, in a certain percentage of individuals, becomes narrowed on account of contraction of newly formed connective tissue in the wall, and that this formation of new connective tissue develops because the proliferation which leads to the obliteration of the ductus Botalli extends into the walls of the aorta. As regards the case which the author examined microscopically he assumes that the stenosis in this instance developed from some congenital abnormality in the arrangement of the various structures of the artery.

THE RATION OF THE VOLUNTEER SOLDIER.

Last week we referred to some of the difficulties experienced by the Army Medical Department in organizing for field service. Today we purpose discussing the causes which have brought the Subsistence Department of the Army under criticism, because if our medical brethren in the field have a correct understanding of these causes they can do much to remove them and promote the comfort and well-being of the men in their commands.

According to newspaper reports from the various camps of our Volunteer Army many of the regiments are suffering from want of food; and acting on these reports the good people of the home localities have expressed groceries by the carload to supplement the reported insufficiency of the Army ration, while the Government has been criticised severely for its failure to provide needful subsistence to the men who have volunteered to fight their country's battles. Besides this, the belief is generally prevalent that the army ration consists essentially of hard bread, bacon and coffee, and that, as fixed by law or regulations, it does not vary amid the snows of Alaska or on the sands of the Gulf Coast. Medical men, and particularly those interested in food and dietaries and in the current work of the Agricultural Department, as published in bulletins from the office of its experiment stations, find a difficulty in believing this, as it implies an ignorance of the first principles of dietetics on the part of those who are charged with the duty of providing subsistence for the Army. Nevertheless, we understand that enthusiastic students of the physiology of food have been so far misled by current reports as to volunteer to set the Department straight on this subject, by calculating for it the calorific value of certain rations, by showing which are the dietaries suitable for soldiers in a tropical climate, and above all by explaining the absolute necessity for a vegetable constituent, to prevent deterioration of physique by an insidiously developed scorbutic taint. A little consideration given to the condition of our Regular Army during the past twenty or thirty years should have demonstrated to these enthusiasts that the army ration is an efficient ration, irrespective of any question as to the proper appreciation by our subsistence officers of the subjects of calorics, hydrocarbons, carbohydrates, albuminoids and antiscorbutics, for where can be found a heartier and better fed set of men than is to be found in the companies of any regiment of the Regular Army of the United States?

The army ration, and by ration is meant the daily regulation allowance of food for one soldier, does indeed consist of a prescribed quantity of certain specified articles of food, but the soldier is not understood in every instance to eat it. If he does not use it he is credited with its market value. The men mess by companies, and if a company does not use the whole of the hard bread, bacon, coffee, etc., to which it is entitled, the money value of the unused parts of the ration is available for the purchase of articles to vary the diet. And that the full purchasing power of this money may be obtained by the company, the Subsistence Department keeps on hand, for sale at wholesale prices, most of the articles of food that are to be found in our city grocery stores. At the present time, the subsistence officer of each of our large camps has on hand an ample supply, not only of the staples of the regulation ration, but of the articles which may be purchased in place of them. No complaint of a deficient dietary has come from any of the regular regiments, although they are subject to the same ration and regulation as the Volunteers; yet from the latter come so many complaints of the inadequacy of the governmental ration that the representatives in Congress of various regiments have appealed to the War Department for a change in the methods. This has led, at Camp Alger, near Washington, D. C., to the issuance of a circular by the Chief Subsistence Officer of the 2nd Army Corps:

"It having been reported at these headquarters that certain regiments of this command have received no fresh beef or fresh bread, the attention of officers on duty as commissaries of the various regiments is called to the fact that there is to be found absolutely no excuse for this condition of affairs. Fresh beef, fresh bread and fresh vegetables are and have been issued regularly by the depot commissary at Dunn Loring station to every regiment making proper requisition therefor, and if any regiment has not received them the fault and the remedy are to be found in its own officers.

"Commissaries are reminded that it is their duty not merely to receive such supplies as may be furnished them, but to see that the men of their organizations receive to the full extent all to which they are entitled. And the fact that any regiment in this command, with ample supplies and facilities for distribution now at hand, should day after day be deprived of proper food, implies a clear neglect of duty on the part of the responsible officer of that regiment."

The Chief Subsistence Officer in this case throws the blame on the regimental commissaries of subsistence; but the duty of the latter is to provide, if possible, what is called for by the companies. It is true each regimental commissary could do a great deal to remedy existing evils by teaching company officers their rights, privileges and duties in this matter; but as a rule he is as ignorant of these as the company officers themselves. The company commander is the

individual responsible for the rationing of his men, to which and the subsequent preparation of the food he is required by Regulations to give as much personal care and consideration as will insure a plentiful and varied diet. Very few of the company officers of our Volunteer Army understand this. They devote their energies to drills and tactical work and leave to "the Government" the duty of supplying their men with food.

As sanitary officers medical officers have a concern in these matters. They are required by Regulations to examine . . . the character and cooking of the food and to make such recommendations as may seem to them to be of value. They have therefore the right to interfere and urge upon officers of the line that proper care be given to the rationing of the men, confident that with such care there would be no more complaint of a deficient dietary.

THE "BUGABOO OF THE MAD DOG."

The fact that there is such a disorder as canine rabies has been so long accepted by the medical profession that the other fact, made rather manifest within a year or two past, that there are some respectable physicians who doubt its existence seems at first sight unreasonable, if not absurd. Certainly the burden of proof lies on those who thus contest one of the established beliefs not only of medicine but of the general public from all time past, and it ought to require more than ordinary evidence to overthrow it. It may be admitted that it is a rare disease of the human species, in this country at least, and that its conventional syndrome is often counterfeited by nervous and hysteric subjects, even to the extent of carrying them to a fatal termination, without the actual infection having ever been in play, but these are by no means conclusive that such infection is a myth and that there is really no such disorder. The existence of a pseudo-rabies does not exclude a genuine form any more than does a pseudo-syphilis, and the mere fact of the comparative rarity of an affection is no argument against its occurrence, when that is attested not only by history and experienced observation but also by scientific control inoculations and other tests. There have been too many cases thoroughly observed and reported to make the skepticism that some profess, appear even reasonable, though it may be allowed as evidence of mental idiosyncracy that when confined to purely professional discussions is harmless if not altogether admirable. The importance of prophylaxis in this disorder, however, is such, that if such views were likely to be generally adopted mischief might result, and this possibility is the more serious when statements are made in the lay journals by popular writers that there is no such disease as hydrophobia and that the reported cases are "in reality nothing more nor less than instances of people who have been bitten by dogs and frightened into hysteric conditions in which they involuntarily reproduce all the supposed symptoms of hydrophobia," that the public, and especially the nervous and impressible portion of it, "should believe that there is no such thing as 'hydrophobia'" and rid themselves of the "bugaboo of the mad dog." There is perhaps not much probability of the popular faith in the existence of this disorder being destroyed, but it is more than questionable whether, on hygienic grounds, the medical profession ought to let such misleading statements go unheeded. Certainly they should not if they are accepted by any considerable portion of the public and acted upon accordingly. Such a course would very possibly cure itself in time by furnishing some indubitable examples of the disease that would have been avoided under the ordinary conditions and the heretofore accepted popular beliefs, but this is not a desirable outcome, of itself, and would be better avoided. The fact that the disease is rare in man, in this country, is largely due to the popular apprehension, and the precautions thus induced. It gives rise no doubt to a slaughter of the innocents that the philozoists may deprecate, but this is probably unavoidable until there shall exist some higher degree of public enlightenment and a more thorough and rational system of sanitary police. If at present a salutary fear of hydrophobia may cause hasty and indiscriminate extirpation of dogs, at certain times, and especially when one of the periodic hydrophobia panics exists, there is still reason to consider the results as not altogether evil. A superabundance of dogs is responsible for other evils than merely those of hydrophobia, and an occasional reduction of their number may be considered as a sanitary measure.

While it may be admitted that rabies, either canine or human, is not so common in this country, this is not the case in some other parts of the world. In Russia it is said to be much more frequent and the Eskimos know it and dread it and consider a winter distemper which is often very fatal amongst their dogs as a modified form of the disease. PASTEUR analyzed over five hundred authentic cases in France and his authority will not be easily overthrown by those who, working with much more limited data, are so free with their deductions and criticisms, and insinuate, if not openly charge, that well attested and reported cases are simply "laboratory hydrophobia." A single well supported case would be sufficient to riddle the denials of the existence of the disease if not to fully establish its existence, and we have now probably hundreds confirmed by control experiments upon animals in which imagination and hysteria can be absolutely excluded. From a point of view of admissible medical evidence the question would appear to be fairly settled, so far as the present available data are concerned, in favor of the existence of the disease.

So long as an occasional case occurs and is recorded in the public prints it is not likely that the popular belief in the reality of hydrophobia will become altogether extinct, in spite of all that may be said by those who disbelieve. It will be a misfortune, however, if popular writers, who are always ready to take up and vulgarize medical heresies, should succeed in creating any degree of false security that might lessen the necessary precautions against rabies. With such a disorder prophylaxis is a necessity and any error had better be on the safe side.

FOR THE AID AND COMFORT OF SUFFERING SOLDIERS.

To form an opinion from present indications there will be little need during the war with Spain for this country to call for the Red-Cross assistance of other nations through the medium of our membership in the International Society. The American National Red-Cross, Miss CLARA BARTON, President, has, we understand, given formal notice to the Departments of State, War and Navy and to the Surgeons-General of the Army and Navy of its readiness to respond to any call for civil aid to supplement the hospital work of the Army and Navy; and in powerful support of this the New York Red Cross Relief Committee has given official notice that it stands ready to furnish all necessary money and material to carry on the work. The American National Red Cross is thus ready if called upon not only to give aid and comfort to suffering soldiers in the general hospitals but to reinforce the Medical Department of the Army with volunteer nurses and supplies on the field of battle.

It seems, however, as if the resources of the Government and the patriotism of individuals and associations outside of the National Red Cross would render unnecessary any participation by the latter in hospital or field work. The organization of a special hospital corps, which the Army did not have during the last war, enables the Medical Department at the present time to care for the wounded on the field without volunteer assistance; and appropriations by Congress have provided for all the essential requirements of the general hospitals. There remains to be supplied to the latter only such articles as must be regarded in the light of delicacies or luxuries, and these the patriotism of the country appears to be forcing upon the Medical Department without waiting for any official call in this regard. War had hardly been declared when a National Relief Commission was organized in Philadelphia and propositions relating to organizing for relief work were heard in Illinois, in New York and many other States. So many inquiries were made by Chapters of the Daughters of the American Revolution Departments of the Woman's Relief Corps of the Grand Army and by individuals in various parts of the country concerning the supplies that would be most acceptable that Surgeon-General STERNBERG had to publish a memorandum to be used as a reply. This opened the way and since then money and supplies have been received not only by the general hospitals but by field division hospitals. Among the larger checks received was one for $1000 from the National Society of the Colonial Dames of America, for the use of the hospital at Key West, Florida, and a second for $500 for use elsewhere; the Colonial Dames of New York sent $500 for the use of the Hospital Ship *Relief*.

Thus for the present and the immediate future the competency of the legalized organization of the Army Medical Department and these voluntary offerings obviate any need for formal assistance from the American National Red Cross; but, should the war be protracted and exhausting, organized assistance such as may be available under its auspices will be of great value to the sick and wounded.

DELAY IN PUBLICATION OF MINUTES.

We extremely regret that we have not been able to obtain the resolutions adopted at the Meeting from the Secretary of the Business Committee, Doctor BULKLEY, up to this time; consequently the ASSOCIATION must wait the convenience of Doctor BULKLEY before the complete minutes can be produced. The only person however to whom the JOURNAL can look for official papers is the Permanent Secretary. If that officer allows important resolutions to leave his hands, he must take the responsibility. He should see to it that the intense desire of the *Business* Committee to conduct the affairs of the ASSOCIATION, does not lead its managers to suppress the minutes altogether. For the first time since the JOURNAL was founded, the proceedings have failed to be printed in the current volume.

CORRESPONDENCE.

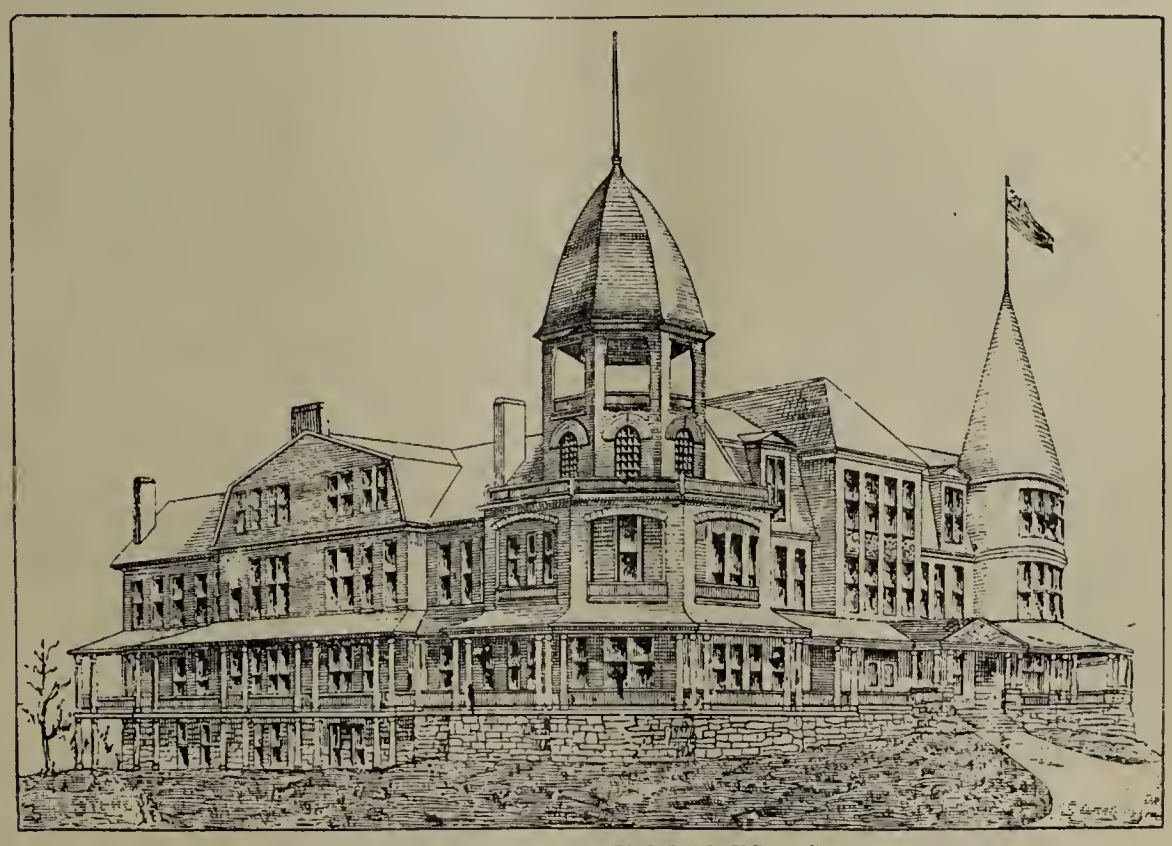
WAR CORRESPONDENCE.

BY LIEUT.-COL. NICHOLAS SENN, U. S. VOLS.,
CHIEF SURGEON SIXTH ARMY CORPS.

CHICKAMAUGA, June 3, 1898.

Chickamauga! What a terrible name to the reunited nation! Here was enacted one of the bloodiest dramas in American history. It is here where one of the most desperate battles of the War of the Rebellion was fought. Almost every foot of soil of this great National Park was stained with the blood of heroes on both sides. What a grand spectacle this beautiful park must have presented when it was the scene of one of the greatest battles known to history! Two great armies composed of the same flesh and blood, face to face, engaged in a deadly conflict. Upon the issue depended much on both sides, hence the heroism displayed and the terrible sacrifice of life. It seems to me I can hear now the beat of the drum, the shrill voice of the fife, the thundering roar of cannon, the rattle of musketry, the shouts of command, the groans of the wounded and the labored breathing of the dying. The bullet-riddled trees, the innumerable cannon occupying the same position as when they vomited forth fire, death and destruction, the many beautiful monuments and tablets commemorating the position of troops during action, and the places where distinguished leaders fell,

are the silent witnesses of those awful days when our Nation was threatened by disruption and even death. It was no fault of our valiant enemy that the star spangled banner triumphed. The victory was dearly bought. Thousands of brave soldiers are resting in yonder cemetery. Many wounds inflicted still remain. Many an aged mother and father have had their life saddened by an irreparable loss sustained in that battle. Many an empty chair has remained in numerous lonely households. It will take more than another generation to wipe out the immediate consequences of the horrors of that battle. Let the present and all coming generations remember with veneration and true gratitude the heroic deeds enacted here. Years have gone by and this great park has become again the camping ground of a large army. Within a few weeks nearly fifty thousand men have pitched their tents and are making active preparations for war. The hills, fields, woods and ravines are swarming with soldiers. Mounted officers are galloping in all directions in clouds of dust. Brigades, regiments, companies and squads are hard at drill under the burning sun. Sentries are stationed everywhere to preserve order, protect property and learn the art of watch dogs to protect the troops during the active campaign along the coast and in distant islands, the the prospective fields of warfare. Almost every day new regiments arrive from every part of the country, often without arms and uniforms, but eager and ready to be instructed in the art of war. Our patriotic citizen soldiers in civilian dress envy their more fortunate comrades in showy blue, and impatiently await their turn to don the soldier's garb. It is refreshing and interesting to observe what patriotism will do in antagonizing the imperfections and hardships of camp life. Do you imagine you could hire many of these soldiers to do ordinary work under similar conditions at $5 per day? No! Give them a uniform, a gun, and an opportunity to fight for the honor of their country and the glorious stars and stripes, and they rush to the front without a word of complaint, unconscious of the privations and hardships incident to the life of the soldier.



LEITER HOSPITAL, CHICKAMAUGA, GA.

SANITARY CONDITIONS.

Chickamauga Park is admirably adapted for a large camp. It embraces several square miles. The forest trees furnish protection against the burning rays of the semitropical sun and the many open places and fields are utilized as drill grounds. Humus is scanty and the subsoil is of clay. The surface is somewhat undulating and is cut up here and there by ravines, which add much to the beauty of the scenery. An ample supply of pure water is obtained from numerous wells, from 15 to 65 feet in depth, recently supplemented by a pumping station which derives the water from the river, a short distance below Crawfish Springs, and distributes the water to different parts of the park through iron pipes. The vastness of the grounds are realized by the visitor as soon as he reaches George H. Thomas camp, which at the present time is occupied by nearly 50,000 men, and yet seldom more than one regiment can be seen at one and the same time. In the past, Chickamauga has had an unenviable reputation as a health resort. The Indian name Chickamauga signifies literally "River of death." Along the banks of the Chickamauga river, which flows through the park, malaria was very prevalent years ago, which probably had something to do in inducing the Indians to designate this river by such a terrifying name. At the present time malaria has nearly disappeared from this part of the country, except a very localized district north of Crawfish Springs. The malaria contracted in this circumscribed locality has been of a mild form and is probably due to the draining of a little pond on the south side of Park Hotel.

An adequate number of sinks from four to eight feet in depth have been dug a safe distance from tents and field hospitals, all of which are boarded in. Three times a day the deposits in the sinks are covered with dry earth and ashes from the stoves and camp fires. One of the difficulties so constantly prevailing in camps has been the introduction of harmful articles of diet by interested friends and enterprising merchants. The regulations governing this evil are becoming more and more stringent and are more effectively carried out, so that the danger from this source is diminishing progressively.

PREVAILING CAMP DISEASES.

The most common disease affecting the troops at this time is diarrhea. The continuous heat, the change and often imprudence in diet and sleeping on the ground are the most important etiologic elements. The last mentioned cause becomes apparent from the fact that the privates are much more frequently affected proportionately than the commissioned officers, most of whom enjoy the luxury of a cot. A number of deaths have occurred from cerebro spinal meningitis, more especially among the Illinois troops. In my first communication I traced the disease to Camp Tanner, where it originated from a case

brought there by the first regiment of cavalry. A few days ago Capt. Lemke, 3rd Regiment Illinois Volunteers, made a postmortem examination at the 1st Division Hospital, 1st Army Corps, which demonstrated the pathological appearances of the disease to perfection. There was a difference of opinion in reference to the location and nature of the disease, as during the early history of the case the symptoms referable to the cerebro-spinal centers were conspicuous, while later a complicating pneumonia masked the manifestations of the original disease. The examination showed croupous pneumonia involving one lobe of the lung, of recent origin, while the meninges of the brain and spinal cord presented all the evidences of an acute inflammation. The lining membranes of all the ventricles were involved. The pathological changes were most marked at the base of the brain and more especially the pons Varolii and medulla oblongata. In these localities the meninges were found infiltrated and covered with a plastic exudate.

The remaining portions of the membranes enveloping the brain and cord were extremely vascular and in some places presented an opalescent appearance. A considerable quantity of turbid serum was found in the ventricles and subarachnoid space. It was evident from the postmortem appearances that the primary disease involved the nervous centers and that the lobar pneumonia set in later as a complication and contributed toward an early fatal termination. Two cases of cerebro-spinal meningitis, presenting grave symptoms observed in Camp Tanner, improved promptly after lumbar puncture and I have been subsequently informed that both of these cases ultimately recovered. The first tapping was made by Lieut. Rowe of the 1st Illinois Cavalry. All cases of cerebro-spinal meningitis that have been sent to the Division Hospital have been placed in isolation tents for the purpose of preventing further spread of the disease. Measles has broken out in the camp and all patients suffering from this disease, about twenty in number, at the present time are under guard in isolation tents. The disease is mild in type, the patients as a rule being confined to bed not longer than four or five days. Pneumonia has been prevalent, especially among the regiments from the northern States. Delirium is usually absent although the disease otherwise has assumed a grave type. In several fatal cases the postmortem changes indicated that death resulted from secondary streptococcus infection. At the present time there are only three or four cases of typhoid fever in camp and in most of them it is more than probable that the disease was contracted before the patients reached the camp. Considering the inadequate clothing of many of the volunteers, the heavy dew and the chilliness experienced some nights, it is remarkable that so few suffer from rheumatism and bronchitis. Sunstroke and heat exhaustion have so far not visited the camp, although heavy marching and active drilling often take place with the sun high up in the horizon. On the whole the health of the troops is excellent.

A TIMELY BENEFACTRESS.

As soon as I arrived at Camp George H. Thomas I called on Lieut. Col. Hartsuff, U. S. A., who received me very kindly and spent nearly half a day in showing me the location of regiments and field hospitals. His experience since he took charge of the medical affairs of the camp had taught him that the hospital facilities even with the limited number of sick at the present time were entirely inadequate. Near the park and on the south side of it, adjacent to the famous Crawford Springs is a large well built hotel containing seventy rooms, which had recently been evacuated and on which he had an option for a few days, purchase price $10,000. The building alone cost $65,000 and as the purchase price included the entire furniture, water privilege and four acres of land, and the building was in a condition that it could be occupied at once without much repair he had strongly recommended its purchase for hospital purposes to the Surgeon-General. There was no question as to the desirability of acquiring the property to better and increase the hospital facilities; neither could there be any doubt of the government's willingness to buy it to meet the existing emergency, but past experience satisfied all concerned that it would take weeks, and perhaps months, before the building could be made available by relying on the routine way in acquiring the property. Recognizing the necessity for immediate action in the premises and the fact that the option was open only for a few days, at the expiration of which the owners intended to reopen the hotel, I asked permission of Col. Hartsuff to allow me to make an attempt to secure the building by donation and later present it to the Government. This request was willingly granted. I telegraphed to Mrs. L. Z. Leiter, Washington, D. C., the condition of affairs and in due time received the pleasing information by wire from her husband that I should proceed at once and draw on him for the amount. After overcoming some of the technical difficulties in the way of securing the necessary water-supply from the adjacent Crawfish Springs, the purchase was made and the



CRAWFISH SPRINGS AND LEITER HOSPITAL.

"Leiter Hospital" has become a beautiful monument to the memory of a distinguished family that has given the first large donation for the benefit of our sick citizen soldiers at the very beginning of the Spanish-American war. May this noble example find many imitators!

Medical Missionary Work in China.

Sioux City, Iowa, June 13, 1898.

To the Editor:—I am advised by Dr. Senn, Chief Surgeon of the Sixth Army Corps, to bring to your notice a needy case in the hope of securing aid.

Dr. I. J. Atwood of Fen Cho fu, China, a graduate of Rush Medical College, has established a hospital, dispensary and opium refuge as a part of his mission work in Fen Cho fu, where much good work has been done in spite of inadequate room and poor equipment. I might tell of many interesting cases which have come under his care.

He has, at last, succeeded in overcoming Chinese prejudice against amputation, but please read the enclosed extract from a recent letter of his and learn the difficulties with which he has to contend.

Is there not some surgeon among your readers who has a second best case of surgical instruments he would like to donate to the hospital?

Dr. Atwood's work is under the American Board of Foreign Missions.

Hoping to secure the interest of your readers and the instruments so much needed in Fen Cho fu Hospital,

I am very sincerely yours,

Mary A. Atwood.

P. S.—The address of Dr. I. J. Atwood is Tientsin, China.

EXTRACT FROM A LETTER FROM DR. I. J. ATWOOD A MEDICAL MISSIONARY IN FEN CHO FU, CHINA.

The work of the opium refuge and hospital has been going on as usual, and most of the converts have come in through these channels. One man and his wife have just been taken in. She came into the hospital in a most wretched condition, opium and microbes had done all they could for her. Her bedding was one mat of slime and filth; her face as black as a coal-heaver's; her skin was wrinkled and the cords and veins stood out like whip-cords on her bony, almost skeleton body, while a child of two years old clung to her skinny breasts, trying to get sustenance. To complete her misery, a cancer extending to the bone on either side of one foot kept her from sleeping nights with excruciating pain. The first thing to do was to leave off opium, and if the "torments of the damned" are any worse than what she suffered, they are indeed indescribable. She would sit upright and sew all night long, to make the night tolerable. In this she showed great determination. When the opium chains were loose the poor body was built up with Mellin's food and milk. Then came the ordeal of amputating the leg just below the knee, for the cancer was spreading, and was more painful than ever since the opium was gotten rid of. *The station does not possess an amputating case*, so a saw was made of a piece of band-iron from one of our Boston boxes, with a frame to hold it, and with this saw and a finger knife the leg was amputated. She did well in spite of microbes. and now her face is round and healthy, and so is that of her child, for the milk returned, and the family is happy. They were both very attentive to the Truth, and have accepted it gladly, and have asked to be taken into the church. Their names were taken on probation.

Well, we have gone over another Chinese new year, and are cleaning out the hospital and refuge for a new lot. They will soon be on hand in increasing numbers. Sunday, while we were at meeting, a boy about 14 years old was brought in with one femur broken in four pieces! He had fallen off the city wall, where it is the custom to go on the 15th or 16th day of the new year to escape sickness for a year! It is supposed that a stroll on top of the city wall at that time will so attract the propitious influences that one may get immunity from diseases for a year.

Epidemic of Tonsillitis.

Hogansville, Ga., May, 1898.

To the Editor:—An epidemic of tonsillitis appeared in our village and vicinity, July 1, terminating Dec. 1, 1897.

Case 1.—Roy P., white, age nine years. Upon examination I found both tonsils congested, and the size of a full-grown almond; tongue thickly covered with a lemon-colored fur, from the base to the tip. On the second day, on left tonsil, one ulcer one-fourth of an inch in length, from above downward, by one-eighth of an inch in width antero-posteriorly, made its appearance notwithstanding the use of strong astringents locally as a gargle, and the internal administration of mild mercurous chlorid in one-quarter grain doses every hour until six grains had been given; cauterized with molded nitrate of silver. The third day a similar ulcer formed upon the right tonsil; treatment was the same, with nitrate of silver. The fourth day both ulcers were covered with thin, tenacious white mucus, which was removed, applying the nitrate of silver freely to the ulcer and tonsils, followed twenty-four hours later with a mild astringent gargle.

Not at any period during the attack did the temperature rise above 102 degrees. Recovery was rapid.

During the five months sixty-five cases were under treatment of both sexes, white and negroes, of all ages between three and fifty years, two-thirds of whom were white. All recovered except one white child, a female, six years old, whose death was caused by hemorrhage from the left tonsil sloughing away completely on the ninth day.

A peculiarity of the epidemic was that all children in the families were attacked, except infants under one year, who proved to be immunes, as none were isolated, one infant of three months remaining continually in the room, day and night with her sister, the case that terminated fatally.

R. H. Jenkins, M.D.

Popular Physiology.

Ryan, Iowa, June 17, 1898.

To the Editor:—The following clipping from the Lincoln (Neb.) *Journal* is a rather peculiar specimen of popular physiology:

"The windpipe was partially severed, and the sufferer could only breathe by dropping his chin close to his throat. Otherwise the air escaped through the gash instead of going into the lungs."

Sincerely yours, A. H. Scofield, M.D.

ASSOCIATION NEWS.

American Medical Association.

Official Minutes of the General Sessions of the Forty-ninth Annual Meeting, held in Denver, Colo., June 7, 8, 9 and 10, 1898.

June 7—First General Session.

The Association met in the Broadway Theater at 10:30 o'clock A.M., and was called to order in the absence of President Sternberg, by the First Vice-president, Dr. Joseph M. Mathews of Louisville, Ky.

Dr. Mathews, in calling the Convention to order, said: Before opening the session I desire to read the following telegram which I have just received:

"Joseph M. Mathews, First Vice-president, American Medical Association:—Please convey to the Association my best wishes for the success of the Denver meeting, and my sincere regret that important official duties prevent me from being present, and express my heartfelt acknowledgement for the honor conferred in electing me President.

[Signed] "Sternberg, Surgeon-General."

The message was greeted with applause.

Prayer was then offered by Chancellor W. F. McDowell of Denver.

At the conclusion of the prayer, Dr. R. Harvey Reed of Wyoming made the following motion:

In view of the telegram just received from our distinguished President, I move that our distinguished Vice-president, Dr. Mathews of Kentucky, be made President *de facto* of this meeting. Seconded.

Dr. J. N. McCormack—I rise to a point of order.

The President—Please, state your point of order.

Dr. McCormack—The President of this Association, Surgeon-general Sternberg, has not resigned his position. He is unavoidably absent on account of imperative official duties, and I do not think this motion is in order. I therefore ask a ruling from the Chair relative to this matter.

The President—I declare the motion out of order. (Applause.)

The President then introduced the Chairman of the Committee of Arrangements, Dr. J. W. Graham of Denver, who made the following remarks:

REMARKS BY DR. GRAHAM.

Dr. Graham was warmly received. He said: "Words fail to express the joy of our hearts today in greeting you one and all to our beloved city and State. We feel greatly honored that the beginning of the new half of the century in the existence of this distinguished body should begin its labors in our city of the West. It is our hope concerning the members who are passing and have passed away, the great men of this organization, that the mantle of their great power will fall on you, so that you may take up their labors and begin in our city a newer work, a greater work, that shall justify the expectations of the time, place and the age. We desire to see inaugurated in this city today the beginning of that movement which will place the medical profession where it belongs in the city of Washington. We desire to see a department of public health recognized in the cabinet of the President of the United States (applause), and we expect you to take such action today as will request and, if needs be, compel that that be done ere we meet again. (Applause.)

"In behalf of the physicians of the city of Denver and of the State of Colorado, I extend to you a most hearty welcome.

"I desire on behalf of the profession of the State to present to you at this time our distinguished Governor, the Honorable Alva Adams." (Applause.)

ADDRESS OF WELCOME BY THE GOVERNOR OF COLORADO.

Governor Adams was greeted with great applause. He spoke as follows: "Mr. Chairman, Ladies and Gentlemen: There is no convention that is more welcome to Colorado than that which is now assembled here. Profit is always a guarantee of sincerity, and by that standard you will know that in our words of greeting there is no insincerity or falsehood. We welcome you for the friendship we hold for you as an Association, and as individuals; but there is incidentally a profit and a gain that come to Colorado. Notwithstanding the vagaries and peculiarities of our climate during the last few days, I still insist that our climate is our greatest resource. (Applause.) It is of superior quality, and, as you know, infinite in variety. (Laughter.) And then we have it in unlimited quantities. It extends several hundred miles north and south, east and west, while above it is bounded only by the sunshine and the empyreum of God's heavens. While we have this climate to sell, we recognize that there are no better agents to exploit it and advertise it than the fifteen hundred intelligent physicians of America assembled here today. (Applause.) There is, however, an element of business reciprocity between you and us. While we gain through the endorsement of the doctor, we give him an asylum where he can send his hopeless and chronics. You know in the days of Shakespeare, when doctors knew not what to do, they ordered their patients to go to court so the king could touch them *à la* Schlatter. (Laughter.) Now the wise physician sends such cases to Colorado. As evidence of the curative qualities of our climate we call your attention to the thousands who come here and who are today walking the streets of our cities, strong, in vigor and in health, in every vocation of life, doing for God and man, and we may state incidentally that as you ride about our city you will note that the most magnificent residences and the finest business blocks are owned by Colorado doctors. (Laughter.) My friends, these palaces and these blocks were built out of Colorado climate. (Laughter.) Our doctors have become self-appointed agents for the collection of all royalty due to climatic cures. If you will read the prescriptions which they give out to those whom you send to us, and upon which they make fame and fortune, you will find that these prescriptions can be resolved into 90 per cent. climate, 5 per cent. aqua pura and 5 per cent. of faith and other ingredients. (Laughter.) But, my friends, aside from this incidental profit which Colorado derives from such a band of advisers as you are and must be for us, we are glad to see you as individuals, as citizens, because when physicians put aside their vocation, there is no class of men that so fitly conforms to the idea and the description of a jolly good fellow, or as royal a friend, or as fascinating and attractive as our doctors. (Applause.)

"I never could understand why Voltaire recommended the devil to beware of any acquaintance with medical men, unless he thought that his Satanic majesty was wasting his time trying to win such pure and incorruptible men. (Laughter.)

"In ancient India only the most noble of Brahmins was allowed to practice medicine. As we read the splendid faces of those who compose this Congress we can half believe that the influence of the ancient law has not been lost. Royal or not, I have always admired the regal way in which doctors ignore their own advice and rule. As I came upon the platform your secretary, Dr. Atkinson, said to me, 'Treat this audience kindly, but do not take their medicine.' (Laughter.) We know that preachers sometimes obey their own injunctions, as, for instance, like Chancellor McDowell here, but doctors never. (Laughter.) Go into their homes, you run against no rules of diet, meals, beverage, sleep; all is liberty and happiness. Perhaps they read with a clearer vision that brief but suggestive Biblical obituary, 'Asa trusted the physicians and he slept with his fathers.' (Laughter.)

"I have a book on biography and in it I noticed the record of one Dr. Wise. It says of him that he died at the age of 30 with dyspepsia. He was a noted and very learned physician, as well as the author of a valuable work entitled 'The Art of Living to an Old Age.' (Laughter.) The giant of all our physicians of Colorado was a man (Dr. Bancroft) who wrote a book to prove that no man could get fat in the Colorado climate, but we stand today upon the dawn almost of the twentieth century and progress is the watchword of the last decade of this dying century, and in no line of human effort is the spirit of advancement more manifest than in the allied profession of medicine and surgery. Medicine has done more for science, more for humanity than any other department of human effort. Medicine, so long under the shadow of suspicion and imposture, is now a great art, while surgery is the nearest divine of all human science. Every meeting of your Association reads new records of achievement. So great has been the revolution of surgical knowledge that the skill you possess today would have saved two hundred thousand lives in the Civil War. Due to the attainments of the army surgeon the young man who goes out to battle against Spain does not take one-half the hazzard his father took in the great conflict a generation ago. To operate upon the wounded now as was common then would subject the operator to trial and conviction for manslaughter. (Applause.) In your profession Americans need go to no other land or age, as our own practitioners are the best in the world. In doing good no profession has been more generous. In hospitals the poor receive courteous treatment and skill as great as the richest and most eminent can command. It has been your profession that has stayed contagion upon the borders of our land, and in times of epidemics, in times of agitation, the members of your profession have manifested a heroism and bravery equal to that of Dewey or a Hobson. (Applause.)

"The greatest physicians and surgeons the world has ever known are living today, yet in your literature you cling to the ancient fathers of your faith to typify your profession. As many cities of Greece contended for the birthplace of Æsculapius as for Homer. Bronze, marble and plaster busts of Hippocrates, Galen and other ancients decorate our colleges of medicine and surgery, and the office of the modern practitioner; yet by our standard how little they knew. All the wisdom they possessed would not permit them to practice in Colorado or secure a diploma in the poorest medical school in the land. They could not obtain a diploma in a first-class college in America. Napoleon said that Baron Larrey, the physician who followed him in his battles, was the greatest, bravest man he ever knew. When an American desires professional services of the highest character he does not have to go to a past age or to any other country, for under the stars and stripes there live today the greatest physicians and surgeons of the world. (Applause.)

"If kindness to misfortune, sacrifice for the poor, be a pass to paradise, I would rather take the chance of many a poor Dr. McClure than stand in the shoes of some of our proud millionaires. (Applause.) But with all of your ability, with all of your generosity, which is equaled only by your skill, I find that the doctors are a modest set of people. Doctors are very tolerant, indulgent and generous, unless called to consult with some one of another school. With my experience in legisla-

tive matters, and in the discussion of legislative bills which had to do with the regulation of practice and the recognition of different schools of medicine, it has given birth to a suspicion that the first fundamental principle of each school is that the others had no business to practice; that they ought to be prohibited or go to jail. Personally, my condition has much to do with my faith in schools and systems. For instance, if I feel lonesome and forsaken; if the newspapers, and politicians, and the disappointed, turn their pens, tongues and scalping knives upon me, just because I was not as wise as they would be in the conduct of my office and in making appointments, then I feel the need of the soothing, sympathetic treatment of the christian scientist or faith cure. (Laughter and applause.) Again, if I am in what you may call the loafing, novel reading degree of invalidism, when it does not hurt very bad, I call in my homeopathic friends. Their remedies seem as pleasant as their gentle touch and manners. (Laughter.) Their dissertations upon the power of atoms are as fascinating and convincing as a chapter from Tyndall or Hugh Miller. But my friends, so strong is the power of ancient usage, so strong is the memory of youth, and the influence of early training, than when I have an ache, when I feel that there is some chance of my account being called to a close, then I send for the old regular calomel doctor, and I want him quick. (Laughter and applause.)

"In conclusion, let me say that as men whose work, study and experience have been coined into victories for the race, who under the banner of an almost inspired science, have fought and won some of the greatest battles ever waged in the cause of humanity, we extend to you our gratitude and our friendship. Our homes, our cities, our State, are yours. Enjoy them as your own as long as you like." (Loud and prolonged applause.)

The President—I have the pleasure of introducing as the next speaker the Honorable W. S. McMurray, the Mayor of Denver, who will welcome the Association on behalf of the city.

ADDRESS BY MAYOR M'MURRAY.

"Mr. Chairman, Ladies and Gentlemen: After the eloquent remarks of our Governor to which you have just listened, it seems almost useless for me to add anything to the well chosen words of welcome which he has addressed to you, and still I feel that on behalf of the city of Denver, whose chief executive I have the honor to be, and within whose confines you are meeting today to hold your convention, I would be derelict in my duty did I not extend to you a word or two of sincere welcome, not only in behalf of the physicians of Denver, but of the physicians and citizens of the entire State of Colorado. (Applause.) We welcome you as individuals, as American citizens, and as physicians. We are glad to have you come and visit with us. Here in almost the center of the continent you come from the Eastern coast, from the sunset gate, and meet here under the shadow of the Rockies in the same country and under the same flag. And we are glad to welcome you as members of a divine profession, and I take especial pleasure in greeting and welcoming you on that account. Having the honor to be the oldest son of a physician, I know something of a physician's life. I had the honor of coming from that well-known Eastern city, from which so many of your representatives are here today. I refer to Philadelphia. We welcome the triumphs of your profession; we welcome the glorious possibilities that lie before your profession in the incoming century, and we know that you are constantly pressing forward and making rapid strides at these annual gatherings from year to year. You devise new plans which shall make the profession more useful, and add to the knowledge of those with whom you come in contact.

"Regarding the mistakes of the weather of the last few days, the matter is fully accounted for by the fact that the chief weather manufacturer in Washington City has been for some time neglecting his work in efforts to furnish the Naval Strategy Board the many things it needs and wants. (Laughter.)

"A word or two regarding our climate. You have heard of the man who came to Colorado with only one lung and that badly diseased. Inside of a year he wrote to his friends that he now had three lungs. (Laughter.) So, as you go through this city and State, you will doubtless meet with many people whom you would not suspect of having had lung trouble judging from their present condition.

"As you see the marvelous resources of this great Western country as you go through this beautiful city and State, you must remember that this city has been born and practically grown to the extent it has during the last forty years. As you gaze upon the vast plains and mountains of this State you will have some idea of the great possibilities of this country. Those of you who come here for the first time realize as you have never done before what a glorious heritage has been given us in this nation of ours. As you return to your homes, after having transacted your business, you will have a better idea of the people of this city and State, and of the magnitude of our resources and of the grandeur of the nation of which we are only a part. As you are here then today, we extend to you a sincere and heartfelt welcome. We ask you to go through the city; it is yours. Anything we can do for you, call upon us, and anything we can do to make your trip pleasant, ask it of us. If you do not see what you want, ask for it, is the sign you see everywhere. As you go through the city and see its resources here and there, remember that it is only a small part of this State. (Applause.)

"Permit me again to extend to you a hearty welcome. We trust your stay will be pleasant and profitable. We hope you will cultivate new acquaintances and renew old ones. It is our wish that you may be so entranced with your visit to Denver and Colorado that you will feel there is only one place upon the American continent where you can live and be satisfied, and that is under the shadow of the Rockies in this great centennial State." (Loud applause.)

The President—We deplore the fact that Surgeon-General Sternberg is not present with us today, but we are to be congratulated on the fact that he has sent his Address, and I will ask Colonel A. A. Woodhull of Denver, to read it.

Colonel Woodhull then read the Address prepared by President Sternberg, which was frequently applauded during its delivery. (See JOURNAL, p. 1373.)

At the conclusion of the Address Dr. J. L. Thompson of Indianapolis, Ind., took the Chair.

Dr. W. S. Huselton of Allegheny, Pa., offered the following resolution:

Resolved, That the following telegram be sent to Surgeon-General Sternberg:

"That while the American Medical Association in session in Denver regrets that circumstances, national in character, prevent his presence, it desires to thank him for the able Address just read to the Convention."

Seconded and unanimously carried.

Dr. Dudley S. Reynolds of Louisville, Ky.—I move, sir, that the Address of the President be referred to a committee of five appointed by the Chair to take such action as the practical suggestions contained therein may seem to require. Seconded.

Dr. H. A. Hare of Philadelphia—I would suggest that the Address be referred to the Executive Committee.

Dr. Reynolds—I will withdraw my motion in favor of the suggestion.

Dr. W. T. Bishop of Harrisburg, Pa.—There is one more suggestion I would like to make, and that is that the Secretary be directed to omit, and the reporters requested to exclude, any mention whatever of that unfortunate motion made at the beginning of the session in regard to the absence of General Sternberg. It was an unfortunate mistake and ought to be dropped.

The President—The resolution offered was declared out of order.

The next thing in order was the report of the Rush Monument Fund, which was read by the Chairman, Dr. A. L. Gihon.

It was moved that the report be received and referred to the Business Committee with the request that the suggestions contained therein be considered and report to the Association before the end of the meeting. Seconded.

[The Secretary of the Business Committee carried away this report.]

Dr. E. F. Ingals of Chicago—There is one inaccuracy in the report with reference to the expenses of the Business Committee, and I hope it will be corrected. The Treasurer is upon the stage, and I have no doubt he can place us right. The members of the Committee were not paid their expenses up to last year, and I do not think they have been paid since. (The Treasurer did not take cognizance of the remarks of Dr. Ingals.)

Dr. H. A. Hare of Philadelphia—I would like to ask whether if we adopt the resolution of Dr. Gihon, it will carry with it the resolution regarding the payment of traveling expenses of the officers of the Rush Monument Fund, or is it a separate motion?

The President—I should think it ought to be a separate motion.

Dr. T. J. Eskridge of Denver—About one year ago when the Association met in Philadelphia, our distinguished friend Dr. J. W. Graham of Denver, assumed that Colorado would raise two thousand dollars toward the Rush Monument Fund. At that time he did not have a single pledge behind him. He came back to Colorado, and at a meeting of our State Society, within three hours, a subscription was started, and we had the entire two thousand dollars pledged. (Applause.) As Chairman of the Local Committee of the Rush Monument Fund, having

started my practice in the same district where Benjamin Rush practiced and where he won fame, I will say that it gives me great pleasure to hand over to the Chairman of the Rush Monument Fund a check for $2000, with the understanding, if he wishes, that it be placed at 4 per cent. interest in the First National Bank until it is called for. (Applause.)

Dr. E. D. Ferguson of Troy, N. Y.—In order that we may continue to redeem pledges, I wish to hand to Dr. Gihon a check for $2000, without any conditions whatsoever for the Rush Monument Association, it being the subscription of the New York State Medical Association. (Applause.)

Dr. A. L. Gihon—A few minutes ago I said we had four thousand and some odd dollars. The amount has already been doubled and I have now over eight thousand dollars.

Dr. H. A. Hare of Philadelphia—As Chairman of the Committee of Arrangements of the Philadelphia meeting of the Association, after closing up the business your Committee found that there was a rebate of 10 per cent. from all exhibitors, leaving a balance, after defraying all expenses, of $200, which we desire to contribute toward the Rush Monument Fund.

Dr. S. C. Gordon of Portland, Me.—I wish to say, Mr. Chairman, that at the last meeting of the Maine Medical Association, a motion was made by me that our Treasurer be authorized to pay to the Rush Monument Fund the small sum of $100, which Dr. Gihon can have by drawing upon the Treasurer of that Association.

Dr. Wm. H. Humiston of Cleveland, Ohio—As late President of the Ohio State Medical Society, I herewith present a New York draft on the Fourth National Bank for $336 toward the Rush Monument Fund.

Dr. Miles F. Porter of Fort Wayne, Ind.—In behalf of Indiana, being the Chairman of the Rush Monument Fund, I wish to say that Indiana is not yet ready to make a final report. She pledged you nothing at the last meeting, although it was said that she would try to do her duty. I have secured about five hundred dollars, a check for which I am ready to hand to the Chairman of the Committee, but Indiana wants to do something more.

Dr. George L. Cole of Los Angeles, Cal.—I bring with me on behalf of California a check for $110, which is given unconditionally by the California State Medical Association in accordance with the resolution adopted by that body.

At the conclusion of Dr. Cole's remarks, the President put the motion to accept the report, and it was carried.

The Permanent Secretary read his report as follows:

REPORT OF PERMANENT SECRETARY.

Gentlemen:—The Secretary would respectfully report that in accordance with the resolution adopted at the last meeting, he issued a circular letter to each State and Territorial medical society, notifying them of the action taken relative to the fund for the Rush Monument, and the desire to raise a fund of $100,000 for that purpose. Replies were received from several that a special committee had been or would be appointed to take charge of this matter. It is expected that these committees will report at the time the report of the Monument Fund is called for. From the lists furnished by the State and Territorial medical societies, a list of the societies entitled to representation in this Association has been prepared and published in the JOURNAL of the Association. Your Secretary is happy to say that very few changes or additions were found necessary after the report was published.

In accordance with the By-Laws, your Secretary notified all who were in arrears for three years (a list of whom had been furnished him by your Treasurer), and in many instances the arrears were paid. Having been notified by the Secretaries of certain State societies that a number of persons had been registered who were not in any way entitled to membership in this organization, your Secretary informed these gentlemen to that effect and suggested to them how they could become members of an association in affiliation with us. In a number of instances gentlemen took advantage of this suggestion and became members in full fellowship.

[Signed] W. B. ATKINSON.

On motion, the report was accepted.

Dr. Henry P. Newman of Chicago, the Treasurer of the Association, read his report as follows:

ANNUAL REPORT OF THE TREASURER OF THE AMERICAN MEDICAL ASSOCIATION FOR THE FISCAL YEAR COMMENCING JANUARY 1, 1897, AND ENDING DECEMBER 31, 1897.

In presenting my report it is my privilege to congratulate this Association upon its constantly increasing growth and prosperity. The year which closed January 1, 1898, added 1500 new members, and during the same time we have dropped for non-payment of dues only about seventy-five members, being a larger net gain in membership than for any previous year. The receipts during the time I have had the honor of being your treasurer have increased from $12,695.58 in 1894 to $32,200 in 1897. The balance on hand January 1, was $14,092.85, with a reserve or sinking fund of $3,000. As will appear in the Trustee's report, the Association has recently added a valuable press to the equipment of our efficient and prosperous printing and publishing plant. This with the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION under its present able management, constitutes a most valuable asset in estimating our possessions, and is a guaranty of increasing prosperity in the future.

H. P. NEWMAN, M.D., in account with the American Medical Association.

1897		RECEIPTS.	
Jan.	1.	To cash, balance on hand	$ 5,465.56
Feb.	27.	To cash, check returned unpaid	39.75
June	7.	To cash, registration fees, Philadelphia meeting	7,580.00
Oct.	26.	To cash, interest on Building Fund or investment ($3000), less exchange	179.80
Dec.	31.	To cash, returned from Dr. H. A. Hare, Chairman of Committee on Arrangements, Philadelphia meeting,	1.000.00
"	31.	To cash, Journal A. M. A., advertising, subscriptions, presswork and sales	25,637.67
"	31.	To cash, dues paid by members up to date	24,620.00
		Total	$64,522.78

		DISBURSEMENTS.	
Jan.	8.	By cash, First National Bank, check returned unpaid,	$ 39.75
Feb.	27.	By cash, Dr. W. B. Atkinson, Secretary, stamped envelopes	10.90
March	2.	By cash, Dr. E. E. Montgomery, Trustee, expenses of attendance at Trustees meeting, Chicago	62.50
April	21.	By cash, Dr. D. W. Graham, expenses of incorporation,	5.00
May	7.	By cash, balance Treasurer, honorarium, year ending May, 1897	744.00
"	7.	By cash, supplies for Treasurer's office	20.71
"	7.	By cash, Dr. E. Cutter, expenses as Secretary of Section on Physiology	6.50
June	7.	By cash, Dr. A. Garcelon, Trustee, expenses of attendance at Trustees meeting, Chicago, and annual meeting at Philadelphia	136.50
"	7.	By cash, Dr. J. T. Priestley, Trustee, expenses of attendance at Trustees meeting, Chicago, and annual meeting at Philadelphia	115.80
"	7.	By cash, Dr. Chas. A. L. Reed, Trustee, expenses of attendance at Trustees meeting, Chicago, and annual meeting at Philadelphia	103.00
"	7.	By cash, Dr. Joseph Eastman, Trustee, expenses of attendance at Trustees meeting, Chicago, and annual meeting at Philadelphia	72.00
"	7.	By cash, Dr. I. N. Love, Trustee, expenses of attendance at Trustees meeting, Chicago, and annual meeting at Philadelphia	107.00
"	7.	By cash, Dr. J. M. Mathews, Trustee, expenses of attendance at Trustees meeting, Chicago, and annual meeting at Philadelphia	110.00
"	7.	By cash, Dr. G. C. Savage, Trustee, expenses of attendance at Trustees meeting, Chicago, and annual meeting at Philadelphia	110.40
"	7.	By cash, Dr. D. W. Graham, Trustee, expenses of attendance at annual meeting, Philadelphia	36.00
"	7.	By cash, Dr. J. B. Hamilton, Editor, expenses of attendance at annual meeting, Philadelphia	27.50
"	7.	By cash, Dr. H. P. Newman, Treasurer, expenses of attendance at annual meeting, Philadelphia	37.50
"	7.	By cash, Dr. A. P. Clark, expenses of Chairman of Section	6.00
"	7.	By cash, Dr. Elmer Lee, expenses of Chairman and Secretary of Section	25.00
"	7.	By cash, Dr. J. H. Musser, expenses of Chairman of Section	24.00
"	7.	By cash, Dr. W. D. Atkinson, salary for the year and expenses attending meeting	300.00
		supplies for Secretary's office and sundries	86.58
		1,000 stamped envelopes for Secretary's office	21.80
"	7.	By cash, G. E. Malsbury, stenographic report, Philadelphia meeting	70.00
"	7.	By cash, I. J. Williams, stenographic report, Philadelphia meeting	80.00
"	7.	By cash, Dr. H. O. Reik, stenographic report, Philadelphia meeting	100.00
"	7.	By cash, advanced to Committee of Arrangements at Philadelphia meeting	1,000.00
July	16.	By cash, dues refunded, duplicate payment, Philadelphia meeting	40.00
"	16.	By cash, supplies for Treasurer's office	16.05
"	16.	By cash, Wm. Whitford, stenographic report, Philadelphia meeting	80.00
Aug.	13.	By cash, H. B. Mills, stenographic report, Philadelphia meeting	90.00
Nov.	30.	By cash, Smith Premier Typewriter Co., supplies for Secretary's office	16.40
Dec.	20.	By cash, Dr. U. O. B. Wingate, Chairman Committee on Public Health, expenses to Washington	200.00
"	20.	By cash, First National Bank, postage and expense on drafts	14.30
"	29.	By cash, H. P. Newman, Treasurer, half-yearly honorarium to December, 1897	500.00
"	29.	By cash, Graves' Index Book for Treasurer's office	17.00
"	31.	By cash, postage for the year	315.00
"	31.	By cash, exchange on collections	45.07
"	31.	By cash, requisition paid on Journal expense account,	20,000.00
"	31.	By cash, total Journal expense account $45,637.67	
		Less on cash requisitions 20,000.00	25,637.67
"	31.	By cash, balance on hand	14,092.85
		Total	$64,522.78

Respectfully submitted, HENRY P. NEWMAN, Treasurer.

At the conclusion of the report Dr. E. Rosenthal of Philadelphia, said: In the report of the Treasurer reference was made to certain bills presented by Secretaries of Sections, and I understand these bills were paid. I have a bill of expenses for work done in connection with the Section on Diseases of Children, and I would like to know whether it will be paid. I only wish to ask for information as to whether the expenditures of the different Secretaries of Sections for postage and such things, necessary for the proper fulfillment of such offices, if brought before the Association in due form or in order, will be paid, or whether the Secretaries have to pay their own expenses. This is the question I wish to raise.

Dr. T. J. Happel of Trenton, Tenn.—I move that the report of the Treasurer take the ordinary course; that is, of being referred to the Business Committee, and that the matter referred to by the gentleman from Philadelphia be passed upon. Seconded.

Dr. John B. Hamilton of Chicago—If the Association will permit me, I can answer in a few words the question of the gentleman from Philadelphia. The bills paid and authorized to be paid by the Board of Trustees are for those expenses incurred at and incidental to the meetings, including printing of special programs and the like. The bills declined to be paid by the Board of Trustees were those which included writing of letters, hiring stenographers and work preliminary to the meetings of the Sections. No discrimination is made in the settlement of those bills. (Report was then referred to the Business Committee.)

(To be continued.)

SOCIETY NEWS.

The Harlem Medical Association of New York City held its annual election on June 13, which resulted as follows: President, Philip A. Malleson; vice-president, Henry W. Mooney; secretary, Joseph E. Lumbard; treasurer, Charles A. Clinton; and trustees, David Franklin, Samuel E. Gibbs and Henry J. Wolf.

The Delaware State Medical Society held its 109th annual session in Wilmington, June 14. The following officers were elected: President, B. L. Lewis, Harrington; first vice-president, O. D. Robinson, Georgetown; second vice-president, William H. Hancker, Farnhurst; permanent secretary, Frank Belville, Delaware City; assistant secretary, John Palmer, Jr., Wilmington; treasurer, William C. Pierce, Wilmington; councilors, Francis L. Springer, James H. Wilson, Hiram R. Burton; medical examiners, James H. Wilson, H. R. Burton, J. A. Ellegood, P. W. Tomlinson, D. L. Mustard, Willard Springer, J. T. Massey, L. A. H. Bishop, O. D. Robinson and E. S. Dwight. The next meeting will be held in Wilmington.

New Mexico Medical Society.—The seventeenth annual meeting was held at Las Vegas. The new officers elected were: President, S. D. Swope, Deming; first vice-president, E. B. Shaw, Las Vegas; second vice-president, J. H. Wroth, Albuquerque; third vice-president, Wm. C. Bailey, Hot Springs; secretary, G. A. Wall, Albuquerque; treasurer, C. G. Duncan. The next place of meeting was fixed at Albuquerque, for May, 1899.

NECROLOGY.

John Albert Larrabee, M. D., Professor of Obstetrics and Diseases of Children in the Hospital College of Medicine, Medical Department of the Central University of Kentucky, Louisville, was born at Gorham, Maine, May 17, 1840. He was the son of John Rogers Larrabee, and Martha Cooms Larrabee; grandson of Ephraim Larrabee and Jane Rogers, and great-grandson of Benjamin Larrabee, Jr., and Lydia Bailey, and great-great-grandson of Capt. Benjamin Larrabee and Mary Eilthorpe. The family is further traceable through an illustrious line, back to 1620, when the first historic account of their presence in this country begins. Dr. Larrabee received careful educational training in his youth at Bethel Academy, and at Gorham; subsequently at Bowdoin College, Brunswick, Maine, where he finally graduated in the Maine Medical School in 1864. Before completing his medical education he went to Washington City, in accordance with the advice of his cousin, Prof. Conant, of New York, and stood an examination for appointment as medical cadet in the United States Army, September, 1862. Of the sixty applicants, Larrabee stood third in the list, fifteen only being selected. The medical cadet, it was intended, should rank between the hospital steward and assistant surgeon. Some confusion having arisen in reference to this new title, it was abandoned, and no other cadets were appointed. He was assigned to duty at Hospital No. 7, Fort McCook, Louisville, entering upon his duties October 20, where he continued until the time arrived to return to Brunswick, where he completed his medical education, graduating with the degree of Doctor of Medicine, with the first honors of his class. He returned to military service at once, and was assigned to duty at Fortress Monroe, and was Surgeon-in-charge of the sick and wounded on the transport steamer, *Atlantic*. At his own request he was subsequently assigned to duty at Taylor Barracks, at Louisville, subsequently becoming assistant medical director of the post. He was married to Harriet Winslow Bulkley, daughter of William Henry Bulkley and Sarah Lee Riggs, March 30, 1865. Subsequently, in May of that year, he resigned his commission in the army, and entered upon his illustrious career as civil practitioner, at Louisville. He was always conspicuous as a member of the local and State medical societies, never failing to contribute something of scientific value at the regular meetings. He was secretary of the Kentucky State Medical Society for several years. He was one of the founders and subsequently president of the Louisville Medico-Chirurgical Society.

When the curators of the Central University of Kentucky undertook, in December, 1873, to establish a medical department, he became one of the members of its faculty, and aided materially in the organization of the school and in establishing its character and reputation as an institution of learning. He was, by far, the most popular, not to say the most gifted teacher in any of the medical schools of Louisville. He always had the happy faculty of discovering just what the student desired and administering, in the course of his instruction, just what the student needed. He was always one of the leaders in determining the policy of the institution. At the annual election in June, 1893, he was chosen president of the joint faculties of medicine and dentistry in the University, a position he filled with creditable distinction, to the hour of his death. So devoted was he in his attachment to the college that he insisted in his last illness, which he well understood must prove fatal, upon having the diplomas printed that he might sign them before his death; and, with heroic courage, he lay propped in bed and with a bold and graceful stroke of the pen affixed his signature to all of the diplomas, with the exception of one, which he signed on the wrong line. This last official act was completed in the afternoon of Wednesday, June 8. That night toxemia became manifest; coma began twenty-four hours later, and death ended the scene on the 12th of June, at his home on Baxter Avenue, in the Highlands, a delightful suburb of Louisville. Dr. Larrabee was a man of rare personal magnetism. He had a full beaming eye and open countenance, and was master of the choicest English. He was always the center of attraction in any company. He held twice the office of president of the Section on Diseases of Children in the American Medical Association. He was frequently the delegate of the faculty to the annual meetings of the Association of American Medical Colleges, in the organization of which he took an active and leading part. He was in thorough sympathy with the movement to advance the standard of medical education, and never relaxed for one moment his efforts to promote the cause. He was the first and only physician to the Home of the Innocents, tendering his

services with devoted interest for more than twenty years. He was, in fact, the founder of the Children's Hospital, in which he took an active and important interest. His opinion in consultation was sought far and wide. He was one of the greatest practitioners of medicine and a pioneer in pediatrics. His clinic on diseases of children at the Hospital College of Medicine was the largest of its kind in this section of the country. Thousands of his students all over the United States unite with his family and immediate colleagues in mourning the loss of a great and good man. D. S. R.

JOHN BLAIR GIBBS.—Resolutions passed by the Society of the Alumni of Lebanon Hospital, New York, on the death of John Blair Gibbs (*vide* JOURNAL, p. 1481):

WHEREAS, We have learned with profound sorrow and regret of the death of Dr. John Blair Gibbs at Guantanamo, Cuba, we feel that we should express ourselves in a manner whereby his memory may be honored. Not only has a vacancy been made among ourselves which can never be filled, but the medical profession has lost a true brother and the Nation a son whose manliness, noble character and zeal can never be questioned; and

WHEREAS, We have constantly been indebted to him, while acting in the capacity of assistant attending surgeon at Lebanon Hospital, for valuable council and unfailing courtesy, we therefore,

Resolve, That, to perpetuate his name for his heroic conduct, and as a token of our esteem and love, to erect a tablet in the operating room of Lebanon Hospital, and that these resolutions be entered in full in the minutes of the meeting.

F. H. ALLISON, M.D., Kittanning, Pa., June 11, aged 78 years.——P. M. Chadwick, M.D., Omaha, Neb., a graduate of the University of Vermont and the College of Physicians and Surgeons, New York City, June 11.——S. H. Chester, M.D., Jackson, Tenn., June 10.——J. W. Donnell, M.D., Clarkfield, Minn., June 11.——Cyrus K. Kelley, M.D., Plymouth, N. H., June 21, aged 77 years.——Richard W. Mansfield, M.D., Baltimore, Md.——G. W. Miller, M.D., Lampeter, Pa., June 2, aged 68 years.——J. R. Reid, M.D., Thomasville, Ga., June 13.——James H. Stone, M.D., Tappan, Ohio, June 7, aged 67 years, a graduate of Bellevue Hospital Medical College, 1856.——J. B. Cole, M.D., Wabasha, Minn., Ann Arbor, 1881, June 19.

DEATHS ABROAD.—F. Halbertsma, professor of obstetrics and gynecology, Utrecht.——J. L. Alonso, professor of clinic medicine, Salamanca.——F. J. Trier, Copenhagen, one of the most prominent clinicians of Denmark, aged 67 years.

PUBLIC HEALTH.

Yellow Fever Again.—Recently seven more cases of yellow fever at McHenry, Miss., were reported to the Louisiana State Board of Health, this being a total of fifteen cases from May 20 to June 13.

Not Liable for Cost of Renovating House.—In the case of Webb vs. the Board of Health of the City of Detroit, a writ of mandamus was prayed for, to compel the board to allow a bill for losses occasioned by a smallpox infection of certain premises, the items charged being: "Cost of renovation, etc., after disinfection, $107; loss of rent, $80; furniture, bedding and other articles destroyed, $40." But the supreme court of Michigan holds, March 28, 1898, that the writ was properly denied. It says that the smallpox broke out through no fault of the health board. As soon as the first case in this house was reported the patient was removed by the board to the hospital and the house quarantined. It was quarantined nearly two weeks when the second case broke out. This patient was not removed to the hospital, but the house was continued to be quarantined by the board. The board did not make a hospital of the house, or make any further use of the goods therein than was necessary to the proper care of the patients, who were there found suffering from the disease. It was the duty of the board to quarantine the house, and for the protection of the public, to disinfect the premises. For injury to property resulting from a performance of this duty by its officers, the court holds that the municipality was not liable. If, however, the officers did their work negligently and thereby caused unnecessary damage, it is suggested that then the officers were liable, not the municipality.

Militant Prophylaxis of Tuberculosis.—Additional suggestions made since the committee presented their report to the Paris Académie de Médecine include regulations for the proper disinfection of rooms in which persons have died of phthisis, and the cremation of all articles of clothing and bedding among the indigent, to be replaced by the municipality. Laveran urges disinfection of rooms occupied even temporarily by phthisics. He observes that family prophylactic measures may suffice among the well-to do, but that the only effectual measure for the poor is isolation in a sanitarium or hospital. In spite of the recommendations of pocket cuspidors, visits to twenty of the most frequented drug stores in Paris disclosed that they had never been heard of; absolutely no demand by the profession or public. Out of five dealers in physicians' and surgeons' supplies only one had ever heard of them, and he had sold but three. Professor Landouzy appeals to the profession at large to enter upon a campaign of education of the public, dispelling unfounded fears, but proclaiming the dangers of tuberculous sputa and insisting upon cuspidors in profusion, raised a certain height above the floor. Patients should be instructed at once as to the nature of their malady, which Grancher calls "the most curable of all chronic diseases." He should carry a pocket cuspidor disinfected with the house cuspidors by boiling or with antiseptics every evening. The physician should not wait for certainty, but make a "probabilty diagnosis" whenever, with loss of strength and emaciation, he notes permanent alteration in the vesicular respiration in one of the pulmonary apices. This militant prophylaxis on the part of physicians will alone accomplish the purpose. A writer in the Vienna *Klin. Rundschau* of May 12 urges that strictly enforced official prophylactic regulations are imperative.

Members of Board can all be Regulars.—One of the provisions of the constitution of the State of Texas is that "the legislature may pass laws prescribing the qualifications of practitioners of medicine in this State, and to punish persons for malpractice, but no preference shall ever be given by law to any school of medicine." This, it was argued, in the case of Dowdell vs. McBribe, was violated by article 3778 of the Revised Statutes of Texas of 1895, which provides that the "board of medical examiners shall be composed of not less than three practicing physicians of known ability, and who are graduates of some medical college recognized by the AMERICAN MEDICAL ASSOCIATION." But if this be true, and if article 3778 is unconstitutional, Mr. Justice Key, of the court of civil appeals of Texas, suggests the Texas statute regulating the practice of medicine will still be complete, and should be enforced, without reference to that article. And, upon this ground, he expresses the opinion that, regardless of the constitutionality of that article, no recovery should be allowed for medical services rendered by a person who has not complied with the requirements of the balance of the statute. But Mr. Justice Collard, who may really be said to deliver the opinion of the court, in this case, April 13, 1898, states it, as his view, that the provision of the constitution referred to merely forbids that any preference shall ever be given by law to any schools of medicine, in the examination of applicants for certificates before the board, while the board may be composed exclusively of physicians, graduates of schools recognized by the AMERICAN MEDICAL ASSOCIATION, and each member of the association may belong to the regular school, and yet the constitution not be violated. In other words, he maintains that it is only when the

examining board make a preference as to schools of medicine in its action that the constitutional right of the applicant is invaded. He also mentions the fact that article 3638 of the Revised Statutes of 1879, providing that no person, except those who complied with the law, should be permitted to practice medicine, was not carried forward in the statutes of 1895, but was omitted by the codifiers. But, he says, "we think, when the statutes of 1895 are read in connection, the intention becomes clear that the law must be followed, to qualify one to practice medicine in the State, and without such qualification he can not be permitted to practice."

Binding Contract Made by Board of Health with Physician.—During an epidemic of diphtheria, an arrangement was made with a practicing physician by the board of health of a township that he should take charge of the patients as physician and nurse, and bury the dead, if any; that supplies should be furnished through him; that he should quarantine the houses where there were cases of the disease, and take all necessary steps to check and control the disease. The physician carried out the instructions of the board, and gave nearly all his time to the work. But when his bill, which the board of health allowed and certified, was presented to the board of supervisors of the county, the latter cut it down, because some of the persons treated were able themselves to pay for treatment. Then the physician applied for a writ of mandamus against the board of supervisors. This the circuit court denied, on the ground that it was not the proper remedy, and because it held that services rendered to patients able to pay would not be a charge against the county. But the supreme court of Michigan reverses the lower court on both points, stating that the writ would issue as prayed. It not only justifies this by a citation of authorities, but by stating, April 19, 1898, case of McKillop vs. the Board of Supervisors of Cheboygan County, that if, in emergencies of this kind, it is understood the agreements made by the boards of health can not be enforced, the statutes designed to protect the community in these times, requiring prompt action of the board of health, will be rendered nugatory.

MISCELLANY.

Journal Index.—The complete index, together with title page, etc., for volume xxx of the JOURNAL, will be published next week.

Increase of the Naval Surgical Staff.—A large number of applications for positions as acting assistant surgeons have been received by the Board of Naval Inspectors, at the Naval Hospital at Brooklyn. The bill for the employment of these extra men is still before Congress, and as soon as it becomes a law an examination of the six or seven hundred men who have already applied at the different stations will be held. Unfortunately the bill provides for only twenty-six acting assistant surgeons.

Occupations of 2200 English Insane.—The following is a classified list of some of those who have been admitted into English lunatic asylums during the past five years: Five hundred and seventy-nine agricultural laborers; 484 engineers and artisans; 299 bank, insurance and other clerks; 214 shopkeepers; 213 soldiers; 176 teachers, etc.; 61 commercial travelers; 44 musicians; 30 physicians and surgeons; 28 clergymen; 28 authors and journalists; 22 actors.

New York Professor Resigns.—Dr. James W. McLane, after thirty years of service as a teacher, has resigned the chair of professor of obstetrics in the College of Physicians and Surgeons of New York. In accordance with the wishes of the medical faculty Dr. McLane was made emeritus professor of obstetrics, and retains his position as dean of the college. The vacancy in the chair of obstetrics was filled by the appointment, with the title of lecturer in obstetrics, of Edwin B. Cragin, M.D. Dr. Cragin is a graduate of Yale, class of 1882, and of the College of Physicians and Surgeons, 1886.

Weakest Kind of Evidence.—The experience of the courts has demonstrated, says Mr. Justice Follett, in delivering the opinion of the fourth appellate division of the supreme court of New York, in the late case of Dobie vs. Armstrong, that the answers of experts, though honestly given, to hypothetic questions embracing pages of assumed and isolated facts covering a long lifetime, about which facts the experts have no personal knowledge, are the weakest and most unreliable kind of evidence in respect to the sanity or insanity of the person inquired about.

Bacillus of Syphilis.—As already mentioned, Van Niessen of Wiesbaden claims to have discovered a polymorphous bacillus requiring only an enlargement of 60 diameters to be visible, resembling the hyphomycetes, in the blood of syphilitics at all stages of the disease, even the most remote from the date of infection. He deduces that syphilis is a chronic disease of the blood, absolutely incurable by all methods known to date and contagious and inheritable at all periods. His detailed communication is published in the *Cbl. f. Bakt. u. Inf.*, Nos. 2 to 7.

The Army in Transports.—On inquiry at the office of the Surgeon-General it was found that the latest medical news from the Fifth Army Corps, General Shafter's command of regular troops, consisted of a report by Lieut.-Colonel B. F. Pope, Chief Surgeon of the Corps. The report was dated June 13, on board Transport No. 12, Tampa Bay, Florida. It stated that the troops embarked on Wednesday, June 7, and had been on shipboard since that date. Eight of the transports were at first considerably overcrowded, but relief had been obtained by unloading 1000 men and putting them on the steamer *Knickerbocker*. In spite of very trying conditions the health of the command was excellent. The steamer *Olivette* had been secured as a hospital ship for the trip, this vessel having been considered better adapted for hospital purposes than any other in the fleet. The medical department is well organized, and according to Dr. Pope "affairs seem to be in good shape for the expedition."

Maryland Hospital for the Insane.—An important step in the general movement for the removal of insane patients from almshouses and jails is that accomplished recently by the transfer from the almshouse of Baltimore of its fifty insane patients to the new State insane hospital near Sykesville. The hospital is a model institution. Its four buildings are constructed pretty much on the same principle as the Johns Hopkins Hospital of Baltimore. There is nothing about it suggestive of a place of confinement. It has no padded cells and no instruments with which to restrain violent patients. Dr. George Rohe, the superintendent, is an advocate of mild treatment. For the accommodation of additional patients when the capacity of the present buildings is exceeded, as is probable in the near future, it is proposed to erect other buildings about half a mile from the present site.—*Charities Review*, April.

Calcutta General Hospital.—A novel feature of the new general hospital for Europeans in Calcutta, India, the corner-stone of which was recently laid, will be a system of ventilation during the hot and rainy seasons by cold and dried air. The idea originated with brigade surgeon Lieutenant-Colonel Crombie, the superintendent of the hospital and, like most new ideas, met with a great deal of opposition, although the advantages of the system are obvious. During the hot and rainy seasons Calcutta has a temperature ranging from 85 to 95 degrees F., and a humidity which frequently reaches 90 per cent. Dr. Crombie proposes to establish a uniform temperature in the wards, of from 75 to 80 degrees F., and a humidity reduced to about 60 per cent., as a necessary part of the process of cooling the air. As a cool dry air is to be passed through screens of cotton wool, there will be no mosquitoes, and accordingly no necessity for punkahs and mosquito curtains.—*Medical News.*

Conservatism in Head Traumatism.—At the Berlin Medical Society, Von Bergmann showed two patients with bullets in the brain. In both, the wounds were healed and the patients presented very few symptoms at the time of demonstration. At first, however, there had been in one case hemiplegia, hemi-anesthesia, one side deafness and total blindness, which had all passed away, leaving finally a slight paralysis only of the left leg. The projectiles were skiagraphed with the X-rays. Notwithstanding the urgent wish of both parents to have the bullets extracted, Von Bergmann had refused to operate, as there was no indication for such interference.

American Medical Missionary Work in India.—In India, where many lethal diseases flourish like plants in a hothouse, and which is a nursery of epidemics and the permanent abode of cholera, it is not unnatural that missionaries should have been led to establish hospitals. The American Board planted a mission in Madura, South India, in 1835, and from the beginning of this mission has devoted much attention to medical relief. Among the doctors who have gone out to Madura as medical missionaries stand the honored names of Steele, Lord and Palmer, the last a brother of Senator Palmer of Illinois. At Dindigul, the veteran Dr. Chester has for thirty-five years devoted his time to this department of missionary work. The medical work carried on by this mission has done much to win the way of the mission into the favor of the native people of that district.—*Harper's Weekly.*

Antitoxin is not "Vaccine Virus."—This is now judicially settled by the decision of the United States circuit court of appeals, in Koechl vs. United States, January, 1898. The question arose over the assessment for duty of certain antitoxin, which the collector of customs of the port of New York held dutiable as a "medicinal preparation," while the importers contended that it should be admitted free of duty, as "vaccine virus" under the tariff act of 1894. They cited for this the Century Dictionary, which gives as a secondary definition of "vaccine" when used as a noun: "In a general sense the modified virus of any specific disease introduced into the body in inoculation, with a view to prevent or mitigate a threatened attack of that disease, or to confer immunity against subsequent attacks." No authority for this use is cited. The quotation expresses merely the opinion of the compiler or compilers of the dictionary, and the court of appeals goes on to say, more than the mere ipse dixit of a contributor to such a work is required to satisfy it that the words "vaccine virus" are actually used with such meaning by educated people, especially in view of the fact that none of the other standard dictionaries give any such definition of the phrase. So it holds that the collector's classification upheld by the circuit court was correct, while that contended for by the importers and adopted by the board of general appraisers was not.

Convention Notes.—Resolutions adopted by the Glenwood excursion party. The members of the AMERICAN MEDICAL ASSOCIATION en route from Colorado Springs to Glenwood on a special excursion train on the Colorado Midland Railway passed a series of resolutions and presented them to George W. Ristine, president of the Colorado Midland Railway, reading as follows, and signed by every member of the party:

"We, the members of the AMERICAN MEDICAL ASSOCIATION, who were fortunate enough to take advantage of the excursion to Glenwood Springs, afforded us in viewing one of nature's greatest panoramas, are especially appreciative of the accommodations, courtesy and kindness shown, not only by the management, but by every employe on the road with whom we have come in contact. We feel that no words of praise we can say in the future for the Colorado Midland Railway can adequately compensate for the pleasure we have derived from the unparalleled trip through the Rocky Mountains."

President Ristine responded, thanking them for their complimentary resolutions, and saying that if the Colorado Midland Railway and its employes have contributed to their pleasure and sojourn in Colorado, they felt repaid for any courtesies extended, and he hoped Colorado would see them again and only regretted that each of them could not take home with him a carload of scenery, as there was plenty to spare.

The ASSOCIATION was represented at Colorado Springs, June 11, by a train load of delegates. Following a luncheon at the Broadmoor Casino and a visit to the Cheyenne Canyons a reception was given by the El Paso Club and a dance at the Mansions with excursions to the summit of Pike's Peak and drives to the Garden of the Gods and other scenic environs.

Many doctors were royally entertained at the Montezuma, Hot Springs, N. M.

The British Medical Staff in the Last Conflict in Northern India.—The following is a comment from a high official source upon the conduct of the medical department of the British forces sent against the Afridis: "Now, I suppose there is no department which has done more admirable work in the late campaign than the medical department, not only in the campaign itself, but also in the treatment of the sick and wounded in the great hospitals that were formed. A large general hospital was opened at a station in the north of India. A newspaper at home published a report affirming that all the arrangements were as bad as they could be, that there was an insufficient staff, that the patients slept on the ground, and that the equipment was defective; that, for example, there were several serious cases of abscess of the liver and only three feeding cups. Now, what are the facts? There was an ample staff: Sixteen medical officers and eighteen assistant surgeons, and some nursing sisters; no patients ever slept on the ground; there were excellent barracks as well as tents; there was an ample supply of every kind of hospital equipment. There was not a single case of abscess of the liver and there were forty feeding cups instead of three; while there was not a single death during the whole of the time the hospital was open. I merely make this statement to show how absolutely ill-founded many of the reports are."

Personal Notes.

NATHAN S. DAVIS, M.D., Dean of Northwestern University Medical School, Chicago, has, owing to his advanced age, resigned that office.

Prof. DANIEL R. BROWER of Rush Medical College has been given the honorary degree of LL.D., by Kenyon College.

Dr. F. C. HOTZ of Chicago has been appointed professor of Ophthalmology, and Dr. FRANK BILLINGS professor of Medicine in Rush Medical College.

Dr. Charles W. Page of the Hospital for the Insane at Danvers, Mass., will enter upon the Superintendency of the Connecticut Hospital for the Insane at Middletown, Conn. He is to succeed Dr. James Olmstead, who died Dec. 4, 1897, and will assume charge about September 1.

San Francisco.

SAN FRANCISCO COUNTY MEDICAL SOCIETY.—At the regular monthly meeting, June 14, Dr. G. W. Davis reported a case of gas asphyxiation. The case recovered; oxygen was not used. Dr. Krotoszyner reported a case of unusual interest, that of primary carcinoma of the pancreas, with no symptoms that in any way pointed to the actual cause of the peculiar trouble. The case was seen by a number of doctors, in consultation, but no one of them was able to give the slightest approximation to a correct diagnosis. On postmortem the liver, lungs and pia mater were found to be involved by secondary growths. Dr. Philip King Brown reported an autopsy that he had just made in a case of hemorrhagic disease of the new-born. The autopsy revealed one new fact, viz.: that the blood would actually clot, for the stomach and intestines were found filled with clotted blood. Several cases of scurvy in infants were reported by Dr. Levison. In one of the cases the true condition was very obscure and the diagnosis of infantile paralysis

had been made by several specialists. The true condition was subsequently made out, and upon the administration of orange juice a cure resulted in about thirty-six hours.

Recent Movements of the Army Medical Staff.—Captain John S. Kulp, U. S. Army, has been ordered in from the Department of the Columbia to report to the Surgeon-General for assignment, and Captain W. D. Crosby's orders carry him to the Philippine Islands. Assignments to the 5th Corps, General W. R. Shafter at Tampa, Fla., have been made as follows: Captains Charles F. Kieffer and H. R. Stiles and Lieutenants P. C. Fauntleroy and Carl Darnall, U. S. Army, with Acting Assistant Surgeons Edward C. Poey, J. R. Shannon, R. P. Strong and Henry E. Wetherill. To General Wheeler's Cavalry Division, also at Tampa, Fla.: Captains Fred P. Reynolds and George J. Newgarden, U. S. Army, and Acting Assistant Surgeon S. M. Gonzalez, while Acting Assistant Surgeon T. S. Dabney has left Tampa for assignment at Jackson Barracks, New Orleans, La. To General Fitzhugh Lee, 7th Army Corps at Jacksonville, Fla.: Acting Assistant Surgeon Geo. B. Lee. To General J. R. Brooke at Chickamauga, Ga.: Captains James D. Glennan, W. P. Kendall, W. Stephenson and Edgar A. Mearns, U. S. Army. To General William M. Graham, 2d Army Corps at Camp Alger, Falls Church, Va.: Captain A. E. Bradley, U. S. Army. To Major B. D. Taylor at the General Hospital at Fort McPherson, Ga.: Acting Assistant Surgeons Rupert Norton and Ed. Schreiner. To Major George H. Torney on the hospital ship *Relief*, at New York City: Acting Assistant Surgeon Frederick McG. Hartsock. To Major W. R. Hall at the General Hospital at Key West, Fla.: Captain Ogden Rafferty, U. S. Army. Travel performed by the following Acting Assistant Surgeons under the orders of the Surgeon-General has been approved: Samuel T. Armstrong from Washington, D. C., to Key West, Fla.; A. A. Bailey from Richmond, Tex., to Fort Sam Houston, Tex.; Barnard E. Baker from Charleston, S. C., to Key West, Fla.; Frank Roberts from Marshall, N. C., to Fort Caswell, N. C.; J. W. Donnelly from Washington, D. C., to Fort Mott, N. J.; J. E. Miller from Des Moines, Iowa, to Omaha, Neb.; W. E. Parker from New Orleans, La., to Tampa, Fla.; Edward R. Bragg from Ocean Springs, Miss., to Mobile, Ala.; Hamilton P. Jones from New Orleans, La., to Mobile, Ala.; R. N. Pitts from Montgomery, Ala., to Tampa, Fla.; Roger P. Ames from New Orleans, La., to Mobile, Ala.; A. R. Booth from Shreveport, La., to New Orleans, La.; Joseph A. Tabor from Bay St. Louis, Miss., to New Orleans, La.; Thomas Y. Aby from New Orleans, La., to Mobile, Ala.; Irwin E. Bennett from West Philadelphia, Pa., to Fort Delaware, Del.; E. D. Ferguson from Macon, Ga., to Key West, Fla.; and W. B. Winn from Kansas City, Mo., to Mobile, Ala.

Regimental Hospitals in the Second Army Corps.—Chief Surgeon Girard of the Second Army Corps has found opposition on the part of some of his regimental surgeons to the breaking up of their regimental hospitals for the formation of a field division hospital for war service. As it is not to be supposed that the opposition comes from any of the surgeons who have been deemed worthy of a place on the staff of the division hospital, we must suppose that personal feeling enters somewhat into the contention. Colonel Girard's latest circular to his subordinate (?) officers is as follows:

"To the chief surgeons of divisions:

"You will inform the regimental surgeons that the War Department is fully determined on abolishing the regimental hospital system, which has proved a failure, and caused much unnecessary suffering during the civil war, and has been abandoned by all nations which keep their armies prepared for war.

"An evasion or non-compliance with orders on this subject is, therefore, not only prejudicial to good order and military discipline, but unwise and unpatriotic, in pretending to assume a superior knowledge to that of the established authorities, and setting personal views and interests above the common cause.

"You will inform the regimental surgeons, through their brigade surgeons, that the first and second division hospitals are ready for the reception of patients. They are in charge of about one-fourth of the force of volunteer surgeons, and if the patients do not receive skilful care and treatment no one but the surgeons of the volunteer army will be to blame. To guard against neglect or inexperience, you are directed to send to me a list of names of surgeons, prominent in their profession, in your respective divisions, from whom a consulting board for each division hospital will be chosen. They will be called in consultation in every case of severity, and their decision will be final, subject to my approval.

"You will report to me a list of equipments turned into the division hospitals by the regiments, with a list of regiments contributing.

"You will also report in writing the names of regiments and regimental surgeons having failed to comply with General Graham's orders, in order to enable me to report them to the commanding General."

A New Point of Election for Revaccination.—Dr. Hoggan Ewart writes to the *Lancet* regarding a recent experience in revaccination. He says: "During the epidemic of smallpox at Gloucester, being called upon to revaccinate sixty young women, the inmates of an Anglican Home at Malvern, I revaccinated thirty on the scars left by previous vaccination, and the remainder on the normal skin, and found that the cases revaccinated on the old scars took more perfectly than those done on the normal skin. I also observed that in some of the latter cases, in addition to the reaction arising at the seat of the new abrasions, there was in several cases a sympathetic inflammatory action in one or more of the old scars. Calf lymph was used and there was not a failure in the sixty cases." These remarks run directly counter to the advice of Seaton, who, if we read him correctly where he says of this operation that "it should be done as far as possible from the arm," meaning, no doubt, as far as possible from the site of the primary (or former) vaccination. His instructions in this matter have not their customary clearness and explicitness.

The Reflex of Mr. Gladstone's Career Helpful to Medicine.—It has been frequently observed by writers that Mr. Gladstone had a very limited welcome for medico-sanitary legislation, a view with which the *Philadelpia Medical Journal* does not fully coincide. The editor of that paper, in his issue for June 4, remarks that while the American Press has given some admirable and accurate accounts of that great statesman's career, almost nothing has been brought out to show that the cause of medicine has lost in him a true friend. Mr. Gladstone's remarkable administration of English affairs between the years 1880 and 1885 gave an immense impulse to general education and enlightenment, to liberalism of thought, and to charity of judgment. The profession of medicine shared, to a marked extent, in the rise of the scientific knowledge of the people and in the broadening of their views of life, for Mr. Gladstone's humanitarianism provided in England a political environment, within which sanitary legislation and the practice of preventive therapeutics could best thrive. He was a true friend to man, and used his splendid gifts, always, as he believed, under the direction of his and their Maker, for the advancement of man. Such lives must always help forward the cause of medicine, for those who live them must always be in direct sympathy with everything that is best and noblest in our art.

Cincinnati.

Dr. O. P. Holt—At a recent meeting of the faculty of the Miami Medical College, Dr. O. P. Holt was elected to the faculty, vice Dr. Joseph Eichberg resigned.

The Faculty of the Ohio Medical College has undergone some change. Prof. Samuel Nickles resigned his position of the chair of materia medica and was succeeded by Dr. B. K. Rachford; the latter's place, the chair of physiology, was taken by Dr. Poole; Dr. W. H. Crane was elected to Dr. Poole's place, the chair of chemistry. Dr. C. L. Bonifield became professor of clinical gynecology, and Dr. S. C. Ayres professor of ophthalmology and otology.

Original Research Society.—The members were compli-

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UNIVERSITY OF ILLINOIS

mented in the person of Dr. D. I. Wolfstein of this city, whose paper on "The Neuron Theory as Related to Brain and Nervous Diseases in the Light of the most Recent Investigations" was awarded the Fisk Fund Prize of $350, given by the Rhode Island Medical Society for the best original essay. His article will be published in monograph form at the expense of the Fisk Fund.

CINCINNATI HOSPITAL.—The annual war between the daily press and the Cincinnati Hospital is now on and the former are entertaining their readers with sensational stories of mismanagement on the part of the trustees. The latter have retaliated in their usual manner by excluding reporters from the sacred precincts of the building as though that would accomplish any good result. The Board, in a praiseworthy attempt to cut down expenses, adopted the rule that all medicines should be ordered directly from the drug store and that the ward medicine chests be abolished. The rule became a dead letter as soon as issued, luckily for the Board, or their ears would soon have been assailed with the news of the death of some patient who had died waiting for the medicine that never came, a story the concoction of some enterprising newspaper man. The establishment of war prices in all kinds of hospital materials make it necessary for decided cuts in expenses to be be made somewhere, as the hospital appropriation is made on a peace basis.

PUBLIC OFFICES.—When the city started to reform its public offices last year, there was no idea that the powers that be would appoint a health officer other than one satisfactory to the medical profession. But while the latter were sitting supinely around waiting for enthusiatic delegations of politicians to beg them to accept of the position, "Dr." ———, a well known advertising medium, did a little solid hustling, and the position was his practically without opposition. Then and then only, when it was too late, did the profession rise in its wrath and declare this thing was not to be, and at the Academy of Medicine a resolution by the city bacteriologist was presented, and after being held over for one week was lost, after considerable heated debate. The resolution was as follows:

Resolved, That it is incompatible with the honor and dignity which such membership carries with it for any member of this society to accept employment under the recently appointed health officer.

As said before, the motion was lost and the following was substituted:

Resolved, That it is the sentiment of this Academy of Medicine that we protest against the appointment of the present health officer as an insult to the medical profession and a danger to the city.

This was carried amid great applause and the measure was of course slurred by the daily press as a dastardly persecution by the doctors, of an "honorable" gentleman and a good citizen. How much better if all this oratory and vituperation had been exercised to prevent Mr. Tenney from ever getting the office.

HEALTH DEPARTMENT.—Total number of deaths during the month of May, 482: Phthisis pulmonalis, 48; cancer, 23; entero-colitis, 10; gastro enteritis, 11; gastritis, 4; enteritis, 8; convulsions, 11; apoplexy, 16; bronchitis, 33; heart disease, 27; pneumonia, 44; accidental, 17; measles, 89 cases reported, 3 deaths; diphtheria, 21 cases, 2 deaths; scarlet fever, 13 cases, no death; typhoid fever, 16 cases, 8 deaths; phthisis pulmonalis, 50 cases, 48 deaths; membranous croup, 3 cases, 1 death; pertussis, 35 cases, 7 deaths; varicella, 6 cases, no deaths. Of the 89 cases of measles, 25 cases were from one ward and 10 from another; 5 of the 13 cases of scarlet fever were reported from a single ward; 4 of the 6 cases of chicken-pox were from one ward.

THE ACADEMY OF MEDECINE closed for the year June 13, with a paper by Dr. E. P. Adams, entitled "Symphyseotomy, with Report of a Case Terminating in Perfect Immobility."

CHANGE OF ADDRESS.

Brown, S., from Venetian to Reliance Bldg., Chicago, Ill.
Bartholomew, J. N., from 133 to 51 Lincoln Ave., Chicago, Ill.
Becker, B. A., from Elgin, Ill. to New Vienna, Ia.
Cox, J. E., from Big Pine to Bridgeport, Cal.
Cole, F. M., from Chicago, Ill. to Ida Grove, Ia.
Culbertsen, C., from 2404 Prairie Ave., Chicago, to Piper City, Ill.
Church, W. F., from Gibsonburg, O. to 1942 W. Polk St., Chicago, Ill.
Dickerson, J. H., from Columbus, O. to 1629 W. Lexington Av., Baltimore, Md.
Donohue, N. J., from 2319 Dearborn St. to 2441 Wabash Ave., Chicago.
Davis, E., from 399 to 1541 College Ave., Indianapolis, Ind.
Eaton, H. B., from San Juan to 704 Sutter St., San Francisco, Cal.
Evans, E. E., from Columbia to Sumner, Mo.
Gibbs, M. D., from Mendota, Mo. to Greenwood, Colo.
Gale, M. J., from Denver to Rowena, Colo.
Hall, W. A., from 1623 Hawthorn St. to 1777 S. Collax St., Minneapolis, Minn.
Hoffman, F. N. A., from Stewardson to Tentopolis, Ill.
Harrison, R. H., from Galveston to Honston, Tex.
Holland, J. W., from Philadelphia, Pa. to Holderness, N. H.
Jones, R. F., from Homma, La. to El Paso, Tex.
Klein, M. J., from 806 E. North Ave. to 1128 Washington Boul., Chicago, Ill.
Kirkpatrick, W. L., from Jameson to Crab Tree, Tex.
Lind, E. T., from 132 to 128 Oak St., Chicago, Ill.
Mereness, H. D., from Sac City to Carnavon, Ia.
McGinnis, R. H., from Charlotte, N. C. to Jacksonville, Fla.
Mosher, F. D., from 272 Lisbon Ave. to 1280 12th St., Milwaukee, Wis.
McManes, M. E., from Chicago, Ill. to Piqua, O.
Norris, M. D., from Sykesville to 602 Windermere Ave., Baltimore, Md.
Oneil, M. E., from Kensett to 831 Howard St., San Francisco, Cal.
Palmer, T. P., from Chicago to Baker Bldg., Alton, Ill.
Parkhill, C., from McPhee Bldg. to 1131 17th Ave., Denver, Colo.
Rose, F. L., from Chicago to 237 E. 18th St., New York, N.Y.
Roan, C. F., from 691 to 740 W. North Ave., Chicago, Ill.
Ryan, C. S., from Milwaukee to Greenleaf, Wis.
Rietz, P. C., from Manitowoc, Wis. to Chicago Policlinic Hospital, Chicago.
Sterne, A. E., from 75 E. Michigan to 1820 E. 10th St., Indianapolis, Ind.
Sullivan, M. K., from Williamstown, N. J. to Sharon Hill, Pa.
Schreuder, L. S., from Chicago, Ill. to Shelly, Minn.
Slagle, C. D., from Pomona, Cal. to Centerville, O.
Tittertington, M. B., from Hardin, Ill. to Norwalk, O.
Van Deman, from Chattanooga to Albionville, Ia.
Walch, J. H., from 528 to 480 Grand Ave., Chicago, Ill.

LETTERS RECEIVED.

Armstrong, S. S., Berrien Springs, Mich.
Brown, M. A., Cincinnati, O.; Bischoff & Co., C., New York, N. Y.; Bailey, M., Sheldon, Ia.; Barryte, E. L., Colorado Springs, Colo.; Bogie, M. A., Kansas City, Mo.; Blakiston, Son & Co., P., Philadelphia, Pa.
Cinne, M. M., Refugio, Tex.; Clark, E. E., Danville, Ill.; Collins, E. F., Mt. Sterling, O.
Durkee, Jno. W., New York, N. Y.
Eugert, Rosa H., (2) Muenchen, Bavaria.
Freudenthal, New York, N. Y.; Fuqua, J. W., Urbana, Ill.
Hyndman, J. G., Cincinnati, O.; Harris, Geo. T., Louisvillie, Ky.; Hoffman, F. N. A., Tentopolis, Ill.; Hull, H. D., Nunda, Ill.; Haulenbeck, G. H. Adv. Agency, New York, N. Y.; Hatch, W. G., Prairie City, Ill.; Hummel, A. L. Adv. Agency, New York, N. Y.
Jones, Philip Mills, San Francisco, Cal.; Just's Food Co., Syracuse, N. Y.
Kempson & Co., J. F., New York, N. Y.
Little, R. M., St. Louis, Mo.; Lee, B. R., Philadelphia, Pa.; Loving, S., Columbus, O.; Loope, T. E., Manawa, Wis.; Lea Bros & Co., Philadelphia, Pa.
Myers, F. C., Kalamazoo, Mich.; McDaniel, J. W., Milwaukee, Wis.; McNary, Mrs. W. H., Martinsville, Ill.; Murray, N., Baltimore, Md.; Melesio de Anda, Cocula, Jalisco, Mex.; Mariani & Co., New York, N. Y.; McVea, Chas., Baton Rouge, La.; Meany, W. B., Louisville, Ky.; Mulford, H. K. Company, Philadelphia, Pa.; Mellier Drug Company, St. Louis, Mo.
Opie, Thomas, Baltimore, Md.
Prince, David, New York, N. Y.; Phenique Chemical Company, St. Louis, Mo.
Quillian, D. D., Athens, Ga.
Randall, B. A., Philadelphia, Pa.; Redwine, B. B., Wise, Va.; Rumph, Wm., Mansfield, Tex.
Subscription News Co., Chicago, Ill.; Strader, G. L., Omaha, Neb.; Sapper, G. H., Washington, Mo.; Smart, Col. Chas., Washington, D. C.; Smith, Kline & French Co., Philadelphia, Pa.; Searle & Hereth Co. The, Chicago, Ill.; Scheppegrell, W., New Orleans, La.; Spencer Lens Co., Buffalo, N. Y.
Tudor, Mary S., S. Windsor, Conn.; Thomas, F. W., Marion, O.; Trnax Greene & Co., Chicago, Ill.; Trommer Extract of Malt Co., The, Fremont, O.
Wilbanks, M. L., Bell, Tex.; Woman's Medical College, Baltimore, Md.; Wing, Elbert, Chicago, Ill.; Wallace, W. B., Lima, Ind.; Wyeth, Chas., Terre Haute, Ind.; West, M., Camden, N. J.; Wilmot, Castle & Co., Rochester, N. Y.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from June 11 to 17, 1898.

Acting Asst. Surgeon George B. Lee, U. S. A., will proceed to Jacksonville, Fla., and report to Major General Fitzhugh Lee, U. S. Vols., commanding Seventh Army Corps, for duty.

Acting Asst. Surgeon Medwin Leale, U. S. A., is assigned to duty with squadron of New York Cavalry Vols. at Camp Alger, Va.

Capt. John L. Phillips, Asst. Surgeon, having reported to the Surgeon-General of the Army, is ordered to Camp Alger, Falls Church, Va., for duty with Second Army Corps.

Capt. Henry T. T. Harris, Asst. Surgeon, now on duty with cavalry division, Tampa, Fla., will report for duty to Major General Fitzhugh Lee, U. S. Vols., commanding Seventh Army Corps, Jacksonville, Fla.

Capt. Henry B. Shaw, Asst. Surgeon, now on duty at the general hospital, Key West, Fla., is ordered to duty at Key West Bks., Fla.

Capt. Paul Clendenin, Asst. Surgeon, now at Key West Bks., ordered to Jacksonville, Fla., for duty with Seventh Army Corps.

Capt. Adrian S. Polhemus, Asst. Surgeon, will proceed from Ft. Wingate, N. M. to Chickamauga National Park, Ga. and report for duty with Third Army Corps.

Capt. Charles B. Ewing, Asst. Surgeon, now on duty with cavalry division, Tampa, Fla., will report to Major General James F. Wade, U. S. Vols., commanding Third Army Corps, Chickamauga National Park, for duty at Camp George H. Thomas, Ga.

Capt. Ogden Rafferty, Asst. Surgeon, order assigning him to duty in general hospital, Key West, Fla., is revoked, and he will proceed to Falls Church, Va., and report to Major General William M. Graham, U. S. Vols., for duty.

First Lieut. Carl R. Darnall, Asst. Surgeon, will proceed to Tampa, Fla., and report to Major General William R. Shafter, U. S. Vols., commanding Fifth Army Corps, for duty.

Acting Asst. Surgeon S. M. Gonzalez, U. S. A., will proceed to Tampa, Fla., and report for duty with cavalry division.

Exhibitors at the Denver Meeting of the American Medical Association.

One of the chief attractions of the annual gathering of the ASSOCIATION at its various meeting places, has been the Exhibition Hall, where the principal drug products of the world, the results of years of experimental research and labor, have been placed on view. Here the physician may become acquainted with the manufacturers, with their products and methods of preparation not otherwise to be acquired except through a visit to their respective establishments.

The Gettysburg Building was admirably arranged for exhibition purposes, being a circular building, well lighted and with abundance of space.

We take pleasure in briefly sketching .the chief features of the exhibits for the benefit of those who were unable to attend the meeting.

ARMOUR & COMPANY.

This exhibit attracted marked attention. They displayed a full line of their well known digestive ferments, also glycerin extract of red bone marrow, nutrient wine of beef peptone and a number of glandular extracts. The recent researches in organo-therapy have stimulated interest in these preparations, and Drs. Roberts and Wimmer, who had this exhibit in charge, demonstrated the manner of manufacture, etc., of the different products.

D. APPLETON & CO.

of New York, displayed their line of medical publications. Among the works noted were Kelly's Operative Gynecology; Foster's Practical Therapeutics; Foster's Encyclopedic Dictionary; Wyeth's Surgery; Morrow's System of Genito-Urinary Diseases; Quain's Dictionary of Medicine, and other popular works The New York Medical Journal; the Journal of Experimental Medicine, and the Popular Science Monthly were also represented in the Appleton exhibit.

W. D. ALLISON & CO.

Indianapolis, Ind., were represented by Messrs. J. A. Dugan and W. T. Berry. The Allison physician's table, so well known to the profession, is perfect in mechanical construction, so simplified as to enable the operator to obtain any desired position without waste of time in its adjustments. This table is adapted for all operations and combines the features of a chair, table and instrument cabinet.

BERNSTEIN MANUFACTURING CO.

Philadelphia, Pa. This exhibit of aseptic hospital furniture, sterilizing apparatus and metallic bedsteads was acknowledged to be the finest ever seen in the West. Their product is constructed on modern and thoroughly aseptic lines. Quality and finish constitute the two main factors which have gained for this well known firm their present reputation among the modern institutions of today.

KRYOFINE.

One of the most popular displays was that of C. Bischoff & Co. of New York. While introducing but one product, kryofine is a host in itself and found friends in all members of the ASSOCIATION.

Kryofine is the newest of the synthetic coal tar derivatives and appeals to the physician because it is said to lack those depressing cardiac effects which characterize others. It is also an analgesic and anodyne, which is surpassed in efficacy only by morphin, while it is unattended by the unpleasant sequelæ which follow the use of that drug.

BETHESDA.

The exhibit of Bethesda Mineral Spring Co., Waukesha, Wis., represented by A. A. Hedstrom, was a pleasant greeting to the majority of older physicians, who recognize Bethesda as an old friend, and fully attest to its therapeutic powers and health-giving properties, many of them having used it successfully for more than thirty years. Bethesda's list of physicians, who recognize its value for kidney and bladder troubles, was materially augmented at this meeting.

P. BLAKISTON, SON & CO.

medical publishers of Philadelphia, Pa., were represented by Mr. Allan Wheeler. Of especial interest were the new works of Hemmeter on the Stomach, Gould's Medical Dictionary, and the new edition of Greig Smith's "Abdominal Surgery."

THE COLORADO MEDICAL JOURNAL,

which styles itself the local medical publication of the Rocky Mountain region, had an exhibition booth, where they had 2000 copies of their journal for free distribution. The edition distributed was the May number, and was a souvenir number to the AMERICAN MEDICAL ASSOCIATION and contained many half-tones

of points of local interest in Denver and Colorado, as well as photographs of many of the local medical men.

The booth was presided over by Mrs. F. F. Taylor, who has represented that journal for the past four years at all of the Western medical meetings.

CLARK & ROBERTS, Indianapolis, Ind.

represented by J. D. Roberts, showed one of the handsomest, least complicated and easiest manipulated chairs made. The wood work is hand carved and handsomely finished. The prominent iron parts are all nickel-plated. It is upholstered in genuine leather. The chair is made of quartered oak, walnut or cherry. There is nothing about it to get out of order and every chair is guaranteed.

THE DENVER TIMES.

If any one doubts the popularity of the "Denver Medical Times" he should have noticed the constant calls for sample copies of their souvenir edition at their exhibition table, which was very handsomely arranged. It contained a frontispiece of Surgeon-General Sternberg, a number of half-tone cuts of several local M.D.'s, and a strong line of articles of special interest to Eastern readers. "The Times" is edited by Dr. Hawkins, president-elect of the American Editorial Association.

DIOS CHEMICAL CO.

This progressive pharmaceutic house had one of the most attractive exhibits.

Dioviburnia, which has been known to the medical profession for over twenty years as the most reliable uterine tonic, was lauded very highly by many of the leading gentlemen in attendance.

Neurosine is the only combination of bromids which will not irritate the stomach and is the strongest nerve sedative attainable.

Sennine is the first satisfactory substitute for iodoform.

THE DENVER CHEMICAL M'F'G CO.

was represented at the exhibit by W. A. P. Andrews of New York. This exhibit was original, attractive and unique, consisting of packages arranged in forty columns, each column standing about six feet high in framework shaped like a pipe organ. Upon each end of this framework at the top stood beautiful palms, and at the bottom were large vases filled with handsome peonies. About this exhibit was a constantly increasing and decreasing crowd of physicians, some favorably commenting, others making inquiries into the merits of the product exhibited.

THE FESSENDEN M'F'G. CO.

of Pittsburg, Penna., were one of the greatest attractions among the exhibits at the A. M. A. Convention. Their representatives had with them their office, or $75.00 X-ray outfit, and a ten-inch Fessenden X-ray outfit that gave the acknowledged perfection of good results. This was fully demonstrated by the constant crowd around their booth, and more substantially convincing by the bunch of twenty-eight signed contracts for the sale and future delivery of as many Fessenden X-ray outfits.

E. FOUGERA & CO.

were well represented by H. G. Davis, with the following French specialties: Colchi-sal and betul-ol, for rheumatism and gout; wine and capsule of phosphoglycerate lime for neurasthenia; morrhuol with creosote, capsules, and Nourry's wine of iodine.

FAIRCHILD BROS. & FOSTER

of Ess. Pepsin fame were well represented by E. F. Perry. Their display was up to standard—was of unusual interest to the medical fraternity throughout the country. Samples of panopeptine were much in demand and is giving the best of satisfaction.

Their display was further enhanced by the prominence of our glorious flag, a large palm forming the center piece.

FASSETT'S BUREAU OF THE MEDICAL PRESS.

An interesting feature of the exhibit hall was the Medical Press Bureau, conducted by Chas. Wood Fassett and composed of the leading periodicals of the country. The following is a list of the journals represented: Journal of the American Medical Association, Alienist and Neurologist, Philadelphia Medical Journal, Chicago Clinic, The Laryngoscope, Medical Herald, Medical Sentinel, Medical Summary, Medical Index, Milwaukee Medical Journal, Medical Fortnightly, Philadelphia Polyclinic, New York Medical Journal, Virginia Medical Semi-Monthly, Western Medical Review, Alkaloidal Clinic, American Medico-Surgical Bulletin, American Medical Journalist.

FABER CHEMICAL CO.

New York, showed samples of Ferrammon (Faber).

FORMULA.—$8Fe(OH)_3+8NH_4OH+16H_2SO_4+SO_3+H_2O=4Fe_2(SO_4)_3(NH_4)_2SO_4+[H_2SO_3]+32H_2O$ as result. Indicated in Eczema.

Ferrammon will be found to be invaluable for herpes, erythema, erysipelas, seborrhea, psoriasis acne, irritative dermatitis, from poison oak, and specific sores and lesions.

GLOBE MFG. CO.

The largest, most complete and practical exhibit of atomizing apparatus was shown by the Globe Mfg. Co. of Battle Creek, Mich., consisting of the latest improved hydraulic air compressors, single and double acting hand air pumps. The Globe nebulizers, which are acknowledged by recognized authorities as being most reliable and efficient goods of the kind, were successfully demonstrated as having the widest range of usefulness, and their office instrument having the best adjusting valve for middle ear and pulmonary inflation.

R. W. GARDNER

New York. This exhibit consisted of Gardner's Syrup of Hydriodic Acid (iodid of hydrogen), Syrup Hypophosphite of Ammonium, Syrup Hypophosphite of Lime, Soda, (single salts), chemically pure, made in accord with conditions laid down by Dr. Churchill. These preparations are now so well known, being used by all the most critical and advanced members of the profession, that comment is unnecessary. The Syr. Hypophosphite Ammonium is new, remarkably effective in laryngitis, pharyngitis, etc., relieving paroxysmal cough in ten minutes.

THE HOT APPLIANCES CO.

The Geyser Hot Appliance Co. was represented by Drs. J. C. Woodward and G. F. Corrigan. It consists of two metal cylinders containing water and heated by an automatically regulated alcohol lamp carrying an asbestos wick. Connected with the lamp is rubber tubing so arranged as to facilitate a continuous circulation of hot water in coils of tubing laid upon a sheet of rubber, or in metal attachments provided for the purpose of supplying moist heat.

HORLICK'S FOOD CO.

Racine, Wis., represented by Dr. Clark of San Francisco, Cal., and Dr. Denkinger of Boston, Mass., had a most attractive exhibit in the center of the hall of their well and favorably known food products including Horlick's Malted Milk, Horlick's Malted Milk Tablets, Horlick's Food, and Horlick's Diastoid, their new highly diastatic dry extract of malt. In addition to distributing sample bottles of their preparations with a most liberal hand their representatives dispensed daily many gallons of hot and cold malted milk, as well as their celebrated and much appreciated malted milk ice cream.

IMPERIAL GRANUM,

recognized by many leading physicians as the standard among prepared foods, occupied a prominent space and the representative in charge was kept busy explaining to the visiting physicians the superiority of this preparation, also describing their compact and complete Clinical Record. Handsome sample boxes of the food were presented to each physician in attendance, as were also copies of the Record. Few were seen leaving the handsome exhibit hall without taking with them reminders of the ever popular Imperial Granum.

KEASBY & MATTISON CO.

had one of the handsomest and most patriotic exhibits. Granular effervescent salts were extolled by Dr. J. W. Hunter of Waco, Texas, who is also a member of the Association, and a delegate from the State Medical Association of Texas. The Doctor had his tables decorated with bunting of the National colors. with Old Glory and the Cuban flags waving over all.

LEA BROTHERS & CO., Philadelphia.

A selected list from the medical aud surgical publications of the firm, was shown to good advantage by Mr. Mac Laurie, manager, who was ably assisted by Mr. D. E. Hamilton of Denver. Upon the shelves were seen Abbott's Bacteriology, Fourth and Revised Edition; The American System of Practical Medicine; Ashhurt's Surgery, Sixth Edition; Attfield's Chemistry, Fourteenth Edition; Berry on the Eye. Second Edition; Bruce's Materia Medica and Therapeutics, Fifth Edition; Caspari's Pharmacy, etc.

LEAVITT'S INVALID LIFTER,

devised by Dr. B. C. Leavitt of Denver, attracted much attention. It consists of two upright posts which fit tightly against the ceiling and the floor and are adjustable to a ceiling of any height. These are placed the desired distance apart and are connected by two bars running about a foot from the ceiling and acting as a track for a trolly to which the block and tackle for suspending the stretcher, are attached.

THE J. ELLWOOD LEE CO.

manufacturing chemists of Conshohocken, Pa., manufacturers of druggists sundries and hospital supplies, exhibited their varied line of products. The arrangement was unique to say the least. Their blue and gold banner with its ever present trade mark could be seen from all parts of the building. From the constant throng surrounding their representative, Mr. Brigham, one would judge their display had proved a profitable advertisement for them.

LONDONDERRY LITHIA WATER.

No better evidence of the popularity of this water could be desired by those interested in its sale than the sight of throngs of physicians visiting the exhibit of Londonderry at this meeting in Denver.

Mr. Charles J. Branch, for many years general traveling representative of the company, states that the doctors, at their several banquets, on special trains and at exhibits, consumed over six thousand bottles of Londonderry, which fact speaks volumes for the water.

J. B. LIPPINCOTT & CO., Philadelphia,

medical publishers, were represented by Mr. Allan Wheeler, who had charge of their exhibit. Wharton & Curtis' Surgery and Mills' new work on Nervous Diseases, were two of the most popular works exhibited by them.

THE McINTOSH BATTERY AND OPTICAL CO.,

Chicago, at the Denver meeting deserves especial mention and showed their enterprise in coming more than a thousand miles to show the representative physicians of this country the very best electro-therapeutic apparatus. The very large Töpler-Holtz static machine, giving a 15-inch spark and capable of producing the most perfect X-ray effects, was a constant source of

wonderment to the large crowd of visitors. A complete line of electrodes and cabinet batteries was also displayed by this firm.

McKESSON & ROBBINS

exhibited a series of water-color drawings illustrating the life history of the organisms which cause malarial fevers. They have devoted an immense amount of time and money to the study of these parasites in connection with a new remedy which they are introducing for the cure of malarial fevers.

MELLIN'S FOOD EXHIBIT

was in charge of Dr. Wm. S. Wallace, who demonstrated the superiority of the modification of fresh cow's milk by Mellin's Food. Mr. Delano of the Mellin's Food Co., was also in attendance.

THEODORE METCALF CO., Boston.

"Do well thy work, it shall succeed, in thine or in another's day,
And if denied the victor's meed, thou shalt not lack the toiler's pay."

Thus read a motto associated with the sign of the Theo. Metcalf Co., and judging from the big crowd drinking of their Coca Wine Metcalf, we should say the pay is coming in their day.

THE MALTINE COMPANY

made a very effective and attractive exhibit of the cereals from which Maltine is manufactured, and of the various crude drugs which enter into the composition of the maltine compounds. The exhibit was surmounted by an enormous sign bearing the word "Maltine," and framed with electric lights. Charles C. Heuman, the Secretary of the Maltine Company, was in charge, and was assisted by George A. Shepard, Dr. Irwin L. Harlow and H. Settle.

MELLIER DRUG CO.,

proprietors of Tongaline and Ponca Compound, were prominent among the exhibitors at the AMERICAN MEDICAL ASSOCIATION meeting, and represented Mr. Albin Mellier, president, and Mr. Walter C. Taylor, vice-president.

The exhibit was handsome and unique; the most attractive feature, however, was a photo-engraving, 24 x 36, of the first meeting of the Medical Society of London, 1773; 500 copies of which they gave away to the doctors in attendance. Those who were not fortunate enough to secure one of these beautiful and artistic pictures can obtain same by sending their address to the above firm.

THE MACMILLAN COMPANY

of New York and London, represented by A. T. Reid, 1546 Curtis Street, Denver, Colo., are publishing medical books of a high order by American, English and German writers, making a specialty of the best of English works and of translations from the leading German authorities.

They are agents for all the publications of Columbia College, New York, and of Cambridge in England, and are also agents for A. & C. Black, Edinburgh; Young J. Pentland, London; Bohn's Libraries; George Bell & Sons; Whittaker & Co., London.

THE NEW YORK PHARMACAL CO.

One of the busiest booths during the meeting was the triple combination of the New York Pharmacal Association, The Arlington Chemical Co. and the Palisade Manufacturing Co. of Yonkers, N. Y.

This exhibit was in charge of Mr. Stephen Hexter, assisted by Mr. C. C. Daily and was headquarters for the Chicago physicians. The leading products of these firms were sampled to the physicians, namely, Lactopeptine, Liquid Peptonoids, Borolyptol and Hemaboloids.

DAVID NICHOLSON & CO., St. Louis.

It would be strange indeed if the "Liquid Bread" was not popular with the doctors of America, it being one of the most efficient of *nutritives* and *tonics* of which the medical profession has any knowledge. There was probably no display at the Denver meeting of the AMERICAN MEDICAL ASSOCIATION more popular and so attractive as that of Liquid Bread, presided over by that queen of pharmaceutical representatives, Miss Dixie Lee Sterne.

THE OAKLAND CHEMICAL CO. EXHIBIT

was one of the features of the meeting. Their simple apparatus for generating nascent oxygen gas from their Hydrogen Dioxide attracted considerable attention. The local physicians were particularly interested as the treatment of lung trouble by nascent oxygen is rapidly coming to the front in Denver, that great sanatorium for tuberculosis. Their samples as usual were in demand, as the visiting physician always finds a place for OC H_2O_2 "The kind that keeps."

THE PNEUMACHEMIC CO., Cincinnati,

was represented by Dr. Robertson, the inventor of the Multiple Vaporizing apparatus. The exhibit was one of the most interesting in the building and attracted the visitors. The multiple and single comminuters shown in this exhibit represented the highest art and embodied valuable improvements perfected within the past few weeks. The degree of perfection attained in these instruments is such as to practically revolutionize the treatment of many diseases of the respiratory tract.

PARKE, DAVIS & COMPANY, Detroit, Mich.,

presented an interesting and scientific display of biologic products. It included all the pathogenic and chromogenic bacteria, of which many were exceedingly rare. In addition to these the various serums manufactured by them were shown. These included antidiphtheritic serum of unusual concentration, also

antistreptococcic, antitetanic and antitubercle serums in aseptic containers, microscopic slides of various common pathogenic bacteria and samples of their different culture media.

Dr. Takamine demonstrated the action of diastase upon starch, the whole making an interesting and instructive display.

SCHIEFFELIN & CO.'S

exhibit occupied a very prominent place and was one of the neatest in the hall, consisting of their medicated soaps, bensolyptus, cocain discoids, cocain, of which they are very large manufacturers; soluble pills, and the well-known Bayer products, including Somatose, Triolal, Sulfonal, Aristol, Europhen, Phenacetin and Protargol, the latter being the new silver salt which is so highly recommended by Dr. Neisser of Berlin in the treatment of acute gonorrhea.

SEABURY & JOHNSON, New York,

had a splendid exhibit just facing the postoffice. It was presided over by an efficient gentleman. Among their display the following items were prominent: Adhesive plasters, bandages, cotton absorbent, sanitary cuspidors, borated gauze, Mead's moist gauze, catgut ligatures, surgical lint, vaccination shields, King's thermometer syringe, elastic bandages and a host of other valuable medical, surgical and antiseptic specialties.

SEARLE & HERETH CO.

Mr. Eastman, secretary and treasurer of this company was in charge of their exhibit, which presented a very handsome appearance and showed up in a neat and tasty style the goods manufactured by this firm. While they are showing samples of all their products, from the fluid extracts to the sugar-coated goods, they are calling special attention to several preparations which are already widely known through the country. They keep on tap a number of the useful medicines which doctors give to other people, but which they are obliged to take themselves when on trips away from home.

W. B. SAUNDERS

of Philadelphia, represented by W. D. Watson, showed a most attractive line of medical books. Possessing, as they did, a most desirable space in the hall, and being very liberal with their fixtures and decorations, the exhibit as shown by them was second to none in their line.

THE CHRISTY ANATOMICAL SADDLE.

This well and favorably known saddle which is marketed by A. G. Spalding & Bros. of Chicago, Washington, New York, Philadelphia, London, Paris, Hamburg, and Florence, was exhibited by one of their popular representatives. It is interesting in this connection to note how carefully the directions of many medical celebrities have been carried out in the mechanism of this saddle, and it is now marketed in some nine or ten different styles, thus fitting all ages, weights and sizes. The manager in charge of this exhibit informs us that Spalding & Bros. have a list of 42,000 doctors in the United States that are using this saddle. We are also informed by the same source that at Moscow, Russia, during the meeting of the medical congress in 1897, this firm succeeded in selling at that convention over 600 saddles to medical men.

THE STANDARD COLD ELECTRIC LAMP

was a very attractive exhibit. The lamp is an incandescent electric lamp of from four to eight candle-power, attached to the end of a stomach tube. The lamp is enclosed in a Bohemian glass dome, and a current of water, running from an elevated tank, passes through conduits in the stomach tube and between the lamp and the glass dome, the constant circulation of the water keeping the lamp absolutely cold.

SMITH, KLINE & FRENCH CO.

of Infant and Invalid Food fame had an excellent exhibit at the meeting. Their representative, Dr. Wm. Phelps, shook hands with the physicians, and called attention to their well known Eskay's albuminized food. Their souvenir pocket book was given to physicians; it is not only attractive and durable, but extremely useful.

SHARP & SMITH, Chicago

the old reliable surgical instrument house made a fine exhibit of all the latest instruments, among them being the Harris instrument for collecting the urine from each kidney separately. The exhibit was in charge of Zan Cotter, who seems to know all the doctors and their wants. He reports that business was good.

THE TROMMER EXTRACT OF MALT CO., Freemont, Ohio

was ably represented by Col. Paul Plessner, Vice-President of this well-known concern. Attention was called to the following preparations: Trommer extract of malt; Trommer extract of malt with alteratives; Trommer extract of malt with cascara sagrada; Trommer extract of malt with cod liver oil; Trommer extract of malt with cod liver oil and hypophos.; Trommer extract of malt with pepsin; Trommer extract of malt with hypophosphites; Trommer extract of malt, ferrated; Trommer extract of malt with citrate of iron and quinia; Trommer extract of malt with yerba santa, etc.

TARRANT & CO.

The interests of the above firm at the A. M. A., were looked after in a very efficient manner by Dr. Ward R. Ford who was kept very busy shaking hands with the multitude of doctors who crowded about the display of those old and thoroughly reliable preparations, Leopold Hoff's Malt Extract and Tarrant's Seltzer

Aperient. As a nutritive tonic "Leopold Hoff's" malt is the most popular malt extract with the medical profession, who has learned to use it with all convalescents.

CHAS. TRUAX, GREENE & CO., Chicago

displayed an assortment of instruments for general surgery, and a line of models of hospital furniture; a large generator for the liberation of formaldehyde gas created a great deal of interest. A line of Boeckmann's over-steam sterilizers were also shown and the advantages of this system were demonstrated. Several patterns of centrifugal precipitators for the rapid sedimentation of blood and urine were also shown, some of these being exhibited with ball-bearings.

THE UPJOHN PILL AND GRANULE COMPANY'S

display was as unique as their product "friable pills." Displayed on finely polished bird's-eye maple panels is an assortment of friable pills shown under beveled edged glass disks, tastefully grouped as to color and size, making one of the handsomest if not the most showy exhibit in the hall. The popularity of this Company is evidenced by the almost universal wearing of the souvenir pin presented by them to the members of the ASSOCIATION.

WILLIAM R. WARNER & CO.

were present with "Deacon Roach," C. B. McCall and F. H. Stevenson in charge. Located as they were, directly at the entrance, rendered them most accessible, and the profession with their wives and daughters made numerous calls, frequently indulging in a dose of bromo soda or tono sumbul cordial.

WHITE ROCK MINERAL SPRING CO.

The characteristic liberality of this Company was again a feature of the annual meeting of the AMERICAN MEDICAL ASSOCIATION. White Rock ozonate lithia water was served on most all physicians' trains running into Denver from all cities of the country. It was served without stint at their elegant display in the exhibit hall and at their parlors in the Brown Palace. It was on all menu cards of section banquets without an exception, which evidences its popularity with the profession. Chas. A. Welch, manager of the Springs, assisted by Messrs. Westvere, Schmitt and Parker were in charge.

THE EMIL WILLBRANDT SURGICAL M'F'G CO.

of St. Louis, exhibited one of the largest lines of surgical instruments and hospital furniture. They were represented by Mr. Emil Willbrandt and Mr. F. A. Clark, and their goods showed by their appearance and finish their fine quality. They say the meeting was a successful one to them and that they took a large number of good orders.

JOHN WYETH & BRO.

of Philadelphia, Pa., manufacturers of elegant pharmaceutals, presented one of the finest displays in the building, consisting of elixirs, wines, syrups, pills, tablets and fluid extracts, and was in every sense of the word an exclusive pharmaceutic display, and showed to advantage the product of this well known firm. The exhibit was in charge of their popular representatives, S. S. Watfield and R. E. Blackman.

CANTON SURGICAL AND DENTAL CHAIR CO.,

represented by T. L. Adams, 1141 Broadway, Denver, Colo., showed the "Yale Physician's Chair." It is a distinct invention, and is the pioneer in this peculiar line of surgical chairs, since it is the only chair for the physician that is raised by a pedal lever and lowered by an automatic device. (No other chair can compare with the "Yale" for completeness, strength, adaptation, convenience and finish.

YUCCA M'F'G CO.

The last on the list, but near the head in matter of interest manifested, was the exhibit of the Yucca Manufacturing Co. of Los Angeles, Cal., and Jackson, Mich. Yucca is comparatively a new splint material to most of the doctors, but they are all quick to realize its many advantages over other more expensive materials.

Quite a number of Western doctors who had used it for some time were very warm in its praise, and took especial pains to bring their Eastern friends to see the exhibit and explain to them its merits. Yucca is becoming a very popular splint material.

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